

ARCH[®]

Cutting Tools

- Milling
- Drilling
- Finishing
- Contouring
- Slotting
- Turning
- Boring
- Tool Holding
- Custom Solutions

THE
COLLECTION

THE COMPLETE TOOL MAKING AUTHORITY[®]

2023

THE COLLECTION



ARCH Cutting Tools Master Catalog : The Collection

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3rd Edition, 2023

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Completed by ARCH Cutting Tools Marketing

ARCH[®]

Cutting Tools



We are excited to present our expanded standard cutting tool offering, built upon a rich heritage of high-quality domestic manufacturing.

The Collection brings the offerings of our four diverse product series – KEO, Ultra-Dex, Revere, and Patriot High Performance – into one, easy-to-use catalog. The KEO product series consists of solid round tooling in many profiles and substrates. This almost 85-year-old offering was recently expanded to include advanced, proprietary coatings and over 6,000 micro tools. The Ultra-Dex and Revere product series house our indexable tooling, insert, and tool-holding offering. And the Patriot High Performance product series consists of solid carbide milling and drilling, as well as indexable milling, drilling, turning, and anti-vibration boring, for high-production environments and difficult-to-machine materials.

Our customers called for ease of doing business and a broader tooling portfolio with accessible stocked standards, and we listened. We designed The Collection to be “Easy to Choose, Easy to Use” for the reader. Its streamlined format places technical and application information next to charts with product attributes, which makes tool selection simple. In combination with our state-of-the-art distribution center in Warren, Michigan, The Collection allows our team to stay nimble and service customers effectively.

If you are reading this letter in a print catalog, we encourage you to browse The Digital Catalog on our website. Simply scan the QR code below to access the latest searchable and fully linked document.

From a standard solid round and indexable tooling with ISO 13399 attributes, to complex custom tools that combine several functions into one, our ambition is to be Your Tool Making Authority.

Thank you,

Jeff Cederstrom





TABLE OF CONTENTS



MICRO TOOL ICON

Chapter 1: Rotating

Indexable Milling

13

Patriot High Performance Indexable Mills PM1	14
Patriot High Performance Indexable Mills PM4	16
Patriot High Performance Indexable Mills PM2	18
Patriot High Performance Indexable Mills PM3	20
Revere Indexable Face Mill F90AP	22
Revere Arbor Mount Indexable Round Cutter FR	26
Revere Indexable Mill E90 AP	28
Revere Weldon Shank Indexable Round Cutter ER	32



Solid Milling

34

Patriot High Performance, Square End, Standard & Stub	36,44,50
Patriot High Performance, Square End, Long & X-Long	37,45,51
Patriot High Performance, Corner Radius, Standard & Stub	38,39,46,48,51,52
Patriot High Performance, Corner Radius, Standard, Roughing/Chipbreaker	40
Patriot High Performance, Corner Radius Long & X-Long	41,49,53
Patriot High Performance, Ball End, Standard & Stub	42
Patriot High Performance, Ball End, Long & X-Long	43
Square End, Standard	54
Square End, Stub 30° Helix	58
Square End, Long Shank, Stub 30° Helix	62
Square End, Long Shank, Long Reach, Stub 30° Helix	63
Square End, Long Reach	66
Square End, Long Flute, Long Reach 30° Helix	67
Square End, Extra Long Flute 30° Helix	68
Square End, Multi - Flute/High Helix 35° / 45° Helix	69
Square End, Standard & Stub, CVD Coated 30° Helix	70
Square End, Long Reach, CVD Coated	71
Square End, Standard & Stub 30° Helix	72
Square End, Double End, Stub 30° Helix	74
Square End, Long Flute, Long Reach-Stub Gmills 35° Helix	76
Square End, Multi-Flute	78
Square End, High Helix 45° / 60° Helix	79
Square End, Standard Metric 30° Helix	80
Square End G Mills Metric 35° Helix	81
Corner Radius, Standard 30° Helix	82
Corner Radius, Stub 30° Helix	85
Hard Mill, Stub 18° Low Helix	86
Ball End, Standard 30° Helix	87
Ball End, Stub 30° Helix	91
Ball End, Long Shank, Stub 30° Helix	95
Ball End, Long Shank, Long Reach, Stub 30° Helix	96
Ball End, Long Reach 30° Helix	99
Ball End, Long Flute, Long Reach 30° Helix	100
Ball End, Extra Long Flute 30° Helix	101
Ball End, Standard & Stub, CVD Coated 30° Helix	102
Ball End, Long Reach, CVD Coated	103
Q Mills, Standard & Stub 35° Helix	104
QSR & QB Mills 35° Helix	105
Ball End, Standard & Stub 30° Helix	106
Ball End, Long Flute 30° / 35° Helix	108
Ball End, Long Reach G Mills 35° Helix	109
Ball End, Standard Metric 30° Helix	111
Ball End G Mills Metric 35° Helix	112





TABLE OF CONTENTS

Chapter 1: Rotating

Ball Tapered Rib Cutters	113
Corner Radius Tapered Rib Cutters.....	114
Single End, Square End, Standard 35° / 40° Helix	115
Single End, Square End, Stub 35° / 40° Helix	116
Single End, Square End, Standard 35° / 40° Helix	117
Double End, Square End, Standard 35° / 40° Helix.....	118
Double End, Square End, Stub 35° / 40° Helix.....	119
Double End, Square End, Long Flute 35° / 40° Helix	120
Single End, Ball End, Standard 35° / 40° Helix.....	121
Single End, Ball End, Stub 35° / 40° Helix.....	123
Double End, Ball End, Standard 35° / 40° Helix	124
Double End, Ball End, Stub 35° / 40° Helix.....	125
Double End, Ball End, Long Flute 35° / 40° Helix.....	126
PCD Tipped End Mills	127



Indexable Drills 128

Patriot High Performance Indexable Drills	129
Patriot High Performance Indexable Drills-2xD PD1	130
Patriot High Performance Indexable Drills-3xD PD1	131
Patriot High Performance Indexable Drills-4xD PD1	132
Patriot High Performance Indexable Drill Recommended Speeds & Feeds PD1.....	133
Revere Indexable Drills.....	134
Revere Indexable Drills-2xD	135
Revere Indexable Drills-2.5xD	136
Revere Indexable Drills-4xD	136
Revere Indexable Drill Recommended Speeds & Feeds.....	138



Solid Drills 139

Patriot High Performance Solid Carbide, Coolant Through, Imperial	140
Patriot High Performance Solid Carbide, Coolant Through, Metric	149
Circuit Board Drills 20° Angle.....	156



Spotting Drills 160

NC Spotting Drills 82° / 90° / 100° Angle	161
NC Spotting Drills 120° / 130° / 140° / 150° Angle.....	162
NC Spotting Drills 90° / 120° / 140° Angle	163
NC 82° / 90° / 120° / 142° Angle	164
NC 82° / 90° Angle.....	165
NC 120° Angle	166
Metric NC 90° / 120° Angle	166
90° / 118° Angle	167



Center Drills 168

Solid Plain Type 60° / 82° / 90 Angle and Plain Type Countersink and Counterbore set.....	169
Double End Radius Type 82° / 90° Angle	174
Double End Bell Type 60° Angle	175
Single End Plain Type Hey & Single End Bell Type Hey 60° Angle	175
Double End Plain Type Hey 60° Angle.....	177
Double End Bell Type Hey 60° Angle.....	178
Jig Bore Type 60° Angle and Jigbore and Countersink Set	179
Metric Double End Type A 60° Angle	180
Metric Double End Type B 60° Angle.....	181
Metric Double End Type R	182
Metric Double End Long Series 60° Angle.....	183



TABLE OF CONTENTS

Chapter 1: Rotating

Countersinks	185
Zero-Flute Countersinks 60° / 82° / 90° Angle	186
Zero-Flute Countersinks 100° Angle and Zero Flute Countersink Set	187
Single-Flute Countersinks 60° / 82° / 90° / 100° Angle and Single-Flute Countersink Set	188
Single-Flute Countersinks 60° / 82° / 90° Angle	189
Single-Flute Countersinks 100° / 110° / 120° Angle	190
Single-Flute Countersinks 60° / 82° / 90° Angle	191
Single-Flute Countersinks 100° / 110° / 120° Angle and Single-Flute Countersink Set	192
3-Flute Countersinks 60° / 82° / 90° / 100° Angle	193
3-Flute Euro Style Countersinks 60° / 82° / 90° / 100° Angle	194
3-Flute Center Reamers 60° / 82° / 90° Angle	195
3-Flute Center Reamers 100° / 110° / 120° Angle	196
3-Flute Center Reamers 60° / 82° / 90° Angle	197
3-Flute Center Reamers 100° / 110° / 120° Angle and 3 Flute Center reamer set	198
4-flute Machine Straight Shank 60° / 82° / 90° Angle	199
4-flute Center Reamers 60° / 82° / 90° Angle	200
6-Flute Countersinks 60° / 82° / 90° / 100° Angle	201
6-Flute Countersinks 60° / 82° Angle	202
6-Flute Countersinks 90° / 100° Angle	203
6-Flute Countersinks 110° / 120° Angle	204
6-Flute Countersinks 60° / 82° Angle	205
6-Flute Countersinks 90° / 100° Angle	206
6-Flute Countersinks 110° / 120° Angle and 6-Flute Countersink Set	207
Counterbores	208
Patriot High Performance Indexable Counterbores	209
Patriot High Performance Indexable Counterbores PC1	210
Patriot High Performance Indexable Counterbores PC2	212
Patriot High Performance Indexable Counterbores PC3	214
Socket Head Cap Screw Imperial & Counterbore Set	216
Socket Head Cap Screw Metric (DIN373) & Metric Counterbore Set	217
Countersink CAP Screw Drill 82° Angle	218
Drill & Chamfer Mills	219
Revere EC Indexable Chamfer Mills	220
2-Flute Chamfer Mills Single End 30° - 150° Angle	222
4-Flute Chamfer Mills Single End 60° - 120° Angle	224
3-Flute & 4-Flute Tipped Off Chamfer Mills 30° - 150° Angle	225
2-Flute & 4-Flute Double End Chamfer Mills 60° / 82° / 90° / 120° Angle	226
2-Flute & 4-Flute Single End Chamfer Mills 60° / 90° Angle	227
2-Flute & 4-Flute Coated Drill Point Mills 60° / 90° Angle	228
Engraving Tools	229
1-Flute Engraving Cutters Pointed End 10° - 120° Angle	230
1-Flute Engraving Cutters Radius End 30° / 40° / 60° / 90° Angle	232
1-Flute Engraving Cutters Flat End 30° / 40° / 60° / 90° Angle	233
1-Flute & 2-Flute Engraving Cutters Flat End 30° - 120° Angle	234
2-Flute Web Marking Radius End 30° - 120° Angle	235
Corner Rounding	236
2-Flute Imperial Double End Radius	237
4-Flute Imperial Double End Radius	239
2-Flute Imperial Single End Micro Long Reach Radius	240
2-Flute & 4-Flute Imperial Double End Radius	241





TABLE OF CONTENTS

Chapter 1: Rotating

4-Flute Imperial & Metric Single End Radius	243
4-Flute Imperial Single End Radius	244
Concave & Convex Radius	245
Keyseat Cutters	246
6-Flute Small Solid Shank Type	247
6-Flute & 8-Flute Solid Shank Type	248
Woodruff Shank Type	250
Woodruff Combination Sets	256
Metric Woodruff Shank Type DIN850	257
Imperial Narrow Width Shank Type	259
Dovetail Cutters	260
Single Angle 45° / 60°	261
Single Angle & Double Angle Shank Type 45° / 60° / 90°	262
T-Slot Cutters	263
Imperial Standard Slot	264
Imperial Rough/Finish Slot	265
Slotting Mills	267
Side, Staggered Tooth	268
Staggered Tooth Woodruff Keyseat	277
Side, Straight Tooth	278
Double-Angle & Standard Diameter Convex	282
Right/Left-Hand Single-Angle 45° / 60° Helix	283
Large Diameter Convex & Concave	284
Right/Left-Hand Corner-Rounding	285
Side, Staggered Tooth	286
Side, Staggered/Straight Tooth	288
Plain/Shell Mills	289
Right-Hand Cut	290
Right-Hand Cut & Roughing	291
Plain Mill Right/Left Hand 18° Helix	293
Plain Mill Right/Left Hand 45° Helix	294
Slitting/Jeweler Saws	295
Straight Side Tooth	296
Staggered Tooth & Straight Side Tooth	298
Concave, Slitting Saw	300
Screw Slotting	301
Jewelers Saw	302
Slitting Saw, Straight Tooth & Staggered Tooth	305
Custom Solutions	306
ARCH Specials Overview	307
ARCH Specials Solid Round Tools	309
ARCH Specials Indexables:Rotating & Non-Rotating	310
ARCH Specials Custom PCD Tooling	311
ARCH Services	312



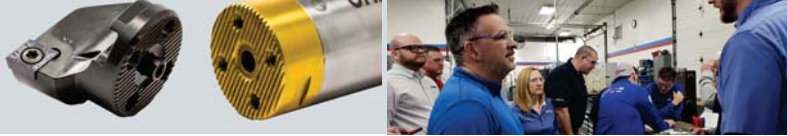


TABLE OF CONTENTS

Chapter 1: Rotating

Tool Holders	313
Revere CAT40 ER Collet	314
CAT40 Weldon Side Lock	316
Revere CAT40 Arbor Mount	320
Patriot High Performance CAT40 Imperial Shrink Fit	321
Revere CAT40 Jacobs Taper/Blanks	322
Revere CAT50 ER Collet	323
CAT50 Weldon Side Lock	325
Revere CAT50 Arbor Mount	329
Patriot High Performance CAT50 Imperial Shrink Fit	330
Revere CAT50 Jacobs Taper/Blank	331
CAT retention Knobs	332
CAT40-50 Machine Cross reference	333
Revere HSK40-63A ER Collect	335
Revere HSK63A Weldon Side Lock	337
Revere HSK63A Arbor Mount /Blanks	339
Patriot High Performance HSK63A Imperial Shrink-Fit	340
Patriot High Performance HSK63A Metric Shrink-Fit	341
Revere HSK80-125A ER Collet	342
Revere HSK100A Weldon Side Lock	344
Revere HSK100A Arbor Mount/Blanks	346
Patriot High Performance HSK100A Imperial Shrink-Fit	347
Patriot High Performance HSK100A Metric Shrink-Fit	348
Patriot High Performance HSK Coolant Tubes/Sockets & Shrink Fit Extensions	349
Revere Straight Shank ER Collet Extensions	350
Revere Carbide Straight Shank ER Collet Extensions	351
Revere Imperial Sealed Collets	352
Revere Metric Sealed Collets	353
Revere Imperial Standard Collets	354
Revere Metric Standard Collets	356
Revere ISO Milling Bars	358



Chapter 2: Non-Rotating

Inserts	359
Insert Nomenclature	361
Insert Speeds & Feeds/ Chipbreaker Designation	362
Insert Grades	363
Turning Inserts	364
Threading Inserts	376
Grooving Inserts	378
OD Turning	380
Revere Square Shank Pullback	381
Square Shank	383
Square Shank Threading/Grooving	393
Square Shank Undercut & Profiling and Swiss Style	394
ID Turning	395
Steel Boring Bars	396
Steel Boring Bars, Positive	397
Steel Boring Bars, Negative	409
Steel Boring Bars, Threading/Grooving	414
Steel Boring Bars Kits	415
Steel Boring Bars, Reduced Neck	416
Revere Carbide Boring Bars	419
Revere Carbide Boring Bars, Metric, Positive	420





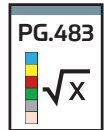
TABLE OF CONTENTS

Chapter 2: Non-Rotating

Revere Carbide Boring Bars, Positive	421
Revere Carbide Boring Bars, Negative	433
Revere Carbide Boring Bars, Threading/Grooving	436
Revere Carbide Boring Bars, Reduced Neck	437
Revere Carbide Micro Boring Bars	438
Boring Bars Services	439
Revere Heavy Metal Boring Bars.....	440
Revere Heavy Metal Boring Bars, Positive	441
Modular Boring Bars	444
Modular Bars.....	445
Modular Heads, Positive	447
Modular Heads, Negative	451
Modular Heads, Threading/Grooving	456
Patriot High Performance Boring Bars	458
Patriot High Performance Imperial Boring Bars	459
Patriot High Performance Metric Boring Bars	460
Patriot High Performance Imperial Solid Boring Bars	461
Patriot High Performance Standard Boring Bars, CFT style	462
Patriot High Performance Standard Heads, Positive	463
Patriot High Performance Standard Heads, Negative	465
Patriot High Performance Serrated Heads, Threading/Grooving.....	469
Patriot High Performance Imperial Serrated Modular Boring Bars	470
Patriot High Performance Imperial Serrated Boring Bars	471
Patriot High Performance Metric Serrated Boring Bars	472
Patriot High Performance Serrated Heads, Positive	473
Patriot High Performance Serrated Heads, Pullback.....	475
Patriot High Performance Serrated Heads, Threading/Grooving.....	477
Patriot High Performance Boring Bars Setup recommendations.....	478
Tool Bushings Sleeves.....	482



Technical Information	483
Coatings Guide	484
Patriot Indexable High Performance Indexable Mill Speeds & Feeds PM1	485
Patriot Indexable High Performance Indexable Mill Speeds & Feeds PM4	486
Patriot Indexable High Performance Indexable Mill Speeds & Feeds PM2	487
Patriot Indexable High Performance Indexable Mill Speeds & Feeds PM3	488
Revere Indexable Face/Shoulder Mill Speeds & Feeds E90AP/F90AP	489
Revere Indexable Profile/Button Cutter Speeds & Feeds ER/FR	491
Patriot High Performance End Mill Speeds & Feeds	492
End/Chamfer Mill Speeds & Feeds.....	493
Patriot High Performance Indexable Drill Speeds & Feeds PD1	494
Patriot High Performance Drill Offset PD1	495
Revere Indexable Drill Speeds & Feeds	496
Patriot High Performance Solid Carbide Drill Speeds & Feeds	497
Standard Drills Speeds & Feeds.....	498
Patriot High Performance Indexable Counterbores Speeds & Feeds PC1, PC2, PC3.....	499
Revere EC Indexable Chamfer Mill Speeds & Feeds	500
Corner Rounding Mill Speeds & Feeds.....	501
Woodruff Keyseat Cutter Speeds & Feeds	502
Slitting/Jewelers Saw Speeds and Feeds.....	503
OD Turning Tool Nomenclature.....	504
ID Turning Tool Nomenclature	505
Tolerances For Arbor Mount Cutters & Saws.....	509
Interlocking Set Information	510
Millimeters to Inches Conversion Chart	511
Technical Formulas	512



CHAPTER 1

ROTATING

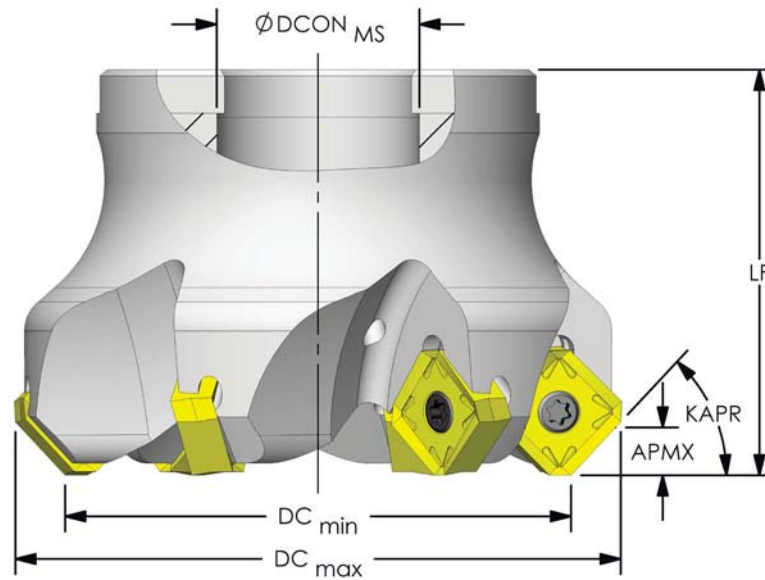
INDEXABLE MILLING

ARCH[®]
Cutting Tools



PM1

- First choice for face and chamfer milling
- Well balanced radial and axial cutting forces
- Not prone to vibration in long overhang applications
- Positive geometry double side insert with 8 cutting edges
- Directed through coolant for longer tool life



KAPR: 45°



PRODUCT #	DESIGNATION	DCmax [in.]	DCmin [in.]	APMX [in.]	ZC	LF [in.]	DCONMS [in.]	KAPR [°]	Insert	Screw
970-000-092	PM1-1.25-3-.500-12	1.738	1.250	0.236	3	1.750	0.500	45.0	PM1 1205	PM1-4
970-000-093	PM1-1.50-4-.500-12	1.988	1.500	0.236	4	1.750	0.500	45.0	PM1 1205	PM1-4
970-000-094	PM1-2.00-5-.750-12	2.488	2.000	0.236	5	1.750	0.750	45.0	PM1 1205	PM1-4
970-000-095	PM1-2.50-6-1.00-12	2.988	2.500	0.236	6	2.000	1.000	45.0	PM1 1205	PM1-4
970-000-096	PM1-3.00-8-1.00-12	3.488	3.000	0.236	8	2.000	1.000	45.0	PM1 1205	PM1-4
970-000-097	PM1-4.00-10-1.25-12	4.488	4.000	0.236	10	2.000	1.250	45.0	PM1 1205	PM1-4



Recommendations:

- Keep the cutter constantly engaged, when possible, to reduce enter and exit onto the machined component
- Utilize roll technique around all corners to avoid harsh directional changes
- The width of cut, a_p , should be 30% or 70% of DC to ensure maximum efficiency and process security
- Program tool paths around interruptions and holes when possible



HCX



SCX



PRODUCT #	DESIGNATION	HP470	HM470	HS470	HS480	HK430	HN432
914-000-104	PM1 1205-HCX	•					
914-000-105	PM1 1205-HCX					•	
914-000-106	PM1 1205-SCX		•				
914-000-107	PM1 1205-SCX			•			

PACKAGE SIZE OF 10

PART #	INSERT SCREW
968-000-119	PM1-4
968-000-120	PM2-3
968-000-121	PM2-4
968-000-122	PM3-35
968-000-123	PM4-4

PACKAGE SIZE OF 5

Chipbreaker:

HCX : Medium to roughing applications in steel and cast iron

SCX : Medium to finishing application in steels, stainless steels, hardened steels, and super alloys

ISO	MATERIAL	HARDNESS	Chipbreaker	GRADE	Vc (SFM)*	Fz (INCH PER TOOTH)*
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HCX	HP470	300-800	.005 - .020
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC			220-720	.003 - .018
M	STAINLESS STEELS (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	SCX	HM470	230-650	.003 - .0015
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC			260-700	.003 - .015
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	HCX	HK430	400 - 1100	.005 - .022
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC			350 - 850	.005 - .016
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	SCX	HS470	80-280	.004 - .011
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	SCX	HS470	60 - 250	.003 - .009
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC			90 - 300	.004 - .012

Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

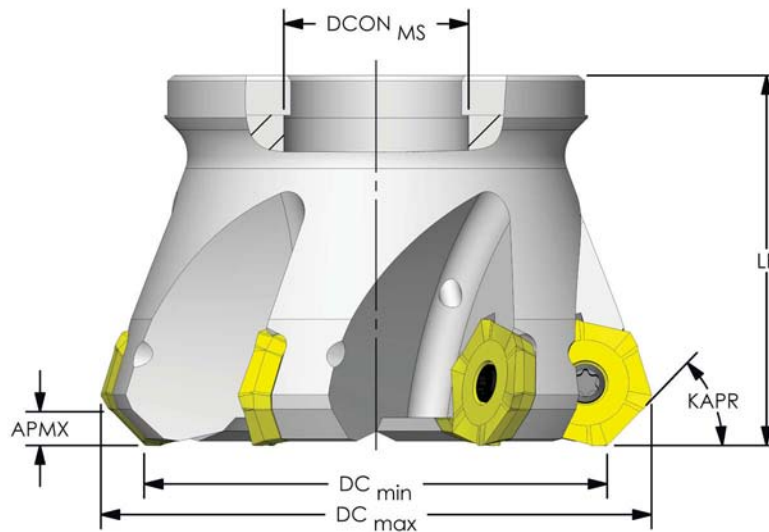
*LOWER Vc AND Fz = MED.- HEAVY Ap / Ae

*HIGHER Vc AND Fz = LIGHT-MED. Ap / Ae



PM4

- First choice for face and chamfer milling in low-powered machines
- Well balanced radial and axial cutting forces
- Not prone to vibration in long overhang applications
- True 45° entry angle
- Positive geometry insert with 6 cutting edges for cost efficiency
- Directed through coolant for longer tool life



KAPR: 45°



PRODUCT #	DESIGNATION	DCmax [in.]	DCmin [in.]	APMX [in.]	ZC	LF [in.]	DCONMS [in.]	KAPR [°]	Insert	Screw
970-000-110	PM4-1.50-4-.500-06	1.980	1.500	0.177	4	1.750	0.500	45.0	PM4 0604	PM4-4
970-000-111	PM4-2.00-5-.750-06	2.480	2.000	0.177	5	1.750	0.750	45.0		
970-000-112	PM4-2.50-6-1.00-06	2.980	2.500	0.177	6	2.000	1.000	45.0		
970-000-113	PM4-3.00-7-1.00-06	3.480	3.000	0.177	7	2.000	1.000	45.0		
970-000-114	PM4-4.00-9-1.25-06	4.480	4.000	0.177	9	2.000	1.250	45.0		

Recommendations:

- Keep the cutter constantly engaged, when possible, to reduce enter and exit onto the machined component
- Utilize roll technique around all corners to avoid harsh directional changes
- The width of cut, a_e , should be 30% or 70% of DC to ensure maximum efficiency and process security
- Program tool paths around interruptions and holes when possible



PRODUCT #	DESIGNATION	HP470	HM470	HS470	HS480	HK430	HN432
914-000-125	PM4 0604-HCX	•					
914-000-124						•	
914-000-127	PM4 0604-SCX		•				
914-000-128				•			
914-000-126	PM4 0604-LCX						•

PACKAGE SIZE OF 10

Part #	Insert Screw
968-000-119	PM1-4
968-000-120	PM2-3
968-000-121	PM2-4
968-000-122	PM3-35
968-000-123	PM4-4

PACKAGE SIZE OF 5

Chipbreaker:

HCX : Strong cutting edge. Medium to roughing applications in steels and cast irons

SCX : Sharp cutting edge. Medium to finishing application in steels, stainless steels, hardened steels, and super alloys

LCX : Positive up sharp cutting edge. Light finishing to medium roughing applications in non ferrous materials

ISO	MATERIAL	HARDNESS	Chipbreaker	GRADE	Vc (SFM)*	Fz (INCH PER TOOTH)*
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HCX	HP470	300-800	.005 - .018
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC			220-720	.005 - .016
M	STAINLESS STEELS (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	SCX	HM470	230-650	.003 - .012
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC			260-700	.003 - .014
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	HCX	HK430	400 - 950	.005 - .020
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC			350 - 800	.005 - .016
N	NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	LCX	HK430	400 - 1100	.007 - .020
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	SCX	HS470	80-250	.004 - .011
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	SCX	HS470	60 - 200	.003 - .008
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC				.003 - .010

Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

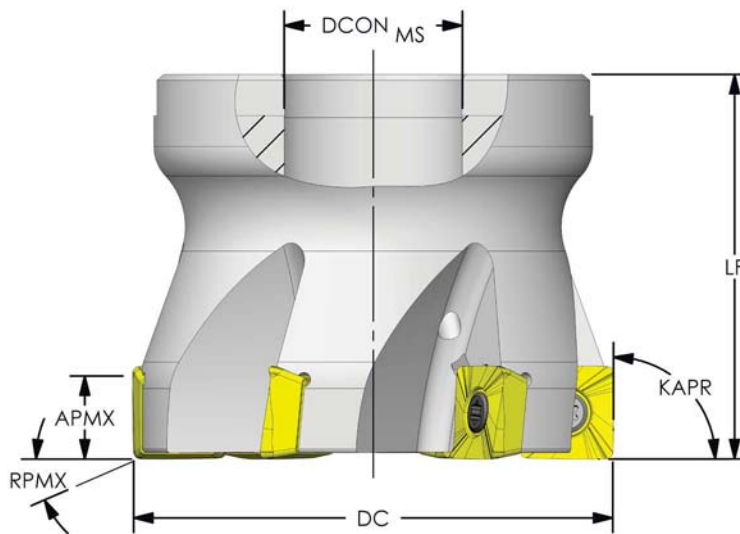
*LOWER Vc AND Fz = MED.- HEAVY Ap / Ae

*HIGHER Vc AND Fz = LIGHT-MED. Ap / Ae



PM2

- First choice for shoulder and slot milling
- Excellent surface finish
- High machine utilization of low-powered machines
- Precise insert location providing a true 90° shoulder
- Positive geometry with 4 cutting edges
- Directed through coolant for longer tool life and chip evacuation



KAPR: 90°



PRODUCT #	DESIGNATION	DC [in.]	APMX [in.]	ZC	LF [in.]	DCONMS [in.]	RPMX [°]	KAPR [°]	Insert	Screw
970-000-098	PM2-1.25-4-.500-09	1.250	0.314	4	1.750	0.500	2.20°	90.0	PM2 09T308	PM2-3
970-000-100	PM2-1.50-5-.500-09	1.500	0.314	5	1.750	0.500	0.75°	90.0		
970-000-102	PM2-2.00-6-.750-09	2.000	0.314	6	1.750	0.750	0.50°	90.0		
970-000-104	PM2-2.50-7-1.00-09	2.500	0.314	7	2.000	1.000	0.35°	90.0		
970-000-106	PM2-3.00-9-1.00-09	3.000	0.314	9	2.000	1.000	0.25°	90.0		
970-000-099	PM2-1.50-4-.500-12	1.500	0.394	4	1.750	0.500	0.75°	90.0	PM2 120508	PM2-4
970-000-101	PM2-2.00-5-.750-12	2.000	0.394	5	1.750	0.750	0.40°	90.0		
970-000-103	PM2-2.50-6-1.00-12	2.500	0.394	6	2.000	1.000	0.30°	90.0		
970-000-105	PM2-3.00-7-1.00-12	3.000	0.394	7	2.000	1.000	0.25°	90.0		

Recommendations:

- Keep the cutter constantly engaged, when possible, to reduce enter and exit onto the machined component
- Utilize roll technique around all corners to avoid harsh directional changes
- The width of cut, a_p , should be 30% or 70% of DC to ensure maximum efficiency and process security
- Program tool paths around interruptions and holes when possible



PRODUCT #	DESIGNATION	HP470	HM470	HS470	HS480	HK430	HN432
914-000-109	PM2 09T308-HCX	•					
914-000-111	PM2 09T308-SCX		•				
914-000-112				•			
914-000-113	PM2 09T308-CCX				•		
914-000-108						•	
914-000-110	PM2 09T308-LCX						•
914-000-115	PM2 120508-HCX	•					
914-000-116	PM2 120508-SCX		•				
914-000-117					•		
914-000-118	PM2 120508-CCX				•		
914-000-114						•	

Part #	Insert Screw
968-000-119	PM1-4
968-000-120	PM2-3
968-000-121	PM2-4
968-000-122	PM3-35
968-000-123	PM4-4

PACKAGE SIZE OF 5

PACKAGE SIZE OF 10

Chipbreaker:

HCX : Strong cutting edge. Medium to roughing applications in steels and cast irons

SCX : Sharp cutting edge. Medium to finishing application in steels, stainless steels, hardened steels, and super alloys

CCX : Strong cutting edge for cast iron applications

LCX : Positive up sharp cutting edge. Light finishing to medium roughing applications in non ferrous materials

ISO	MATERIAL	HARDNESS	Chipbreaker	GRADE	Vc (SFM)*	Fz (INCH PER TOOTH)*
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HCX	HP470	230-800	.003 - .010
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC			230-700	.003 - .008
M	STAINLESS STEELS (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	SCX	HM470	200-600	.003 - .009
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC			200-600	.003 - .009
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	CCX / HCX	HK430	400 - 950	.004 - .015
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC			300 - 700	.003 - .011
N	NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	LCX	HK430	400 - 1000	.006 - .018
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	SCX / HCX	HS470	80-250	.003 - .009
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	SCX	HS470	60 - 200	.0025 - .007
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC			90 - 350	.003 - .010

Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

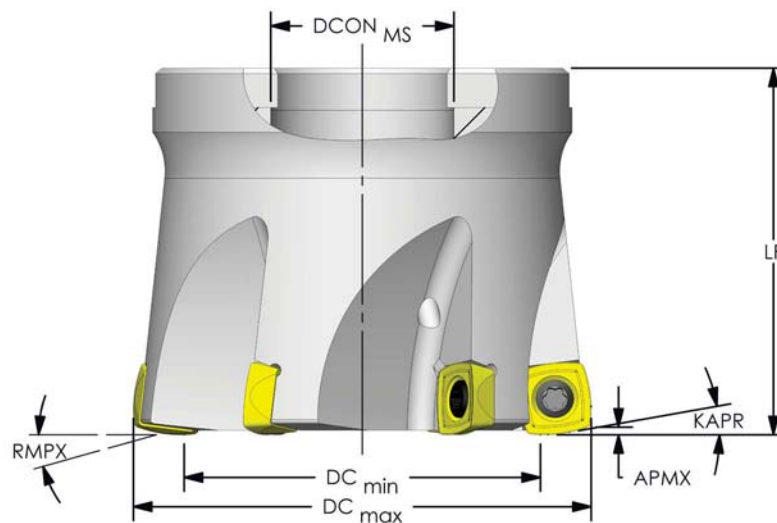
*LOWER Vc AND Fz = MED.- HEAVY Ap / Ae

*HIGHER Vc AND Fz = LIGHT-MED. Ap / Ae



PM3

- First choice for high feed and plunge milling or face milling with long overhang
- Helical interpolation and ramping capabilities
- Low radial cutting forces allow for aggressive feed rates
- Excels in ISO M and S materials
- High metal removal rates
- Positive insert geometry with 4 cutting edges
- Directed through coolant for longer tool life and chip evacuation



KAPR: 10°

PRODUCT #	DESIGNATION	DCXmax [in.]	DCmin [in.]	APMX [in.]	ZC	LF [in.]	DCONMS [in.]	RMPX [in.]	KAPR [°]	Insert	Screw
970-000-107	PM3-1.50-4-.500-10	1.500	1.035	0.039	4	1.750	0.500	1.2°	10.0	PM3 10T308	PM3-3.5
970-000-108	PM3-2.00-5-.750-10	2.000	1.535	0.039	5	1.750	0.750	0.9°	10.0		
970-000-109	PM3-2.50-6-1.00-10	2.500	2.035	0.039	6	1.750	1.000	0.8°	10.0		

Recommendations:

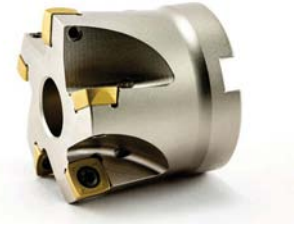
- Keep the cutter constantly engaged, when possible, to reduce enter and exit onto the machined component
- Utilize roll technique around all corners to avoid harsh directional changes
- The width of cut, ae, should be 30% or 70% of DC to ensure maximum efficiency and process security
- Program tool paths around interruptions and holes when possible



HCX



SCX



PRODUCT #	DESIGNATION	HP470	HM470	HS470	HS480	HK430	HN432
914-000-119	PM3 10T308-HCX	•					
914-000-120						•	
914-000-121	PM3 10T308-SCX		•				
914-000-122				•			
914-000-123					•		

PACKAGE SIZE OF 10

PART #	INSERT SCREW
968-000-119	PM1-4
968-000-120	PM2-3
968-000-121	PM2-4
968-000-122	PM3-35
968-000-123	PM4-4

PACKAGE SIZE OF 5

Chipbreaker:

HCX : Strong cutting edge for general steels, cast irons, and hard conditions in milling application

SCX : Sharp cutting edge for general stainless steels and super alloy applications

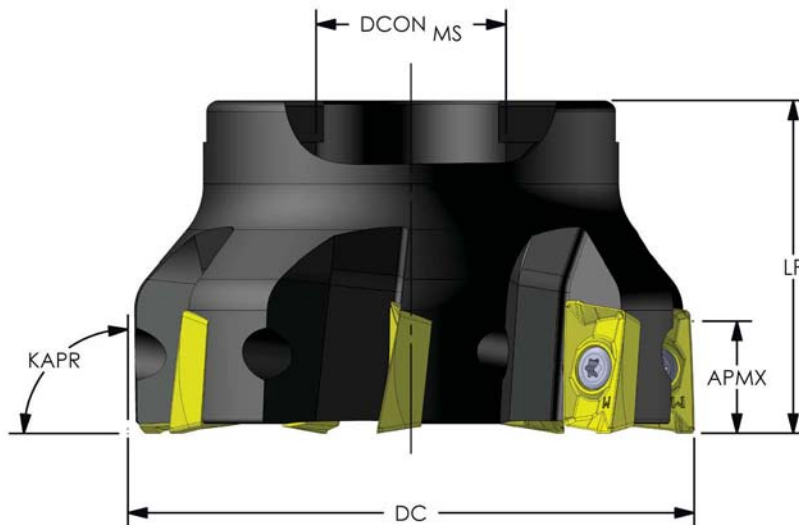
ISO	MATERIAL	HARDNESS	Chipbreaker	GRADE	Vc (SFM)*	Fz (INCH PER TOOTH)*
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HCX	HP470	220 - 820	.009 - .075
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC			220-720	.009 - .065
M	STAINLESS STEELS (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	SCX	HM470	230-650	.009 - .045
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC			260-700	.009 - .045
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	HCX	HK430	400 - 900	.009 - .063
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC			300 - 850	.009 - .055
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	SCX	HS470	100-350	.009 - .040
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	SCX	HS470	60 - 220	.007 - .035
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC			90 - 400	.008 - .050

*Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



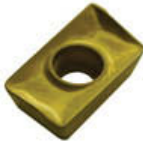
F90AP

- Shoulder and slot milling in ISO P, M, K, N, H and S material
- Ramping and helical interpolation capabilities
- Max depth of cut 0.472" (12mm)
- Excellent surface finish
- High machine utilization of low-powered machines
- Positive geometry insert
- Arbor mount connection with no through coolant



KAPR: 95°

PRODUCT #	DESIGNATION	DC [in.]	ZC	LF [in.]	APMX [in.]	DCONMS [in.]	KAPR [°]	Inserts	Screw
946-000-032	F90AP D2.00-5-.750-11	2.000	5	1.570	0.315	0.750	95.0	APKT 11T308	SR34505L
946-000-035	F90AP D2.50-7-1.00-11	2.500	7	1.750	0.315	1.000	95.0		SR34505L
946-000-038	F90AP D3.00-8-1.00-11	3.000	8	1.750	0.315	1.000	95.0		SR34505L
946-000-033	F90AP D2.00-5-.750-16	2.000	5	1.570	0.472	0.750	95.0	APKT 160408	SR14544
946-000-034	F90AP D2.50-5-1.00-16	2.500	5	1.750	0.472	1.000	95.0		SR14544
946-000-036	F90AP D3.00-5-1.00-16	3.000	5	1.750	0.472	1.000	95.0		SR14544
946-000-037	F90AP D3.00-7-1.00-16	3.000	7	1.750	0.472	1.000	95.0		SR14544
946-000-039	F90AP D4.00-7-1.25-16	4.000	7	2.000	0.472	1.250	95.0		SR14544



PRODUCT #	DESIGNATION	RADIUS	UD1	UD204	UD404	UD602
913-000-029				•		
913-000-030	APKT 11T304-PF	0.015			•	
913-000-031						•
913-000-039	APKT 11T308-PF	0.031		•		
913-000-040					•	
913-000-046	APKT 11T316-PF	0.062		•		
913-000-047					•	
913-000-051	APKT 160408-PF	0.031			•	
913-000-052						•
913-000-032				•		
913-000-033	APKT 11T304-PM	0.015			•	
913-000-034						•
913-000-041				•		
913-000-042	APKT 11T308-PM	0.031			•	
913-000-043						•
913-000-045	APKT 11T312-PM	0.046			•	
913-000-048	APKT 11T316-PM	0.062		•		
913-000-049					•	
913-000-053				•		
913-000-054	APKT 160408-PM	0.031			•	
913-000-055						•
913-000-035				•		
913-000-036	APKT 11T304-PR	0.015			•	
913-000-037						•
913-000-028	APKT 11T304-AL	0.015	•			
913-000-038	APKT 11T308-AL	0.031	•			
913-000-050	APKT 160408-AL	0.031	•			

PRODUCT #	Insert Screw
968-000-134	SR34505
968-000-133	SR14544
968-000-135	SR34505L

PACKAGE SIZE OF 5

PACKAGE SIZE OF 10

APKT 11T308



Depth of cut ↑

FEEED PER TOOTH (INCH)

AP (inch)	Light	Medium	Heavy
0.315	0.0028	0.0031	0.0039
0.236	0.0039	0.0047	0.0059
0.157	0.0047	0.0059	0.0079

f/t →

APKT 160408

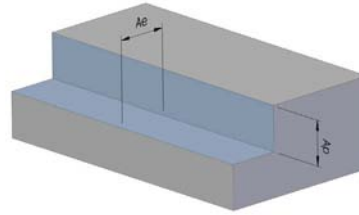


DEPTH OF CUT ↑

FEEED PER TOOTH (INCH)

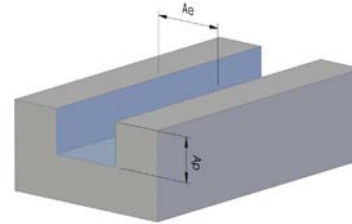
AP (inch)	Light	Medium	Heavy
0.472	0.0028	0.0031	0.0039
0.315	0.0039	0.0047	0.0059
0.197	0.0047	0.0059	0.0079

f/t →



				SQUARE SHOULDER MILLING			
				Fz (INCH PER TOOTH)*		APMX	
ISO	MATERIAL	HARDNESS	Vc (SFM)*	-PF /-AL	-PM /-PR	APKT11T3	APKT1604
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	550-900	0.003 - 0.009	0.003 - 0.012	0.315	0.472
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	450-850	0.003 - 0.0075	0.003 - 0.010	0.315	0.472
M	STAINLESS STEELS (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	350 - 875	0.003 - 0.009	0.003 - 0.012	0.315	0.472
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	250 - 800	0.003 - 0.0075	0.003 - 0.010	0.315	0.472
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	400 - 1000	0.004 - 0.010	0.004 - 0.012	0.315	0.472
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	300 - 800	0.004 - 0.012	0.004 - 0.012	0.315	0.472
N	NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	600-1200	0.004 - 0.014	0.004 - 0.016	0.315	0.472
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 555 BHN or ≤ 55 HRC	190 - 500	0.003 - 0.007	0.003 - 0.009	0.315	0.472
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	70-220	0.002 - 0.006	0.002 - 0.007	0.315	0.472
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC	230-450	0.003 - 0.0085	0.003 - 0.010	0.315	0.472

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



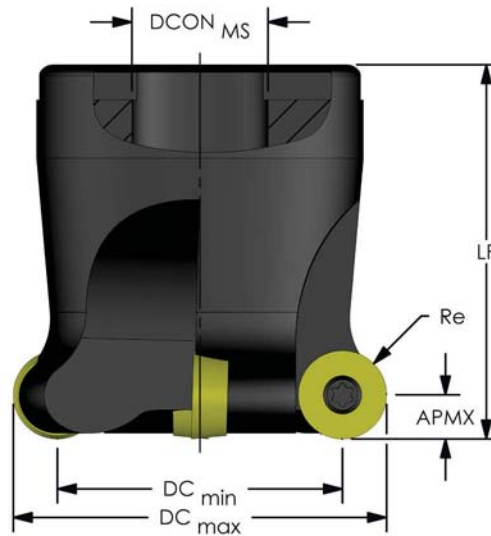
				SQUARE SLOT MILLING			
				Fz (INCH PER TOOTH)*		APMX	
ISO	MATERIAL	HARDNESS	Vc (SFM)*	-PF /-AL	-PM /-PR	APKT11T3	APKT1604
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	550-900	0.003 - 0.006	0.003 - 0.010	0.315	0.472
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	450-850	0.003 - 0.006	0.003 - 0.0085	0.315	0.472
M	STAINLESS STEELS (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	350 - 875	0.003 - 0.007	0.003 - 0.010	0.315	0.472
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	250 - 800	0.003 - 0.006	0.003 - 0.010	0.315	0.472
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	400 - 1000	0.004 - 0.008	0.004 - 0.010	0.315	0.472
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	300 - 800	0.004 - 0.008	0.004 - 0.010	0.315	0.472
N	NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	600-1200	0.004 - 0.011	0.004 - 0.014	0.315	0.472
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 555 BHN or ≤ 55 HRC	190 - 500	0.003 - 0.006	0.003 - 0.007	0.315	0.472
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	70-220	0.002 - 0.006	0.002 - 0.007	0.315	0.472
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC	230-450	0.003 - 0.006	0.003 - 0.008	0.315	0.472

*Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



FR ARBOR MOUNT

- Designed for profiling, contouring, and slot milling in ISO P, M, K, N, H and S materials
- Ramping and helical interpolation capabilities
- High feed milling capabilities
- Excellent surface finish
- High machine utilization of low-powered machines
- Positive geometry insert
- Arbor mount connection without through coolant



PRODUCT #	DESIGNATION	DCMAX [in.]	DCMIN [in.]	RE [in.]	L [in.]	DCONMS [in.]	APMX [in.]	ZC	INSERT	SCREW
946-000-041	FR-D2.00-4-.750-12	2.000	1.528	0.236 (6mm)	2.000	0.750	0.236 (6mm)	4	RCKT 1204	MTS-35
946-000-042	FR-D2.00-4-.750-4	2.000	1.500	0.250	2.000	0.750	0.250	4	RCMT 43	MTS-4
946-000-040	FR-D2.00-3-.750-16	2.000	1.370	0.315	2.000	0.750	0.315	3	RCKT 1606	MTS-4
946-000-044	FR-D3.00-5-1.00-4	3.000	2.500	0.250	1.750	1.000	0.250	5	RCMT 43	MTS-4
946-000-043	FR-D3.00-5-1.00-16	3.000	2.370	0.315	1.750	1.000	0.315	5	RCKT 1606	MTS-4
946-000-046	FR-D4.00-6-1.25-4	4.000	3.500	0.250	1.750	1.250	0.250	6	RCMT 43	MTS-4
946-000-045	FR-D4.00-6-1.25-16	4.000	3.370	0.315	1.750	1.250	0.315	6	RCKT 1606	MTS-4

Recommendations:

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

It is Recommended to use precision holders i.e. hydraulic, shrink fit



PRODUCT #	Insert Screw
968-000-087	MTS-184
968-000-088	MTS-2
968-000-092	MTS-255
968-000-082	MTS 25-DR
968-000-084	MTS 3-DR
968-000-083	MTS 35-DR
968-000-085	MTS 4-DR

PACKAGE SIZE OF 5

PRODUCT #	DESIGNATION	UD1	UD404	UD602
913-000-360	RDKW 0803		•	
913-000-361				•
913-000-337	RCKT 10T3	•		
913-000-338			•	
913-000-339				•
913-000-340	RCKT 1204	•		
913-000-341			•	
913-000-342				•
913-000-343	RCKT 1606		•	
913-000-344				•

PACKAGE SIZE OF 10

PRODUCT #	DESIGNATION	UD51	UD52	UD2	UD21	UD22
913-000-348	RCMT 21.5	•				
913-000-349			•			
913-000-345					•	
913-000-346						•
913-000-347	RCMT 32.5					•
913-000-353		•				
913-000-354			•			
913-000-350				•		
913-000-351					•	
913-000-352	RCMT 43					•
913-000-358		•				
913-000-359			•			
913-000-355				•		
913-000-356					•	
913-000-357						•

PACKAGE SIZE OF 10

ISO	MATERIAL	HARDNESS	GRADE	Vc (SFM)*	Fz (INCH PER TOOTH)* at 50% insert I.C. APMX**
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	UD51 UD52 UD404 UD602	300-850	.006 - .018
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC		200-700	.005 - .015
M	STAINLESS STEELS (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	UD32	200-650	.003 - .010
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC		260-700	.003 - .012
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	UD21	250-900	.005 - .020
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC		200-700	.005 - .015
N	NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	UD1 UD2	400-975	.006 - .020
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	UD32 UD404	80-400	.004 - .012
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	UD32 UD52 UD404	40-250	.003 - .008
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC		100-550	.003 - .010

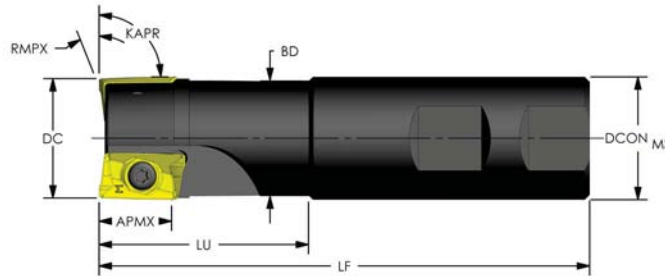
Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

** If the axial depth of cut (Ap) is less than 50% of the full radius Insert I.C., Increase the feed rate (Fz) to compensate for the thinning (Hex) of the actual chip thickness.



E90AP

- Shoulder and slot milling in ISO P, M, K, N, H and S material
- Ramping and helical interpolation capabilities
- Max depth of cut 0.472" (12mm)
- Excellent surface finish
- High machine utilization of low-powered machines
- Positive geometry insert
- Weldon shank connection with directed through coolant for longer tool life and chip evacuation



KAPR: 90°

No Coolant

PRODUCT #	DESIGNATION	DC [in.]	LF [in.]	LU [in.]	APMX [in.]	DCONMS [in.]	BD [in.]	RMPX [°]	ZC	KAPR [°]	Insert	Screw	
946-000-001	E90AP D0.500-1-W.500-11	0.500	3.375	0.975	0.315	0.500	0.455	10°	1	90.0	APKT 11T308	SR34505	
946-000-002	E90AP D.625-2-W.625-11	0.625	3.375	0.975	0.315	0.625	0.580	10°	2	90.0		SR34505	
946-000-003	E90AP D.750-2-W.750-11	0.750	3.375	0.975	0.315	0.750	0.705	5°	2	90.0		SR34505L	
946-000-005	E90AP D.750-3-W.750-11	0.750	3.375	0.975	0.315	0.750	0.705	5°	3	90.0		SR34505L	
946-000-007	E90AP D.750-3-W.750-6-11	0.750	6.000	3.000	0.315	0.750	0.705	5°	3	90.0		SR34505L	
946-000-010	E90AP D1.00-3-W.750-11	1.000	4.000	1.500	0.315	0.750	0.955	5°	3	90.0		SR34505L	
946-000-011	E90AP D1.00-3-W1.00-11	1.000	4.000	1.500	0.315	1.000	0.955	4.5°	3	90.0		SR34505L	
946-000-013	E90AP D1.00-3-W1.00-6-11	1.000	6.000	3.000	0.315	1.000	0.955	4.5°	3	90.0		SR34505L	
946-000-015	E90AP D1.250-3-W.750-11	1.250	4.000	1.500	0.315	0.750	1.205	3°	3	90.0		SR34505L	
946-000-016	E90AP D1.250-3-W1.00-11	1.250	4.000	1.500	0.315	1.000	1.205	3°	3	90.0		SR34505L	
946-000-021	E90AP D1.500-5-W1.00-11	1.500	4.000	1.500	0.315	1.000	1.475	2°	5	90.0		SR34505L	
946-000-008	E90AP D1.00-2-W1.00-16	1.000	4.000	1.750	0.472	1.000	0.940	6°	2	90.0		APKT 160408	SR14544
946-000-009	E90AP D1.00-2-W1.00-6-16	1.000	6.000	4.000	0.472	1.000	0.940	6°	2	90.0			SR14544
946-000-014	E90AP D1.250-2-W1.00-16	1.250	4.000	1.500	0.472	1.000	1.190	4.5°	2	90.0			SR14544
946-000-017	E90AP D1.250-3-W1.00-16	1.250	4.000	1.500	0.472	1.000	1.190	4.5°	3	90.0	SR14544		
946-000-019	E90AP D1.500-3-W1.00-16	1.500	4.000	1.500	0.472	1.000	1.425	2.5°	3	90.0	SR14544		

Coolant Thru

PRODUCT #	DESIGNATION	DC [in.]	LF [in.]	LU [in.]	APMX [in.]	DCONMS [in.]	BD [in.]	RMPX [°]	ZC	KAPR [°]	Insert	Screw
946-000-004	E90AP D.750-2-W.750-11-C	0.750	3.375	0.975	0.315	0.750	0.705	5°	2	90.0	APKT 11T308	SR34505L
946-000-006	E90AP D.750-3-W.750-11-C	0.750	3.375	0.975	0.315	0.750	0.705	5°	3	90.0		SR34505L
946-000-012	E90AP D1.00-3-W1.00-11-C	1.000	4.000	1.500	0.315	1.000	0.940	4.5°	3	90.0		SR34505L
946-000-018	E90AP D1.250-3-W1.00-16-C	1.250	4.000	1.500	0.472	1.000	1.190	4.5°	3	90.0	APKT 160408	SR14544
946-000-020	E90AP D1.500-3-W1.00-16-C	1.500	4.000	1.500	0.472	1.000	1.425	2.5°	3	90.0		SR14544



PRODUCT #	DESIGNATION	RADIUS	UD1	UD204	UD404	UD602
913-000-029				•		
913-000-030	APKT 11T304-PF	0.015			•	
913-000-031						•
913-000-039	APKT 11T308-PF	0.031		•		
913-000-040					•	
913-000-046	APKT 11T316-PF	0.062		•		
913-000-047					•	
913-000-051	APKT 160408-PF	0.031			•	
913-000-052						•
913-000-032			•			
913-000-033	APKT 11T304-PM	0.015			•	
913-000-034						•
913-000-041			•			
913-000-042	APKT 11T308-PM	0.031			•	
913-000-043						•
913-000-045	APKT 11T312-PM	0.046			•	
913-000-048	APKT 11T316-PM	0.062		•		
913-000-049					•	
913-000-053			•			
913-000-054	APKT 160408-PM	0.031			•	
913-000-055						•
913-000-035			•			
913-000-036	APKT 11T304-PR	0.015			•	
913-000-037						•
913-000-028	APKT 11T304-AL	0.015	•			
913-000-038	APKT 11T308-AL	0.031	•			
913-000-050	APKT 160408-AL	0.031	•			

PRODUCT #	Insert Screw
968-000-134	SR34505
968-000-133	SR14544
968-000-135	SR34505L

PACKAGE SIZE OF 5

PACKAGE SIZE OF 10

APKT 11T308



Depth of cut ↑

Feed Per Tooth (inch)

AP (inch)	Light	Medium	Heavy
0.315	0.0028	0.0031	0.0039
0.236	0.0039	0.0047	0.0059
0.157	0.0047	0.0059	0.0079

f/t →

APKT 160408

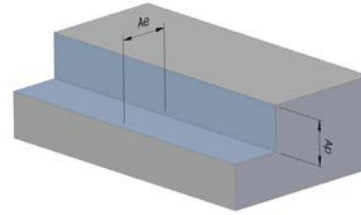


Depth of cut ↑

Feed Per Tooth (inch)

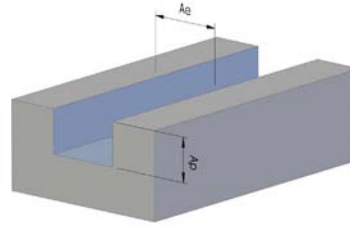
AP (inch)	Light	Medium	Heavy
0.472	0.0028	0.0031	0.0039
0.315	.0039	0.0047	0.0059
0.197	0.0047	0.0059	0.0079

f/t →



				Square SHOULDER MILLING			
				Fz (INCH PER TOOTH)*		APMX	
ISO	MATERIAL	HARDNESS	Vc (SFM)*	-PF /-AL	-PM /-PR	APKT11T3	APKT1604
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	550-900	0.003 - 0.009	0.003 - 0.012	0.315	0.472
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	450-850	0.003 - 0.0075	0.003 - 0.010	0.315	0.472
M	STAINLESS STEELS (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	350 - 875	0.003 - 0.009	0.003 - 0.012	0.315	0.472
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	250 - 800	0.003 - 0.0075	0.003 - 0.010	0.315	0.472
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	400 - 1000	0.004 - 0.010	0.004 - 0.012	0.315	0.472
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	300 - 800	0.004 - 0.012	0.004 - 0.012	0.315	0.472
N	NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	600-1200	0.004 - 0.014	0.004 - 0.016	0.315	0.472
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 555 BHN or ≤ 55 HRC	190 - 500	0.003 - 0.007	0.003 - 0.009	0.315	0.472
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	70-220	0.002 - 0.006	0.002 - 0.007	0.315	0.472
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC	230-450	0.003 - 0.0085	0.003 - 0.010	0.315	0.472

*Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



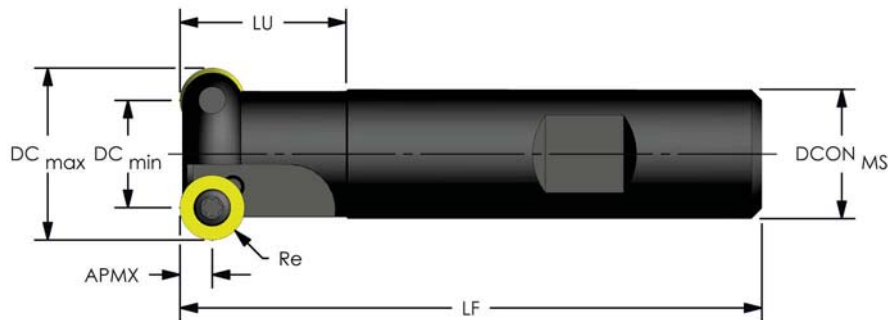
Square SLOT MILLING							
ISO	MATERIAL	HARDNESS	Vc (SFM)*	Fz (INCH PER TOOTH)*		APMX	
				-PF /-AL	-PM /-PR	APKT11T3	APKT1604
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	550-900	0.003 - 0.006	0.003 - 0.010	0.315	0.472
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	450-850	0.003 - 0.006	0.003 - 0.0085	0.315	0.472
M	STAINLESS STEELS (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	350 - 875	0.003 - 0.007	0.003 - 0.010	0.315	0.472
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	250 - 800	0.003 - 0.006	0.003 - 0.010	0.315	0.472
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	400 - 1000	0.004 - 0.008	0.004 - 0.010	0.315	0.472
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	300 - 800	0.004 - 0.008	0.004 - 0.010	0.315	0.472
N	NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	600-1200	0.004 - 0.011	0.004 - 0.014	0.315	0.472
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 555 BHN or ≤ 55 HRC	190 - 500	0.003 - 0.006	0.003 - 0.007	0.315	0.472
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	70-220	0.002 - 0.006	0.002 - 0.007	0.315	0.472
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC	230-450	0.003 - 0.006	0.003 - 0.008	0.315	0.472

*Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



ER WELDON SHANK

- Designed for profiling, contouring, and slot milling in ISO P, M, K, N, H and S materials
- Ramping and helical interpolation capabilities
- High feed milling capabilities
- Excellent surface finish
- High machine utilization of low-powered machines
- Positive geometry insert
- Weldon shank connection with directed through coolant for longer tool life and chip evacuation



PRODUCT #	DESIGNATION	DCmax [in.]	DCmin [in.]	RE [in.]	LF [in.]	LU [in.]	DCONMS [in.]	ZC	APMX [in.]	Insert	Screw
946-000-022	ER-D.750-2-.750-08	0.750	0.436	0.157 / 4mm	3.380	0.975	0.750	2	0.1570 / 4mm	RDKW 0803	MTS-3-DR
946-000-023	ER-D.750-2-.750-2	0.750	0.500	0.125	3.380	0.975	0.750	2	0.1250	RCMT 21.5	MTS-2.5L
946-000-025	ER-D1.00-2-.750-10	1.000	0.606	0.197 / 5mm	3.380	1.500	0.750	2	0.1970 / 5mm	RCKT 10T3	MTS-35
946-000-027	ER-D1.00-2-.750-3	1.000	0.625	0.188	3.380	1.500	0.750	2	0.1880	RCMT 32.5	MTS-4-DR
946-000-024	ER-D1.00-2-.750-08	1.000	0.686	0.157 / 4mm	3.380	1.500	0.750	2	0.157 / 4mm	RDKW 0803	MTS-3-DR
946-000-026	ER-D1.00-2-.750-2	1.000	0.750	0.125	3.380	1.500	0.750	2	0.1250	RCMT 21.5	MTS-2.5L
946-000-029	ER-D1.25-3-1.00-10	1.250	0.856	0.197 / 5mm	4.000	1.500	1.000	3	0.197 / 5mm	RCKT 10T3	MTS-35
946-000-028	ER-D1.25-2-1.00-3	1.250	0.875	0.188	4.000	1.500	1.000	2	0.1880	RCMT 32.5	MTS-4-DR
946-000-031	ER-D1.50-3-1.00-4	1.500	1.000	0.250	4.000	1.500	1.000	3	0.2500	RCMT 43	MTS-4
946-000-030	ER-D1.50-3-1.00-12	1.500	1.028	0.236 / 6mm	4.000	1.500	1.000	3	0.2360 / 6mm	RCKT 1204	MTS-35

Recommendations:

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

It is Recommended to use precision holders i.e. hydraulic, shrink fit



PRODUCT #	Insert Screw
968-000-087	MTS-184
968-000-088	MTS-2
968-000-092	MTS-255
968-000-082	MTS 25-DR
968-000-084	MTS 3-DR
968-000-083	MTS 35-DR
968-000-085	MTS 4-DR

PACKAGE SIZE OF 5

PRODUCT #	DESIGNATION	UD1	UD404	UD602
913-000-360	RDKW 0803		•	
913-000-361				•
913-000-337	RCKT 10T3	•		
913-000-338			•	
913-000-339				•
913-000-340	RCKT 1204	•		
913-000-341			•	
913-000-342				•
913-000-343	RCKT 1606		•	
913-000-344				•

PACKAGE SIZE OF 10

PRODUCT #	DESIGNATION	UD51	UD52	UD2	UD21	UD22
913-000-348	RCMT 21.5	•				
913-000-349			•			
913-000-345					•	
913-000-346						•
913-000-347	RCMT 32.5					•
913-000-353		•				
913-000-354			•			
913-000-350				•		
913-000-351					•	
913-000-352	RCMT 43					•
913-000-358		•				
913-000-359			•			
913-000-355				•		
913-000-356					•	
913-000-357						•

PACKAGE SIZE OF 10

ISO	MATERIAL	HARDNESS	GRADE	Vc (SFM)*	Fz (INCH PER TOOTH)* at 50% insert I.C. APMX**
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	UD51 UD52 UD404 UD602	300-850	.006 - .018
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC		200-700	.005 - .015
M	STAINLESS STEELS (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	UD32	200-650	.003 - .010
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC		260-700	.003 - .012
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	UD21	250-900	.005 - .020
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC		200-700	.005 - .015
N	NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	UD1 UD2	400-975	.006 - .020
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	UD32 UD404	80-400	.004 - .012
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	UD32 UD52 UD404	40-250	.003 - .008
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC		100-550	.003 - .010

Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

**** If the axial depth of cut (Ap) is less than 50% of the full radius Insert I.C., Increase the feed rate (Fz) to compensate for the thinning (Hex) of the actual chip thickness.**

SOLID MILLING

ARCH[®]
Cutting Tools

Originally optimized to tackle difficult to machine applications such as in titanium and pre-hardened steels, our Patriot High Performance End Mills also excel in a wide array of exotic, alloyed, and ferrous part materials. Plus their advanced, proprietary geometry and thin film coating deliver increased tool life, superior part finish, and aggressive material removal rates in environments with extreme working temperatures.

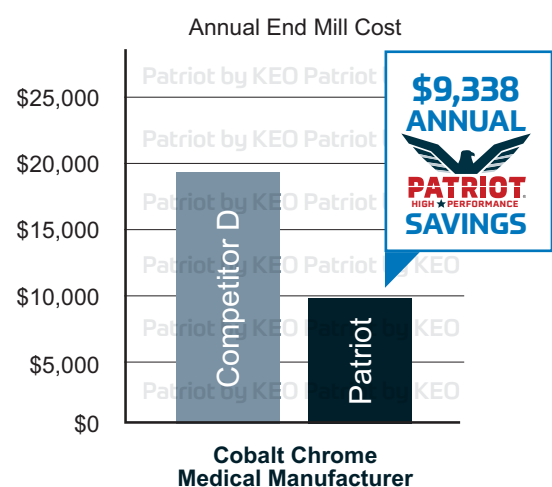
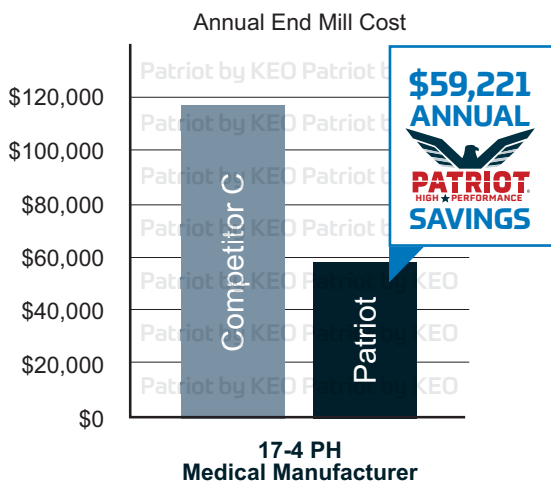
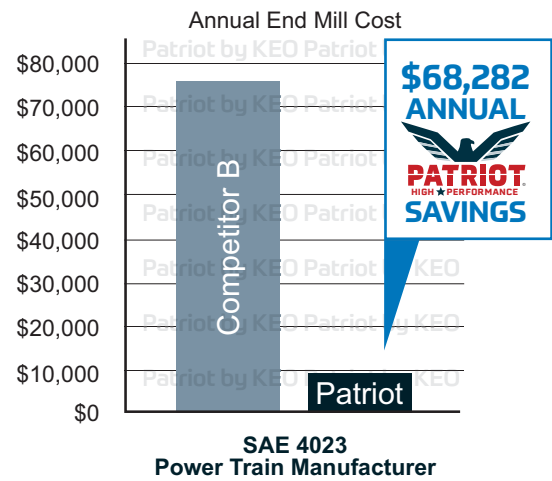
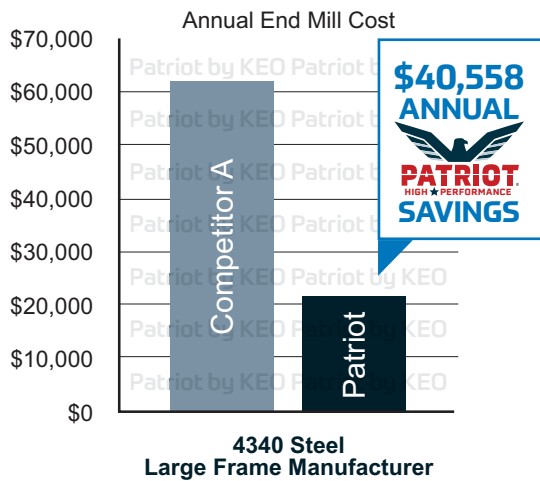


TOOL BENEFITS:

- Ranging from 0.125”- 1.00” diameters
- Ideal in roughing, profiling, slotting, and finishing applications
- Advanced high wear resistance coating with properties for increased tool life & toughness at high temperatures
- Significantly reduces chatter to improve surface finish & stability in the cut
- Increase material removal rates with increased cutting depth and feed rates



CASE STUDIES



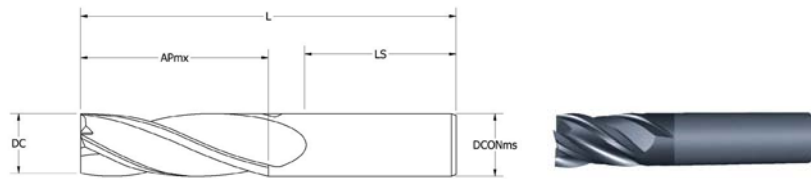
Proprietary to ARCH Cutting Tools

www.archcuttingtools.com

CARBIDE



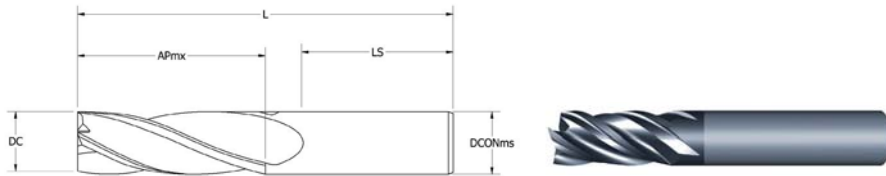
VARIABLE HELIX



4-FLUTE - STUB LENGTH - SQUARE END



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.1250	0.1250	0.2500	0.8750	1.5000	976-000-001
0.1875	0.1875	0.3750	1.2500	2.0000	976-000-002
0.2500	0.2500	0.5000	1.1250	2.0000	976-000-003
0.3125	0.3125	0.5000	1.1250	2.0000	976-000-004
0.3750	0.3750	0.6250	1.0000	2.0000	976-000-005
0.4375	0.4375	0.6250	1.5000	2.5000	976-000-006
0.5000	0.5000	0.7500	1.3750	2.5000	976-000-007
0.6250	0.6250	0.7500	1.8750	3.0000	976-000-008
0.7500	0.7500	1.0000	1.6250	3.0000	976-000-009

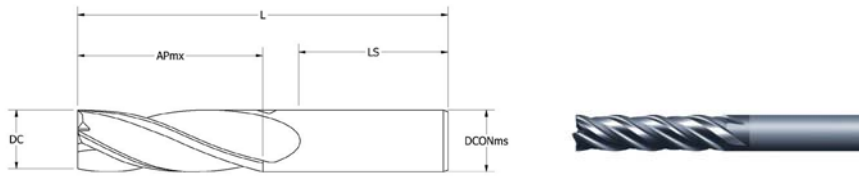


4-FLUTE - STANDARD LENGTH - SQUARE END



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.1250	0.1250	0.5000	0.6250	1.5000	976-000-010
0.1875	0.1875	0.6250	1.0000	2.0000	976-000-011
0.2500	0.2500	0.7500	1.3750	2.5000	976-000-012
0.2500	0.2500	1.0000	1.1250	2.5000	976-000-013
0.2500	0.2500	1.2500	0.8750	2.5000	976-000-014
0.3125	0.3125	0.8125	1.3125	2.5000	976-000-015
0.3750	0.3750	0.8750	1.2500	2.5000	976-000-016
0.3750	0.3750	1.0000	1.1250	2.5000	976-000-017
0.3750	0.3750	1.2500	0.8750	2.5000	976-000-018
0.4375	0.4375	1.0000	1.3750	2.7500	976-000-019
0.5000	0.5000	1.0000	1.6250	3.0000	976-000-020
0.5000	0.5000	1.2500	1.3750	3.0000	976-000-021
0.5000	0.5000	1.5000	1.1250	3.0000	976-000-022
0.5000	0.5000	1.5000	1.6250	3.5000	976-000-023
0.5000	0.5000	1.7500	1.3750	3.5000	976-000-024
0.6250	0.6250	1.5000	1.6250	3.5000	976-000-025
0.6250	0.6250	1.7500	1.3750	3.5000	976-000-026
0.7500	0.7500	1.7500	1.8750	4.0000	976-000-027
1.0000	1.0000	1.7500	1.8750	4.0000	976-000-028

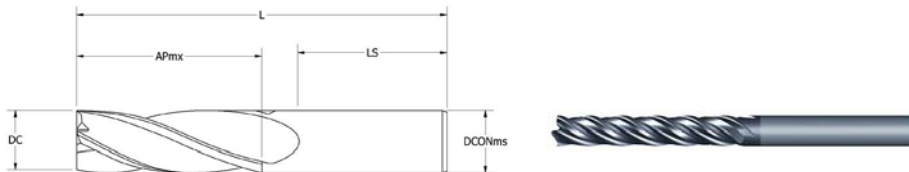
VARIABLE HELIX



4-FLUTE - LONG LENGTH - SQUARE END



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.1250	0.1250	0.7500	1.3750	2.5000	976-000-029
0.1875	0.1875	0.7500	1.3750	2.5000	976-000-030
0.2500	0.2500	1.1250	1.5000	3.0000	976-000-031
0.3125	0.3125	1.1250	1.5000	3.0000	976-000-032
0.3750	0.3750	1.2500	1.3750	3.0000	976-000-033
0.4375	0.4375	2.0000	1.6250	4.0000	976-000-034
0.5000	0.5000	2.0000	1.6250	4.0000	976-000-035
0.6250	0.6250	2.2500	2.3750	5.0000	976-000-036
0.7500	0.7500	2.2500	2.3750	5.0000	976-000-037
1.0000	1.0000	2.2500	2.3750	5.0000	976-000-038



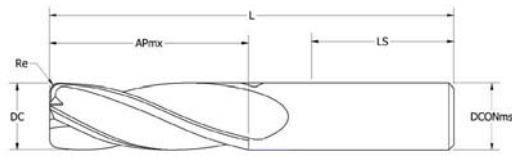
4-FLUTE - X LONG LENGTH - SQUARE END



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.1250	0.1250	1.0000	1.6250	3.0000	976-000-039
0.1875	0.1875	1.1250	1.5000	3.0000	976-000-040
0.2500	0.2500	1.5000	2.1250	4.0000	976-000-041
0.3125	0.3125	1.6250	2.0000	4.0000	976-000-042
0.3750	0.3750	2.0000	1.6250	4.0000	976-000-043
0.4375	0.4375	3.0000	2.6250	6.0000	976-000-044
0.5000	0.5000	3.0000	2.6250	6.0000	976-000-045
0.6250	0.6250	3.0000	2.6250	6.0000	976-000-046
0.7500	0.7500	3.0000	2.6250	6.0000	976-000-047
1.0000	1.0000	3.0000	2.6250	6.0000	976-000-048

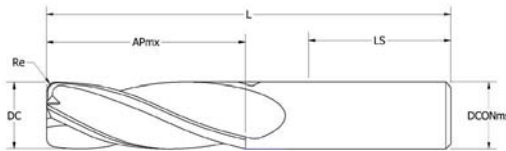
CARBIDE

VARIABLE HELIX



4-FLUTE - STUB LENGTH - CORNER RADIUS

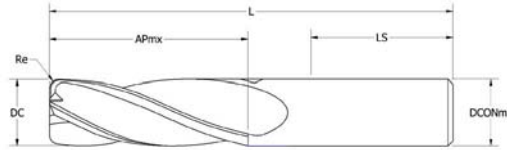
DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.1250	0.1250	0.0100	0.2500	0.8750	1.5000	976-000-128
0.1875	0.1875	0.0100	0.3750	1.2500	2.0000	976-000-129
0.2500	0.2500	0.0200	0.5000	1.1250	2.0000	976-000-130
0.3125	0.3125	0.0200	0.5000	1.1250	2.0000	976-000-131
0.3750	0.3750	0.0200	0.6250	1.0000	2.0000	976-000-132
0.4375	0.4375	0.0300	0.6250	1.5000	2.5000	976-000-133
0.5000	0.5000	0.0300	0.7500	1.3750	2.5000	976-000-134
0.6250	0.6250	0.0400	0.7500	1.8750	3.0000	976-000-135
0.7500	0.7500	0.0400	1.0000	1.6250	3.0000	976-000-136



4-FLUTE - STANDARD LENGTH - CORNER RADIUS



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.1250	0.1250	0.0100	0.5000	0.6250	1.5000	976-000-137
0.1250	0.1250	0.0150	0.5000	0.6250	1.5000	976-000-138
0.1250	0.1250	0.0200	0.5000	0.6250	1.5000	976-000-139
0.1875	0.1875	0.0100	0.6250	1.0000	2.0000	976-000-140
0.1875	0.1875	0.0150	0.6250	1.0000	2.0000	976-000-141
0.1875	0.1875	0.0200	0.6250	1.0000	2.0000	976-000-142
0.1875	0.1875	0.0300	0.6250	1.0000	2.0000	976-000-143
0.2500	0.2500	0.0100	0.7500	1.3750	2.5000	976-000-144
0.2500	0.2500	0.0150	0.7500	1.3750	2.5000	976-000-145
0.2500	0.2500	0.0200	0.7500	1.3750	2.5000	976-000-146
0.2500	0.2500	0.0300	0.7500	1.3750	2.5000	976-000-147
0.2500	0.2500	0.0600	0.7500	1.3750	2.5000	976-000-148
0.2500	0.2500	0.0100	1.0000	1.1250	2.5000	976-000-149
0.2500	0.2500	0.0150	1.0000	1.1250	2.5000	976-000-150
0.2500	0.2500	0.0200	1.0000	1.1250	2.5000	976-000-151
0.2500	0.2500	0.0300	1.0000	1.1250	2.5000	976-000-152
0.2500	0.2500	0.0600	1.0000	1.1250	2.5000	976-000-153
0.2500	0.2500	0.0100	1.2500	0.8750	2.5000	976-000-154
0.2500	0.2500	0.0150	1.2500	0.8750	2.5000	976-000-155
0.2500	0.2500	0.0200	1.2500	0.8750	2.5000	976-000-156
0.2500	0.2500	0.0300	1.2500	0.8750	2.5000	976-000-157
0.2500	0.2500	0.0600	1.2500	0.8750	2.5000	976-000-158
0.3125	0.3125	0.0100	0.8125	1.3125	2.5000	976-000-159
0.3125	0.3125	0.0150	0.8125	1.3125	2.5000	976-000-160
0.3125	0.3125	0.0200	0.8125	1.3125	2.5000	976-000-161



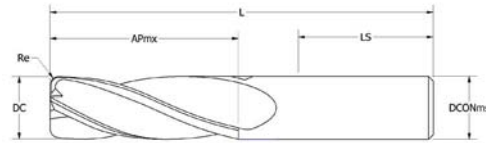
4-FLUTE - STANDARD LENGTH - CORNER RADIUS



CARBIDE

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.3125	0.3125	0.0300	0.8125	1.3125	2.5000	976-000-162
0.3125	0.3125	0.0600	0.8125	1.3125	2.5000	976-000-163
0.3750	0.3750	0.0100	0.8750	1.2500	2.5000	976-000-164
0.3750	0.3750	0.0150	0.8750	1.2500	2.5000	976-000-165
0.3750	0.3750	0.0200	0.8750	1.2500	2.5000	976-000-166
0.3750	0.3750	0.0300	0.8750	1.2500	2.5000	976-000-167
0.3750	0.3750	0.0600	0.8750	1.2500	2.5000	976-000-168
0.3750	0.3750	0.0100	1.0000	1.1250	2.5000	976-000-169
0.3750	0.3750	0.0150	1.0000	1.1250	2.5000	976-000-170
0.3750	0.3750	0.0200	1.0000	1.1250	2.5000	976-000-171
0.3750	0.3750	0.0300	1.0000	1.1250	2.5000	976-000-172
0.3750	0.3750	0.0600	1.0000	1.1250	2.5000	976-000-173
0.3750	0.3750	0.0100	1.2500	0.8750	2.5000	976-000-174
0.3750	0.3750	0.0150	1.2500	0.8750	2.5000	976-000-175
0.3750	0.3750	0.0200	1.2500	0.8750	2.5000	976-000-176
0.3750	0.3750	0.0300	1.2500	0.8750	2.5000	976-000-177
0.3750	0.3750	0.0600	1.2500	0.8750	2.5000	976-000-178
0.4375	0.4375	0.0150	1.0000	1.3750	2.7500	976-000-179
0.4375	0.4375	0.0200	1.0000	1.3750	2.7500	976-000-180
0.4375	0.4375	0.0300	1.0000	1.3750	2.7500	976-000-181
0.4375	0.4375	0.0600	1.0000	1.3750	2.7500	976-000-182
0.5000	0.5000	0.0100	1.0000	1.6250	3.0000	976-000-183
0.5000	0.5000	0.0150	1.0000	1.6250	3.0000	976-000-184
0.5000	0.5000	0.0300	1.0000	1.6250	3.0000	976-000-185
0.5000	0.5000	0.0600	1.0000	1.6250	3.0000	976-000-186
0.5000	0.5000	0.0900	1.0000	1.6250	3.0000	976-000-187
0.5000	0.5000	0.1200	1.0000	1.6250	3.0000	976-000-188
0.5000	0.5000	0.0100	1.2500	1.3750	3.0000	976-000-189
0.5000	0.5000	0.0150	1.2500	1.3750	3.0000	976-000-190
0.5000	0.5000	0.0300	1.2500	1.3750	3.0000	976-000-191
0.5000	0.5000	0.0600	1.2500	1.3750	3.0000	976-000-192
0.5000	0.5000	0.0900	1.2500	1.3750	3.0000	976-000-193
0.5000	0.5000	0.1200	1.2500	1.3750	3.0000	976-000-194
0.5000	0.5000	0.0100	1.5000	1.1250	3.0000	976-000-195
0.5000	0.5000	0.0150	1.5000	1.1250	3.0000	976-000-196
0.5000	0.5000	0.0300	1.5000	1.1250	3.0000	976-000-197
0.5000	0.5000	0.0600	1.5000	1.1250	3.0000	976-000-198
0.5000	0.5000	0.0900	1.5000	1.1250	3.0000	976-000-199
0.5000	0.5000	0.1200	1.5000	1.1250	3.0000	976-000-200
0.5000	0.5000	0.0100	1.5000	1.6250	3.5000	976-000-201
0.5000	0.5000	0.0150	1.5000	1.6250	3.5000	976-000-202
0.5000	0.5000	0.0300	1.5000	1.6250	3.5000	976-000-203
0.5000	0.5000	0.0600	1.5000	1.6250	3.5000	976-000-204
0.5000	0.5000	0.0900	1.5000	1.6250	3.5000	976-000-205
0.5000	0.5000	0.1200	1.5000	1.6250	3.5000	976-000-206
0.5000	0.5000	0.0100	1.7500	1.3750	3.5000	976-000-207
0.5000	0.5000	0.0150	1.7500	1.3750	3.5000	976-000-208

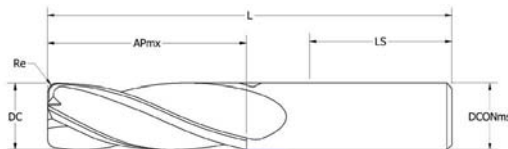
CARBIDE



4-FLUTE - STANDARD LENGTH - CORNER RADIUS



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.5000	0.5000	0.0300	1.7500	1.3750	3.5000	976-000-209
0.5000	0.5000	0.0600	1.7500	1.3750	3.5000	976-000-210
0.5000	0.5000	0.0900	1.7500	1.3750	3.5000	976-000-211
0.5000	0.5000	0.1200	1.7500	1.3750	3.5000	976-000-212
0.6250	0.6250	0.0300	1.5000	1.6250	3.5000	976-000-213
0.6250	0.6250	0.0400	1.5000	1.6250	3.5000	976-000-214
0.6250	0.6250	0.0600	1.5000	1.6250	3.5000	976-000-215
0.6250	0.6250	0.0900	1.5000	1.6250	3.5000	976-000-216
0.6250	0.6250	0.1200	1.5000	1.6250	3.5000	976-000-217
0.6250	0.6250	0.0300	1.7500	1.3750	3.5000	976-000-218
0.6250	0.6250	0.0400	1.7500	1.3750	3.5000	976-000-219
0.6250	0.6250	0.0600	1.7500	1.3750	3.5000	976-000-220
0.6250	0.6250	0.0900	1.7500	1.3750	3.5000	976-000-221
0.6250	0.6250	0.1200	1.7500	1.3750	3.5000	976-000-222
0.7500	0.7500	0.0300	1.7500	1.8750	4.0000	976-000-223
0.7500	0.7500	0.0400	1.7500	1.8750	4.0000	976-000-224
0.7500	0.7500	0.0600	1.7500	1.8750	4.0000	976-000-225
0.7500	0.7500	0.0900	1.7500	1.8750	4.0000	976-000-226
0.7500	0.7500	0.1200	1.7500	1.8750	4.0000	976-000-227
1.0000	1.0000	0.0300	1.7500	1.8750	4.0000	976-000-228
1.0000	1.0000	0.0400	1.7500	1.8750	4.0000	976-000-229
1.0000	1.0000	0.0600	1.7500	1.8750	4.0000	976-000-230
1.0000	1.0000	0.0900	1.7500	1.8750	4.0000	976-000-231
1.0000	1.0000	0.1200	1.7500	1.8750	4.0000	976-000-232



4-FLUTE - STANDARD LENGTH - ROUGHING/CHIP BREAKER CORNER RADIUS



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.2500	0.2500	0.0200	0.7500	1.3750	2.5000	976-000-529
0.3750	0.3750	0.0200	0.8750	1.2500	2.5000	976-000-530
0.5000	0.5000	0.0300	1.0000	1.6250	3.0000	976-000-531
0.6250	0.6250	0.0400	1.5000	1.6250	3.5000	976-000-532
0.7500	0.7500	0.0400	1.7500	1.8750	4.0000	976-000-533
1.0000	1.0000	0.0400	1.7500	1.8750	4.0000	976-000-534

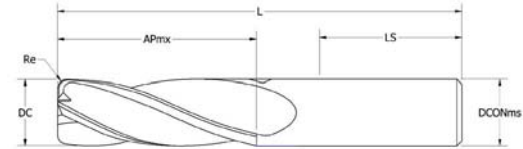


4-FLUTE - LONG LENGTH - CORNER RADIUS



CARBIDE

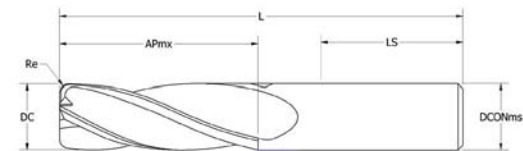
DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.1250	0.1250	0.0150	0.7500	1.3750	2.5000	976-000-233
0.1250	0.1250	0.0300	0.7500	1.3750	2.5000	976-000-234
0.1875	0.1875	0.0150	0.7500	1.3750	2.5000	976-000-235
0.1875	0.1875	0.0300	0.7500	1.3750	2.5000	976-000-236
0.2500	0.2500	0.0150	1.1250	1.5000	3.0000	976-000-237
0.2500	0.2500	0.0300	1.1250	1.5000	3.0000	976-000-238
0.3125	0.3125	0.0150	1.1250	1.5000	3.0000	976-000-239
0.3125	0.3125	0.0300	1.1250	1.5000	3.0000	976-000-240
0.3750	0.3750	0.0300	1.2500	1.3750	3.0000	976-000-241
0.3750	0.3750	0.0600	1.2500	1.3750	3.0000	976-000-242
0.4375	0.4375	0.0300	2.0000	1.6250	4.0000	976-000-243
0.4375	0.4375	0.0600	2.0000	1.6250	4.0000	976-000-244
0.5000	0.5000	0.0300	2.0000	1.6250	4.0000	976-000-245
0.5000	0.5000	0.0600	2.0000	1.6250	4.0000	976-000-246
0.6250	0.6250	0.0300	2.2500	2.3750	5.0000	976-000-247
0.6250	0.6250	0.0600	2.2500	2.3750	5.0000	976-000-248
0.7500	0.7500	0.0300	2.2500	2.3750	5.0000	976-000-249
0.7500	0.7500	0.0600	2.2500	2.3750	5.0000	976-000-250
1.0000	1.0000	0.0300	2.2500	2.3750	5.0000	976-000-251
1.0000	1.0000	0.0600	2.2500	2.3750	5.0000	976-000-252



4-FLUTE - X LONG LENGTH - CORNER RADIUS



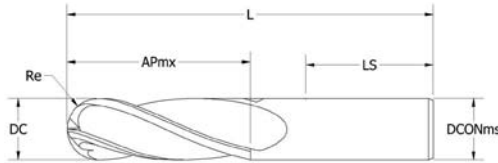
DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.1250	0.1250	0.0150	1.0000	1.6250	3.0000	976-000-253
0.1250	0.1250	0.0300	1.0000	1.6250	3.0000	976-000-255
0.1875	0.1875	0.0150	1.1250	1.5000	3.0000	976-000-256
0.1875	0.1875	0.0300	1.1250	1.5000	3.0000	976-000-257
0.2500	0.2500	0.0150	1.5000	2.1250	4.0000	976-000-258
0.2500	0.2500	0.0300	1.5000	2.1250	4.0000	976-000-259
0.3125	0.3125	0.0300	1.6250	2.0000	4.0000	976-000-260
0.3125	0.3125	0.0600	1.6250	2.0000	4.0000	976-000-262
0.3750	0.3750	0.0300	2.0000	1.6250	4.0000	976-000-263
0.3750	0.3750	0.0600	2.0000	1.6250	4.0000	976-000-264
0.4375	0.4375	0.0300	3.0000	2.6250	6.0000	976-000-265
0.4375	0.4375	0.0600	3.0000	2.6250	6.0000	976-000-267
0.5000	0.5000	0.0300	3.0000	2.6250	6.0000	976-000-268
0.5000	0.5000	0.0600	3.0000	2.6250	6.0000	976-000-269
0.6250	0.6250	0.0300	3.0000	2.6250	6.0000	976-000-270
0.6250	0.6250	0.0600	3.0000	2.6250	6.0000	976-000-271
0.7500	0.7500	0.0300	3.0000	2.6250	6.0000	976-000-272
0.7500	0.7500	0.0600	3.0000	2.6250	6.0000	976-000-273
1.0000	1.0000	0.0300	3.0000	2.6250	6.0000	976-000-274
1.0000	1.0000	0.0600	3.0000	2.6250	6.0000	976-000-275



CARBIDE



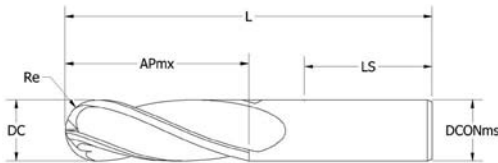
VARIABLE HELIX



4-FLUTE - STUB LENGTH - BALL END



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.1250	0.1250	0.0625	0.2500	0.8750	1.5000	976-000-488
0.1875	0.1875	0.0938	0.3750	1.2500	2.0000	976-000-489
0.2500	0.2500	0.1250	0.5000	1.1250	2.0000	976-000-490
0.3125	0.3125	0.1563	0.5000	1.1250	2.0000	976-000-491
0.3750	0.3750	0.1875	0.6250	1.0000	2.0000	976-000-492
0.4375	0.4375	0.2188	0.6250	1.5000	2.5000	976-000-493
0.5000	0.5000	0.2500	0.7500	1.3750	2.5000	976-000-494
0.6250	0.6250	0.3125	0.7500	1.8750	3.0000	976-000-495
0.7500	0.7500	0.3750	1.0000	1.6250	3.0000	976-000-496

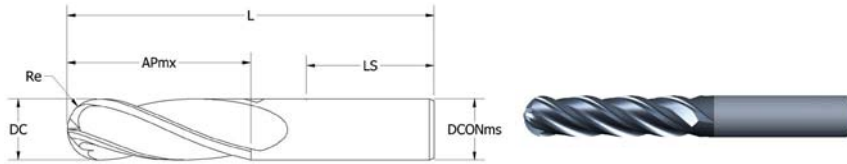


4-FLUTE - STANDARD LENGTH - BALL END



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.1250	0.1250	0.0625	0.5000	0.6250	1.5000	976-000-497
0.1875	0.1875	0.0938	0.6250	1.0000	2.0000	976-000-498
0.2500	0.2500	0.1250	0.7500	1.3750	2.5000	976-000-499
0.3125	0.3125	0.1563	0.8125	1.3125	2.5000	976-000-500
0.3750	0.3750	0.1875	0.8750	1.2500	2.5000	976-000-501
0.3750	0.3750	0.1875	1.0000	1.1250	2.5000	976-000-502
0.4375	0.4375	0.2188	1.0000	1.3750	2.7500	976-000-503
0.5000	0.5000	0.2500	1.0000	1.6250	3.0000	976-000-504
0.5000	0.5000	0.2500	1.2500	1.3750	3.0000	976-000-505
0.6250	0.6250	0.3125	1.5000	1.6250	3.5000	976-000-506
0.7500	0.7500	0.3750	1.7500	1.8750	4.0000	976-000-507
1.0000	1.0000	0.5000	1.7500	1.8750	4.0000	976-000-508

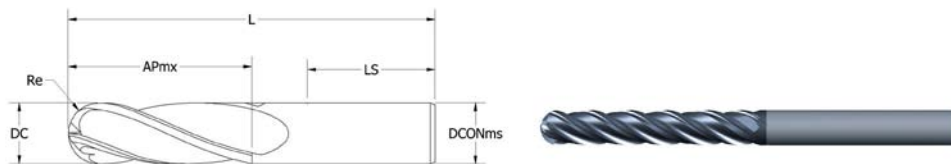
VARIABLE HELIX



4-FLUTE - LONG LENGTH - BALL END



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.1250	0.1250	0.0625	0.7500	1.3750	2.5000	976-000-509
0.1875	0.1875	0.0938	0.7500	1.3750	2.5000	976-000-510
0.2500	0.2500	0.1250	1.1250	1.5000	3.0000	976-000-511
0.3125	0.3125	0.1563	1.1250	1.5000	3.0000	976-000-512
0.3750	0.3750	0.1875	1.2500	1.3750	3.0000	976-000-513
0.4375	0.4375	0.2188	2.0000	1.6250	4.0000	976-000-514
0.5000	0.5000	0.2500	2.0000	1.6250	4.0000	976-000-515
0.6250	0.6250	0.3125	2.2500	2.3750	5.0000	976-000-516
0.7500	0.7500	0.3750	2.2500	2.3750	5.0000	976-000-517
1.0000	1.0000	0.5000	2.2500	2.3750	5.0000	976-000-518

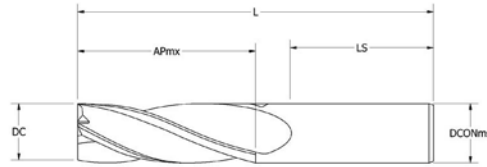


4-FLUTE - X LONG LENGTH - BALL END



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.1250	0.1250	0.0625	1.0000	1.6250	3.0000	976-000-519
0.1875	0.1875	0.0938	1.1250	1.5000	3.0000	976-000-520
0.2500	0.2500	0.1250	1.5000	2.1250	4.0000	976-000-521
0.3125	0.3125	0.1563	1.6250	2.0000	4.0000	976-000-522
0.3750	0.3750	0.1875	1.7500	1.8750	4.0000	976-000-523
0.4375	0.4375	0.2188	3.0000	2.6250	6.0000	976-000-524
0.5000	0.5000	0.2500	3.0000	2.6250	6.0000	976-000-525
0.6250	0.6250	0.3125	3.0000	2.6250	6.0000	976-000-526
0.7500	0.7500	0.3750	3.0000	2.6250	6.0000	976-000-527
1.0000	1.0000	0.5000	3.0000	2.6250	6.0000	976-000-528

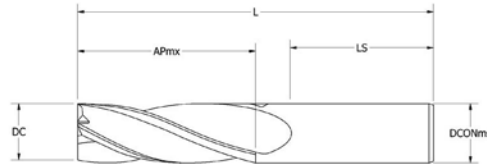
CARBIDE



5-FLUTE - STUB LENGTH - SQUARE END



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.1250	0.1250	0.2500	0.8750	1.5000	976-000-049
0.1875	0.1875	0.3750	1.2500	2.0000	976-000-050
0.2500	0.2500	0.5000	1.1250	2.0000	976-000-051
0.3125	0.3125	0.5000	1.1250	2.0000	976-000-052
0.3750	0.3750	0.6250	1.0000	2.0000	976-000-053
0.4375	0.4375	0.6250	1.5000	2.5000	976-000-054
0.5000	0.5000	0.7500	1.3750	2.5000	976-000-055
0.6250	0.6250	0.7500	1.8750	3.0000	976-000-056
0.7500	0.7500	1.0000	1.6250	3.0000	976-000-057



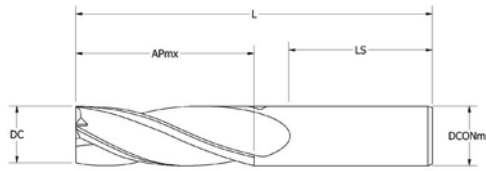
5-FLUTE - STANDARD LENGTH - SQUARE END



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.1250	0.1250	0.5000	0.6250	1.5000	976-000-058
0.1875	0.1875	0.6250	1.0000	2.0000	976-000-059
0.2500	0.2500	0.7500	1.3750	2.5000	976-000-060
0.2500	0.2500	1.0000	1.1250	2.5000	976-000-061
0.2500	0.2500	1.2500	0.8750	2.5000	976-000-062
0.3125	0.3125	0.8125	1.3125	2.5000	976-000-063
0.3750	0.3750	0.8750	1.2500	2.5000	976-000-064
0.3750	0.3750	1.0000	1.1250	2.5000	976-000-065
0.3750	0.3750	1.2500	0.8750	2.5000	976-000-066
0.4375	0.4375	1.0000	1.3750	2.7500	976-000-067
0.5000	0.5000	1.0000	1.6250	3.0000	976-000-068
0.5000	0.5000	1.2500	1.3750	3.0000	976-000-069
0.5000	0.5000	1.5000	1.1250	3.0000	976-000-070
0.5000	0.5000	1.5000	1.6250	3.5000	976-000-071
0.5000	0.5000	1.7500	1.3750	3.5000	976-000-072
0.6250	0.6250	1.5000	1.6250	3.5000	976-000-073
0.6250	0.6250	1.7500	1.3750	3.5000	976-000-074
0.7500	0.7500	1.7500	1.8750	4.0000	976-000-075
1.0000	1.0000	1.7500	1.8750	4.0000	976-000-076



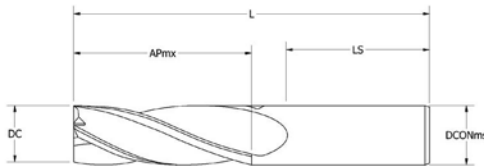
CARBIDE



5-FLUTE - LONG LENGTH - SQUARE END



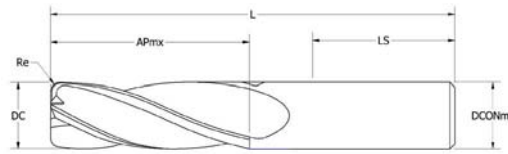
DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.1250	0.1250	0.7500	1.3750	2.5000	976-000-077
0.1875	0.1875	0.7500	1.3750	2.5000	976-000-078
0.2500	0.2500	1.1250	1.5000	3.0000	976-000-079
0.3125	0.3125	1.1250	1.5000	3.0000	976-000-080
0.3750	0.3750	1.2500	1.3750	3.0000	976-000-081
0.4375	0.4375	2.0000	1.6250	4.0000	976-000-082
0.5000	0.5000	2.0000	1.6250	4.0000	976-000-083
0.6250	0.6250	2.2500	2.3750	5.0000	976-000-084
0.7500	0.7500	2.2500	2.3750	5.0000	976-000-085
1.0000	1.0000	2.2500	2.3750	5.0000	976-000-086



5-FLUTE - X LONG LENGTH - SQUARE END



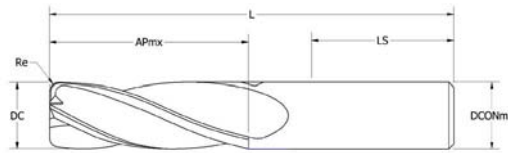
DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.1250	0.1250	1.0000	1.6250	3.0000	976-000-087
0.1875	0.1875	1.1250	1.5000	3.0000	976-000-088
0.2500	0.2500	1.5000	2.1250	4.0000	976-000-089
0.3125	0.3125	1.6250	2.0000	4.0000	976-000-090
0.3750	0.3750	2.0000	1.6250	4.0000	976-000-091
0.4375	0.4375	3.0000	2.6250	6.0000	976-000-092
0.5000	0.5000	3.0000	2.6250	6.0000	976-000-093
0.6250	0.6250	3.0000	2.6250	6.0000	976-000-094
0.7500	0.7500	3.0000	2.6250	6.0000	976-000-095
1.0000	1.0000	3.0000	2.6250	6.0000	976-000-096



5-FLUTE - STUB LENGTH - CORNER RADIUS



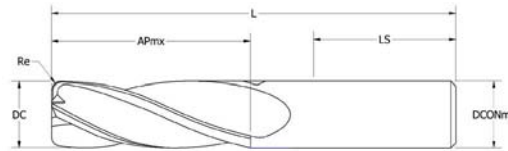
DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.1250	0.1250	0.0100	0.2500	0.8750	1.5000	976-000-276
0.1875	0.1875	0.0100	0.3750	1.2500	2.0000	976-000-277
0.2500	0.2500	0.0200	0.5000	1.1250	2.0000	976-000-278
0.3125	0.3125	0.0200	0.5000	1.1250	2.0000	976-000-279
0.3750	0.3750	0.0200	0.6250	1.0000	2.0000	976-000-280
0.4375	0.4375	0.0300	0.6250	1.5000	2.5000	976-000-281
0.5000	0.5000	0.0300	0.7500	1.3750	2.5000	976-000-282
0.6250	0.6250	0.0400	0.7500	1.8750	3.0000	976-000-283
0.7500	0.7500	0.0400	1.0000	1.6250	3.0000	976-000-284



5-FLUTE - STANDARD LENGTH - CORNER RADIUS



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.1250	0.1250	0.0100	0.5000	0.6250	1.5000	976-000-285
0.1250	0.1250	0.0150	0.5000	0.6250	1.5000	976-000-286
0.1250	0.1250	0.0200	0.5000	0.6250	1.5000	976-000-287
0.1875	0.1875	0.0100	0.6250	1.0000	2.0000	976-000-288
0.1875	0.1875	0.0150	0.6250	1.0000	2.0000	976-000-289
0.1875	0.1875	0.0200	0.6250	1.0000	2.0000	976-000-290
0.1875	0.1875	0.0300	0.6250	1.0000	2.0000	976-000-291
0.2500	0.2500	0.0100	0.7500	1.3750	2.5000	976-000-292
0.2500	0.2500	0.0150	0.7500	1.3750	2.5000	976-000-293
0.2500	0.2500	0.0200	0.7500	1.3750	2.5000	976-000-294
0.2500	0.2500	0.0300	0.7500	1.3750	2.5000	976-000-295
0.2500	0.2500	0.0600	0.7500	1.3750	2.5000	976-000-296
0.2500	0.2500	0.0100	1.0000	1.1250	2.5000	976-000-297
0.2500	0.2500	0.0150	1.0000	1.1250	2.5000	976-000-298
0.2500	0.2500	0.0200	1.0000	1.1250	2.5000	976-000-299
0.2500	0.2500	0.0300	1.0000	1.1250	2.5000	976-000-300
0.2500	0.2500	0.0600	1.0000	1.1250	2.5000	976-000-301
0.2500	0.2500	0.0100	1.2500	0.8750	2.5000	976-000-302
0.2500	0.2500	0.0150	1.2500	0.8750	2.5000	976-000-303
0.2500	0.2500	0.0200	1.2500	0.8750	2.5000	976-000-304
0.2500	0.2500	0.0300	1.2500	0.8750	2.5000	976-000-305
0.2500	0.2500	0.0600	1.2500	0.8750	2.5000	976-000-306



CARBIDE

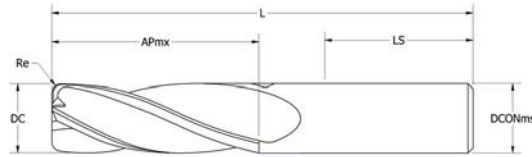


5-FLUTE - STANDARD LENGTH - CORNER RADIUS



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.3125	0.3125	0.0100	0.8125	1.3125	2.5000	976-000-307
0.3125	0.3125	0.0150	0.8125	1.3125	2.5000	976-000-308
0.3125	0.3125	0.0200	0.8125	1.3125	2.5000	976-000-309
0.3125	0.3125	0.0300	0.8125	1.3125	2.5000	976-000-310
0.3125	0.3125	0.0600	0.8125	1.3125	2.5000	976-000-311
0.3750	0.3750	0.0100	0.8750	1.2500	2.5000	976-000-312
0.3750	0.3750	0.0150	0.8750	1.2500	2.5000	976-000-313
0.3750	0.3750	0.0200	0.8750	1.2500	2.5000	976-000-314
0.3750	0.3750	0.0300	0.8750	1.2500	2.5000	976-000-315
0.3750	0.3750	0.0600	0.8750	1.2500	2.5000	976-000-316
0.3750	0.3750	0.0100	1.0000	1.1250	2.5000	976-000-317
0.3750	0.3750	0.0150	1.0000	1.1250	2.5000	976-000-318
0.3750	0.3750	0.0200	1.0000	1.1250	2.5000	976-000-319
0.3750	0.3750	0.0300	1.0000	1.1250	2.5000	976-000-320
0.3750	0.3750	0.0600	1.0000	1.1250	2.5000	976-000-321
0.3750	0.3750	0.0100	1.2500	0.8750	2.5000	976-000-322
0.3750	0.3750	0.0150	1.2500	0.8750	2.5000	976-000-323
0.3750	0.3750	0.0200	1.2500	0.8750	2.5000	976-000-324
0.3750	0.3750	0.0300	1.2500	0.8750	2.5000	976-000-325
0.3750	0.3750	0.0600	1.2500	0.8750	2.5000	976-000-326
0.4375	0.4375	0.0150	1.0000	1.3750	2.7500	976-000-327
0.4375	0.4375	0.0200	1.0000	1.3750	2.7500	976-000-328
0.4375	0.4375	0.0300	1.0000	1.3750	2.7500	976-000-329
0.4375	0.4375	0.0600	1.0000	1.3750	2.7500	976-000-330
0.5000	0.5000	0.0100	1.0000	1.6250	3.0000	976-000-331
0.5000	0.5000	0.0150	1.0000	1.6250	3.0000	976-000-332
0.5000	0.5000	0.0300	1.0000	1.6250	3.0000	976-000-333
0.5000	0.5000	0.0600	1.0000	1.6250	3.0000	976-000-334
0.5000	0.5000	0.0900	1.0000	1.6250	3.0000	976-000-335
0.5000	0.5000	0.1200	1.0000	1.6250	3.0000	976-000-336
0.5000	0.5000	0.0100	1.2500	1.3750	3.0000	976-000-337
0.5000	0.5000	0.0150	1.2500	1.3750	3.0000	976-000-338
0.5000	0.5000	0.0300	1.2500	1.3750	3.0000	976-000-339
0.5000	0.5000	0.0600	1.2500	1.3750	3.0000	976-000-340
0.5000	0.5000	0.0900	1.2500	1.3750	3.0000	976-000-341
0.5000	0.5000	0.1200	1.2500	1.3750	3.0000	976-000-342
0.5000	0.5000	0.0100	1.5000	1.1250	3.0000	976-000-343
0.5000	0.5000	0.0150	1.5000	1.1250	3.0000	976-000-344
0.5000	0.5000	0.0300	1.5000	1.1250	3.0000	976-000-345
0.5000	0.5000	0.0600	1.5000	1.1250	3.0000	976-000-346
0.5000	0.5000	0.0900	1.5000	1.1250	3.0000	976-000-347
0.5000	0.5000	0.1200	1.5000	1.1250	3.0000	976-000-348

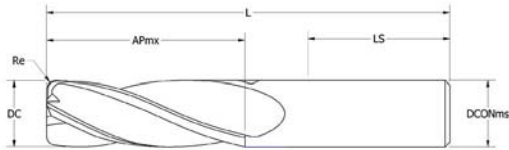
CARBIDE



5-FLUTE - STANDARD LENGTH - CORNER RADIUS



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.5000	0.5000	0.0100	1.5000	1.6250	3.5000	976-000-349
0.5000	0.5000	0.0150	1.5000	1.6250	3.5000	976-000-350
0.5000	0.5000	0.0300	1.5000	1.6250	3.5000	976-000-351
0.5000	0.5000	0.0600	1.5000	1.6250	3.5000	976-000-352
0.5000	0.5000	0.0900	1.5000	1.6250	3.5000	976-000-353
0.5000	0.5000	0.1200	1.5000	1.6250	3.5000	976-000-354
0.5000	0.5000	0.0100	1.7500	1.3750	3.5000	976-000-355
0.5000	0.5000	0.0150	1.7500	1.3750	3.5000	976-000-356
0.5000	0.5000	0.0300	1.7500	1.3750	3.5000	976-000-357
0.5000	0.5000	0.0600	1.7500	1.3750	3.5000	976-000-358
0.5000	0.5000	0.0900	1.7500	1.3750	3.5000	976-000-359
0.5000	0.5000	0.1200	1.7500	1.3750	3.5000	976-000-360
0.6250	0.6250	0.0300	1.5000	1.6250	3.5000	976-000-361
0.6250	0.6250	0.0400	1.5000	1.6250	3.5000	976-000-362
0.6250	0.6250	0.0600	1.5000	1.6250	3.5000	976-000-363
0.6250	0.6250	0.0900	1.5000	1.6250	3.5000	976-000-364
0.6250	0.6250	0.1200	1.5000	1.6250	3.5000	976-000-365
0.6250	0.6250	0.0300	1.7500	1.8750	4.0000	976-000-366
0.6250	0.6250	0.0400	1.7500	1.8750	4.0000	976-000-367
0.6250	0.6250	0.0600	1.7500	1.8750	4.0000	976-000-368
0.6250	0.6250	0.0900	1.7500	1.8750	4.0000	976-000-369
0.6250	0.6250	0.1200	1.7500	1.8750	4.0000	976-000-370
0.7500	0.7500	0.0300	1.7500	1.8750	4.0000	976-000-371
0.7500	0.7500	0.0400	1.7500	1.8750	4.0000	976-000-372
0.7500	0.7500	0.0600	1.7500	1.8750	4.0000	976-000-373
0.7500	0.7500	0.0900	1.7500	1.8750	4.0000	976-000-374
0.7500	0.7500	0.1200	1.7500	1.8750	4.0000	976-000-375
1.0000	1.0000	0.0300	1.7500	1.8750	4.0000	976-000-376
1.0000	1.0000	0.0400	1.7500	1.8750	4.0000	976-000-377
1.0000	1.0000	0.0600	1.7500	1.8750	4.0000	976-000-378
1.0000	1.0000	0.0900	1.7500	1.8750	4.0000	976-000-379
1.0000	1.0000	0.1200	1.7500	1.8750	4.0000	976-000-380



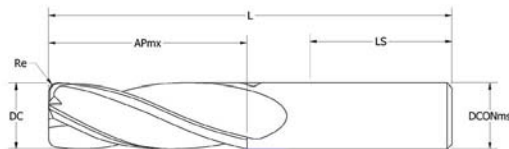
CARBIDE



5-FLUTE - LONG LENGTH - CORNER RADIUS



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.1250	0.1250	0.0150	0.7500	1.3750	2.5000	976-000-381
0.1250	0.1250	0.0300	0.7500	1.3750	2.5000	976-000-382
0.1875	0.1875	0.0150	0.7500	1.3750	2.5000	976-000-383
0.1875	0.1875	0.0300	0.7500	1.3750	2.5000	976-000-384
0.2500	0.2500	0.0150	1.1250	1.5000	3.0000	976-000-385
0.2500	0.2500	0.0300	1.1250	1.5000	3.0000	976-000-386
0.3125	0.3125	0.0150	1.1250	1.5000	3.0000	976-000-387
0.3125	0.3125	0.0300	1.1250	1.5000	3.0000	976-000-388
0.3750	0.3750	0.0300	1.2500	1.3750	3.0000	976-000-389
0.3750	0.3750	0.0600	1.2500	1.3750	3.0000	976-000-390
0.4375	0.4375	0.0300	2.0000	1.6250	4.0000	976-000-391
0.4375	0.4375	0.0600	2.0000	1.6250	4.0000	976-000-392
0.5000	0.5000	0.0300	2.0000	1.6250	4.0000	976-000-393
0.5000	0.5000	0.0600	2.0000	1.6250	4.0000	976-000-394
0.6250	0.6250	0.0300	2.2500	2.3750	5.0000	976-000-395
0.6250	0.6250	0.0600	2.2500	2.3750	5.0000	976-000-396
0.7500	0.7500	0.0300	2.2500	2.3750	5.0000	976-000-397
0.7500	0.7500	0.0600	2.2500	2.3750	5.0000	976-000-398
1.0000	1.0000	0.0300	2.2500	2.3750	5.0000	976-000-399
1.0000	1.0000	0.0600	2.2500	2.3750	5.0000	976-000-400

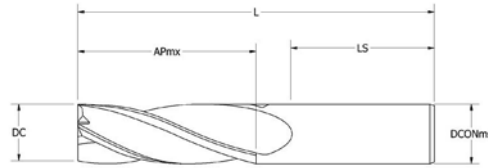


5-FLUTE - X - LONG LENGTH - CORNER RADIUS



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.1250	0.1250	0.0150	1.0000	1.3750	3.0000	976-000-401
0.1250	0.1250	0.0300	1.0000	1.3750	3.0000	976-000-403
0.1875	0.1875	0.0150	1.1250	1.3750	3.0000	976-000-404
0.1875	0.1875	0.0300	1.1250	1.3750	3.0000	976-000-405
0.2500	0.2500	0.0150	1.5000	1.5000	4.0000	976-000-406
0.2500	0.2500	0.0300	1.5000	1.5000	4.0000	976-000-407
0.3125	0.3125	0.0300	1.6250	1.5000	4.0000	976-000-408
0.3125	0.3125	0.0600	1.6250	1.5000	4.0000	976-000-410
0.3750	0.3750	0.0300	2.0000	1.3750	6.0000	976-000-411
0.3750	0.3750	0.0600	2.0000	1.3750	6.0000	976-000-412
0.4375	0.4375	0.0300	3.0000	1.6250	6.0000	976-000-413
0.4375	0.4375	0.0600	3.0000	1.6250	6.0000	976-000-415
0.5000	0.5000	0.0300	3.0000	1.6250	6.0000	976-000-416
0.5000	0.5000	0.0600	3.0000	1.6250	6.0000	976-000-417
0.6250	0.6250	0.0300	3.0000	2.3750	6.0000	976-000-418
0.6250	0.6250	0.0600	3.0000	2.3750	6.0000	976-000-419
0.7500	0.7500	0.0300	3.0000	2.3750	6.0000	976-000-420
0.7500	0.7500	0.0600	3.0000	2.3750	6.0000	976-000-421
1.0000	1.0000	0.0300	3.0000	2.3750	6.0000	976-000-422
1.0000	1.0000	0.0600	3.0000	2.3750	6.0000	976-000-423

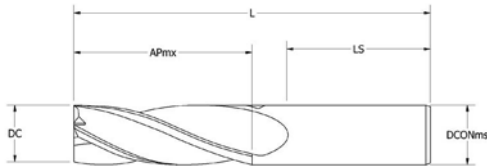
CARBIDE



7-FLUTE - STUB LENGTH - SQUARE END



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.1875	0.1875	0.3750	2.1250	2.0000	976-000-097
0.2500	0.2500	0.5000	1.1250	2.0000	976-000-098
0.3125	0.3125	0.5000	1.1250	2.0000	976-000-099
0.3750	0.3750	0.6250	1.0000	2.0000	976-000-100
0.4375	0.4375	0.6250	1.5000	2.5000	976-000-101
0.5000	0.5000	0.7500	1.3750	2.5000	976-000-102
0.6250	0.6250	0.7500	1.8750	3.0000	976-000-103
0.7500	0.7500	1.0000	1.6250	3.0000	976-000-104



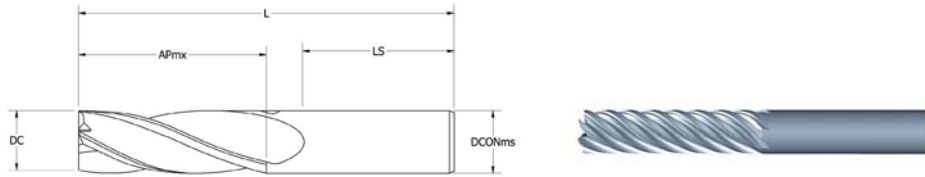
7-FLUTE - STANDARD LENGTH - SQUARE END



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.1875	0.1875	0.6250	1.0000	2.0000	976-000-105
0.2500	0.2500	0.7500	1.3750	2.5000	976-000-106
0.2500	0.2500	1.0000	1.1250	2.5000	976-000-107
0.3125	0.3125	0.8125	1.3125	2.5000	976-000-108
0.3750	0.3750	0.8750	1.2500	2.5000	976-000-109
0.3750	0.3750	1.0000	1.1250	2.5000	976-000-110
0.4375	0.4375	1.0000	1.3750	2.7500	976-000-111
0.5000	0.5000	1.0000	1.6250	3.0000	976-000-112
0.5000	0.5000	1.2500	1.3750	3.0000	976-000-113
0.5000	0.5000	1.5000	1.6250	3.5000	976-000-114
0.5000	0.5000	1.7500	1.3750	3.5000	976-000-115
0.6250	0.6250	1.5000	1.6250	3.5000	976-000-116
0.7500	0.7500	1.7500	1.8750	4.0000	976-000-117
1.0000	1.0000	1.7500	1.8750	4.0000	976-000-118



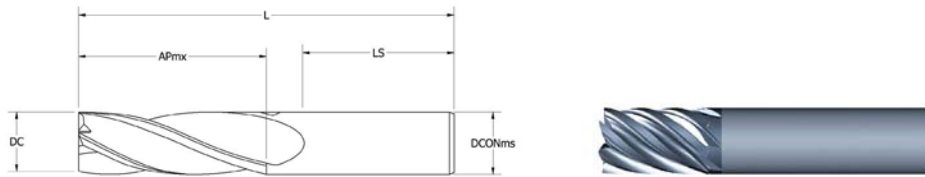
CARBIDE



7-FLUTE - LONG LENGTH - SQUARE END



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.1875	0.1875	0.7500	1.3750	2.5000	976-000-119
0.2500	0.2500	1.1250	1.5000	3.0000	976-000-120
0.3125	0.3125	1.1250	1.5000	3.0000	976-000-121
0.3750	0.3750	1.2500	1.3750	3.0000	976-000-122
0.4375	0.4375	2.0000	1.6250	4.0000	976-000-123
0.5000	0.5000	2.0000	1.6250	4.0000	976-000-124
0.6250	0.6250	2.2500	2.3750	5.0000	976-000-125
0.7500	0.7500	2.2500	2.3750	5.0000	976-000-126
1.0000	1.0000	2.2500	2.3750	5.0000	976-000-127

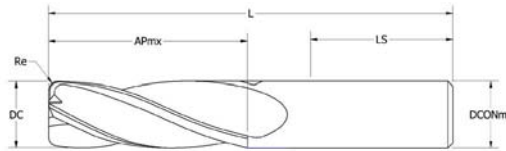


7-FLUTE - STUB LENGTH - CORNER RADIUS



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.1875	0.1875	0.0100	0.3750	1.2500	2.0000	976-000-424
0.2500	0.2500	0.0200	0.5000	1.1250	2.0000	976-000-425
0.3125	0.3125	0.0200	0.5000	1.1250	2.0000	976-000-426
0.3750	0.3750	0.0200	0.6250	1.0000	2.0000	976-000-427
0.4375	0.4375	0.0300	0.6250	1.5000	2.5000	976-000-428
0.5000	0.5000	0.0300	0.7500	1.3750	2.5000	976-000-429
0.6250	0.6250	0.0400	0.7500	1.8750	3.0000	976-000-430
0.7500	0.7500	0.0400	1.0000	1.6250	3.0000	976-000-431

CARBIDE



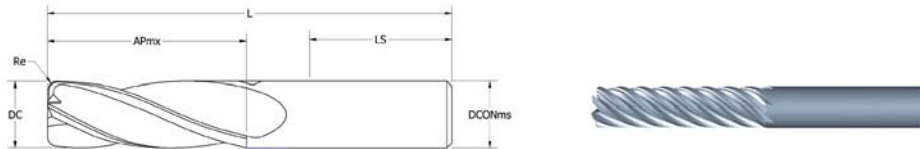
7-FLUTE - STANDARD LENGTH - CORNER RADIUS



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.1875	0.1875	0.0150	0.6250	1.0000	2.0000	976-000-432
0.1875	0.1875	0.0300	0.6250	1.0000	2.0000	976-000-433
0.2500	0.2500	0.0150	0.7500	1.3750	2.5000	976-000-434
0.2500	0.2500	0.0300	0.7500	1.3750	2.5000	976-000-435
0.2500	0.2500	0.0150	1.0000	1.1250	2.5000	976-000-436
0.2500	0.2500	0.0300	1.0000	1.1250	2.5000	976-000-437
0.3125	0.3125	0.0150	0.8125	1.3125	2.5000	976-000-438
0.3125	0.3125	0.0300	0.8125	1.3125	2.5000	976-000-439
0.3750	0.3750	0.0150	0.8750	1.2500	2.5000	976-000-440
0.3750	0.3750	0.0300	0.8750	1.2500	2.5000	976-000-441
0.3750	0.3750	0.0600	0.8750	1.2500	2.5000	976-000-442
0.3750	0.3750	0.0150	1.0000	1.1250	2.5000	976-000-443
0.3750	0.3750	0.0300	1.0000	1.1250	2.5000	976-000-444
0.3750	0.3750	0.0600	1.0000	1.1250	2.5000	976-000-445
0.4375	0.4375	0.0150	1.0000	1.3750	2.7500	976-000-446
0.4375	0.4375	0.0300	1.0000	1.3750	2.7500	976-000-447
0.4375	0.4375	0.0600	1.0000	1.3750	2.7500	976-000-448
0.5000	0.5000	0.0150	1.0000	1.6250	3.0000	976-000-449
0.5000	0.5000	0.0300	1.0000	1.6250	3.0000	976-000-450
0.5000	0.5000	0.0600	1.0000	1.6250	3.0000	976-000-451
0.5000	0.5000	0.0150	1.2500	1.3750	3.0000	976-000-452
0.5000	0.5000	0.0300	1.2500	1.3750	3.0000	976-000-453
0.5000	0.5000	0.0600	1.2500	1.3750	3.0000	976-000-454
0.5000	0.5000	0.0150	1.5000	1.1250	3.0000	976-000-455
0.5000	0.5000	0.0300	1.5000	1.1250	3.0000	976-000-456
0.5000	0.5000	0.0600	1.5000	1.1250	3.0000	976-000-457
0.5000	0.5000	0.0150	1.7500	1.3750	3.5000	976-000-458
0.5000	0.5000	0.0300	1.7500	1.3750	3.5000	976-000-459
0.5000	0.5000	0.0600	1.7500	1.3750	3.5000	976-000-460
0.6250	0.6250	0.0300	1.5000	1.6250	3.5000	976-000-461
0.6250	0.6250	0.0600	1.5000	1.6250	3.5000	976-000-462
0.6250	0.6250	0.0900	1.5000	1.6250	3.5000	976-000-463
0.7500	0.7500	0.0300	1.7500	1.8750	4.0000	976-000-464
0.7500	0.7500	0.0600	1.7500	1.8750	4.0000	976-000-465
0.7500	0.7500	0.0900	1.7500	1.8750	4.0000	976-000-466
1.0000	1.0000	0.0300	1.7500	1.8750	4.0000	976-000-467
1.0000	1.0000	0.0600	1.7500	1.8750	4.0000	976-000-468
1.0000	1.0000	0.0900	1.7500	1.8750	4.0000	976-000-469



CARBIDE



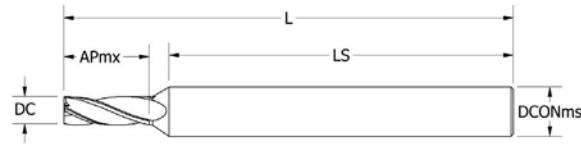
7-FLUTE - LONG LENGTH - CORNER RADIUS



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	PRODUCT #
0.1875	0.1875	0.0150	0.7500	1.3750	2.5000	976-000-470
0.1875	0.1875	0.0300	0.7500	1.3750	2.5000	976-000-471
0.2500	0.2500	0.0150	1.1250	1.5000	3.0000	976-000-472
0.2500	0.2500	0.0300	1.1250	1.5000	3.0000	976-000-473
0.3125	0.3125	0.0150	1.1250	1.5000	3.0000	976-000-474
0.3125	0.3125	0.0300	1.1250	1.5000	3.0000	976-000-475
0.3750	0.3750	0.0300	1.2500	1.3750	3.0000	976-000-476
0.3750	0.3750	0.0600	1.2500	1.3750	3.0000	976-000-477
0.4375	0.4375	0.0300	2.0000	1.6250	4.0000	976-000-478
0.4375	0.4375	0.0600	2.0000	1.6250	4.0000	976-000-479
0.5000	0.5000	0.0300	2.0000	1.6250	4.0000	976-000-480
0.5000	0.5000	0.0600	2.0000	1.6250	4.0000	976-000-481
0.6250	0.6250	0.0300	2.2500	2.3750	5.0000	976-000-482
0.6250	0.6250	0.0600	2.2500	2.3750	5.0000	976-000-483
0.7500	0.7500	0.0300	2.2500	2.3750	5.0000	976-000-484
0.7500	0.7500	0.0600	2.2500	2.3750	5.0000	976-000-485
1.0000	1.0000	0.0300	2.2500	2.3750	5.0000	976-000-486
1.0000	1.0000	0.0600	2.2500	2.3750	5.0000	976-000-487

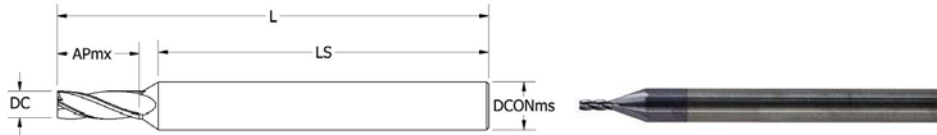
CARBIDE

Ø .005" - .045"



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED			AITIN COATED	
					2 FLUTE	3 FLUTE	4 FLUTE	2 FLUTE	4 FLUTE
0.0050	0.1250	0.0150	1.1342	1.5000	930-000-243	N/A	N/A	930-000-527	N/A
0.0060	0.1250	0.0180	1.1342	1.5000	930-000-245	N/A	N/A	930-000-528	N/A
0.0070	0.1250	0.0210	1.1342	1.5000	930-000-246	N/A	N/A	930-000-529	N/A
0.0080	0.1250	0.0240	1.1342	1.5000	930-000-247	N/A	N/A	930-000-530	N/A
0.0090	0.1250	0.0270	1.1342	1.5000	930-000-248	N/A	N/A	930-000-531	N/A
0.0100	0.1250	0.0300	1.1742	1.5000	930-000-249	930-002-678	930-000-635	930-000-532	930-001-031
0.0110	0.1250	0.0330	1.1738	1.5000	930-000-251	930-002-679	930-000-637	930-000-533	930-001-032
0.0120	0.1250	0.0360	1.1733	1.5000	930-000-252	930-002-680	930-000-638	930-000-534	930-001-033
0.0130	0.1250	0.0390	1.1729	1.5000	930-000-253	930-002-681	930-000-639	930-000-535	930-001-034
0.0140	0.1250	0.0420	1.1725	1.5000	930-000-254	930-002-682	930-000-640	930-000-536	930-001-035
0.0150	0.1250	0.0450	1.1720	1.5000	930-000-255	930-002-683	930-000-641	930-000-537	930-001-036
0.0156	0.1250	0.0468	1.1718	1.5000	930-000-362	930-002-727	930-000-748	N/A	N/A
0.0160	0.1250	0.0480	1.1716	1.5000	930-000-257	N/A	930-000-643	930-000-538	930-001-037
0.0170	0.1250	0.0510	1.1712	1.5000	930-000-258	N/A	930-000-644	930-000-539	930-001-038
0.0180	0.1250	0.0540	1.1708	1.5000	930-000-259	930-002-684	930-000-645	930-000-540	930-001-039
0.0190	0.1250	0.0570	1.1703	1.5000	930-000-260	N/A	930-000-646	930-000-541	930-001-040
0.0197	0.1250	0.0591	1.1700	1.5000	930-000-343	930-002-715	930-000-729	N/A	N/A
0.0200	0.1250	0.0600	1.1699	1.5000	930-000-261	930-002-685	930-000-647	930-000-542	930-001-041
0.0210	0.1250	0.0600	1.2600	1.5000	930-000-263	N/A	930-000-649	930-000-543	930-001-042
0.0220	0.1250	0.0630	1.1695	1.5000	930-000-264	N/A	930-000-650	930-000-544	930-001-043
0.0230	0.1250	0.0660	1.1691	1.5000	930-000-265	930-002-686	930-000-651	930-000-545	930-001-044
0.0240	0.1250	0.0690	1.1686	1.5000	930-000-266	930-002-687	930-000-652	930-000-546	930-001-045
0.0250	0.1250	0.0720	1.1682	1.5000	930-000-267	930-002-688	930-000-653	930-000-547	930-001-046
0.0260	0.1250	0.0750	1.1678	1.5000	930-000-269	930-002-689	930-000-655	930-000-548	930-001-047
0.0270	0.1250	0.0810	1.1669	1.5000	930-000-270	N/A	930-000-656	930-000-549	930-001-048
0.0280	0.1250	0.0840	1.1665	1.5000	930-000-271	N/A	930-000-657	930-000-550	930-001-049
0.0290	0.1250	0.0870	1.1661	1.5000	930-000-272	930-002-690	930-000-658	930-000-551	930-001-050
0.0300	0.1250	0.0900	1.1656	1.5000	930-000-273	930-002-691	930-000-659	930-000-552	930-001-051
0.0310	0.1250	0.0930	1.1652	1.5000	930-000-275	930-002-692	930-000-661	930-000-553	930-001-052
0.0320	0.1250	0.0960	1.1648	1.5000	930-000-276	N/A	930-000-662	930-000-554	930-001-053
0.0330	0.1250	0.0990	1.1644	1.5000	930-000-277	930-002-693	930-000-663	930-000-555	930-001-054
0.0340	0.1250	0.1020	1.1639	1.5000	930-000-278	N/A	930-000-664	930-000-556	930-001-055
0.0350	0.1250	0.1050	1.1635	1.5000	930-000-279	930-002-694	930-000-665	930-000-557	930-001-056
0.0360	0.1250	0.1080	1.1631	1.5000	930-000-281	N/A	930-000-667	930-000-558	930-001-057
0.0370	0.1250	0.1110	1.1626	1.5000	930-000-282	N/A	930-000-668	930-000-559	930-001-058
0.0380	0.1250	0.1140	1.1622	1.5000	930-000-283	N/A	930-000-669	930-000-560	930-001-059
0.0390	0.1250	0.1170	1.1618	1.5000	930-000-284	N/A	930-000-670	930-000-561	930-001-060
0.0394	0.1250	0.1182	1.1616	1.5000	930-000-350	930-002-716	930-000-736	930-000-601	930-001-103
0.0400	0.1250	0.1200	1.1614	1.5000	930-000-285	930-002-695	930-000-671	930-000-562	930-001-061
0.0410	0.1250	0.1230	1.1609	1.5000	930-000-287	N/A	930-000-673	930-000-563	930-001-062
0.0420	0.1250	0.1260	1.1605	1.5000	930-000-288	N/A	930-000-674	930-000-564	930-001-063
0.0430	0.1250	0.1290	1.1601	1.5000	930-000-289	N/A	930-000-675	930-000-565	930-001-064
0.0440	0.1250	0.1320	1.1596	1.5000	930-000-290	N/A	930-000-676	930-000-566	930-001-065
0.0450	0.1250	0.1350	1.1592	1.5000	930-000-291	930-002-696	930-000-677	930-000-567	930-001-066

Ø .005" - .045"



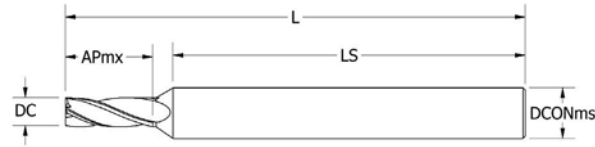
CARBIDE



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	TiAIN COATED			AMORPHOUS DIAMOND COATED		
					2 FLUTE	3 FLUTE	4 FLUTE	2 FLUTE	3 FLUTE	4 FLUTE
0.0050	0.1250	0.0150	1.1342	1.5000	930-000-439	N/A	N/A	930-000-364	N/A	N/A
0.0060	0.1250	0.0180	1.1342	1.5000	930-000-440	N/A	N/A	930-000-365	N/A	N/A
0.0070	0.1250	0.0210	1.1342	1.5000	930-000-441	N/A	N/A	930-000-366	N/A	N/A
0.0080	0.1250	0.0240	1.1342	1.5000	930-000-442	N/A	N/A	930-000-367	N/A	N/A
0.0090	0.1250	0.0270	1.1342	1.5000	930-000-443	N/A	N/A	930-000-368	N/A	N/A
0.0100	0.1250	0.0300	1.1742	1.5000	930-000-444	930-002-750	930-000-881	930-000-369	930-002-729	930-000-750
0.0110	0.1250	0.0330	1.1738	1.5000	930-000-445	930-002-751	930-000-882	930-000-370	N/A	930-000-751
0.0120	0.1250	0.0360	1.1733	1.5000	930-000-446	930-002-752	930-000-883	930-000-371	N/A	930-000-752
0.0130	0.1250	0.0390	1.1729	1.5000	930-000-447	930-002-753	930-000-884	930-000-372	N/A	930-000-753
0.0140	0.1250	0.0420	1.1725	1.5000	930-000-448	930-002-754	930-000-885	930-000-373	N/A	930-000-754
0.0150	0.1250	0.0450	1.1720	1.5000	930-000-449	930-002-755	930-000-886	930-000-374	930-002-730	930-000-755
0.0156	0.1250	0.0468	1.1718	1.5000	930-000-525	930-002-795	930-000-961	N/A	N/A	N/A
0.0160	0.1250	0.0480	1.1716	1.5000	930-000-450	N/A	930-000-887	930-000-375	N/A	930-000-756
0.0170	0.1250	0.0510	1.1712	1.5000	930-000-451	N/A	930-000-888	930-000-376	N/A	930-000-757
0.0180	0.1250	0.0540	1.1708	1.5000	930-000-452	930-002-756	930-000-889	930-000-377	N/A	930-000-758
0.0190	0.1250	0.0570	1.1703	1.5000	930-000-453	N/A	930-000-890	930-000-378	N/A	930-000-759
0.0197	0.1250	0.0591	1.1700	1.5000	930-000-513	930-002-783	930-000-949	N/A	N/A	N/A
0.0200	0.1250	0.0600	1.1699	1.5000	930-000-454	930-002-757	930-000-891	930-000-379	930-002-731	930-000-760
0.0210	0.1250	0.0630	1.1695	1.5000	930-000-455	N/A	930-000-892	930-000-380	N/A	930-000-761
0.0220	0.1250	0.0660	1.1691	1.5000	930-000-456	N/A	930-000-893	930-000-381	N/A	930-000-762
0.0230	0.1250	0.0690	1.1686	1.5000	930-000-457	930-002-758	930-000-894	930-000-382	N/A	930-000-763
0.0240	0.1250	0.0720	1.1682	1.5000	930-000-458	930-002-759	930-000-895	930-000-383	N/A	930-000-764
0.0250	0.1250	0.0750	1.1678	1.5000	930-000-459	930-002-760	930-000-896	930-000-384	930-002-732	930-000-765
0.0260	0.1250	0.0780	1.1673	1.5000	930-000-460	N/A	930-000-897	930-000-385	N/A	930-000-766
0.0270	0.1250	0.0810	1.1669	1.5000	930-000-461	N/A	930-000-898	930-000-386	N/A	930-000-767
0.0280	0.1250	0.0840	1.1665	1.5000	930-000-462	N/A	930-000-899	930-000-387	N/A	930-000-768
0.0290	0.1250	0.0870	1.1661	1.5000	930-000-463	930-002-761	930-000-900	930-000-388	N/A	930-000-769
0.0300	0.1250	0.0900	1.1656	1.5000	930-000-464	930-002-762	930-000-901	930-000-389	930-002-733	930-000-770
0.0310	0.1250	0.0930	1.1652	1.5000	930-000-465	930-002-763	930-000-902	930-000-390	930-002-734	930-000-771
0.0320	0.1250	0.0960	1.1648	1.5000	930-000-466	N/A	930-000-903	930-000-391	N/A	930-000-772
0.0330	0.1250	0.0990	1.1644	1.5000	930-000-467	N/A	930-000-904	930-000-392	N/A	930-000-773
0.0340	0.1250	0.1020	1.1639	1.5000	930-000-468	N/A	930-000-905	930-000-393	N/A	930-000-774
0.0350	0.1250	0.1050	1.1635	1.5000	930-000-469	930-002-764	930-000-906	930-000-394	930-002-735	930-000-775
0.0360	0.1250	0.1080	1.1631	1.5000	930-000-470	N/A	930-000-907	930-000-395	N/A	930-000-776
0.0370	0.1250	0.1110	1.1626	1.5000	930-000-471	N/A	930-000-908	930-000-396	N/A	930-000-777
0.0380	0.1250	0.1140	1.1622	1.5000	930-000-472	N/A	930-000-909	930-000-397	N/A	930-000-778
0.0390	0.1250	0.1170	1.1618	1.5000	930-000-473	N/A	930-000-910	930-000-398	N/A	930-000-779
0.0394	0.1250	0.1182	1.1616	1.5000	930-000-514	930-002-784	930-000-950	930-000-434	N/A	930-000-815
0.0400	0.1250	0.1200	1.1614	1.5000	930-000-474	930-002-765	930-000-911	930-000-399	930-002-736	930-000-780
0.0410	0.1250	0.1230	1.1609	1.5000	930-000-475	N/A	930-000-912	930-000-400	N/A	930-000-781
0.0420	0.1250	0.1260	1.1605	1.5000	930-000-476	N/A	930-000-913	930-000-401	N/A	930-000-782
0.0430	0.1250	0.1290	1.1601	1.5000	930-000-477	N/A	930-000-914	930-000-402	N/A	930-000-783
0.0440	0.1250	0.1320	1.1596	1.5000	930-000-478	N/A	930-000-915	930-000-403	N/A	930-000-784
0.0450	0.1250	0.1350	1.1592	1.5000	930-000-479	930-002-766	930-000-916	930-000-404	930-002-737	930-000-785

CARBIDE

Ø .046"- .1772"

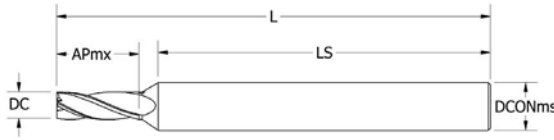


DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED			AITIN COATED	
					2 FLUTE	3 FLUTE	4 FLUTE	2 FLUTE	4 FLUTE
0.0460	0.1250	0.1380	1.1588	1.5000	930-000-293	N/A	930-000-679	930-000-568	930-001-067
0.0470	0.1250	0.1410	1.1584	1.5000	930-000-294	930-002-697	930-000-680	930-000-569	930-001-068
0.0480	0.1250	0.1440	1.1579	1.5000	930-000-295	N/A	930-000-681	930-000-570	930-001-069
0.0490	0.1250	0.1470	1.1575	1.5000	930-000-296	N/A	930-000-682	930-000-571	930-001-070
0.0492	0.1250	0.1476	1.1574	1.5000	930-000-351	930-002-717	930-000-737	930-000-602	N/A
0.0500	0.1250	0.1500	1.1571	1.5000	930-000-297	930-002-698	930-000-683	930-000-572	930-001-071
0.0510	0.1250	0.1530	1.1567	1.5000	930-000-299	N/A	930-000-685	930-000-573	930-001-072
0.0520	0.1250	0.1560	1.1562	1.5000	930-000-300	N/A	930-000-686	930-000-574	930-001-073
0.0530	0.1250	0.1590	1.1558	1.5000	930-000-301	N/A	930-000-687	930-000-575	930-001-074
0.0540	0.1250	0.1620	1.1554	1.5000	930-000-302	N/A	930-000-688	930-000-576	930-001-075
0.0550	0.1250	0.1650	1.1549	1.5000	930-000-303	930-002-699	930-000-689	930-000-577	930-001-076
0.0560	0.1250	0.1680	1.1545	1.5000	930-000-305	N/A	930-000-691	930-000-578	930-001-077
0.0570	0.1250	0.1710	1.1541	1.5000	930-000-306	N/A	930-000-692	930-000-579	930-001-078
0.0580	0.1250	0.1740	1.1537	1.5000	930-000-307	N/A	930-000-693	930-000-580	930-001-079
0.0590	0.1250	0.1770	1.1532	1.5000	930-000-308	N/A	930-000-694	930-000-581	930-001-080
0.0591	0.1250	0.1773	1.1532	1.5000	930-000-353	930-002-718	930-000-739	930-000-603	930-001-105
0.0600	0.1250	0.1800	1.1528	1.5000	930-000-309	930-002-700	930-000-695	930-000-582	930-001-081
0.0620	0.1250	0.1860	1.1519	1.5000	930-000-311	930-002-701	930-000-697	930-000-583	930-001-082
0.0630	0.1250	0.1890	1.1515	1.5000	930-000-354	930-002-719	930-000-740	N/A	N/A
0.0640	0.1250	0.1920	1.1511	1.5000	930-000-312	930-002-702	930-000-698	N/A	N/A
0.0650	0.1250	0.1950	1.1507	1.5000	930-000-313	930-002-703	930-000-699	930-000-584	930-001-083
0.0700	0.1250	0.2100	1.1485	1.5000	930-000-315	930-002-704	930-000-701	930-000-585	930-001-084
0.0709	0.1250	0.2127	1.1481	1.5000	930-000-355	930-002-720	930-000-741	N/A	N/A
0.0750	0.1250	0.2250	1.1464	1.5000	930-000-317	930-002-705	930-000-703	930-000-586	930-001-085
0.0780	0.1250	0.2340	1.1451	1.5000	930-000-318	930-002-706	930-000-704	930-000-587	930-001-086
0.0787	0.1250	0.2361	1.1448	1.5000	930-000-356	930-002-721	930-000-742	N/A	N/A
0.0800	0.1250	0.2400	1.1442	1.5000	930-000-319	930-002-707	930-000-705	930-000-588	930-001-087
0.0850	0.1250	0.2550	1.1421	1.5000	930-000-321	930-002-708	930-000-707	930-000-589	930-001-088
0.0866	0.1250	0.2598	1.1414	1.5000	930-000-357	930-002-722	930-000-743	N/A	N/A
0.0900	0.1250	0.2700	1.1400	1.5000	930-000-322	930-002-709	930-000-708	930-000-590	930-001-089
0.0930	0.1250	0.2790	1.1387	1.5000	930-000-324	930-002-710	930-000-710	930-000-591	930-001-090
0.0950	0.1250	0.2850	1.1378	1.5000	930-000-325	930-002-711	930-000-711	930-000-592	930-001-091
0.0984	0.1250	0.2952	1.1364	1.5000	930-000-358	930-002-723	930-000-744	N/A	N/A
0.1000	0.1250	0.3000	1.1357	1.5000	930-000-326	930-002-712	930-000-712	930-000-593	930-001-092
0.1030	0.1250	0.3090	1.1344	1.5000	930-000-328	930-002-713	930-000-714	N/A	N/A
0.1050	0.1250	0.3150	1.1336	1.5000	930-000-329	N/A	930-000-715	930-000-594	930-001-093
0.1102	0.1250	0.3306	1.1313	1.5000	930-000-359	930-002-724	930-000-745	930-000-604	930-001-106
0.1150	0.1250	0.3450	1.1293	1.5000	930-000-330	N/A	930-000-716	930-000-595	930-001-094
0.1181	0.1250	0.3543	1.1280	1.5000	930-000-360	930-002-725	930-000-746	930-000-605	930-001-107
0.1200	0.1250	0.3600	1.1271	1.5000	930-000-331	930-002-714	930-000-717	930-000-596	930-001-095
0.1378	0.1875	0.4134	1.4588	2.0000	930-000-361	930-002-726	930-000-747	N/A	N/A
0.1772	0.1875	0.5316	1.4419	2.0000	930-000-363	930-002-728	930-000-749	N/A	N/A

Ø .046" - .1772"



CARBIDE

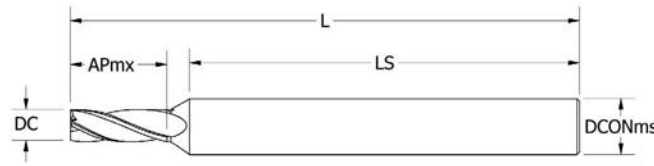


DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	TiAIN COATED			AMORPHOUS DIAMOND		
					2 FLUTE	3 FLUTE	4 FLUTE	2 FLUTE	3 FLUTE	4 FLUTE
0.0460	0.1250	0.1380	1.1588	1.5000	930-000-480	N/A	930-000-917	930-000-405	N/A	930-000-786
0.0470	0.1250	0.1410	1.1584	1.5000	930-000-481	930-002-767	930-000-918	930-000-406	930-000-738	930-000-787
0.0480	0.1250	0.1440	1.1579	1.5000	930-000-482	N/A	930-000-919	930-000-407	N/A	930-000-788
0.0490	0.1250	0.1470	1.1575	1.5000	930-000-483	N/A	930-000-920	930-000-408	N/A	930-000-789
0.0492	0.1250	0.1476	1.1574	1.5000	930-000-515	930-002-785	930-000-951	930-000-435	N/A	N/A
0.0500	0.1250	0.1500	1.1571	1.5000	930-000-484	930-002-768	930-000-921	930-000-409	930-000-739	930-000-790
0.0510	0.1250	0.1530	1.1567	1.5000	930-000-485	N/A	930-000-922	930-000-410	N/A	930-000-791
0.0520	0.1250	0.1560	1.1562	1.5000	930-000-486	N/A	930-000-923	930-000-411	N/A	930-000-792
0.0530	0.1250	0.1590	1.1558	1.5000	930-000-487	N/A	930-000-924	930-000-412	N/A	930-000-793
0.0540	0.1250	0.1620	1.1554	1.5000	930-000-488	N/A	930-000-925	930-000-413	N/A	930-000-794
0.0550	0.1250	0.1650	1.1549	1.5000	930-000-489	930-002-769	930-000-926	930-000-414	930-000-740	930-000-795
0.0560	0.1250	0.1680	1.1545	1.5000	930-000-490	N/A	930-000-927	930-000-415	N/A	930-000-796
0.0570	0.1250	0.1710	1.1541	1.5000	930-000-491	N/A	930-000-928	930-000-416	N/A	930-000-797
0.0580	0.1250	0.1740	1.1537	1.5000	930-000-492	N/A	930-000-929	930-000-417	N/A	930-000-798
0.0590	0.1250	0.1770	1.1532	1.5000	930-000-493	N/A	930-000-930	930-000-418	N/A	930-000-799
0.0591	0.1250	0.1773	1.1532	1.5000	930-000-516	930-002-786	930-000-952	930-000-436	N/A	930-000-817
0.0600	0.1250	0.1800	1.1528	1.5000	930-000-494	930-002-770	930-000-931	930-000-419	930-000-741	930-000-800
0.0620	0.1250	0.1860	1.1519	1.5000	930-000-495	930-002-771	930-000-932	930-000-420	930-000-742	930-000-801
0.0630	0.1250	0.1890	1.1515	1.5000	930-000-517	930-002-787	930-000-953	N/A	N/A	N/A
0.0650	0.1250	0.1950	1.1507	1.5000	930-000-496	930-002-772	930-000-933	930-000-421	930-000-743	930-000-802
0.0700	0.1250	0.2100	1.1485	1.5000	930-000-497	930-002-773	930-000-934	930-000-422	930-000-744	930-000-803
0.0709	0.1250	0.2127	1.1481	1.5000	930-000-518	930-002-788	930-000-954	N/A	N/A	N/A
0.0750	0.1250	0.2250	1.1464	1.5000	930-000-498	930-002-774	930-000-935	930-000-423	N/A	930-000-804
0.0780	0.1250	0.2340	1.1451	1.5000	930-000-499	930-002-775	930-000-936	930-000-424	930-000-745	930-000-805
0.0787	0.1250	0.2361	1.1448	1.5000	930-000-519	930-002-789	930-000-955	N/A	N/A	N/A
0.0800	0.1250	0.2400	1.1442	1.5000	930-000-500	930-002-776	930-000-937	930-000-425	930-000-746	930-000-806
0.0850	0.1250	0.2550	1.1421	1.5000	930-000-501	930-002-777	930-000-938	930-000-426	N/A	930-000-807
0.0866	0.1250	0.2598	1.1414	1.5000	930-000-520	930-002-790	930-000-956	N/A	N/A	N/A
0.0900	0.1250	0.2700	1.1400	1.5000	930-000-502	930-002-778	930-000-939	930-000-427	930-000-747	930-000-808
0.0930	0.1250	0.2790	1.1387	1.5000	930-000-503	930-002-779	930-000-940	930-000-428	930-000-748	930-000-809
0.0950	0.1250	0.2850	1.1378	1.5000	930-000-504	930-002-780	930-000-941	930-000-429	N/A	930-000-810
0.0984	0.1250	0.2952	1.1364	1.5000	930-000-521	930-002-791	930-000-957	N/A	N/A	N/A
0.1000	0.1250	0.3000	1.1357	1.5000	930-000-505	930-002-781	930-000-942	930-000-430	930-000-749	930-000-811
0.1050	0.1250	0.3150	1.1336	1.5000	N/A	N/A	N/A	930-000-431	N/A	930-000-812
0.1102	0.1250	0.3306	1.1313	1.5000	930-000-522	930-002-792	930-000-958	930-000-437	N/A	930-000-818
0.1150	0.1250	0.3450	1.1293	1.5000	N/A	N/A	N/A	930-000-432	N/A	930-000-813
0.1181	0.1250	0.3543	1.1280	1.5000	930-000-523	930-002-793	930-000-959	930-000-438	N/A	930-000-814
0.1200	0.1250	0.3600	1.1271	1.5000	930-000-506	930-002-782	930-000-943	930-000-433	N/A	930-000-815
0.1378	0.1875	0.4134	1.4588	2.0000	930-000-524	930-002-794	930-000-960	N/A	N/A	N/A
0.1772	0.1875	0.5316	1.4419	2.0000	930-000-526	930-002-796	930-000-962	N/A	N/A	N/A

CARBIDE



Ø .005" - .040"

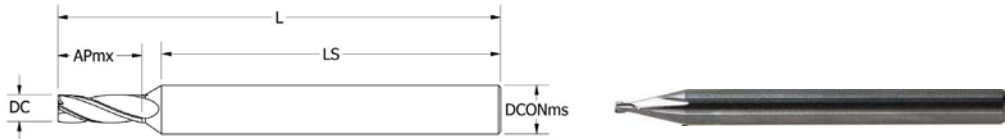


DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED		AITIN COATED
					2 FLUTE	4 FLUTE	2 FLUTE
0.0050	0.1250	0.0075	1.1342	1.5000	930-001-391	N/A	930-001-564
0.0060	0.1250	0.0090	1.1342	1.5000	930-001-392	N/A	930-001-565
0.0070	0.1250	0.0105	1.1342	1.5000	930-001-393	N/A	930-001-566
0.0080	0.1250	0.0120	1.1342	1.5000	930-001-394	N/A	930-001-567
0.0090	0.1250	0.0135	1.1342	1.5000	930-001-395	N/A	930-001-568
0.0100	0.1250	0.0150	1.1892	1.5000	930-001-396	930-001-622	930-001-569
0.0110	0.1250	0.0165	1.1903	1.5000	930-001-397	930-001-623	930-001-570
0.0120	0.1250	0.0180	1.1913	1.5000	930-001-398	930-001-624	930-001-571
0.0130	0.1250	0.0195	1.1924	1.5000	930-001-399	930-001-625	930-001-572
0.0140	0.1250	0.0210	1.1935	1.5000	930-001-400	930-001-626	930-001-573
0.0150	0.1250	0.0225	1.1945	1.5000	930-001-401	930-001-627	930-001-574
0.0156	0.1250	0.0234	1.1952	1.5000	930-001-467	930-001-685	N/A
0.0160	0.1250	0.0240	1.1956	1.5000	930-001-402	930-001-628	930-001-575
0.0170	0.1250	0.0255	1.1967	1.5000	930-001-403	930-001-629	930-001-576
0.0180	0.1250	0.0270	1.1978	1.5000	930-001-404	930-001-630	930-001-577
0.0190	0.1250	0.0285	1.1988	1.5000	930-001-405	930-001-631	930-001-578
0.0197	0.1250	0.0296	1.1996	1.5000	930-001-454	930-001-673	N/A
0.0200	0.1250	0.0300	1.1999	1.5000	930-001-406	930-001-632	930-001-579
0.0210	0.1250	0.0315	1.2010	1.5000	930-001-407	930-001-633	930-001-580
0.0220	0.1250	0.0330	1.2021	1.5000	930-001-408	930-001-634	930-001-581
0.0230	0.1250	0.0345	1.2031	1.5000	930-001-409	930-001-635	930-001-582
0.0240	0.1250	0.0360	1.2042	1.5000	930-001-410	930-001-636	930-001-583
0.0250	0.1250	0.0375	1.2053	1.5000	930-001-411	930-001-637	930-001-584
0.0260	0.1250	0.0390	1.2063	1.5000	930-001-412	930-001-638	930-001-585
0.0270	0.1250	0.0405	1.2074	1.5000	930-001-413	930-001-639	930-001-586
0.0280	0.1250	0.0420	1.2085	1.5000	930-001-414	930-001-640	930-001-587
0.0290	0.1250	0.0435	1.2096	1.5000	930-001-415	930-001-641	930-001-588
0.0300	0.1250	0.0450	1.2106	1.5000	930-001-416	930-001-642	930-001-589
0.0310	0.1250	0.0465	1.2117	1.5000	930-001-417	930-001-643	930-001-590
0.0320	0.1250	0.0480	1.2128	1.5000	930-001-418	930-001-644	930-001-591
0.0330	0.1250	0.0495	1.2139	1.5000	930-001-419	930-001-645	930-001-592
0.0340	0.1250	0.0510	1.2149	1.5000	930-001-420	930-001-646	930-001-593
0.0350	0.1250	0.0525	1.2160	1.5000	930-001-421	930-001-647	930-001-594
0.0360	0.1250	0.0540	1.2171	1.5000	930-001-422	930-001-648	930-001-595
0.0370	0.1250	0.0555	1.2181	1.5000	930-001-423	930-001-649	930-001-596
0.0380	0.1250	0.0570	1.2192	1.5000	930-001-424	930-001-650	930-001-597
0.0390	0.1250	0.0585	1.2203	1.5000	930-001-425	930-001-651	930-001-598
0.0394	0.1250	0.0591	1.2207	1.5000	930-001-456	930-001-674	930-001-619
0.0400	0.1250	0.0600	1.2214	1.5000	930-001-426	930-001-652	930-001-599

Ø .005" - .040"



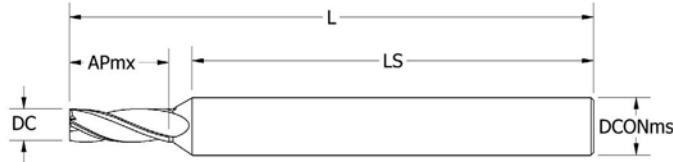
CARBIDE



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	TiAIN COATED		AMORPHOUS DIAMOND	
					2 FLUTE	4 FLUTE	2 FLUTE	4 FLUTE
0.0050	0.1250	0.0075	1.1342	1.5000	930-001-523	N/A	930-001-468	N/A
0.0060	0.1250	0.0090	1.1342	1.5000	930-001-524	N/A	930-001-469	N/A
0.0070	0.1250	0.0105	1.1342	1.5000	930-001-525	N/A	930-001-470	N/A
0.0080	0.1250	0.0120	1.1342	1.5000	930-001-526	N/A	930-001-471	N/A
0.0090	0.1250	0.0135	1.1342	1.5000	930-001-527	N/A	930-001-472	N/A
0.0100	0.1250	0.0150	1.1892	1.5000	930-001-528	930-001-750	930-001-473	930-001-686
0.0110	0.1250	0.0165	1.1903	1.5000	930-001-529	930-001-751	930-001-474	930-001-687
0.0120	0.1250	0.0180	1.1913	1.5000	930-001-530	930-001-752	930-001-475	930-001-688
0.0130	0.1250	0.0195	1.1924	1.5000	930-001-531	930-001-753	930-001-476	930-001-689
0.0140	0.1250	0.0210	1.1935	1.5000	930-001-532	930-001-754	930-001-477	930-001-690
0.0150	0.1250	0.0225	1.1945	1.5000	930-001-533	930-001-755	930-001-478	930-001-691
0.0160	0.1250	0.0240	1.1956	1.5000	930-001-534	930-001-756	930-001-479	930-001-692
0.0170	0.1250	0.0255	1.1967	1.5000	930-001-535	930-001-757	930-001-480	930-001-693
0.0180	0.1250	0.0270	1.1978	1.5000	930-001-536	930-001-759	930-001-481	930-001-694
0.0190	0.1250	0.0285	1.1988	1.5000	930-001-537	930-001-758	930-001-482	930-001-695
0.0200	0.1250	0.0300	1.1999	1.5000	930-001-538	930-001-760	930-001-483	930-001-696
0.0210	0.1250	0.0315	1.2010	1.5000	930-001-539	930-001-761	930-001-484	930-001-697
0.0220	0.1250	0.0330	1.2021	1.5000	930-001-540	930-001-762	930-001-485	930-001-698
0.0230	0.1250	0.0345	1.2031	1.5000	930-001-541	930-001-763	930-001-486	930-001-699
0.0240	0.1250	0.0360	1.2042	1.5000	930-001-542	930-001-764	930-001-487	930-001-700
0.0250	0.1250	0.0375	1.2053	1.5000	930-001-543	930-001-765	930-001-488	930-001-701
0.0260	0.1250	0.0390	1.2063	1.5000	930-001-544	930-001-766	930-001-489	930-001-702
0.0270	0.1250	0.0405	1.2074	1.5000	930-001-545	930-001-767	930-001-490	930-001-703
0.0280	0.1250	0.0420	1.2085	1.5000	930-001-546	930-001-768	930-001-491	930-001-704
0.0290	0.1250	0.0435	1.2096	1.5000	930-001-547	930-001-769	930-001-492	930-001-705
0.0300	0.1250	0.0450	1.2106	1.5000	930-001-548	930-001-770	930-001-493	930-001-706
0.0310	0.1250	0.0465	1.2117	1.5000	930-001-549	930-001-771	930-001-494	930-001-707
0.0320	0.1250	0.0480	1.2128	1.5000	930-001-550	930-001-772	930-001-495	930-001-708
0.0330	0.1250	0.0495	1.2139	1.5000	930-001-551	930-001-773	930-001-496	930-001-709
0.0340	0.1250	0.0510	1.2149	1.5000	930-001-552	930-001-774	930-001-497	930-001-710
0.0350	0.1250	0.0525	1.2160	1.5000	930-001-553	930-001-775	930-001-498	930-001-711
0.0360	0.1250	0.0540	1.2171	1.5000	930-001-554	930-001-776	930-001-499	930-001-712
0.0370	0.1250	0.0555	1.2181	1.5000	930-001-555	930-001-777	930-001-500	930-001-713
0.0380	0.1250	0.0570	1.2192	1.5000	930-001-556	930-001-778	930-001-501	930-001-714
0.0390	0.1250	0.0585	1.2203	1.5000	930-001-557	930-001-779	930-001-502	930-001-715
0.0400	0.1250	0.0600	1.2214	1.5000	930-001-558	930-001-780	930-001-503	930-001-716

CARBIDE

Ø .045" - .1378"

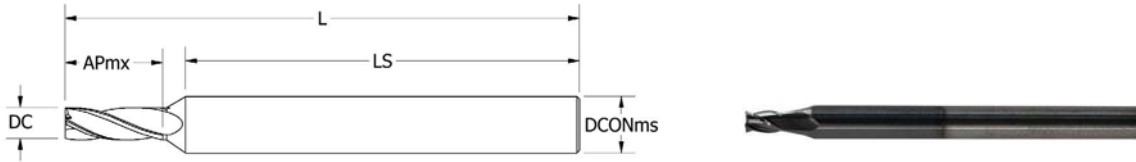


DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED		AITiN COATED
					2 FLUTE	4 FLUTE	2 FLUTE
0.0450	0.1250	0.0675	1.2267	1.5000	930-001-427	930-001-653	930-001-600
0.0470	0.1250	0.0705	1.2289	1.5000	930-001-428	930-001-654	930-001-601
0.0492	0.1250	0.0738	1.2312	1.5000	930-001-457	930-001-675	N/A
0.0500	0.1250	0.0750	1.2321	1.5000	930-001-429	930-001-655	930-001-602
0.0550	0.1250	0.0825	1.2374	1.5000	930-001-430	930-001-656	930-001-603
0.0591	0.1250	0.0887	1.2418	1.5000	930-001-458	930-001-676	N/A
0.0600	0.1250	0.0900	1.2428	1.5000	930-001-431	930-001-657	930-001-604
0.0620	0.1250	0.0930	1.2449	1.5000	930-001-432	930-001-658	930-001-605
0.0630	0.1250	0.0945	1.2460	1.5000	930-001-459	930-001-677	N/A
0.0650	0.1250	0.0975	1.2482	1.5000	930-001-433	930-001-659	930-001-606
0.0700	0.1250	0.1050	1.2535	1.5000	930-001-434	930-001-660	930-001-607
0.0709	0.1250	0.1064	1.2545	1.5000	930-001-460	930-001-678	N/A
0.0740	0.1250	0.1110	1.2578	1.5000	930-001-435	930-001-661	N/A
0.0750	0.1250	0.1125	1.2589	1.5000	930-001-436	930-001-662	930-001-608
0.0780	0.1250	0.1170	1.2621	1.5000	930-001-437	930-001-663	930-001-609
0.0787	0.1250	0.1181	1.2629	1.5000	930-001-461	930-001-679	N/A
0.0800	0.1250	0.1200	1.2642	1.5000	930-001-438	930-001-664	930-001-610
0.0850	0.1250	0.1275	1.2696	1.5000	930-001-439	930-001-665	930-001-611
0.0866	0.1250	0.1299	1.2713	1.5000	930-001-462	930-001-680	N/A
0.0900	0.1250	0.1350	1.2750	1.5000	930-001-440	930-001-666	930-001-612
0.0930	0.1250	0.1395	1.2782	1.5000	930-001-441	930-001-667	930-001-613
0.0950	0.1250	0.1425	1.2803	1.5000	930-001-442	930-001-668	930-001-614
0.0984	0.1250	0.1476	1.2840	1.5000	930-001-463	930-001-681	N/A
0.1000	0.1250	0.1500	1.2857	1.5000	930-001-443	930-001-669	930-001-615
0.1050	0.1250	0.1575	1.2911	1.5000	930-001-444	930-001-670	930-001-616
0.1102	0.1250	0.1653	1.2966	1.5000	930-001-464	930-001-682	930-001-620
0.1150	0.1250	0.1725	1.3018	1.5000	930-001-445	930-001-671	930-001-617
0.1181	0.1250	0.1772	1.3051	1.5000	930-001-465	930-001-683	930-001-621
0.1200	0.1250	0.1800	1.3071	1.5000	930-001-446	930-001-672	930-001-618
0.1378	0.1875	0.2067	1.6655	2.0000	930-001-466	930-001-684	N/A

Ø .045"- .120"



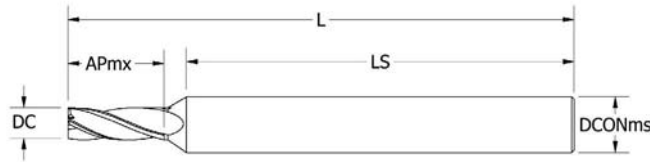
CARBIDE



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	AMORPHOUS DIAMOND	
					2 FLUTE	4 FLUTE
0.0450	0.1250	0.0675	1.2267	1.5000	930-001-504	930-001-717
0.0470	0.1250	0.0705	1.2289	1.5000	930-001-505	930-001-718
0.0500	0.1250	0.0750	1.2321	1.5000	930-001-506	930-001-719
0.0550	0.1250	0.0825	1.2374	1.5000	930-001-507	930-001-720
0.0600	0.1250	0.0900	1.2428	1.5000	930-001-508	930-001-721
0.0620	0.1250	0.0930	1.2449	1.5000	930-001-509	930-001-722
0.0650	0.1250	0.0975	1.2482	1.5000	930-001-510	930-001-723
0.0700	0.1250	0.1050	1.2535	1.5000	930-001-511	930-001-724
0.0750	0.1250	0.1125	1.2589	1.5000	930-001-512	930-001-725
0.0780	0.1250	0.1170	1.2621	1.5000	930-001-513	930-001-726
0.0800	0.1250	0.1200	1.2642	1.5000	930-001-514	930-001-727
0.0850	0.1250	0.1275	1.2696	1.5000	930-001-515	930-001-728
0.0900	0.1250	0.1350	1.2750	1.5000	930-001-516	930-001-729
0.0930	0.1250	0.1395	1.2782	1.5000	930-001-517	930-001-730
0.1000	0.1250	0.1500	1.2857	1.5000	930-001-518	930-001-731
0.1050	0.1250	0.1575	1.2911	1.5000	930-001-519	930-001-732
0.1181	0.1250	0.1772	1.3051	1.5000	930-001-520	930-001-733
0.1181	0.1250	0.1772	1.3051	1.5000	930-001-522	930-001-735
0.1200	0.1250	0.1800	1.3071	1.5000	930-001-521	930-001-734

CARBIDE

Ø .010"- .250"

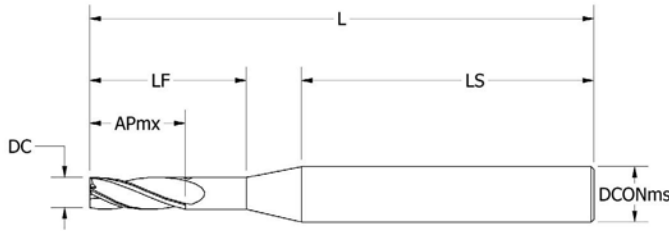


DC	DCONMS	APMX	LS	L	UNCOATED	AITiN COATED	AMORPHOUS DIAMOND
					3 FLUTE	3 FLUTE	3 FLUTE
0.0100	0.1250	0.0150	2.1892	2.5000	930-003-004	930-003-569	930-003-032
0.0150	0.1250	0.0225	2.1945	2.5000	930-003-005	930-003-570	930-003-033
0.0200	0.1250	0.0300	2.1999	2.5000	930-003-006	930-003-571	930-003-034
0.0250	0.1250	0.0375	2.2053	2.5000	930-003-007	930-003-572	930-003-035
0.0300	0.1250	0.0450	2.2106	2.5000	930-003-008	930-003-573	930-003-036
0.0310	0.1250	0.0465	2.2117	2.5000	930-003-009	930-003-574	930-003-037
0.0350	0.1250	0.0525	2.2160	2.5000	930-003-010	930-003-575	930-003-038
0.0390	0.1250	0.0585	2.2203	2.5000	930-003-011	930-003-576	930-003-039
0.0400	0.1250	0.0600	2.2214	2.5000	930-003-012	930-003-577	930-003-040
0.0450	0.1250	0.0675	2.2267	2.5000	930-003-013	930-003-578	930-003-041
0.0470	0.1250	0.0705	2.2289	2.5000	930-003-014	930-003-579	930-003-042
0.0500	0.1250	0.0750	2.2321	2.5000	930-003-015	930-003-580	930-003-043
0.0550	0.1250	0.0825	2.2374	2.5000	930-003-016	930-003-581	930-003-044
0.0600	0.1250	0.0900	2.2428	2.5000	930-003-017	930-003-582	930-003-045
0.0620	0.1250	0.0930	2.2449	2.5000	930-003-018	930-003-583	930-003-046
0.0650	0.1250	0.0975	2.2482	2.5000	930-003-019	930-003-584	930-003-047
0.0700	0.1250	0.1050	2.2535	2.5000	930-003-020	930-003-585	930-003-048
0.0750	0.1250	0.1125	2.2589	2.5000	930-003-021	930-003-586	930-003-049
0.0780	0.1250	0.1170	2.2621	2.5000	930-003-022	930-003-587	930-003-050
0.0800	0.1250	0.1200	2.2642	2.5000	930-003-023	930-003-588	930-003-051
0.0850	0.1250	0.1275	2.2696	2.5000	930-003-024	930-003-589	930-003-052
0.0900	0.1250	0.1350	2.2750	2.5000	930-003-025	930-003-590	930-003-053
0.0930	0.1250	0.1395	2.2782	2.5000	930-003-026	930-003-591	930-003-054
0.0950	0.1250	0.1425	2.2803	2.5000	930-003-027	930-003-592	930-003-055
0.1000	0.1250	0.1500	2.2857	2.5000	930-003-028	930-003-593	930-003-056
0.1250	0.1250	0.1875	1.9375	2.5000	930-003-029	931-000-380	931-000-345
0.1875	0.1875	0.2813	2.3438	3.0000	930-003-030	931-000-381	931-000-346
0.2500	0.2500	0.3750	3.2500	4.0000	930-003-031	931-000-382	931-000-347

Ø .010" - .035"



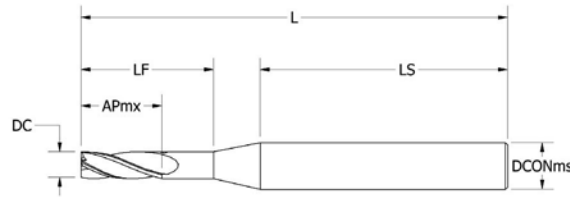
CARBIDE



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	UNCOATED	AITiN COATED	AMORPHOUS DIAMOND
						3 FLUTE	3 FLUTE	3 FLUTE
0.0100	0.1250	0.0150	2.3925	2.5000	0.0500	930-003-794	930-003-658	930-003-114
0.0100	0.1250	0.0150	2.3625	2.5000	0.0800	930-003-821	930-003-685	930-003-138
0.0100	0.1250	0.0150	2.3175	2.5000	0.1250	930-003-730	930-003-594	930-003-057
0.0100	0.1250	0.0150	2.2925	2.5000	0.1500	930-003-757	930-003-621	930-003-081
0.0150	0.1250	0.0225	2.4000	2.5000	0.0450	930-003-788	930-003-652	930-003-108
0.0150	0.1250	0.0225	2.3670	2.5000	0.0780	930-003-795	930-003-659	930-003-115
0.0150	0.1250	0.0225	2.3200	2.5000	0.1250	930-003-822	930-003-686	930-003-139
0.0150	0.1250	0.0225	2.2575	2.5000	0.1875	930-003-731	930-003-595	930-003-058
0.0150	0.1250	0.0225	2.2200	2.5000	0.2250	930-003-758	930-003-622	930-003-082
0.0150	0.1250	0.0225	2.1450	2.5000	0.3000	930-003-776	930-003-640	930-003-097
0.0200	0.1250	0.0300	2.3475	2.5000	0.1000	930-003-796	930-003-660	930-003-116
0.0200	0.1250	0.0300	2.2875	2.5000	0.1600	930-003-823	930-003-687	930-003-140
0.0200	0.1250	0.0300	2.1975	2.5000	0.2500	930-003-732	930-003-596	930-003-059
0.0200	0.1250	0.0300	2.1475	2.5000	0.3000	930-003-759	930-003-623	930-003-083
0.0200	0.1250	0.0300	2.0475	2.5000	0.4000	930-003-777	930-003-642	930-003-098
0.0250	0.1250	0.0375	2.3250	2.5000	0.1250	930-003-797	930-003-661	930-003-117
0.0250	0.1250	0.0375	2.2500	2.5000	0.2000	930-003-824	930-003-688	930-003-141
0.0250	0.1250	0.0375	2.1375	2.5000	0.3125	930-003-733	930-003-597	930-003-060
0.0250	0.1250	0.0375	2.0750	2.5000	0.3750	930-003-760	930-003-624	930-003-084
0.0250	0.1250	0.0375	1.9500	2.5000	0.5000	930-003-778	930-003-642	930-003-099
0.0300	0.1250	0.0450	2.3025	2.5000	0.1500	930-003-798	930-003-662	930-003-118
0.0300	0.1250	0.0450	2.2025	2.5000	0.2500	930-003-825	930-003-689	930-003-142
0.0300	0.1250	0.0450	2.0775	2.5000	0.3750	930-003-734	930-003-598	930-003-061
0.0300	0.1250	0.0450	2.0025	2.5000	0.4500	930-003-761	930-003-625	930-003-085
0.0310	0.1250	0.0465	2.3600	2.5000	0.0930	930-003-789	930-003-653	930-003-109
0.0310	0.1250	0.0465	2.2980	2.5000	0.1550	930-003-799	930-003-663	930-003-119
0.0310	0.1250	0.0465	2.2030	2.5000	0.2500	930-003-826	930-003-690	930-003-143
0.0310	0.1250	0.0465	2.0780	2.5000	0.3750	930-003-735	930-003-599	930-003-062
0.0310	0.1250	0.0465	1.9830	2.5000	0.4700	930-003-762	930-003-626	930-003-086
0.0310	0.1250	0.0465	1.8280	2.5000	0.6250	930-003-779	930-003-643	930-003-100
0.0350	0.1250	0.0525	2.2680	2.5000	0.1870	930-003-800	930-003-664	930-003-120
0.0350	0.1250	0.0525	2.1750	2.5000	0.2800	930-003-827	930-003-691	930-003-144
0.0350	0.1250	0.0525	2.0300	2.5000	0.4250	930-003-736	930-003-600	930-003-063
0.0350	0.1250	0.0525	1.9300	2.5000	0.5250	930-003-763	930-003-627	930-003-087
0.0350	0.1250	0.0525	1.7550	2.5000	0.7000	930-003-780	930-003-644	930-003-101

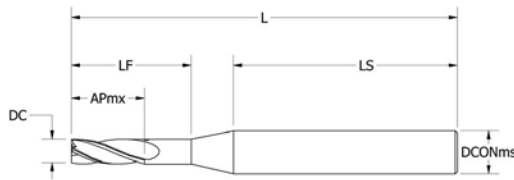
CARBIDE

Ø.040"-.075"



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	UNCOATED	AITIN COATED	AMORPHOUS DIAMOND
						3 FLUTE	3 FLUTE	3 FLUTE
0.0400	0.1250	0.0600	2.2575	2.5000	0.2000	930-003-801	930-003-665	930-003-121
0.0400	0.1250	0.0600	2.1325	2.5000	0.3250	930-003-692	930-003-692	930-003-145
0.0400	0.1250	0.0600	1.9775	2.5000	0.4800	930-003-737	930-003-601	930-003-064
0.0400	0.1250	0.0600	1.8575	2.5000	0.6000	930-003-764	930-003-628	930-003-088
0.0400	0.1250	0.0600	1.6575	2.5000	0.8000	930-003-781	930-003-645	930-003-102
0.0450	0.1250	0.0675	2.2350	2.5000	0.2250	930-003-802	930-003-666	930-003-122
0.0450	0.1250	0.0675	2.0850	2.5000	0.3750	930-003-829	930-003-693	930-003-146
0.0450	0.1250	0.0675	1.9100	2.5000	0.5500	930-003-738	930-003-602	930-003-065
0.0450	0.1250	0.0675	1.7800	2.5000	0.6800	930-003-765	930-003-629	930-003-089
0.0450	0.1250	0.0675	1.5600	2.5000	0.9000	930-003-782	930-003-646	930-003-103
0.0470	0.1250	0.0705	2.3200	2.5000	0.1410	930-003-790	930-003-654	930-003-110
0.0470	0.1250	0.0705	2.2110	2.5000	0.2500	930-003-803	930-003-667	930-003-123
0.0470	0.1250	0.0705	2.0860	2.5000	0.3750	930-003-830	930-003-694	930-003-147
0.0470	0.1250	0.0705	1.8910	2.5000	0.5700	930-003-739	930-003-603	930-003-066
0.0470	0.1250	0.0705	1.7510	2.5000	0.7100	930-003-766	930-003-630	930-003-090
0.0470	0.1250	0.0705	1.5110	2.5000	0.9500	930-003-783	930-003-647	930-003-104
0.0500	0.1250	0.0750	2.2125	2.5000	0.2500	930-003-804	930-003-668	930-003-124
0.0500	0.1250	0.0750	2.0625	2.5000	0.4000	930-003-831	930-003-695	930-003-148
0.0500	0.1250	0.0750	1.8625	2.5000	0.6000	930-003-740	930-003-604	930-003-067
0.0500	0.1250	0.0750	1.7125	2.5000	0.7500	930-003-767	930-003-631	930-003-091
0.0550	0.1250	0.0825	2.1900	2.5000	0.2750	930-003-805	930-003-669	930-003-125
0.0550	0.1250	0.0825	2.0150	2.5000	0.4500	930-003-832	930-003-696	930-003-149
0.0550	0.1250	0.0825	1.8050	2.5000	0.6600	930-003-741	930-003-605	930-003-068
0.0550	0.1250	0.0825	1.6400	2.5000	0.8250	930-003-768	930-003-632	930-003-092
0.0600	0.1250	0.0900	2.1555	2.5000	0.3120	930-003-806	930-003-670	930-003-126
0.0600	0.1250	0.0900	1.9675	2.5000	0.5000	930-003-833	930-003-697	930-003-150
0.0600	0.1250	0.0900	1.7475	2.5000	0.7200	930-003-742	930-003-606	930-003-069
0.0600	0.1250	0.0900	1.5675	2.5000	0.9000	930-003-769	930-003-633	930-003-093
0.0620	0.1250	0.0930	2.2825	2.5000	0.1860	930-003-791	930-003-655	930-003-111
0.0620	0.1250	0.0930	2.1565	2.5000	0.3120	930-003-807	930-003-671	930-003-127
0.0620	0.1250	0.0930	1.9685	2.5000	0.5000	930-003-834	930-003-698	930-003-151
0.0620	0.1250	0.0930	1.7185	2.5000	0.7500	930-003-743	930-003-607	930-003-070
0.0620	0.1250	0.0930	1.5185	2.5000	0.9500	930-003-770	930-003-634	930-003-094
0.0620	0.1250	0.0930	1.2185	2.5000	1.2500	930-003-784	930-003-648	930-003-105
0.0650	0.1250	0.0975	2.1450	2.5000	0.3250	930-003-808	930-003-672	930-003-128
0.0650	0.1250	0.0975	1.9450	2.5000	0.5250	930-003-835	930-003-699	930-003-152
0.0650	0.1250	0.0975	1.6700	2.5000	0.8000	930-003-744	930-003-608	930-003-071
0.0700	0.1250	0.1050	2.0975	2.5000	0.3750	930-003-809	930-003-673	930-003-129
0.0700	0.1250	0.1050	1.9025	2.5000	0.5700	930-003-836	930-003-700	930-003-153
0.0700	0.1250	0.1050	1.6225	2.5000	0.8500	930-003-745	930-003-609	930-003-072
0.0750	0.1250	0.1125	2.1000	2.5000	0.3750	930-003-810	930-003-674	930-003-130
0.0750	0.1250	0.1125	1.8500	2.5000	0.6250	930-003-837	930-003-701	930-003-154
0.0750	0.1250	0.1125	1.5750	2.5000	0.9000	930-003-746	930-003-610	930-003-073

Ø .078" - .250"



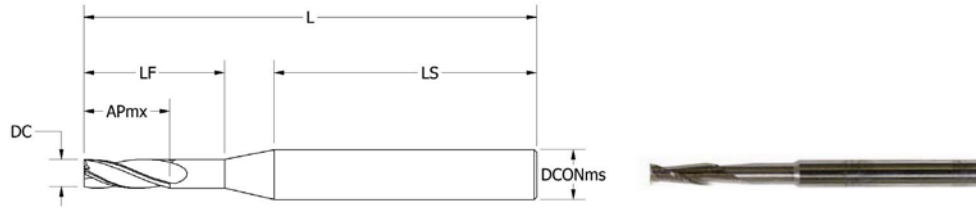
CARBIDE



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	UNCOATED	AITiN COATED	AMORPHOUS DIAMOND
						3 FLUTE	3 FLUTE	3 FLUTE
0.0780	0.1250	0.1170	2.2425	2.5000	0.2340	930-003-792	930-003-656	930-003-112
0.0780	0.1250	0.1170	2.0765	2.5000	0.4000	930-003-811	930-003-675	930-003-131
0.0780	0.1250	0.1170	1.8515	2.5000	0.6250	930-003-838	930-003-702	930-003-155
0.0780	0.1250	0.1170	1.5365	2.5000	0.9400	930-003-747	930-003-611	930-003-074
0.0780	0.1250	0.1170	1.2895	2.5000	1.1870	930-003-771	930-003-635	930-003-095
0.0780	0.1250	0.1170	1.4145	3.0000	1.5620	930-003-785	930-003-649	930-003-106
0.0800	0.1250	0.1200	2.0775	2.5000	0.4000	930-003-812	930-003-676	930-003-132
0.0800	0.1250	0.1200	1.8275	2.5000	0.6500	930-003-839	930-003-703	930-003-156
0.0800	0.1250	0.1200	1.5175	2.5000	0.9600	930-003-748	930-003-612	930-003-075
0.0850	0.1250	0.1275	2.0550	2.5000	0.4250	930-003-813	930-003-677	930-003-133
0.0850	0.1250	0.1275	1.7800	2.5000	0.7000	930-003-840	930-003-704	930-003-157
0.0850	0.1250	0.1275	1.4600	2.5000	1.0200	930-003-749	930-003-613	930-003-076
0.0900	0.1250	0.1350	2.0325	2.5000	0.4500	930-003-814	930-003-678	930-003-134
0.0900	0.1250	0.1350	1.7325	2.5000	0.7500	930-003-841	930-003-705	930-003-158
0.0900	0.1250	0.1350	1.4025	2.5000	1.0800	930-003-750	930-003-614	930-003-077
0.0930	0.1250	0.1395	2.2140	2.5000	0.2700	930-003-793	930-003-657	930-003-113
0.0930	0.1250	0.1395	1.9840	2.5000	0.5000	930-003-815	930-003-679	930-003-135
0.0930	0.1250	0.1395	1.7340	2.5000	0.7500	930-003-842	930-003-706	930-003-159
0.0930	0.1250	0.1395	1.3590	2.5000	1.1250	930-003-751	930-003-615	930-003-078
0.0930	0.1250	0.1395	1.5840	3.0000	1.4000	930-003-772	930-003-636	930-003-096
0.0930	0.1250	0.1395	2.1090	4.0000	1.8750	930-003-786	930-003-650	930-003-107
0.0950	0.1250	0.1425	1.9850	2.5000	0.5000	930-003-816	930-003-680	930-003-136
0.0950	0.1250	0.1425	1.7350	2.5000	0.7500	930-003-843	930-003-707	930-003-160
0.0950	0.1250	0.1425	1.3350	2.5000	1.1500	930-003-752	930-003-616	930-003-079
0.1000	0.1250	0.1500	1.9875	2.5000	0.5000	930-003-817	930-003-681	930-003-137
0.1000	0.1250	0.1500	1.6875	2.5000	0.8000	930-003-844	930-003-708	930-003-161
0.1000	0.1250	0.1500	1.2875	2.5000	1.2000	930-003-753	930-003-617	930-003-080
0.1250	0.1250	0.1875	1.8750	2.5000	0.6250	930-003-818	930-003-682	931-000-355
0.1250	0.1250	0.1875	1.5000	2.5000	1.0000	930-003-845	930-003-709	931-000-358
0.1250	0.1250	0.1875	1.5000	3.0000	1.5000	930-003-754	930-003-618	931-000-348
0.1250	0.1250	0.1875	1.1250	3.0000	1.8750	930-003-773	930-003-637	931-000-351
0.1250	0.1250	0.1875	1.5000	4.0000	2.5000	930-003-787	930-003-651	931-000-354
0.1875	0.1875	0.2813	2.0000	3.0000	1.0000	930-003-819	930-003-683	931-000-356
0.1875	0.1875	0.2813	1.5000	3.0000	1.5000	930-003-846	930-003-710	931-000-359
0.1875	0.1875	0.2813	1.7500	4.0000	2.2500	930-003-755	930-003-619	931-000-349
0.1875	0.1875	0.2813	1.1880	4.0000	2.8120	930-003-774	930-003-638	931-000-352
0.2500	0.2500	0.3750	2.7500	4.0000	1.2500	930-003-820	930-003-684	931-000-357
0.2500	0.2500	0.3750	2.0000	4.0000	2.0000	930-003-847	930-003-711	931-000-360
0.2500	0.2500	0.3750	0.3750	6.0000	3.0000	930-003-756	930-003-620	931-000-350
0.2500	0.2500	0.3750	2.2500	6.0000	3.7500	930-003-775	930-003-639	931-000-353

CARBIDE

Ø .005"-.100"

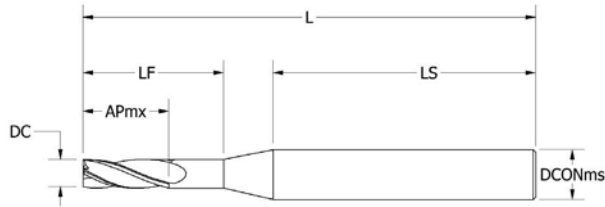


DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	UNCOATED	
						2 FLUTE	4 FLUTE
0.0050	0.1250	0.0150	1.1342	1.5000	0.0470	930-000-244	N/A
0.0100	0.1250	0.0300	1.3625	1.5000	0.0800	930-000-620	930-001-140
0.0100	0.1250	0.0300	1.3488	1.5000	0.0937	930-000-250	930-000-636
0.0150	0.1250	0.0450	1.3200	1.5000	0.1250	930-000-256	930-000-642
0.0200	0.1250	0.0600	1.2775	1.5000	0.1700	930-000-621	930-001-141
0.0200	0.1250	0.0600	1.2600	1.5000	0.1875	930-000-262	930-000-648
0.0250	0.1250	0.0750	1.2370	1.5000	0.2130	930-000-622	930-001-142
0.0250	0.1250	0.0750	1.2000	1.5000	0.2500	930-000-268	930-000-654
0.0300	0.1250	0.0900	1.2025	1.5000	0.2500	930-000-274	930-000-660
0.0300	0.1250	0.0900	1.1825	1.5000	0.2700	930-000-623	930-001-143
0.0310	0.1250	0.0930	1.1740	1.5000	0.2790	930-000-624	930-001-144
0.0350	0.1250	0.1050	1.2050	1.5000	0.2500	930-000-280	930-000-666
0.0350	0.1250	0.1050	1.1400	1.5000	0.3150	930-000-625	930-001-145
0.0400	0.1250	0.1200	1.2075	1.5000	0.2500	930-000-286	930-000-672
0.0400	0.1250	0.1200	1.0975	1.5000	0.3600	930-000-626	930-001-146
0.0450	0.1250	0.1350	1.0550	1.5000	0.4050	930-000-627	930-001-147
0.0450	0.1250	0.1350	0.9600	1.5000	0.5000	930-000-292	930-000-678
0.0470	0.1250	0.1410	1.0380	1.5000	0.4230	930-000-628	930-001-148
0.0500	0.1250	0.1500	0.9625	1.5000	0.5000	930-000-298	930-000-684
0.0550	0.1250	0.1650	0.9650	1.5000	0.5000	930-000-304	930-000-690
0.0600	0.1250	0.1800	0.9675	1.5000	0.5000	930-000-310	930-000-696
0.0620	0.1250	0.1860	0.9685	1.5000	0.5000	930-000-629	930-001-149
0.0650	0.1250	0.1950	0.9700	1.5000	0.5000	930-000-314	930-000-700
0.0700	0.1250	0.2100	0.9725	1.5000	0.5000	930-000-316	930-000-702
0.0780	0.1250	0.2340	0.9765	1.5000	0.5000	930-000-630	930-001-150
0.0800	0.1250	0.2400	0.9775	1.5000	0.5000	930-000-320	930-000-706
0.0900	0.1250	0.2700	0.9825	1.5000	0.5000	930-000-323	930-000-709
0.0900	0.1250	0.2700	0.8575	1.5000	0.6250	930-000-631	930-001-151
0.0930	0.1250	0.2790	0.8590	1.5000	0.6250	930-000-632	930-001-152
0.0950	0.1250	0.2850	0.8600	1.5000	0.6250	930-000-633	930-001-153
0.1000	0.1250	0.3000	0.9875	1.5000	0.5000	930-000-327	930-000-713
0.1000	0.1250	0.3000	0.8625	1.5000	0.6250	930-000-634	930-001-154

Ø .010" - .250"



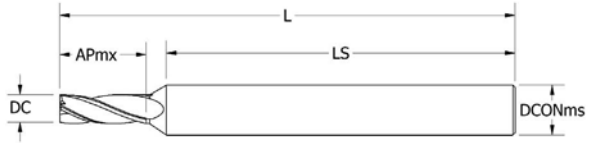
CARBIDE



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	UNCOATED	AITiN COATED	AMORPHOUS DIAMOND
						3 FLUTE	3 FLUTE	3 FLUTE
0.0100	0.1250	0.0500	2.3425	2.5000	0.1000	930-002-966	N/A	930-002-797
0.0150	0.1250	0.0750	2.2950	2.5000	0.1500	930-002-967	N/A	930-002-798
0.0200	0.1250	0.1000	2.2475	2.5000	0.2000	930-002-968	930-002-933	930-002-799
0.0250	0.1250	0.1250	2.2000	2.5000	0.2500	930-002-969	930-002-934	930-002-800
0.0300	0.1250	0.1500	2.1525	2.5000	0.3000	930-002-970	930-002-935	930-002-801
0.0310	0.1250	0.1550	2.1530	2.5000	0.3000	930-002-971	930-002-936	930-002-802
0.0350	0.1250	0.1750	2.1050	2.5000	0.3500	930-002-972	930-002-937	930-002-803
0.0400	0.1250	0.2000	2.0575	2.5000	0.4000	930-002-973	930-002-938	930-002-804
0.0450	0.1250	0.2250	2.0100	2.5000	0.4500	930-002-974	930-002-939	930-002-805
0.0470	0.1250	0.2500	1.9610	2.5000	0.5000	930-002-975	930-002-940	930-002-806
0.0500	0.1250	0.3000	1.8625	2.5000	0.6000	930-002-976	930-002-941	930-002-807
0.0550	0.1250	0.3850	1.6950	2.5000	0.7700	930-002-977	930-002-942	930-002-808
0.0600	0.1250	0.5000	1.4675	2.5000	1.0000	930-002-978	930-002-943	930-002-809
0.0620	0.1250	0.5000	1.4685	2.5000	1.0000	930-002-979	N/A	930-002-810
0.0650	0.1250	0.5000	1.4700	2.5000	1.0000	930-002-980	930-002-944	930-002-811
0.0700	0.1250	0.5000	1.4725	2.5000	1.0000	930-002-981	930-002-945	930-002-812
0.0750	0.1250	0.5000	1.4750	2.5000	1.0000	930-002-982	930-002-946	930-002-813
0.0780	0.1250	0.5000	1.4765	2.5000	1.0000	930-002-983	930-002-947	930-002-814
0.0800	0.1250	0.7500	1.2275	2.5000	1.2500	930-002-984	930-002-948	930-002-815
0.0850	0.1250	0.7500	1.2300	2.5000	1.2500	930-002-985	930-002-949	930-002-816
0.0900	0.1250	0.7500	1.2325	2.5000	1.2500	930-002-986	930-002-950	930-002-817
0.0930	0.1250	0.7500	1.2340	2.5000	1.2500	930-002-987	930-002-951	930-002-818
0.0950	0.1250	0.7500	1.2350	2.5000	1.2500	930-002-988	930-002-952	930-002-819
0.1000	0.1250	0.7500	1.2375	2.5000	1.2500	930-002-989	930-002-953	930-002-820
0.1250	0.1250	1.0000	2.5000	2.5000	N/A	930-002-990	930-002-954	931-000-333
0.1875	0.1875	1.1250	3.0000	3.0000	N/A	930-002-991	930-002-955	931-000-334
0.2500	0.2500	1.5000	2.0000	4.0000	N/A	930-002-992	N/A	931-000-335

CARBIDE

Ø .031" - .125"

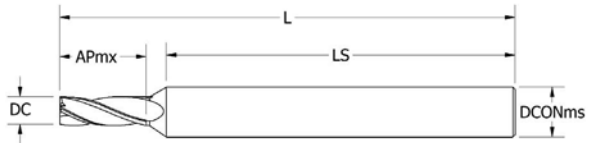


12X FLUTE LENGTH



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED	AITIN COATED	AMORPHOUS DIAMOND
					3 FLUTE	3 FLUTE	3 FLUTE
0.0310	0.1250	0.3750	1.8832	2.5000	930-002-993	930-002-956	930-002-821
0.0470	0.1250	0.5700	1.7294	2.5000	930-002-994	930-002-957	930-002-822
0.0620	0.1250	0.7500	1.5879	2.5000	930-002-995	930-002-958	930-002-823
0.0780	0.1250	0.9400	1.4391	2.5000	930-002-996	930-002-959	930-002-824
0.0930	0.1250	1.1250	1.2927	2.5000	930-002-997	930-002-960	930-002-825
0.1250	0.1250	1.5000	1.1250	3.0000	930-002-998	930-002-961	930-002-826

Ø .062" - .125"

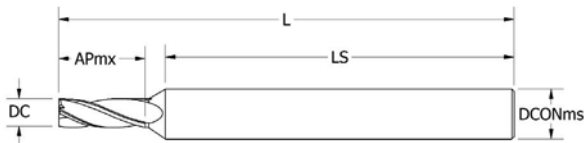


15X FLUTE LENGTH



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED	AITIN COATED	AMORPHOUS DIAMOND
					3 FLUTE	3 FLUTE	3 FLUTE
0.0620	0.1250	0.9500	1.3879	2.5000	930-002-999	930-002-962	930-002-827
0.0780	0.1250	1.1870	1.1921	2.5000	930-003-001	930-002-963	930-002-828
0.0930	0.1250	1.4000	1.5177	3.0000	930-003-002	930-002-964	930-002-829
0.1250	0.1250	1.8750	0.7500	3.0000	930-003-003	930-002-965	931-000-336

Ø .156" - .250"

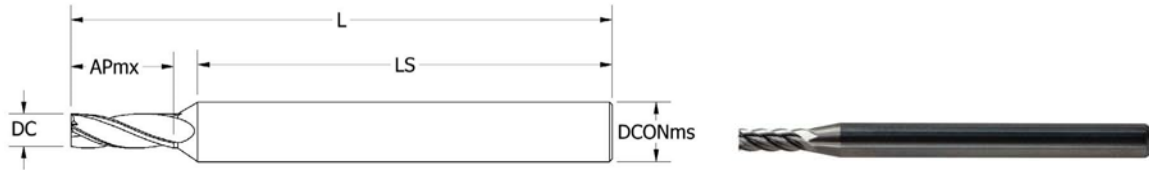


12X FLUTE LENGTH



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED	AITIN COATED	AMORPHOUS DIAMOND
					4 FLUTE	4 FLUTE	4 FLUTE
0.1563	0.1875	1.8750	2.0446	4.0000	930-001-170	930-001-161	931-000-256
0.1875	0.1875	2.2500	1.3750	4.0000	930-001-171	930-001-162	931-000-257
0.2500	0.2500	3.0000	2.6250	6.0000	930-001-172	930-001-163	931-000-258

Ø .0310"- .100"



MULTI - FLUTE



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	AITIN COATED
						5 FLUTE
0.0310	0.1250	0.0930	1.1652	1.5000	930-003-848	930-003-867
0.0400	0.1250	0.1200	1.1614	1.5000	930-003-849	930-003-868
0.0470	0.1250	0.1410	1.1584	1.5000	930-003-850	930-003-869
0.0500	0.1250	0.1500	1.1571	1.5000	930-003-851	930-003-870
0.0600	0.1250	0.1800	1.1528	1.5000	930-003-852	930-003-871
0.0620	0.1250	0.1860	1.1519	1.5000	930-003-853	930-003-872
0.0700	0.1250	0.2100	1.1485	1.5000	930-003-854	930-003-873
0.0780	0.1250	0.2340	1.1451	1.5000	930-003-855	930-003-874
0.0800	0.1250	0.2400	1.1442	1.5000	930-003-856	930-003-875
0.0930	0.1250	0.2790	1.1387	1.5000	930-003-857	930-003-876
0.1000	0.1250	0.3000	1.1357	1.5000	930-003-858	930-003-877

Ø .0150"- .0930"



HIGH HELIX

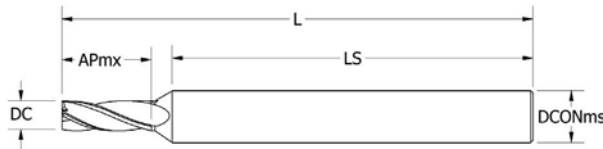


DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED
					2 FLUTE
0.0150	0.1250	0.0450	1.1720	1.5000	930-000-606
0.0310	0.1250	0.0930	1.1652	1.5000	930-000-607
0.0470	0.1250	0.1410	1.1584	1.5000	930-000-608
0.0620	0.1250	0.1860	1.1519	1.5000	930-000-609
0.0780	0.1250	0.2340	1.1451	1.5000	930-000-610
0.0930	0.1250	0.2790	1.1387	1.5000	930-000-611

CARBIDE

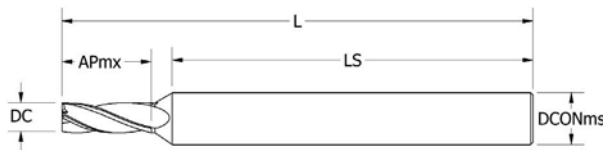


Ø .015" - .093"



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	CVD COATED
					4 FLUTE
0.0150	0.1250	0.0450	1.1720	1.5000	930-001-025
0.0200	0.1250	0.0600	1.1699	1.5000	930-001-026
0.0310	0.1250	0.0930	1.1652	1.5000	930-001-027
0.0470	0.1250	0.1410	1.1584	1.5000	930-001-028
0.0620	0.1250	0.1860	1.1519	1.5000	930-001-029
0.0930	0.1250	0.2790	1.1387	1.5000	930-001-030

Ø .015" - .093"

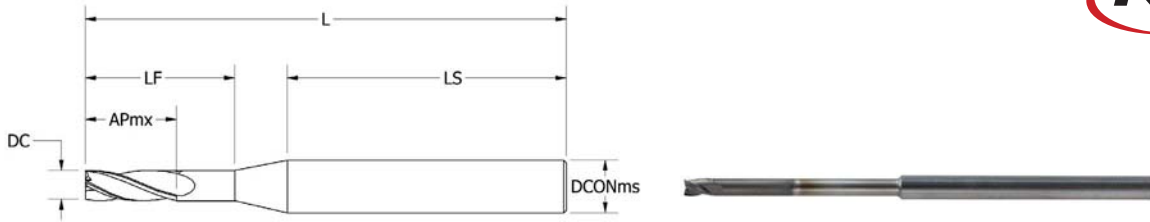


LONG SHANK, STUB



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	CVD COATED
					3 FLUTE
0.0150	0.1250	0.0225	2.1945	2.5000	930-003-563
0.0200	0.1250	0.0300	2.1999	2.5000	930-003-564
0.0310	0.1250	0.0465	2.2117	2.5000	930-003-565
0.0470	0.1250	0.0705	2.2289	2.5000	930-003-566
0.0620	0.1250	0.0930	2.2449	2.5000	930-003-567
0.0930	0.1250	0.1395	2.2782	2.5000	930-003-568

Ø .015" - .093"

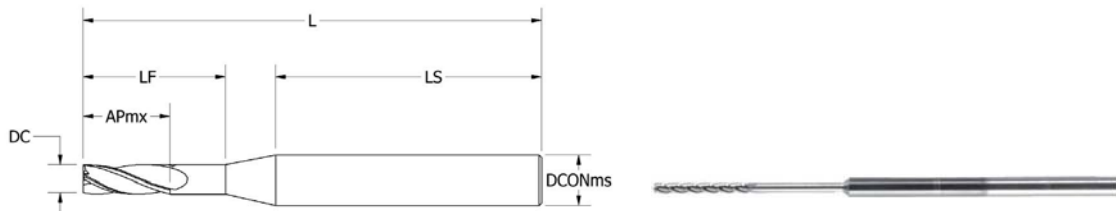


LONG REACH, STUB



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	CVD COATED
						3 FLUTE
0.0150	0.1250	0.0225	2.3670	2.5000	0.0780	930-003-718
0.0150	0.1250	0.0225	2.3200	2.5000	0.1250	930-003-724
0.0150	0.1250	0.0225	2.2575	2.5000	0.1875	930-003-712
0.0200	0.1250	0.0300	2.3475	2.5000	0.1000	930-003-719
0.0200	0.1250	0.0300	2.2875	2.5000	0.1600	930-003-725
0.0200	0.1250	0.0300	2.1975	2.5000	0.2500	930-003-713
0.0310	0.1250	0.0465	2.2980	2.5000	0.1550	930-003-720
0.0310	0.1250	0.0465	2.2030	2.5000	0.2500	930-003-726
0.0310	0.1250	0.0465	2.0780	2.5000	0.3750	930-003-714
0.0470	0.1250	0.0705	2.2110	2.5000	0.2500	930-003-721
0.0470	0.1250	0.0705	2.0860	2.5000	0.3750	930-003-727
0.0470	0.1250	0.0705	1.8910	2.5000	0.5700	930-003-715
0.0620	0.1250	0.0930	2.1565	2.5000	0.3120	930-003-722
0.0620	0.1250	0.0930	1.9685	2.5000	0.5000	930-003-728
0.0620	0.1250	0.0930	1.7185	2.5000	0.7500	930-003-716
0.0930	0.1250	0.1395	1.9840	2.5000	0.5000	930-003-723
0.0930	0.1250	0.1395	1.7340	2.5000	0.7500	930-003-729
0.0930	0.1250	0.1395	1.3590	2.5000	1.1250	930-003-717

Ø .015" - .093"



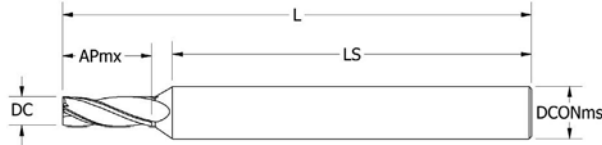
5X FLUTE, 10X REACH



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	CVD COATED
						4 FLUTE
0.0150	0.1250	0.0750	2.2890	2.5000	0.1560	930-001-164
0.0310	0.1250	0.1550	2.1410	2.5000	0.3120	930-001-165
0.0470	0.1250	0.2350	1.9810	2.5000	0.4800	930-001-166
0.0620	0.1250	0.3120	1.8435	2.5000	0.6250	930-001-167
0.0780	0.1250	0.3900	1.6765	2.5000	0.8000	930-001-168
0.0930	0.1250	0.4650	1.5340	2.5000	0.9500	930-001-169

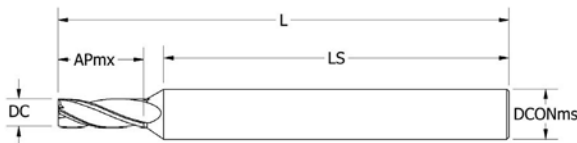
CARBIDE

Ø .0313" - .50"



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED		AITIN COATED	
					2 FLUTE	4 FLUTE	2 FLUTE	4 FLUTE
0.0313	0.1250	0.0938	1.1651	1.5000	930-000-332	930-000-718	N/A	N/A
0.0469	0.1250	0.1406	1.1584	1.5000	930-000-333	930-000-719	N/A	N/A
0.0625	0.1250	0.1875	1.1517	1.5000	930-000-334	930-000-720	N/A	N/A
0.0781	0.1250	0.1875	1.1450	1.5000	930-000-335	930-000-721	N/A	N/A
0.0938	0.1250	0.3750	1.1384	1.5000	930-000-336	930-000-722	N/A	N/A
0.1094	0.1250	0.4375	1.1317	1.5000	930-000-337	930-000-723	N/A	N/A
0.1250	0.1250	0.5000	0.6250	1.5000	930-000-338	930-000-724	930-000-597	931-000-252
0.1406	0.1875	0.5000	1.4575	2.0000	930-000-339	930-000-725	931-000-247	930-001-096
0.1563	0.1875	0.5625	1.4509	2.0000	930-000-340	930-000-726	930-000-598	930-001-097
0.1719	0.1875	0.6250	1.4442	2.0000	930-000-341	930-000-727	N/A	930-001-098
0.1875	0.1875	0.6250	1.0000	2.0000	930-000-342	930-000-728	930-000-599	930-001-099
0.2031	0.2500	0.6250	1.7700	2.5000	930-000-344	930-000-730	N/A	930-001-100
0.2188	0.2500	0.6563	1.7634	2.5000	930-000-345	930-000-731	931-000-248	930-001-101
0.2344	0.2500	0.7031	1.7567	2.5000	930-000-346	930-000-732	N/A	930-001-102
0.2500	0.2500	0.7500	1.3750	2.5000	930-000-347	930-000-733	930-000-600	931-000-253
0.3125	0.3125	0.8125	1.3125	2.5000	930-000-348	930-000-734	931-000-249	931-000-254
0.3750	0.3750	1.0000	1.1250	2.5000	930-000-349	930-000-735	931-000-250	931-000-255
0.5000	0.5000	1.0000	1.6250	3.0000	930-000-352	930-000-738	931-000-251	930-001-104

Ø .0313" - .250"

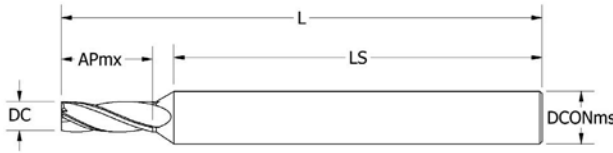


STUB



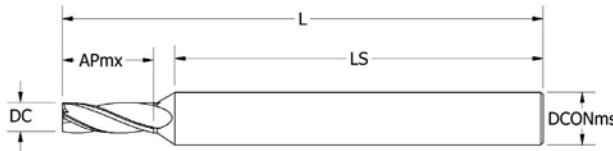
DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED	
					2 FLUTE	4 FLUTE
0.0313	0.1250	0.0625	1.1963	1.5000	930-001-447	931-000-265
0.0469	0.1250	0.0625	1.2365	1.5000	930-001-448	931-000-266
0.0625	0.1250	0.1250	1.2142	1.5000	930-001-449	931-000-267
0.0938	0.1250	0.1875	1.2321	1.5000	930-001-450	931-000-268
0.1250	0.1250	0.2500	0.8750	1.5000	930-001-451	931-000-269
0.1563	0.1875	0.3750	1.5446	2.0000	930-001-452	931-000-270
0.1875	0.1875	0.3750	1.2500	2.0000	930-001-453	931-000-271
0.2500	0.2500	0.5000	1.1250	2.0000	930-001-455	931-000-272

Ø .0313" - .50"



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	TiAlN COATED			AMORPHOUS DIAMOND	
					2 FLUTE	3 FLUTE	4 FLUTE	2 FLUTE	4 FLUTE
0.0313	0.1250	0.0938	1.1651	1.5000	930-000-507	931-000-120	930-000-943	931-000-386	931-000-412
0.0469	0.1250	0.1406	1.1584	1.5000	930-000-508	931-000-123	930-000-944	931-000-388	931-000-414
0.0625	0.1250	0.1875	1.1517	1.5000	930-000-509	931-000-126	930-000-945	931-000-390	931-000-416
0.0781	0.1250	0.2344	1.1450	1.5000	930-000-510	931-000-129	930-000-946	931-000-392	931-000-418
0.0938	0.1250	0.2813	1.1384	1.5000	930-000-511	931-000-132	930-000-947	931-000-394	931-000-420
0.1094	0.1250	0.4375	1.0223	1.5000	N/A	N/A	N/A	931-000-396	931-000-422
0.1250	0.1250	0.5000	0.6250	1.5000	930-000-512	931-000-136	930-000-948	931-000-398	931-000-424
0.1406	0.1875	0.5000	1.3794	2.0000	N/A	N/A	N/A	931-000-400	931-000-429
0.1563	0.1875	0.5625	1.3571	2.0000	N/A	N/A	N/A	931-000-402	931-000-431
0.1875	0.1875	0.6250	1.0000	2.0000	N/A	N/A	N/A	931-000-404	931-000-433
0.2500	0.2500	0.7500	1.3750	2.5000	N/A	N/A	N/A	931-000-406	931-000-438
0.3750	0.3750	1.0000	1.1250	2.5000	N/A	N/A	N/A	931-000-408	931-000-445
0.5000	0.5000	1.0000	1.6250	3.0000	N/A	N/A	N/A	931-000-410	931-000-449

Ø .0313" - .125"



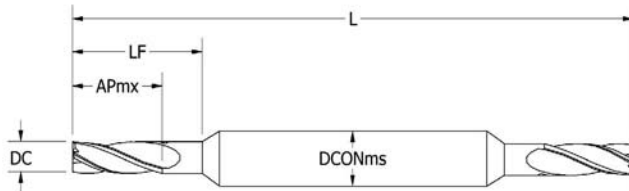
STUB



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	TiAlN COATED	
					2 FLUTE	4 FLUTE
0.0313	0.1250	0.0625	1.1963	1.5000	930-001-559	931-000-273
0.0469	0.1250	0.0625	1.2365	1.5000	930-001-560	931-000-274
0.0625	0.1250	0.1250	1.2142	1.5000	930-001-561	931-000-275
0.0938	0.1250	0.1875	1.2321	1.5000	930-001-562	931-000-276
0.1250	0.1250	0.2500	0.8750	1.5000	930-001-563	931-000-277

CARBIDE

Ø .0313" - .375"

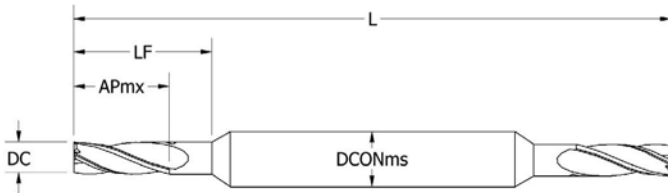


DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	UNCOATED
						2 FLUTE
0.0313	0.1250	0.0625	0.7500	1.5000	0.0625	931-000-217
0.0469	0.1250	0.0625	0.7500	1.5000	0.0625	931-000-218
0.0625	0.1250	0.1250	0.7500	1.5000	0.1250	931-000-219
0.0781	0.1250	0.1250	0.7500	1.5000	0.1250	931-000-220
0.0938	0.1250	0.1875	0.7500	1.5000	0.1875	931-000-221
0.1094	0.1250	0.2500	0.7500	1.5000	0.2500	931-000-222
0.1250	0.1250	0.2500	0.7500	1.5000	N/A	931-000-223
0.1406	0.1875	0.3125	1.0000	2.0000	0.3125	931-000-224
0.1563	0.1875	0.3125	1.0000	2.0000	0.3125	931-000-225
0.1719	0.1875	0.3750	1.0000	2.0000	0.3750	931-000-226
0.1875	0.1875	0.3750	1.0000	2.0000	N/A	931-000-227
0.2188	0.2500	0.5000	1.2500	2.5000	0.5000	931-000-228
0.2500	0.2500	0.5000	1.2500	2.5000	N/A	931-000-229
0.3125	0.3125	0.5000	1.2500	2.5000	N/A	931-000-230
0.3750	0.3125	0.5000	1.2500	2.5000	N/A	931-000-231

Ø .0313" - .375"



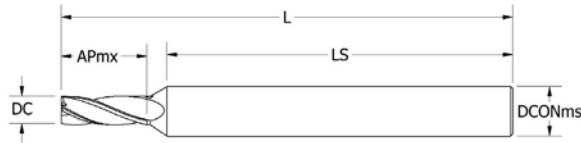
CARBIDE



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	UNCOATED
						4 FLUTE
0.0313	0.1250	0.0625	0.7500	1.5000	0.0625	931-000-232
0.0469	0.1250	0.0625	0.7500	1.5000	0.0625	931-000-233
0.0625	0.1250	0.1250	0.7500	1.5000	0.1250	931-000-234
0.0781	0.1250	0.1250	0.7500	1.5000	0.1250	931-000-235
0.0938	0.1250	0.1875	0.7500	1.5000	0.1875	931-000-236
0.1094	0.1250	0.2500	0.7500	1.5000	0.2500	931-000-237
0.1250	0.1250	0.2500	0.7500	1.5000	N/A	931-000-238
0.1406	0.1875	0.3125	1.0000	2.0000	0.3125	931-000-239
0.1563	0.1875	0.3125	1.0000	2.0000	0.3125	931-000-240
0.1719	0.1875	0.3750	1.0000	2.0000	0.3750	931-000-241
0.1875	0.1875	0.3750	1.0000	2.0000	N/A	931-000-242
0.2188	0.2500	0.5000	1.2500	2.5000	0.5000	931-000-243
0.2500	0.2500	0.5000	1.2500	2.5000	N/A	931-000-244
0.3125	0.3125	0.5000	1.2500	2.5000	N/A	931-000-245
0.3750	0.3750	0.5000	1.2500	2.5000	N/A	931-000-246

CARBIDE

Ø .0156"-.125"

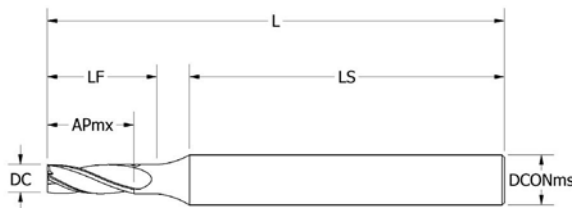


G MILLS



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED	AITIN COATED	AMORPHOUS DIAMOND
					3 FLUTE	3 FLUTE	3 FLUTE
0.0156	0.1250	0.0781	2.1405	2.5000	931-000-193	930-000-126	931-000-456
0.0313	0.1250	0.1563	2.1026	2.5000	931-000-195	930-000-127	931-000-462
0.0469	0.1250	0.2500	2.0490	2.5000	931-000-200	930-000-129	931-000-474
0.0625	0.1250	0.5000	1.8392	2.5000	931-000-202	930-000-131	931-000-480
0.0781	0.1250	0.5000	1.8794	2.5000	931-000-206	930-000-132	931-000-492
0.0938	0.1250	0.7500	1.6696	2.5000	931-000-209	930-000-133	931-000-498
0.1250	0.1250	1.0000	1.6250	3.0000	931-000-214	930-000-134	931-000-510

Ø .0313"-.0938"



STUB

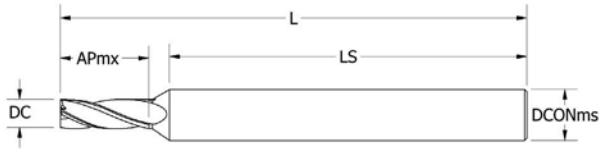


DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	UNCOATED	AMORPHOUS DIAMOND
						3 FLUTE	3 FLUTE
0.0313	0.1250	0.0625	2.2031	2.5000	0.2500	931-000-198	931-000-464
0.0313	0.1250	0.0625	2.0781	2.5000	0.3750	N/A	931-000-472
0.0313	0.1250	0.0625	1.9531	2.5000	0.5000	N/A	931-000-468
0.0625	0.1250	0.1250	1.9688	2.5000	0.5000	931-000-204	931-000-482
0.0625	0.1250	0.1250	1.7188	2.5000	0.7500	N/A	931-000-490
0.0625	0.1250	0.1250	1.4688	2.5000	1.0000	N/A	931-000-486
0.0938	0.1250	0.1875	1.7344	2.5000	0.7500	931-000-212	931-000-500
0.0938	0.1250	0.1875	1.4844	2.5000	1.0000	N/A	931-000-508
0.0938	0.1250	0.1875	1.2344	2.5000	1.2500	N/A	931-000-504

Ø .0156" - .125"



CARBIDE



LONG FLUTE



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	AMORPHOUS DIAMOND
						3 FLUTE
0.0156	0.1250	0.0781	2.2953	2.5000	0.1500	931-000-460
0.0156	0.1250	0.0781	2.1953	2.5000	0.2500	931-000-458
0.0313	0.1250	0.1563	2.2031	2.5000	0.2500	931-000-470
0.0313	0.1250	0.1563	2.0781	2.5000	0.3750	931-000-466
0.0469	0.1250	0.2500	2.0859	2.5000	0.3750	931-000-478
0.0469	0.1250	0.2500	1.9609	2.5000	0.5000	931-000-476
0.0625	0.1250	0.5000	1.7188	2.5000	0.7500	931-000-488
0.0625	0.1250	0.5000	1.4688	2.5000	1.0000	931-000-484
0.0781	0.1250	0.5000	1.7266	2.5000	0.7500	931-000-496
0.0781	0.1250	0.5000	1.4766	2.5000	1.0000	931-000-494
0.0938	0.1250	0.7500	1.4844	2.5000	1.0000	931-000-506
0.0938	0.1250	0.7500	1.2344	2.5000	1.2500	931-000-502
0.1250	0.1250	1.0000	1.7500	3.0000	1.2500	931-000-514
0.1250	0.1250	1.0000	1.5000	3.0000	1.5000	931-000-512



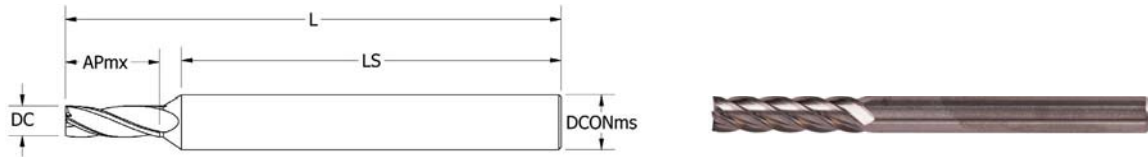
Ø .1875" - .250"



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	UNCOATED
						4 FLUTE
0.1875	0.1875	1.1250	1.5000	3.0000	1.5000	931-000-520
0.1875	0.1875	1.1250	1.2500	3.0000	1.7500	931-000-518
0.2500	0.2500	1.5000	2.0000	4.0000	2.0000	931-000-526
0.2500	0.2500	1.5000	1.5000	4.0000	2.5000	931-000-524

CARBIDE

Ø .0313" - .250"



MULTI - FLUTE

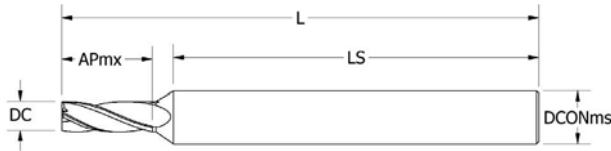


DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED	AITIN COATED
					5 FLUTE	5 FLUTE
0.0313	0.1250	0.0938	1.1651	1.5000	930-003-859	N/A
0.0469	0.1250	0.1406	1.1584	1.5000	930-003-860	N/A
0.0625	0.1250	0.1875	1.1517	1.5000	930-003-861	N/A
0.0781	0.1250	0.1875	1.1919	1.5000	930-003-862	N/A
0.0938	0.1250	0.3750	1.0446	1.5000	930-003-863	N/A
0.1250	0.1250	0.5000	0.6250	1.5000	930-003-864	931-000-383
0.1875	0.1875	0.6250	1.0000	2.0000	930-003-865	931-000-384
0.2500	0.2500	0.7500	1.3750	2.5000	930-003-866	931-000-385

Ø .0313" - .375"



CARBIDE

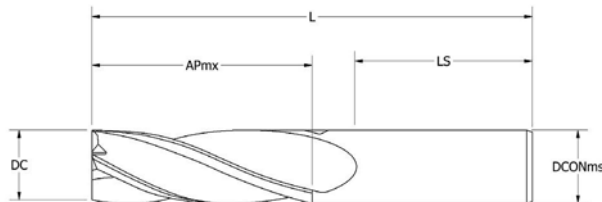


45 DEG. HELIX



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED
					2 FLUTE
0.0313	0.1250	0.0938	1.1651	1.5000	930-000-612
0.0469	0.1250	0.1406	1.1584	1.5000	930-000-613
0.0625	0.1250	0.1875	1.1517	1.5000	930-000-614
0.0781	0.1250	0.1875	1.1919	1.5000	930-000-615
0.0938	0.1250	0.3750	1.0446	1.5000	930-000-616
0.1250	0.1250	0.3750	0.7500	1.5000	930-000-617
0.1875	0.1875	0.6250	1.0000	2.0000	930-000-618
0.2500	0.2500	0.7500	1.3750	2.5000	930-000-619

Ø .1250" - .375"



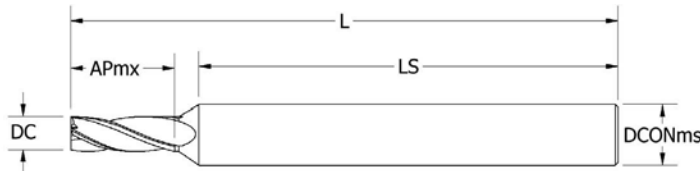
60 DEG. HELIX



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED	AITiN COATED
					3 FLUTE	3 FLUTE
0.1250	0.1250	0.5000	0.6250	1.5000	931-000-011	931-000-016
0.1875	0.1875	0.6250	1.0000	2.0000	931-000-012	931-000-017
0.2500	0.2500	0.7500	1.3750	2.5000	931-000-013	931-000-018
0.3125	0.3125	0.8125	1.3125	2.5000	931-000-014	931-000-019
0.3750	0.3750	0.8750	1.2500	2.5000	931-000-015	931-000-020

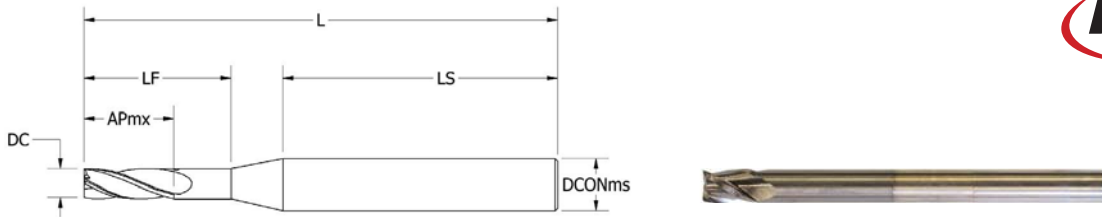
CARBIDE

Ø .5 mm - 12 mm



DC [mm]	DCONMS [mm]	APMX [mm]	LS [mm]	L [mm]	UNCOATED	
					2 FLUTE	4 FLUTE
0.50	3.00	1.50	30.07	38.00	930-000-001	930-000-033
1.00	3.00	3.00	29.86	38.00	930-000-002	930-000-034
1.50	3.00	4.50	29.64	38.00	930-000-003	930-000-035
3.00	3.00	6.00	29.43	38.00	930-000-004	930-000-036
2.50	3.00	8.00	28.71	38.00	930-000-005	930-000-037
3.00	3.00	10.00	18.00	38.00	930-000-006	930-000-038
3.50	4.00	12.00	36.71	50.00	930-000-007	930-000-039
4.00	4.00	12.00	28.00	50.00	930-000-008	930-000-040
4.50	5.00	14.00	34.71	50.00	930-000-009	930-000-041
5.00	5.00	15.00	25.00	50.00	930-000-010	930-000-042
6.00	6.00	18.00	35.00	63.00	930-000-011	930-000-043
7.00	8.00	20.00	40.43	63.00	930-000-012	930-000-044
8.00	8.00	20.00	33.00	63.00	930-000-013	930-000-045
9.00	10.00	22.00	38.43	63.00	930-000-014	930-000-046
10.00	10.00	22.00	31.00	63.00	930-000-015	930-000-047
12.00	12.00	25.00	40.00	75.00	930-000-016	930-000-048

Ø .4 mm - 12 mm

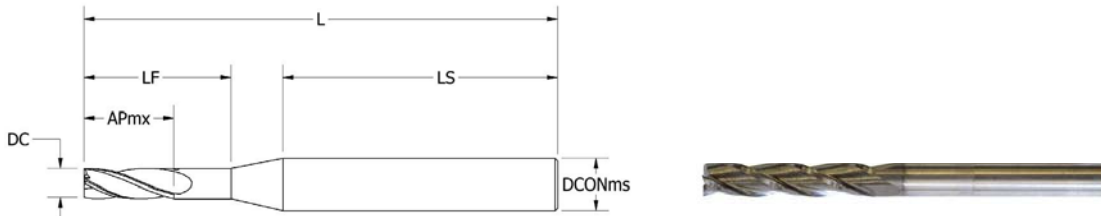


STUB, 8X REACH LENGTH



DC [mm]	DCONMS [mm]	APMX [mm]	LS [mm]	L [mm]	LF [mm]	AMORPHOUS DIAMOND
						3 FLUTE
0.40	3.00	0.60	70.50	75.00	3.20	930-000-095
0.50	3.00	0.75	69.75	75.00	4.00	930-000-096
0.60	3.00	0.90	69.00	75.00	4.80	930-000-097
0.80	3.00	1.20	67.50	75.00	6.40	930-000-098
1.00	3.00	1.50	66.00	75.00	8.00	930-000-099
1.50	3.00	2.25	62.25	75.00	12.00	930-000-100
2.00	3.00	3.00	58.50	75.00	16.00	930-000-101
2.50	3.00	3.75	54.75	75.00	20.00	930-000-102
3.00	3.00	4.50	51.00	75.00	24.00	930-000-103
4.00	4.00	6.00	43.00	75.00	32.00	930-000-104
6.00	6.00	9.00	52.00	100.00	48.00	930-000-105
8.00	8.00	12.00	36.00	100.00	64.00	930-000-106
10.00	10.00	15.00	40.00	120.00	80.00	930-000-107
12.00	12.00	18.00	54.00	150.00	96.00	930-000-108

Ø .4 mm - 12 mm



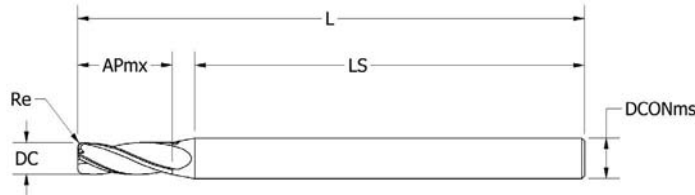
5X FLUTE LENGTH, 10X REACH LENGTH



DC [mm]	DCONMS [mm]	APMX [mm]	LS [mm]	L [mm]	LF [mm]	AMORPHOUS DIAMOND
						3 FLUTE
0.40	3.00	2.00	69.70	75.00	4.00	930-000-065
0.50	3.00	2.50	68.75	75.00	5.00	930-000-066
0.60	3.00	3.00	67.80	75.00	6.00	930-000-067
0.80	3.00	4.00	65.90	75.00	8.00	930-000-068
1.00	3.00	5.00	64.00	75.00	10.00	930-000-069
1.20	3.00	6.00	62.10	75.00	12.00	930-000-070
1.50	3.00	7.50	59.25	75.00	15.00	930-000-071
2.00	3.00	10.00	54.50	75.00	20.00	930-000-072
2.50	3.00	12.50	49.75	75.00	25.00	930-000-073
3.00	3.00	15.00	45.00	75.00	30.00	930-000-074
4.00	4.00	20.00	35.00	75.00	40.00	930-000-075
6.00	6.00	30.00	40.00	100.00	60.00	930-000-076
8.00	8.00	40.00	30.00	100.00	70.00	930-000-077
10.00	10.00	50.00	40.00	120.00	80.00	930-000-078
12.00	12.00	60.00	65.00	150.00	85.00	930-000-079

CARBIDE

Ø .020" - .0650"

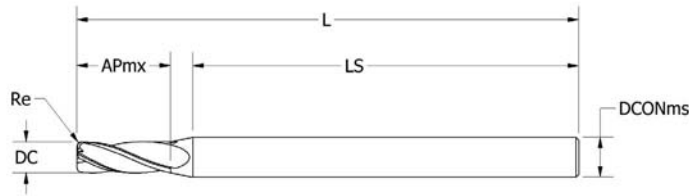


DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED	AITiN COATED	AMORPHOUS DIAMOND
						4 FLUTE	4 FLUTE	4 FLUTE
0.0200	0.1250	0.0050	0.0600	1.1699	1.5000	930-001-003	930-001-125	930-000-858
0.0250	0.1250	0.0050	0.0750	1.1678	1.5000	930-001-004	930-001-126	930-000-859
0.0300	0.1250	0.0050	0.0900	1.1656	1.5000	930-001-005	930-001-127	930-000-860
0.0300	0.1250	0.0100	0.0900	1.1656	1.5000	930-000-963	N/A	930-000-819
0.0310	0.1250	0.0050	0.0930	1.1652	1.5000	930-001-006	930-001-128	930-000-861
0.0310	0.1250	0.0100	0.0930	1.1652	1.5000	930-000-964	N/A	930-000-820
0.0350	0.1250	0.0050	0.1050	1.1635	1.5000	930-001-007	930-001-129	930-000-862
0.0350	0.1250	0.0100	0.1050	1.1635	1.5000	930-000-965	N/A	930-000-821
0.0400	0.1250	0.0050	0.1200	1.1614	1.5000	930-001-008	930-001-130	930-000-863
0.0400	0.1250	0.0100	0.1200	1.1614	1.5000	930-000-966	930-001-108	930-000-822
0.0450	0.1250	0.0050	0.1350	1.1592	1.5000	930-001-009	930-001-131	930-000-864
0.0450	0.1250	0.0100	0.1350	1.1592	1.5000	930-000-967	930-001-109	930-000-823
0.0450	0.1250	0.0150	0.1350	1.1592	1.5000	930-000-983	N/A	930-000-839
0.0470	0.1250	0.0050	0.1410	1.1584	1.5000	930-001-010	930-001-132	930-000-865
0.0470	0.1250	0.0100	0.1410	1.1584	1.5000	930-000-968	930-001-110	930-000-824
0.0470	0.1250	0.0150	0.1410	1.1584	1.5000	930-000-984	930-001-117	930-000-840
0.0500	0.1250	0.0050	0.1500	1.1571	1.5000	930-001-011	930-001-133	930-000-866
0.0500	0.1250	0.0100	0.1500	1.1571	1.5000	930-000-969	930-001-111	930-000-825
0.0500	0.1250	0.0150	0.1500	1.1571	1.5000	930-000-985	930-001-118	930-000-841
0.0550	0.1250	0.0050	0.1650	1.1549	1.5000	930-001-012	930-001-134	930-000-867
0.0550	0.1250	0.0100	0.1650	1.1549	1.5000	930-000-970	N/A	930-000-826
0.0550	0.1250	0.0150	0.1650	1.1549	1.5000	930-000-986	N/A	930-000-842
0.0600	0.1250	0.0050	0.1800	1.1528	1.5000	930-001-013	930-001-135	930-000-868
0.0600	0.1250	0.0100	0.1800	1.1528	1.5000	930-000-971	930-001-112	930-000-827
0.0600	0.1250	0.0150	0.1800	1.1528	1.5000	930-000-987	930-001-119	930-000-843
0.0620	0.1250	0.0050	0.1860	1.1519	1.5000	930-001-014	N/A	930-000-869
0.0620	0.1250	0.0100	0.1860	1.1519	1.5000	930-000-972	N/A	930-000-828
0.0620	0.1250	0.0150	0.1860	1.1519	1.5000	930-000-988	N/A	930-000-844
0.0620	0.1250	0.0200	0.1860	1.1519	1.5000	930-000-999	N/A	930-000-855
0.0650	0.1250	0.0050	0.1950	1.1507	1.5000	930-001-015	N/A	930-000-870
0.0650	0.1250	0.0100	0.1950	1.1507	1.5000	930-000-973	N/A	930-000-829
0.0650	0.1250	0.0150	0.1950	1.1507	1.5000	930-000-989	N/A	930-000-845

Ø .070" - .100"



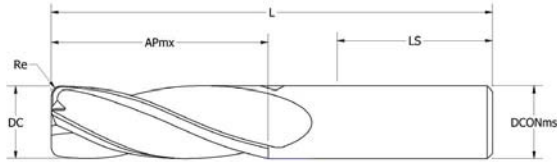
CARBIDE



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED	AITiN COATED	AMORPHOUS DIAMOND
						4 FLUTE	4 FLUTE	4 FLUTE
0.0700	0.1250	0.0050	0.2100	1.1485	1.5000	930-001-016	930-001-136	930-000-871
0.0700	0.1250	0.0100	0.2100	1.1485	1.5000	930-000-974	930-001-113	930-000-830
0.0700	0.1250	0.0150	0.2100	1.1485	1.5000	930-000-990	930-001-121	930-000-846
0.0750	0.1250	0.0050	0.2250	1.1464	1.5000	930-001-017	N/A	930-000-872
0.0750	0.1250	0.0100	0.2250	1.1464	1.5000	930-000-975	N/A	930-000-831
0.0750	0.1250	0.0150	0.2250	1.1464	1.5000	930-000-991	N/A	930-000-847
0.0780	0.1250	0.0050	0.2340	1.1451	1.5000	930-001-018	N/A	930-000-873
0.0780	0.1250	0.0100	0.2340	1.1451	1.5000	930-000-976	N/A	930-000-832
0.0780	0.1250	0.0150	0.2340	1.1451	1.5000	930-000-992	N/A	930-000-848
0.0780	0.1250	0.0200	0.2340	1.1451	1.5000	930-001-001	N/A	930-000-856
0.0800	0.1250	0.0050	0.2400	1.1442	1.5000	930-001-019	930-001-137	930-000-874
0.0800	0.1250	0.0100	0.2400	1.1442	1.5000	930-000-977	930-001-114	930-000-833
0.0800	0.1250	0.0150	0.2400	1.1442	1.5000	930-000-993	930-001-122	930-000-849
0.0850	0.1250	0.0050	0.2550	1.1421	1.5000	930-001-020	N/A	930-000-875
0.0850	0.1250	0.0100	0.2550	1.1421	1.5000	930-000-978	N/A	930-000-834
0.0850	0.1250	0.0150	0.2550	1.1421	1.5000	930-000-994	N/A	930-000-850
0.0900	0.1250	0.0050	0.2700	1.1400	1.5000	930-001-021	930-001-138	930-000-876
0.0900	0.1250	0.0100	0.2700	1.1400	1.5000	930-000-979	930-001-115	930-000-835
0.0900	0.1250	0.0150	0.2700	1.1400	1.5000	930-000-995	930-001-123	930-000-851
0.0930	0.1250	0.0050	0.2790	1.1387	1.5000	930-001-022	N/A	930-000-877
0.0930	0.1250	0.0100	0.2790	1.1387	1.5000	930-000-980	930-003-903	930-000-836
0.0930	0.1250	0.0150	0.2790	1.1387	1.5000	930-000-996	N/A	930-000-852
0.0930	0.1250	0.0200	0.2790	1.1387	1.5000	930-001-002	N/A	930-000-857
0.0950	0.1250	0.0050	0.2850	1.1378	1.5000	930-001-023	N/A	930-000-878
0.0950	0.1250	0.0100	0.2850	1.1378	1.5000	930-000-981	N/A	930-000-837
0.0950	0.1250	0.0150	0.2850	1.1378	1.5000	930-000-997	N/A	930-000-853
0.1000	0.1250	0.0050	0.3000	1.1357	1.5000	930-001-024	930-001-139	930-000-879
0.1000	0.1250	0.0100	0.3000	1.1357	1.5000	930-000-982	930-001-116	930-000-838
0.1000	0.1250	0.0150	0.3000	1.1357	1.5000	930-000-998	930-001-124	930-000-854

CARBIDE

Ø .125" - .375"

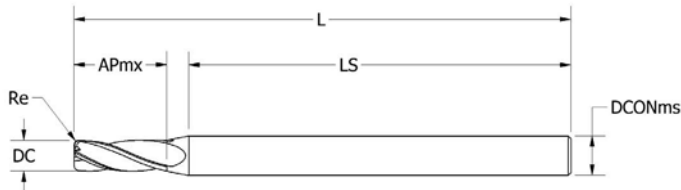


DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED		AITiN COATED	AMORPHOUS DIAMOND
						2 FLUTE	4 FLUTE	4 FLUTE	4 FLUTE
0.1250	0.1250	0.0100	0.5000	0.6250	1.5000	931-000-098	931-000-147	931-000-150	931-000-426
0.1250	0.1250	0.0150	0.5000	0.6250	1.5000	931-000-099	931-000-148	931-000-151	931-000-427
0.1250	0.1250	0.0200	0.5000	0.6250	1.5000	931-000-100	931-000-149	931-000-152	931-000-428
0.1875	0.1875	0.0100	0.6250	1.0000	2.0000	931-000-101	931-000-153	931-000-156	931-000-435
0.1875	0.1875	0.0150	0.6250	1.0000	2.0000	931-000-102	931-000-154	931-000-157	931-000-436
0.1875	0.1875	0.0300	0.6250	1.0000	2.0000	931-000-103	931-000-155	931-000-158	931-000-437
0.2500	0.2500	0.0150	0.7500	1.3750	2.5000	931-000-104	931-000-159	931-000-164	931-000-440
0.2500	0.2500	0.0200	0.7500	1.3750	2.5000	931-000-105	931-000-160	931-000-165	931-000-441
0.2500	0.2500	0.0300	0.7500	1.3750	2.5000	931-000-106	931-000-161	931-000-166	931-000-442
0.2500	0.2500	0.0450	0.7500	1.3750	2.5000	931-000-107	931-000-162	931-000-167	931-000-443
0.2500	0.2500	0.0600	0.7500	1.3750	2.5000	931-000-108	931-000-163	931-000-168	931-000-444
0.3125	0.3125	0.0150	0.8125	1.3125	2.5000	931-000-109	931-000-169	N/A	N/A
0.3125	0.3125	0.0200	0.8125	1.3125	2.5000	931-000-110	931-000-170	N/A	N/A
0.3125	0.3125	0.0300	0.8125	1.3125	2.5000	931-000-111	931-000-171	931-000-174	N/A
0.3125	0.3125	0.0450	0.8125	1.3125	2.5000	931-000-112	931-000-172	931-000-175	N/A
0.3125	0.3125	0.0600	0.8125	1.3125	2.5000	931-000-113	931-000-173	931-000-176	N/A
0.3750	0.3750	0.0150	1.0000	1.1250	2.5000	931-000-114	931-000-177	N/A	N/A
0.3750	0.3750	0.0300	1.0000	1.1250	2.5000	931-000-115	931-000-178	931-000-181	931-000-447
0.3750	0.3750	0.0450	1.0000	1.1250	2.5000	931-000-116	931-000-179	931-000-182	N/A
0.3750	0.3750	0.0600	1.0000	1.1250	2.5000	931-000-117	931-000-180	931-000-183	931-000-448

Ø .020" - .093"



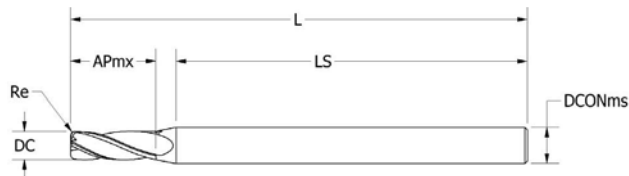
CARBIDE



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED	TiAlN COATED	AMORPHOUS DIAMOND
						4 FLUTE	4 FLUTE	4 FLUTE
0.0200	0.1250	0.0050	0.0300	1.1999	1.5000	930-001-802	930-001-788	930-001-743
0.0250	0.1250	0.0050	0.0375	1.2053	1.5000	930-001-803	930-001-789	930-001-744
0.0310	0.1250	0.0050	0.0465	1.2117	1.5000	930-001-804	930-001-790	930-001-745
0.0470	0.1250	0.0050	0.0705	1.2289	1.5000	930-001-805	930-001-791	930-001-746
0.0470	0.1250	0.0100	0.0705	1.2289	1.5000	930-001-795	930-001-781	930-001-736
0.0620	0.1250	0.0050	0.0930	1.2449	1.5000	930-001-806	930-001-792	930-001-747
0.0620	0.1250	0.0100	0.0930	1.2449	1.5000	930-001-796	930-001-782	930-001-737
0.0620	0.1250	0.0150	0.0930	1.2449	1.5000	930-001-799	930-001-785	930-001-740
0.0780	0.1250	0.0050	0.1170	1.2621	1.5000	930-001-807	930-001-793	930-001-748
0.0780	0.1250	0.0100	0.1170	1.2621	1.5000	930-001-797	930-001-783	930-001-738
0.0780	0.1250	0.0150	0.1170	1.2621	1.5000	930-001-800	930-001-786	930-001-741
0.0930	0.1250	0.0050	0.1395	1.2782	1.5000	930-001-808	930-001-794	930-001-749
0.0930	0.1250	0.0100	0.1395	1.2782	1.5000	930-001-798	930-001-784	930-001-739
0.0930	0.1250	0.0150	0.1395	1.2782	1.5000	930-001-801	930-001-787	930-001-742

CARBIDE

Ø .015" - .093"

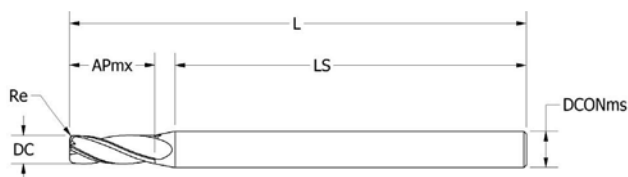


HARD MILL



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	HARD MILL COATED
						4 FLUTE
0.0150	0.1250	0.0020	0.0225	1.1945	1.5000	930-001-809
0.0310	0.1250	0.0030	0.0465	1.2117	1.5000	930-001-810
0.0470	0.1250	0.0050	0.0705	1.2289	1.5000	930-001-811
0.0620	0.1250	0.0060	0.0930	1.2449	1.5000	930-001-812
0.0780	0.1250	0.0080	0.1170	1.2621	1.5000	930-001-813
0.0930	0.1250	0.0090	0.1395	1.2782	1.5000	930-001-814

Ø .0313" - .25"



HARD MILL, STUB

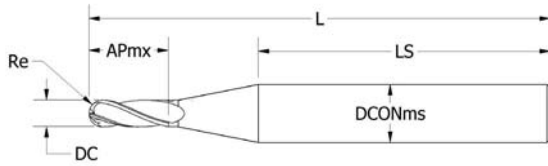


DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	HARD MILL COATED
						4 FLUTE
0.0313	0.1250	0.0030	0.0625	1.1963	1.5000	931-000-278
0.0469	0.1250	0.0050	0.0625	1.2365	1.5000	931-000-279
0.0625	0.1250	0.0060	0.1250	1.2142	1.5000	931-000-280
0.0781	0.1250	0.0080	0.1250	1.2544	1.5000	931-000-281
0.0938	0.1250	0.0090	0.1875	1.2321	1.5000	931-000-282
0.1250	0.1250	0.0130	0.2500	0.8750	1.5000	931-000-283
0.1875	0.1875	0.0190	0.3750	1.2500	2.0000	931-000-284
0.2500	0.2500	0.0250	0.5000	1.6250	2.5000	931-000-285

Ø .005" - .044"

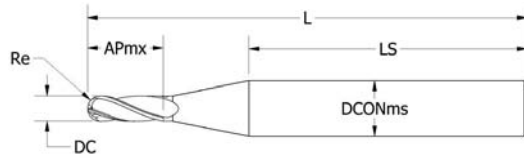


CARBIDE



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED		AITiN COATED
						2 FLUTE	4 FLUTE	2 FLUTE
0.0050	0.1250	0.0025	0.0150	1.1342	1.5000	930-001-965	N/A	930-002-249
0.0060	0.1250	0.0030	0.0180	1.1342	1.5000	930-001-967	N/A	930-002-250
0.0070	0.1250	0.0035	0.0210	1.1342	1.5000	930-001-968	N/A	930-002-251
0.0080	0.1250	0.0040	0.0240	1.1342	1.5000	930-001-969	N/A	930-002-252
0.0090	0.1250	0.0045	0.0270	1.1342	1.5000	930-001-970	N/A	930-002-253
0.0100	0.1250	0.0050	0.0300	1.1742	1.5000	930-001-971	930-002-341	930-002-254
0.0110	0.1250	0.0055	0.0330	1.1738	1.5000	930-001-973	930-002-343	930-002-255
0.0120	0.1250	0.0060	0.0360	1.1733	1.5000	930-001-974	930-002-344	930-002-256
0.0130	0.1250	0.0065	0.0390	1.1729	1.5000	930-001-975	930-002-345	930-002-257
0.0140	0.1250	0.0070	0.0420	1.1725	1.5000	930-001-976	930-002-346	930-002-258
0.0150	0.1250	0.0075	0.0450	1.1720	1.5000	930-001-977	930-002-347	930-002-259
0.0156	0.1250	0.0078	0.0468	1.1718	1.5000	930-002-084	930-002-453	N/A
0.0160	0.1250	0.0080	0.0480	1.1716	1.5000	930-001-979	930-002-349	930-002-260
0.0170	0.1250	0.0085	0.0510	1.1712	1.5000	930-001-980	930-002-350	930-002-261
0.0180	0.1250	0.0090	0.0540	1.1708	1.5000	930-001-981	930-002-351	930-002-262
0.0190	0.1250	0.0095	0.0570	1.1703	1.5000	930-001-982	930-002-352	930-002-263
0.0197	0.1250	0.0099	0.0591	1.1700	1.5000	930-002-065	930-002-434	N/A
0.0200	0.1250	0.0100	0.0600	1.1699	1.5000	930-001-983	930-002-353	930-002-264
0.0210	0.1250	0.0105	0.0630	1.1695	1.5000	930-001-985	930-002-355	930-002-265
0.0220	0.1250	0.0110	0.0660	1.1691	1.5000	930-001-986	930-002-356	930-002-266
0.0230	0.1250	0.0115	0.0690	1.1686	1.5000	930-001-987	930-002-357	930-002-267
0.0240	0.1250	0.0120	0.0720	1.1682	1.5000	930-001-988	930-002-358	930-002-268
0.0250	0.1250	0.0125	0.0750	1.1678	1.5000	930-001-989	930-002-359	930-002-269
0.0260	0.1250	0.0130	0.0780	1.1673	1.5000	930-001-991	930-002-361	930-002-270
0.0270	0.1250	0.0135	0.0810	1.1669	1.5000	930-001-992	930-002-362	930-002-271
0.0280	0.1250	0.0140	0.0840	1.1665	1.5000	930-001-993	930-002-363	930-002-272
0.0290	0.1250	0.0145	0.0870	1.1661	1.5000	930-001-994	930-002-364	930-002-273
0.0300	0.1250	0.0150	0.0900	1.1656	1.5000	930-001-995	930-002-365	930-002-274
0.0312	0.1250	0.0156	0.0936	1.1651	1.5000	930-001-997	930-002-367	930-002-275
0.0320	0.1250	0.0160	0.0960	1.1648	1.5000	930-001-998	930-002-368	930-002-276
0.0330	0.1250	0.0165	0.0990	1.1644	1.5000	930-001-999	930-002-369	930-002-277
0.0340	0.1250	0.0170	0.1020	1.1639	1.5000	930-002-001	930-002-370	930-002-278
0.0350	0.1250	0.0175	0.1050	1.1635	1.5000	930-002-002	930-002-371	930-002-279
0.0360	0.1250	0.0180	0.1080	1.1631	1.5000	930-002-004	930-002-373	930-002-280
0.0370	0.1250	0.0185	0.1110	1.1626	1.5000	930-002-005	930-002-374	930-002-281
0.0380	0.1250	0.0190	0.1140	1.1622	1.5000	930-002-006	930-002-375	930-002-282
0.0390	0.1250	0.0195	0.1170	1.1618	1.5000	930-002-007	930-002-376	930-002-283
0.0394	0.1250	0.0197	0.1182	1.1616	1.5000	930-002-072	930-002-441	930-002-321
0.0400	0.1250	0.0200	0.1200	1.1614	1.5000	930-002-008	930-002-377	930-002-284
0.0410	0.1250	0.0205	0.1230	1.1609	1.5000	930-002-010	930-002-379	930-002-285
0.0420	0.1250	0.0210	0.1260	1.1605	1.5000	930-002-011	930-002-380	930-002-286
0.0430	0.1250	0.0215	0.1290	1.1601	1.5000	930-002-012	930-002-381	930-002-287
0.0440	0.1250	0.0220	0.1320	1.1596	1.5000	930-002-013	930-002-382	930-002-288

Ø .005" - .044"

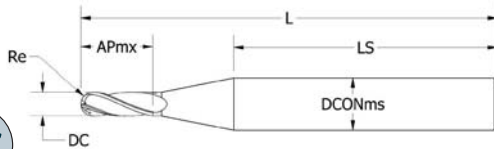


DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	TiAIN COATED		AMORPHOUS DIAMOND	
						2 FLUTE	4 FLUTE	2 FLUTE	4 FLUTE
0.0050	0.1250	0.0025	0.0150	1.1342	1.5000	930-002-161	N/A	930-002-086	N/A
0.0060	0.1250	0.0030	0.0180	1.1342	1.5000	930-002-162	N/A	930-002-087	N/A
0.0070	0.1250	0.0035	0.0210	1.1342	1.5000	930-002-163	N/A	930-002-088	N/A
0.0080	0.1250	0.0040	0.0240	1.1342	1.5000	930-002-164	N/A	930-002-089	N/A
0.0090	0.1250	0.0045	0.0270	1.1342	1.5000	930-002-165	N/A	930-002-090	N/A
0.0100	0.1250	0.0050	0.0300	1.1742	1.5000	930-002-166	930-002-523	930-002-091	930-002-455
0.0110	0.1250	0.0055	0.0330	1.1738	1.5000	930-002-167	930-002-524	930-002-092	930-002-456
0.0120	0.1250	0.0060	0.0360	1.1733	1.5000	930-002-168	930-002-525	930-002-093	930-002-457
0.0130	0.1250	0.0065	0.0390	1.1729	1.5000	930-002-169	930-002-526	930-002-094	930-002-458
0.0140	0.1250	0.0070	0.0420	1.1725	1.5000	930-002-170	930-002-527	930-002-095	930-002-459
0.0150	0.1250	0.0075	0.0450	1.1720	1.5000	930-002-171	930-002-528	930-002-096	930-002-460
0.0156	0.1250	0.0078	0.0468	1.1718	1.5000	930-002-247	883-C-1560	N/A	N/A
0.0160	0.1250	0.0080	0.0480	1.1716	1.5000	930-002-172	930-002-529	930-002-097	930-002-461
0.0170	0.1250	0.0085	0.0510	1.1712	1.5000	930-002-173	930-002-530	930-002-098	930-002-462
0.0180	0.1250	0.0090	0.0540	1.1708	1.5000	930-002-174	930-002-531	930-002-099	930-002-463
0.0190	0.1250	0.0095	0.0570	1.1703	1.5000	930-002-175	930-002-532	930-002-100	930-002-464
0.0197	0.1250	0.0099	0.0591	1.1700	1.5000	930-002-235	930-002-592	N/A	N/A
0.0200	0.1250	0.0100	0.0600	1.1699	1.5000	930-002-176	930-002-533	930-002-101	930-002-465
0.0210	0.1250	0.0105	0.0630	1.1695	1.5000	930-002-177	930-002-534	930-002-102	930-002-466
0.0220	0.1250	0.0110	0.0660	1.1691	1.5000	930-002-178	930-002-535	930-002-103	930-002-467
0.0230	0.1250	0.0115	0.0690	1.1686	1.5000	930-002-179	930-002-536	930-002-104	930-002-468
0.0240	0.1250	0.0120	0.0720	1.1682	1.5000	930-002-180	930-002-537	930-002-105	930-002-469
0.0250	0.1250	0.0125	0.0750	1.1678	1.5000	930-002-181	930-002-538	930-002-106	930-002-470
0.0260	0.1250	0.0130	0.0780	1.1673	1.5000	930-002-182	930-002-539	930-002-107	930-002-471
0.0270	0.1250	0.0135	0.0810	1.1669	1.5000	930-002-183	930-002-540	930-002-108	930-002-472
0.0280	0.1250	0.0140	0.0840	1.1665	1.5000	930-002-184	930-002-541	930-002-109	930-002-473
0.0290	0.1250	0.0145	0.0870	1.1661	1.5000	930-002-185	930-002-542	930-002-110	930-002-474
0.0300	0.1250	0.0150	0.0900	1.1656	1.5000	930-002-186	930-002-543	930-002-111	930-002-475
0.0310	0.1250	0.0155	0.0930	1.1652	1.5000	930-002-187	930-002-544	930-002-112	930-002-476
0.0320	0.1250	0.0160	0.0960	1.1648	1.5000	930-002-188	930-002-545	930-002-113	930-002-477
0.0330	0.1250	0.0165	0.0990	1.1644	1.5000	930-002-189	930-002-546	930-002-114	930-002-478
0.0340	0.1250	0.0170	0.1020	1.1639	1.5000	930-002-190	930-002-547	930-002-115	930-002-479
0.0350	0.1250	0.0175	0.1050	1.1635	1.5000	930-002-191	930-002-548	930-002-116	930-002-480
0.0360	0.1250	0.0180	0.1080	1.1631	1.5000	930-002-192	930-002-549	930-002-117	930-002-481
0.0370	0.1250	0.0185	0.1110	1.1626	1.5000	930-002-193	930-002-550	930-002-118	930-002-482
0.0380	0.1250	0.0190	0.1140	1.1622	1.5000	930-002-194	930-002-551	930-002-119	930-002-483
0.0390	0.1250	0.0195	0.1170	1.1618	1.5000	930-002-195	930-002-552	930-002-120	930-002-484
0.0394	0.1250	0.0197	0.1182	1.1616	1.5000	930-002-236	930-002-593	930-002-156	930-002-518
0.0400	0.1250	0.0200	0.1200	1.1614	1.5000	930-002-196	930-002-553	930-002-121	930-002-485
0.0410	0.1250	0.0205	0.1230	1.1609	1.5000	930-002-197	930-002-554	930-002-122	930-002-486
0.0420	0.1250	0.0210	0.1260	1.1605	1.5000	930-002-198	930-002-555	930-002-123	930-002-487
0.0430	0.1250	0.0215	0.1290	1.1601	1.5000	930-002-199	930-002-556	930-002-124	930-002-488
0.0440	0.1250	0.0220	0.1320	1.1596	1.5000	930-002-200	930-002-557	930-002-125	930-002-489

Ø .045" - .1772"



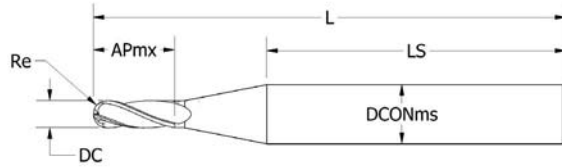
CARBIDE



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED		AITIN COATED
						2 FLUTE	4 FLUTE	2 FLUTE
0.0450	0.1250	0.0225	0.1350	1.1592	1.5000	930-002-014	930-002-383	930-002-289
0.0460	0.1250	0.0230	0.1380	1.1588	1.5000	930-002-016	930-002-385	930-002-290
0.0468	0.1250	0.0234	0.1404	1.1584	1.5000	930-002-017	930-002-386	930-002-291
0.0480	0.1250	0.0240	0.1440	1.1579	1.5000	930-002-018	930-002-387	930-002-292
0.0490	0.1250	0.0245	0.1470	1.1575	1.5000	930-002-019	930-002-388	930-002-293
0.0492	0.1250	0.0246	0.1476	1.1574	1.5000	930-002-073	930-002-442	930-003-878
0.0500	0.1250	0.0250	0.1500	1.1571	1.5000	930-002-020	930-002-389	930-002-294
0.0510	0.1250	0.0255	0.1530	1.1567	1.5000	930-002-022	930-002-391	930-002-295
0.0520	0.1250	0.0260	0.1560	1.1562	1.5000	930-002-023	930-002-392	930-002-296
0.0530	0.1250	0.0265	0.1590	1.1558	1.5000	930-002-024	930-002-393	930-002-297
0.0540	0.1250	0.0270	0.1620	1.1554	1.5000	930-002-025	930-002-394	930-002-298
0.0550	0.1250	0.0275	0.1650	1.1549	1.5000	930-002-026	930-002-395	930-002-299
0.0560	0.1250	0.0280	0.1680	1.1545	1.5000	930-002-028	930-002-397	930-002-300
0.0570	0.1250	0.0285	0.1710	1.1541	1.5000	930-002-029	930-002-398	930-002-301
0.0580	0.1250	0.0290	0.1740	1.1537	1.5000	930-002-030	930-002-399	930-002-302
0.0590	0.1250	0.0295	0.1770	1.1532	1.5000	930-002-031	930-002-400	930-002-303
0.0591	0.1250	0.0296	0.1773	1.1532	1.5000	930-002-075	930-002-444	930-002-322
0.0600	0.1250	0.0300	0.1800	1.1528	1.5000	930-002-032	930-002-401	930-002-304
0.0620	0.1250	0.0310	0.1860	1.1519	1.5000	930-002-034	930-002-403	930-002-305
0.0630	0.1250	0.0315	0.1890	1.1515	1.5000	930-002-076	930-002-445	N/A
0.0640	0.1250	0.0320	0.1920	1.1511	1.5000	930-002-035	930-002-404	N/A
0.0650	0.1250	0.0325	0.1950	1.1507	1.5000	930-002-036	930-002-405	930-002-306
0.0700	0.1250	0.0350	0.2100	1.1485	1.5000	930-002-038	930-002-407	930-002-307
0.0709	0.1250	0.0355	0.2127	1.1481	1.5000	930-002-077	930-002-446	N/A
0.0750	0.1250	0.0375	0.2250	1.1464	1.5000	930-002-040	930-002-409	930-002-308
0.0781	0.1250	0.0391	0.2343	1.1451	1.5000	930-002-041	930-002-410	930-002-309
0.0787	0.1250	0.0394	0.2361	1.1448	1.5000	930-002-078	930-002-447	N/A
0.0800	0.1250	0.0400	0.2400	1.1442	1.5000	930-002-042	930-002-411	930-002-310
0.0850	0.1250	0.0425	0.2550	1.1421	1.5000	930-002-044	930-002-413	930-002-311
0.0866	0.1250	0.0433	0.2598	1.1414	1.5000	930-002-079	930-002-448	N/A
0.0900	0.1250	0.0450	0.2700	1.1400	1.5000	930-002-045	930-002-414	930-002-312
0.0938	0.1250	0.0469	0.2814	1.1383	1.5000	930-002-047	930-002-416	930-002-313
0.0950	0.1250	0.0475	0.2850	1.1378	1.5000	930-002-048	930-002-417	930-002-314
0.0984	0.1250	0.0492	0.2952	1.1364	1.5000	930-002-080	930-002-449	N/A
0.1000	0.1250	0.0500	0.3000	1.1357	1.5000	930-002-049	930-002-418	930-002-315
0.1050	0.1250	0.0525	0.3150	1.1336	1.5000	930-002-051	930-002-420	930-002-316
0.1102	0.1250	0.0551	0.3306	1.1313	1.5000	930-002-081	930-002-450	930-002-323
0.1150	0.1250	0.0575	0.3450	1.1293	1.5000	930-002-052	930-002-421	930-002-317
0.1181	0.1250	0.0591	0.3543	1.1280	1.5000	930-002-082	930-002-451	930-002-324
0.1200	0.1250	0.0600	0.3600	1.1271	1.5000	930-002-053	930-002-422	930-002-318
0.1378	0.1875	0.0689	0.4134	1.4588	2.0000	930-002-083	930-002-452	N/A
0.1772	0.1875	0.0886	0.5316	1.4419	2.0000	930-002-085	930-002-454	N/A

CARBIDE

Ø .045" - .1772"

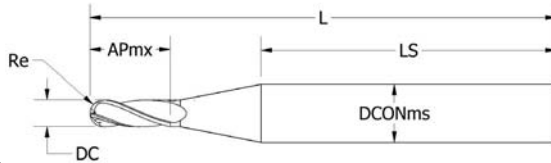


DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	TiAIN COATED		AMORPHOUS DIAMOND	
						2 FLUTE	4 FLUTE	2 FLUTE	4 FLUTE
0.0450	0.1250	0.0225	0.1350	1.1592	1.5000	930-002-201	930-002-558	930-002-126	930-002-490
0.0460	0.1250	0.0230	0.1380	1.1588	1.5000	930-002-202	930-002-559	930-002-127	930-002-491
0.0470	0.1250	0.0235	0.1410	1.1584	1.5000	930-002-203	930-002-560	930-002-128	930-002-492
0.0480	0.1250	0.0240	0.1440	1.1579	1.5000	930-002-204	930-002-561	930-002-129	930-002-493
0.0490	0.1250	0.0245	0.1470	1.1575	1.5000	930-002-205	930-002-562	930-002-130	930-002-494
0.0492	0.1250	0.0246	0.1476	1.1574	1.5000	930-002-237	930-002-594	930-002-157	930-002-519
0.0500	0.1250	0.0250	0.1500	1.1571	1.5000	930-002-206	930-002-563	930-002-131	930-002-495
0.0510	0.1250	0.0255	0.1530	1.1567	1.5000	930-002-207	930-002-564	930-002-132	930-002-496
0.0520	0.1250	0.0260	0.1560	1.1562	1.5000	930-002-208	930-002-565	930-002-133	930-002-497
0.0530	0.1250	0.0265	0.1590	1.1558	1.5000	930-002-209	930-002-566	930-002-134	930-002-498
0.0540	0.1250	0.0270	0.1620	1.1554	1.5000	930-002-210	930-002-567	930-002-135	930-002-499
0.0550	0.1250	0.0275	0.1650	1.1549	1.5000	930-002-211	930-002-568	930-002-136	930-002-500
0.0560	0.1250	0.0280	0.1680	1.1545	1.5000	930-002-212	930-002-569	930-002-137	930-002-501
0.0570	0.1250	0.0285	0.1710	1.1541	1.5000	930-002-213	930-002-570	930-002-138	930-002-502
0.0580	0.1250	0.0290	0.1740	1.1537	1.5000	930-002-214	930-002-571	930-002-139	930-002-503
0.0590	0.1250	0.0295	0.1770	1.1532	1.5000	930-002-215	930-002-572	930-002-140	930-002-504
0.0591	0.1250	0.0296	0.1773	1.1532	1.5000	930-002-238	930-002-595	930-002-158	930-002-520
0.0600	0.1250	0.0300	0.1800	1.1528	1.5000	930-002-216	930-002-573	930-002-141	930-002-505
0.0620	0.1250	0.0310	0.1860	1.1519	1.5000	930-002-217	930-002-574	930-002-142	930-002-506
0.0630	0.1250	0.0315	0.1890	1.1515	1.5000	930-002-239	930-002-596	N/A	N/A
0.0650	0.1250	0.0325	0.1950	1.1507	1.5000	930-002-218	930-002-575	930-002-143	930-002-507
0.0700	0.1250	0.0350	0.2100	1.1485	1.5000	930-002-219	930-002-576	N/A	N/A
0.0709	0.1250	0.0355	0.2127	1.1481	1.5000	930-002-240	930-002-597	N/A	N/A
0.0750	0.1250	0.0375	0.2250	1.1464	1.5000	930-002-220	930-002-577	930-002-145	930-002-509
0.0781	0.1250	0.0391	0.2343	1.1451	1.5000	930-002-221	930-002-578	930-002-146	930-002-510
0.0787	0.1250	0.0394	0.2361	1.1448	1.5000	930-002-241	930-002-598	N/A	N/A
0.0800	0.1250	0.0400	0.2400	1.1442	1.5000	930-002-222	930-002-579	930-002-147	930-002-511
0.0850	0.1250	0.0425	0.2550	1.1421	1.5000	930-002-223	930-002-580	930-002-148	930-002-512
0.0866	0.1250	0.0433	0.2598	1.1414	1.5000	930-002-242	930-002-599	N/A	N/A
0.0900	0.1250	0.0450	0.2700	1.1400	1.5000	930-002-224	930-002-581	930-002-149	930-002-513
0.0938	0.1250	0.0469	0.2814	1.1383	1.5000	930-002-225	930-002-582	930-002-150	930-002-514
0.0950	0.1250	0.0475	0.2850	1.1378	1.5000	930-002-226	930-002-583	930-002-151	930-002-515
0.0984	0.1250	0.0492	0.2952	1.1364	1.5000	930-002-243	930-002-600	N/A	N/A
0.1000	0.1250	0.0500	0.3000	1.1357	1.5000	930-002-227	930-002-584	930-002-152	930-002-516
0.1102	0.1250	0.0551	0.3306	1.1313	1.5000	930-002-244	930-002-601	930-002-159	930-002-521
0.1181	0.1250	0.0591	0.3543	1.1280	1.5000	930-002-245	930-002-602	930-002-160	930-002-522
0.1200	0.1250	0.0600	0.3600	1.1271	1.5000	930-002-228	930-002-585	930-002-155	930-002-517
0.1378	0.1875	0.0689	0.4134	1.4588	2.0000	930-002-246	930-002-603	N/A	N/A
0.1772	0.1875	0.0886	0.5316	1.4419	2.0000	930-002-248	930-002-605	N/A	N/A

Ø .005" - .040"



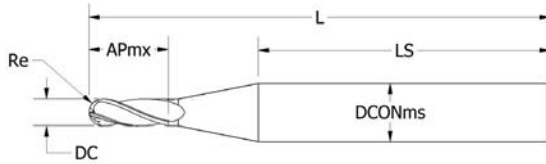
CARBIDE



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED		AITIN COATED
						2 FLUTE	4 FLUTE	2 FLUTE
0.0050	0.1250	0.0025	0.0080	1.1342	1.5000	930-001-173	N/A	930-001-337
0.0060	0.1250	0.0030	0.0090	1.1342	1.5000	930-001-174	N/A	930-001-338
0.0070	0.1250	0.0035	0.0110	1.1342	1.5000	930-001-175	N/A	930-001-339
0.0080	0.1250	0.0040	0.0120	1.1342	1.5000	930-001-176	N/A	930-001-340
0.0090	0.1250	0.0045	0.0140	1.1342	1.5000	930-001-177	N/A	930-001-341
0.0100	0.1250	0.0050	0.0150	1.1892	1.5000	930-001-178	930-001-815	930-001-342
0.0110	0.1250	0.0055	0.0165	1.1903	1.5000	930-001-179	930-001-816	930-001-343
0.0120	0.1250	0.0060	0.0180	1.1913	1.5000	930-001-180	930-001-817	930-001-344
0.0130	0.1250	0.0065	0.0195	1.1924	1.5000	930-001-181	930-001-818	930-001-345
0.0140	0.1250	0.0070	0.0210	1.1935	1.5000	930-001-182	930-001-819	930-001-346
0.0150	0.1250	0.0075	0.0225	1.1945	1.5000	930-001-183	930-001-820	930-001-347
0.0156	0.1250	0.0078	0.0234	1.1952	1.5000	930-001-246	930-001-883	N/A
0.0160	0.1250	0.0080	0.0240	1.1956	1.5000	930-001-184	930-001-821	930-001-348
0.0170	0.1250	0.0085	0.0255	1.1967	1.5000	930-001-185	930-001-822	930-001-349
0.0180	0.1250	0.0090	0.0270	1.1978	1.5000	930-001-186	930-001-823	930-001-350
0.0190	0.1250	0.0095	0.0285	1.1988	1.5000	930-001-187	930-001-824	930-001-351
0.0197	0.1250	0.0099	0.0296	1.1996	1.5000	930-001-233	930-001-870	N/A
0.0200	0.1250	0.0100	0.0300	1.1999	1.5000	930-001-188	930-001-825	930-001-352
0.0210	0.1250	0.0105	0.0315	1.2010	1.5000	930-001-189	930-001-826	930-001-353
0.0220	0.1250	0.0110	0.0330	1.2021	1.5000	930-001-190	930-001-827	930-001-354
0.0230	0.1250	0.0115	0.0345	1.2031	1.5000	930-001-191	930-001-828	930-001-355
0.0240	0.1250	0.0120	0.0360	1.2042	1.5000	930-001-192	930-001-829	930-001-356
0.0250	0.1250	0.0125	0.0375	1.2053	1.5000	930-001-193	930-001-830	930-001-357
0.0260	0.1250	0.0130	0.0390	1.2063	1.5000	930-001-194	930-001-831	930-001-358
0.0270	0.1250	0.0135	0.0405	1.2074	1.5000	930-001-195	930-001-832	930-001-359
0.0280	0.1250	0.0140	0.0420	1.2085	1.5000	930-001-196	930-001-833	930-001-360
0.0290	0.1250	0.0145	0.0435	1.2096	1.5000	930-001-197	930-001-834	930-001-361
0.0300	0.1250	0.0150	0.0450	1.2106	1.5000	930-001-198	930-001-835	930-001-362
0.0310	0.1250	0.0155	0.0465	1.2117	1.5000	930-001-199	930-001-836	930-001-363
0.0320	0.1250	0.0160	0.0480	1.2128	1.5000	930-001-200	930-001-837	930-001-364
0.0330	0.1250	0.0165	0.0495	1.2139	1.5000	930-001-201	930-001-838	930-001-365
0.0340	0.1250	0.0170	0.0510	1.2149	1.5000	930-001-202	930-001-839	930-001-366
0.0350	0.1250	0.0175	0.0525	1.2160	1.5000	930-001-203	930-001-840	930-001-367
0.0360	0.1250	0.0180	0.0540	1.2171	1.5000	930-001-204	930-001-841	930-001-368
0.0370	0.1250	0.0185	0.0555	1.2181	1.5000	930-001-205	930-001-842	930-001-369
0.0380	0.1250	0.0190	0.0570	1.2192	1.5000	930-001-206	930-001-843	930-001-370
0.0390	0.1250	0.0195	0.0585	1.2203	1.5000	930-001-207	930-001-844	930-001-371
0.0394	0.1250	0.0197	0.0591	1.2207	1.5000	930-001-235	930-001-872	930-001-390
0.0400	0.1250	0.0200	0.0600	1.2214	1.5000	930-001-208	930-001-845	930-001-372

CARBIDE

Ø .005" - .040"

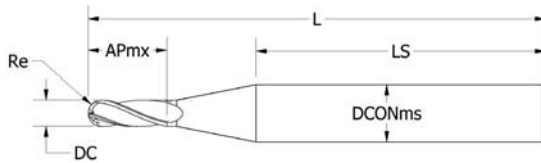


DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	TiAlN COATED		AMORPHOUS DIAMOND	
						2 FLUTE	4 FLUTE	2 FLUTE	4 FLUTE
0.0050	0.1250	0.0025	0.0080	1.1342	1.5000	930-001-296	N/A	930-001-247	N/A
0.0060	0.1250	0.0030	0.0090	1.1342	1.5000	930-001-297	N/A	930-001-248	N/A
0.0070	0.1250	0.0035	0.0110	1.1342	1.5000	930-001-298	N/A	930-001-249	N/A
0.0080	0.1250	0.0040	0.0120	1.1342	1.5000	930-001-299	N/A	930-001-250	N/A
0.0090	0.1250	0.0045	0.0140	1.1342	1.5000	930-001-300	N/A	930-001-251	N/A
0.0100	0.1250	0.0050	0.0150	1.1892	1.5000	930-001-301	930-001-929	930-001-252	930-001-884
0.0110	0.1250	0.0055	0.0165	1.1903	1.5000	930-001-302	930-001-930	930-001-253	930-001-885
0.0120	0.1250	0.0060	0.0180	1.1913	1.5000	930-001-303	930-001-931	930-001-254	930-001-886
0.0130	0.1250	0.0065	0.0195	1.1924	1.5000	930-001-304	930-001-932	930-001-255	930-001-887
0.0140	0.1250	0.0070	0.0210	1.1935	1.5000	930-001-305	930-001-933	930-001-256	930-001-888
0.0150	0.1250	0.0075	0.0225	1.1945	1.5000	930-001-306	930-001-934	930-001-257	930-001-889
0.0160	0.1250	0.0080	0.0240	1.1956	1.5000	930-001-307	930-001-935	930-001-258	930-001-890
0.0170	0.1250	0.0085	0.0255	1.1967	1.5000	930-001-308	930-001-936	930-001-259	930-001-891
0.0180	0.1250	0.0090	0.0270	1.1978	1.5000	930-001-309	930-001-937	930-001-260	930-001-892
0.0190	0.1250	0.0095	0.0285	1.1988	1.5000	930-001-310	930-001-938	930-001-261	930-001-893
0.0200	0.1250	0.0100	0.0300	1.1988	1.5000	930-001-311	930-001-939	930-001-262	930-001-894
0.0210	0.1250	0.0105	0.0315	1.2010	1.5000	930-001-312	930-001-940	930-001-263	930-001-895
0.0220	0.1250	0.0110	0.0330	1.2021	1.5000	930-001-313	930-001-941	930-001-264	930-001-896
0.0230	0.1250	0.0115	0.0345	1.2031	1.5000	930-001-314	930-001-942	930-001-265	930-001-897
0.0240	0.1250	0.0120	0.0360	1.2042	1.5000	930-001-315	930-001-943	930-001-266	930-001-898
0.0250	0.1250	0.0125	0.0375	1.2053	1.5000	930-001-316	930-001-944	930-001-267	930-001-899
0.0260	0.1250	0.0130	0.0390	1.2063	1.5000	930-001-317	930-001-945	930-001-268	930-001-900
0.0270	0.1250	0.0135	0.0405	1.2074	1.5000	930-001-318	930-001-946	930-001-269	930-001-901
0.0280	0.1250	0.0140	0.0420	1.2085	1.5000	930-001-319	930-001-947	930-001-270	930-001-902
0.0290	0.1250	0.0145	0.0435	1.2096	1.5000	930-001-320	930-001-948	930-001-271	930-001-903
0.0300	0.1250	0.0150	0.0450	1.2106	1.5000	930-001-321	930-001-949	930-001-272	930-001-904
0.0310	0.1250	0.0155	0.0465	1.2117	1.5000	930-001-322	930-001-950	930-001-273	930-001-905
0.0320	0.1250	0.0160	0.0480	1.2128	1.5000	930-001-323	930-001-951	930-001-274	930-001-906
0.0330	0.1250	0.0165	0.0495	1.2139	1.5000	930-001-324	930-001-952	930-001-275	930-001-907
0.0340	0.1250	0.0170	0.0510	1.2149	1.5000	930-001-325	930-001-953	930-001-276	930-001-908
0.0350	0.1250	0.0175	0.0525	1.2160	1.5000	930-001-326	930-001-954	930-001-277	930-001-909
0.0360	0.1250	0.0180	0.0540	1.2171	1.5000	930-001-327	930-001-955	930-001-278	930-001-910
0.0370	0.1250	0.0185	0.0555	1.2181	1.5000	930-001-328	930-001-956	930-001-279	930-001-911
0.0380	0.1250	0.0190	0.0570	1.2192	1.5000	930-001-329	930-001-957	930-001-280	930-001-912
0.0390	0.1250	0.0195	0.0585	1.2203	1.5000	930-001-330	930-001-958	930-001-281	930-001-913
0.0400	0.1250	0.0200	0.0600	1.2214	1.5000	930-001-331	930-001-959	930-001-282	930-001-914

Ø .045" - .1378"



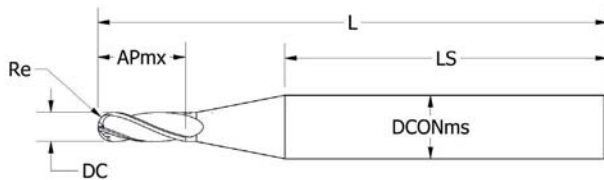
CARBIDE



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED		AITIN COATED
						2 FLUTE	4 FLUTE	2 FLUTE
0.0450	0.1250	0.0225	0.0675	1.2267	1.5000	930-001-209	930-001-846	930-001-373
0.0470	0.1250	0.0235	0.0705	1.2289	1.5000	930-001-210	930-001-847	930-001-374
0.0492	0.1250	0.0246	0.0738	1.2312	1.5000	930-001-236	930-001-873	N/A
0.0500	0.1250	0.0250	0.0750	1.2321	1.5000	930-001-211	930-001-848	930-001-375
0.0550	0.1250	0.0275	0.0825	1.2374	1.5000	930-001-212	930-001-849	930-001-376
0.0591	0.1250	0.0296	0.0887	1.2418	1.5000	930-001-237	930-001-874	N/A
0.0600	0.1250	0.0300	0.0900	1.2428	1.5000	930-001-213	930-001-850	930-001-377
0.0620	0.1250	0.0310	0.0930	1.2449	1.5000	930-001-214	930-001-851	930-001-378
0.0630	0.1250	0.0315	0.0945	1.2460	1.5000	930-001-238	930-001-875	N/A
0.0650	0.1250	0.0325	0.0975	1.2482	1.5000	930-001-215	930-001-852	930-001-379
0.0700	0.1250	0.0350	0.1050	1.2535	1.5000	930-001-216	930-001-853	930-001-380
0.0709	0.1250	0.0355	0.1064	1.2545	1.5000	930-001-239	930-001-876	N/A
0.0750	0.1250	0.0375	0.1125	1.2589	1.5000	930-001-217	930-001-854	930-001-381
0.0780	0.1250	0.0390	0.1170	1.2621	1.5000	930-001-218	930-001-855	930-001-382
0.0787	0.1250	0.0394	0.1181	1.2629	1.5000	930-001-240	930-001-877	N/A
0.0800	0.1250	0.0400	0.1200	1.2642	1.5000	930-001-219	930-001-856	930-001-383
0.0850	0.1250	0.0425	0.1275	1.2696	1.5000	930-001-220	930-001-857	930-001-384
0.0866	0.1250	0.0433	0.1299	1.2713	1.5000	930-001-241	930-001-878	N/A
0.0900	0.1250	0.0450	0.1350	1.2750	1.5000	930-001-221	930-001-858	930-001-385
0.0930	0.1250	0.0465	0.1395	1.2782	1.5000	930-001-222	930-001-859	N/A
0.0950	0.1250	0.0475	0.1425	1.2803	1.5000	930-001-223	930-001-860	930-001-387
0.0984	0.1250	0.0492	0.1476	1.2840	1.5000	930-001-242	930-001-879	N/A
0.1000	0.1250	0.0500	0.1500	1.2857	1.5000	930-001-224	930-001-861	930-001-388
0.1102	0.1250	0.0551	0.1653	1.2966	1.5000	930-001-243	930-001-880	N/A
0.1181	0.1250	0.0591	0.1772	1.3051	1.5000	930-001-244	930-001-881	N/A
0.1200	0.1250	0.0600	0.1800	1.3071	1.5000	930-001-225	930-001-862	N/A
0.1378	0.1875	0.0689	0.2067	1.6655	2.0000	930-001-245	930-001-882	N/A

CARBIDE

Ø .045" - .100"

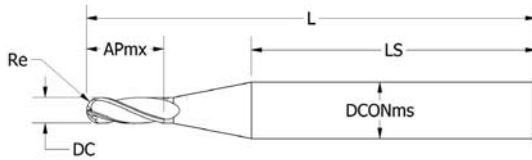


DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	AMORPHOUS DIAMOND	
						2 FLUTE	4 FLUTE
0.0450	0.1250	0.0225	0.0675	1.2267	1.5000	930-001-283	930-001-915
0.0470	0.1250	0.0235	0.0705	1.2289	1.5000	930-001-284	930-001-916
0.0500	0.1250	0.0250	0.0750	1.2321	1.5000	930-001-285	930-001-917
0.0550	0.1250	0.0275	0.0825	1.2374	1.5000	930-001-286	930-001-918
0.0600	0.1250	0.0300	0.0900	1.2428	1.5000	930-001-287	930-001-919
0.0620	0.1250	0.0310	0.0930	1.2449	1.5000	930-001-288	930-001-920
0.0650	0.1250	0.0325	0.0975	1.2482	1.5000	930-001-289	930-001-921
0.0700	0.1250	0.0350	0.1050	1.2535	1.5000	930-001-290	930-001-922
0.0780	0.1250	0.0390	0.1170	1.2621	1.5000	930-001-291	930-001-923
0.0800	0.1250	0.0400	0.1200	1.2642	1.5000	930-001-292	930-001-924
0.0900	0.1250	0.0450	0.1350	1.2750	1.5000	930-001-293	930-001-925
0.0930	0.1250	0.0465	0.1395	1.2782	1.5000	930-001-294	930-001-926
0.1000	0.1250	0.0500	0.1500	1.2857	1.5000	930-001-295	930-001-928

Ø .010" - .250"



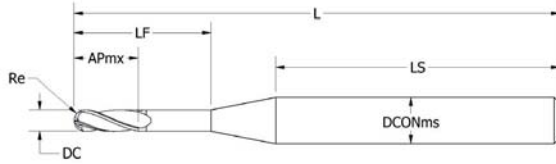
CARBIDE



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED	AITIN COATED	AMORPHOUS DIAMOND
						3 FLUTE	3 FLUTE	3 FLUTE
0.0100	0.1250	0.0050	0.0150	2.1892	2.5000	930-003-162	930-003-311	930-003-189
0.0150	0.1250	0.0075	0.0225	2.1945	2.5000	930-003-163	930-003-312	930-003-190
0.0200	0.1250	0.0100	0.0300	2.1999	2.5000	930-003-164	930-003-313	930-003-191
0.0250	0.1250	0.0125	0.0375	2.2053	2.5000	930-003-165	930-003-314	930-003-192
0.0300	0.1250	0.0150	0.0450	2.2106	2.5000	930-003-166	930-003-315	930-003-193
0.0310	0.1250	0.0155	0.0465	2.2117	2.5000	930-003-167	930-003-316	930-003-194
0.0350	0.1250	0.0175	0.0525	2.2160	2.5000	930-003-168	930-003-317	930-003-195
0.0400	0.1250	0.0200	0.0600	2.2214	2.5000	930-003-169	930-003-318	930-003-196
0.0450	0.1250	0.0225	0.0675	2.2267	2.5000	930-003-170	930-003-319	930-003-197
0.0470	0.1250	0.0235	0.0705	2.2289	2.5000	930-003-171	930-003-320	930-003-198
0.0500	0.1250	0.0250	0.0750	2.2321	2.5000	930-003-172	930-003-321	930-003-199
0.0550	0.1250	0.0275	0.0825	2.2374	2.5000	930-003-173	930-003-322	930-003-200
0.0600	0.1250	0.0300	0.0900	2.2428	2.5000	930-003-174	930-003-323	930-003-201
0.0620	0.1250	0.0310	0.0930	2.2449	2.5000	930-003-175	930-003-324	930-003-202
0.0650	0.1250	0.0325	0.0975	2.2482	2.5000	930-003-176	930-003-325	930-003-203
0.0700	0.1250	0.0350	0.1050	2.2535	2.5000	930-003-177	930-003-326	930-003-204
0.0750	0.1250	0.0375	0.1125	2.2589	2.5000	930-003-178	930-003-327	930-003-205
0.0780	0.1250	0.0390	0.1170	2.2621	2.5000	930-003-179	930-003-328	930-003-206
0.0800	0.1250	0.0400	0.1200	2.2642	2.5000	930-003-180	930-003-329	930-003-207
0.0850	0.1250	0.0425	0.1275	2.2696	2.5000	930-003-181	930-003-330	930-003-208
0.0900	0.1250	0.0450	0.1350	2.2750	2.5000	930-003-182	930-003-331	930-003-209
0.0930	0.1250	0.0465	0.1395	2.2782	2.5000	930-003-183	930-003-332	930-003-210
0.0950	0.1250	0.0475	0.1425	2.2803	2.5000	930-003-184	930-003-333	930-003-211
0.1000	0.1250	0.0500	0.1500	2.2857	2.5000	930-003-185	930-003-334	930-003-212
0.1250	0.1250	0.0625	0.1875	1.9375	2.5000	930-003-186	931-000-377	931-000-361
0.1875	0.1875	0.0938	0.2813	2.3438	3.0000	930-003-187	931-000-378	931-000-362
0.2500	0.2500	0.1250	0.3750	3.2500	4.0000	930-003-188	931-000-379	931-000-363

CARBIDE

Ø .010"-.035"

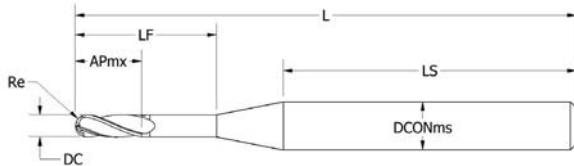


DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	UNCOATED	AITIN COATED	AMORPHOUS DIAMOND
							3 FLUTE	3 FLUTE	3 FLUTE
0.0100	0.1250	0.0050	0.0150	2.3925	2.5000	0.0500	930-003-509	930-003-386	930-003-257
0.0100	0.1250	0.0050	0.0150	2.3625	2.5000	0.0800	930-003-536	930-003-413	930-003-281
0.0100	0.1250	0.0050	0.0150	2.3175	2.5000	0.1250	930-003-458	930-003-335	930-003-213
0.0100	0.1250	0.0050	0.0150	2.2925	2.5000	0.1500	930-003-477	930-003-354	930-003-229
0.0150	0.1250	0.0075	0.0225	2.4000	2.5000	0.0450	930-003-503	930-003-380	930-003-251
0.0150	0.1250	0.0075	0.0225	2.3670	2.5000	0.0780	930-003-510	930-003-387	930-003-258
0.0150	0.1250	0.0075	0.0225	2.3200	2.5000	0.1250	930-003-537	930-003-414	930-003-282
0.0150	0.1250	0.0075	0.0225	2.2575	2.5000	0.1875	930-003-459	930-003-336	930-003-214
0.0150	0.1250	0.0075	0.0225	2.2200	2.5000	0.2250	930-003-478	930-003-355	930-003-230
0.0150	0.1250	0.0075	0.0225	2.1450	2.5000	0.3000	930-003-494	930-003-371	930-003-243
0.0200	0.1250	0.0100	0.0300	2.3475	2.5000	0.1000	930-003-511	930-003-388	930-003-259
0.0200	0.1250	0.0100	0.0300	2.2875	2.5000	0.1600	930-003-538	930-003-415	930-003-283
0.0200	0.1250	0.0100	0.0300	2.1975	2.5000	0.2500	930-003-460	930-003-337	930-003-215
0.0200	0.1250	0.0100	0.0300	2.1475	2.5000	0.3000	930-003-479	930-003-356	930-003-231
0.0200	0.1250	0.0100	0.0300	2.0475	2.5000	0.4000	930-003-495	930-003-372	930-003-244
0.0250	0.1250	0.0125	0.0375	2.3250	2.5000	0.1250	930-003-512	930-003-389	930-003-260
0.0250	0.1250	0.0125	0.0375	2.2500	2.5000	0.2000	930-003-539	930-003-416	930-003-284
0.0250	0.1250	0.0125	0.0375	2.1375	2.5000	0.3125	930-003-461	930-003-338	930-003-216
0.0250	0.1250	0.0125	0.0375	2.0750	2.5000	0.3750	930-003-480	930-003-357	930-003-232
0.0300	0.1250	0.0150	0.0450	2.3025	2.5000	0.1500	930-003-513	930-003-390	930-003-261
0.0300	0.1250	0.0150	0.0450	2.2025	2.5000	0.2500	930-003-540	930-003-417	930-003-285
0.0300	0.1250	0.0150	0.0450	2.0775	2.5000	0.3750	930-003-462	930-003-339	930-003-217
0.0300	0.1250	0.0150	0.0450	2.0025	2.5000	0.4500	930-003-481	930-003-358	930-003-233
0.0310	0.1250	0.0155	0.0465	2.3600	2.5000	0.0930	930-003-504	930-003-381	930-003-252
0.0310	0.1250	0.0155	0.0465	2.2980	2.5000	0.1550	930-003-514	930-003-391	930-003-262
0.0310	0.1250	0.0155	0.0465	2.2030	2.5000	0.2500	930-003-541	930-003-418	930-003-286
0.0310	0.1250	0.0155	0.0465	2.0780	2.5000	0.3750	930-003-463	930-003-340	930-003-218
0.0310	0.1250	0.0155	0.0465	1.9830	2.5000	0.4700	930-003-482	930-003-359	930-003-234
0.0310	0.1250	0.0155	0.0465	1.8280	2.5000	0.6250	930-003-496	930-003-373	930-003-245
0.0350	0.1250	0.0175	0.0525	2.2680	2.5000	0.1870	930-003-515	930-003-392	930-003-263
0.0350	0.1250	0.0175	0.0525	2.1750	2.5000	0.2800	930-003-542	930-003-419	930-003-287
0.0350	0.1250	0.0175	0.0525	2.0300	2.5000	0.4250	930-003-464	930-003-341	930-003-219
0.0350	0.1250	0.0175	0.0525	1.9300	2.5000	0.5250	930-003-483	930-003-360	930-003-235

Ø .040" - .075"



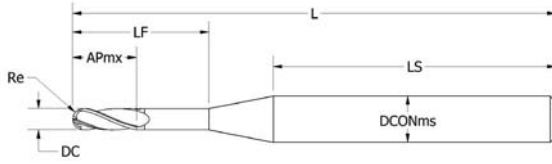
CARBIDE



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	UNCOATED	AITIN COATED	AMORPHOUS DIAMOND
							3 FLUTE	3 FLUTE	3 FLUTE
0.0400	0.1250	0.0200	0.0600	2.2575	2.5000	0.2000	930-003-516	930-003-393	930-003-264
0.0400	0.1250	0.0200	0.0600	2.1325	2.5000	0.3250	930-003-543	930-003-420	930-003-288
0.0400	0.1250	0.0200	0.0600	1.9775	2.5000	0.4800	930-003-465	930-003-342	930-003-220
0.0400	0.1250	0.0200	0.0600	1.8575	2.5000	0.6000	930-003-484	930-003-361	930-003-236
0.0400	0.1250	0.0200	0.0600	1.6575	2.5000	0.8000	930-003-497	930-003-374	930-003-246
0.0450	0.1250	0.0225	0.0675	2.2350	2.5000	0.2250	930-003-517	930-003-394	930-003-265
0.0450	0.1250	0.0225	0.0675	2.0850	2.5000	0.3750	930-003-544	930-003-421	930-003-289
0.0450	0.1250	0.0225	0.0675	1.9100	2.5000	0.5500	930-003-466	930-003-343	930-003-221
0.0450	0.1250	0.0225	0.0675	1.7800	2.5000	0.6800	930-003-485	930-003-362	930-003-237
0.0470	0.1250	0.0235	0.0705	2.3200	2.5000	0.1410	930-003-505	930-003-382	930-003-253
0.0470	0.1250	0.0235	0.0705	2.2110	2.5000	0.2500	930-003-518	930-003-395	930-003-266
0.0470	0.1250	0.0235	0.0705	2.0860	2.5000	0.3750	930-003-545	930-003-422	930-003-290
0.0470	0.1250	0.0235	0.0705	1.8910	2.5000	0.5700	930-003-467	930-003-344	930-003-222
0.0470	0.1250	0.0235	0.0705	1.7510	2.5000	0.7100	930-003-486	930-003-363	930-003-238
0.0470	0.1250	0.0235	0.0705	1.5110	2.5000	0.9500	930-003-498	930-003-375	930-003-247
0.0500	0.1250	0.0250	0.0750	2.2125	2.5000	0.2500	930-003-519	930-003-396	930-003-267
0.0500	0.1250	0.0250	0.0750	2.0625	2.5000	0.4000	930-003-546	930-003-423	930-003-291
0.0500	0.1250	0.0250	0.0750	1.8625	2.5000	0.6000	930-003-468	930-003-345	930-003-223
0.0550	0.1250	0.0275	0.0825	2.1900	2.5000	0.2750	930-003-520	930-003-397	930-003-268
0.0550	0.1250	0.0275	0.0825	2.0150	2.5000	0.4500	930-003-547	930-003-424	930-003-292
0.0550	0.1250	0.0275	0.0825	1.8050	2.5000	0.6600	930-003-469	930-003-346	930-003-224
0.0600	0.1250	0.0300	0.0900	2.1555	2.5000	0.3120	930-003-521	930-003-398	930-003-269
0.0600	0.1250	0.0300	0.0900	1.9675	2.5000	0.5000	930-003-548	930-003-425	930-003-293
0.0600	0.1250	0.0300	0.0900	1.7475	2.5000	0.7200	930-003-470	930-003-347	930-003-225
0.0600	0.1250	0.0300	0.0900	1.5675	2.5000	0.9000	930-003-487	930-003-364	930-003-239
0.0620	0.1250	0.0310	0.0930	2.2825	2.5000	0.1860	930-003-506	930-003-383	930-003-254
0.0620	0.1250	0.0310	0.0930	2.1565	2.5000	0.3120	930-003-522	930-003-399	930-003-270
0.0620	0.1250	0.0310	0.0930	1.9685	2.5000	0.5000	930-003-549	930-003-426	930-003-294
0.0620	0.1250	0.0310	0.0930	1.7185	2.5000	0.7500	930-003-471	930-003-348	930-003-226
0.0620	0.1250	0.0310	0.0930	1.5185	2.5000	0.9500	930-003-488	930-003-365	930-003-240
0.0620	0.1250	0.0310	0.0930	1.2185	2.5000	1.2500	930-003-499	930-003-376	930-003-248
0.0650	0.1250	0.0325	0.0975	2.1450	2.5000	0.3250	930-003-523	930-003-400	930-003-271
0.0650	0.1250	0.0325	0.0975	1.9450	2.5000	0.5250	930-003-550	930-003-427	930-003-295
0.0700	0.1250	0.0350	0.1050	2.0975	2.5000	0.3750	930-003-524	930-003-401	930-003-272
0.0700	0.1250	0.0350	0.1050	1.9025	2.5000	0.5700	930-003-551	930-003-428	930-003-296
0.0750	0.1250	0.0375	0.1125	2.1000	2.5000	0.3750	930-003-525	930-003-402	930-003-273
0.0750	0.1250	0.0375	0.1125	1.8500	2.5000	0.6250	930-003-552	930-003-429	930-003-297

CARBIDE

Ø .078"-.250"

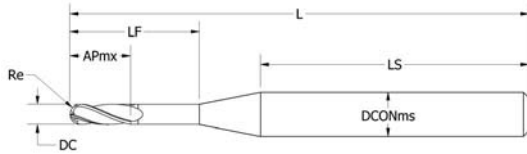


DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	UNCOATED	AITIN COATED	AMORPHOUS DIAMOND
							3 FLUTE	3 FLUTE	3 FLUTE
0.0780	0.1250	0.0390	0.1170	2.2425	2.5000	0.2340	930-003-507	930-003-384	930-003-255
0.0780	0.1250	0.0390	0.1170	2.0765	2.5000	0.4000	930-003-526	930-003-403	930-003-274
0.0780	0.1250	0.0390	0.1170	1.8515	2.5000	0.6250	930-003-553	930-003-430	930-003-298
0.0780	0.1250	0.0390	0.1170	1.5365	2.5000	0.9400	930-003-472	930-003-349	930-003-227
0.0780	0.1250	0.0390	0.1170	1.2895	2.5000	1.1870	930-003-489	930-003-366	930-003-241
0.0780	0.1250	0.0390	0.1170	1.4145	3.0000	1.5620	930-003-500	930-003-377	930-003-249
0.0800	0.1250	0.0400	0.1200	2.0775	2.5000	0.4000	930-003-527	930-003-404	930-003-275
0.0800	0.1250	0.0400	0.1200	1.8275	2.5000	0.6500	930-003-554	930-003-431	930-003-299
0.0850	0.1250	0.0425	0.1275	2.0550	2.5000	0.4250	930-003-528	930-003-405	930-003-276
0.0850	0.1250	0.0425	0.1275	1.7800	2.5000	0.7000	930-003-555	930-003-432	930-003-300
0.0900	0.1250	0.0450	0.1350	2.0325	2.5000	0.4500	930-003-529	930-003-406	930-003-277
0.0900	0.1250	0.0450	0.1350	1.7325	2.5000	0.7500	930-003-556	930-003-433	930-003-301
0.0930	0.1250	0.0465	0.1395	2.2140	2.5000	0.2700	930-003-508	930-003-385	930-003-256
0.0930	0.1250	0.0465	0.1395	1.9840	2.5000	0.5000	930-003-530	930-003-407	930-003-278
0.0930	0.1250	0.0465	0.1395	1.7340	2.5000	0.7500	930-003-557	930-003-434	930-003-302
0.0930	0.1250	0.0465	0.1395	1.3590	2.5000	1.1250	930-003-473	930-003-350	930-003-228
0.0930	0.1250	0.0465	0.1395	1.5840	3.0000	1.4000	930-003-490	930-003-367	930-003-242
0.0930	0.1250	0.0465	0.1395	2.1090	4.0000	1.8750	930-003-501	930-003-378	930-003-250
0.0950	0.1250	0.0475	0.1425	1.9850	2.5000	0.5000	930-003-531	930-003-408	930-003-279
0.0950	0.1250	0.0475	0.1425	1.7350	2.5000	0.7500	930-003-558	930-003-435	930-003-303
0.1000	0.1250	0.0500	0.1500	1.9875	2.5000	0.5000	930-003-532	930-003-409	930-003-280
0.1000	0.1250	0.0500	0.1500	1.6875	2.5000	0.8000	930-003-559	930-003-436	930-003-304
0.1250	0.1250	0.0625	0.1875	1.8750	2.5000	0.6250	930-003-533	930-003-410	931-000-371
0.1250	0.1250	0.0625	0.1875	1.5000	2.5000	1.0000	930-003-560	930-003-437	931-000-374
0.1250	0.1250	0.0625	0.1875	1.5000	3.0000	1.5000	930-003-474	930-003-351	931-000-364
0.1250	0.1250	0.0625	0.1875	1.1250	3.0000	1.8750	930-003-491	930-003-368	931-000-367
0.1250	0.1250	0.0625	0.1875	1.5000	4.0000	2.5000	930-003-502	930-003-379	931-000-370
0.1875	0.1875	0.0938	0.2813	2.0000	3.0000	1.0000	930-003-534	930-003-411	931-000-372
0.1875	0.1875	0.0938	0.2813	1.5000	3.0000	1.5000	930-003-561	930-003-438	931-000-375
0.1875	0.1875	0.0938	0.2813	1.7500	4.0000	2.2500	930-003-475	930-003-352	931-000-365
0.1875	0.1875	0.0938	0.2813	1.1880	4.0000	2.8120	930-003-492	930-003-369	931-000-368
0.2500	0.2500	0.1250	0.3750	2.7500	4.0000	1.2500	930-003-535	930-003-412	931-000-373
0.2500	0.2500	0.1250	0.3750	2.0000	4.0000	2.0000	930-003-562	930-003-439	931-000-376
0.2500	0.2500	0.1250	0.3750	3.0000	6.0000	3.0000	930-003-476	930-003-353	931-000-366
0.2500	0.2500	0.1250	0.3750	2.2500	6.0000	3.7500	930-003-493	930-003-370	931-000-369

Ø .005"-.100"



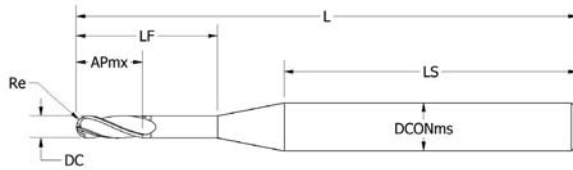
CARBIDE



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	UNCOATED	
							2 FLUTE	4 FLUTE
0.0050	0.1250	0.0025	0.0150	1.3930	1.5000	0.0470	930-001-966	N/A
0.0100	0.1250	0.0050	0.0300	1.3625	1.5000	0.0800	930-002-326	930-002-624
0.0100	0.1250	0.0050	0.0300	1.3488	1.5000	0.0937	930-001-972	930-002-342
0.0150	0.1250	0.0075	0.0450	1.3200	1.5000	0.1250	930-001-978	930-002-348
0.0200	0.1250	0.0100	0.0600	1.2775	1.5000	0.1700	930-002-327	930-002-625
0.0200	0.1250	0.0100	0.0600	1.2600	1.5000	0.1875	930-001-984	930-002-354
0.0250	0.1250	0.0125	0.0750	1.2370	1.5000	0.2130	930-002-328	930-002-626
0.0250	0.1250	0.0125	0.0750	1.2000	1.5000	0.2500	930-001-990	930-002-360
0.0300	0.1250	0.0150	0.0900	1.2025	1.5000	0.2500	930-001-996	930-002-366
0.0300	0.1250	0.0150	0.0900	1.1825	1.5000	0.2700	930-002-329	930-002-627
0.0310	0.1250	0.0155	0.0930	1.1740	1.5000	0.2790	930-002-330	930-002-628
0.0350	0.1250	0.0175	0.1050	1.2050	1.5000	0.2500	930-002-003	930-002-372
0.0350	0.1250	0.0175	0.1050	1.1400	1.5000	0.3150	930-002-331	930-002-629
0.0400	0.1250	0.0200	0.1200	1.2075	1.5000	0.2500	930-002-009	930-002-378
0.0400	0.1250	0.0200	0.1200	1.0975	1.5000	0.3600	930-002-332	930-002-630
0.0450	0.1250	0.0225	0.1350	1.0550	1.5000	0.4050	930-002-333	930-002-631
0.0450	0.1250	0.0225	0.1350	0.9600	1.5000	0.5000	930-002-015	930-002-384
0.0470	0.1250	0.0235	0.1410	1.0380	1.5000	0.4230	930-002-334	930-002-632
0.0500	0.1250	0.0250	0.1500	0.9625	1.5000	0.5000	930-002-021	930-002-390
0.0550	0.1250	0.0275	0.1650	0.9650	1.5000	0.5000	930-002-027	930-002-396
0.0600	0.1250	0.0300	0.1800	0.9675	1.5000	0.5000	930-002-033	930-002-402
0.0620	0.1250	0.0310	0.1860	0.9685	1.5000	0.5000	930-002-335	930-002-633
0.0650	0.1250	0.0325	0.1950	0.9700	1.5000	0.5000	930-002-037	930-002-406
0.0700	0.1250	0.0350	0.2100	0.9725	1.5000	0.5000	930-002-039	930-002-408
0.0780	0.1250	0.0390	0.2340	0.9765	1.5000	0.5000	930-002-336	930-002-634
0.0800	0.1250	0.0400	0.2400	0.9775	1.5000	0.5000	930-002-043	930-002-412
0.0900	0.1250	0.0450	0.2700	0.9825	1.5000	0.5000	930-002-046	930-002-415
0.0900	0.1250	0.0450	0.2700	0.8575	1.5000	0.6250	930-002-337	930-002-635
0.0930	0.1250	0.0465	0.2790	0.8590	1.5000	0.6250	930-002-338	930-002-636
0.0950	0.1250	0.0475	0.2850	0.8600	1.5000	0.6250	930-002-339	930-002-637
0.1000	0.1250	0.0500	0.3000	0.9875	1.5000	0.5000	930-002-050	930-002-419
0.1000	0.1250	0.0500	0.3000	0.8625	1.5000	0.6250	930-002-340	930-002-638

CARBIDE

Ø .010"-.250"

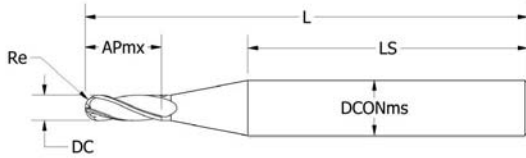


DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	UNCOATED	AITIN COATED	AMORPHOUS DIAMOND
							3 FLUTE	3 FLUTE	3 FLUTE
0.0100	0.1250	0.0050	0.0500	2.3425	2.5000	0.1000	930-002-896	930-002-862	930-002-830
0.0150	0.1250	0.0075	0.0750	2.2950	2.5000	0.1500	930-002-897	930-002-863	930-002-831
0.0200	0.1250	0.0100	0.1000	2.2475	2.5000	0.2000	930-002-898	930-002-864	930-002-832
0.0250	0.1250	0.0125	0.1250	2.2000	2.5000	0.2500	930-002-899	930-002-865	930-002-833
0.0300	0.1250	0.0150	0.1500	2.1525	2.5000	0.3000	930-002-900	930-002-866	930-002-834
0.0310	0.1250	0.0155	0.1550	2.1530	2.5000	0.3000	930-002-901	930-002-867	930-002-835
0.0350	0.1250	0.0175	0.1750	2.1050	2.5000	0.3500	930-002-902	930-002-868	930-002-836
0.0400	0.1250	0.0200	0.2000	2.0575	2.5000	0.4000	930-002-903	930-002-869	930-002-837
0.0450	0.1250	0.0225	0.2250	2.0100	2.5000	0.4500	930-002-904	930-002-870	930-002-838
0.0470	0.1250	0.0235	0.2500	1.9610	2.5000	0.5000	930-002-905	930-002-871	930-002-839
0.0500	0.1250	0.0250	0.3000	1.8625	2.5000	0.6000	930-002-906	930-002-872	930-002-840
0.0550	0.1250	0.0275	0.3850	1.6950	2.5000	0.7700	930-002-907	930-002-873	930-002-841
0.0600	0.1250	0.0300	0.5000	1.4675	2.5000	1.0000	930-002-908	930-002-874	930-002-842
0.0620	0.1250	0.0310	0.5000	1.4685	2.5000	1.0000	930-002-909	930-002-875	930-002-843
0.0650	0.1250	0.0325	0.5000	1.4700	2.5000	1.0000	930-002-910	930-002-876	930-002-844
0.0700	0.1250	0.0350	0.5000	1.4725	2.5000	1.0000	930-002-911	930-002-877	930-002-845
0.0750	0.1250	0.0375	0.5000	1.4750	2.5000	1.0000	930-002-912	930-002-878	930-002-846
0.0780	0.1250	0.0390	0.5000	1.4765	2.5000	1.0000	930-002-913	930-002-879	930-002-847
0.0800	0.1250	0.0400	0.7500	1.2275	2.5000	1.2500	930-002-914	930-002-880	930-002-848
0.0850	0.1250	0.0425	0.7500	1.2300	2.5000	1.2500	930-002-915	930-002-881	930-002-849
0.0900	0.1250	0.0450	0.7500	1.2325	2.5000	1.2500	930-002-916	930-002-882	930-002-850
0.0930	0.1250	0.0465	0.7500	1.2340	2.5000	1.2500	930-002-917	930-002-883	930-002-851
0.0950	0.1250	0.0475	0.7500	1.2350	2.5000	1.2500	930-002-918	930-002-884	930-002-852
0.1000	0.1250	0.0500	0.7500	1.2375	2.5000	1.2500	930-002-919	930-002-885	930-002-853
0.1250	0.1250	0.0625	1.0000	1.0000	2.5000	1.5000	930-002-920	930-002-886	931-000-337
0.1875	0.1875	0.0938	1.1250	1.3750	3.0000	1.6250	930-002-921	931-000-342	931-000-338
0.2500	0.2500	0.1250	1.5000	2.0000	4.0000	2.0000	930-002-922	931-000-343	931-000-339

Ø .031" - .125"



CARBIDE

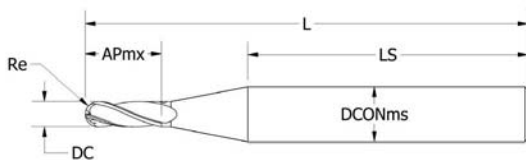


12X FLUTE LENGTH



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED	AITIN COATED	AMORPHOUS DIAMOND
						3 FLUTE	3 FLUTE	3 FLUTE
0.0310	0.1250	0.0155	0.3750	1.8832	2.5000	930-002-923	930-002-887	930-002-854
0.0470	0.1250	0.0235	0.5700	1.7294	2.5000	930-002-924	930-002-888	930-002-855
0.0620	0.1250	0.0310	0.7500	1.5879	2.5000	930-002-925	930-002-889	930-002-856
0.0780	0.1250	0.0390	0.9400	1.4391	2.5000	930-002-926	930-002-890	930-002-857
0.0930	0.1250	0.0465	1.1250	1.2927	2.5000	930-002-927	930-002-891	930-002-858
0.1250	0.1250	0.0625	1.5000	1.1250	3.0000	930-002-928	930-002-892	931-000-340

Ø .062" - .125"



15X FLUTE LENGTH

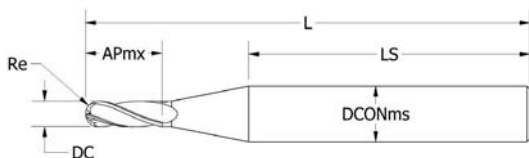


DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED	AITIN COATED	AMORPHOUS DIAMOND
						3 FLUTE	3 FLUTE	3 FLUTE
0.0620	0.1250	0.0310	0.9500	1.3879	2.5000	930-002-929	930-002-893	930-002-859
0.0780	0.1250	0.0390	1.1870	1.1921	2.5000	930-002-930	930-002-894	930-002-860
0.0930	0.1250	0.0465	1.4000	1.5177	3.0000	930-002-931	930-002-895	930-002-861
0.1250	0.1250	0.0625	1.8750	0.7500	3.0000	930-002-932	931-000-344	931-000-341

CARBIDE



Ø .015"-.093"

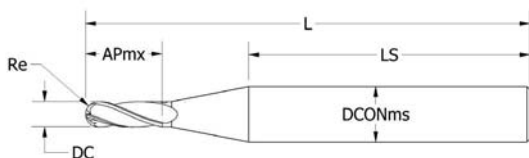


STANDARD



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	CVD COATED
						4 FLUTE
0.0150	0.1250	0.0075	0.0450	1.1720	1.5000	930-002-606
0.0200	0.1250	0.0100	0.0600	1.1699	1.5000	930-002-607
0.0310	0.1250	0.0155	0.0930	1.1652	1.5000	930-002-608
0.0470	0.1250	0.0235	0.1410	1.1584	1.5000	930-002-609
0.0620	0.1250	0.0310	0.1860	1.1519	1.5000	930-002-610
0.0930	0.1250	0.0465	0.2790	1.1387	1.5000	930-002-611

Ø .015"-.093"

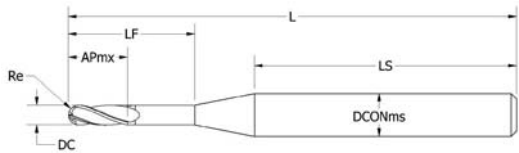


LONG SHANK, STUB



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	CVD COATED
						3 FLUTE
0.0150	0.1250	0.0075	0.0225	2.1945	2.5000	930-003-305
0.0200	0.1250	0.0100	0.0300	2.1999	2.5000	930-003-306
0.0310	0.1250	0.0155	0.0465	2.2117	2.5000	930-003-307
0.0470	0.1250	0.0235	0.0705	2.2289	2.5000	930-003-308
0.0620	0.1250	0.0310	0.0930	2.2449	2.5000	930-003-309
0.0930	0.1250	0.0465	0.1395	2.2782	2.5000	930-003-310

Ø .015"-.093"

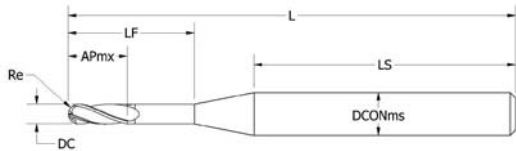


LONG REACH, STUB



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	CVD COATED
							3 FLUTE
0.0150	0.1250	0.0075	0.0225	2.3670	2.5000	0.0780	930-003-446
0.0150	0.1250	0.0075	0.0225	2.3200	2.5000	0.1250	930-003-452
0.0150	0.1250	0.0075	0.0225	2.2575	2.5000	0.1875	930-003-440
0.0200	0.1250	0.0100	0.0300	2.3475	2.5000	0.1000	930-003-447
0.0200	0.1250	0.0100	0.0300	2.2875	2.5000	0.1600	930-003-453
0.0200	0.1250	0.0100	0.0300	2.1975	2.5000	0.2500	930-003-441
0.0310	0.1250	0.0155	0.0465	2.2980	2.5000	0.1550	930-003-448
0.0310	0.1250	0.0155	0.0465	2.2030	2.5000	0.2500	930-003-454
0.0310	0.1250	0.0155	0.0465	2.0780	2.5000	0.3750	930-003-442
0.0470	0.1250	0.0235	0.0705	2.2110	2.5000	0.2500	930-003-449
0.0470	0.1250	0.0235	0.0705	2.0860	2.5000	0.3750	930-003-455
0.0470	0.1250	0.0235	0.0705	1.8910	2.5000	0.5700	930-003-443
0.0620	0.1250	0.0310	0.0930	2.1565	2.5000	0.3120	930-003-450
0.0620	0.1250	0.0310	0.0930	1.9685	2.5000	0.5000	930-003-456
0.0620	0.1250	0.0310	0.0930	1.7185	2.5000	0.7500	930-003-444
0.0930	0.1250	0.0465	0.1395	1.9840	2.5000	0.5000	930-003-451
0.0930	0.1250	0.0465	0.1395	1.7340	2.5000	0.7500	930-003-457
0.0930	0.1250	0.0465	0.1395	1.3590	2.5000	1.1250	930-003-445

Ø .015"-.093"



5X FLUTE, 10X REACH

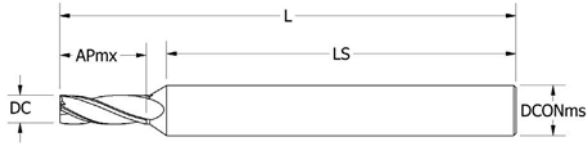


DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	CVD COATED
							4 FLUTE
0.0150	0.1250	0.0075	0.0750	2.2890	2.5000	0.1560	930-001-155
0.0310	0.1250	0.0155	0.1550	2.1410	2.5000	0.3120	930-001-156
0.0470	0.1250	0.0235	0.2350	1.9810	2.5000	0.4800	930-001-157
0.0620	0.1250	0.0310	0.3125	1.8435	2.5000	0.6250	930-001-158
0.0780	0.1250	0.0390	0.3900	1.6765	2.5000	0.8000	930-001-159
0.0930	0.1250	0.0465	0.4650	1.5340	2.5000	0.9500	930-001-160

CARBIDE

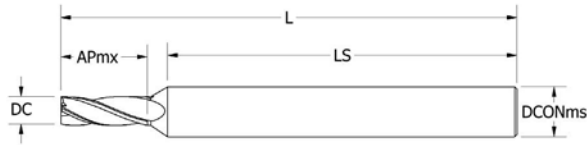


Ø .0313"-.25"



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED	TiCN COATED
					3 FLUTE	3 FLUTE
0.0313	0.2500	0.0938	1.8436	2.5000	930-002-667	931-000-322
0.0469	0.2500	0.1406	1.8369	2.5000	930-002-668	931-000-323
0.0625	0.2500	0.1875	1.8302	2.5000	930-002-669	931-000-324
0.0781	0.2500	0.1875	1.8704	2.5000	930-002-670	931-000-325
0.0938	0.2500	0.3750	1.7231	2.5000	930-002-671	931-000-326
0.1094	0.2500	0.4375	1.7008	2.5000	930-002-672	931-000-327
0.1250	0.2500	0.5000	1.6785	2.5000	930-002-673	931-000-328
0.1563	0.2500	0.5625	1.6963	2.5000	930-002-674	931-000-329
0.1875	0.2500	0.6250	1.7142	2.5000	930-002-675	931-000-330
0.2188	0.2500	0.6250	1.7946	2.5000	930-002-676	931-000-331
0.2500	0.2500	0.7500	1.3750	2.5000	930-002-677	931-000-332

Ø .0313"-.25"

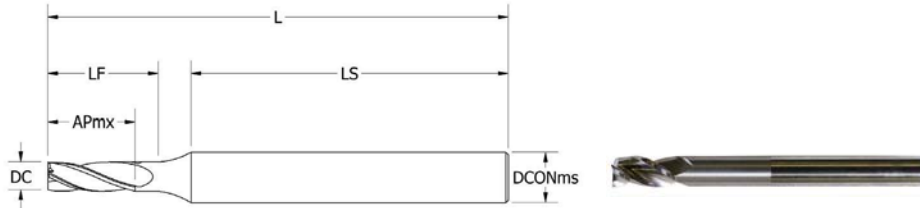


STUB



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED	TiCN COATED
					3 FLUTE	3 FLUTE
0.0313	0.2500	0.0625	1.8748	2.5000	930-002-639	931-000-294
0.0469	0.2500	0.0938	1.8838	2.5000	930-002-641	931-000-296
0.0625	0.2500	0.1250	1.8927	2.5000	930-002-643	931-000-298
0.0781	0.2500	0.1250	1.9329	2.5000	930-002-645	931-000-300
0.0938	0.2500	0.1875	1.9106	2.5000	930-002-647	931-000-302
0.1094	0.2500	0.1875	1.9508	2.5000	930-002-649	931-000-304
0.1250	0.2500	0.2500	1.9285	2.5000	930-002-651	931-000-306
0.1563	0.2500	0.3750	1.8838	2.5000	930-002-653	931-000-308
0.1875	0.2500	0.3750	1.9642	2.5000	930-002-655	931-000-310
0.2188	0.2500	0.3750	2.0446	2.5000	930-002-657	931-000-312
0.2500	0.2500	0.5000	1.6250	2.5000	930-002-659	931-000-314

Ø .0313"-.25"

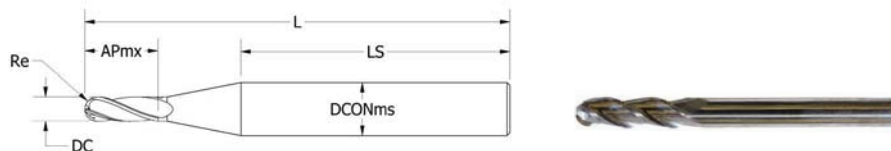


STUB, REACHED



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	UNCOATED	TiCN COATED
						3 FLUTE	3 FLUTE
0.0313	0.2500	0.0625	2.2356	2.5000	0.1550	930-002-640	931-000-295
0.0469	0.2500	0.0938	2.1684	2.5000	0.2300	930-002-642	931-000-297
0.0625	0.2500	0.1250	2.0943	2.5000	0.3120	930-002-644	931-000-299
0.0781	0.2500	0.1563	2.0241	2.5000	0.3900	930-002-646	931-000-301
0.0938	0.2500	0.1875	1.9569	2.5000	0.4650	930-002-648	931-000-303
0.1094	0.2500	0.2188	1.8847	2.5000	0.5450	930-002-650	931-000-305
0.1250	0.2500	0.2500	1.8125	2.5000	0.6250	930-002-652	931-000-307
0.1563	0.2500	0.3750	1.6731	2.5000	0.7800	930-002-654	931-000-309
0.1875	0.2500	0.3750	1.5313	2.5000	0.9375	930-002-656	931-000-311
0.2188	0.2500	0.3750	1.3914	2.5000	1.0930	930-002-658	931-000-313
0.2500	0.2500	0.5000	1.2500	2.5000	1.2500	930-002-660	931-000-315

Ø .0313"-.25"



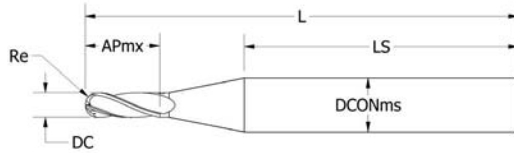
BALL, STANDARD



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED	TiCN COATED
						3 FLUTE	3 FLUTE
0.0313	0.2500	0.0156	0.0938	1.8436	2.5000	930-002-661	931-000-316
0.0625	0.2500	0.0313	0.1875	1.8302	2.5000	930-002-662	931-000-317
0.0938	0.2500	0.0469	0.3750	1.7231	2.5000	930-002-663	931-000-318
0.1250	0.2500	0.0625	0.5000	1.6785	2.5000	930-002-664	931-000-319
0.1875	0.2500	0.0938	0.6250	1.7142	2.5000	930-002-665	931-000-320
0.2500	0.2500	0.1250	0.7500	1.3750	2.5000	930-002-666	931-000-321

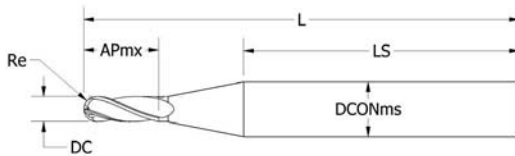
CARBIDE

Ø .0313"-.500"



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED		AITIN COATED	
						2 FLUTE	4 FLUTE	2 FLUTE	4 FLUTE
0.0313	0.1250	0.0156	0.0938	1.1651	1.5000	930-002-054	930-002-423	N/A	930-002-612
0.0469	0.1250	0.0234	0.1406	1.1584	1.5000	930-002-055	930-002-424	N/A	930-002-613
0.0625	0.1250	0.0313	0.1875	1.1517	1.5000	930-002-056	930-002-425	N/A	930-002-614
0.0781	0.1250	0.0391	0.1875	1.1919	1.5000	930-002-057	930-002-426	N/A	930-002-615
0.0938	0.1250	0.0469	0.3750	1.0446	1.5000	930-002-058	930-002-427	N/A	930-002-616
0.1094	0.1250	0.0547	0.4375	1.0223	1.5000	930-002-059	930-002-428	N/A	930-002-617
0.1250	0.1250	0.0625	0.5000	0.6250	1.5000	930-002-060	930-002-429	931-000-289	930-002-618
0.1406	0.1875	0.0703	0.5000	1.3794	2.0000	930-002-061	930-002-430	930-002-319	930-002-619
0.1563	0.1875	0.0781	0.5625	1.3571	2.0000	930-002-062	930-002-431	931-000-290	930-002-620
0.1719	0.1875	0.0859	0.6250	1.3348	2.0000	930-002-063	930-002-432	N/A	N/A
0.1875	0.1875	0.0938	0.6250	1.0000	2.0000	930-002-064	930-002-433	931-000-291	930-002-621
0.2031	0.2500	0.1016	0.6250	1.7544	2.5000	930-002-066	930-002-435	N/A	N/A
0.2188	0.2500	0.1094	0.6250	1.7946	2.5000	930-002-067	930-002-436	930-002-320	930-002-622
0.2344	0.2500	0.1172	0.6250	1.8348	2.5000	930-002-068	930-002-437	N/A	N/A
0.2500	0.2500	0.1250	0.7500	1.3750	2.5000	930-002-069	930-002-438	931-000-292	930-002-623
0.3125	0.3125	0.1563	0.8125	1.3125	2.5000	930-002-070	930-002-439	N/A	N/A
0.3750	0.3750	0.1875	1.0000	1.1250	2.5000	930-002-071	930-002-440	N/A	N/A
0.5000	0.5000	0.2500	1.0000	1.6250	3.0000	930-002-074	930-002-443	N/A	931-000-293

Ø .0313"-.25"

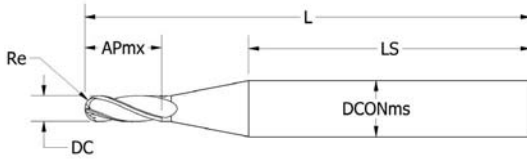


STUB



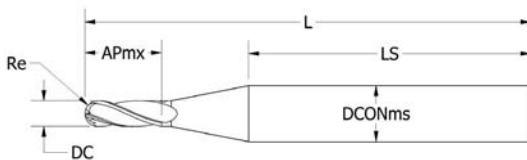
DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED		AITIN COATED
						2 FLUTE	4 FLUTE	2 FLUTE
0.0313	0.1250	0.0156	0.0625	1.1963	1.5000	930-001-226	930-001-863	N/A
0.0469	0.1250	0.0234	0.0625	1.2365	1.5000	930-001-227	930-001-864	N/A
0.0625	0.1250	0.0313	0.1250	1.2142	1.5000	930-001-228	930-001-865	N/A
0.0938	0.1250	0.0469	0.1875	1.2321	1.5000	930-001-229	930-001-866	N/A
0.1250	0.1250	0.0625	0.2500	0.8750	1.5000	930-001-230	930-001-867	931-000-262
0.1563	0.1875	0.0781	0.3750	1.5446	2.0000	930-001-231	930-001-868	930-001-389
0.1875	0.1875	0.0938	0.3750	1.2500	2.0000	930-001-232	930-001-869	931-000-263
0.2500	0.2500	0.1250	0.5000	1.1250	2.0000	930-001-234	930-001-871	931-000-264

Ø .0313"-.500"



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	TiAIN COATED			AMORPHOUS DIAMOND	
						2 FLUTE	3 FLUTE	4 FLUTE	2 FLUTE	4 FLUTE
0.0313	0.1250	0.0156	0.0938	1.1651	1.5000	930-002-229	931-000-119	930-002-586	931-000-387	931-000-413
0.0469	0.1250	0.0234	0.1406	1.1584	1.5000	930-002-230	931-000-122	930-002-587	931-000-389	931-000-415
0.0625	0.1250	0.0313	0.1875	1.1517	1.5000	930-002-231	931-000-125	930-002-588	931-000-391	931-000-417
0.0781	0.1250	0.0391	0.1875	1.1919	1.5000	930-002-232	931-000-128	930-002-589	931-000-393	931-000-419
0.0938	0.1250	0.0469	0.3750	1.0446	1.5000	930-002-233	931-000-131	930-002-590	931-000-395	931-000-421
0.1094	0.1250	0.0547	0.4375	1.0223	1.5000	N/A	N/A	N/A	931-000-397	931-000-423
0.1250	0.1250	0.0625	0.5000	0.6250	1.5000	930-002-234	931-000-135	930-002-591	931-000-399	931-000-425
0.1406	0.1875	0.0703	0.5000	1.3794	2.0000	N/A	N/A	N/A	931-000-401	931-000-430
0.1563	0.1875	0.0781	0.5625	1.3571	2.0000	N/A	N/A	N/A	931-000-403	931-000-432
0.1875	0.1875	0.0938	0.6250	1.0000	2.0000	N/A	N/A	N/A	931-000-405	931-000-434
0.2500	0.2500	0.1250	0.7500	1.3750	2.5000	N/A	N/A	N/A	931-000-407	931-000-439
0.3750	0.3750	0.1875	1.0000	1.1250	2.5000	N/A	N/A	N/A	931-000-409	931-000-446
0.5000	0.5000	0.2500	1.0000	1.6250	3.0000	N/A	N/A	N/A	931-000-411	931-000-450

Ø .0313"-.25"



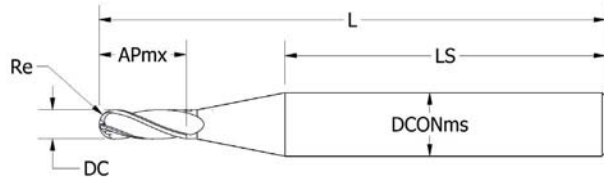
STUB



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	TiAIN COATED		AMORPHOUS DIAMOND	
						2 FLUTE	4 FLUTE	2 FLUTE	4 FLUTE
0.0313	0.1250	0.0156	0.0625	1.1963	1.5000	930-001-332	930-001-960	N/A	N/A
0.0469	0.1250	0.0234	0.0625	1.2365	1.5000	930-001-333	930-001-961	N/A	N/A
0.0625	0.1250	0.0313	0.1250	1.2142	1.5000	930-001-334	930-001-962	N/A	N/A
0.0938	0.1250	0.0469	0.1875	1.2321	1.5000	930-001-335	930-001-963	N/A	N/A
0.1250	0.1250	0.0625	0.2500	0.8750	1.5000	930-001-336	930-001-964	931-000-259	931-000-286
0.1875	0.1875	0.0938	0.3750	1.2500	2.0000	N/A	N/A	931-000-260	931-000-287
0.2500	0.2500	0.1250	0.5000	1.1250	2.0000	N/A	N/A	931-000-261	931-000-288

CARBIDE

Ø .0156"-.250"

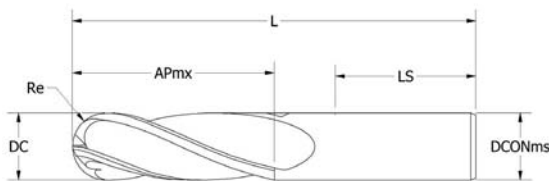


G MILLS



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED	AITIN COATED	AMORPHOUS DIAMOND
						3 FLUTE	3 FLUTE	3 FLUTE
0.0156	0.1250	0.0078	0.0780	2.1407	2.5000	931-000-194	930-000-125	931-000-457
0.0313	0.1250	0.0156	0.1560	2.1028	2.5000	931-000-196	931-000-197	931-000-463
0.0469	0.1250	0.0234	0.2500	2.0490	2.5000	931-000-201	930-000-128	931-000-475
0.0625	0.1250	0.0313	0.5000	1.8392	2.5000	931-000-203	930-000-130	931-000-481
0.0781	0.1250	0.0391	0.5000	1.8794	2.5000	931-000-207	931-000-208	931-000-493
0.0938	0.1250	0.0469	0.7500	1.6696	2.5000	931-000-210	931-000-211	931-000-499
0.1250	0.1250	0.0625	1.0000	1.6250	3.0000	931-000-215	931-000-216	931-000-511

Ø .1875"-.250"

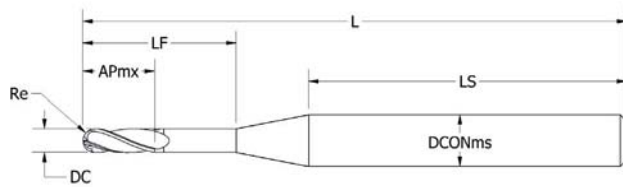


DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	AMORPHOUS DIAMOND
						4 FLUTE
0.1875	0.1875	0.0938	1.1250	1.5000	3.0000	931-000-517
0.2500	0.2500	0.1250	1.5000	2.1250	4.0000	931-000-523

Ø .0313"-.0938"



CARBIDE



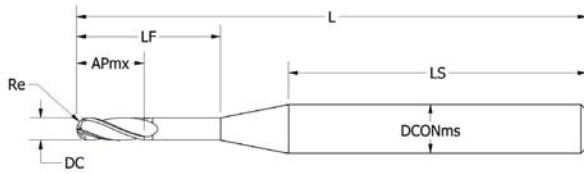
STUB, LONG REACH



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	UNCOATED	AMORPHOUS DIAMOND
							3 FLUTE	3 FLUTE
0.0313	0.1250	0.0156	0.0625	2.2031	2.5000	0.2500	931-000-199	931-000-465
0.0313	0.1250	0.0156	0.0625	2.0781	2.5000	0.3750	N/A	931-000-473
0.0313	0.1250	0.0156	0.0625	1.9531	2.5000	0.5000	N/A	931-000-469
0.0625	0.1250	0.0313	0.1250	1.9688	2.5000	0.5000	931-000-205	931-000-483
0.0625	0.1250	0.0313	0.1250	1.7188	2.5000	0.7500	N/A	931-000-491
0.0625	0.1250	0.0313	0.1250	1.4688	2.5000	1.0000	N/A	931-000-487
0.0938	0.1250	0.0469	0.1875	1.7344	2.5000	0.7500	931-000-213	931-000-501
0.0938	0.1250	0.0469	0.1875	1.4844	2.5000	1.0000	N/A	931-000-509
0.0938	0.1250	0.0469	0.1875	1.2344	2.5000	1.2500	N/A	931-000-505

CARBIDE

Ø .0156"-.250"

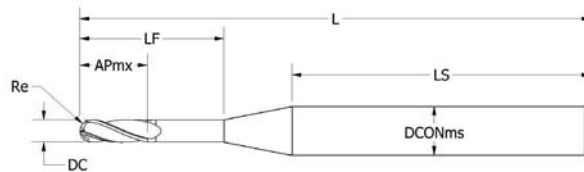


LONG FLUTE, LONG REACH



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	AMORPHOUS DIAMOND
							3 FLUTE
0.0156	0.1250	0.0078	0.0781	2.2953	2.5000	0.1500	931-000-461
0.0156	0.1250	0.0078	0.0781	2.1953	2.5000	0.2500	931-000-459
0.0313	0.1250	0.0156	0.1563	2.2031	2.5000	0.2500	931-000-471
0.0313	0.1250	0.0156	0.1563	2.0781	2.5000	0.3750	931-000-467
0.0469	0.1250	0.0234	0.2500	2.0859	2.5000	0.3750	931-000-479
0.0469	0.1250	0.0234	0.2500	1.9609	2.5000	0.5000	931-000-477
0.0625	0.1250	0.0313	0.5000	1.7188	2.5000	0.7500	931-000-489
0.0625	0.1250	0.0313	0.5000	1.4688	2.5000	1.0000	931-000-485
0.0781	0.1250	0.0391	0.5000	1.7266	2.5000	0.7500	931-000-497
0.0781	0.1250	0.0391	0.5000	1.4766	2.5000	1.0000	931-000-495
0.0938	0.1250	0.0469	0.7500	1.4844	2.5000	1.0000	931-000-507
0.0938	0.1250	0.0469	0.7500	1.2344	2.5000	1.2500	931-000-503
0.1250	0.1250	0.0625	1.0000	1.7500	3.0000	1.2500	931-000-515
0.1250	0.1250	0.0625	1.0000	1.5000	3.0000	1.5000	931-000-513

Ø .0156"-.250"

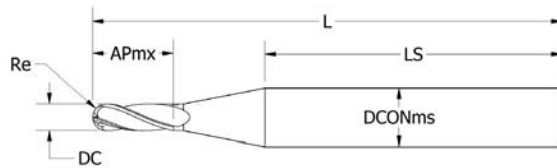


DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	4 FLUTE
0.1875	0.1875	0.0938	1.1250	1.5000	3.0000	1.5000	931-000-521
0.1875	0.1875	0.0938	1.1250	1.2500	3.0000	1.7500	931-000-519
0.2500	0.2500	0.1250	1.5000	2.0000	4.0000	2.0000	931-000-527
0.2500	0.2500	0.1250	1.5000	1.5000	4.0000	2.5000	931-000-525

Ø .5 mm-12 mm



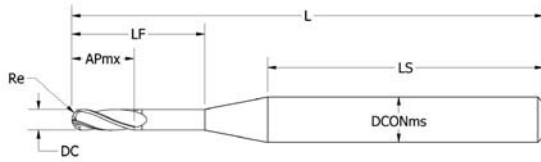
CARBIDE



DC [mm]	DCONMS [mm]	RE [mm]	APMX [mm]	LS [mm]	L [mm]	UNCOATED	
						2 FLUTE	4 FLUTE
0.50	3.00	0.25	1.50	30.07	38.00	930-000-017	930-000-049
1.00	3.00	0.50	3.00	29.86	38.00	930-000-018	930-000-050
1.50	3.00	0.75	4.50	29.64	38.00	930-000-019	930-000-051
2.00	3.00	1.00	6.00	29.43	38.00	930-000-020	930-000-052
2.50	3.00	1.25	8.00	28.71	38.00	930-000-021	930-000-053
3.00	3.00	1.50	10.00	18.00	38.00	930-000-022	930-000-054
3.50	4.00	1.75	12.00	36.71	50.00	930-000-023	930-000-055
4.00	4.00	2.00	12.00	28.00	50.00	930-000-024	930-000-056
4.50	5.00	2.25	14.00	34.71	50.00	930-000-025	930-000-057
5.00	5.00	2.50	15.00	25.00	50.00	930-000-026	930-000-058
6.00	6.00	3.00	18.00	35.00	63.00	930-000-027	930-000-059
7.00	8.00	3.50	20.00	40.43	63.00	930-000-028	930-000-060
8.00	4.00	4.00	20.00	33.00	63.00	930-000-029	930-000-061
9.00	10.00	4.50	22.00	38.43	63.00	930-000-030	930-000-062
10.00	10.00	5.00	22.00	31.00	63.00	930-000-031	930-000-063
12.00	12.00	6.00	25.00	40.00	75.00	930-000-032	930-000-064

CARBIDE

Ø .4 mm-12 mm

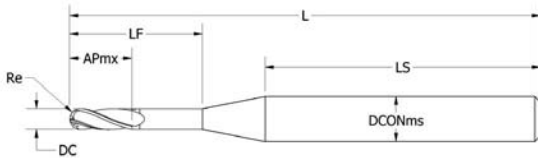


STUB, 8X REACH LENGTH



DC [mm]	DCONMS [mm]	RE [mm]	APMX [mm]	LS [mm]	L [mm]	LF [mm]	AMORPHOUS DIAMOND
							3 FLUTE
0.40	3.00	0.20	0.60	70.50	75.00	3.20	930-000-109
0.50	3.00	0.25	0.75	69.75	75.00	4.00	930-000-110
0.60	3.00	0.30	0.90	69.00	75.00	4.80	930-000-111
0.80	3.00	0.40	1.20	67.50	75.00	6.40	930-000-112
1.00	3.00	0.50	1.50	66.00	75.00	8.00	930-000-113
1.50	3.00	0.75	2.25	62.25	75.00	12.00	930-000-114
2.00	3.00	1.00	3.00	58.50	75.00	16.00	930-000-115
2.50	3.00	1.25	3.75	54.75	75.00	20.00	930-000-116
3.00	3.00	1.50	4.50	51.00	75.00	24.00	930-000-117
4.00	4.00	2.00	6.00	43.00	75.00	32.00	930-000-118
6.00	6.00	3.00	9.00	52.00	100.00	48.00	930-000-119
8.00	8.00	4.00	12.00	36.00	100.00	64.00	930-000-120
10.00	10.00	5.00	15.00	40.00	120.00	80.00	930-000-121
12.00	12.00	6.00	18.00	54.00	150.00	96.00	930-000-122

Ø .4 mm-12 mm

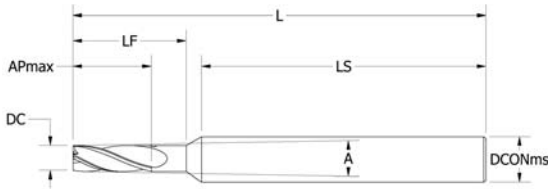


5X FLUTE LENGTH, 10X REACH LENGTH



DC [mm]	DCONMS [mm]	RE [mm]	APMX [mm]	LS [mm]	L [mm]	LF [mm]	AMORPHOUS DIAMOND
							3 FLUTE
0.40	3.00	0.20	2.00	69.70	75.00	4.00	930-000-080
0.50	3.00	0.25	2.50	68.75	75.00	5.00	930-000-081
0.60	3.00	0.30	3.00	67.80	75.00	6.00	930-000-082
0.80	3.00	0.40	4.00	65.90	75.00	8.00	930-000-083
1.00	3.00	0.50	5.00	64.00	75.00	10.00	930-000-084
1.20	3.00	0.60	6.00	62.10	75.00	12.00	930-000-085
1.50	3.00	0.75	7.50	59.25	75.00	15.00	930-000-086
2.00	3.00	1.00	10.00	54.50	75.00	20.00	930-000-087
2.50	3.00	1.25	12.50	49.75	75.00	25.00	930-000-088
3.00	3.00	1.50	15.00	45.00	75.00	30.00	930-000-089
4.00	4.00	2.00	20.00	35.00	75.00	40.00	930-000-090
6.00	6.00	3.00	30.00	40.00	100.00	60.00	930-000-091
8.00	8.00	4.00	40.00	30.00	100.00	70.00	930-000-092
10.00	10.00	5.00	50.00	40.00	120.00	80.00	930-000-093
12.00	12.00	6.00	60.00	65.00	150.00	85.00	930-000-094

Ø .020"-.060"

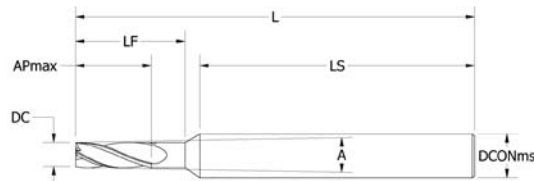


LONG FLUTE



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	A	UNCOATED	TiAIN NANO COATED
							4 FLUTE	4 FLUTE
0.0200	0.1875	0.0100	0.1400	2.4291	3.0000	0	930-000-151	930-000-161
0.0300	0.1875	0.0150	0.2100	2.3849	3.0000	0	930-000-152	930-000-162
0.0400	0.1875	0.0200	0.2800	2.3406	3.0000	0	930-000-153	930-000-163
0.0500	0.1875	0.0250	0.3500	2.2963	3.0000	0	930-000-154	930-000-164
0.0600	0.1875	0.0300	0.4200	2.2520	3.0000	0	930-000-155	930-000-165
0.0200	0.1875	0.0100	0.1400	2.4350	3.0000	1.0	930-000-203	930-000-223
0.0300	0.1875	0.0150	0.2100	2.3936	3.0000	1.0	930-000-204	930-000-224
0.0400	0.1875	0.0200	0.2800	2.3523	3.0000	1.0	930-000-205	930-000-225
0.0500	0.1875	0.0250	0.3500	2.3109	3.0000	1.0	930-000-206	930-000-226
0.0600	0.1875	0.0300	0.4200	2.2695	3.0000	1.0	930-000-207	930-000-227
0.0200	0.1875	0.0100	0.1400	2.4408	3.0000	2.0	930-000-213	930-000-233
0.0300	0.1875	0.0150	0.2100	2.4024	3.0000	2.0	930-000-214	930-000-234
0.0400	0.1875	0.0200	0.2800	2.3639	3.0000	2.0	930-000-215	930-000-235
0.0500	0.1875	0.0250	0.3500	2.3255	3.0000	2.0	930-000-216	930-000-236
0.0600	0.1875	0.0300	0.4200	2.2871	3.0000	2.0	930-000-217	930-000-237

Ø .020"-.060"



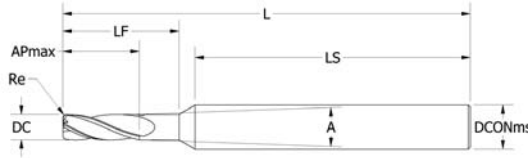
EXTRA LONG FLUTE



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	A	UNCOATED	TiAIN NANO COATED
							4 FLUTE	4 FLUTE
0.0200	0.1875	0.0100	0.2800	2.2891	3.0000	0	930-000-156	930-000-166
0.0300	0.1875	0.0150	0.4100	2.1849	3.0000	0	930-000-157	930-000-167
0.0400	0.1875	0.0200	0.5600	2.0606	3.0000	0	930-000-158	930-000-168
0.0500	0.1875	0.0250	0.7000	1.9463	3.0000	0	930-000-159	930-000-169
0.0600	0.1875	0.0300	0.8400	1.8320	3.0000	0	930-000-160	930-000-170
0.0200	0.1875	0.0100	0.2800	2.3013	3.0000	1.0	930-000-208	930-000-228
0.0300	0.1875	0.0150	0.4100	2.2026	3.0000	1.0	930-000-209	930-000-229
0.0400	0.1875	0.0200	0.5600	2.0848	3.0000	1.0	930-000-210	930-000-230
0.0500	0.1875	0.0250	0.7000	1.9766	3.0000	1.0	930-000-211	930-000-231
0.0600	0.1875	0.0300	0.8400	1.8684	3.0000	1.0	930-000-212	930-000-232
0.0200	0.1875	0.0100	0.2800	2.3134	3.0000	2.0	930-000-218	930-000-238
0.0300	0.1875	0.0150	0.4100	2.2203	3.0000	2.0	930-000-219	930-000-239
0.0400	0.1875	0.0200	0.5600	2.1091	3.0000	2.0	930-000-220	930-000-240
0.0500	0.1875	0.0250	0.7000	2.0069	3.0000	2.0	930-000-221	930-000-241
0.0600	0.1875	0.0300	0.8400	1.9048	3.0000	2.0	930-000-222	930-000-242

CARBIDE

Ø .030"-.060"

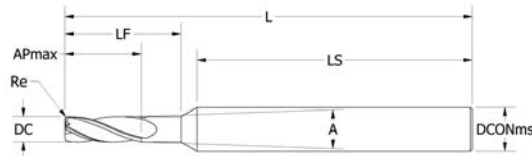


LONG FLUTE



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	A	UNCOATED	TiAIN NANO COATED
							4 FLUTE	4 FLUTE
0.0300	0.1875	0.0100	0.2100	2.3849	3.0000	0	930-000-135	930-000-143
0.0400	0.1875	0.0100	0.2800	2.3406	3.0000	0	930-000-136	930-000-144
0.0500	0.1875	0.0100	0.3500	2.2963	3.0000	0	930-000-137	930-000-145
0.0600	0.1875	0.0100	0.4200	2.2520	3.0000	0	930-000-138	930-000-146
0.0300	0.1875	0.0100	0.2100	2.3938	3.0000	1.0	930-000-171	930-000-187
0.0400	0.1875	0.0100	0.2800	2.3527	3.0000	1.0	930-000-172	930-000-188
0.0500	0.1875	0.0100	0.3500	2.3116	3.0000	1.0	930-000-173	930-000-189
0.0600	0.1875	0.0100	0.4200	2.2704	3.0000	1.0	930-000-174	930-000-190
0.0300	0.1875	0.0100	0.2100	2.4028	3.0000	2.0	930-000-179	930-000-195
0.0400	0.1875	0.0100	0.2800	2.3648	3.0000	2.0	930-000-180	930-000-196
0.0500	0.1875	0.0100	0.3500	2.3268	3.0000	2.0	930-000-181	930-000-197
0.0600	0.1875	0.0100	0.4200	2.2889	3.0000	2.0	930-000-182	930-000-198

Ø .030"-.060"

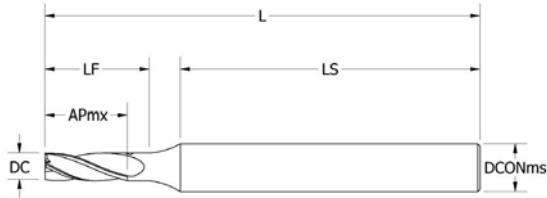


EXTRA LONG FLUTE



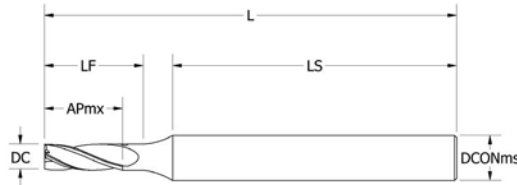
DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	A	UNCOATED	TiAIN NANO COATED
							4 FLUTE	4 FLUTE
0.0300	0.1875	0.0100	0.4100	2.1849	3.0000	0	930-000-139	930-000-147
0.0400	0.1875	0.0100	0.5600	2.0606	3.0000	0	930-000-140	930-000-148
0.0500	0.1875	0.0100	0.7000	1.9463	3.0000	0	930-000-141	930-000-149
0.0600	0.1875	0.0100	0.8400	1.8320	3.0000	0	930-000-142	930-000-150
0.0300	0.1875	0.0100	0.4100	2.2028	3.0000	1.0	930-000-175	930-000-191
0.0400	0.1875	0.0100	0.5600	2.0853	3.0000	1.0	930-000-176	930-000-192
0.0500	0.1875	0.0100	0.7000	1.9773	3.0000	1.0	930-000-177	930-000-193
0.0600	0.1875	0.0100	0.8400	1.8693	3.0000	1.0	930-000-178	930-000-194
0.0300	0.1875	0.0100	0.4100	2.2208	3.0000	2.0	930-000-183	930-000-199
0.0400	0.1875	0.0100	0.5600	2.1100	3.0000	2.0	930-000-184	930-000-200
0.0500	0.1875	0.0100	0.7000	2.0083	3.0000	2.0	930-000-185	930-000-201
0.0600	0.1875	0.0100	0.8400	1.9066	3.0000	2.0	930-000-186	930-000-202

Ø.005"-.1378"



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	UNCOATED	TiCN COATED
						2 FLUTE	2 FLUTE
0.0050	0.1250	0.0150	1.2815	1.5000	N/A	934-000-109	934-000-154
0.0100	0.1250	0.0300	1.2705	1.5000	0.0310	934-000-110	934-000-155
0.0150	0.1250	0.0450	1.2595	1.5000	0.0475	934-000-111	934-000-156
0.0050	0.1250	0.0150	1.2815	1.5000	N/A	934-000-154	N/A
0.0197	0.1250	0.0591	1.2493	1.5000	N/A	934-000-141	N/A
0.0200	0.1250	0.0600	1.2486	1.5000	0.0630	934-000-112	934-000-157
0.0250	0.1250	0.0750	1.2379	1.5000	0.0780	934-000-113	N/A
0.0300	0.1250	0.0900	1.2273	1.5000	0.0930	934-000-114	934-000-158
0.0350	0.1875	0.1050	1.1683	1.5000	0.1100	934-000-115	N/A
0.0394	0.1875	0.1182	1.1581	1.5000	0.1232	934-000-142	N/A
0.0400	0.1875	0.1200	1.1567	1.5000	0.1250	934-000-116	934-000-159
0.0450	0.1875	0.1350	1.1451	1.5000	0.1400	934-000-117	N/A
0.0492	0.1875	0.1476	1.1354	1.5000	0.1526	934-000-143	N/A
0.0500	0.1875	0.1500	1.1336	1.5000	0.1550	934-000-118	934-000-160
0.0550	0.1875	0.1650	1.1222	1.5000	0.1700	934-000-119	N/A
0.0591	0.1875	0.1773	1.1129	1.5000	0.1823	934-000-144	N/A
0.0600	0.1875	0.1800	1.1108	1.5000	0.1850	934-000-120	934-000-161
0.0630	0.1875	0.1890	1.1041	1.5000	0.1940	934-000-145	N/A
0.0650	0.1875	0.1950	1.0996	1.5000	0.2000	934-000-121	N/A
0.0700	0.1875	0.2100	1.0885	1.5000	0.2150	934-000-122	934-000-162
0.0709	0.1875	0.2127	1.0865	1.5000	0.2177	934-000-146	N/A
0.0750	0.1875	0.2250	1.0775	1.5000	0.2300	934-000-123	N/A
0.0787	0.1875	0.2361	1.0694	1.5000	0.2411	934-000-147	N/A
0.0800	0.1875	0.2400	1.0665	1.5000	0.2450	934-000-124	934-000-163
0.0850	0.1875	0.2550	1.0558	1.5000	0.2600	934-000-125	N/A
0.0866	0.1875	0.2598	1.0523	1.5000	0.2648	934-000-148	N/A
0.0900	0.1875	0.2700	1.0451	1.5000	0.2750	934-000-126	934-000-164
0.0950	0.1875	0.2850	1.0346	1.5000	0.2900	934-000-127	N/A
0.0984	0.1875	0.2952	1.0275	1.5000	0.3002	934-000-149	N/A
0.1000	0.1875	0.3000	1.0242	1.5000	0.3050	934-000-128	934-000-165
0.1102	0.1875	0.3306	1.0036	1.5000	0.3356	934-000-150	N/A
0.1181	0.1875	0.3543	0.9882	1.5000	0.3593	934-000-151	N/A
0.1200	0.1875	0.3600	0.9845	1.5000	0.3650	934-000-129	N/A
0.1378	0.1875	0.4134	0.9524	1.5000	0.4184	934-000-152	N/A

Ø .005" - .1378"



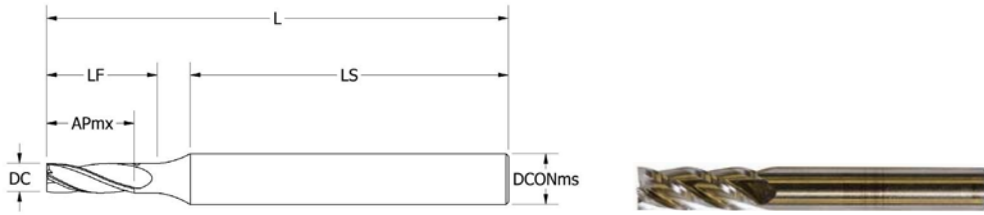
DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	UNCOATED
						2 FLUTE
0.0050	0.1250	0.0075	1.3300	1.5000	N/A	934-000-190
0.0100	0.1250	0.0150	1.2855	1.5000	0.0150	934-000-191
0.0150	0.1250	0.0225	1.2820	1.5000	0.0225	934-000-192
0.0156	0.1250	0.0234	1.2816	1.5000	0.0234	934-000-223
0.0197	0.1250	0.0296	1.2788	1.5000	0.0296	934-000-211
0.0200	0.1250	0.0300	1.2786	1.5000	0.0300	934-000-193
0.0250	0.1250	0.0375	1.2754	1.5000	0.0375	934-000-194
0.0300	0.1250	0.0450	1.2723	1.5000	0.0450	934-000-195
0.0350	0.1875	0.0525	1.2208	1.5000	0.0525	934-000-196
0.0394	0.1875	0.0591	1.2172	1.5000	0.0591	934-000-212
0.0400	0.1875	0.0600	1.2167	1.5000	0.0600	934-000-197
0.0450	0.1875	0.0675	1.2126	1.5000	0.0675	934-000-198
0.0492	0.1875	0.0738	1.2092	1.5000	0.0738	934-000-213
0.0500	0.1875	0.0750	1.2086	1.5000	0.0750	934-000-199
0.0550	0.1875	0.0825	1.2047	1.5000	0.0825	934-000-200
0.0591	0.1875	0.0887	1.2015	1.5000	0.0887	934-000-214
0.0600	0.1875	0.0900	1.2008	1.5000	0.0900	934-000-201
0.0630	0.1875	0.0945	1.1986	1.5000	0.0945	934-000-215
0.0650	0.1875	0.0975	1.1971	1.5000	0.0975	934-000-202
0.0700	0.1875	0.1050	1.1935	1.5000	0.1050	934-000-203
0.0709	0.1875	0.1064	1.1928	1.5000	0.1064	934-000-216
0.0750	0.1875	0.1125	1.1900	1.5000	0.1125	934-000-204
0.0787	0.1875	0.1181	1.1874	1.5000	0.1181	934-000-217
0.0800	0.1875	0.1200	1.1865	1.5000	0.1200	934-000-205
0.0850	0.1875	0.1275	1.1833	1.5000	0.1275	934-000-206
0.0866	0.1875	0.1299	1.1822	1.5000	0.1299	934-000-218
0.0900	0.1875	0.1350	1.1801	1.5000	0.1350	934-000-207
0.0950	0.1875	0.1425	1.1771	1.5000	0.1425	934-000-208
0.0984	0.1875	0.1476	1.1751	1.5000	0.1476	934-000-219
0.1000	0.1875	0.1500	1.1742	1.5000	0.1500	934-000-209
0.1102	0.1875	0.1653	1.1689	1.5000	0.1653	934-000-220
0.1181	0.1875	0.1772	1.1653	1.5000	0.1772	934-000-221
0.1200	0.1875	0.1800	1.1645	1.5000	0.1800	934-000-210
0.1378	0.1875	0.2067	1.1591	1.5000	0.2067	934-000-222

HSS

Ø .0156" - .1875"

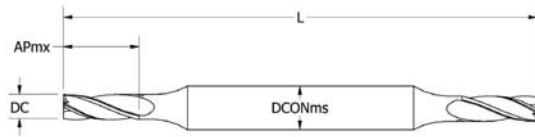


HSS



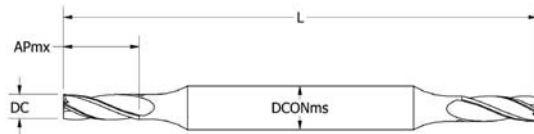
DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	UNCOATED		TICN COATED	
						2 FLUTE	4 FLUTE	2 FLUTE	4 FLUTE
0.0156	0.1250	0.0468	1.2582	1.5000	0.0493	934-000-153	N/A	934-000-172	N/A
0.0313	0.1875	0.0938	1.1771	1.5000	0.0988	934-000-130	934-000-173	934-000-166	934-000-184
0.0469	0.1875	0.1406	1.1408	1.5000	0.1456	934-000-131	934-000-174	934-000-167	934-000-185
0.0625	0.1875	0.1875	1.1052	1.5000	0.1925	934-000-132	934-000-175	934-000-168	934-000-186
0.0781	0.1875	0.2344	1.0706	1.5000	0.2394	934-000-133	934-000-176	934-000-169	934-000-187
0.0938	0.1875	0.2813	1.0372	1.5000	0.2863	934-000-134	934-000-177	934-000-170	934-000-188
0.1094	0.1875	0.3281	1.0052	1.5000	0.3331	934-000-135	934-000-178	N/A	N/A
0.1250	0.1875	0.3750	0.9751	1.5000	0.3800	934-000-136	934-000-179	934-000-171	934-000-189
0.1406	0.1875	0.4063	0.9633	1.5000	0.4113	934-000-137	934-000-180	N/A	N/A
0.1563	0.1875	0.4375	0.9554	1.5000	0.4425	934-000-138	934-000-181	N/A	N/A
0.1719	0.1875	0.5000	0.9239	1.5000	0.5050	934-000-139	934-000-182	N/A	N/A
0.1875	0.1875	0.5000	0.6250	1.5000	N/A	934-000-140	934-000-183	N/A	N/A

Ø .0313" - .1875"



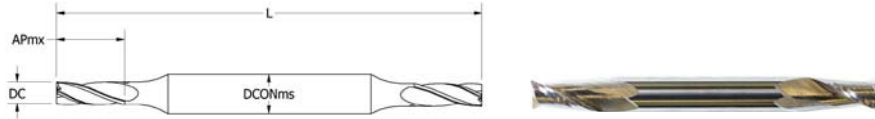
DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED
					2 FLUTE
0.0313	0.1875	0.0938	1.1250	2.2500	934-000-001
0.0469	0.1875	0.1406	1.1250	2.2500	934-000-002
0.0625	0.1875	0.1875	1.1250	2.2500	934-000-003
0.0781	0.1875	0.2344	1.1250	2.2500	934-000-004
0.0938	0.1875	0.2813	1.1250	2.2500	934-000-005
0.1094	0.1875	0.3281	1.1250	2.2500	934-000-006
0.1250	0.1875	0.3750	1.1250	2.2500	934-000-007
0.1406	0.1875	0.4063	1.1250	2.2500	934-000-008
0.1563	0.1875	0.4375	1.1250	2.2500	934-000-009
0.1719	0.1875	0.5025	1.1250	2.2500	934-000-010
0.1875	0.1875	0.5000	1.2500	2.2500	934-000-011

Ø .0313" - .1875"



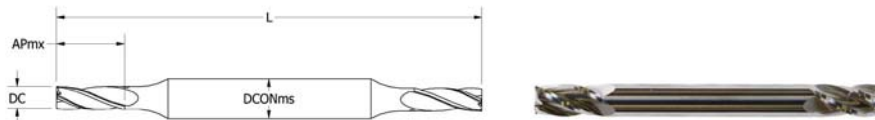
DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED
					4 FLUTE
0.0313	0.1875	0.0938	1.1250	2.2500	934-000-055
0.0469	0.1875	0.1406	1.1250	2.2500	934-000-056
0.0625	0.1875	0.1875	1.1250	2.2500	934-000-057
0.0781	0.1875	0.2344	1.1250	2.2500	934-000-058
0.0938	0.1875	0.2813	1.1250	2.2500	934-000-059
0.1094	0.1875	0.3281	1.1250	2.2500	934-000-060
0.1250	0.1875	0.3750	1.1250	2.2500	934-000-061
0.1406	0.1875	0.4063	1.1250	2.2500	934-000-062
0.1563	0.1875	0.4375	1.1250	2.2500	934-000-063
0.1719	0.1875	0.5000	1.1250	2.2500	934-000-064
0.1875	0.1875	0.5000	1.1250	2.2500	934-000-065

Ø .0313" - .1875"



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED
					2 FLUTE
0.0313	0.1875	0.0469	1.0000	2.0000	934-000-023
0.0469	0.1875	0.0625	1.0000	2.0000	934-000-024
0.0625	0.1875	0.0938	1.0000	2.0000	934-000-025
0.0781	0.1875	0.1250	1.0000	2.0000	934-000-026
0.0938	0.1875	0.1406	1.0000	2.0000	934-000-027
0.1094	0.1875	0.1563	1.0000	2.0000	934-000-028
0.1250	0.1875	0.1875	1.0000	2.0000	934-000-029
0.1406	0.1875	0.2188	1.0000	2.0000	934-000-030
0.1563	0.1875	0.2344	1.0000	2.0000	934-000-031
0.1719	0.1875	0.2500	1.0000	2.0000	934-000-032
0.1875	0.1875	0.2813	1.0000	2.0000	934-000-033

Ø .0313" - .1875"

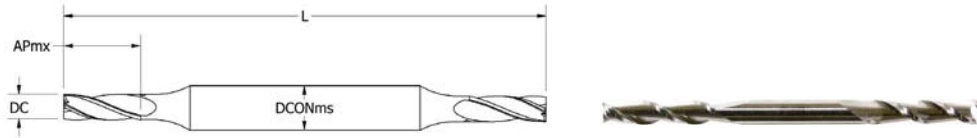


DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED
					4 FLUTE
0.0313	0.1875	0.0469	1.0000	2.0000	934-000-077
0.0469	0.1875	0.0625	1.0000	2.0000	934-000-078
0.0625	0.1875	0.0938	1.0000	2.0000	934-000-079
0.0781	0.1875	0.1250	1.0000	2.0000	934-000-080
0.0938	0.1875	0.1406	1.0000	2.0000	934-000-081
0.1094	0.1875	0.1563	1.0000	2.0000	934-000-082
0.1250	0.1875	0.1875	1.0000	2.0000	934-000-083
0.1406	0.1875	0.2188	1.0000	2.0000	934-000-084
0.1563	0.1875	0.2344	1.0000	2.0000	934-000-085
0.1719	0.1875	0.2500	1.0000	2.0000	934-000-086
0.1875	0.1875	0.2813	1.0000	2.0000	934-000-087

Ø .0625"-.1875"

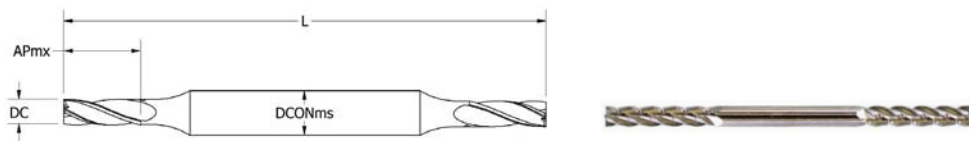


COBALT



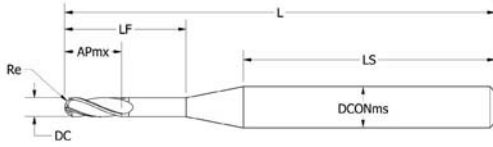
DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED
					2 FLUTE
0.0625	0.1875	0.2188	1.2500	2.5000	934-000-045
0.0938	0.1875	0.2813	1.3125	2.6250	934-000-046
0.1250	0.1875	0.7500	1.5625	3.1250	934-000-047
0.1563	0.1875	0.8750	1.6250	3.2500	934-000-048
0.1875	0.1875	1.0000	1.6875	3.3750	934-000-049

Ø .0625"-.1875"



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED
					4 FLUTE
0.0625	0.1875	0.2188	1.2500	2.5000	934-000-099
0.0938	0.1875	0.2813	1.3125	2.6250	934-000-100
0.1250	0.1875	0.7500	1.5625	3.1250	934-000-101
0.1563	0.1875	0.8750	1.6250	3.2500	934-000-102
0.1875	0.1875	1.0000	1.6875	3.3750	934-000-103

Ø .005" - .1378"



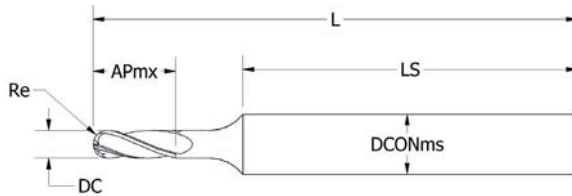
HSS

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	UNCOATED	TiCN COATED
							2 FLUTE	2 FLUTE
0.0050	0.1250	0.0025	0.0150	1.3225	1.5000	0.0160	934-000-258	934-000-303
0.0100	0.1250	0.0050	0.0300	1.2705	1.5000	0.0310	934-000-259	934-000-304
0.0150	0.1250	0.0075	0.0450	1.2595	1.5000	0.0475	934-000-260	934-000-305
0.0156	0.1250	0.0078	0.0468	1.2582	1.5000	0.0493	934-000-302	934-000-321
0.0197	0.1250	0.0099	0.0591	1.2493	1.5000	0.0621	934-000-290	N/A
0.0200	0.1250	0.0100	0.0600	1.2486	1.5000	0.0630	934-000-261	934-000-306
0.0250	0.1250	0.0125	0.0750	1.2379	1.5000	0.0780	934-000-262	N/A
0.0300	0.1250	0.0150	0.0900	1.2273	1.5000	0.0930	934-000-263	934-000-307
0.0350	0.1875	0.0175	0.1050	1.1683	1.5000	0.1100	934-000-264	N/A
0.0394	0.1875	0.0197	0.1182	1.1581	1.5000	0.1232	934-000-291	N/A
0.0400	0.1875	0.0200	0.1200	1.1567	1.5000	0.1250	934-000-265	934-000-308
0.0450	0.1875	0.0225	0.1350	1.1451	1.5000	0.1400	934-000-266	N/A
0.0492	0.1875	0.0246	0.1476	1.1354	1.5000	0.1526	934-000-292	N/A
0.0500	0.1875	0.0250	0.1500	1.1336	1.5000	0.1550	934-000-267	934-000-309
0.0550	0.1875	0.0275	0.1650	1.1222	1.5000	0.1700	934-000-268	N/A
0.0591	0.1875	0.0296	0.1773	1.1129	1.5000	0.1823	934-000-293	N/A
0.0600	0.1875	0.0300	0.1800	1.1108	1.5000	0.1850	934-000-269	934-000-310
0.0630	0.1875	0.0315	0.1890	1.1041	1.5000	0.1940	934-000-294	N/A
0.0650	0.1875	0.0325	0.1950	1.0996	1.5000	0.2000	934-000-270	N/A
0.0700	0.1875	0.0350	0.2100	1.0885	1.5000	0.2150	934-000-271	934-000-311
0.0709	0.1875	0.0355	0.2127	1.0865	1.5000	0.2177	934-000-295	N/A
0.0750	0.1875	0.0375	0.2250	1.0775	1.5000	0.2300	934-000-272	N/A
0.0787	0.1875	0.0394	0.2361	1.0694	1.5000	0.2411	934-000-296	N/A
0.0800	0.1875	0.0400	0.2400	1.0665	1.5000	0.2450	934-000-273	934-000-312
0.0850	0.1875	0.0425	0.2550	1.0558	1.5000	0.2600	934-000-274	N/A
0.0866	0.1875	0.0433	0.2598	1.0523	1.5000	0.2648	934-000-297	N/A
0.0900	0.1875	0.0450	0.2700	1.0451	1.5000	0.2750	934-000-275	934-000-313
0.0950	0.1875	0.0475	0.2850	1.0346	1.5000	0.2900	934-000-276	N/A
0.0984	0.1875	0.0492	0.2952	1.0275	1.5000	0.3002	934-000-298	N/A
0.1000	0.1875	0.0500	0.3000	1.0242	1.5000	0.3050	934-000-277	934-000-314
0.1102	0.1875	0.0551	0.3306	1.0036	1.5000	0.3356	934-000-299	N/A
0.1181	0.1875	0.0591	0.3543	0.9882	1.5000	0.3593	934-000-300	N/A
0.1200	0.1875	0.0600	0.3600	0.9845	1.5000	0.3650	934-000-278	N/A
0.1378	0.1875	0.0689	0.4134	0.9524	1.5000	0.4184	934-000-301	N/A

Ø .0313" - .1875"



HSS

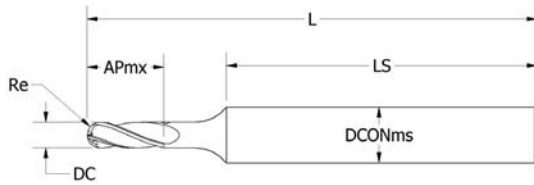


1.50 Length



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	UNCOATED	TiCN COATED
							2 FLUTE	2 FLUTE
0.0313	0.1875	0.0156	0.0938	1.1771	1.5000	0.0988	934-000-279	934-000-315
0.0469	0.1875	0.0234	0.1406	1.1408	1.5000	0.1456	934-000-280	934-000-316
0.0625	0.1875	0.0313	0.1875	1.1052	1.5000	0.1925	934-000-281	934-000-317
0.0781	0.1875	0.0391	0.2344	1.0706	1.5000	0.2394	934-000-282	934-000-318
0.0938	0.1875	0.0469	0.2188	1.0997	1.5000	0.2238	934-000-283	934-000-319
0.1094	0.1875	0.0547	0.3281	1.0052	1.5000	0.3331	934-000-284	N/A
0.1250	0.1875	0.0625	0.3750	0.6001	1.5000	0.3800	934-000-285	934-000-320
0.1406	0.1875	0.0703	0.4063	0.9633	1.5000	0.4113	934-000-286	N/A
0.1563	0.1875	0.0781	0.4375	0.9554	1.5000	0.4425	934-000-287	N/A
0.1719	0.1875	0.0859	0.5000	0.9239	1.5000	0.5050	934-000-288	N/A
0.1875	0.1875	0.0938	0.5000	0.6250	1.5000	N/A	934-000-289	N/A

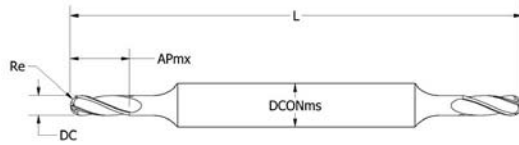
Ø .005" - .1378"



HSS

DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	LF [in.]	UNCOATED
							2 FLUTE
0.0050	0.1250	0.0025	0.0075	1.3300	1.5000	N/A	934-000-224
0.0100	0.1250	0.0050	0.0150	1.2855	1.5000	0.0150	934-000-225
0.0150	0.1250	0.0075	0.0225	1.2820	1.5000	0.0225	934-000-226
0.0156	0.1250	0.0078	0.0234	1.2816	1.5000	0.0234	934-000-257
0.0197	0.1875	0.0099	0.0296	1.2340	1.5000	0.0296	934-000-245
0.0200	0.1250	0.0100	0.0300	1.2786	1.5000	0.0300	934-000-227
0.0250	0.1250	0.0125	0.0375	1.2754	1.5000	0.0375	934-000-228
0.0300	0.1250	0.0150	0.0450	1.2723	1.5000	0.0450	934-000-229
0.0350	0.1875	0.0175	0.0525	1.2208	1.5000	0.0525	934-000-230
0.0394	0.1875	0.0197	0.0591	1.2172	1.5000	0.0591	934-000-246
0.0400	0.1875	0.0200	0.0600	1.2167	1.5000	0.0600	934-000-231
0.0450	0.1875	0.0225	0.0675	1.2126	1.5000	0.0675	934-000-232
0.0492	0.1875	0.0246	0.0738	1.2092	1.5000	0.0738	934-000-247
0.0500	0.1875	0.0250	0.0750	1.2086	1.5000	0.0750	934-000-233
0.0550	0.1875	0.0275	0.0825	1.2047	1.5000	0.0825	934-000-234
0.0591	0.1875	0.0296	0.0887	1.2015	1.5000	0.0887	934-000-248
0.0600	0.1875	0.0300	0.0900	1.2008	1.5000	0.0900	934-000-235
0.0630	0.1875	0.0315	0.0945	1.1986	1.5000	0.0945	934-000-249
0.0650	0.1875	0.0325	0.0975	1.1971	1.5000	0.0975	934-000-236
0.0700	0.1875	0.0350	0.1050	1.1935	1.5000	0.1050	934-000-237
0.0709	0.1875	0.0355	0.1064	1.1928	1.5000	0.1064	934-000-250
0.0750	0.1875	0.0375	0.1125	1.1900	1.5000	0.1125	934-000-238
0.0787	0.1875	0.0394	0.1181	1.1874	1.5000	0.1181	934-000-251
0.0800	0.1875	0.0400	0.1200	1.1865	1.5000	0.1200	934-000-239
0.0850	0.1875	0.0425	0.1275	1.1833	1.5000	0.1275	934-000-240
0.0866	0.1875	0.0433	0.1299	1.1822	1.5000	0.1299	934-000-252
0.0900	0.1875	0.0450	0.1350	1.1801	1.5000	0.1350	934-000-241
0.0950	0.1875	0.0475	0.1425	1.1771	1.5000	0.1425	934-000-242
0.0984	0.1875	0.0492	0.1476	1.1751	1.5000	0.1476	934-000-253
0.1000	0.1875	0.0500	0.1500	1.1742	1.5000	0.1500	934-000-243
0.1102	0.1875	0.0551	0.1653	1.1689	1.5000	0.1653	934-000-254
0.1181	0.1875	0.0591	0.1772	1.1653	1.5000	0.1772	934-000-255
0.1200	0.1875	0.0600	0.1800	1.1645	1.5000	0.1800	934-000-244
0.1378	0.1875	0.0689	0.2067	1.1591	1.5000	0.2067	934-000-256

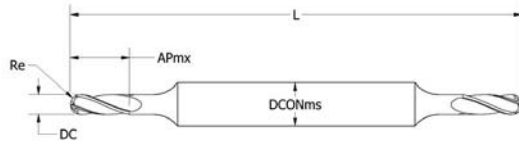
Ø .0313"-.1875"



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED
						2 FLUTE
0.0313	0.1875	0.0156	0.0938	1.1250	2.2500	934-000-012
0.0469	0.1875	0.0234	0.1406	1.1250	2.2500	934-000-013
0.0625	0.1875	0.0313	0.1875	1.1250	2.2500	934-000-014
0.0781	0.1875	0.0391	0.2344	1.1250	2.2500	934-000-015
0.0938	0.1875	0.0469	0.2813	1.1250	2.2500	934-000-016
0.1094	0.1875	0.0547	0.3281	1.1250	2.2500	934-000-017
0.1250	0.1875	0.0625	0.3750	1.1250	2.2500	934-000-018
0.1406	0.1875	0.0703	0.4063	1.1250	2.2500	934-000-019
0.1563	0.1875	0.0781	0.4375	1.1250	2.2500	934-000-020
0.1719	0.1875	0.0859	0.5000	1.1250	2.2500	934-000-021
0.1875*	0.1875	0.0938	0.5000	1.1250	2.2500	934-000-022

3/16": +000/.0025

Ø .0313"-.1875"

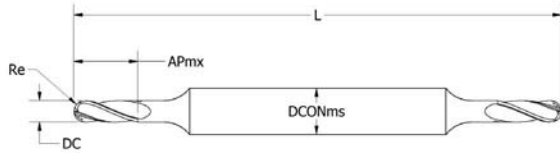


DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED
						4 FLUTE
0.0313	0.1875	0.0156	0.0938	1.1250	2.2500	934-000-066
0.0469	0.1875	0.0234	0.1406	1.1250	2.2500	934-000-067
0.0625	0.1875	0.0313	0.1875	1.1250	2.2500	934-000-068
0.0781	0.1875	0.0391	0.2344	1.1250	2.2500	934-000-069
0.0938	0.1875	0.0469	0.2188	1.1250	2.2500	934-000-070
0.1094	0.1875	0.0547	0.3281	1.1250	2.2500	934-000-071
0.1250	0.1875	0.0625	0.3750	1.1250	2.2500	934-000-072
0.1406	0.1875	0.0703	0.4063	1.1250	2.2500	934-000-073
0.1563	0.1875	0.0781	0.4375	1.1250	2.2500	934-000-074
0.1719	0.1875	0.0859	0.5000	1.1250	2.2500	934-000-075
0.1875*	0.1875	0.0938	0.5000	1.1250	2.2500	934-000-076

3/16": +000/.0025

Ø .0313" - .1875"

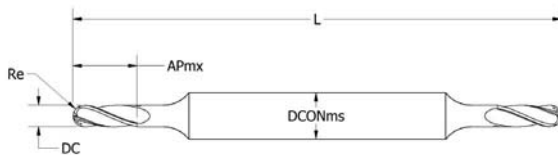
2.000 Length



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED
						2 FLUTE
0.0313	0.1875	0.0156	0.0469	1.0000	2.0000	934-000-034
0.0469	0.1875	0.0234	0.0625	1.0000	2.0000	934-000-035
0.0625	0.1875	0.0313	0.0938	1.0000	2.0000	934-000-036
0.0781	0.1875	0.0391	0.1250	1.0000	2.0000	934-000-037
0.0938	0.1875	0.0469	0.1406	1.0000	2.0000	934-000-038
0.1094	0.1875	0.0547	0.1563	1.0000	2.0000	934-000-039
0.1250	0.1875	0.0625	0.1875	1.0000	2.0000	934-000-040
0.1406	0.1875	0.0703	0.2188	1.0000	2.0000	934-000-041
0.1563	0.1875	0.0781	0.2344	1.0000	2.0000	934-000-042
0.1719	0.1875	0.0859	0.2500	1.0000	2.0000	934-000-043
0.1875*	0.1875	0.0938	0.2813	1.0000	2.0000	934-000-044

3/16": +000/.0025

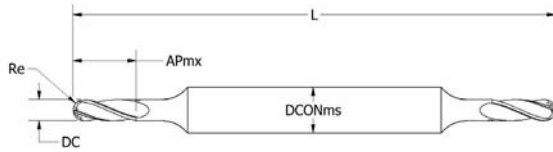
Ø .0313" - .1875"



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED
						4 FLUTE
0.0313	0.1875	0.0156	0.0469	1.0000	2.0000	934-000-088
0.0469	0.1875	0.0234	0.0625	1.0000	2.0000	934-000-089
0.0625	0.1875	0.0313	0.0938	1.0000	2.0000	934-000-090
0.0781	0.1875	0.0391	0.1250	1.0000	2.0000	934-000-091
0.0938	0.1875	0.0469	0.1406	1.0000	2.0000	934-000-092
0.1094	0.1875	0.0547	0.1563	1.0000	2.0000	934-000-093
0.1250	0.1875	0.0625	0.1875	1.0000	2.0000	934-000-094
0.1406	0.1875	0.0703	0.2188	1.0000	2.0000	934-000-095
0.1563	0.1875	0.0781	0.2344	1.0000	2.0000	934-000-096
0.1719	0.1875	0.0859	0.2500	1.0000	2.0000	934-000-097
0.1875*	0.1875	0.0938	0.2813	1.0000	2.0000	934-000-098

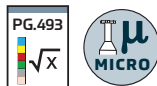
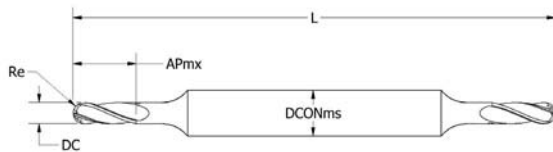
3/16": +000/.0025

Ø .0625"-.1875"



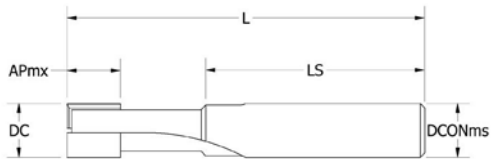
DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED
						2 FLUTE
0.0625	0.1875	0.0313	0.2188	1.2500	2.5000	934-000-050
0.0938	0.1875	0.0469	0.2813	1.3125	2.6250	934-000-051
0.1250	0.1875	0.0625	0.7500	1.5625	3.1250	934-000-052
0.1563	0.1875	0.0781	0.8750	1.6250	3.2500	934-000-053
0.1875	0.1875	0.0938	1.0000	1.6875	3.3750	934-000-054

Ø .0625"-.1875"



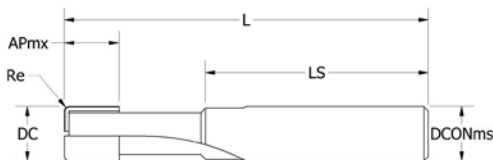
DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	UNCOATED
						4 FLUTE
0.0625	0.1875	0.0313	0.2188	1.2500	2.5000	934-000-104
0.0938	0.1875	0.0469	0.2813	1.3125	2.6250	934-000-105
0.1250	0.1875	0.0625	0.7500	1.5625	3.1250	934-000-106
0.1563	0.1875	0.0781	0.8750	1.6250	3.2500	934-000-107
0.1875	0.1875	0.0938	1.0000	1.6875	3.3750	934-000-108

Ø.0938" - 0.75"



DC [in.]	DCONMS [in.]	APMX [in.]	LS [in.]	L [in.]	PCD BRAZED	
					1 FLUTE	2 FLUTE
0.0938	0.1250	0.1875	1.1250	1.5000	935-000-001	N/A
0.1250	0.1250	0.2500	1.0000	1.5000	935-000-002	N/A
0.1875	0.1875	0.2500	1.3750	2.0000	N/A	935-000-003
0.2500	0.2500	0.2500	1.7500	2.5000	N/A	935-000-004
0.3750	0.3750	0.2500	1.5625	2.5000	N/A	935-000-005
0.5000	0.5000	0.0250	2.0000	3.0000	N/A	935-000-006
0.6250	0.6250	0.3750	2.5000	3.5000	N/A	935-000-007
0.7500	0.7500	0.3750	2.8750	4.0000	N/A	935-000-008

Ø .0938"-.50"

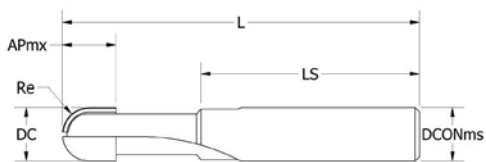


CORNER RADIUS



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	PCD BRAZED	
						1 FLUTE	2 FLUTE
0.0938	0.1250	0.0100	0.1875	1.1250	1.5000	935-000-009	N/A
0.1250	0.1250	0.0150	0.2500	1.0000	1.5000	935-000-010	N/A
0.1875	0.1875	0.0150	0.2500	1.3750	2.0000	N/A	935-000-011
0.2500	0.2500	0.0300	0.2500	1.7500	2.5000	N/A	935-000-012
0.3750	0.3750	0.0300	0.2500	1.5625	2.5000	N/A	935-000-013
0.5000	0.5000	0.0300	0.2500	2.0000	3.0000	N/A	935-000-014

Ø .0938"-.50"



BALL END



DC [in.]	DCONMS [in.]	RE [in.]	APMX [in.]	LS [in.]	L [in.]	PCD BRAZED	
						1 FLUTE	2 FLUTE
0.0938	0.1250	0.0469	0.1875	1.1250	1.5000	935-000-015	N/A
0.1250	0.1250	0.0625	0.2500	1.0000	1.5000	935-000-016	N/A
0.1875	0.1875	0.0938	0.2500	1.3750	2.0000	N/A	935-000-017
0.2500	0.2500	0.1250	0.3125	1.7500	2.5000	N/A	935-000-018
0.3750	0.3750	0.1875	0.4375	1.5625	2.5000	N/A	935-000-019
0.5000	0.5000	0.2500	0.5000	2.0000	3.0000	N/A	935-000-020

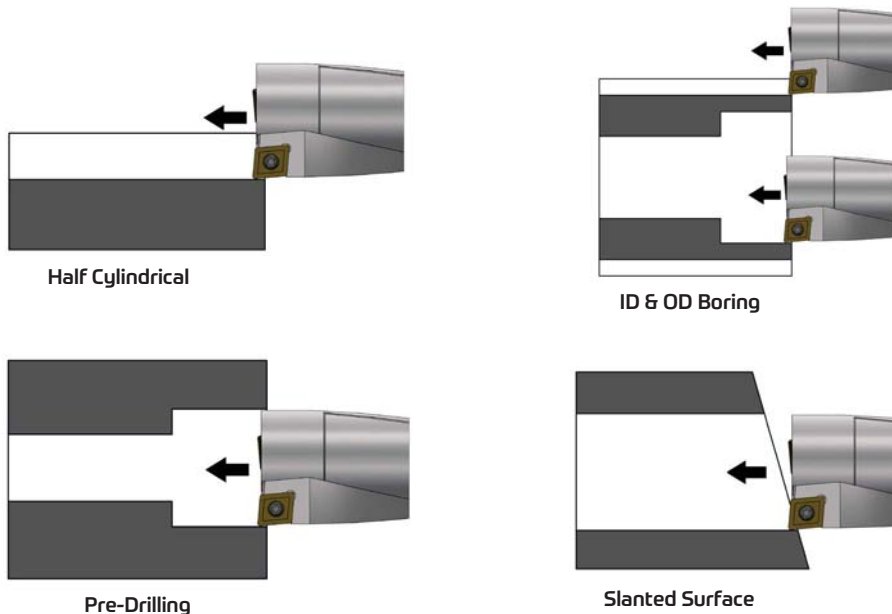
INDEXABLE DRILLS

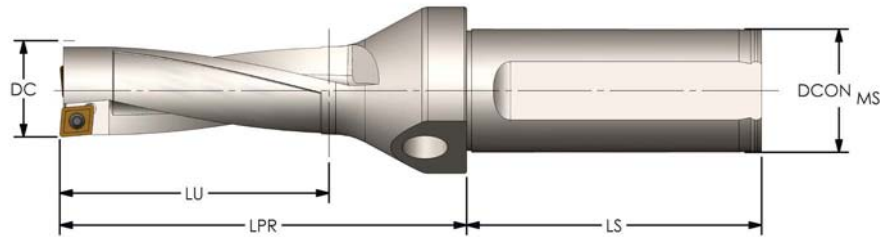
ARCH[®]
Cutting Tools



ARCH Cutting Tools Patriot High Performance PD1 portfolio of indexable drills excels across a broad spectrum of ISO class workpiece materials. From general steels, cast irons, HSRA, and many more, when there is a high demand to Reduce cost per feature in hole making applications. With diameters from 0.5625" (15mm) to 2.125" (54mm) offered in both imperial and metric sizes. Our range covers a Comprehensive application base providing universal insert geometries and grades, suitable for most applications across all industry segments that focus on hole quality. These include general engineering, die and mold, automotive, and aerospace & defense.

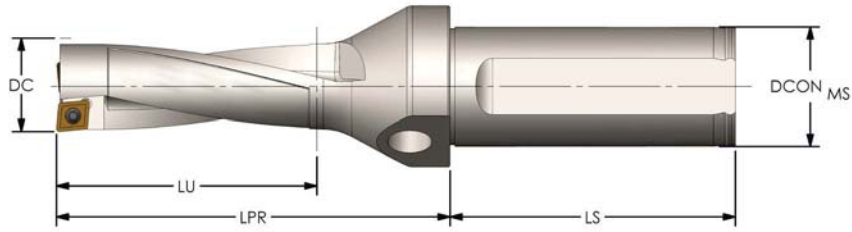
- Available in diameters 0.562" (15mm) - 2.125" (54mm), 2xD, 3xD, and 4xD
- 2-ported precision through coolant for excellent chip evacuation
- Versatility - Facing, boring, O.D. and I.D. turning capabilities
- Capable of drilling into slanted workpieces without pre-drilling
- Radial offset capability to adjust diameter size in non- rotating applications
- Economical 4-edge insert design providing excellent chip formation and lower spindle loads
- High quality tool steel bodies for added rigidity, wear resistance and reduced chip wash





2xD

PRODUCT #	DESIGNATION	DC [in.]	DCONMS [in.]	LS [in.]	LPR [in.]	LU [in.]	INSERT	SCREW	WRENCH
970-000-034	PD1-0562-2D-075	0.562	0.750	1.900	2.042	1.242	PD1 042004	PD1-16	T-6-S
970-000-038	PD1-0625-2D-075	0.625	0.750	1.900	2.168	1.368	PD1 052804	PD1-2	
970-000-042	PD1-0687-2D-075	0.687	0.750	1.900	2.292	1.492			
970-000-047	PD1-0750-2D-100	0.750	1.000	2.400	2.561	1.618	PD1 063306	PD1-22	T-7-S
970-000-051	PD1-0812-2D-100	0.812	1.000	2.400	2.686	1.743			
970-000-055	PD1-0875-2D-100	0.875	1.000	2.400	2.811	1.868			
970-000-058	PD1-0937-2D-125	0.937	1.250	2.900	2.936	1.993	PD1 074006	PD1-25	
970-000-062	PD1-1000-2D-125	1.000	1.250	2.900	3.061	2.118			
970-000-066	PD1-1125-2D-125	1.125	1.250	2.900	3.311	2.368			
970-000-070	PD1-1250-2D-125	1.250	1.250	2.900	3.600	2.657	PD1 094508	PD1-35	T-15-S
970-000-074	PD1-1375-2D-125	1.375	1.250	2.900	3.850	2.907			
970-000-078	PD1-1500-2D-150	1.500	1.500	2.900	4.100	3.157			
970-000-081	PD1-1625-2D-150	1.625	1.500	2.900	4.390	3.447	PD1 125812	PD1-5	T-20-S
970-000-084	PD1-1750-2D-150	1.750	1.500	2.900	4.600	3.657			
970-000-088	PD1-2000-2D-150	2.000	1.500	2.900	5.100	4.157			
970-000-131	PD1-2125-2D-150	2.125	1.500	2.900	5.350	4.407	PD1 156812	PD1-6	T-25-S

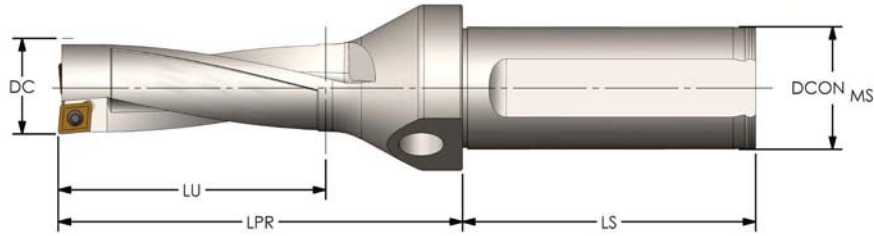


3xD IMPERIAL

PRODUCT #	DESIGNATION	DC [in.]	DCONMS [in.]	LS [in.]	LPR [in.]	LU [in.]	INSERT	SCREW	WRENCH	
970-000-035	PD1-0562-3D-075	0.562	0.750	1.900	2.747	1.804	PD1 042004	PD1-16	T-6-S	
970-000-036	PD1-0594-3D-075	0.594	0.750	1.900	2.843	1.900				
970-000-037	PD1-0609-3D-075	0.609	0.750	1.900	2.888	1.945				
970-000-039	PD1-0625-3D-075	0.625	0.750	1.900	2.936	1.993	PD1 052804	PD1-2		
970-000-041	PD1-0669-3D-075	0.669 (17mm)	0.750	1.900	3.069	2.126				
970-000-043	PD1-0687-3D-075	0.687	0.750	1.900	3.122	2.179				
970-000-045	PD1-0709-3D-075	0.709	0.750	1.900	3.187	2.244	PD1 063306	PD1-22	T-7-S	
970-000-046	PD1-0734-3D-100	0.734	1.000	2.400	3.263	2.320				
970-000-048	PD1-0750-3D-100	0.750	1.000	2.400	3.311	2.368				
970-000-050	PD1-0787-3D-100	0.787 (20mm)	1.000	2.400	3.422	2.479				
970-000-052	PD1-0812-3D-100	0.812	1.000	2.400	3.499	2.556				
970-000-054	PD1-0844-3D-100	0.844	1.000	2.400	3.637	2.694				
970-000-056	PD1-0875-3D-100	0.875	1.000	2.400	3.686	2.743	PD1 074006	PD1-25		
970-000-059	PD1-0937-3D-125	0.937	1.250	2.900	3.874	2.931				
970-000-061	PD1-0984-3D-125	0.984 (25mm)	1.250	2.900	4.014	3.071				
970-000-063	PD1-1000-3D-125	1.000	1.250	2.900	4.061	3.118	PD1 094508	PD1-35		T-15-S
970-000-065	PD1-1062-3D-125	1.062	1.250	2.900	4.249	3.306				
970-000-067	PD1-1125-3D-125	1.125	1.250	2.900	4.436	3.493				
970-000-069	PD1-1181-3D-125	1.181 (30mm)	1.250	2.900	4.645	3.702	PD1 125812	PD1-5	T-20-S	
970-000-071	PD1-1250-3D-125	1.250	1.250	2.900	4.850	3.907				
970-000-073	PD1-1312-3D-125	1.312	1.250	2.900	5.039	4.095				
970-000-075	PD1-1375-3D-125	1.375	1.250	2.900	5.225	4.282	PD1 156812	PD1-6	T-25-S	
970-000-077	PD1-1437-3D-125	1.437	1.250	2.900	5.413	4.470				
970-000-079	PD1-1500-3D-150	1.500	1.500	2.900	5.640	4.697				
970-000-082	PD1-1625-3D-150	1.625	1.500	2.900	6.015	5.072	PD1 156812	PD1-6		
970-000-085	PD1-1750-3D-150	1.750	1.500	2.900	6.390	5.447				
970-000-087	PD1-1875-3D-150	1.875	1.500	2.900	6.825	5.882				
970-000-089	PD1-2000-3D-150	2.000	1.500	2.900	7.140	6.197	PD1 156812	PD1-6		
970-000-091	PD1-2125-3D-150	2.125	1.500	2.900	7.515	6.572				

METRIC SHANK

PRODUCT #	DESIGNATION	DC [mm]	DCONMS [mm]	LS [mm]	LPR [mm]	LU [mm]	INSERT	SCREW	WRENCH	
970-000-115	PD1-0170-3D-20MM	17.00	20.00	44.00	74.00	54.00	PD1 052804	PD1-2	T-6-S	
970-000-116	PD1-0180-3D-25MM	18.00	25.00	56.00	81.00	57.00				
970-000-117	PD1-0190-3D-25MM	19.00	25.00	56.00	84.00	60.00				
970-000-118	PD1-0200-3D-25MM	20.00	25.00	56.00	84.00	60.00	PD1 063306	PD1-22		
970-000-119	PD1-0210-3D-25MM	21.00	25.00	56.00	90.00	66.00				
970-000-120	PD1-0220-3D-25MM	22.00	25.00	56.00	93.00	69.00				
970-000-121	PD1-0230-3D-25MM	23.00	25.00	56.00	96.00	72.00	PD1 074006	PD1-25	T-7-S	
970-000-122	PD1-0240-3D-25MM	24.00	25.00	56.00	98.00	75.00				
970-000-123	PD1-0250-3D-25MM	25.00	25.00	56.00	102.00	78.00				
970-000-124	PD1-0260-3D-32MM	26.00	32.00	60.00	105.00	81.00				
970-000-125	PD1-0270-3D-32MM	27.00	32.00	60.00	108.00	84.00				
970-000-126	PD1-0280-3D-32MM	28.00	32.00	60.00	111.00	87.00				
970-000-127	PD1-0290-3D-32MM	29.00	32.00	60.00	115.00	91.00	PD1 094508	PD1-35		T-15-S
970-000-128	PD1-0300-3D-32MM	30.00	32.00	60.00	118.00	94.00				



4xD



PRODUCT #	DESIGNATION	DC [in.]	DCONMS [in.]	LS [in.]	LPR [in.]	LU [in.]	INSERT	SCREW	WRENCH
970-000-129	PD1-0562-4D-075	0.562	0.750	1.900	3.166	2.366	PD1 042004	PD1-16	T-6-S
970-000-040	PD1-0625-4D-075	0.625	0.750	1.900	3.418	2.618	PD1 052804	PD1-2	T-6-S
970-000-044	PD1-0687-4D-075	0.687	0.750	1.900	3.667	2.867			
970-000-049	PD1-0750-4D-100	0.750	1.000	2.400	4.061	3.118	PD1 063306	PD1-22	T-7-S
970-000-053	PD1-0812-4D-100	0.812	1.000	2.400	4.312	3.369			
970-000-057	PD1-0875-4D-100	0.875	1.000	2.400	4.561	3.618			
970-000-060	PD1-0937-4D-125	0.937	1.250	2.900	4.812	3.869	PD1 074006	PD1-25	T-7-S
970-000-064	PD1-1000-4D-125	1.000	1.250	2.900	5.061	4.118			
970-000-068	PD1-1125-4D-125	1.125	1.250	2.900	5.561	4.618	PD1 094508	PD1-35	T-15-S
970-000-072	PD1-1250-4D-125	1.250	1.250	2.900	6.100	5.157			
970-000-076	PD1-1375-4D-125	1.375	1.250	2.900	6.600	5.627	PD1 125812	PD1-5	T-20-S
970-000-080	PD1-1500-4D-150	1.500	1.500	2.900	7.140	6.197			
970-000-083	PD1-1625-4D-150	1.625	1.500	2.900	7.640	6.697	PD1 156812	PD1-6	T-25-S
970-000-086	PD1-1750-4D-150	1.750	1.500	2.900	8.140	7.197			
970-000-090	PD1-2000-4D-150	2.000	1.500	2.900	9.140	8.197			
970-000-130	PD1-2125-4D-150	2.125	1.500	2.900	9.640	8.697			

PRODUCT #	DESIGNATION	HP600	HK356	HN300
914-000-085	PD1 042004	•		
914-000-083			•	
914-000-084				•
914-000-088	PD1 052804	•		
914-000-086			•	
914-000-087				•
914-000-091	PD1 063306	•		
914-000-089			•	
914-000-090				•
914-000-094	PD1 074006	•		
914-000-092			•	
914-000-093				•
914-000-097	PD1 094508	•		
914-000-095			•	
914-000-096				•
914-000-100	PD1 125812	•		
914-000-098			•	
914-000-99				•
914-000-103	PD1 156812	•		
914-000-101			•	
914-000-102				•

PRODUCT #	Insert Screw
968-000-112	PD1-16
968-000-113	PD1-2
968-000-114	PD1-22
968-000-115	PD1-25
968-000-116	PD1-35
968-000-117	PD1-5
968-000-118	PD1-6

PACKAGE SIZE OF 5



PD1

PACKAGE SIZE OF 10



ISO	MATERIAL	HARDNESS	GRADE	Vc (SFM)*	INDEXABLE DRILL DIAMETER (INCH)		
					0.5620"-0.7499"	0.7500" - 1.4999"	1.5000" - 2.2500"
					Fz = IPR (INCH PER REVOLUTION)*		
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HP 600	350-900	.0015-.0060	.0020-.0075	.0030-.0120
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC		260-750	.0020-.0070	.0020-.0085	.0030-.0095
M	STAINLESS STEELS (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	HP 600	230-700	.0018-.0040	.0030-.0065	.0030-.0085
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC		260-750	.0018-.0040	.0030-.0065	.0030-.0085
K	GRAY IRONS Class 20, 30, 40 ,50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	HK 356	285-1000	.0025-.0055	.0035-.0070	.0040-.0085
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC		230-740	.0020-.0050	.0028-.0065	.0030-.0070
N	NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	HN 300	600-1150	.0020-.0075	.0030-.0090	.0045-.0115
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2"	≤ 375 BHN or ≤ 55 HRC	HP 600	80-275	.0018-.0065	.0020-.0075	.0030-.0080
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	HP 600	55-270	.0016-.0032	.0020-.0055	.0025-.0060
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC		95-460	.0019-.0055	.0020-.0065	.0025-.008

Recommendations

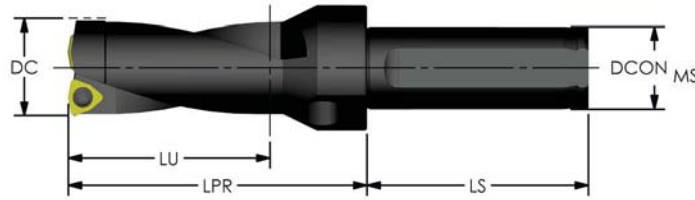
Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

- It is Recommended to use precision holders i.e. hydraulic, shrink fit
- It is Recommended to use internal coolant – minimum Recommended pressure 145 psi

*Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



- Diameter range from 0.625" – 2.375"
- Close bore tolerances up to IT 8 achievable
- Excellent surface finish can be achieved
- Machining to production dimension without separate fine bore machining
- Universal use – suitable for both rotating and stationary operations
- Come equipped with 1/8-27 NPT side and end entry coolant ports

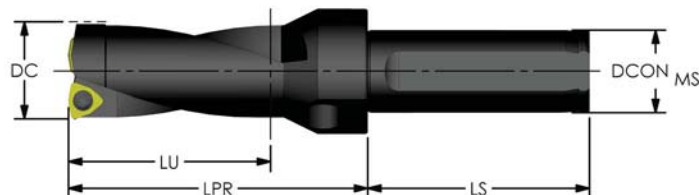


2xD



PRODUCT # COATED	PRODUCT # UNCOATED	DESIGNATION	DC [in.]	DCONMS [in.]	LS [in.]	LPR [in.]	LU [in.]	INSERT	SCREW
926-000-014	926-000-013	UD-0625-2D-063	0.625	0.625	1.687	2.280	1.375	WCMX 1.81.52	MTS-255 T-7-S Wrench
926-000-018	926-000-017	UD-0656-2D-063	0.656				1.406		
926-000-022	926-000-021	UD-0687-2D-063	0.687				1.437		
926-000-026	926-000-025	UD-0719-2D-063	0.719				1.467		
926-000-030	926-000-029	UD-0750-2D-075	0.750	0.750	2.000	2.810	1.748	WCMX 21.52	MTS-25-DR T-8-S Wrench
926-000-034	926-000-033	UD-0781-2D-075	0.781				1.780		
926-000-038	926-000-037	UD-0812-2D-075	0.812				1.811		
926-000-042	926-000-041	UD-0844-2D-075	0.844				1.850		
926-000-046	926-000-045	UD-0875-2D-075	0.875				1.874		
926-000-050	926-000-049	UD-0906-2D-075	0.906				1.910		
926-000-054	926-000-053	UD-0937-2D-075	0.937				1.935		
926-000-058	926-000-057	UD-0968-2D-075	0.968				1.970		
926-000-062	926-000-061	UD-1000-2D-100	1.000	1.000	2.375	3.235	2.345	WCMX 2.522	MTS-3-DR T-9-S Wrench
926-000-066	926-000-065	UD-1031-2D-100	1.031				2.375		
926-000-070	926-000-069	UD-1062-2D-100	1.062				2.406		
926-000-074	926-000-073	UD-1094-2D-100	1.094				2.438		
926-000-078	926-000-077	UD-1125-2D-100	1.125				2.469		
926-000-082	926-000-081	UD-1156-2D-100	1.156				2.500		
926-000-086	926-000-085	UD-1187-2D-100	1.187				2.532		
926-000-090	926-000-089	UD-1219-2D-100	1.219				2.564		
926-000-094	926-000-093	UD-1250-2D-125	1.250	1.250	2.619	3.886	2.710	WCMX 32.52	MTS-35-DR T-10-S Wrench
926-000-098	926-000-097	UD-1312-2D-125	1.312				2.771		
926-000-102	926-000-101	UD-1343-2D-125	1.343				2.802		
926-000-104	926-000-103	UD-1375-2D-125	1.375				2.833		
926-000-108	926-000-107	UD-1437-2D-125	1.437			2.896			
926-000-112	926-000-111	UD-1500-2D-125	1.500			4.426	3.250		
926-000-116	926-000-115	UD-1562-2D-125	1.562				3.312		
926-000-120	926-000-119	UD-1625-2D-125	1.625				3.375		
926-000-124	926-000-123	UD-1687-2D-125	1.687	3.437					
926-000-128	926-000-127	UD-1750-2D-150	1.750	1.500	2.875	5.025	3.850	WCMX 433	MTS-4-DR T-15-S Wrench
926-000-132	926-000-131	UD-1812-2D-150	1.812				3.912		
926-000-136	926-000-135	UD-1875-2D-150	1.875				3.975		
926-000-140	926-000-139	UD-1937-2D-150	1.937				4.036		
926-000-144	926-000-143	UD-2000-2D-150	2.000			5.687	4.469		
926-000-148	926-000-147	UD-2125-2D-150	2.125				4.593		
926-000-152	926-000-151	UD-2250-2D-150	2.250				4.717		
926-000-156	926-000-155	UD-2375-2D-150	2.375				4.840		

*Coated with ION Nitride (Add -C to the end of DESIGNATION)



2.5xD

PRODUCT # Coated	PRODUCT # Uncoated	DESIGNATION	DC [in.]	DCONMS [in.]	LS [in.]	LPR [in.]	LU [in.]	Insert	Screw
926-000-002	926-000-001	UD-0437-2D-063	0.437	0.625	1.687	2.280	1.280	WCMT 1.211	MTS-184 (Screw) T-6-S (Wrench)
926-000-004	926-000-003	UD-0468-2D-063	0.468				1.310		
926-000-006	926-000-005	UD-0500-2D-063	0.500				1.340		
926-000-008	926-000-007	UD-0531-2D-063	0.531				WCMT 1.51.51	1.370	
926-000-010	926-000-009	UD-0562-2D-063	0.562					1.400	
926-000-012	926-000-011	UD-0593-2D-063	0.593					1.430	

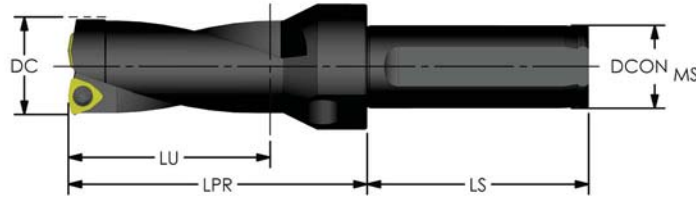
*Coated with ION Nitride (Add -C to the end of DESIGNATION)



4xD

PRODUCT # Coated	PRODUCT # Uncoated	DESIGNATION	DC [in.]	DCONMS [in.]	LS [in.]	LPR [in.]	LU [in.]	Insert	Screw					
926-000-016	926-000-015	UD-0625-4D-063	0.625	0.625	1.687	3.720	2.815	WCMX 1.81.52	MTS-255 (Screw) T-7-S (Wrench)					
926-000-020	926-000-019	UD-0656-4D-063	0.656				2.847							
926-000-024	926-000-023	UD-0687-4D-063	0.687				2.878							
926-000-028	926-000-027	UD-0719-4D-063	0.719				2.911							
926-000-032	926-000-031	UD-0750-4D-075	0.750	0.750	2.000	4.763	3.698	WCMX 21.52	MTS-25-DR (Screw) T-8-S (Wrench)					
926-000-036	926-000-035	UD-0781-4D-075	0.781				3.729							
926-000-040	926-000-039	UD-0812-4D-075	0.812				3.761							
926-000-044	926-000-043	UD-0844-4D-075	0.844				3.792							
926-000-048	926-000-047	UD-0875-4D-075	0.875				3.824							
926-000-052	926-000-051	UD-0906-4D-075	0.906				3.855							
926-000-056	926-000-055	UD-0937-4D-075	0.937				3.885							
926-000-060	926-000-059	UD-0968-4D-075	0.968				3.918							
926-000-064	926-000-063	UD-1000-4D-100	1.000				1.000			2.375	5.685	4.635	WCMX 2.522	MTS-3-DR (Screw) T-9-S (Wrench)
926-000-068	926-000-067	UD-1031-4D-100	1.031									4.666		
926-000-072	926-000-071	UD-1062-4D-100	1.062	4.696										
926-000-076	926-000-075	UD-1094-4D-100	1.094	4.728										
926-000-080	926-000-079	UD-1125-4D-100	1.125	4.760										
926-000-084	926-000-083	UD-1156-4D-100	1.156	4.792										
926-000-088	926-000-087	UD-1187-4D-100	1.187	4.822										
926-000-092	926-000-091	UD-1219-4D-100	1.219	4.864										

*Coated with ION Nitride (Add -C to the end of DESIGNATION)

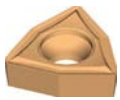


4xD



PRODUCT # Coated	PRODUCT # Uncoated	DESIGNATION	DC [in.]	DCONMS [in.]	LS [in.]	LPR [in.]	LU [in.]	Insert	Screw
926-000-096	926-000-095	UD-1250-4D-125	1.250	1.250	2.619	6.760	5.585	WCMX 32.52	MTS-35-DR (Screw) T-10-S (Wrench)
926-000-100	926-000-099	UD-1312-4D-125	1.312				5.646		
926-000-106	926-000-105	UD-1375-4D-125	1.375				5.708		
926-000-110	926-000-109	UD-1437-4D-125	1.437				5.771		
926-000-114	926-000-113	UD-1500-4D-125	1.500			7.800	6.632		
926-000-118	926-000-117	UD-1562-4D-125	1.562				6.695		
926-000-122	926-000-121	UD-1625-4D-125	1.625				6.757		
926-000-126	926-000-125	UD-1687-4D-125	1.687				6.820		
926-000-130	926-000-129	UD-1750-4D-150	1.750	1.500	2.875	8.900	7.724	WCMX 433	MTS-4-DR (Screw) T-15-S (Wrench)
926-000-134	926-000-133	UD-1812-4D-150	1.812				7.786		
926-000-138	926-000-137	UD-1875-4D-150	1.875				7.849		
926-000-142	926-000-141	UD-1937-4D-150	1.937				7.911		
926-000-146	926-000-145	UD-2000-4D-150	2.000			10.347	9.263		
926-000-150	926-000-149	UD-2125-4D-150	2.125				9.387		
926-000-154	926-000-153	UD-2250-4D-150	2.250				9.512		
926-000-158	926-000-157	UD-2375-4D-150	2.375				9.637		

*Coated with ION Nitride (Add -C to the end of DESIGNATION)



PRODUCT #	DESIGNATION	UD51	UD52	UD2	UD21	UD32
913-000-567	WCMT 1.211-ZX3	•				
913-000-568			•			
913-000-566					•	
913-000-565				•		
913-000-575	WCMT 1.51.51-ZX3	•				
913-000-576			•			
913-000-574					•	
913-000-573				•		
913-000-596	WCMX 1.81.52	•				
913-000-597			•			
913-000-593				•		
913-000-594					•	
913-000-595					•	
913-000-606	WCMX 21.52	•				
913-000-607			•			
913-000-603				•		
913-000-604					•	
913-000-605					•	
913-000-601	WCMX 2.522	•				
913-000-602			•			
913-000-598				•		
913-000-599					•	
913-000-600						•

PACKAGE SIZE OF 10

PRODUCT #	DESIGNATION	UD51	UD52	UD2	UD21	UD32
913-000-611	WCMX 32.52	•				
913-000-612			•			
913-000-608					•	
913-000-609						•
913-000-610	WCMX 433					•
913-000-616		•				
913-000-617			•			
913-000-613				•		
913-000-614					•	
913-000-615						

PACKAGE SIZE OF 10

PRODUCT #	Insert Screw
968-000-087	MTS-184
968-000-088	MTS-2
968-000-092	MTS-255
968-000-082	MTS-25-DR
968-000-084	MTS-3-DR
968-000-083	MTS-35-DR
968-000-085	MTS-4-DR

PACKAGE SIZE OF 5



ISO	MATERIAL	HARDNESS	GRADE	Vc (SFM)*	INDEXABLE DRILL DIAMETER (INCH)		
					0.5620"-0.7499"	0.7500" - 1.4999"	1.5000" - 2.3750"
Fz = IPR (INCH PER REVOLUTION)*							
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	UD51/UD52	300-800	.0015-.0060	.0025-.0080	.0030-.009
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC		250-700	.0020-.0070	.0025-.0070	.0030-.0080
M	STAINLESS STEELS (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	UD32	230-650	.0018-.0040	.0025-.0065	.0030-.0070
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC		260-700	.0018-.0040	.0023-.0055	.0030-.0065
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	UD21	285-900	.0025-.0055	.0035-.0070	.0040-.0080
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC		230-700	.0020-.0050	.0028-.0055	.0030-.0060
N	NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	UD2	400-975	.0020-.0075	.0030-.0070	.0045-.0100
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2"	≤ 375 BHN or ≤ 55 HRC	UD32	75-200	.0018-.0065	.0020-.0065	.0030-.0070
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	UD32/UD52	40-200	.0016-.0032	.0020-.0050	.0020-.0050
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC		90-350	.0019-.0055	.0020-.0050	.0020-.0065

Recommendations

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

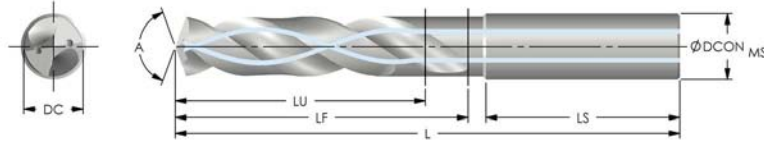
- It is Recommended to use precision holders i.e. hydraulic, shrink fit
- It is Recommended to use internal coolant – minimum Recommended pressure 145 psi

*Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

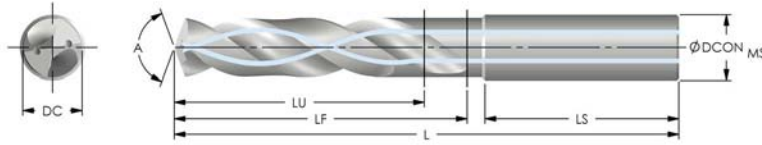
SOLID DRILLS

ARCHI[®]
Cutting Tools

CARBIDE

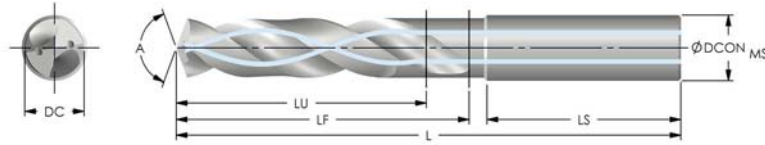


SIZE	DC [in.]	DCONMS [in.]	A [°]	LU [in.]	LF [in.]	LS [in.]	L [in.]	L/DC RATIO	PRODUCT #
#67	0.0320	0.1575	140.0	0.1181	0.1969	1.1024	2.2835	3XD	928-000-002
#67	0.0320	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	5XD	928-000-240
#67	0.0320	0.1575	140.0	0.2756	0.3543	1.1024	2.2835	8XD	928-000-478
#66	0.0330	0.1575	140.0	0.1181	0.1969	1.1024	2.2835	3XD	928-000-003
#66	0.0330	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	5XD	928-000-241
#66	0.0330	0.1575	140.0	0.2756	0.3543	1.1024	2.2835	8XD	928-000-479
#65	0.0350	0.1575	140.0	0.1181	0.1969	1.1024	2.2835	3XD	928-000-004
#65	0.0350	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	5XD	928-000-242
#65	0.0350	0.1575	140.0	0.2756	0.3543	1.1024	2.2835	8XD	928-000-480
#64	0.0360	0.1575	140.0	0.1181	0.1969	1.1024	2.2835	3XD	928-000-006
#64	0.0360	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	5XD	928-000-244
#64	0.0360	0.1575	140.0	0.2756	0.3543	1.1024	2.2835	8XD	928-000-482
#63	0.0370	0.1575	140.0	0.1181	0.1969	1.1024	2.2835	3XD	928-000-007
#63	0.0370	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	5XD	928-000-245
#63	0.0370	0.1575	140.0	0.2756	0.3543	1.1024	2.2835	8XD	928-000-483
#62	0.0380	0.1575	140.0	0.1181	0.1969	1.1024	2.2835	3XD	928-000-008
#62	0.0380	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	5XD	928-000-246
#62	0.0380	0.1575	140.0	0.2756	0.3543	1.1024	2.2835	8XD	928-000-484
#61	0.0390	0.1575	140.0	0.1181	0.1969	1.1024	2.2835	3XD	928-000-009
#61	0.0390	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	5XD	928-000-247
#61	0.0390	0.1575	140.0	0.2756	0.3543	1.1024	2.2835	8XD	928-000-485
#60	0.0400	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	3XD	928-000-011
#60	0.0400	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	5XD	928-000-249
#60	0.0400	0.1575	140.0	0.3937	0.4724	1.1024	2.2835	8XD	928-000-487
#59	0.0410	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	3XD	928-000-012
#59	0.0410	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	5XD	928-000-250
#59	0.0410	0.1575	140.0	0.3937	0.4724	1.1024	2.2835	8XD	928-000-488
#58	0.0420	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	3XD	928-000-013
#58	0.0420	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	5XD	928-000-251
#58	0.0420	0.1575	140.0	0.3937	0.4724	1.1024	2.2835	8XD	928-000-489
#57	0.0430	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	3XD	928-000-014
#57	0.0430	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	5XD	928-000-252
#57	0.0430	0.1575	140.0	0.3937	0.4724	1.1024	2.2835	8XD	928-000-490
#56	0.0465	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	3XD	928-000-017
#56	0.0465	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	5XD	928-000-255
#56	0.0465	0.1575	140.0	0.3937	0.4724	1.1024	2.2835	8XD	928-000-493
3/64	0.0469	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	3XD	928-000-018
3/64	0.0469	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	5XD	928-000-256
3/64	0.0469	0.1575	140.0	0.3937	0.4724	1.1024	2.2835	8XD	928-000-494
#55	0.0520	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	3XD	928-000-023
#55	0.0520	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	5XD	928-000-261
#55	0.0520	0.1575	140.0	0.3937	0.4724	1.1024	2.2835	8XD	928-000-499
#54	0.0550	0.1575	140.0	0.1969	0.2756	1.1024	2.2835	3XD	928-000-025
#54	0.0550	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	5XD	928-000-263
#54	0.0550	0.1575	140.0	0.3937	0.4724	1.1024	2.2835	8XD	928-000-501

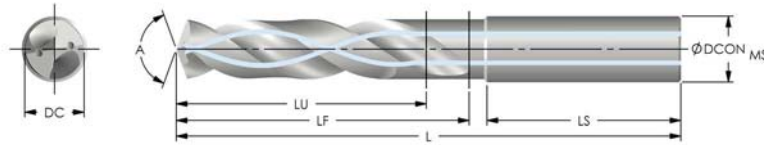


SIZE	DC [in.]	DCONMS [in.]	A [°]	LU [in.]	LF [in.]	LS [in.]	L [in.]	L/DC RATIO	PRODUCT #
#53	0.0595	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	3XD	928-000-028
#53	0.0595	0.1575	140.0	0.3543	0.4724	1.1024	2.2835	5XD	928-000-266
#53	0.0595	0.1575	140.0	0.5906	0.7087	1.1024	2.2835	8XD	928-000-504
1/16	0.0625	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	3XD	928-000-030
1/16	0.0625	0.1575	140.0	0.3543	0.4724	1.1024	2.2835	5XD	928-000-268
1/16	0.0625	0.1575	140.0	0.5906	0.7087	1.1024	2.2835	8XD	928-000-506
#52	0.0635	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	3XD	928-000-032
#52	0.0635	0.1575	140.0	0.3543	0.4724	1.1024	2.2835	5XD	928-000-270
#52	0.0635	0.1575	140.0	0.5906	0.7087	1.1024	2.2835	8XD	928-000-508
#51	0.0670	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	3XD	928-000-033
#51	0.0670	0.1575	140.0	0.3543	0.4724	1.1024	2.2835	5XD	928-000-271
#51	0.0670	0.1575	140.0	0.5906	0.7087	1.1024	2.2835	8XD	928-000-509
#50	0.0700	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	3XD	928-000-034
#50	0.0700	0.1575	140.0	0.3543	0.4724	1.1024	2.2835	5XD	928-000-272
#50	0.0700	0.1575	140.0	0.5906	0.7087	1.1024	2.2835	8XD	928-000-510
#49	0.0730	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	3XD	928-000-035
#49	0.0730	0.1575	140.0	0.3543	0.4724	1.1024	2.2835	5XD	928-000-273
#49	0.0730	0.1575	140.0	0.5906	0.7087	1.1024	2.2835	8XD	928-000-511
#48	0.0760	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	3XD	928-000-036
#48	0.0760	0.1575	140.0	0.5512	0.7087	1.1024	2.2835	5XD	928-000-274
#48	0.0760	0.1575	140.0	0.8661	1.0236	1.1024	2.5984	8XD	928-000-512
5/64	0.0781	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	3XD	928-000-037
5/64	0.0781	0.1575	140.0	0.5512	0.7087	1.1024	2.2835	5XD	928-000-275
5/64	0.0781	0.1575	140.0	0.8661	1.0236	1.1024	2.5984	8XD	928-000-513
#47	0.0785	0.1575	140.0	0.2362	0.3543	1.1024	2.2835	3XD	928-000-038
#47	0.0785	0.1575	140.0	0.5512	0.7087	1.1024	2.2835	5XD	928-000-276
#47	0.0785	0.1575	140.0	0.8661	1.0236	1.1024	2.5984	8XD	928-000-514
#46	0.0810	0.1575	140.0	0.3543	0.5118	1.1024	2.2835	3XD	928-000-040
#46	0.0810	0.1575	140.0	0.5512	0.7087	1.1024	2.2835	5XD	928-000-278
#46	0.0810	0.1575	140.0	0.8661	1.0236	1.1024	2.5984	8XD	928-000-516
#45	0.0820	0.1575	140.0	0.3543	0.5118	1.1024	2.2835	3XD	928-000-041
#45	0.0820	0.1575	140.0	0.5512	0.7087	1.1024	2.2835	5XD	928-000-279
#45	0.0820	0.1575	140.0	0.8661	1.0236	1.1024	2.5984	8XD	928-000-517
#44	0.0860	0.1575	140.0	0.3543	0.5118	1.1024	2.2835	3XD	928-000-042
#44	0.0860	0.1575	140.0	0.5512	0.7087	1.1024	2.2835	5XD	928-000-280
#44	0.0860	0.1575	140.0	0.8661	1.0236	1.1024	2.5984	8XD	928-000-518
#43	0.0890	0.1575	140.0	0.3543	0.5118	1.1024	2.2835	3XD	928-000-043
#43	0.0890	0.1575	140.0	0.5512	0.7087	1.1024	2.2835	5XD	928-000-281
#43	0.0890	0.1575	140.0	0.8661	1.0236	1.1024	2.5984	8XD	928-000-519
#42	0.0935	0.1575	140.0	0.4724	0.6693	1.1024	2.2835	3XD	928-000-044
#42	0.0935	0.1575	140.0	0.6693	0.8661	1.1024	2.2835	5XD	928-000-282
#42	0.0935	0.1575	140.0	0.9843	1.1811	1.1024	2.5984	8XD	928-000-520
3/32	0.0938	0.1575	140.0	0.4724	0.6693	1.1024	2.2835	3XD	928-000-045
3/32	0.0938	0.1575	140.0	0.6693	0.8661	1.1024	2.2835	5XD	928-000-283
3/32	0.0938	0.1575	140.0	0.9843	1.1811	1.1024	2.5984	8XD	928-000-521

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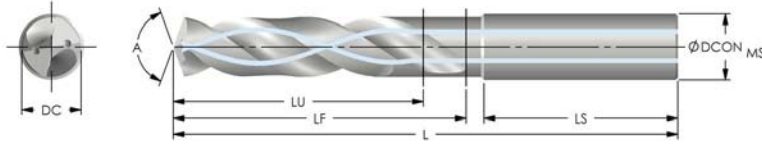


SIZE	DC [in.]	DCONMS [in.]	A [°]	LU [in.]	LF [in.]	LS [in.]	L [in.]	L/DC RATIO	PRODUCT #
#41	0.0960	0.1575	140.0	0.4724	0.6693	1.1024	2.2835	3XD	928-000-046
#41	0.0960	0.1575	140.0	0.6693	0.8661	1.1024	2.2835	5XD	928-000-284
#41	0.0960	0.1575	140.0	0.9843	1.1811	1.1024	2.5984	8XD	928-000-522
#40	0.0980	0.1575	140.0	0.4724	0.6693	1.1024	2.2835	3XD	928-000-047
#40	0.0980	0.1575	140.0	0.6693	0.8661	1.1024	2.2835	5XD	928-000-285
#40	0.0980	0.1575	140.0	0.9843	1.1811	1.1024	2.5984	8XD	928-000-523
#39	0.0995	0.1575	140.0	0.4724	0.6693	1.1024	2.2835	3XD	928-000-049
#39	0.0995	0.1575	140.0	0.6693	0.8661	1.1024	2.2835	5XD	928-000-287
#39	0.0995	0.1575	140.0	0.9843	1.1811	1.1024	2.5984	8XD	928-000-525
#38	0.1015	0.1575	140.0	0.4724	0.6693	1.1024	2.2835	3XD	928-000-050
#38	0.1015	0.1575	140.0	0.6693	0.8661	1.1024	2.2835	5XD	928-000-288
#38	0.1015	0.1575	140.0	0.9843	1.1811	1.1024	2.5984	8XD	928-000-526
#37	0.1040	0.1575	140.0	0.4724	0.6693	1.1024	2.2835	3XD	928-000-051
#37	0.1040	0.1575	140.0	0.6693	0.8661	1.1024	2.2835	5XD	928-000-289
#37	0.1040	0.1575	140.0	0.9843	1.1811	1.1024	2.5984	8XD	928-000-527
#36	0.1065	0.1575	140.0	0.4724	0.6693	1.1024	2.2835	3XD	928-000-052
#36	0.1065	0.1575	140.0	0.6693	0.8661	1.1024	2.2835	5XD	928-000-290
#36	0.1065	0.1575	140.0	0.9843	1.1811	1.1024	2.5984	8XD	928-000-528
7/64	0.1094	0.1575	140.0	0.4724	0.6693	1.1024	2.2835	3XD	928-000-053
7/64	0.1094	0.1575	140.0	0.6693	0.8661	1.1024	2.2835	5XD	928-000-291
7/64	0.1094	0.1575	140.0	0.9843	1.1811	1.1024	2.5984	8XD	928-000-529
#35	0.1100	0.1575	140.0	0.4724	0.6693	1.1024	2.2835	3XD	928-000-054
#35	0.1100	0.1575	140.0	0.6693	0.8661	1.1024	2.2835	5XD	928-000-292
#35	0.1100	0.1575	140.0	0.9843	1.1811	1.1024	2.5984	8XD	928-000-530
#34	0.1110	0.1575	140.0	0.4724	0.6693	1.1024	2.2835	3XD	928-000-055
#34	0.1110	0.1575	140.0	0.6693	0.8661	1.1024	2.2835	5XD	928-000-293
#34	0.1110	0.1575	140.0	0.9843	1.1811	1.1024	2.5984	8XD	928-000-531
#33	0.1130	0.1575	140.0	0.4724	0.6693	1.1024	2.2835	3XD	928-000-056
#33	0.1130	0.1575	140.0	0.6693	0.8661	1.1024	2.2835	5XD	928-000-294
#33	0.1130	0.1575	140.0	0.9843	1.1811	1.1024	2.5984	8XD	928-000-532
#32	0.1160	0.1575	140.0	0.4724	0.6693	1.1024	2.2835	3XD	928-000-057
#32	0.1160	0.1575	140.0	0.6693	0.8661	1.1024	2.2835	5XD	928-000-295
#32	0.1160	0.1575	140.0	0.9843	1.1811	1.1024	2.5984	8XD	928-000-533
#31	0.1200	0.2362	140.0	0.5512	0.7874	1.4173	2.4409	3XD	928-000-059
#31	0.1200	0.2362	140.0	0.9055	1.1024	1.4173	2.5984	5XD	928-000-297
#31	0.1200	0.2362	140.0	1.2992	1.5748	1.4173	3.0709	8XD	928-000-535
1/8	0.1250	0.2362	140.0	0.5512	0.7874	1.4173	2.4409	3XD	928-000-060
1/8	0.1250	0.2362	140.0	0.9055	1.1024	1.4173	2.5984	5XD	928-000-298
1/8	0.1250	0.2362	140.0	1.2992	1.5748	1.4173	3.0709	8XD	928-000-536
#30	0.1285	0.2362	140.0	0.5512	0.7874	1.4173	2.4409	3XD	928-000-062
#30	0.1285	0.2362	140.0	0.9055	1.1024	1.4173	2.5984	5XD	928-000-300
#30	0.1285	0.2362	140.0	1.2992	1.5748	1.4173	3.0709	8XD	928-000-538
#29	0.1360	0.2362	140.0	0.5512	0.7874	1.4173	2.4409	3XD	928-000-063
#29	0.1360	0.2362	140.0	0.9055	1.1024	1.4173	2.5984	5XD	928-000-301
#29	0.1360	0.2362	140.0	1.2992	1.5748	1.4173	3.0709	8XD	928-000-539

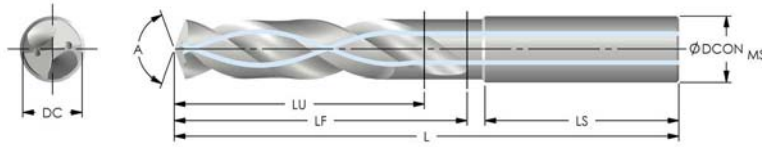


SIZE	DC [in.]	DCONMS [in.]	A [°]	LU [in.]	LF [in.]	LS [in.]	L [in.]	L/DC RATIO	PRODUCT #
#28	0.1405	0.2362	140.0	0.5512	0.7874	1.4173	2.4409	3XD	928-000-065
#28	0.1405	0.2362	140.0	0.9055	1.1024	1.4173	2.5984	5XD	928-000-303
#28	0.1405	0.2362	140.0	1.2992	1.5748	1.4173	3.0709	8XD	928-000-541
9/64	0.1406	0.2362	140.0	0.5512	0.7874	1.4173	2.4409	3XD	928-000-066
9/64	0.1406	0.2362	140.0	0.9055	1.1024	1.4173	2.5984	5XD	928-000-304
9/64	0.1406	0.2362	140.0	1.2992	1.5748	1.4173	3.0709	8XD	928-000-542
#27	0.1440	0.2362	140.0	0.5512	0.7874	1.4173	2.4409	3XD	928-000-068
#27	0.1440	0.2362	140.0	0.9055	1.1024	1.4173	2.5984	5XD	928-000-306
#27	0.1440	0.2362	140.0	1.2992	1.5748	1.4173	3.0709	8XD	928-000-544
#26	0.1470	0.2362	140.0	0.5512	0.7874	1.4173	2.4409	3XD	928-000-069
#26	0.1470	0.2362	140.0	0.9055	1.1024	1.4173	2.5984	5XD	928-000-307
#26	0.1470	0.2362	140.0	1.2992	1.5748	1.4173	3.0709	8XD	928-000-545
#25	0.1495	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-070
#25	0.1495	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-308
#25	0.1495	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-546
#24	0.1520	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-071
#24	0.1520	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-309
#24	0.1520	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-547
#23	0.1540	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-073
#23	0.1540	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-311
#23	0.1540	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-549
5/32	0.1562	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-074
5/32	0.1562	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-312
5/32	0.1562	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-550
#22	0.1570	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-075
#22	0.1570	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-313
#22	0.1570	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-551
#21	0.1590	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-077
#21	0.1590	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-315
#21	0.1590	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-553
#20	0.1610	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-078
#20	0.1610	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-316
#20	0.1610	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-554
#19	0.1660	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-080
#19	0.1660	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-318
#19	0.1660	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-556
#18	0.1695	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-081
#18	0.1695	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-319
#18	0.1695	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-557
11/64	0.1719	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-082
11/64	0.1719	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-320
11/64	0.1719	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-558
#17	0.1730	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-083
#17	0.1730	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-321
#17	0.1730	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-559

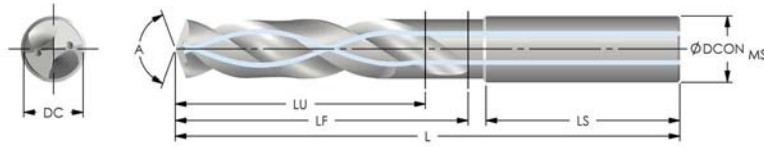
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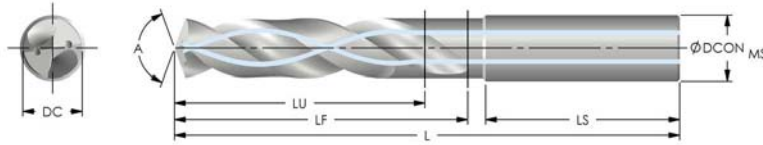
SIZE	DC [in.]	DCONMS [in.]	A [°]	LU [in.]	LF [in.]	LS [in.]	L [in.]	L/DC RATIO	PRODUCT #
#16	0.1770	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-085
#16	0.1770	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-323
#16	0.1770	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-561
#15	0.1800	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-087
#15	0.1800	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-325
#15	0.1800	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-563
#14	0.1820	0.2362	140.0	0.6693	0.9449	1.4173	2.5984	3XD	928-000-089
#14	0.1820	0.2362	140.0	1.1417	1.4173	1.4173	2.9134	5XD	928-000-327
#14	0.1820	0.2362	140.0	1.6142	1.9291	1.4173	3.4252	8XD	928-000-565
3/16	0.1875	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-091
3/16	0.1875	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-329
3/16	0.1875	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-567
#11	0.1910	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-093
#11	0.1910	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-331
#11	0.1910	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-569
#10	0.1935	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-095
#10	0.1935	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-333
#10	0.1935	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-571
#9	0.1960	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-096
#9	0.1960	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-334
#9	0.1960	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-572
#8	0.1990	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-098
#8	0.1990	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-336
#8	0.1990	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-574
#7	0.2010	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-100
#7	0.2010	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-338
#7	0.2010	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-576
13/64	0.2031	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-101
13/64	0.2031	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-339
13/64	0.2031	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-577
#6	0.2040	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-102
#6	0.2040	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-340
#6	0.2040	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-578
#5	0.2055	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-104
#5	0.2055	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-342
#5	0.2055	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-580
#4	0.2090	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-106
#4	0.2090	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-344
#4	0.2090	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-582
#3	0.2130	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-108
#3	0.2130	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-346
#3	0.2130	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-584
7/32	0.2188	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-110
7/32	0.2188	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-348
7/32	0.2188	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-586



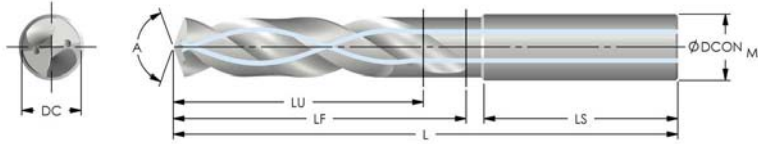
SIZE	DC [in.]	DCONMS [in.]	A [°]	LU [in.]	LF [in.]	LS [in.]	L [in.]	L/DC RATIO	PRODUCT #
#2	0.2210	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-112
#2	0.2210	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-350
#2	0.2210	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-588
#1	0.2280	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-114
#1	0.2280	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-352
#1	0.2280	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-590
A	0.2340	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-117
A	0.2340	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-355
A	0.2340	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-593
15/64	0.2344	0.2362	140.0	0.7874	1.1024	1.4173	2.5984	3XD	928-000-118
15/64	0.2344	0.2362	140.0	1.3780	1.7323	1.4173	3.2283	5XD	928-000-356
15/64	0.2344	0.2362	140.0	1.8898	2.2047	1.4173	3.7008	8XD	928-000-594
B	0.2380	0.3150	140.0	0.9449	1.3386	1.4173	3.1102	3XD	928-000-120
B	0.2380	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-358
B	0.2380	0.3150	140.0	2.2441	2.6378	1.4173	4.1339	8XD	928-000-596
C	0.2420	0.3150	140.0	0.9449	1.3386	1.4173	3.1102	3XD	928-000-122
C	0.2420	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-360
C	0.2420	0.3150	140.0	2.2441	2.6378	1.4173	4.1339	8XD	928-000-598
D	0.2460	0.3150	140.0	0.9449	1.3386	1.4173	3.1102	3XD	928-000-124
D	0.2460	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-362
D	0.2460	0.3150	140.0	2.2441	2.6378	1.4173	4.1339	8XD	928-000-600
E(1/4)	0.2500	0.3150	140.0	0.9449	1.3386	1.4173	3.1102	3XD	928-000-126
E(1/4)	0.2500	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-364
E(1/4)	0.2500	0.3150	140.0	2.2441	2.6378	1.4173	4.1339	8XD	928-000-602
F	0.2570	0.3150	140.0	0.9449	1.3386	1.4173	3.1102	3XD	928-000-129
F	0.2570	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-367
F	0.2570	0.3150	140.0	2.2441	2.6378	1.4173	4.1339	8XD	928-000-605
G	0.2610	0.3150	140.0	0.9449	1.3386	1.4173	3.1102	3XD	928-000-131
G	0.2610	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-369
G	0.2610	0.3150	140.0	2.2441	2.6378	1.4173	4.1339	8XD	928-000-607
17/64	0.2656	0.3150	140.0	0.9449	1.3386	1.4173	3.1102	3XD	928-000-133
17/64	0.2656	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-371
17/64	0.2656	0.3150	140.0	2.2441	2.6378	1.4173	4.1339	8XD	928-000-609
H	0.2660	0.3150	140.0	0.9449	1.3386	1.4173	3.1102	3XD	928-000-134
H	0.2660	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-372
H	0.2660	0.3150	140.0	2.2441	2.6378	1.4173	4.1339	8XD	928-000-610
I	0.2720	0.3150	140.0	0.9449	1.3386	1.4173	3.1102	3XD	928-000-137
I	0.2720	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-375
I	0.2720	0.3150	140.0	2.2441	2.6378	1.4173	4.1339	8XD	928-000-613
J	0.2770	0.3150	140.0	1.1417	1.6142	1.4173	3.1102	3XD	928-000-139
J	0.2770	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-377
J	0.2770	0.3150	140.0	2.5197	3.0315	1.4173	4.5276	8XD	928-000-615
K	0.2810	0.3150	140.0	1.1417	1.6142	1.4173	3.1102	3XD	928-000-141
K	0.2810	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-379
K	0.2810	0.3150	140.0	2.5197	3.0315	1.4173	4.5276	8XD	928-000-617
9/32	0.2812	0.3150	140.0	1.1417	1.6142	1.4173	3.1102	3XD	928-000-142
9/32	0.2812	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-380
9/32	0.2812	0.3150	140.0	2.5197	3.0315	1.4173	4.5276	8XD	928-000-618



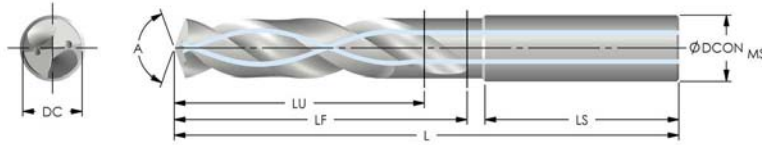
SIZE	DC [in.]	DCONMS [in.]	A [°]	LU [in.]	LF [in.]	LS [in.]	L [in.]	L/DC RATIO	PRODUCT #
L	0.2900	0.3150	140.0	1.1417	1.6142	1.4173	3.1102	3XD	928-000-145
L	0.2900	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-383
L	0.2900	0.3150	140.0	2.5197	3.0315	1.4173	4.5276	8XD	928-000-621
M	0.2950	0.3150	140.0	1.1417	1.6142	1.4173	3.1102	3XD	928-000-147
M	0.2950	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-385
M	0.2950	0.3150	140.0	2.5197	3.0315	1.4173	4.5276	8XD	928-000-623
19/64	0.2969	0.3150	140.0	1.1417	1.6142	1.4173	3.1102	3XD	928-000-149
19/64	0.2969	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-387
19/64	0.2969	0.3150	140.0	2.5197	3.0315	1.4173	4.5276	8XD	928-000-625
N	0.3020	0.3150	140.0	1.1417	1.6142	1.4173	3.1102	3XD	928-000-151
N	0.3020	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-389
N	0.3020	0.3150	140.0	2.5197	3.0315	1.4173	4.5276	8XD	928-000-627
5/16	0.3125	0.3150	140.0	1.1417	1.6142	1.4173	3.1102	3XD	928-000-155
5/16	0.3125	0.3150	140.0	1.6929	2.0866	1.4173	3.5827	5XD	928-000-393
5/16	0.3125	0.3150	140.0	2.5197	3.0315	1.4173	4.5276	8XD	928-000-631
O	0.3160	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-157
O	0.3160	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-395
O	0.3160	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-633
P	0.3230	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-160
P	0.3230	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-398
P	0.3230	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-636
21/64	0.3281	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-162
21/64	0.3281	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-400
21/64	0.3281	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-638
Q	0.3320	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-164
Q	0.3320	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-402
Q	0.3320	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-640
R	0.3390	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-167
R	0.3390	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-405
R	0.3390	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-643
11/32	0.3438	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-169
11/32	0.3438	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-407
11/32	0.3438	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-645
S	0.3480	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-171
S	0.3480	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-409
S	0.3480	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-647
T	0.3580	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-174
T	0.3580	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-412
T	0.3580	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-650
23/64	0.3594	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-176
23/64	0.3594	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-414
23/64	0.3594	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-652
U	0.3680	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-179
U	0.3680	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-417
U	0.3680	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-655



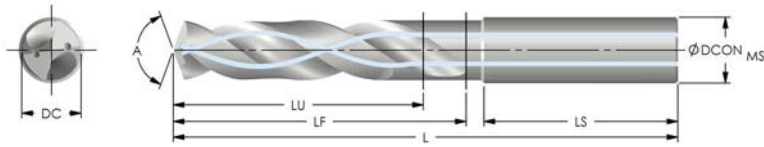
SIZE	DC [in.]	DCONMS [in.]	A [°]	LU [in.]	LF [in.]	LS [in.]	L [in.]	L/DC RATIO	PRODUCT #
3/8	0.3750	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-182
3/8	0.3750	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-420
3/8	0.3750	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-658
V	0.3770	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-183
V	0.3770	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-421
V	0.3770	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-659
W	0.3860	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-187
W	0.3860	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-425
W	0.3860	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-663
25/64	0.3906	0.3937	140.0	1.3780	1.8504	1.5748	3.5039	3XD	928-000-189
25/64	0.3906	0.3937	140.0	1.9291	2.4016	1.5748	4.0551	5XD	928-000-427
25/64	0.3906	0.3937	140.0	2.9528	3.5039	1.5748	5.1575	8XD	928-000-665
X	0.3970	0.4724	140.0	1.5748	2.1654	1.7717	4.0157	3XD	928-000-191
X	0.3970	0.4724	140.0	2.2047	2.7953	1.7717	4.6457	5XD	928-000-429
X	0.3970	0.4724	140.0	3.6220	4.2520	1.7717	6.1024	8XD	928-000-667
Y	0.4040	0.4724	140.0	1.5748	2.1654	1.7717	4.0157	3XD	928-000-192
Y	0.4040	0.4724	140.0	2.2047	2.7953	1.7717	4.6457	5XD	928-000-430
Y	0.4040	0.4724	140.0	3.6220	4.2520	1.7717	6.1024	8XD	928-000-668
13/32	0.4062	0.4724	140.0	1.5748	2.1654	1.7717	4.0157	3XD	928-000-193
13/32	0.4062	0.4724	140.0	2.2047	2.7953	1.7717	4.6457	5XD	928-000-431
13/32	0.4062	0.4724	140.0	3.6220	4.2520	1.7717	6.1024	8XD	928-000-669
Z	0.4130	0.4724	140.0	1.5748	2.1654	1.7717	4.0157	3XD	928-000-194
Z	0.4130	0.4724	140.0	2.2047	2.7953	1.7717	4.6457	5XD	928-000-432
Z	0.4130	0.4724	140.0	3.6220	4.2520	1.7717	6.1024	8XD	928-000-670
27/64	0.4219	0.4724	140.0	1.5748	2.1654	1.7717	4.0157	3XD	928-000-196
27/64	0.4219	0.4724	140.0	2.2047	2.7953	1.7717	4.6457	5XD	928-000-434
27/64	0.4219	0.4724	140.0	3.6220	4.2520	1.7717	6.1024	8XD	928-000-672
7/16	0.4375	0.4724	140.0	1.5748	2.1654	1.7717	4.0157	3XD	928-000-198
7/16	0.4375	0.4724	140.0	2.2047	2.7953	1.7717	4.6457	5XD	928-000-436
7/16	0.4375	0.4724	140.0	3.6220	4.2520	1.7717	6.1024	8XD	928-000-674
29/64	0.4531	0.4724	140.0	1.5748	2.1654	1.7717	4.0157	3XD	928-000-200
29/64	0.4531	0.4724	140.0	2.2047	2.7953	1.7717	4.6457	5XD	928-000-438
29/64	0.4531	0.4724	140.0	3.6220	4.2520	1.7717	6.1024	8XD	928-000-676
15/32	0.4688	0.4724	140.0	1.5748	2.1654	1.7717	4.0157	3XD	928-000-201
15/32	0.4688	0.4724	140.0	2.2047	2.7953	1.7717	4.6457	5XD	928-000-439
15/32	0.4688	0.4724	140.0	3.6220	4.2520	1.7717	6.1024	8XD	928-000-677
31/64	0.4844	0.5512	140.0	1.6929	2.3622	1.7717	4.2126	3XD	928-000-203
31/64	0.4844	0.5512	140.0	2.3622	3.0315	1.7717	4.8819	5XD	928-000-441
31/64	0.4844	0.5512	140.0	4.3307	5.3150	1.7717	7.1654	8XD	928-000-679
1/2	0.5000	0.5512	140.0	1.6929	2.3622	1.7717	4.2126	3XD	928-000-205
1/2	0.5000	0.5512	140.0	2.3622	3.0315	1.7717	4.8819	5XD	928-000-443
1/2	0.5000	0.5512	140.0	4.3307	5.3150	1.7717	7.1654	8XD	928-000-681
33/64	0.5156	0.5512	140.0	1.6929	2.3622	1.7717	4.2126	3XD	928-000-207
33/64	0.5156	0.5512	140.0	2.3622	3.0315	1.7717	4.8819	5XD	928-000-445
33/64	0.5156	0.5512	140.0	4.3307	5.3150	1.7717	7.1654	8XD	928-000-683



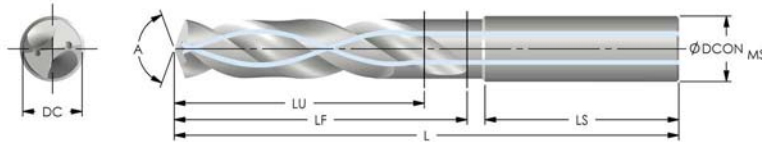
SIZE	DC [in.]	DCONMS [in.]	A [°]	LU [in.]	LF [in.]	LS [in.]	L [in.]	L/DC RATIO	PRODUCT #
17/32	0.5312	0.5512	140.0	1.6929	2.3622	1.7717	4.2126	3XD	928-000-208
17/32	0.5312	0.5512	140.0	2.3622	3.0315	1.7717	4.8819	5XD	928-000-446
17/32	0.5312	0.5512	140.0	4.3307	5.315	1.7717	7.1654	8XD	928-000-684
35/64	0.5469	0.5512	140.0	1.6929	2.3622	1.7717	4.2126	3XD	928-000-210
35/64	0.5469	0.5512	140.0	2.3622	3.0315	1.7717	4.8819	5XD	928-000-448
35/64	0.5469	0.5512	140.0	4.3307	5.315	1.7717	7.1654	8XD	928-000-686
9/16	0.5625	0.6299	140.0	1.7717	2.5591	1.8898	4.5276	3XD	928-000-212
9/16	0.5625	0.6299	140.0	2.4803	3.2677	1.8898	5.2362	5XD	928-000-450
9/16	0.5625	0.6299	140.0	5.0394	6.1024	1.8898	8.0315	8XD	928-000-688
37/64	0.5781	0.6299	140.0	1.7717	2.5591	1.8898	4.5276	3XD	928-000-214
37/64	0.5781	0.6299	140.0	2.4803	3.2677	1.8898	5.2362	5XD	928-000-452
37/64	0.5781	0.6299	140.0	5.0394	6.1024	1.8898	8.0315	8XD	928-000-690
19/32	0.5938	0.6299	140.0	1.7717	2.5591	1.8898	4.5276	3XD	928-000-216
19/32	0.5938	0.6299	140.0	2.4803	3.2677	1.8898	5.2362	5XD	928-000-454
19/32	0.5938	0.6299	140.0	5.0394	6.1024	1.8898	8.0315	8XD	928-000-692
39/64	0.6094	0.6299	140.0	1.7717	2.5591	1.8898	4.5276	3XD	928-000-217
39/64	0.6094	0.6299	140.0	2.4803	3.2677	1.8898	5.2362	5XD	928-000-455
39/64	0.6094	0.6299	140.0	5.0394	6.1024	1.8898	8.0315	8XD	928-000-693
5/8	0.6250	0.6299	140.0	1.7717	2.5591	1.8898	4.5276	3XD	928-000-219
5/8	0.6250	0.6299	140.0	2.4803	3.2677	1.8898	5.2362	5XD	928-000-457
5/8	0.6250	0.6299	140.0	5.0394	6.1024	1.8898	8.0315	8XD	928-000-695
41/64	0.6406	0.7087	140.0	2.0079	2.8740	1.8898	4.8425	3XD	928-000-221
41/64	0.6406	0.7087	140.0	2.7953	3.6614	1.8898	5.6299	5XD	928-000-459
41/64	0.6406	0.7087	140.0	5.6693	6.6929	1.8898	8.7795	8XD	928-000-697
21/32	0.6562	0.7087	140.0	2.0079	2.8740	1.8898	4.8425	3XD	928-000-223
21/32	0.6562	0.7087	140.0	2.7953	3.6614	1.8898	5.6299	5XD	928-000-461
21/32	0.6562	0.7087	140.0	5.6693	6.6929	1.8898	8.7795	8XD	928-000-699
43/64	0.6719	0.7087	140.0	2.0079	2.874	1.8898	4.8425	3XD	928-000-225
43/64	0.6719	0.7087	140.0	2.7953	3.6614	1.8898	5.6299	5XD	928-000-463
43/64	0.6719	0.7087	140.0	5.6693	6.6929	1.8898	8.7795	8XD	928-000-701
11/16	0.6875	0.7087	140.0	2.0079	2.8740	1.8898	4.8425	3XD	928-000-226
11/16	0.6875	0.7087	140.0	2.7953	3.6614	1.8898	5.6299	5XD	928-000-464
11/16	0.6875	0.7087	140.0	5.6693	6.6929	1.8898	8.7795	8XD	928-000-702
45/64	0.7031	0.7087	140.0	2.0079	2.8740	1.8898	4.8425	3XD	928-000-228
45/64	0.7031	0.7087	140.0	2.7953	3.6614	1.8898	5.6299	5XD	928-000-466
45/64	0.7031	0.7087	140.0	5.6693	6.6929	1.8898	8.7795	8XD	928-000-704
23/32	0.7188	0.7874	140.0	2.1654	3.1102	1.9685	5.1969	3XD	928-000-230
23/32	0.7188	0.7874	140.0	3.0315	3.9764	1.9685	6.0630	5XD	928-000-468
23/32	0.7188	0.7874	140.0	6.2992	7.2835	1.9685	9.6457	8XD	928-000-706
47/64	0.7344	0.7874	140.0	2.1654	3.1102	1.9685	5.1969	3XD	928-000-232
47/64	0.7344	0.7874	140.0	3.0315	3.9764	1.9685	6.0630	5XD	928-000-470
47/64	0.7344	0.7874	140.0	6.2992	7.2835	1.9685	9.6457	8XD	928-000-708
3/4	0.7500	0.7874	140.0	2.1654	3.1102	1.9685	5.1969	3XD	928-000-234
3/4	0.7500	0.7874	140.0	3.0315	3.9764	1.9685	6.0630	5XD	928-000-472
3/4	0.7500	0.7874	140.0	6.2992	7.2835	1.9685	9.6457	8XD	928-000-710
49/64	0.7656	0.7874	140.0	2.1654	3.1102	1.9685	5.1969	3XD	928-000-235
49/64	0.7656	0.7874	140.0	3.0315	3.9764	1.9685	6.0630	5XD	928-000-473
49/64	0.7656	0.7874	140.0	6.2992	7.2835	1.9685	9.6457	8XD	928-000-711
25/32	0.7812	0.7874	140.0	2.1654	3.1102	1.9685	5.1969	3XD	928-000-237
25/32	0.7812	0.7874	140.0	3.0315	3.9764	1.9685	6.0630	5XD	928-000-475
25/32	0.7812	0.7874	140.0	6.2992	7.2835	1.9685	9.6457	8XD	928-000-713



DC [mm]	DC [in.]	DCONMS [mm]	A [°]	LU [mm]	LF [mm]	LS [mm]	L [mm]	L/DC RATIO	PRODUCT #
0.80	0.0315	4.00	140.0	3.00	5.00	28.00	58.00	3XD	928-000-001
0.80	0.0315	4.00	140.0	5.00	7.00	28.00	58.00	5XD	928-000-239
0.80	0.0315	4.00	140.0	7.00	9.00	28.00	58.00	8XD	928-000-477
0.90	0.0354	4.00	140.0	3.00	5.00	28.00	58.00	3XD	928-000-005
0.90	0.0354	4.00	140.0	5.00	7.00	28.00	58.00	5XD	928-000-243
0.90	0.0354	4.00	140.0	7.00	9.00	28.00	58.00	8XD	928-000-481
1.00	0.0394	4.00	140.0	5.00	7.00	28.00	58.00	3XD	928-000-010
1.00	0.0394	4.00	140.0	6.00	9.00	28.00	58.00	5XD	928-000-248
1.00	0.0394	4.00	140.0	10.00	12.00	28.00	58.00	8XD	928-000-486
1.10	0.0433	4.00	140.0	5.00	7.00	28.00	58.00	3XD	928-000-015
1.10	0.0433	4.00	140.0	6.00	9.00	28.00	58.00	5XD	928-000-253
1.10	0.0433	4.00	140.0	10.00	12.00	28.00	58.00	8XD	928-000-491
1.12	0.0441	4.00	140.0	5.00	7.00	28.00	58.00	3XD	928-000-016
1.12	0.0441	4.00	140.0	6.00	9.00	28.00	58.00	5XD	928-000-254
1.12	0.0441	4.00	140.0	10.00	12.00	28.00	58.00	8XD	928-000-492
1.20	0.0472	4.00	140.0	5.00	7.00	28.00	58.00	3XD	928-000-019
1.20	0.0472	4.00	140.0	6.00	9.00	28.00	58.00	5XD	928-000-257
1.20	0.0472	4.00	140.0	10.00	12.00	28.00	58.00	8XD	928-000-495
1.25	0.0492	4.00	140.0	5.00	7.00	28.00	58.00	3XD	928-000-020
1.25	0.0492	4.00	140.0	6.00	9.00	28.00	58.00	5XD	928-000-258
1.25	0.0492	4.00	140.0	10.00	12.00	28.00	58.00	8XD	928-000-496
1.27	0.0500	4.00	140.0	5.00	7.00	28.00	58.00	3XD	928-000-021
1.27	0.0500	4.00	140.0	6.00	9.00	28.00	58.00	5XD	928-000-259
1.27	0.0500	4.00	140.0	10.00	12.00	28.00	58.00	8XD	928-000-497
1.30	0.0512	4.00	140.0	5.00	7.00	28.00	58.00	3XD	928-000-022
1.30	0.0512	4.00	140.0	6.00	9.00	28.00	58.00	5XD	928-000-260
1.30	0.0512	4.00	140.0	10.00	12.00	28.00	58.00	8XD	928-000-498
1.35	0.0531	4.00	140.0	5.00	7.00	28.00	58.00	3XD	928-000-024
1.35	0.0531	4.00	140.0	6.00	9.00	28.00	58.00	5XD	928-000-262
1.35	0.0531	4.00	140.0	10.00	12.00	28.00	58.00	8XD	928-000-500
1.45	0.0571	4.00	140.0	6.00	9.00	28.00	58.00	3XD	928-000-026
1.45	0.0571	4.00	140.0	9.00	12.00	28.00	58.00	5XD	928-000-264
1.45	0.0571	4.00	140.0	15.00	18.00	28.00	58.00	8XD	928-000-502
1.50	0.0590	4.00	140.0	6.00	9.00	28.00	58.00	3XD	928-000-027
1.50	0.0590	4.00	140.0	9.00	12.00	28.00	58.00	5XD	928-000-265
1.50	0.0590	4.00	140.0	15.00	18.00	28.00	58.00	8XD	928-000-503
1.55	0.0610	4.00	140.0	6.00	9.00	28.00	58.00	3XD	928-000-029
1.55	0.0610	4.00	140.0	9.00	12.00	28.00	58.00	5XD	928-000-267
1.55	0.0610	4.00	140.0	15.00	18.00	28.00	58.00	8XD	928-000-505
1.60	0.0630	4.00	140.0	6.00	9.00	28.00	58.00	3XD	928-000-031
1.60	0.0630	4.00	140.0	9.00	12.00	28.00	58.00	5XD	928-000-269
1.60	0.0630	4.00	140.0	15.00	18.00	28.00	58.00	8XD	928-000-507
2.00	0.0787	4.00	140.0	9.00	13.00	28.00	58.00	3XD	928-000-039
2.00	0.0787	4.00	140.0	14.00	18.00	28.00	58.00	5XD	928-000-277
2.00	0.0787	4.00	140.0	22.00	26.00	28.00	66.00	8XD	928-000-515

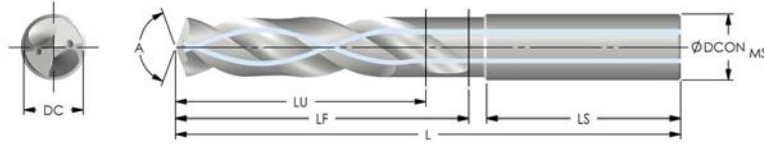


DC [mm]	DC [in.]	DCONMS [mm]	A [°]	LU [mm]	LF [mm]	LS [mm]	L [mm]	L/DC RATIO	PRODUCT #
2.50	0.0984	4.00	140.0.0	12.00	17.00	28.00	58.00	3XD	928-000-048
2.50	0.0984	4.00	140.0	17.00	22.00	28.00	58.00	5XD	928-000-286
2.50	0.0984	4.00	140.0	25.00	30.00	28.00	66.00	8XD	928-000-524
3.00	0.1181	6.00	140.0	14.00	20.00	36.00	62.00	3XD	928-000-058
3.00	0.1181	6.00	140.0	23.00	28.00	36.00	66.00	5XD	928-000-296
3.00	0.1181	6.00	140.0	33.00	40.00	36.00	78.00	8XD	928-000-534
3.20	0.1259	6.00	140.0	14.00	20.00	36.00	62.00	3XD	928-000-061
3.20	0.1259	6.00	140.0	23.00	28.00	36.00	66.00	5XD	928-000-299
3.20	0.1259	6.00	140.0	33.00	40.00	36.00	78.00	8XD	928-000-537
3.50	0.1378	6.00	140.0	14.00	20.00	36.00	62.00	3XD	928-000-064
3.50	0.1378	6.00	140.0	23.00	28.00	36.00	66.00	5XD	928-000-302
3.50	0.1378	6.00	140.0	33.00	40.00	36.00	78.00	8XD	928-000-540
3.60	0.1417	6.00	140.0	14.00	20.00	36.00	62.00	3XD	928-000-067
3.60	0.1417	6.00	140.0	23.00	28.00	36.00	66.00	5XD	928-000-305
3.60	0.1417	6.00	140.0	33.00	40.00	36.00	78.00	8XD	928-000-543
3.90	0.1535	6.00	140.0	17.00	24.00	36.00	66.00	3XD	928-000-072
3.90	0.1535	6.00	140.0	29.00	36.00	36.00	74.00	5XD	928-000-310
3.90	0.1535	6.00	140.0	41.00	49.00	36.00	87.00	8XD	928-000-548
4.00	0.1574	6.00	140.0	17.00	24.00	36.00	66.00	3XD	928-000-076
4.00	0.1574	6.00	140.0	29.00	36.00	36.00	74.00	5XD	928-000-314
4.00	0.1574	6.00	140.0	41.00	49.00	36.00	87.00	8XD	928-000-552
4.10	0.1614	6.00	140.0	17.00	24.00	36.00	66.00	3XD	928-000-079
4.10	0.1614	6.00	140.0	29.00	36.00	36.00	74.00	5XD	928-000-317
4.10	0.1614	6.00	140.0	41.00	49.00	36.00	87.00	8XD	928-000-555
4.40	0.1732	6.00	140.0	17.00	24.00	36.00	66.00	3XD	928-000-084
4.40	0.1732	6.00	140.0	29.00	36.00	36.00	74.00	5XD	928-000-322
4.40	0.1732	6.00	140.0	41.00	49.00	36.00	87.00	8XD	928-000-560
4.50	0.1771	6.00	140.0	17.00	24.00	36.00	66.00	3XD	928-000-086
4.50	0.1771	6.00	140.0	29.00	36.00	36.00	74.00	5XD	928-000-324
4.50	0.1771	6.00	140.0	41.00	49.00	36.00	87.00	8XD	928-000-562
4.60	0.1811	6.00	140.0	17.00	24.00	36.00	66.00	3XD	928-000-088
4.60	0.1811	6.00	140.0	29.00	36.00	36.00	74.00	5XD	928-000-326
4.60	0.1811	6.00	140.0	41.00	49.00	36.00	87.00	8XD	928-000-564
4.70	0.1850	6.00	140.0	17.00	24.00	36.00	66.00	3XD	928-000-090
4.70	0.1850	6.00	140.0	29.00	36.00	36.00	74.00	5XD	928-000-328
4.70	0.1850	6.00	140.0	41.00	49.00	36.00	87.00	8XD	928-000-566
4.80	0.1889	6.00	140.0	20.00	28.00	36.00	66.00	3XD	928-000-092
4.80	0.1889	6.00	140.0	35.00	44.00	36.00	82.00	5XD	928-000-330
4.80	0.1889	6.00	140.0	48.00	56.00	36.00	94.00	8XD	928-000-568
4.90	0.1929	6.00	140.0	20.00	28.00	36.00	66.00	3XD	928-000-094
4.90	0.1929	6.00	140.0	35.00	44.00	36.00	82.00	5XD	928-000-332
4.90	0.1929	6.00	140.0	48.00	56.00	36.00	94.00	8XD	928-000-570
5.00	0.1968	6.00	140.0	20.00	28.00	36.00	66.00	3XD	928-000-097
5.00	0.1968	6.00	140.0	35.00	44.00	36.00	82.00	5XD	928-000-335
5.00	0.1968	6.00	140.0	48.00	56.00	36.00	94.00	8XD	928-000-573

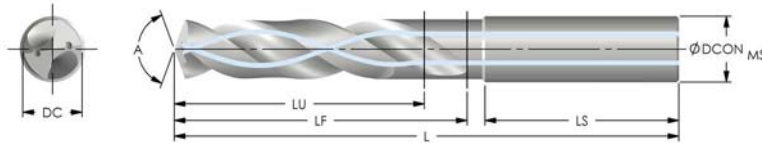


DC [mm]	DC [in.]	DCONMS [mm]	A [°]	LU [mm]	LF [mm]	LS [mm]	L [mm]	L/DC RATIO	PRODUCT #
5.10	0.2008	6.00	140.0	20.00	28.00	36.00	66.00	3XD	928-000-099
5.10	0.2008	6.00	140.0	35.00	44.00	36.00	82.00	5XD	928-000-337
5.10	0.2008	6.00	140.0	48.00	56.00	36.00	94.00	8XD	928-000-575
5.20	0.2047	6.00	140.0	20.00	28.00	36.00	66.00	3XD	928-000-103
5.20	0.2047	6.00	140.0	35.00	44.00	36.00	82.00	5XD	928-000-341
5.20	0.2047	6.00	140.0	48.00	56.00	36.00	94.00	8XD	928-000-579
5.30	0.2087	6.00	140.0	20.00	28.00	36.00	66.00	3XD	928-000-105
5.30	0.2087	6.00	140.0	35.00	44.00	36.00	82.00	5XD	928-000-343
5.30	0.2087	6.00	140.0	48.00	56.00	36.00	94.00	8XD	928-000-581
5.40	0.2126	6.00	140.0	20.00	28.00	36.00	66.00	3XD	928-000-107
5.40	0.2126	6.00	140.0	35.00	44.00	36.00	82.00	5XD	928-000-345
5.40	0.2126	6.00	140.0	48.00	56.00	36.00	94.00	8XD	928-000-583
5.50	0.2165	6.00	140.0	20.00	28.00	36.00	66.00	3XD	928-000-109
5.50	0.2165	6.00	140.0	35.00	44.00	36.00	82.00	5XD	928-000-347
5.50	0.2165	6.00	140.0	48.00	56.00	36.00	94.00	8XD	928-000-585
5.60	0.2205	6.00	140.0	20.00	28.00	36.00	66.00	3XD	928-000-111
5.60	0.2205	6.00	140.0	35.00	44.00	36.00	82.00	5XD	928-000-349
5.60	0.2205	6.00	140.0	48.00	56.00	36.00	94.00	8XD	928-000-587
5.70	0.2244	6.00	140.0	20.00	28.00	36.00	66.00	3XD	928-000-113
5.70	0.2244	6.00	140.0	35.00	44.00	36.00	82.00	5XD	928-000-351
5.70	0.2244	6.00	140.0	48.00	56.00	36.00	94.00	8XD	928-000-589
5.80	0.2283	6.00	140.0	20.00	28.00	36.00	66.00	3XD	928-000-115
5.80	0.2283	6.00	140.0	35.00	44.00	36.00	82.00	5XD	928-000-353
5.80	0.2283	6.00	140.0	48.00	56.00	36.00	94.00	8XD	928-000-591
5.90	0.2323	6.00	140.0	20.00	28.00	36.00	66.00	3XD	928-000-116
5.90	0.2323	6.00	140.0	35.00	44.00	36.00	82.00	5XD	928-000-354
5.90	0.2323	6.00	140.0	48.00	56.00	36.00	94.00	8XD	928-000-592
6.00	0.2362	6.00	140.0	20.00	28.00	36.00	66.00	3XD	928-000-119
6.00	0.2362	6.00	140.0	35.00	44.00	36.00	82.00	5XD	928-000-357
6.00	0.2362	6.00	140.0	48.00	56.00	36.00	94.00	8XD	928-000-595
6.10	0.2402	8.00	140.0	24.00	34.00	36.00	79.00	3XD	928-000-121
6.10	0.2402	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-359
6.10	0.2402	8.00	140.0	57.00	67.00	36.00	105.00	8XD	928-000-597
6.20	0.2441	8.00	140.0	24.00	34.00	36.00	79.00	3XD	928-000-123
6.20	0.2441	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-361
6.20	0.2441	8.00	140.0	57.00	67.00	36.00	105.00	8XD	928-000-599
6.30	0.2480	8.00	140.0	24.00	34.00	36.00	79.00	3XD	928-000-125
6.30	0.2480	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-363
6.30	0.2480	8.00	140.0	57.00	67.00	36.00	105.00	8XD	928-000-601
6.40	0.2520	8.00	140.0	24.00	34.00	36.00	79.00	3XD	928-000-127
6.40	0.2520	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-365
6.40	0.2520	8.00	140.0	57.00	67.00	36.00	105.00	8XD	928-000-603
6.50	0.2559	8.00	140.0	24.00	34.00	36.00	79.00	3XD	928-000-128
6.50	0.2559	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-366
6.50	0.2559	8.00	140.0	57.00	67.00	36.00	105.00	8XD	928-000-604

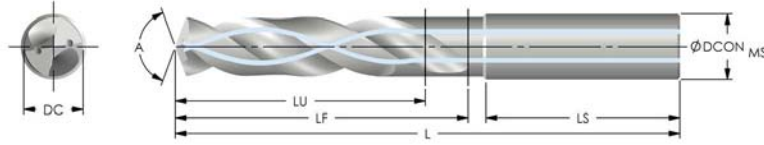
CARBIDE



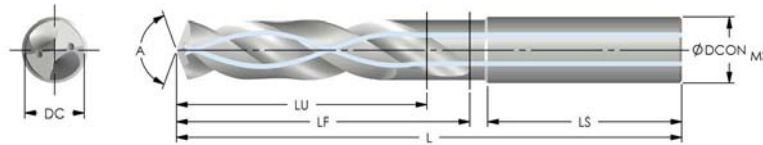
DC [mm]	DC [in.]	DCONMS [mm]	A [°]	LU [mm]	LF [mm]	LS [mm]	L [mm]	L/DC RATIO	PRODUCT #
6.60	0.2598	8.00	140.0	24.00	34.00	36.00	79.00	3XD	928-000-130
6.60	0.2598	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-368
6.60	0.2598	8.00	140.0	57.00	67.00	36.00	105.00	8XD	928-000-606
6.70	0.2638	8.00	140.0	24.00	34.00	36.00	79.00	3XD	928-000-132
6.70	0.2638	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-370
6.70	0.2638	8.00	140.0	57.00	67.00	36.00	105.00	8XD	928-000-608
6.80	0.2677	8.00	140.0	24.00	34.00	36.00	79.00	3XD	928-000-135
6.80	0.2677	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-373
6.80	0.2677	8.00	140.0	57.00	67.00	36.00	105.00	8XD	928-000-611
6.90	0.2716	8.00	140.0	24.00	34.00	36.00	79.00	3XD	928-000-136
6.90	0.2716	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-374
6.90	0.2716	8.00	140.0	57.00	67.00	36.00	105.00	8XD	928-000-612
7.00	0.2756	8.00	140.0	24.00	34.00	36.00	79.00	3XD	928-000-138
7.00	0.2756	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-376
7.00	0.2756	8.00	140.0	57.00	67.00	36.00	105.00	8XD	928-000-614
7.10	0.2795	8.00	140.0	29.00	41.00	36.00	79.00	3XD	928-000-140
7.10	0.2795	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-378
7.10	0.2795	8.00	140.0	64.00	77.00	36.00	115.00	8XD	928-000-616
7.20	0.2835	8.00	140.0	29.00	41.00	36.00	79.00	3XD	928-000-143
7.20	0.2835	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-381
7.20	0.2835	8.00	140.0	64.00	77.00	36.00	115.00	8XD	928-000-619
7.30	0.2874	8.00	140.0	29.00	41.00	36.00	79.00	3XD	928-000-144
7.30	0.2874	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-382
7.30	0.2874	8.00	140.0	64.00	77.00	36.00	115.00	8XD	928-000-620
7.40	0.2913	8.00	140.0	29.00	41.00	36.00	79.00	3XD	928-000-146
7.40	0.2913	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-384
7.40	0.2913	8.00	140.0	64.00	77.00	36.00	115.00	8XD	928-000-622
7.50	0.2953	8.00	140.0	29.00	41.00	36.00	79.00	3XD	928-000-148
7.50	0.2953	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-386
7.50	0.2953	8.00	140.0	64.00	77.00	36.00	115.00	8XD	928-000-624
7.60	0.2992	8.00	140.0	29.00	41.00	36.00	79.00	3XD	928-000-150
7.60	0.2992	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-388
7.60	0.2992	8.00	140.0	64.00	77.00	36.00	115.00	8XD	928-000-626
7.70	0.3031	8.00	140.0	29.00	41.00	36.00	79.00	3XD	928-000-152
7.70	0.3031	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-390
7.70	0.3031	8.00	140.0	64.00	77.00	36.00	115.00	8XD	928-000-628
7.80	0.3071	8.00	140.0	29.00	41.00	36.00	79.00	3XD	928-000-153
7.80	0.3071	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-391
7.80	0.3071	8.00	140.0	64.00	77.00	36.00	115.00	8XD	928-000-629
7.90	0.3110	8.00	140.0	29.00	41.00	36.00	79.00	3XD	928-000-154
7.90	0.3110	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-392
7.90	0.3110	8.00	140.0	64.00	77.00	36.00	115.00	8XD	928-000-630
8.00	0.3150	8.00	140.0	29.00	41.00	36.00	79.00	3XD	928-000-156
8.00	0.3150	8.00	140.0	43.00	53.00	36.00	91.00	5XD	928-000-394
8.00	0.3150	8.00	140.0	64.00	77.00	36.00	115.00	8XD	928-000-632
8.10	0.3189	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-158
8.10	0.3189	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-396
8.10	0.3189	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-634



DC [mm]	DC [in.]	DCONMS [mm]	A [°]	LU [mm]	LF [mm]	LS [mm]	L [mm]	L/DC RATIO	PRODUCT #
8.20	0.3228	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-159
8.20	0.3228	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-397
8.20	0.3228	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-635
8.30	0.3268	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-161
8.30	0.3268	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-399
8.30	0.3268	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-637
8.40	0.3307	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-163
8.40	0.3307	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-401
8.40	0.3307	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-639
8.50	0.3346	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-165
8.50	0.3346	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-403
8.50	0.3346	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-641
8.60	0.3386	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-166
8.60	0.3386	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-404
8.60	0.3386	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-642
8.70	0.3425	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-168
8.70	0.3425	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-406
8.70	0.3425	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-644
8.80	0.3465	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-170
8.80	0.3465	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-408
8.80	0.3465	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-646
8.90	0.3504	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-172
8.90	0.3504	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-410
8.90	0.3504	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-648
9.00	0.3543	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-173
9.00	0.3543	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-411
9.00	0.3543	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-649
9.10	0.3583	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-175
9.10	0.3583	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-413
9.10	0.3583	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-651
9.20	0.3622	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-177
9.20	0.3622	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-415
9.20	0.3622	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-653
9.30	0.3661	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-178
9.30	0.3661	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-416
9.30	0.3661	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-654
9.40	0.3701	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-180
9.40	0.3701	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-418
9.40	0.3701	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-656
9.50	0.3740	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-181
9.50	0.3740	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-419
9.50	0.3740	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-657
9.60	0.3780	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-184
9.60	0.3780	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-422
9.60	0.3780	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-660



DC [mm]	DC [in.]	DCONMS [mm]	A [°]	LU [mm]	LF [mm]	LS [mm]	L [mm]	L/DC RATIO	PRODUCT #
9.70	0.3819	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-185
9.70	0.3819	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-423
9.70	0.3819	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-661
9.80	0.3858	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-186
9.80	0.3858	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-424
9.80	0.3858	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-662
9.90	0.3898	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-188
9.90	0.3898	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-426
9.90	0.3898	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-664
10.00	0.3937	10.00	140.0	35.00	47.00	40.00	89.00	3XD	928-000-190
10.00	0.3937	10.00	140.0	49.00	61.00	40.00	103.00	5XD	928-000-428
10.00	0.3937	10.00	140.0	75.00	89.00	40.00	131.00	8XD	928-000-666
10.50	0.4134	12.00	140.0	40.00	55.00	45.00	102.00	3XD	928-000-195
10.50	0.4134	12.00	140.0	56.00	71.00	45.00	118.00	5XD	928-000-433
10.50	0.4134	12.00	140.0	92.00	108.00	45.00	155.00	8XD	928-000-671
11.00	0.4331	12.00	140.0	40.00	55.00	45.00	102.00	3XD	928-000-197
11.00	0.4331	12.00	140.0	56.00	71.00	45.00	118.00	5XD	928-000-435
11.00	0.4331	12.00	140.0	92.00	108.00	45.00	155.00	8XD	928-000-673
11.50	0.4528	12.00	140.0	40.00	55.00	45.00	102.00	3XD	928-000-199
11.50	0.4528	12.00	140.0	56.00	71.00	45.00	118.00	5XD	928-000-437
11.50	0.4528	12.00	140.0	92.00	108.00	45.00	155.00	8XD	928-000-675
12.00	0.4724	12.00	140.0	40.00	55.00	45.00	102.00	3XD	928-000-202
12.00	0.4724	12.00	140.0	56.00	71.00	45.00	118.00	5XD	928-000-440
12.00	0.4724	12.00	140.0	92.00	108.00	45.00	155.00	8XD	928-000-678
12.50	0.4921	14.00	140.0	43.00	60.00	45.00	107.00	3XD	928-000-204
12.50	0.4921	14.00	140.0	60.00	77.00	45.00	124.00	5XD	928-000-442
12.50	0.4921	14.00	140.0	110.00	135.00	45.00	182.00	8XD	928-000-680
13.00	0.5118	14.00	140.0	43.00	60.00	45.00	107.00	3XD	928-000-206
13.00	0.5118	14.00	140.0	60.00	77.00	45.00	124.00	5XD	928-000-444
13.00	0.5118	14.00	140.0	110.00	135.00	45.00	182.00	8XD	928-000-682
13.50	0.5315	14.00	140.0	43.00	60.00	45.00	107.00	3XD	928-000-209
13.50	0.5315	14.00	140.0	60.00	77.00	45.00	124.00	5XD	928-000-447
13.50	0.5315	14.00	140.0	110.00	135.00	45.00	182.00	8XD	928-000-685
14.00	0.5512	14.00	140.0	43.00	60.00	45.00	107.00	3XD	928-000-211
14.00	0.5512	14.00	140.0	60.00	77.00	45.00	124.00	5XD	928-000-449
14.00	0.5512	14.00	140.0	110.00	135.00	45.00	182.00	8XD	928-000-687
14.50	0.5709	16.00	140.0	45.00	65.00	48.00	115.00	3XD	928-000-213
14.50	0.5709	16.00	140.0	63.00	83.00	48.00	133.00	5XD	928-000-451
14.50	0.5709	16.00	140.0	128.00	155.00	48.00	204.00	8XD	928-000-689
15.00	0.5906	16.00	140.0	45.00	65.00	48.00	115.00	3XD	928-000-215
15.00	0.5906	16.00	140.0	63.00	83.00	48.00	133.00	5XD	928-000-453
15.00	0.5906	16.00	140.0	128.00	155.00	48.00	204.00	8XD	928-000-691
15.50	0.6102	16.00	140.0	45.00	65.00	48.00	115.00	3XD	928-000-218
15.50	0.6102	16.00	140.0	63.00	83.00	48.00	133.00	5XD	928-000-456
15.50	0.6102	16.00	140.0	128.00	155.00	48.00	204.00	8XD	928-000-694

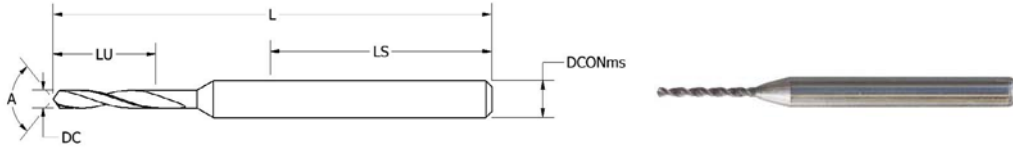


DC [mm]	DC [in.]	DCONMS [mm]	A [°]	LU [mm]	LF [mm]	LS [mm]	L [mm]	L/DC RATIO	PRODUCT #
16.00	0.6299	16.00	140.0	45.00	65.00	48.00	115.00	3XD	928-000-220
16.00	0.6299	16.00	140.0	63.00	83.00	48.00	133.00	5XD	928-000-458
16.00	0.6299	16.00	140.0	128.00	155.00	48.00	204.00	8XD	928-000-696
16.50	0.6496	18.00	140.0	51.00	73.00	48.00	123.00	3XD	928-000-222
16.50	0.6496	18.00	140.0	71.00	93.00	48.00	143.00	5XD	928-000-460
16.50	0.6496	18.00	140.0	144.00	170.00	48.00	223.00	8XD	928-000-698
17.00	0.6693	18.00	140.0	51.00	73.00	48.00	123.00	3XD	928-000-224
17.00	0.6693	18.00	140.0	71.00	93.00	48.00	143.00	5XD	928-000-462
17.00	0.6693	18.00	140.0	144.00	170.00	48.00	223.00	8XD	928-000-700
17.50	0.6890	18.00	140.0	51.00	73.00	48.00	123.00	3XD	928-000-227
17.50	0.6890	18.00	140.0	71.00	93.00	48.00	143.00	5XD	928-000-465
17.50	0.6890	18.00	140.0	144.00	170.00	48.00	223.00	8XD	928-000-703
18.00	0.7087	18.00	140.0	51.00	73.00	48.00	123.00	3XD	928-000-229
18.00	0.7087	18.00	140.0	71.00	93.00	48.00	143.00	5XD	928-000-467
18.00	0.7087	18.00	140.0	144.00	170.00	48.00	223.00	8XD	928-000-705
18.50	0.7283	20.00	140.0	55.00	79.00	50.00	132.00	3XD	928-000-231
18.50	0.7283	20.00	140.0	77.00	101.00	50.00	154.00	5XD	928-000-469
18.50	0.7283	20.00	140.0	160.00	185.00	50.00	245.00	8XD	928-000-707
19.00	0.7480	20.00	140.0	55.00	79.00	50.00	132.00	3XD	928-000-233
19.00	0.7480	20.00	140.0	77.00	101.00	50.00	154.00	5XD	928-000-471
19.00	0.7480	20.00	140.0	160.00	185.00	50.00	245.00	8XD	928-000-709
19.50	0.7677	20.00	140.0	55.00	79.00	50.00	132.00	3XD	928-000-236
19.50	0.7677	20.00	140.0	77.00	101.00	50.00	154.00	5XD	928-000-474
19.50	0.7677	20.00	140.0	160.00	185.00	50.00	245.00	8XD	928-000-712
20.00	0.7874	20.00	140.0	55.00	79.00	50.00	132.00	3XD	928-000-238
20.00	0.7874	20.00	140.0	77.00	101.00	50.00	154.00	5XD	928-000-476
20.00	0.7874	20.00	140.0	160.00	185.00	50.00	245.00	8XD	928-000-714

CARBIDE



Ø .004"-.025" (.10MM - .64MM)

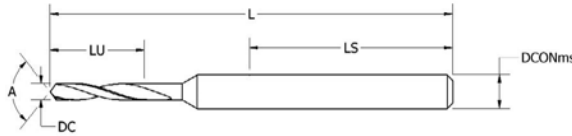


SIZE	DC [in.] [mm]		DCONMS [in.]	LU [in.]	A [°]	LS [in.]	L [in.]	UNCOATED
								2 FLUTE
# 102	0.0040	0.10	0.1250	0.0700	118.0	0.7500	1.5000	925-000-001
# 99	0.0050	0.13	0.1250	0.0700	118.0	0.7500	1.5000	925-000-002
# 97	0.0059	0.15	0.1250	0.1200	118.0	0.7500	1.5000	925-000-003
# 96	0.0063	0.16	0.1250	0.1200	118.0	0.7500	1.5000	925-000-004
# 95	0.0067	0.17	0.1250	0.1200	118.0	0.7500	1.5000	925-000-005
# 94	0.0071	0.18	0.1250	0.1500	118.0	0.7500	1.5000	925-000-006
# 93	0.0075	0.19	0.1250	0.1500	118.0	0.7500	1.5000	925-000-007
# 92	0.0079	0.20	0.1250	0.1500	118.0	0.7500	1.5000	925-000-008
# 91	0.0083	0.21	0.1250	0.1500	118.0	0.7500	1.5000	925-000-009
# 90	0.0087	0.22	0.1250	0.1500	118.0	0.7500	1.5000	925-000-010
# 89	0.0091	0.23	0.1250	0.2200	118.0	0.7500	1.5000	925-000-011
# 88	0.0095	0.24	0.1250	0.2200	118.0	0.7500	1.5000	925-000-012
.25mm	0.0098	0.25	0.1250	0.2200	118.0	0.7500	1.5000	925-000-013
# 87	0.0100	0.25	0.1250	0.2200	118.0	0.7500	1.5000	925-000-014
# 86	0.0105	0.27	0.1250	0.2200	118.0	0.7500	1.5000	925-000-015
# 85	0.0110	0.28	0.1250	0.2200	118.0	0.7500	1.5000	925-000-016
# 84	0.0115	0.29	0.1250	0.2200	118.0	0.7500	1.5000	925-000-017
.30mm	0.0118	0.30	0.1250	0.2800	118.0	0.7500	1.5000	925-000-018
# 83	0.0120	0.305	0.1250	0.2800	118.0	0.7500	1.5000	925-000-019
# 82	0.0125	0.32	0.1250	0.2800	118.0	0.7500	1.5000	925-000-020
# 81	0.0130	0.33	0.1250	0.2800	130.0	0.7500	1.5000	925-000-021
# 80	0.0135	0.34	0.1250	0.2800	130.0	0.7500	1.5000	925-000-022
.35mm	0.0138	0.35	0.1250	0.2800	130.0	0.7500	1.5000	925-000-023
# 79	0.0145	0.37	0.1250	0.2800	130.0	0.7500	1.5000	925-000-024
1/64"	0.0156	0.396	0.1250	0.2950	130.0	0.7500	1.5000	925-000-025
.40mm	0.0157	0.40	0.1250	0.2950	130.0	0.7500	1.5000	925-000-026
# 78	0.0160	0.41	0.1250	0.2950	130.0	0.7500	1.5000	925-000-027
.45mm	0.0177	0.45	0.1250	0.2950	130.0	0.7500	1.5000	925-000-028
# 77	0.0180	0.46	0.1250	0.2950	130.0	0.7500	1.5000	925-000-029
.50mm	0.0197	0.50	0.1250	0.3100	130.0	0.7500	1.5000	925-000-030
# 76	0.0200	0.51	0.1250	0.3100	130.0	0.7500	1.5000	925-000-031
# 75	0.0210	0.53	0.1250	0.3100	130.0	0.7500	1.5000	925-000-032
.55mm	0.0217	0.55	0.1250	0.3400	130.0	0.7500	1.5000	925-000-033
# 74	0.0225	0.57	0.1250	0.3400	130.0	0.7500	1.5000	925-000-034
.60mm	0.0236	0.60	0.1250	0.3400	130.0	0.7500	1.5000	925-000-035
# 73	0.0240	0.61	0.1250	0.3400	130.0	0.7500	1.5000	925-000-036
# 72	0.0250	0.64	0.1250	0.3400	130.0	0.7500	1.5000	925-000-037

Ø .0256"-.0571" (.65MM - 1.45MM)



CARBIDE

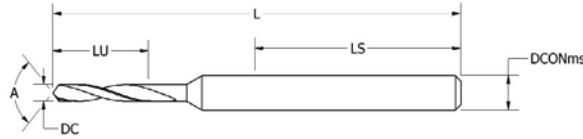


SIZE	DC [in.] [mm]		DCONMS [in.]	LU [in.]	A [°]	LS [in.]	L [in.]	UNCOATED
								2 FLUTE
.65mm	0.0256	0.65	0.1250	0.3400	130.0	0.7500	1.5000	925-000-038
# 71	0.0260	0.66	0.1250	0.3400	130.0	0.7500	1.5000	925-000-039
.70mm	0.0276	0.70	0.1250	0.4000	130.0	0.7500	1.5000	925-000-040
# 70	0.0280	0.71	0.1250	0.4000	130.0	0.7500	1.5000	925-000-041
# 69	0.0292	0.74	0.1250	0.4000	130.0	0.7500	1.5000	925-000-042
.75mm	0.0295	0.75	0.1250	0.4000	130.0	0.7500	1.5000	925-000-043
# 68	0.0310	0.787	0.1250	0.4000	130.0	0.7500	1.5000	925-000-044
1/32"	0.0312	0.79	0.1250	0.4000	130.0	0.7500	1.5000	925-000-045
.80mm	0.0315	0.80	0.1250	0.4000	130.0	0.7500	1.5000	925-000-046
# 67	0.0320	0.81	0.1250	0.4000	130.0	0.7500	1.5000	925-000-047
# 66	0.0330	0.84	0.1250	0.4000	130.0	0.7500	1.5000	925-000-048
.85mm	0.0335	0.85	0.1250	0.4000	130.0	0.7500	1.5000	925-000-049
# 65	0.0350	0.89	0.1250	0.4000	130.0	0.7500	1.5000	925-000-050
.90mm	0.0354	0.90	0.1250	0.4000	130.0	0.7500	1.5000	925-000-051
# 64	0.0360	0.91	0.1250	0.4000	130.0	0.7500	1.5000	925-000-052
# 63	0.0370	0.94	0.1250	0.4000	130.0	0.7500	1.5000	925-000-053
.95mm	0.0374	0.95	0.1250	0.4000	130.0	0.7500	1.5000	925-000-054
# 62	0.0380	0.97	0.1250	0.4000	130.0	0.7500	1.5000	925-000-055
# 61	0.0390	0.99	0.1250	0.4000	130.0	0.7500	1.5000	925-000-056
1.0mm	0.0394	1.00	0.1250	0.4000	130.0	0.7500	1.5000	925-000-057
# 60	0.0400	1.02	0.1250	0.4000	130.0	0.7500	1.5000	925-000-058
# 59	0.0410	1.04	0.1250	0.4000	130.0	0.7500	1.5000	925-000-059
1.05mm	0.0413	1.05	0.1250	0.4000	130.0	0.7500	1.5000	925-000-060
# 58	0.0420	1.07	0.1250	0.4000	130.0	0.7500	1.5000	925-000-061
# 57	0.0420	1.09	0.1250	0.4000	130.0	0.7500	1.5000	925-000-062
1.10mm	0.0433	1.10	0.1250	0.4000	130.0	0.7500	1.5000	925-000-063
1.12mm	0.0440	1.12	0.1250	0.4000	130.0	0.7500	1.5000	925-000-064
1.15mm	0.0453	1.15	0.1250	0.4000	130.0	0.7500	1.5000	925-000-065
# 56	0.0465	1.18	0.1250	0.4000	130.0	0.7500	1.5000	925-000-066
3/64"	0.0469	1.19	0.1250	0.4000	130.0	0.7500	1.5000	925-000-067
1.20mm	0.0472	1.20	0.1250	0.4000	130.0	0.7500	1.5000	925-000-068
1.25mm	0.0492	1.25	0.1250	0.4000	130.0	0.7500	1.5000	925-000-069
1.30mm	0.0512	1.30	0.1250	0.4000	130.0	0.7500	1.5000	925-000-070
# 55	0.0520	1.32	0.1250	0.4000	130.0	0.7500	1.5000	925-000-071
1.35mm	0.0531	1.35	0.1250	0.4000	130.0	0.7500	1.5000	925-000-072
# 54	0.0550	1.397	0.1250	0.4000	130.0	0.7500	1.5000	925-000-073
1.40mm	0.0551	1.40	0.1250	0.4000	130.0	0.7500	1.5000	925-000-074
1.45mm	0.0571	1.45	0.1250	0.4000	130.0	0.7500	1.5000	925-000-075

CARBIDE



Ø .0591"-.0925" (1.50MM -2.35MM)

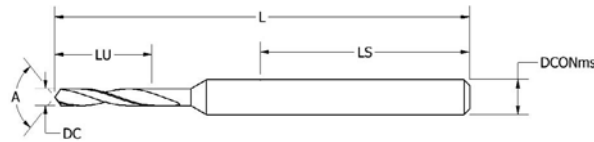


SIZE	DC [in.] [mm]		DCONMS [in.]	LU [in.]	A [°]	LS [in.]	L [in.]	UNCOATED
								2 FLUTE
1.50mm	0.0591	1.50	0.1250	0.4000	130.0	0.7500	1.5000	925-000-076
# 53	0.0595	1.51	0.1250	0.4000	130.0	0.7500	1.5000	925-000-077
1.55mm	0.0610	1.55	0.1250	0.4000	130.0	0.7500	1.5000	925-000-078
1/16"	0.0625	1.59	0.1250	0.4000	130.0	0.7500	1.5000	925-000-079
1.60mm	0.0630	1.60	0.1250	0.4000	130.0	0.7500	1.5000	925-000-080
# 52	0.0635	1.61	0.1250	0.4000	130.0	0.7500	1.5000	925-000-081
1.65mm	0.0650	1.65	0.1250	0.4000	130.0	0.7500	1.5000	925-000-082
1.70mm	0.0669	1.699	0.1250	0.4000	130.0	0.7500	1.5000	925-000-083
# 51	0.0670	1.70	0.1250	0.4000	130.0	0.7500	1.5000	925-000-084
1.75mm	0.0689	1.75	0.1250	0.4000	130.0	0.7500	1.5000	925-000-085
# 50	0.0700	1.78	0.1250	0.4000	130.0	0.7500	1.5000	925-000-086
1.80mm	0.0709	1.80	0.1250	0.4000	130.0	0.7500	1.5000	925-000-087
1.85mm	0.0728	1.85	0.1250	0.4000	130.0	0.7500	1.5000	925-000-088
# 49	0.0730	1.85	0.1250	0.4000	130.0	0.7500	1.5000	925-000-089
1.90mm	0.0748	1.90	0.1250	0.4000	130.0	0.7500	1.5000	925-000-090
# 48	0.0760	1.93	0.1250	0.4000	130.0	0.7500	1.5000	925-000-091
1.95mm	0.0768	1.95	0.1250	0.4000	130.0	0.7500	1.5000	925-000-092
5/64"	0.0781	1.98	0.1250	0.4000	130.0	0.7500	1.5000	925-000-093
# 47	0.0785	1.99	0.1250	0.4000	130.0	0.7500	1.5000	925-000-094
2.0mm	0.0787	2.00	0.1250	0.4000	130.0	0.7500	1.5000	925-000-095
2.05mm	0.0807	2.05	0.1250	0.4000	130.0	0.7500	1.5000	925-000-096
# 46	0.0810	2.06	0.1250	0.4000	130.0	0.7500	1.5000	925-000-097
# 45	0.0820	2.08	0.1250	0.4000	130.0	0.7500	1.5000	925-000-098
2.10mm	0.0827	2.10	0.1250	0.4000	130.0	0.7500	1.5000	925-000-099
2.15mm	0.0846	2.15	0.1250	0.4000	130.0	0.7500	1.5000	925-000-100
# 44	0.0860	2.18	0.1250	0.4000	130.0	0.7500	1.5000	925-000-101
2.20mm	0.0866	2.20	0.1250	0.4000	130.0	0.7500	1.5000	925-000-102
2.25mm	0.0886	2.25	0.1250	0.4000	130.0	0.7500	1.5000	925-000-103
# 43	0.0890	2.26	0.1250	0.4000	130.0	0.7500	1.5000	925-000-104
2.30mm	0.0906	2.30	0.1250	0.4000	130.0	0.7500	1.5000	925-000-105
2.35mm	0.0925	2.35	0.1250	0.4000	130.0	0.7500	1.5000	925-000-106

Ø .0935"-.1250" (2.37MM - 3.18MM)



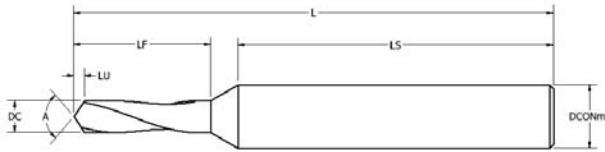
CARBIDE



SIZE	DC [in.] [mm]		DCONMS [in.]	LU [in.]	A [°]	LS [in.]	L [in.]	UNCOATED
								2 FLUTE
# 42	0.0935	2.37	0.1250	0.4000	130.0	0.7500	1.5000	925-000-107
3/32"	0.0938	2.38	0.1250	0.4000	130.0	0.7500	1.5000	925-000-108
2.40mm	0.0945	2.4	0.1250	0.4000	130.0	0.7500	1.5000	925-000-109
# 41	0.0960	2.44	0.1250	0.4000	130.0	0.7500	1.5000	925-000-110
2.45mm	0.0965	2.45	0.1250	0.4000	130.0	0.7500	1.5000	925-000-111
# 40	0.0980	2.49	0.1250	0.4000	130.0	0.7500	1.5000	925-000-112
2.50mm	0.0984	2.50	0.1250	0.4000	130.0	0.7500	1.5000	925-000-113
# 39	0.0995	2.53	0.1250	0.4000	130.0	0.7500	1.5000	925-000-114
2.55mm	0.1004	2.55	0.1250	0.4000	130.0	0.7500	1.5000	925-000-115
# 38	0.1015	2.58	0.1250	0.4000	130.0	0.7500	1.5000	925-000-116
2.60mm	0.1024	2.60	0.1250	0.4000	130.0	0.7500	1.5000	925-000-117
# 37	0.1040	2.64	0.1250	0.4000	130.0	0.7500	1.5000	925-000-118
2.65mm	0.1043	2.65	0.1250	0.4000	130.0	0.7500	1.5000	925-000-119
2.70mm	0.1063	2.70	0.1250	0.4000	130.0	0.7500	1.5000	925-000-120
# 36	0.1065	2.71	0.1250	0.4000	130.0	0.7500	1.5000	925-000-121
2.75mm	0.1083	2.75	0.1250	0.4000	130.0	0.7500	1.5000	925-000-122
7/64"	0.1094	2.78	0.1250	0.4000	130.0	0.7500	1.5000	925-000-123
# 35	0.1100	2.79	0.1250	0.4000	130.0	0.7500	1.5000	925-000-124
2.80mm	0.1102	2.80	0.1250	0.4000	130.0	0.7500	1.5000	925-000-125
# 34	0.1110	2.82	0.1250	0.4000	130.0	0.7500	1.5000	925-000-126
2.85mm	0.1122	2.85	0.1250	0.4000	130.0	0.7500	1.5000	925-000-127
# 33	0.1130	2.87	0.1250	0.4000	130.0	0.7500	1.5000	925-000-128
2.90mm	0.1142	2.90	0.1250	0.4000	130.0	0.7500	1.5000	925-000-129
# 32	0.1160	2.946	0.1250	0.4000	130.0	0.7500	1.5000	925-000-130
2.95mm	0.1161	2.95	0.1250	0.4000	130.0	0.7500	1.5000	925-000-131
3.00mm	0.1181	3.00	0.1250	0.4000	130.0	0.7500	1.5000	925-000-132
# 31	0.1200	3.05	0.1250	0.4000	130.0	0.7500	1.5000	925-000-133
3.05mm	0.1201	3.05	0.1250	0.4000	130.0	0.7500	1.5000	925-000-134
3.10mm	0.1220	3.10	0.1250	0.4000	130.0	0.7500	1.5000	925-000-135
3.15mm	0.1240	3.15	0.1250	0.4000	130.0	0.7500	1.5000	925-000-136
1/8"	0.1250	3.18	0.1250	0.4000	130.0	0.7500	1.5000	925-000-137

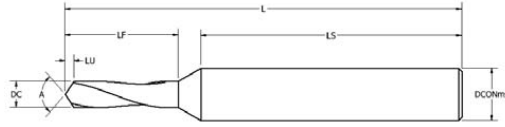
SPOTTING DRILLS

ARCH[®]
Cutting Tools



DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	LF [in.]	LU [in.]	A [°]	UNCOATED	AITiN COATED
							2 FLUTE	2 FLUTE
0.0300	0.1250	1.1656	1.5000	0.0900	0.0161	82.0	956-000-262	956-000-329
0.0600	0.1250	1.1528	1.5000	0.1800	0.0334	82.0	956-000-286	956-000-347
0.1250	0.1250	1.1250	1.5000	0.3750	0.0702	82.0	956-000-308	956-000-369
0.0050	0.1250	1.1663	1.5000	0.0250	0.0007	90.0	956-000-238	956-000-311
0.0100	0.1250	1.1692	1.5000	0.0350	0.0040	90.0	956-000-242	956-000-315
0.0150	0.1250	1.1720	1.5000	0.0450	0.0065	90.0	956-000-248	956-000-319
0.0200	0.1250	1.1799	1.5000	0.0500	0.0090	90.0	956-000-254	956-000-323
0.0250	0.1250	1.1678	1.5000	0.0750	0.0115	90.0	956-000-255	956-000-324
0.0300	0.1250	1.1656	1.5000	0.0900	0.0140	90.0	956-000-263	956-000-330
0.0312	0.1250	1.1687	1.5000	0.0900	0.0146	90.0	956-000-267	956-000-334
0.0400	0.1250	1.1614	1.5000	0.1200	0.0190	90.0	956-000-272	956-000-335
0.0450	0.1250	1.1592	1.5000	0.1350	0.0215	90.0	956-000-275	956-000-338
0.0215	0.1250	1.1584	1.5000	0.1410	0.0225	90.0	956-000-278	956-000-341
0.0500	0.1250	1.1571	1.5000	0.1500	0.0240	90.0	956-000-279	956-000-342
0.0600	0.1250	1.1528	1.5000	0.1800	0.0290	90.0	956-000-287	956-000-348
0.0625	0.1250	1.1392	1.5000	0.2000	0.0303	90.0	956-000-291	956-000-352
0.0780	0.1250	1.1451	1.5000	0.2340	0.0375	90.0	956-000-294	956-000-355
0.0900	0.1250	1.1400	1.5000	0.2700	0.0435	90.0	956-000-297	956-000-358
0.0938	0.1250	1.1407	1.5000	0.2790	0.0165	90.0	956-000-300	956-000-361
0.1000	0.1250	1.1357	1.5000	0.3000	0.0485	90.0	956-000-302	956-000-363
0.1180	0.1250	1.1280	1.5000	0.3540	0.0575	90.0	956-000-303	956-000-364
0.1250	0.1250	1.1250	1.5000	0.3750	0.0610	90.0	956-000-309	956-000-370
0.0300	0.1250	1.1656	1.5000	0.0900	0.0117	100.0	956-000-258	956-000-325
0.0600	0.1250	1.1528	1.5000	0.1800	0.0243	100.0	956-000-282	956-000-343
0.1250	0.1250	1.1250	1.5000	0.3750	0.0512	100.0	956-000-304	956-000-365

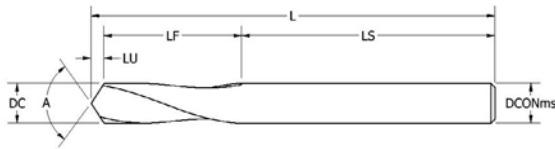
CARBIDE



TYPE 1 VIEW



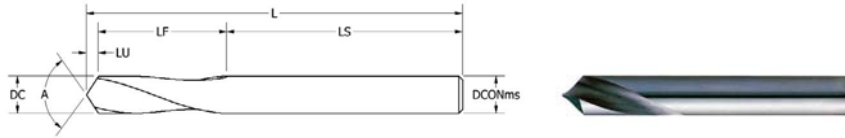
DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	LF [in.]	LU [in.]	A [°]	UNCOATED	AITIN COATED
							2 FLUTE	2 FLUTE
0.0100	0.1250	1.1742	1.5000	0.0300	0.0023	120.0	956-000-239	956-000-312
0.0150	0.1250	1.1720	1.5000	0.0450	0.0038	120.0	956-000-245	956-000-316
0.0200	0.1250	1.1799	1.5000	0.0500	0.0052	120.0	956-000-251	956-000-320
0.0300	0.1250	1.1656	1.5000	0.0900	0.0081	120.0	956-000-259	956-000-326
0.0312	0.1250	1.1687	1.5000	0.0900	0.0084	120.0	956-000-264	956-000-331
0.0450	0.1250	1.1592	1.5000	0.1350	0.0124	120.0	956-000-273	956-000-336
0.0470	0.1250	1.1584	1.5000	0.1410	0.0130	120.0	956-000-276	956-000-339
0.0600	0.1250	1.1528	1.5000	0.1800	0.0167	120.0	956-000-283	956-000-344
0.0625	0.1250	1.1532	1.5000	0.1860	0.0175	120.0	956-000-288	956-000-349
0.0780	0.1250	1.1451	1.5000	0.2340	0.0217	120.0	956-000-292	956-000-353
0.0900	0.1250	1.1400	1.5000	0.2700	0.0158	120.0	956-000-295	956-000-356
0.0938	0.1250	1.1407	1.5000	0.2790	0.0165	120.0	956-000-298	956-000-359
0.1250	0.1250	1.1250	1.5000	0.3750	0.0163	120.0	956-000-305	956-000-366
0.0050	0.1250	1.1663	1.5000	0.0250	0.0007	130.0	956-000-237	956-000-310
0.0100	0.1250	1.1692	1.5000	0.0350	0.0019	130.0	956-000-240	956-000-313
0.0150	0.1250	1.1720	1.5000	0.0450	0.0030	130.0	956-000-246	956-000-317
0.0200	0.1250	1.1799	1.5000	0.0500	0.0042	130.0	956-000-252	956-000-321
0.0312	0.1250	1.1687	1.5000	0.0900	0.0068	130.0	956-000-265	956-000-332
0.0625	0.1250	1.1392	1.5000	0.2000	0.0141	130.0	956-000-289	956-000-350
0.0938	0.1250	1.1407	1.5000	0.2790	0.0212	130.0	956-000-301	956-000-362
0.0100	0.1250	1.1742	1.5000	0.0300	0.0015	140.0	956-000-241	956-000-314
0.0150	0.1250	1.1720	1.5000	0.0450	0.0024	140.0	956-000-247	956-000-318
0.0200	0.1250	1.1799	1.5000	0.0500	0.0042	140.0	956-000-253	956-000-322
0.0300	0.1250	1.1656	1.5000	0.0900	0.0051	140.0	956-000-260	956-000-327
0.0312	0.1250	1.1687	1.5000	0.0900	0.0053	140.0	956-000-266	956-000-333
0.0450	0.1250	1.1592	1.5000	0.1350	0.0078	140.0	956-000-274	956-000-337
0.0470	0.1250	1.1584	1.5000	0.1410	0.0082	140.0	956-000-277	956-000-340
0.0600	0.1250	1.1528	1.5000	0.1800	0.0106	140.0	956-000-284	956-000-345
0.0625	0.1250	1.1532	1.5000	0.1860	0.0110	140.0	956-000-290	956-000-351
0.0780	0.1250	1.1451	1.5000	0.2340	0.0136	140.0	956-000-293	956-000-354
0.0900	0.1250	1.1400	1.5000	0.2700	0.0158	140.0	956-000-296	956-000-357
0.0938	0.1250	1.1407	1.5000	0.2790	0.0165	140.0	956-000-299	956-000-360
0.1250	0.1250	1.1250	1.5000	0.3750	0.0222	140.0	956-000-306	956-000-367
0.0300	0.1250	1.1656	1.5000	0.0900	0.0038	150.0	956-000-261	956-000-328
0.0600	0.1250	1.1528	1.5000	0.1800	0.0078	150.0	956-000-285	956-000-346
0.1250	0.1250	1.1250	1.5000	0.3750	0.0163	150.0	956-000-307	956-000-368



DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	LF [in.]	LU [in.]	A [°]	UNCOATED	AITIN COATED
							2 FLUTE	2 FLUTE
0.1250	0.1250	1.1250	1.5000	0.3750	0.0580	90.0	956-000-388	956-000-373
0.1250	0.1250	3.6250	4.0000	0.3750	0.0580	90.0	956-000-383	956-000-380
0.1870	0.1875	1.3750	2.0000	0.6250	0.0880	90.0	956-000-391	956-000-376
0.1870	0.1875	3.3750	4.0000	0.6250	0.0880	90.0	956-000-384	956-000-381
0.2500	0.2500	1.7500	2.5000	0.7500	0.1180	90.0	956-000-394	956-000-379
0.2500	0.2500	5.2500	6.0000	0.7500	0.1180	90.0	956-000-385	956-000-382
0.1250	0.1250	1.1250	1.5000	0.3750	0.0335	120.0	956-000-386	956-000-371
0.1870	0.1875	1.3750	2.0000	0.6250	0.0508	120.0	956-000-389	956-000-374
0.2500	0.2500	1.7500	2.5000	0.7500	0.0681	120.0	956-000-392	956-000-377
0.1250	0.1250	1.1250	1.5000	0.3750	0.0211	140.0	956-000-387	956-000-372
0.1870	0.1875	1.3750	2.0000	0.6250	0.0320	140.0	956-000-390	956-000-375
0.2500	0.2500	1.7500	2.5000	0.7500	0.0429	140.0	956-000-393	956-000-378

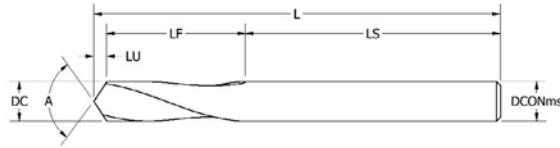


DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	LF [in.]	LU [in.]	A [°]	UNCOATED	TIN COATED	AITIN COATED
0.1250	0.1250	1.1250	1.1250	0.3146	0.0604	82.0	956-000-125	956-000-617	ON REQUEST
0.1250	0.1250	1.1250	1.1250	0.3225	0.0525	90.0	956-000-121	956-000-122	ON REQUEST
0.1250	0.1250	1.1250	1.1250	0.3447	0.0303	120.0	956-000-123	956-000-124	ON REQUEST
0.1250	0.1250	1.1250	1.1250	0.3569	0.0181	142.0	956-000-126	956-000-620	ON REQUEST
0.1875	0.1875	1.4375	1.4375	0.4736	0.0889	82.0	956-000-127	956-000-623	ON REQUEST
0.1875	0.1875	1.4375	1.4375	0.4853	0.0773	90.0	956-000-128	956-000-129	ON REQUEST
0.1875	0.1875	1.4375	1.4375	0.5179	0.0446	120.0	956-000-130	956-000-131	ON REQUEST
0.1875	0.1875	1.4375	1.4375	0.5359	0.0266	142.0	956-000-132	956-000-630	ON REQUEST
0.2500	0.2500	1.7500	1.7500	0.6309	0.1191	82.0	956-000-120	956-000-610	ON REQUEST
0.2500	0.2500	1.7500	1.7500	0.6465	0.1035	90.0	956-000-115	956-000-116	ON REQUEST
0.2500	0.2500	1.7500	1.7500	0.6902	0.0598	120.0	956-000-117	956-000-118	ON REQUEST
0.2500	0.2500	1.7500	1.7500	0.7144	0.0356	142.0	956-000-119	956-000-607	ON REQUEST
0.3125	0.3125	1.7500	1.7500	0.5990	0.1510	82.0	956-000-138	956-000-640	ON REQUEST
0.3125	0.3125	1.7500	1.7500	0.6188	0.1313	90.0	956-000-133	956-000-134	ON REQUEST
0.3125	0.3125	1.7500	1.7500	0.6742	0.0758	120.0	956-000-135	956-000-136	ON REQUEST
0.3125	0.3125	1.7500	1.7500	0.7048	0.0452	142.0	956-000-137	956-000-637	ON REQUEST
0.3750	0.3750	1.7500	1.7500	0.5700	0.1800	82.0	956-000-150	956-000-660	ON REQUEST
0.3750	0.3750	1.7500	1.7500	0.5935	0.1565	90.0	956-000-145	956-000-146	ON REQUEST
0.3750	0.3750	1.7500	1.7500	0.6596	0.0904	120.0	956-000-147	956-000-148	ON REQUEST
0.3750	0.3750	1.7500	1.7500	0.6961	0.0539	142.0	956-000-149	956-000-657	ON REQUEST
0.5000	0.5000	2.0000	2.0000	0.7584	0.2416	82.0	956-000-114	956-000-600	ON REQUEST
0.5000	0.5000	2.0000	2.0000	0.7900	0.2100	90.0	956-000-109	956-000-110	ON REQUEST
0.5000	0.5000	2.0000	2.0000	0.8788	0.1212	120.0	956-000-111	956-000-112	ON REQUEST
0.5000	0.5000	2.0000	2.0000	0.9277	0.0723	142.0	956-000-113	956-000-597	ON REQUEST
0.6250	0.6250	2.5000	2.5000	0.7067	0.2933	82.0	956-000-156	956-000-670	ON REQUEST
0.6250	0.6250	2.5000	2.5000	0.7450	0.2550	90.0	956-000-151	956-000-152	ON REQUEST
0.6250	0.6250	2.5000	2.5000	0.8528	0.1472	120.0	956-000-153	956-000-154	ON REQUEST
0.6250	0.6250	2.5000	2.5000	0.9122	0.0878	142.0	956-000-155	956-000-667	ON REQUEST
0.7500	0.7500	2.8750	2.8750	0.7713	0.3537	82.0	956-000-144	956-000-650	ON REQUEST
0.7500	0.7500	2.8750	2.8750	0.8175	0.3075	90.0	956-000-139	956-000-140	ON REQUEST
0.7500	0.7500	2.8750	2.8750	0.9475	0.1775	120.0	956-000-141	956-000-142	ON REQUEST
0.7500	0.7500	2.8750	2.8750	1.0191	0.1059	142.0	956-000-143	956-000-647	ON REQUEST

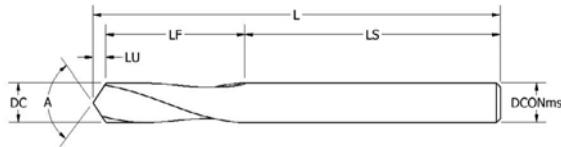


DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	LF [in.]	LU [in.]	A [°]	HSS	HSS-TiN	COBALT
0.2500	0.2500	1.6229	2.6271	0.8771	0.1271	82.0	956-000-213	956-000-841	956-000-214
0.2500	0.2500	3.1229	4.1271	0.8771	0.1271	82.0	956-000-215	956-000-847	956-000-216
0.2500	0.2500	5.1229	6.1271	0.8771	0.1271	82.0	956-000-217	956-000-853	956-000-218
0.3750	0.3750	1.8102	3.3148	1.3148	0.1898	82.0	956-000-225	956-000-877	956-000-226
0.3750	0.3750	3.6852	5.1898	1.3148	0.1898	82.0	956-000-227	956-000-883	956-000-228
0.3750	0.3750	5.6852	7.1898	1.3148	0.1898	82.0	956-000-229	956-000-889	956-000-230
0.5000	0.5000	2.1196	4.0054	1.6304	0.2554	82.0	956-000-207	956-000-823	956-000-208
0.5000	0.5000	4.3696	6.2554	1.6304	0.2554	82.0	956-000-209	956-000-829	956-000-210
0.5000	0.5000	6.3696	8.2554	1.6304	0.2554	82.0	956-000-211	956-000-835	956-000-212
0.6250	0.6250	2.0977	4.3750	1.9511	0.3261	82.0	956-000-231	956-000-895	956-000-232
0.6250	0.6250	5.0489	7.3261	1.9511	0.3261	82.0	956-000-233	956-000-901	956-000-234
0.6250	0.6250	7.0489	9.3261	1.9511	0.3261	82.0	956-000-235	956-000-907	956-000-236
0.7500	0.7500	2.7281	5.3969	2.2719	0.3969	82.0	956-000-219	956-000-859	956-000-220
0.7500	0.7500	5.7281	8.3969	2.2719	0.3969	82.0	956-000-221	956-000-865	956-000-222
0.7500	0.7500	7.7281	10.3969	2.2719	0.3969	82.0	956-000-223	956-000-871	956-000-224
1.0000	1.0000	3.4801	6.2699	2.5199	0.2699	82.0	956-000-201	956-000-805	956-000-202
1.0000	1.0000	5.2122	8.5378	2.7878	0.5378	82.0	956-000-203	956-000-811	956-000-204
1.0000	1.0000	7.2122	10.5378	2.7878	0.5378	82.0	956-000-205	956-000-814	956-000-206
0.2500	0.2500	1.6395	2.6105	0.8605	0.1105	90.0	956-000-019	956-000-020	956-000-023
0.2500	0.2500	3.1395	4.1105	0.8605	0.1105	90.0	956-000-021	956-000-022	956-000-026
0.2500	0.2500	5.1395	6.1105	0.8605	0.1105	90.0	956-000-024	956-000-025	956-000-027
0.3750	0.3750	1.8350	3.2900	1.2900	0.1650	90.0	956-000-037	956-000-038	956-000-041
0.3750	0.3750	3.7100	5.1650	1.2900	0.1650	90.0	956-000-039	956-000-040	956-000-044
0.3750	0.3750	5.7100	7.1650	1.2900	0.1650	90.0	956-000-042	956-000-043	956-000-045
0.5000	0.5000	2.1530	3.9720	1.5970	0.2220	90.0	956-000-010	956-000-011	956-000-014
0.5000	0.5000	4.4030	6.2220	1.5970	0.2220	90.0	956-000-012	956-000-013	956-000-017
0.5000	0.5000	6.4030	8.2220	1.5970	0.2220	90.0	956-000-015	956-000-016	956-000-018
0.6250	0.6250	2.1830	4.3750	1.9085	0.2835	90.0	956-000-046	956-000-047	956-000-050
0.6250	0.6250	5.0915	7.2835	1.9085	0.2835	90.0	956-000-048	956-000-049	956-000-053
0.6250	0.6250	7.0915	9.2835	1.9085	0.2835	90.0	956-000-051	956-000-052	956-000-054
0.7500	0.7500	2.7800	5.3450	2.2200	0.3450	90.0	956-000-028	956-000-029	956-000-032
0.7500	0.7500	5.7800	8.3450	2.2200	0.3450	90.0	956-000-030	956-000-031	956-000-035
0.7500	0.7500	7.7800	10.3450	2.2200	0.3450	90.0	956-000-033	956-000-034	956-000-036
1.0000	1.0000	3.2825	6.4675	2.7175	0.4675	90.0	956-000-001	956-000-002	956-000-005
1.0000	1.0000	5.2825	8.4675	2.7175	0.4675	90.0	956-000-003	956-000-004	956-000-008
1.0000	1.0000	7.2825	10.4675	2.7175	0.4675	90.0	956-000-006	956-000-007	956-000-009

HSS
COBALT



DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	LF [in.]	LU [in.]	A [°]	HSS	HSS-TiN	COBALT
0.2500	0.2500	1.6395	2.6105	0.8605	0.1105	120.0	956-000-073	956-000-074	956-000-077
0.2500	0.2500	3.1395	4.1105	0.8605	0.1105	120.0	956-000-075	956-000-076	956-000-080
0.2500	0.2500	5.1395	6.1105	0.8605	0.1105	120.0	956-000-078	956-000-079	956-000-081
0.3750	0.3750	1.8350	3.2900	1.2900	0.1650	120.0	956-000-091	956-000-092	956-000-095
0.3750	0.3750	3.7100	5.1650	1.2900	0.1650	120.0	956-000-093	956-000-094	956-000-098
0.3750	0.3750	5.7100	7.1650	1.2900	0.1650	120.0	956-000-096	956-000-097	956-000-099
0.5000	0.5000	2.1530	3.9720	1.5970	0.2220	120.0	956-000-064	956-000-065	956-000-068
0.5000	0.5000	4.4030	6.2220	1.5970	0.2220	120.0	956-000-066	956-000-067	956-000-071
0.5000	0.5000	6.4030	8.2220	1.5970	0.2220	120.0	956-000-069	956-000-070	956-000-072
0.6250	0.6250	2.1830	4.3750	1.9085	0.2835	120.0	956-000-100	956-000-101	956-000-104
0.6250	0.6250	5.0915	7.2835	1.9085	0.2835	120.0	956-000-102	956-000-103	956-000-107
0.6250	0.6250	7.0915	9.2835	1.9085	0.2835	120.0	956-000-105	956-000-106	956-000-108
0.7500	0.7500	2.7800	5.3450	2.2200	0.3450	120.0	956-000-082	956-000-083	956-000-086
0.7500	0.7500	5.7800	8.3450	2.2200	0.3450	120.0	956-000-084	956-000-085	956-000-089
0.7500	0.7500	7.7800	10.3450	2.2200	0.3450	120.0	956-000-087	956-000-088	956-000-090
1.0000	1.0000	3.2825	6.4675	2.7175	0.4675	120.0	956-000-055	956-000-056	956-000-059
1.0000	1.0000	5.2825	8.4675	2.7175	0.4675	120.0	956-000-057	956-000-058	956-000-062
1.0000	1.0000	7.2825	10.4675	2.7175	0.4675	120.0	956-000-060	956-000-061	956-000-063



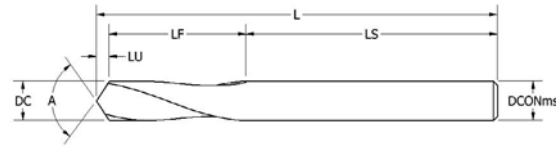
METRIC



DC [mm]	DCONMS [mm]	LS [mm]	L [mm]	LF [mm]	LU [mm]	90°	120°
2.00	2.00	41.00	49.00	7.15	0.85	956-000-157	956-000-170
3.00	3.00	40.00	50.00	8.68	1.32	956-000-158	956-000-171
4.00	4.00	40.00	52.00	10.22	1.78	956-000-159	956-000-172
5.00	5.00	45.00	60.00	12.78	2.22	956-000-160	956-000-173
6.00	6.00	46.00	66.00	17.38	2.62	956-000-161	956-000-174
8.00	8.00	54.00	79.00	21.48	3.52	956-000-162	956-000-175
10.00	10.00	64.00	89.00	20.50	4.50	956-000-163	956-000-176
12.00	12.00	72.00	102.00	24.71	5.29	956-000-164	956-000-177
14.00	14.00	80.00	115.00	28.71	6.29	956-000-165	956-000-178
16.00	16.00	80.00	115.00	27.71	7.29	956-000-166	956-000-179
18.00	18.00	90.00	130.00	31.76	8.24	956-000-167	956-000-180
20.00	20.00	91.00	131.00	30.76	9.24	956-000-168	956-000-181
25.00	25.00	93.00	138.00	33.41	11.59	956-000-169	956-000-182
3.00	3.00	70.00	80.00	8.68	1.32	956-000-183	956-000-192
4.00	4.00	88.00	100.00	10.22	1.78	956-000-184	956-000-193
5.00	5.00	105.00	120.00	12.78	2.22	956-000-185	956-000-194
6.00	6.00	120.00	140.00	17.38	2.62	956-000-186	956-000-195
8.00	8.00	115.00	140.00	21.48	3.52	956-000-187	956-000-196
10.00	10.00	145.00	170.00	20.50	4.50	956-000-188	956-000-197
12.00	12.00	140.00	170.00	24.71	5.29	956-000-189	956-000-198
16.00	16.00	165.00	200.00	27.71	7.29	956-000-190	956-000-199
20.00	20.00	160.00	200.00	30.76	9.24	956-000-191	956-000-200



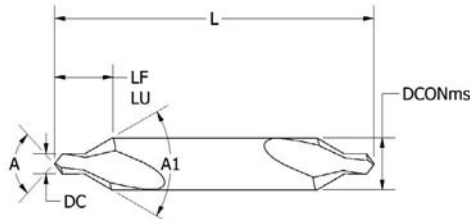
HSS



DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	LF [in.]	LU [in.]	A [°]	RH	RH-TiN	LH
0.1250	0.1250	0.8750	1.2500	0.3185	0.0565	90.0	955-000-009	955-000-010	955-000-012
0.1875	0.1875	0.8750	1.3750	0.4148	0.0853	90.0	955-000-015	955-000-016	955-000-018
0.2500	0.2500	0.8750	1.5000	0.5120	0.1130	90.0	955-000-021	955-000-022	955-000-024
0.3125	0.3125	0.8750	1.5000	0.4843	0.1408	90.0	955-000-027	955-000-028	955-000-030
0.3750	0.3750	1.0000	2.0000	0.8305	0.1695	90.0	955-000-039	955-000-040	955-000-042
0.4375	0.4375	1.0000	2.0000	0.8003	0.1998	90.0	955-000-051	955-000-052	955-000-054
0.5000	0.5000	1.0000	2.0000	0.7720	0.2280	90.0	955-000-003	955-000-004	955-000-006
0.5625	0.5625	1.0000	2.0000	0.7433	0.2568	90.0	955-000-063	955-000-064	955-000-066
0.6250	0.6250	1.1250	2.2500	0.8375	0.2875	90.0	955-000-045	955-000-046	955-000-048
0.7500	0.7500	1.1250	2.2500	0.7755	0.3495	90.0	955-000-033	955-000-034	955-000-036
0.8750	0.8750	1.2500	2.5000	0.8425	0.4075	90.0	955-000-057	955-000-058	955-000-060
1.0000	1.0000	1.2500	2.5000	0.7830	0.4670	90.0	955-000-069	955-000-070	955-000-072
1.2500	1.2500	2.0000	4.0000	1.4155	0.5845	90.0	955-000-081	955-000-082	955-000-084
1.5000	1.5000	2.5000	5.0000	1.8005	0.6995	90.0	955-000-075	955-000-076	955-000-078
1.7500	1.7500	2.7500	5.5000	1.9330	0.8170	90.0	955-000-087	955-000-088	955-000-090
0.1250	0.1250	0.8750	1.2500	0.3411	0.0339	118.0	955-000-007	955-000-008	955-000-011
0.1875	0.1875	0.8750	1.3750	0.4488	0.0512	118.0	955-000-013	955-000-014	955-000-017
0.2500	0.2500	0.8750	1.5000	0.5571	0.0679	118.0	955-000-019	955-000-020	955-000-023
0.3125	0.3125	0.8750	1.5000	0.5404	0.0846	118.0	955-000-025	955-000-026	955-000-029
0.3750	0.3750	1.0000	2.0000	0.8982	0.1018	118.0	955-000-037	955-000-038	955-000-041
0.4375	0.4375	1.0000	2.0000	0.8800	0.1200	118.0	955-000-049	955-000-050	955-000-053
0.5000	0.5000	1.0000	2.0000	0.8630	0.1370	118.0	955-000-001	955-000-002	955-000-005
0.5625	0.5625	1.0000	2.0000	0.8457	0.1543	118.0	955-000-061	955-000-062	955-000-065
0.6250	0.6250	1.1250	2.2500	0.9523	0.1727	118.0	955-000-043	955-000-044	955-000-047
0.7500	0.7500	1.1250	2.2500	0.9150	0.2100	118.0	955-000-031	955-000-032	955-000-035
0.8750	0.8750	1.2500	2.5000	1.0051	0.2449	118.0	955-000-055	955-000-056	955-000-059
1.0000	1.0000	1.2500	2.5000	0.9694	0.2806	118.0	955-000-067	955-000-068	955-000-071
1.2500	1.2500	2.0000	4.0000	1.6488	0.3512	118.0	955-000-079	955-000-080	955-000-083
1.5000	1.5000	2.5000	5.0000	2.0797	0.4203	118.0	955-000-073	955-000-074	955-000-077
1.7500	1.7500	2.7500	5.5000	2.2591	0.4909	118.0	955-000-085	955-000-086	955-000-089

CENTER DRILLS

ARCH[®]
Cutting Tools



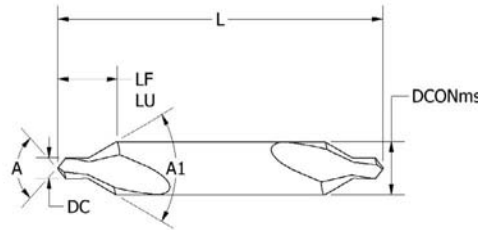
SIZE	DC [in.]	DCONMS [in.]	L [in.]	LF/LU [in.]	A [°]	A1 [°]	Material	Hand of Cut	UNCOATED	TiN COATED	TiAIN COATED
									2 FLUTE	2 FLUTE	2 FLUTE
#3-0 - 3/32	0.0200	0.0938	1.1250	0.0888	118.0	60.0	HSS	R	906-000-590	N/A	N/A
#2-0 - 3/32	0.0250	0.0938	1.1250	0.0907	118.0	60.0	HSS	R	906-000-591	N/A	N/A
#0 - 3/32	0.0310	0.0938	1.1250	0.0930	118.0	60.0	HSS	R	906-000-592	N/A	N/A
#5-0 SE	0.0100	0.1250	1.5000	0.1121	118.0	60.0	Carbide	R	906-000-409	906-001-568	906-001-566
#5-0 x 82° SE	0.0100	0.1250	1.5000	0.0786	118.0	82.0	Carbide	R	906-000-410	906-001-571	906-001-569
#5-0 x 90° SE	0.0100	0.1250	1.5000	0.0700	118.0	90.0	Carbide	R	906-000-411	906-001-574	906-001-572
#5-0	0.0100	0.1250	1.2500	0.1121	118.0	60.0	HSS	R	906-000-005	906-000-006	906-000-597
#5-0	0.0100	0.1250	1.2500	0.1121	118.0	60.0	HSS	L	906-000-009	906-000-610	906-000-608
#5-0 x 82°	0.0100	0.1250	1.2500	0.0786	118.0	82.0	HSS	R	906-000-044	906-000-045	906-000-693
#5-0 x 90°	0.0100	0.1250	1.2500	0.0700	118.0	90.0	HSS	R	906-000-010	906-000-011	906-000-612
#5-0	0.0100	0.1250	1.2500	0.1121	118.0	60.0	HSS-Co	R	906-000-008	906-000-606	906-000-604
#5-0	0.0100	0.1250	1.2500	0.1121	118.0	60.0	T-15	R	906-000-007	906-000-602	906-000-600
#4-0 SE	0.0150	0.1250	1.5000	0.1140	118.0	60.0	Carbide	R	906-000-412	906-001-577	906-001-575
#4-0 x 82° SE	0.0150	0.1250	1.5000	0.0820	118.0	82.0	Carbide	R	906-000-413	906-001-580	906-001-578
#4-0 x 90° SE	0.0150	0.1250	1.5000	0.0737	118.0	90.0	Carbide	R	906-000-414	906-001-583	906-001-581
#4-0	0.0150	0.1250	1.2500	0.1140	118.0	60.0	HSS	R	906-000-012	906-000-013	906-000-615
#4-0	0.0150	0.1250	1.2500	0.1140	118.0	60.0	HSS	L	906-000-016	906-000-628	906-000-626
#4-0 x 82°	0.0150	0.1250	1.2500	0.0820	118.0	82.0	HSS	R	906-000-046	906-000-047	906-000-696
#4-0 x 90°	0.0150	0.1250	1.2500	0.0737	118.0	90.0	HSS	R	906-000-017	906-000-018	906-000-630
#4-0	0.0150	0.1250	1.2500	0.1140	118.0	60.0	HSS-Co	R	906-000-015	906-000-624	906-000-622
#4-0	0.0150	0.1250	1.2500	0.1140	118.0	60.0	T-15	R	906-000-014	906-000-620	906-000-618
#3-0 SE	0.0200	0.1250	1.5000	0.1159	118.0	60.0	Carbide	R	906-000-415	906-001-586	906-001-584
#3-0 x 82° SE	0.0200	0.1250	1.5000	0.0854	118.0	82.0	Carbide	R	906-000-416	906-001-589	906-001-587
#3-0 x 90° SE	0.0200	0.1250	1.5000	0.0775	118.0	90.0	Carbide	R	906-000-417	906-001-592	906-001-590
#3-0	0.0200	0.1250	1.2500	0.1159	118.0	60.0	HSS	R	906-000-019	906-000-020	906-000-633
#3-0	0.0200	0.1250	1.2500	0.1159	118.0	60.0	HSS	L	906-000-023	906-000-646	906-000-644
#3-0 x 82°	0.0200	0.1250	1.2500	0.0854	118.0	82.0	HSS	R	906-000-048	906-000-049	906-000-699
#3-0 x 90°	0.0200	0.1250	1.2500	0.0775	118.0	90.0	HSS	R	906-000-024	906-000-025	906-000-648
#3-0	0.0200	0.1250	1.2500	0.1159	118.0	60.0	HSS-Co	R	906-000-022	906-000-642	906-000-640
#3-0	0.0200	0.1250	1.2500	0.1159	118.0	60.0	T-15	R	906-000-021	906-000-638	906-000-636
#2-0	0.0250	0.1250	1.5000	0.1178	118.0	60.0	Carbide	R	906-000-418	906-001-595	906-001-593
#2-0 x 82°	0.0250	0.1250	1.5000	0.0887	118.0	82.0	Carbide	R	906-000-419	906-001-598	906-001-596
#2-0 x 90°	0.0250	0.1250	1.5000	0.0812	118.0	90.0	Carbide	R	906-000-420	906-001-601	906-001-599
#2-0 x 4	0.0250	0.1250	4.0000	0.1178	118.0	60.0	Carbide	R	907-000-185	907-000-655	907-000-653
#2-0 x 6	0.0250	0.1250	6.0000	0.1178	118.0	60.0	Carbide	R	907-000-186	907-000-658	907-000-656
#2-0	0.0250	0.1250	1.2500	0.1178	118.0	60.0	HSS	R	906-000-026	906-000-027	906-000-651
#2-0	0.0250	0.1250	1.2500	0.1178	118.0	60.0	HSS	L	906-000-030	906-000-664	906-000-662
#2-0 x 82°	0.0250	0.1250	1.2500	0.0887	118.0	82.0	HSS	R	906-000-031	906-000-032	906-000-666
#2-0 x 90°	0.0250	0.1250	1.2500	0.0812	118.0	90.0	HSS	R	906-000-033	906-000-034	906-000-669
#2-0	0.0250	0.1250	1.2500	0.1178	118.0	60.0	HSS-Co	R	906-000-029	906-000-660	906-000-658
#2-0	0.0250	0.1250	1.2500	0.1178	118.0	60.0	T-15	R	906-000-028	906-000-656	906-000-654
#0	0.0313	0.1250	1.5000	0.1202	118.0	60.0	Carbide	R	906-000-421	906-001-604	906-001-602
#0 x 82°	0.0313	0.1250	1.5000	0.0929	118.0	82.0	Carbide	R	906-000-422	906-001-607	906-001-605
#0 x 90°	0.0313	0.1250	1.5000	0.0859	118.0	90.0	Carbide	R	906-000-423	906-001-610	906-001-608
#0 x 4	0.0313	0.1250	4.0000	0.1202	118.0	60.0	Carbide	R	907-000-187	907-000-661	907-000-659
#0 x 6	0.0313	0.1250	6.0000	0.1202	118.0	60.0	Carbide	R	907-000-188	907-000-664	907-000-662
#0	0.0313	0.1250	1.2500	0.1202	118.0	60.0	HSS	R	906-000-035	906-000-036	906-000-672
#0	0.0313	0.1250	1.2500	0.1202	118.0	60.0	HSS	L	906-000-039	906-000-685	906-000-683
#0 x 82°	0.0313	0.1250	1.2500	0.0929	118.0	82.0	HSS	R	906-000-040	906-000-041	906-000-687
#0 x 90°	0.0313	0.1250	1.2500	0.0859	118.0	90.0	HSS	R	906-000-042	906-000-043	906-000-690
#0	0.0313	0.1250	1.2500	0.1202	118.0	60.0	HSS-Co	R	906-000-038	906-000-681	906-000-679
#0	0.0313	0.1250	1.2500	0.1202	118.0	60.0	T-15	R	906-000-037	906-000-677	906-000-675
#1	0.0469	0.1250	1.5000	0.1262	118.0	60.0	Carbide	R	906-000-424	906-001-613	906-001-611
#1 x 82°	0.0469	0.1250	1.5000	0.1034	118.0	82.0	Carbide	R	906-000-425	906-001-616	906-001-614
#1 x 90°	0.0469	0.1250	1.5000	0.0976	118.0	90.0	Carbide	R	906-000-426	906-001-619	906-001-617
#1 x 4	0.0469	0.1250	4.0000	0.1262	118.0	60.0	Carbide	R	907-000-189	907-000-668	907-000-666
#1 x 6	0.0469	0.1250	6.0000	0.1262	118.0	60.0	Carbide	R	907-000-190	907-000-671	907-000-669

CARBIDE

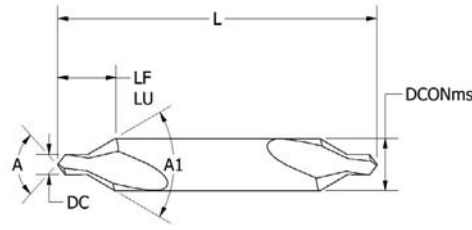
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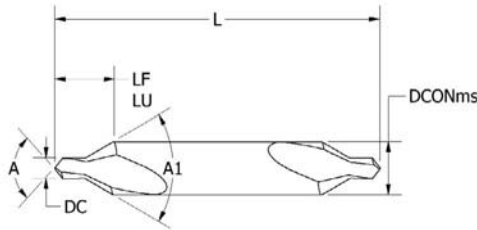
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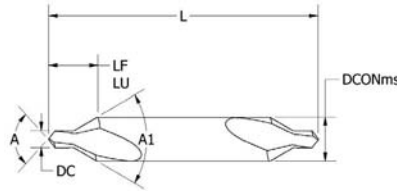
SIZE	DC [in.]	DCONMS [in.]	L [in.]	LF/LU [in.]	A [°]	A1 [°]	Material	Hand of Cut	UNCOATED	TIN COATED	TIAIN COATED
									2 FLUTE	2 FLUTE	2 FLUTE
#1	0.0469	0.1250	1.2500	0.1262	118.0	60.0	HSS	R	906-000-060	906-000-061	906-000-717
#1	0.0469	0.1250	1.2500	0.1262	118.0	60.0	HSS	L	906-000-070	906-000-739	906-000-737
#1 x 82°	0.0469	0.1250	1.2500	0.1034	118.0	82.0	HSS	R	906-000-071	906-000-072	906-000-741
#1 x 90°	0.0469	0.1250	1.2500	0.0976	118.0	90.0	HSS	R	906-000-073	906-000-074	906-000-744
#1 x 3	0.0469	0.1250	3.0000	0.1262	118.0	60.0	HSS	R	907-000-041	907-000-042	907-000-324
#1 x 3 x 82°	0.0469	0.1250	3.0000	0.1034	118.0	82.0	HSS	R	907-000-044	907-000-331	907-000-329
#1 x 3 x 90°	0.0469	0.1250	3.0000	0.0976	118.0	90.0	HSS	R	907-000-045	907-000-334	907-000-332
#1 x 4	0.0469	0.1250	4.0000	0.1262	118.0	60.0	HSS	R	907-000-046	907-000-047	907-000-335
#1 x 4 x 82°	0.0469	0.1250	4.0000	0.1034	118.0	82.0	HSS	R	907-000-049	907-000-342	907-000-340
#1 x 4 x 90°	0.0469	0.1250	4.0000	0.0976	118.0	90.0	HSS	R	907-000-050	907-000-345	907-000-343
#1 x 5	0.0469	0.1250	5.0000	0.1262	118.0	60.0	HSS	R	907-000-051	907-000-052	907-000-346
#1 x 5 x 82°	0.0469	0.1250	5.0000	0.1034	118.0	82.0	HSS	R	907-000-054	907-000-353	907-000-351
#1 x 5 x 90°	0.0469	0.1250	5.0000	0.0976	118.0	90.0	HSS	R	907-000-055	907-000-356	907-000-354
#1 x 6	0.0469	0.1250	6.0000	0.1262	118.0	60.0	HSS	R	907-000-056	907-000-057	907-000-357
#1 x 6 x 82°	0.0469	0.1250	6.0000	0.1034	118.0	82.0	HSS	R	907-000-059	907-000-364	907-000-362
#1 x 6 x 90°	0.0469	0.1250	6.0000	0.0976	118.0	90.0	HSS	R	907-000-060	907-000-367	907-000-365
#1 x 8	0.0469	0.1250	8.0000	0.1262	118.0	60.0	HSS	R	907-000-061	907-000-370	907-000-368
#1	0.0469	0.1250	1.2500	0.1262	118.0	60.0	HSS-Co	R	906-000-069	906-000-735	906-000-733
#1 x 3	0.0469	0.1250	3.0000	0.1262	118.0	60.0	HSS-Co	R	907-000-043	907-000-328	907-000-326
#1 x 4	0.0469	0.1250	4.0000	0.1262	118.0	60.0	HSS-Co	R	907-000-048	907-000-339	907-000-337
#1 x 5	0.0469	0.1250	5.0000	0.1262	118.0	60.0	HSS-Co	R	907-000-053	907-000-350	907-000-348
#1 x 6	0.0469	0.1250	6.0000	0.1262	118.0	60.0	HSS-Co	R	907-000-058	907-000-361	907-000-359
#1	0.0469	0.1250	1.2500	0.1262	118.0	60.0	T-15	R	906-000-064	906-000-725	906-000-723
#2	0.0781	0.1875	1.8750	0.1922	118.0	60.0	Carbide	R	906-000-433	906-001-640	906-001-638
#2 x 82°	0.0781	0.1875	1.8750	0.1604	118.0	82.0	Carbide	R	906-000-434	906-001-643	906-001-641
#2 x 90°	0.0781	0.1875	1.8750	0.1522	118.0	90.0	Carbide	R	906-000-435	906-001-646	906-001-644
#2 x 4	0.0781	0.1875	4.0000	0.1922	118.0	60.0	Carbide	R	907-000-191	907-000-675	907-000-673
#2 x 6	0.0781	0.1875	6.0000	0.1922	118.0	60.0	Carbide	R	907-000-192	907-000-678	907-000-676
#2	0.0781	0.1875	1.8750	0.1922	118.0	60.0	HSS	R	906-000-075	906-000-076	906-000-747
#2	0.0781	0.1875	1.8750	0.1922	118.0	60.0	HSS	L	906-000-085	906-000-769	906-000-767
#2 x 82°	0.0781	0.1875	1.8750	0.1604	118.0	82.0	HSS	R	906-000-086	906-000-087	906-000-771
#2 x 90°	0.0781	0.1875	1.8750	0.1522	118.0	90.0	HSS	R	906-000-088	906-000-089	906-000-774
#2 x 3	0.0781	0.1875	3.0000	0.1922	118.0	60.0	HSS	R	907-000-062	907-000-063	907-000-372
#2 x 3 x 82°	0.0781	0.1875	3.0000	0.1604	118.0	82.0	HSS	R	907-000-065	907-000-379	907-000-377
#2 x 3 x 90°	0.0781	0.1875	3.0000	0.1522	118.0	90.0	HSS	R	907-000-066	907-000-382	907-000-380
#2 x 4	0.0781	0.1875	4.0000	0.1922	118.0	60.0	HSS	R	907-000-067	907-000-068	907-000-383
#2 x 4 x 82°	0.0781	0.1875	4.0000	0.1604	118.0	82.0	HSS	R	907-000-070	907-000-391	907-000-389
#2 x 4 x 90°	0.0781	0.1875	4.0000	0.1522	118.0	90.0	HSS	R	907-000-071	907-000-394	907-000-392
#2 x 5	0.0781	0.1875	5.0000	0.1922	118.0	60.0	HSS	R	907-000-072	907-000-073	907-000-395
#2 x 5 x 82°	0.0781	0.1875	5.0000	0.1604	118.0	82.0	HSS	R	907-000-075	907-000-402	907-000-400
#2 x 5 x 90°	0.0781	0.1875	5.0000	0.1522	118.0	90.0	HSS	R	907-000-076	907-000-405	907-000-403
#2 x 6	0.0781	0.1875	6.0000	0.1922	118.0	60.0	HSS	R	907-000-077	907-000-078	907-000-406
#2 x 6 x 82°	0.0781	0.1875	6.0000	0.1604	118.0	82.0	HSS	R	907-000-080	907-000-413	907-000-411
#2 x 6 x 90°	0.0781	0.1875	6.0000	0.1522	118.0	90.0	HSS	R	907-000-081	907-000-416	907-000-414
#2 x 8	0.0781	0.1875	8.0000	0.1922	118.0	60.0	HSS	R	907-000-082	907-000-419	907-000-417
#2	0.0781	0.1875	1.8750	0.1922	118.0	60.0	HSS-Co	R	906-000-084	906-000-765	906-000-763
#2 x 3	0.0781	0.1875	3.0000	0.1922	118.0	60.0	HSS-Co	R	907-000-064	907-000-376	907-000-374
#2 x 4	0.0781	0.1875	4.0000	0.1922	118.0	60.0	HSS-Co	R	907-000-069	907-000-388	907-000-386
#2 x 5	0.0781	0.1875	5.0000	0.1922	118.0	60.0	HSS-Co	R	907-000-074	907-000-399	907-000-397
#2 x 6	0.0781	0.1875	6.0000	0.1922	118.0	60.0	HSS-Co	R	907-000-079	907-000-410	907-000-408
#2	0.0781	0.1875	1.8750	0.1922	118.0	60.0	T-15	R	906-000-079	906-000-755	906-000-753
#3	0.1094	0.2500	2.0000	0.2583	118.0	60.0	Carbide	R	906-000-436	906-001-650	906-001-648
#3 x 82°	0.1094	0.2500	2.0000	0.2174	118.0	82.0	Carbide	R	906-000-437	906-001-653	906-001-651
#3 x 90°	0.1094	0.2500	2.0000	0.2068	118.0	90.0	Carbide	R	906-000-438	906-001-656	906-001-654



SIZE	DC [in.]	DCONMS [in.]	L [in.]	LF/LU [in.]	A [°]	A1 [°]	Material	Hand of Cut	UNCOATED	TIN COATED	TiAIN COATED
									2 FLUTE	2 FLUTE	2 FLUTE
#3 x 4	0.1094	0.2500	4.0000	0.2583	118.0	60.0	Carbide	R	907-000-193	907-000-682	907-000-680
#3 x 6	0.1094	0.2500	6.0000	0.2583	118.0	60.0	Carbide	R	907-000-194	907-000-685	907-000-683
#3	0.1094	0.2500	2.0000	0.2583	118.0	60.0	HSS	R	906-000-090	906-000-091	906-000-777
#3	0.1094	0.2500	2.0000	0.2583	118.0	60.0	HSS	L	906-000-100	906-000-799	906-000-797
#3 x 82°	0.1094	0.2500	2.0000	0.2174	118.0	82.0	HSS	R	906-000-101	906-000-102	906-000-801
#3 x 90°	0.1094	0.2500	2.0000	0.2068	118.0	90.0	HSS	R	906-000-103	906-000-104	906-000-804
#3 x 3	0.1094	0.2500	3.0000	0.2583	118.0	60.0	HSS	R	907-000-083	907-000-084	907-000-421
#3 x 3 x 82°	0.1094	0.2500	3.0000	0.2174	118.0	82.0	HSS	R	907-000-086	907-000-428	907-000-426
#3 x 3 x 90°	0.1094	0.2500	3.0000	0.2068	118.0	90.0	HSS	R	907-000-087	907-000-431	907-000-429
#3 x 4	0.1094	0.2500	4.0000	0.2583	118.0	60.0	HSS	R	907-000-088	907-000-089	907-000-432
#3 x 4 x 82°	0.1094	0.2500	4.0000	0.2174	118.0	82.0	HSS	R	907-000-091	907-000-439	907-000-437
#3 x 4 x 90°	0.1094	0.2500	4.0000	0.2068	118.0	90.0	HSS	R	907-000-092	907-000-442	907-000-440
#3 x 5	0.1094	0.2500	5.0000	0.2583	118.0	60.0	HSS	R	907-000-093	907-000-094	907-000-443
#3 x 5 x 82°	0.1094	0.2500	5.0000	0.2174	118.0	82.0	HSS	R	907-000-096	907-000-450	907-000-448
#3 x 5 x 90°	0.1094	0.2500	5.0000	0.2068	118.0	90.0	HSS	R	907-000-097	907-000-453	907-000-451
#3 x 6	0.1094	0.2500	6.0000	0.2583	118.0	60.0	HSS	R	907-000-098	907-000-099	907-000-454
#3 x 6 x 82°	0.1094	0.2500	6.0000	0.2174	118.0	82.0	HSS	R	907-000-101	907-000-461	907-000-459
#3 x 6 x 90°	0.1094	0.2500	6.0000	0.2068	118.0	90.0	HSS	R	907-000-102	907-000-464	907-000-462
#3 x 8	0.1094	0.2500	8.0000	0.2583	118.0	60.0	HSS	R	907-000-103	907-000-467	907-000-465
#3	0.1094	0.2500	2.0000	0.2583	118.0	60.0	HSS-Co	R	906-000-099	906-000-795	906-000-793
#3 x 3	0.1094	0.2500	3.0000	0.2583	118.0	60.0	HSS-Co	R	907-000-085	907-000-425	907-000-423
#3 x 4	0.1094	0.2500	4.0000	0.2583	118.0	60.0	HSS-Co	R	907-000-090	907-000-436	907-000-434
#3 x 5	0.1094	0.2500	5.0000	0.2583	118.0	60.0	HSS-Co	R	907-000-095	907-000-447	907-000-445
#3 x 6	0.1094	0.2500	6.0000	0.2583	118.0	60.0	HSS-Co	R	907-000-100	907-000-458	907-000-456
#3	0.1094	0.2500	2.0000	0.2583	118.0	60.0	T-15	R	906-000-094	906-000-785	906-000-783
#4	0.1250	0.3125	2.1250	0.3184	118.0	60.0	Carbide	R	906-000-439	906-001-659	906-001-657
#4 x 82°	0.1250	0.3125	2.1250	0.2638	118.0	82.0	Carbide	R	906-000-440	906-001-662	906-001-660
#4 x 90°	0.1250	0.3125	2.1250	0.2497	118.0	90.0	Carbide	R	906-000-441	906-001-665	906-001-663
#4 x 4	0.1250	0.3125	4.0000	0.3184	118.0	60.0	Carbide	R	907-000-195	907-000-689	907-000-687
#4 x 6	0.1250	0.3125	6.0000	0.3184	118.0	60.0	Carbide	R	907-000-196	907-000-692	907-000-690
#4	0.1250	0.3125	2.1250	0.3184	118.0	60.0	HSS	R	906-000-105	906-000-106	906-000-807
#4	0.1250	0.3125	2.1250	0.3184	118.0	60.0	HSS	L	906-000-115	906-000-829	906-000-827
#4 x 82°	0.1250	0.3125	2.1250	0.2638	118.0	82.0	HSS	R	906-000-116	906-000-117	906-000-831
#4 x 90°	0.1250	0.3125	2.1250	0.2497	118.0	90.0	HSS	R	906-000-118	906-000-119	906-000-834
#4 x 3	0.1250	0.3125	3.0000	0.3184	118.0	60.0	HSS	R	907-000-104	907-000-105	907-000-469
#4 x 3 x 82°	0.1250	0.3125	3.0000	0.2638	118.0	82.0	HSS	R	907-000-107	907-000-476	907-000-474
#4 x 3 x 90°	0.1250	0.3125	3.0000	0.2497	118.0	90.0	HSS	R	907-000-108	907-000-479	907-000-477
#4 x 4	0.1250	0.3125	4.0000	0.3184	118.0	60.0	HSS	R	907-000-109	907-000-110	907-000-480
#4 x 4 x 82°	0.1250	0.3125	4.0000	0.2638	118.0	82.0	HSS	R	907-000-112	907-000-487	907-000-485
#4 x 4 x 90°	0.1250	0.3125	4.0000	0.2497	118.0	90.0	HSS	R	907-000-113	907-000-490	907-000-488
#4 x 5	0.1250	0.3125	5.0000	0.3184	118.0	60.0	HSS	R	907-000-114	907-000-115	907-000-491
#4 x 5 x 82°	0.1250	0.3125	5.0000	0.2638	118.0	82.0	HSS	R	907-000-117	907-000-498	907-000-496
#4 x 5 x 90°	0.1250	0.3125	5.0000	0.2497	118.0	90.0	HSS	R	907-000-118	907-000-501	907-000-499
#4 x 6	0.1250	0.3125	6.0000	0.3184	118.0	60.0	HSS	R	907-000-119	907-000-120	907-000-502
#4 x 6 x 82°	0.1250	0.3125	6.0000	0.2638	118.0	82.0	HSS	R	907-000-122	907-000-509	907-000-507
#4 x 6 x 90°	0.1250	0.3125	6.0000	0.2497	118.0	90.0	HSS	R	907-000-123	907-000-512	907-000-510
#4 x 8	0.1250	0.3125	8.0000	0.3184	118.0	60.0	HSS	R	907-000-124	907-000-515	907-000-513
#4	0.1250	0.3125	2.1250	0.3184	118.0	60.0	HSS-Co	R	906-000-114	906-000-825	906-000-823
#4 x 3	0.1250	0.3125	3.0000	0.3184	118.0	60.0	HSS-Co	R	907-000-106	907-000-473	907-000-471
#4 x 4	0.1250	0.3125	4.0000	0.3184	118.0	60.0	HSS-Co	R	907-000-111	907-000-484	907-000-482
#4 x 5	0.1250	0.3125	5.0000	0.3184	118.0	60.0	HSS-Co	R	907-000-116	907-000-495	907-000-493
#4 x 6	0.1250	0.3125	6.0000	0.3184	118.0	60.0	HSS-Co	R	907-000-121	907-000-506	907-000-504
#4	0.1250	0.3125	2.1250	0.3184	118.0	60.0	T-15	R	906-000-109	906-000-815	906-000-813
#4½	0.1406	0.3750	2.5000	0.3785	118.0	60.0	HSS	R	906-000-309	906-000-310	906-001-248



SIZE	DC [in.]	DCONMS [in.]	L [in.]	LF/LU [in.]	A [°]	A1 [°]	Material	Hand of Cut	UNCOATED	TIN COATED	TiAIN COATED
									2 FLUTE	2 FLUTE	2 FLUTE
#4½	0.1406	0.3750	2.5000	0.3785	118.0	60.0	HSS	L	906-000-315	906-001-267	906-001-265
#4½ x 82°	0.1406	0.3750	2.5000	0.3103	118.0	82.0	HSS	R	906-000-316	906-000-317	906-001-269
#4½ x 90°	0.1406	0.3750	2.5000	0.2927	118.0	90.0	HSS	R	906-000-318	906-000-319	906-001-272
#4½ x 4	0.1406	0.3750	4.0000	0.3785	118.0	60.0	HSS	R	907-000-125	907-000-126	907-000-516
#4½ x 4 x 82°	0.1406	0.3750	4.0000	0.3103	118.0	82.0	HSS	R	907-000-128	907-000-523	907-000-521
#4½ x 4 x 90°	0.1406	0.3750	4.0000	0.2927	118.0	90.0	HSS	R	907-000-129	907-000-526	907-000-524
#4½ x 5	0.1406	0.3750	5.0000	0.3785	118.0	60.0	HSS	R	907-000-130	907-000-131	907-000-527
#4½ x 5 x 82°	0.1406	0.3750	5.0000	0.3103	118.0	82.0	HSS	R	907-000-133	907-000-534	907-000-532
#4½ x 5 x 90°	0.1406	0.3750	5.0000	0.2927	118.0	90.0	HSS	R	907-000-134	907-000-537	907-000-535
#4½ x 6	0.1406	0.3750	6.0000	0.3785	118.0	60.0	HSS	R	907-000-135	907-000-136	907-000-538
#4½ x 6 x 82°	0.1406	0.3750	6.0000	0.3103	118.0	82.0	HSS	R	907-000-138	907-000-545	907-000-543
#4½ x 6 x 90°	0.1406	0.3750	6.0000	0.2927	118.0	90.0	HSS	R	907-000-139	907-000-548	907-000-546
#4½ x 8	0.1406	0.3750	8.0000	0.3785	118.0	60.0	HSS	R	907-000-140	907-000-551	907-000-549
#4½	0.1406	0.3750	2.5000	0.3785	118.0	60.0	HSS-Co	R	906-000-314	906-001-263	906-001-261
#4½ x 4	0.1406	0.3750	4.0000	0.3785	118.0	60.0	HSS-Co	R	907-000-127	907-000-520	907-000-518
#4½ x 5	0.1406	0.3750	5.0000	0.3785	118.0	60.0	HSS-Co	R	907-000-132	907-000-531	907-000-529
#4½ x 6	0.1406	0.3750	6.0000	0.3785	118.0	60.0	HSS-Co	R	907-000-137	907-000-542	907-000-540
#4½	0.1406	0.3750	2.5000	0.3785	118.0	60.0	T-15	R	906-000-313	906-001-256	906-001-254
#5	0.1875	0.4375	2.7500	0.4505	118.0	60.0	Carbide	R	906-000-442	906-001-668	906-001-666
#5 x 82°	0.1875	0.4375	2.7500	0.3778	118.0	82.0	Carbide	R	906-000-443	906-001-671	906-001-669
#5 x 90°	0.1875	0.4375	2.7500	0.3590	118.0	90.0	Carbide	R	906-000-444	906-001-674	906-001-672
#5 x 4	0.1875	0.4375	4.0000	0.4505	118.0	60.0	Carbide	R	907-000-197	907-000-696	907-000-694
#5 x 6	0.1875	0.4375	6.0000	0.4505	118.0	60.0	Carbide	R	907-000-198	907-000-699	907-000-697
#5	0.1875	0.4375	2.7500	0.4505	118.0	60.0	HSS	R	906-000-120	906-000-121	906-000-838
#5	0.1875	0.4375	2.7500	0.4505	118.0	60.0	HSS	L	906-000-130	906-000-860	906-000-858
#5 x 82°	0.1875	0.4375	2.7500	0.3778	118.0	82.0	HSS	R	906-000-131	906-000-132	906-000-862
#5 x 90°	0.1875	0.4375	2.7500	0.3590	118.0	90.0	HSS	R	906-000-133	906-000-134	906-000-865
#5 x 4	0.1875	0.4375	4.0000	0.4505	118.0	60.0	HSS	R	907-000-141	907-000-142	907-000-553
#5 x 4 x 82°	0.1875	0.4375	4.0000	0.3778	118.0	82.0	HSS	R	907-000-144	907-000-560	907-000-558
#5 x 4 x 90°	0.1875	0.4375	4.0000	0.3590	118.0	90.0	HSS	R	907-000-145	907-000-563	907-000-561
#5 x 5	0.1875	0.4375	5.0000	0.4505	118.0	60.0	HSS	R	907-000-146	907-000-147	907-000-564
#5 x 5 x 82°	0.1875	0.4375	5.0000	0.3778	118.0	82.0	HSS	R	907-000-149	907-000-571	907-000-569
#5 x 5 x 90°	0.1875	0.4375	5.0000	0.3590	118.0	90.0	HSS	R	907-000-150	907-000-574	907-000-572
#5 x 6	0.1875	0.4375	6.0000	0.4505	118.0	60.0	HSS	R	907-000-151	907-000-152	907-000-575
#5 x 6 x 82°	0.1875	0.4375	6.0000	0.3778	118.0	82.0	HSS	R	907-000-154	907-000-582	907-000-580
#5 x 6 x 90°	0.1875	0.4375	6.0000	0.3590	118.0	90.0	HSS	R	907-000-155	907-000-585	907-000-583
#5 x 8	0.1875	0.4375	8.0000	0.4505	118.0	60.0	HSS	R	907-000-156	907-000-588	907-000-586
#5	0.1875	0.4375	2.7500	0.4505	118.0	60.0	HSS-Co	R	906-000-129	906-000-856	906-000-854
#5 x 4	0.1875	0.4375	4.0000	0.4505	118.0	60.0	HSS-Co	R	907-000-143	907-000-557	907-000-555
#5 x 5	0.1875	0.4375	5.0000	0.4505	118.0	60.0	HSS-Co	R	907-000-148	907-000-568	907-000-566
#5 x 6	0.1875	0.4375	6.0000	0.4505	118.0	60.0	HSS-Co	R	907-000-153	907-000-579	907-000-577
#5	0.1875	0.4375	2.7500	0.4505	118.0	60.0	T-15	R	906-000-124	906-000-846	906-000-844
#6	0.2188	0.5000	3.0000	0.5165	118.0	60.0	Carbide	R	906-000-445	906-001-677	906-001-675
#6 x 82°	0.2188	0.5000	3.0000	0.4347	118.0	82.0	Carbide	R	906-000-446	906-001-680	906-001-678
#6 x 90°	0.2188	0.5000	3.0000	0.4136	118.0	90.0	Carbide	R	906-000-447	906-001-683	906-001-681
#6 x 4	0.2188	0.5000	4.0000	0.5165	118.0	60.0	Carbide	R	907-000-199	907-000-702	907-000-700
#6 x 6	0.2188	0.5000	6.0000	0.5165	118.0	60.0	Carbide	R	907-000-200	907-000-705	907-000-703
#6	0.2188	0.5000	3.0000	0.5165	118.0	60.0	HSS	R	906-000-135	906-000-136	906-000-868
#6	0.2188	0.5000	3.0000	0.5165	118.0	60.0	HSS	L	906-000-145	906-000-890	906-000-888
#6 x 82°	0.2188	0.5000	3.0000	0.4347	118.0	82.0	HSS	R	906-000-146	906-000-147	906-000-892
#6 x 90°	0.2188	0.5000	3.0000	0.4136	118.0	90.0	HSS	R	906-000-148	906-000-149	906-000-895
#6 x 4	0.2188	0.5000	4.0000	0.5165	118.0	60.0	HSS	R	907-000-157	907-000-158	907-000-589
#6 x 4 x 82°	0.2188	0.5000	4.0000	0.4347	118.0	82.0	HSS	R	907-000-160	907-000-596	907-000-594
#6 x 4 x 90°	0.2188	0.5000	4.0000	0.4136	118.0	90.0	HSS	R	907-000-161	907-000-599	907-000-597



SIZE	DC [in.]	DCONMS [in.]	L [in.]	LF/LU [in.]	A [°]	A1 [°]	Material	Hand of Cut	UNCOATED	TiN COATED	TiAlN COATED
									2 FLUTE	2 FLUTE	2 FLUTE
#6 x 5	0.2188	0.5000	5.0000	0.5165	118.0	60.0	HSS	R	907-000-162	907-000-163	907-000-600
#6 x 5 x 82°	0.2188	0.5000	5.0000	0.4347	118.0	82.0	HSS	R	907-000-165	907-000-607	907-000-605
#6 x 5 x 90°	0.2188	0.5000	5.0000	0.4136	118.0	90.0	HSS	R	907-000-166	907-000-610	907-000-608
#6 x 6	0.2188	0.5000	6.0000	0.5165	118.0	60.0	HSS	R	907-000-167	907-000-168	907-000-611
#6 x 6 x 82°	0.2188	0.5000	6.0000	0.4347	118.0	82.0	HSS	R	907-000-170	907-000-618	907-000-616
#6 x 6 x 90°	0.2188	0.5000	6.0000	0.4136	118.0	90.0	HSS	R	907-000-171	907-000-621	907-000-619
#6 x 8	0.2188	0.5000	8.0000	0.5165	118.0	60.0	HSS	R	907-000-172	907-000-624	907-000-622
#6	0.2188	0.5000	3.0000	0.5165	118.0	60.0	HSS-Co	R	906-000-144	906-000-886	906-000-884
#6 x 4	0.2188	0.5000	4.0000	0.5165	118.0	60.0	HSS-Co	R	907-000-159	907-000-593	907-000-591
#6 x 5	0.2188	0.5000	5.0000	0.5165	118.0	60.0	HSS-Co	R	907-000-164	907-000-604	907-000-602
#6 x 6	0.2188	0.5000	6.0000	0.5165	118.0	60.0	HSS-Co	R	907-000-169	907-000-615	907-000-613
#6	0.2188	0.5000	3.0000	0.5165	118.0	60.0	T-15	R	906-000-139	906-000-876	906-000-874
#7	0.2500	0.6250	3.2500	0.6367	118.0	60.0	Carbide	R	906-000-448	906-001-686	906-001-684
#7 x 82°	0.2500	0.6250	3.7500	0.5277	118.0	82.0	Carbide	R	906-000-449	906-001-690	906-001-688
#7 x 90°	0.2500	0.6250	3.7500	0.4995	118.0	90.0	Carbide	R	906-000-450	906-001-693	906-001-691
#7 x 6	0.2500	0.6250	6.0000	0.6367	118.0	60.0	Carbide	R	907-000-201	907-000-708	907-000-706
#7	0.2500	0.6250	3.2500	0.6367	118.0	60.0	HSS	R	906-000-150	906-000-151	906-000-898
#7	0.2500	0.6250	3.2500	0.6367	118.0	60.0	HSS	L	906-000-160	906-000-920	906-000-918
#7 x 82°	0.2500	0.6250	3.2500	0.5277	118.0	82.0	HSS	R	906-000-161	906-000-162	906-000-922
#7 x 90°	0.2500	0.6250	3.2500	0.4995	118.0	90.0	HSS	R	906-000-163	906-000-164	906-000-925
#7 x 6	0.2500	0.6250	6.0000	0.6367	118.0	60.0	HSS	R	907-000-173	907-000-174	907-000-625
#7 x 6 x 82°	0.2500	0.6250	6.0000	0.5277	118.0	82.0	HSS	R	907-000-176	907-000-632	907-000-630
#7 x 6 x 90°	0.2500	0.6250	6.0000	0.4995	118.0	90.0	HSS	R	907-000-177	907-000-635	907-000-633
#7 x 8	0.2500	0.6250	8.0000	0.6367	118.0	60.0	HSS	R	907-000-178	907-000-638	907-000-636
#7	0.2500	0.6250	3.2500	0.6367	118.0	60.0	HSS-Co	R	906-000-159	906-000-916	906-000-914
#7 x 6	0.2500	0.6250	6.0000	0.6367	118.0	60.0	HSS-Co	R	907-000-175	907-000-629	907-000-627
#7	0.2500	0.6250	3.2500	0.6367	118.0	60.0	T-15	R	906-000-154	906-000-906	906-000-904
#8	0.3125	0.7500	3.5000	0.7688	118.0	60.0	Carbide	R	906-000-451	906-001-696	906-001-694
#8 x 82°	0.3125	0.7500	4.0000	0.6416	118.0	82.0	Carbide	R	906-000-452	906-001-699	906-001-697
#8 x 90°	0.3125	0.7500	4.0000	0.6087	118.0	90.0	Carbide	R	906-000-453	906-001-702	906-001-700
#8 x 6	0.3125	0.7500	6.0000	0.7688	118.0	60.0	Carbide	R	907-000-202	907-000-711	907-000-709
#8	0.3125	0.7500	3.5000	0.7688	118.0	60.0	HSS	R	906-000-165	906-000-166	906-000-928
#8	0.3125	0.7500	3.5000	0.7688	118.0	60.0	HSS	L	906-000-175	906-000-950	906-000-948
#8 x 82°	0.3125	0.7500	3.5000	0.6416	118.0	82.0	HSS	R	906-000-176	906-000-177	906-000-952
#8 x 90°	0.3125	0.7500	3.5000	0.6087	118.0	90.0	HSS	R	906-000-178	906-000-179	906-000-955
#8 x 6	0.3125	0.7500	6.0000	0.7688	118.0	60.0	HSS	R	907-000-179	907-000-180	907-000-639
#8 x 6 x 82°	0.3125	0.7500	6.0000	0.6416	118.0	82.0	HSS	R	907-000-182	907-000-646	907-000-644
#8 x 6 x 90°	0.3125	0.7500	6.0000	0.6087	118.0	90.0	HSS	R	907-000-183	907-000-649	907-000-647
#8 x 8	0.3125	0.7500	8.0000	0.7688	118.0	60.0	HSS	R	907-000-184	907-000-652	907-000-650
#8	0.3125	0.7500	3.5000	0.7688	118.0	60.0	HSS-Co	R	906-000-174	906-000-946	906-000-944
#8 x 6	0.3125	0.7500	6.0000	0.7688	118.0	60.0	HSS-Co	R	907-000-181	907-000-643	907-000-641
#8	0.3125	0.7500	3.5000	0.7688	118.0	60.0	T-15	R	906-000-169	906-000-936	906-000-934
#9	0.3438	0.8750	3.6250	0.8890	118.0	60.0	HSS	R	906-000-180	906-000-181	906-000-958
#9	0.3438	0.8750	3.6250	0.8890	118.0	60.0	HSS	L	906-000-186	906-000-974	906-000-972
#9 x 82°	0.3438	0.8750	3.6250	0.7345	118.0	82.0	HSS	R	906-000-187	906-000-188	906-000-976
#9 x 90°	0.3438	0.8750	3.6250	0.6946	118.0	90.0	HSS	R	906-000-189	906-000-190	906-000-979
#9	0.3438	0.8750	3.6250	0.8890	118.0	60.0	HSS-Co	R	906-000-185	906-000-970	906-000-968
#9	0.3438	0.8750	3.6250	0.8890	118.0	60.0	T-15	R	906-000-184	906-000-966	906-000-964
#10	0.3750	1.0000	3.7500	1.0092	118.0	60.0	HSS	R	906-000-191	906-000-192	906-000-982
#10	0.3750	1.0000	3.7500	1.0092	118.0	60.0	HSS	L	906-000-197	906-000-998	906-000-996
#10 x 82°	0.3750	1.0000	3.7500	0.8274	118.0	82.0	HSS	R	906-000-198	906-000-199	906-001-000
#10 x 90°	0.3750	1.0000	3.7500	0.7804	118.0	90.0	HSS	R	906-000-200	906-000-201	906-001-003
#10	0.3750	1.0000	3.7500	1.0092	118.0	60.0	HSS-Co	R	906-000-196	906-000-994	906-000-992
#10	0.3750	1.0000	3.7500	1.0092	118.0	60.0	T-15	R	906-000-195	906-000-990	906-000-988

CARBIDE

HSS

COBALT

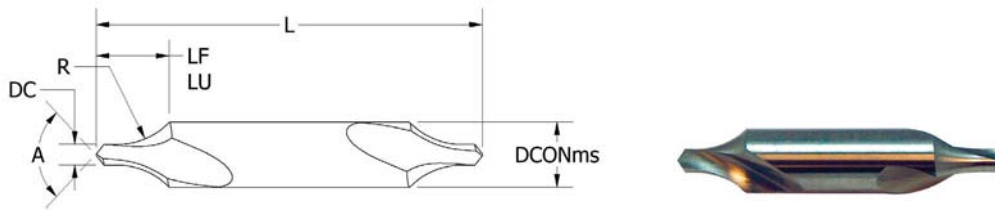
T-15

CARBIDE
HSS
COBALT

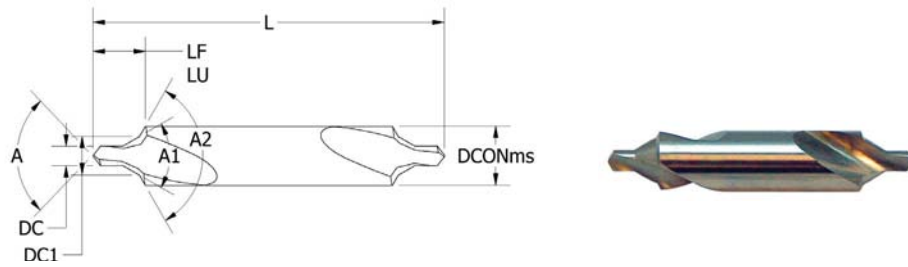


CENTER DRILL & COUNTERSINK SET

C'Drills	PKG QTY.	HSS SET	HSS-TIN SET	COBALT	CARBIDE
#1, #2, #3, #4, #5,	1	906-000-001	906-000-002	906-000-003	906-000-004



Size	DC [in.]	R [in.]	DCONMS [in.]	L [in.]	LF / LU [in.]	A [°]	Material	Hand of Cut	UNCOATED	TIN COATED	TiAIN COATED
#5-0	0.0100	0.0625	0.1250	1.2500	0.0680	118.0	HSS	R	906-000-050	906-000-051	906-000-702
#4-0	0.0150	0.0781	0.1250	1.2500	0.0830	118.0	HSS	R	906-000-052	906-000-053	906-000-705
#3-0	0.0200	0.0938	0.1250	1.2500	0.0970	118.0	HSS	R	906-000-054	906-000-055	906-000-708
#2-0	0.0250	0.1094	0.1250	1.2500	0.1090	118.0	HSS	R	906-000-056	906-000-057	906-000-711
#0	0.0313	0.1250	0.1250	1.2500	0.1180	118.0	HSS	R	906-000-058	906-000-059	906-000-714
#1	0.0469	0.1563	0.1250	1.2500	0.1320	118.0	HSS	R	906-000-062	906-000-063	906-000-720
#2	0.0781	0.2188	0.1875	1.8750	0.2040	118.0	HSS	R	906-000-077	906-000-078	906-000-750
#3	0.1094	0.2813	0.2500	2.0000	0.2750	118.0	HSS	R	906-000-092	906-000-093	906-000-780
#4	0.1250	0.3750	0.3125	2.1250	0.3438	118.0	HSS	R	906-000-107	906-000-108	906-000-810
#4½	0.1406	0.4375	0.3750	2.5000	0.4063	118.0	HSS	R	906-000-311	906-000-312	906-001-251
#5	0.1875	0.5000	0.4375	2.7500	0.4844	118.0	HSS	R	906-000-122	906-000-123	906-000-841
#6	0.2188	0.5625	0.5000	3.0000	0.5469	118.0	HSS	R	906-000-137	906-000-138	906-000-871
#7	0.2500	0.7031	0.6250	3.2500	0.6719	118.0	HSS	R	906-000-152	906-000-153	906-000-901
#8	0.3125	0.8750	0.7500	3.5000	0.8125	118.0	HSS	R	906-000-167	906-000-168	906-000-931
#9	0.3438	1.0000	0.8750	3.6250	0.9375	118.0	HSS	R	906-000-182	906-000-183	906-000-961
#10	0.3750	1.1094	1.0000	3.7500	1.0625	118.0	HSS	R	906-000-193	906-000-194	906-000-985



Size	DC [in.]	DC1 [in.]	DCONMS [in.]	L [in.]	LF / LU [in.]	A [°]	A1 [°]	A2 [°]	Material	Hand of Cut	UNCOATED	TIN COATED	TIAIN COATED
#11	0.0469	0.1000	0.1250	1.2500	0.1117	118.0	60.0	120.0	Carbide	R	906-000-427	906-001-622	906-001-620
#11	0.0469	0.1000	0.1250	1.2500	0.1117	118.0	60.0	120.0	HSS	L	906-000-210	906-001-024	906-001-022
#11	0.0469	0.1000	0.1250	1.2500	0.1117	118.0	60.0	120.0	HSS	R	906-000-202	906-000-203	906-001-006
#11	0.0469	0.1000	0.1250	1.2500	0.1117	118.0	60.0	120.0	HSS-E	R	906-000-209	906-001-020	906-001-018
#11	0.0469	0.1000	0.1250	1.2500	0.1117	118.0	60.0	120.0	T-15	R	906-000-204	906-001-011	906-001-009
#12	0.0625	0.1500	0.1875	1.8750	0.1646	118.0	60.0	120.0	Carbide	R	906-000-428	906-001-625	906-001-623
#12	0.0625	0.1500	0.1875	1.8750	0.1646	118.0	60.0	120.0	HSS	L	906-000-219	906-001-045	906-001-043
#12	0.0625	0.1500	0.1875	1.8750	0.1646	118.0	60.0	120.0	HSS	R	906-000-211	906-000-212	906-001-026
#12	0.0625	0.1500	0.1875	1.8750	0.1646	118.0	60.0	120.0	HSS-E	R	906-000-218	906-001-041	906-001-039
#12	0.0625	0.1500	0.1875	1.8750	0.1646	118.0	60.0	120.0	T-15	R	906-000-213	906-001-031	906-001-029
#13	0.0938	0.2000	0.2500	2.0000	0.2234	118.0	60.0	120.0	Carbide	R	906-000-429	906-001-628	906-001-626
#13	0.0938	0.2000	0.2500	2.0000	0.2234	118.0	60.0	120.0	HSS	L	906-000-228	906-001-066	906-001-064
#13	0.0938	0.2000	0.2500	2.0000	0.2234	118.0	60.0	120.0	HSS	R	906-000-220	906-000-221	906-001-047
#13	0.0938	0.2000	0.2500	2.0000	0.2234	118.0	60.0	120.0	HSS-E	R	906-000-227	906-001-062	906-001-060
#13	0.0938	0.2000	0.2500	2.0000	0.2234	118.0	60.0	120.0	T-15	R	906-000-222	906-001-052	906-001-050
#14	0.1094	0.2500	0.3125	2.1250	0.2763	118.0	60.0	120.0	Carbide	R	906-000-430	906-001-631	906-001-629
#14	0.1094	0.2500	0.3125	2.1250	0.2763	118.0	60.0	120.0	HSS	L	906-000-237	906-001-091	906-001-089
#14	0.1094	0.2500	0.3125	2.1250	0.2763	118.0	60.0	120.0	HSS	R	906-000-229	906-000-230	906-001-072
#14	0.1094	0.2500	0.3125	2.1250	0.2763	118.0	60.0	120.0	HSS-E	R	906-000-236	906-001-087	906-001-085
#14	0.1094	0.2500	0.3125	2.1250	0.2763	118.0	60.0	120.0	T-15	R	906-000-231	906-001-077	906-001-075
#15	0.1563	0.3500	0.4375	2.7500	0.3880	118.0	60.0	120.0	Carbide	R	906-000-431	906-001-634	906-001-632
#15	0.1563	0.3500	0.4375	2.7500	0.3880	118.0	60.0	120.0	HSS	L	906-000-246	906-001-112	906-001-110
#15	0.1563	0.3500	0.4375	2.7500	0.3880	118.0	60.0	120.0	HSS	R	906-000-238	906-000-239	906-001-093
#15	0.1563	0.3500	0.4375	2.7500	0.3880	118.0	60.0	120.0	HSS-E	R	906-000-245	906-001-108	906-001-106
#15	0.1563	0.3500	0.4375	2.7500	0.3880	118.0	60.0	120.0	T-15	R	906-000-240	906-001-098	906-001-096
#16	0.1875	0.4000	0.5000	3.0000	0.4469	118.0	60.0	120.0	Carbide	R	906-000-432	906-001-637	906-001-635
#16	0.1875	0.4000	0.5000	3.0000	0.4469	118.0	60.0	120.0	HSS	L	906-000-255	906-001-133	906-001-131
#16	0.1875	0.4000	0.5000	3.0000	0.4469	118.0	60.0	120.0	HSS	R	906-000-247	906-000-248	906-001-114
#16	0.1875	0.4000	0.5000	3.0000	0.4469	118.0	60.0	120.0	HSS-E	R	906-000-254	906-001-129	906-001-127
#16	0.1875	0.4000	0.5000	3.0000	0.4469	118.0	60.0	120.0	T-15	R	906-000-249	906-001-119	906-001-117
#17	0.2188	0.5000	0.6250	3.2500	0.5526	118.0	60.0	120.0	HSS	L	906-000-264	906-001-154	906-001-152
#17	0.2188	0.5000	0.6250	3.2500	0.5526	118.0	60.0	120.0	HSS	R	906-000-256	906-000-257	906-001-135
#17	0.2188	0.5000	0.6250	3.2500	0.5526	118.0	60.0	120.0	HSS-E	R	906-000-263	906-001-150	906-001-148
#17	0.2188	0.5000	0.6250	3.2500	0.5526	118.0	60.0	120.0	T-15	R	906-000-258	906-001-140	906-001-138
#18	0.2500	0.6000	0.7500	3.5000	0.6584	118.0	60.0	120.0	HSS	L	906-000-273	906-001-176	906-001-174
#18	0.2500	0.6000	0.7500	3.5000	0.6584	118.0	60.0	120.0	HSS	R	906-000-265	906-000-266	906-001-156
#18	0.2500	0.6000	0.7500	3.5000	0.6584	118.0	60.0	120.0	HSS-E	R	906-000-272	906-001-172	906-001-170
#18	0.2500	0.6000	0.7500	3.5000	0.6584	118.0	60.0	120.0	T-15	R	906-000-267	906-001-161	906-001-159
#19	0.3125	0.7000	0.8750	3.6250	0.7761	118.0	60.0	120.0	HSS	L	906-000-278	906-001-191	906-001-189
#19	0.3125	0.7000	0.8750	3.6250	0.7761	118.0	60.0	120.0	HSS	R	906-000-274	906-000-275	906-001-178
#19	0.3125	0.7000	0.8750	3.6250	0.7761	118.0	60.0	120.0	HSS-E	R	906-000-277	906-001-187	906-001-185
#19	0.3125	0.7000	0.8750	3.6250	0.7761	118.0	60.0	120.0	T-15	R	906-000-276	906-001-183	906-001-181
#20	0.3750	0.8000	1.0000	3.7500	0.8937	118.0	60.0	120.0	HSS	L	906-000-283	906-001-206	906-001-204
#20	0.3750	0.8000	1.0000	3.7500	0.8937	118.0	60.0	120.0	HSS	R	906-000-279	906-000-280	906-001-193
#20	0.3750	0.8000	1.0000	3.7500	0.8937	118.0	60.0	120.0	HSS-E	R	906-000-282	906-001-202	906-001-200
#20	0.3750	0.8000	1.0000	3.7500	0.8937	118.0	60.0	120.0	T-15	R	906-000-281	906-001-198	906-001-196

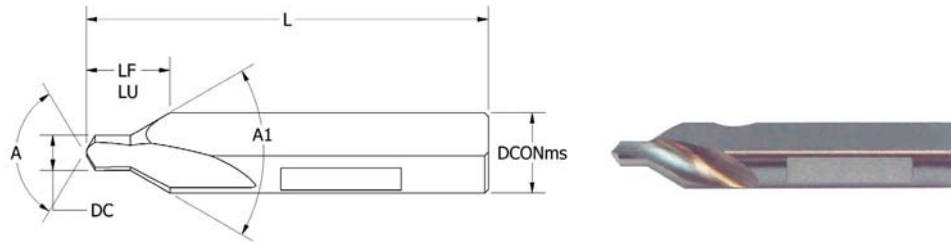
HSS-E is Cobalt

CARBIDE

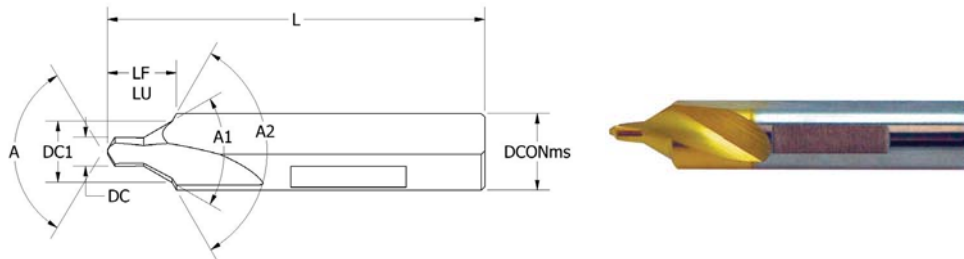
HSS

COBALT

T-15



SIZE	DC [in.]	DCONMS [in.]	LU [in.]	L [in.]	LF [in.]	A [°]	A1 [°]	HSS	HSS-TiN
#1	0.0469	0.1250	0.1262	1.2500	0.1262	118.0	60.0	906-000-067	906-000-068
#2	0.0781	0.1875	0.1922	1.8750	0.1922	118.0	60.0	906-000-082	906-000-083
#3	0.1094	0.2500	0.2583	2.0000	0.2583	118.0	60.0	906-000-097	906-000-098
#4	0.1250	0.3125	0.3184	2.1250	0.3184	118.0	60.0	906-000-112	906-000-113
#5	0.1875	0.4375	0.4505	2.7500	0.4505	118.0	60.0	906-000-127	906-000-128
#6	0.2188	0.5000	0.5165	3.0000	0.5165	118.0	60.0	906-000-142	906-000-143
#7	0.2500	0.6250	0.6367	3.2500	0.6367	118.0	60.0	906-000-157	906-000-158
#8	0.3125	0.7500	0.7688	3.5000	0.7688	118.0	60.0	906-000-172	906-000-173



- Bell hey-type single end center drills with a bell tip have flats on their end that accept carbide inserts
- Used on Hey machines for facing a workpiece and creating center holes on it so it can be turned between centers on a lathe
- Have a bell tip with an additional 120° chamfer that bevels the outer edge of the hole to help protect the hole from damage during machining applications
- Commonly used in applications where parts will go through multiple machining passes and there is risk of marring the edges of the center hole
- Set Screw flats for locking the center drills into the tool holder



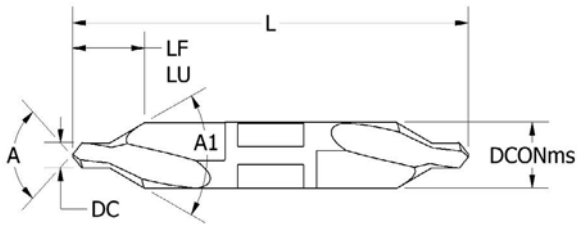
SIZE	DC [in.]	DCONMS [in.]	DC1 [in.]	LU [in.]	L [in.]	LF [in.]	A [°]	A1 [°]	A2 [°]	HSS	HSS-TiN
#11	0.0469	0.1250	0.1000	0.1117	1.2500	0.1117	118.0	60.0	120.0	906-000-207	906-000-208
#12	0.0625	0.1875	0.1500	0.1646	1.8750	0.1646	118.0	60.0	120.0	906-000-216	906-000-217
#13	0.0938	0.2500	0.2000	0.2234	2.0000	0.2234	118.0	60.0	120.0	906-000-225	906-000-226
#14	0.1094	0.3125	0.2500	0.2763	2.1250	0.2763	118.0	60.0	120.0	906-000-234	906-000-235
#15	0.1563	0.4375	0.3500	0.3880	2.7500	0.3880	118.0	60.0	120.0	906-000-243	906-000-244
#16	0.1875	0.5000	0.4000	0.4469	3.0000	0.4469	118.0	60.0	120.0	906-000-252	906-000-253
#17	0.2188	0.6250	0.5000	0.5526	3.2500	0.5526	118.0	60.0	120.0	906-000-261	906-000-262
#18	0.2500	0.7500	0.6000	0.6584	3.5000	0.6584	118.0	60.0	120.0	906-000-270	906-000-271

HSS



HSS

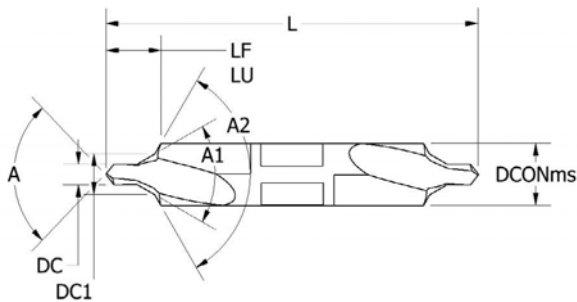
- Plain hey-type center drills with a bell tip have flats on their end that accept carbide inserts
- Standard choice for creating center holes in a piece of stock to prepare it for turning between centers on a lathe
- Commonly used in applications where parts will go through multiple machining passes and there is risk of marring the edges of the center hole
- Set Screw flats for locking the center drills into the tool holder



SIZE	DC [in.]	DCNMS [in.]	LU [in.]	L [in.]	LF [in.]	A [°]	A1 [°]	HSS	HSS-TiN
#1	0.0469	0.1250	0.1262	1.2500	0.1262	118.0	60.0	906-000-065	906-000-066
#2	0.0781	0.1875	0.1922	1.8750	0.1922	118.0	60.0	906-000-080	906-000-081
#3	0.1094	0.2500	0.2583	2.0000	0.2583	118.0	60.0	906-000-095	906-000-096
#4	0.1250	0.3125	0.3184	2.1250	0.3184	118.0	60.0	906-000-110	906-000-111
#5	0.1875	0.4375	0.4505	2.7500	0.4505	118.0	60.0	906-000-125	906-000-126
#6	0.2188	0.5000	0.5165	3.0000	0.5165	118.0	60.0	906-000-140	906-000-141
#7	0.2500	0.6250	0.6367	3.2500	0.6367	118.0	60.0	906-000-155	906-000-156
#8	0.3125	0.7500	0.7688	3-1/2	0.7688	118.0	60.0	906-000-170	906-000-171



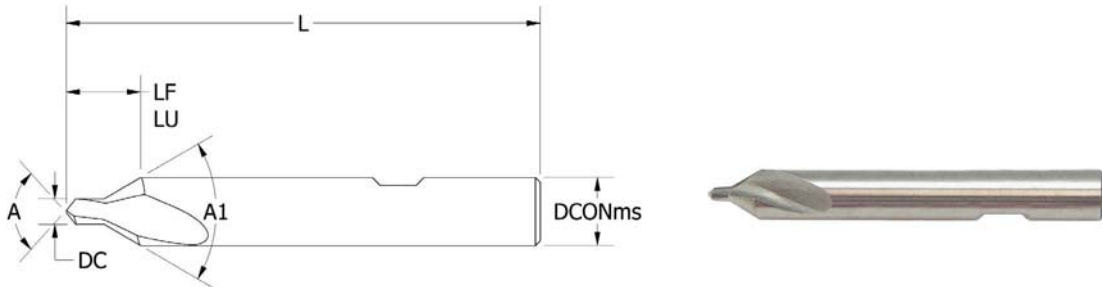
- Bell hey-type double end center drills with a bell tip have flats on their end that accept carbide inserts
- Used on Hey machines for facing a workpiece and creating center holes on it so it can be turned between centers on a lathe
- Have a bell tip with an additional 120° chamfer that bevels the outer edge of the hole to help protect the hole from damage during machining applications
- Commonly used in applications where parts will go through multiple machining passes and there is risk of marring the edges of the center hole
- Set Screw flats for locking the center drills into the tool holder



SIZE	DC [in.]	DCONMS [in.]	DC1 [in.]	LU [in.]	L [in.]	LF [in.]	A [°]	A1 [°]	A2 [°]	HSS	HSS-TiN
#11	0.0469	0.1250	0.1000	0.1117	1.2500	0.1117	118.0	60.0	120.0	906-000-205	906-000-206
#12	0.0625	0.1875	0.1500	0.1646	1.8750	0.1646	118.0	60.0	120.0	906-000-214	906-000-215
#13	0.0938	0.2500	0.2000	0.2234	2.0000	0.2234	118.0	60.0	120.0	906-000-223	906-000-224
#14	0.1094	0.3125	0.2500	0.2763	2.1250	0.2763	118.0	60.0	120.0	906-000-232	906-000-233
#15	0.1563	0.4375	0.3500	0.3880	2.7500	0.3880	118.0	60.0	120.0	906-000-241	906-000-242
#16	0.1875	0.5000	0.4000	0.4469	3.0000	0.4469	118.0	60.0	120.0	906-000-250	906-000-251
#17	0.2188	0.6250	0.5000	0.5526	3.2500	0.5526	118.0	60.0	120.0	906-000-259	906-000-260
#18	0.2500	0.7500	0.6000	0.6000	3.5000	0.6000	118.0	60.0	120.0	906-000-268	906-000-269



Jig Bore Type and countersinks are used for producing center holes in components or workpieces which require machining between centers and are manufactured with a locking set Screw flat.



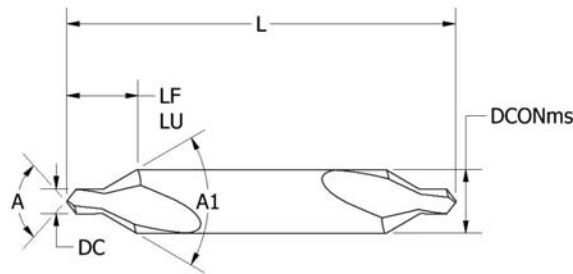
DC [in.]	DCONMS [in.]	LU [in.]	L [in.]	LF [in.]	A [°]	A1 [°]	HSS
0.0625	0.3750	0.3486	3.0000	0.3486	118.0	60.0	906-000-291
0.0938	0.3750	0.3606	3.0000	0.3606	118.0	60.0	906-000-294
0.1250	0.3750	0.3725	3.0000	0.3725	118.0	60.0	906-000-292
0.1563	0.3750	0.3844	3.0000	0.3844	118.0	60.0	906-000-295
0.1875	0.3750	0.3964	3.0000	0.3964	118.0	60.0	906-000-293
0.1250	0.5000	0.4807	3.5000	0.4807	118.0	60.0	906-000-285
0.1875	0.5000	0.5046	3.5000	0.5046	118.0	60.0	906-000-286
0.2188	0.5000	0.5165	3.5000	0.5165	118.0	60.0	906-000-287
0.2500	0.5000	0.5285	3.5000	0.5285	118.0	60.0	906-000-284
0.2813	0.5000	0.5404	3.5000	0.5404	118.0	60.0	906-000-288

JIG BORE CENTER DRILL & COUNTERSINK SETS



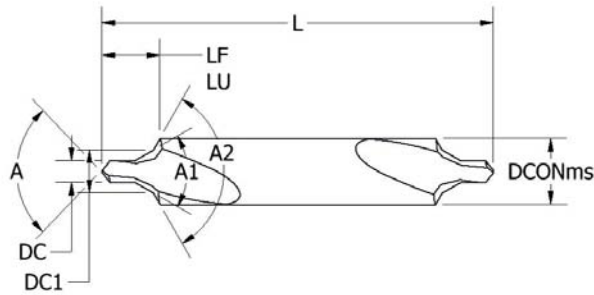
BODY DIAMETER (DCONMS)	POINT DIAMETER (DC)	PRODUCT #
3/8	1/16	906-000-290
	3/32	
	1/8	
	5/32	
	3/16	
1/2	1/8	906-000-289
	3/16	
	7/32	
	1/4	
	9/32	

HSS



DIN332-A Hole Design	DIN333-A DESIGNATION	DC [mm]	DCONMS [mm]	L [mm]	LF / LU [mm]	A [°]	A1 [°]	Material	Hand of Cut	UNCOATED	TIN COATED	TIAIN COATED
0,5 x 1,06	0,5 x 3,15	0.50	3.15	25.00	3.09	118.0	60.0	HSS	R	906-000-320	906-001-277	906-001-275
0,5 x 1,06	0,5 x 3,15	0.50	3.15	25.00	0.37	118.0	60.0	HSS-E	R	906-000-334	906-001-331	906-001-329
0,5 x 1,06	0,5 x 3,15	0.50	3.15	25.00	0.37	118.0	60.0	Carb	R	906-000-348	906-001-373	906-001-371
0,8 x 1,7	0,8 x 3,15	0.80	3.15	25.00	3.14	118.0	60.0	HSS	R	906-000-321	906-001-281	906-001-279
0,8 x 1,7	0,8 x 3,15	0.80	3.15	25.00	0.41	118.0	60.0	HSS-E	R	906-000-335	906-001-334	906-001-332
0,8 x 1,7	0,8 x 3,15	0.80	3.15	25.00	0.41	118.0	60.0	Carb	R	906-000-349	906-001-376	906-001-374
1 x 2,12	1 x 3,15	1.00	3.15	31.50	3.16	118.0	60.0	HSS	R	906-000-322	906-001-285	906-001-283
1 x 2,12	1 x 3,15	1.00	3.15	31.50	3.16	118.0	60.0	HSS-E	R	906-000-336	906-001-337	906-001-335
1 x 2,12	1 x 3,15	1.00	3.15	31.50	3.16	118.0	60.0	Carb	R	906-000-350	906-001-379	906-001-377
1,25 x 2,65	1,25 x 3,15	1.25	3.15	31.50	3.25	118.0	60.0	HSS	R	906-000-323	906-001-289	906-001-287
1,25 x 2,65	1,25 x 3,15	1.25	3.15	31.50	3.25	118.0	60.0	HSS-E	R	906-000-337	906-001-340	906-001-338
1,25 x 2,65	1,25 x 3,15	1.25	3.15	31.50	3.25	118.0	60.0	Carb	R	906-000-351	906-001-382	906-001-380
1,6 x 3,35	1,6 x 4	1.60	4.00	35.50	4.08	118.0	60.0	HSS	R	906-000-324	906-001-293	906-001-291
1,6 x 3,35	1,6 x 4	1.60	4.00	35.50	4.08	118.0	60.0	HSS-E	R	906-000-344	906-001-361	906-001-359
1,6 x 3,35	1,6 x 4	1.60	4.00	35.50	4.08	118.0	60.0	Carb	R	906-000-355	906-001-394	906-001-392
2 x 4,25	2 x 5	2.00	5.00	40.00	5.10	118.0	60.0	HSS	R	906-000-325	906-001-297	906-001-295
2 x 4,25	2 x 5	2.00	5.00	40.00	5.10	118.0	60.0	HSS-E	R	906-000-345	906-001-364	906-001-362
2 x 4,25	2 x 5	2.00	5.00	40.00	5.10	118.0	60.0	Carb	R	906-000-356	906-001-397	906-001-395
2,5 x 5,3	2,5 x 6,3	2.50	6.30	45.00	6.39	118.0	60.0	HSS	R	906-000-326	906-001-301	906-001-299
2,5 x 5,3	2,5 x 6,3	2.50	6.30	45.00	6.39	118.0	60.0	HSS-E	R	906-000-346	906-001-367	906-001-365
2,5 x 5,3	2,5 x 6,3	2.50	6.30	45.00	6.39	118.0	60.0	Carb	R	906-000-357	906-001-400	906-001-398
3,15 x 6,7	3,15 x 8	3.15	8.00	50.00	8.10	118.0	60.0	HSS	R	906-000-327	906-001-305	906-001-303
3,15 x 6,7	3,15 x 8	3.15	8.00	50.00	8.10	118.0	60.0	HSS-E	R	906-000-347	906-001-370	906-001-368
3,15 x 6,7	3,15 x 8	3.15	8.00	50.00	8.10	118.0	60.0	Carb	R	906-000-358	906-001-403	906-001-401
4 x 8,5	4 x 10	4.00	10.00	56.00	10.20	118.0	60.0	HSS	R	906-000-328	906-001-309	906-001-307
4 x 8,5	4 x 10	4.00	10.00	56.00	10.20	118.0	60.0	HSS-E	R	906-000-338	906-001-343	906-001-341
4 x 8,5	4 x 10	4.00	10.00	56.00	10.20	118.0	60.0	Carb	R	906-000-352	906-001-385	906-001-383
5 x 10,6	5 x 12,5	5.00	12.50	63.00	12.80	118.0	60.0	HSS	R	906-000-329	906-001-313	906-001-311
5 x 10,6	5 x 12,5	5.00	12.50	63.00	12.80	118.0	60.0	HSS-E	R	906-000-339	906-001-346	906-001-344
5 x 10,6	5 x 12,5	5.00	12.50	63.00	12.80	118.0	60.0	Carb	R	906-000-353	906-001-388	906-001-386
6,3 x 13,2	6,3 x 16	6.30	16.00	71.00	16.40	118.0	60.0	HSS	R	906-000-330	906-001-317	906-001-315
6,3 x 13,2	6,3 x 16	6.30	16.00	71.00	16.40	118.0	60.0	HSS-E	R	906-000-340	906-001-349	906-001-347
6,3 x 13,2	6,3 x 16	6.30	16.00	71.00	16.40	118.0	60.0	Carb	R	906-000-354	906-001-391	906-001-389
8 x 17	8 x 20	8.00	20.00	80.00	20.49	118.0	60.0	HSS	R	906-000-331	906-001-321	906-001-319
8 x 17	8 x 20	8.00	20.00	80.00	20.49	118.0	60.0	HSS-E	R	906-000-341	906-001-352	906-001-350
10 x 21,2	10 x 25	10.00	25.00	100.00	25.79	118.0	60.0	HSS	R	906-000-332	906-001-325	906-001-323
10 x 21,2	10 x 25	10.00	25.00	100.00	25.79	118.0	60.0	HSS-E	R	906-000-342	906-001-355	906-001-353
12,5 x 26,5	12,5 x 31,5	12.50	31.50	125.00	32.95	118.0	60.0	HSS	R	906-000-333	906-001-328	906-001-326
12,5 x 26,5	12,5 x 31,5	12.50	31.50	125.00	32.95	118.0	60.0	HSS-E	R	906-000-343	906-001-358	906-001-356

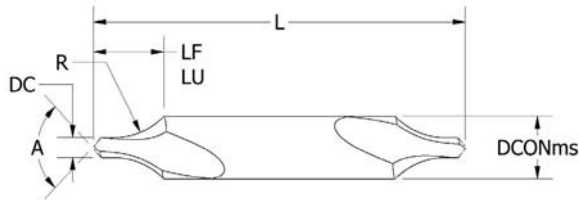
HSS-E is Cobalt



DIN332-B Hole Design	DIN333-B DESIGNATION	DC [mm]	DC1 [mm]	DCONMS [mm]	L [mm]	LF / LU [mm]	A [°]	A1 [°]	A2 [°]	Material	Hand of Cut	UNCOATED	TIN COATED	TiAIN COATED
1 x 2,12	1 x 4	1.00	2.12	4.00	35.50	2.81	118.0	60.0	120.0	HSS	R	906-000-359	906-001-407	906-001-405
1 x 2,12	1 x 4	1.00	2.12	4.00	35.50	2.81	118.0	60.0	120.0	HSS-E	R	906-000-377	906-001-470	906-001-468
1,25 x 2,65	1,25 x 5	1.25	2.65	5.00	40.00	3.49	118.0	60.0	120.0	HSS	R	906-000-360	906-001-411	906-001-409
1,25 x 2,65	1,25 x 5	1.25	2.65	5.00	40.00	3.49	118.0	60.0	120.0	HSS-E	R	906-000-378	906-001-473	906-001-471
1,6 x 3,35	1,6 x 6,3	1.60	3.35	6.30	45.00	4.37	118.0	60.0	120.0	HSS	R	906-000-361	906-001-415	906-001-413
1,6 x 3,35	1,6 x 6,3	1.60	3.35	6.30	45.00	4.37	118.0	60.0	120.0	HSS-E	R	906-000-379	906-001-476	906-001-474
2 x 4,25	2 x 8	2.00	4.25	8.00	50.00	5.53	118.0	60.0	120.0	HSS	R	906-000-362	906-001-419	906-001-417
2 x 4,25	2 x 8	2.00	4.25	8.00	50.00	5.53	118.0	60.0	120.0	HSS-E	R	906-000-380	906-001-479	906-001-477
2,5 x 5,3	2,5 x 10	2.50	5.30	10.00	56.00	6.88	118.0	60.0	120.0	HSS	R	906-000-363	906-001-423	906-001-421
2,5 x 5,3	2,5 x 10	2.50	5.30	10.00	56.00	6.88	118.0	60.0	120.0	HSS-E	R	906-000-370	906-001-449	906-001-447
3,15 x 6,7	3,15 x 11,2	3.15	6.70	11.20	60.00	8.27	118.0	60.0	120.0	HSS	R	906-000-364	906-001-427	906-001-425
3,15 x 6,7	3,15 x 11,2	3.15	6.70	11.20	60.00	8.27	118.0	60.0	120.0	HSS-E	R	906-000-371	906-001-452	906-001-450
4 x 8,5	4 x 14	4.00	8.50	14.00	67.00	10.48	118.0	60.0	120.0	HSS	R	906-000-365	906-001-431	906-001-429
4 x 8,5	4 x 14	4.00	8.50	14.00	67.00	10.48	118.0	60.0	120.0	HSS-E	R	906-000-372	906-001-455	906-001-453
5 x 10,6	5 x 18	5.00	10.60	18.00	75.00	13.29	118.0	60.0	120.0	HSS	R	906-000-366	906-001-435	906-001-433
5 x 10,6	5 x 18	5.00	10.60	18.00	75.00	13.29	118.0	60.0	120.0	HSS-E	R	906-000-373	906-001-458	906-001-456
6,3 x 13,2	6,3 x 20	6.30	13.20	20.00	80.00	15.94	118.0	60.0	120.0	HSS	R	906-000-367	906-001-439	906-001-437
6,3 x 13,2	6,3 x 20	6.30	13.20	20.00	80.00	15.94	118.0	60.0	120.0	HSS-E	R	906-000-374	906-001-461	906-001-459
8 x 17	8 x 25	8.00	17.00	25.00	100.00	20.20	118.0	60.0	120.0	HSS	R	906-000-368	906-001-443	906-001-441
8 x 17	8 x 25	8.00	17.00	25.00	100.00	20.20	118.0	60.0	120.0	HSS-E	R	906-000-375	906-001-464	906-001-462
10 x 21,2	10 x 31,5	10.00	21.20	31.50	125.00	25.47	118.0	60.0	120.0	HSS	R	906-000-369	906-001-446	906-001-444
10 x 21,2	10 x 31,5	10.00	21.20	31.50	125.00	25.47	118.0	60.0	120.0	HSS-E	R	906-000-376	906-001-467	906-001-465

HSS-E is Cobalt

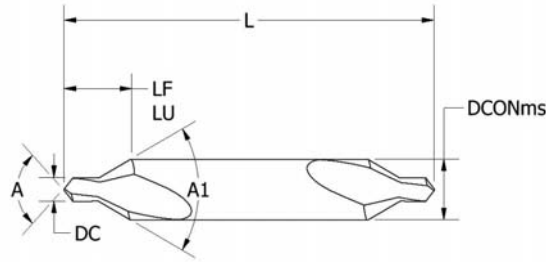
HSS
COBALT



PG.498



DIN332-R Hole Design.	DIN333-R DESIGNATION	DC [mm]	R [mm]	DCONMS [mm]	L [mm]	LF / LU [mm]	A [°]	Material	Hand of Cut	UNCOATED	TIN COATED	TIAIN COATED
0,5 x 1,05	0,5 x 3,15	0.50	1.60	3.15	25.00	2.12	118.0	HSS	R	906-000-381	906-001-483	906-001-481
0,5 x 1,05	0,5 x 3,15	0.50	1.60	3.15	25.00	2.12	118.0	HSS	R	906-000-395	906-001-526	906-001-524
0,8 x 1,7	0,8 x 3,15	0.80	2.50	3.15	25.00	2.65	118.0	HSS	R	906-000-382	906-001-487	906-001-485
0,8 x 1,7	0,8 x 3,15	0.80	2.50	3.15	25.00	2.65	118.0	HSS	R	906-000-396	906-001-529	906-001-527
1 x 2,12	1 x 3,15	1.00	3.15	3.15	31.50	3.00	118.0	HSS	R	906-000-383	906-001-490	906-001-488
1 x 2,12	1 x 3,15	1.00	3.15	3.15	31.50	3.00	118.0	HSS	R	906-000-397	906-001-532	906-001-530
1,25 x 2,65	1,25 x 3,15	1.25	4.00	3.15	31.50	3.35	118.0	HSS	R	906-000-384	906-001-493	906-001-491
1,25 x 2,65	1,25 x 3,15	1.25	4.00	3.15	31.50	3.35	118.0	HSS	R	906-000-398	906-001-535	906-001-533
1,6 x 3,35	1,6 x 4	1.60	5.00	4.00	35.50	4.25	118.0	HSS	R	906-000-385	906-001-496	906-001-494
1,6 x 3,35	1,6 x 4	1.60	5.00	4.00	35.50	4.25	118.0	HSS	R	906-000-405	906-001-556	906-001-554
10 x 21,2	10 x 25	10.00	31.50	25.00	100.00	26.50	118.0	HSS	R	906-000-393	906-001-520	906-001-518
10 x 21,2	10 x 25	10.00	31.50	25.00	100.00	26.50	118.0	HSS	R	906-000-403	906-001-550	906-001-548
12,5 x 26,5	12,5 x 31,5	12.50	40.00	31.50	125.00	33.50	118.0	HSS	R	906-000-394	906-001-523	906-001-521
12,5 x 26,5	12,5 x 31,5	12.50	40.00	31.50	125.00	33.50	118.0	HSS	R	906-000-404	906-001-553	906-001-551
2 x 4,25	2 x 5	2.00	6.30	5.00	40.00	5.30	118.0	HSS-E	R	906-000-386	906-001-499	906-001-497
2 x 4,25	2 x 5	2.00	6.30	5.00	40.00	5.30	118.0	HSS-E	R	906-000-406	906-001-559	906-001-557
2,5 x 5,3	2,5 x 6,3	2.50	8.00	6.30	45.00	6.70	118.0	HSS-E	R	906-000-387	906-001-502	906-001-500
2,5 x 5,3	2,5 x 6,3	2.50	8.00	6.30	45.00	6.70	118.0	HSS-E	R	906-000-407	906-001-562	906-001-560
3,15 x 6,7	3,15 x 8	3.15	10.00	8.00	50.00	8.50	118.0	HSS-E	R	906-000-388	906-001-505	906-001-503
3,15 x 6,7	3,15 x 8	3.15	10.00	8.00	50.00	8.50	118.0	HSS-E	R	906-000-408	906-001-565	906-001-563
4 x 8,5	4 x 10	4.00	12.50	10.00	56.00	10.60	118.0	HSS-E	R	906-000-389	906-001-508	906-001-506
4 x 8,5	4 x 10	4.00	12.50	10.00	56.00	10.60	118.0	HSS-E	R	906-000-399	906-001-538	906-001-536
5 x 10,6	5 x 12,5	5.00	16.00	12.50	63.00	13.20	118.0	HSS-E	R	906-000-390	906-001-511	906-001-509
5 x 10,6	5 x 12,5	5.00	16.00	12.50	63.00	13.20	118.0	HSS-E	R	906-000-400	906-001-541	906-001-539
6,3 x 13,2	6,3 x 16	6.30	20.00	16.00	71.00	17.00	118.0	HSS-E	R	906-000-391	906-001-514	906-001-512
6,3 x 13,2	6,3 x 16	6.30	20.00	16.00	71.00	17.00	118.0	HSS-E	R	906-000-401	906-001-544	906-001-542
8 x 17	8 x 20	8.00	25.00	20.00	80.00	21.20	118.0	HSS-E	R	906-000-392	906-001-517	906-001-515
8 x 17	8 x 20	8.00	25.00	20.00	80.00	21.20	118.0	HSS-E	R	906-000-402	906-001-547	906-001-545



DC [mm]	DCONMS [mm]	LU [mm]	L [mm]	LF [mm]	A [°]	A1 [°]	PRODUCT #
0.75	3.50	3.38	60.00	3.38	118.0	60.0	907-000-001
1.00	4.00	3.90	60.00	3.90	118.0	60.0	907-000-002
1.50	5.00	5.03	60.00	5.03	118.0	60.0	907-000-003
2.00	6.00	5.96	80.00	5.96	118.0	60.0	907-000-004
2.50	8.00	7.86	80.00	7.86	118.0	60.0	907-000-005
3.00	8.00	8.23	80.00	8.23	118.0	60.0	907-000-006
1.00	4.00	3.90	100.0	3.90	118.0	60.0	907-000-007
1.50	5.00	5.03	100.0	5.03	118.0	60.0	907-000-008
2.00	6.00	5.96	100.0	5.96	118.0	60.0	907-000-009
2.50	8.00	7.86	100.0	7.86	118.0	60.0	907-000-010
3.00	8.00	8.23	100.0	8.23	118.0	60.0	907-000-011
3.00	10.00	9.96	100.0	9.96	118.0	60.0	907-000-012
4.00	10.00	10.20	100.0	10.20	118.0	60.0	907-000-013
4.00	12.00	11.93	100.0	11.93	118.0	60.0	907-000-014
5.00	12.00	12.36	100.0	12.36	118.0	60.0	907-000-015
0.75	3.50	3.38	120.0	3.38	118.0	60.0	907-000-016
1.00	4.00	3.90	120.0	3.90	118.0	60.0	907-000-017
1.60	5.00	4.94	120.0	4.94	118.0	60.0	907-000-018
2.00	6.00	5.96	120.0	5.96	118.0	60.0	907-000-019
2.50	8.00	7.86	120.0	7.86	118.0	60.0	907-000-020
3.00	8.00	8.23	120.0	8.23	118.0	60.0	907-000-021
3.00	10.00	9.96	120.0	9.96	118.0	60.0	907-000-022
3.15	10.00	9.83	120.0	9.83	118.0	60.0	907-000-023
3.15	10.00	9.83	120.0	9.83	118.0	60.0	907-000-024
4.00	12.00	11.93	120.0	11.93	118.0	60.0	907-000-025
5.00	14.00	14.09	120.0	14.09	118.0	60.0	907-000-026
1.50	5.00	5.03	150.00	5.03	118.0	60.0	907-000-027
1.00	4.00	3.90	150.0	3.90	118.0	60.0	907-000-028
1.50	5.00	5.03	150.0	5.03	118.0	60.0	907-000-029
2.00	6.00	5.96	150.0	5.96	118.0	60.0	907-000-030
2.50	8.00	7.86	150.0	7.86	118.0	60.0	907-000-031
3.00	8.00	8.23	150.0	8.23	118.0	60.0	907-000-032
3.00	10.00	9.96	150.0	9.96	118.0	60.0	907-000-033
4.00	10.00	10.20	150.0	10.20	118.0	60.0	907-000-034
4.00	12.00	11.93	150.0	11.93	118.0	60.0	907-000-035
6.30	16.00	16.40	150.0	16.40	118.0	60.0	907-000-036
2.00	5.00	5.10	200.0	5.10	118.0	60.0	907-000-037
2.50	6.30	6.39	200.0	6.39	118.0	60.0	907-000-038
3.15	8.00	8.10	200.0	8.10	118.0	60.0	907-000-039
4.00	10.00	10.20	200.0	10.20	118.0	60.0	907-000-040

COBALT



NEED IT FAST? NO PROBLEM

HOTSHOP!

Beat tight deadlines and production stalls. Use HOTSHOP! to order expedited solid carbide round tools.

- Handled by one facility
- Made-from-blank
- Covers most tool round profiles
- Quotes in 4 hours
- Select 24-hour recoats
- Delivered in 5 days or less

HOTSHOP! RAPID REAMER

The same HOTSHOP! program you rely on for beating deadlines, but with a focus on solid carbide, uncoated chucking reamers.

- Handled by one facility
- Made-from-blank
- Uncoated chucking reamers
- Quotes in 4 hours
- Select 24-hour recoats
- Delivered in 5 days or less



ROUND TOOL PROFILES

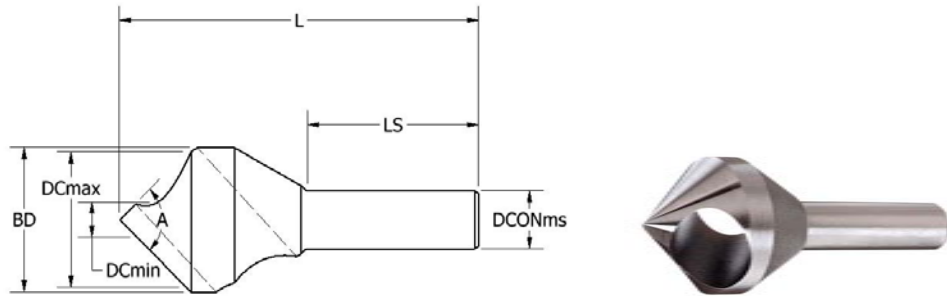
HOTSHOP! can service most solid carbide round tool profiles, including milling, single step drilling, multi step drilling, reaming.

SUBMIT A QUOTE ONLINE



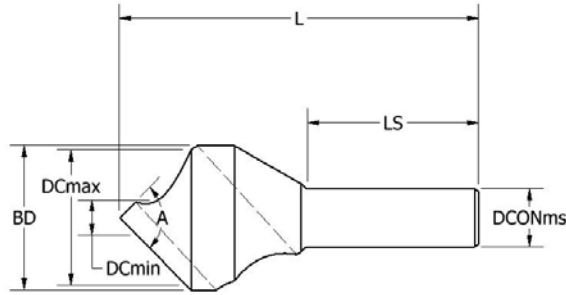
COUNTERSINKS

ARCH[®]
Cutting Tools



COBALT

BD [in.]	A [°]	DCONMS [in.]	LS [in.]	L [in.]	DCMAX [in.]	DCMIN [in.]	UNCOATED	TIN COATED
0.3125	60.0	0.2500	1.2500	1.8750	0.2813	0.1094	919-000-185	919-000-186
0.3750	60.0	0.2500	1.2500	1.8750	0.3438	0.1563	919-000-187	919-000-188
0.5000	60.0	0.3125	1.2500	2.0000	0.4531	0.1719	919-000-189	919-000-190
0.6250	60.0	0.3750	1.3750	2.5000	0.5781	0.1875	919-000-191	919-000-192
0.7500	60.0	0.3750	1.5000	2.7500	0.7031	0.2500	919-000-193	919-000-194
1.0000	60.0	0.3750	1.2500	3.0000	0.8438	0.2969	919-000-195	919-000-196
1.2500	60.0	0.5000	1.5000	3.5000	1.0313	0.4219	919-000-197	919-000-198
0.3125	82.0	0.2500	1.2500	1.6250	0.2813	0.0938	919-000-202	919-000-203
0.3750	82.0	0.2500	1.2500	1.7500	0.3438	0.1406	919-000-204	919-000-205
0.5000	82.0	0.3125	1.2500	1.7500	0.4531	0.1563	919-000-206	919-000-207
0.6250	82.0	0.3750	1.3750	2.1250	0.5781	0.1719	919-000-208	919-000-209
0.7500	82.0	0.3750	1.5000	2.3750	0.7031	0.2031	919-000-210	919-000-211
1.0000	82.0	0.3750	1.2500	2.6250	0.9219	0.2969	919-000-212	919-000-213
1.2500	82.0	0.5000	1.5000	3.1250	1.0938	0.3594	919-000-214	919-000-215
0.3125	90.0	0.2500	1.2500	1.6250	1.0938	0.3594	919-000-219	919-000-220
0.3750	90.0	0.2500	1.2500	1.7500	0.3438	0.1406	919-000-221	919-000-222
0.5000	90.0	0.3125	1.2500	1.7500	0.4531	0.1563	919-000-223	919-000-224
0.6250	90.0	0.3750	1.3750	2.1250	0.5781	0.1719	919-000-225	919-000-226
0.7500	90.0	0.3750	1.5000	2.3750	0.7031	0.2031	919-000-227	919-000-228
1.0000	90.0	0.3750	1.2500	2.6250	0.9219	0.2969	919-000-229	919-000-230
1.2500	90.0	0.5000	1.5000	3.1250	1.0938	0.3594	919-000-231	919-000-232



BD [in.]	A [°]	DCONMS [in.]	LS [in.]	L [in.]	DCMAX [in.]	DCMIN [in.]	UNCOATED	TiN COATED
0.3125	100.0	0.2500	1.2500	1.6250	0.2813	0.0938	919-000-236	919-000-237
0.3750	100.0	0.2500	1.2500	1.7500	0.3438	0.1406	919-000-238	919-000-239
0.5000	100.0	0.3125	1.2500	1.7500	0.4531	0.1563	919-000-240	919-000-241
0.6250	100.0	0.3750	1.3750	2.1250	0.5781	0.1719	919-000-242	919-000-243
0.7500	100.0	0.3750	1.5000	2.3750	0.7031	0.2031	919-000-244	919-000-245
1.0000	100.0	0.3750	1.2500	2.6250	0.9219	0.2969	919-000-246	919-000-247
1.2500	100.0	0.5000	1.5000	3.1250	1.1250	0.3594	919-000-248	919-000-249

COBALT

ZERO COUNTERSINK & DEBURRING SETS

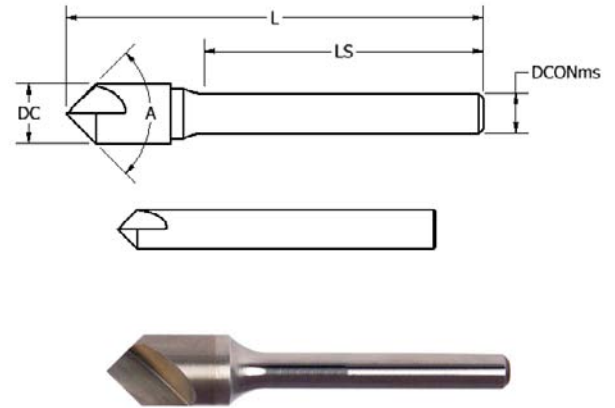


COUNTERSINK ANGLE	4-PIECE SET	5-PIECE SET	5-PIECE COATED SET
60°	919-000-199	919-000-200	919-000-201
82°	919-000-216	919-000-217	919-000-218
90°	919-000-233	919-000-234	919-000-235
100°	919-000-250	919-000-251	919-000-252
BODY DIAMETERS	5/16, 3/8, 1/2, 5/8	5/16, 3/8, 1/2, 3/4, 1	5/16, 3/8, 1/2, 3/4, 1

CARBIDE

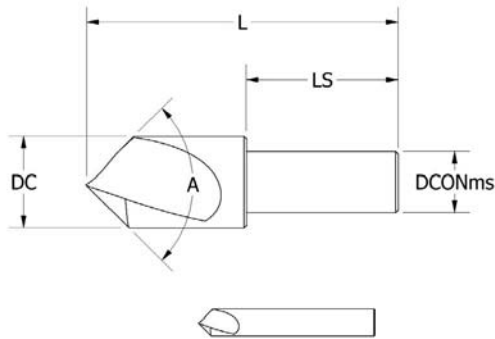


DC [in.]	A [°]	DCONMS [in.]	LS [in.]	L [in.]	UNCOATED	TiAlN COATED
0.1250	60.0	0.1250	0.7500	1.5000	919-000-909	919-000-910
0.1875	60.0	0.1875	1.0000	2.0000	919-000-911	919-000-912
0.2500	60.0	0.2500	1.0000	2.0000	919-000-913	919-000-914
0.3750	60.0	0.2500	1.7500	2.8750	919-000-915	919-000-916
0.5000	60.0	0.2500	1.6250	2.8750	919-000-917	919-000-918
0.6250	60.0	0.3750	1.6250	3.0000	919-000-919	919-000-920
0.7500	60.0	0.3750	1.5000	3.0000	919-000-921	919-000-922
1.0000	60.0	0.5000	1.5000	3.2500	919-000-923	919-000-924
1.2500	60.0	0.7500	1.5000	3.7500	919-000-925	919-000-926
0.1250	82.0	0.1250	0.7500	1.5000	919-000-929	919-000-930
0.1875	82.0	0.1875	1.0000	2.0000	919-000-931	919-000-932
0.2500	82.0	0.2500	1.0000	2.0000	919-000-933	919-000-934
0.3750	82.0	0.2500	1.7500	2.6250	919-000-935	919-000-936
0.5000	82.0	0.2500	1.6250	2.6250	919-000-937	919-000-938
0.6250	82.0	0.3750	1.6250	2.7500	919-000-939	919-000-940
0.7500	82.0	0.3750	1.5000	2.7500	919-000-941	919-000-942
1.0000	82.0	0.5000	1.5000	3.0000	919-000-943	919-000-944
1.2500	82.0	0.7500	1.5000	3.2500	919-000-945	919-000-946
0.1250	90.0	0.1250	0.7500	1.5000	919-000-949	919-000-950
0.1875	90.0	0.1875	1.0000	2.0000	919-000-951	919-000-952
0.2500	90.0	0.2500	1.0000	2.0000	919-000-953	919-000-954
0.3750	90.0	0.2500	1.7500	2.6250	919-000-955	919-000-956
0.5000	90.0	0.2500	1.6250	2.6250	919-000-957	919-000-958
0.6250	90.0	0.3750	1.6250	2.7500	919-000-959	919-000-960
0.7500	90.0	0.3750	1.5000	2.7500	919-000-961	919-000-962
1.0000	90.0	0.5000	1.5000	3.0000	919-000-963	919-000-964
1.2500	90.0	0.7500	1.5000	3.2500	919-000-965	919-000-966
0.1250	100.0	0.1250	0.7500	1.5000	919-000-969	919-000-970
0.1875	100.0	0.1875	1.0000	2.0000	919-000-971	919-000-972
0.2500	100.0	0.2500	1.0000	2.0000	919-000-973	919-000-974
0.3750	100.0	0.2500	1.7500	2.6250	919-000-975	919-000-976
0.5000	100.0	0.2500	1.6250	2.6250	919-000-977	919-000-978
0.6250	100.0	0.3750	1.6250	2.7500	919-000-979	919-000-980
0.7500	100.0	0.3750	1.5000	2.7500	919-000-981	919-000-982
1.0000	100.0	0.5000	1.5000	3.0000	919-000-983	919-000-984
1.2500	100.0	0.7500	1.5000	3.2500	919-000-985	919-000-986



CARBIDE COUNTERSINK SETS

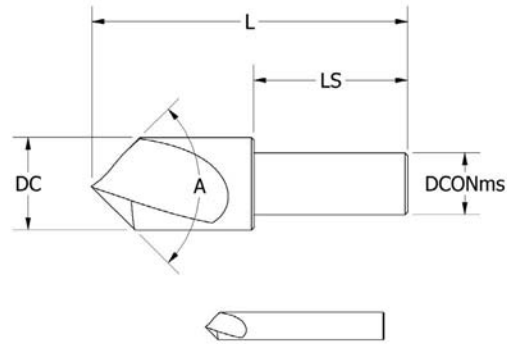
COUNTERSINK ANGLE	SINGLE-FLUTE SET	3-FLUTE SET	6-FLUTE SET
60°	919-000-927	917-000-319	919-001-010
60°	919-000-928	917-000-320	919-001-011
82°	919-000-947	917-000-339	919-001-032
82°	919-000-948	917-000-340	919-001-033
90°	919-000-967	917-000-359	919-001-054
90°	919-000-968	917-000-360	919-001-055
100°	919-000-987	917-000-379	919-001-077
100°	919-000-988	917-000-380	919-001-078
BODY DIAMETER	1/4, 3/8, 1/2, 5/8 and 3/4"		



HSS

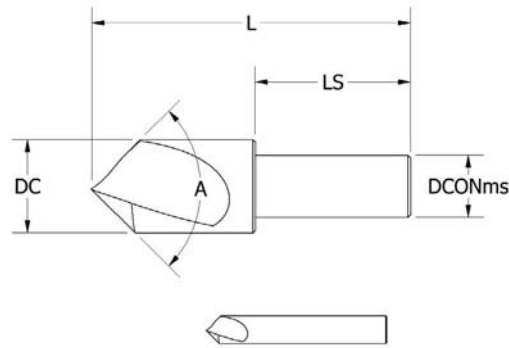
DC [in.]	A [°]	DCONMS [in.]	LS [in.]	L [in.]	UNCOATED	TiN COATED
0.1250	60.0	0.1250	0.6250	1.2500	919-000-107	919-000-108
0.1875	60.0	0.1875	0.6875	1.3750	919-000-095	919-000-096
0.2500	60.0	0.2500	0.7500	1.5000	919-000-083	919-000-084
0.3750	60.0	0.2500	0.8750	1.7500	919-000-167	919-000-168
0.5000	60.0	0.2500	1.0000	2.0000	919-000-071	919-000-072
0.6250	60.0	0.3750	1.0000	2.2500	919-000-259	919-000-260
0.7500	60.0	0.5000	1.2500	2.6250	919-000-155	919-000-156
1.0000	60.0	0.5000	1.2500	2.7500	919-000-059	919-000-060
1.2500	60.0	0.5000	1.2500	3.0000	919-000-143	919-000-144
1.5000	60.0	0.7500	1.2500	3.2500	919-000-131	919-000-132
1.7500	60.0	0.7500	1.2500	3.5000	919-000-179	919-000-180
2.0000	60.0	0.7500	1.2500	3.7500	919-000-119	919-000-120
0.1250	82.0	0.1250	0.6250	1.2500	919-000-109	919-000-110
0.1875	82.0	0.1875	0.6875	1.3750	919-000-097	919-000-098
0.2500	82.0	0.2500	0.7500	1.5000	919-000-085	919-000-086
0.3750	82.0	0.2500	0.8750	1.7500	919-000-169	919-000-170
0.5000	82.0	0.2500	1.0000	2.0000	919-000-073	919-000-074
0.6250	82.0	0.3750	1.0000	2.2500	919-000-261	919-000-262
0.7500	82.0	0.5000	1.2500	2.6250	919-000-157	919-000-158
1.0000	82.0	0.5000	1.2500	2.7500	919-000-061	919-000-062
1.2500	82.0	0.5000	1.2500	2.7500	919-000-145	919-000-146
1.5000	82.0	0.7500	1.2500	2.8750	919-000-133	919-000-134
1.7500	82.0	0.7500	1.2500	3.0000	919-000-181	919-000-182
2.0000	82.0	0.7500	1.2500	3.2500	919-000-121	919-000-122
0.1250	90.0	0.1250	0.6250	1.2500	919-000-111	919-000-112
0.1875	90.0	0.1875	0.6875	1.3750	919-000-099	919-000-100
0.2500	90.0	0.2500	0.7500	1.5000	919-000-087	919-000-088
0.3750	90.0	0.2500	0.8750	1.7500	919-000-171	919-000-172
0.5000	90.0	0.2500	1.0000	2.0000	919-000-075	919-000-076
0.6250	90.0	0.3750	1.0000	2.2500	919-000-263	919-000-264
0.7500	90.0	0.5000	1.2500	2.6250	919-000-159	919-000-160
1.0000	90.0	0.5000	1.2500	2.7500	919-000-063	919-000-064
1.2500	90.0	0.5000	1.2500	2.7500	919-000-147	919-000-148
1.5000	90.0	0.7500	1.2500	2.8750	919-000-135	919-000-136
1.7500	90.0	0.7500	1.2500	3.0000	919-000-183	919-000-184
2.0000	90.0	0.7500	1.2500	3.2500	919-000-123	919-000-124

For set information see **page 192**



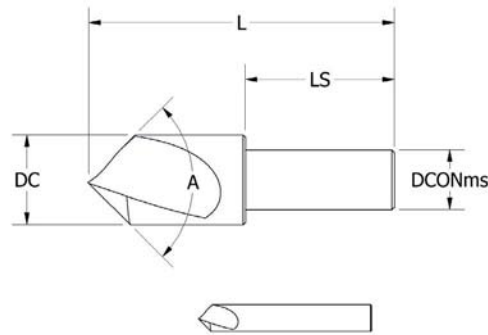
DC [in.]	A [°]	DCONMS [in.]	LS [in.]	L [in.]	UNCOATED	TiN COATED
0.1250	100.0	0.1250	0.6250	1.2500	919-000-101	919-000-102
0.1875	100.0	0.1875	0.6875	1.3750	919-000-089	919-000-090
0.2500	100.0	0.2500	0.7500	1.5000	919-000-077	919-000-078
0.3750	100.0	0.2500	0.8750	1.7500	919-000-161	919-000-162
0.5000	100.0	0.2500	1.0000	2.0000	919-000-065	919-000-066
0.6250	100.0	0.3750	1.0000	2.2500	919-000-253	919-000-254
0.7500	100.0	0.5000	1.2500	2.6250	919-000-149	919-000-150
1.0000	100.0	0.5000	1.2500	2.7500	919-000-053	919-000-054
1.2500	100.0	0.5000	1.2500	2.7500	919-000-137	919-000-138
1.5000	100.0	0.7500	1.2500	2.8750	919-000-125	919-000-126
1.7500	100.0	0.7500	1.2500	3.0000	919-000-173	919-000-174
0.1250	110.0	0.1250	0.6250	1.2500	919-000-103	919-000-104
0.1875	110.0	0.1875	0.6875	1.3750	919-000-091	919-000-092
0.2500	110.0	0.2500	0.7500	1.5000	919-000-079	919-000-080
0.3750	110.0	0.2500	0.8750	1.7500	919-000-163	919-000-164
0.5000	110.0	0.2500	1.0000	2.0000	919-000-067	919-000-068
0.6250	110.0	0.3750	1.0000	2.2500	919-000-255	919-000-256
0.7500	110.0	0.5000	1.2500	2.6250	919-000-151	919-000-152
1.0000	110.0	0.5000	1.2500	2.7500	919-000-055	919-000-056
1.2500	110.0	0.5000	1.2500	2.7500	919-000-139	919-000-140
1.5000	110.0	0.7500	1.2500	2.8750	919-000-127	919-000-128
1.7500	110.0	0.7500	1.2500	3.0000	919-000-175	919-000-176
2.0000	110.0	0.7500	1.2500	3.2500	919-000-115	919-000-116
0.1250	120.0	0.1250	0.6250	1.2500	919-000-105	919-000-106
0.1875	120.0	0.1875	0.6875	1.3750	919-000-093	919-000-094
0.2500	120.0	0.2500	0.7500	1.5000	919-000-081	919-000-082
0.3750	120.0	0.2500	0.8750	1.7500	919-000-165	919-000-166
0.5000	120.0	0.2500	1.0000	2.0000	919-000-069	919-000-070
0.3750	120.0	0.2500	0.8750	1.7500	919-000-165	919-000-166
0.7500	120.0	0.5000	1.2500	2.6250	919-000-153	919-000-154
1.0000	120.0	0.5000	1.2500	2.7500	919-000-057	919-000-058
1.2500	120.0	0.5000	1.2500	2.7500	919-000-141	919-000-142
1.5000	120.0	0.7500	1.2500	2.8750	919-000-129	919-000-130
1.7500	120.0	0.7500	1.2500	3.0000	919-000-177	919-000-178
2.0000	120.0	0.7500	1.2500	3.2500	919-000-117	919-000-118

For set information see page 192



DC [in.]	A [°]	DCONMS [in.]	LS [in.]	L [in.]	UNCOATED	TiN COATED
0.1250	60.0	0.1250	0.6250	1.2500	919-000-549	919-000-550
0.1875	60.0	0.1875	0.6875	1.3750	919-000-551	919-000-552
0.2500	60.0	0.2500	0.7500	1.5000	919-000-553	919-000-554
0.3750	60.0	0.2500	0.8750	1.7500	919-000-555	919-000-556
0.5000	60.0	0.2500	1.0000	2.0000	919-000-557	919-000-558
0.6250	60.0	0.3750	1.0000	2.2500	919-000-559	919-000-560
0.7500	60.0	0.5000	1.2500	2.6250	919-000-561	919-000-562
1.0000	60.0	0.5000	1.2500	2.7500	919-000-563	919-000-564
1.2500	60.0	0.5000	1.2500	3.0000	919-000-565	919-000-566
1.5000	60.0	0.7500	1.2500	3.2500	919-000-567	919-000-568
1.7500	60.0	0.7500	1.2500	3.5000	919-000-569	919-000-570
2.0000	60.0	0.7500	1.2500	3.7500	919-000-571	919-000-572
0.1250	82.0	0.1250	0.6250	1.2500	919-000-573	919-000-574
0.1875	82.0	0.1875	0.6875	1.3750	919-000-575	919-000-576
0.2500	82.0	0.2500	0.7500	1.5000	919-000-577	919-000-578
0.3750	82.0	0.2500	0.8750	1.7500	919-000-579	919-000-580
0.5000	82.0	0.2500	1.0000	2.0000	919-000-581	919-000-582
0.6250	82.0	0.3750	1.0000	2.2500	919-000-583	919-000-584
0.7500	82.0	0.5000	1.2500	2.6250	919-000-585	919-000-586
1.0000	82.0	0.5000	1.2500	2.7500	919-000-587	919-000-588
1.2500	82.0	0.5000	1.2500	2.7500	919-000-589	919-000-590
1.5000	82.0	0.7500	1.2500	2.8750	919-000-591	919-000-592
1.7500	82.0	0.7500	1.2500	3.0000	919-000-593	919-000-594
2.0000	82.0	0.7500	1.2500	3.2500	919-000-595	919-000-596
0.1250	90.0	0.1250	0.6250	1.2500	919-000-597	919-000-598
0.1875	90.0	0.1875	0.6875	1.3750	919-000-599	919-000-600
0.2500	90.0	0.2500	0.7500	1.5000	919-000-601	919-000-602
0.3750	90.0	0.2500	0.8750	1.7500	919-000-603	919-000-604
0.5000	90.0	0.2500	1.0000	2.0000	919-000-605	919-000-606
0.6250	90.0	0.3750	1.0000	2.2500	919-000-607	919-000-608
0.7500	90.0	0.5000	1.2500	2.6250	919-000-609	919-000-610
1.0000	90.0	0.5000	1.2500	2.7500	919-000-611	919-000-612
1.2500	90.0	0.5000	1.2500	2.7500	919-000-613	919-000-614
1.5000	90.0	0.7500	1.2500	2.8750	919-000-615	919-000-616
1.7500	90.0	0.7500	1.2500	3.0000	919-000-617	919-000-618
2.0000	90.0	0.7500	1.2500	3.2500	919-000-619	919-000-620

For set information see page 192



COBALT

DC [in.]	A [°]	DCONMS [in.]	LS [in.]	L [in.]	UNCOATED	TIN COATED
0.1250	100.0	0.1250	0.6250	1.2500	919-000-621	919-000-622
0.1875	100.0	0.1875	0.6875	1.3750	919-000-623	919-000-624
0.2500	100.0	0.2500	0.7500	1.5000	919-000-625	919-000-626
0.3750	100.0	0.2500	0.8750	1.7500	919-000-627	919-000-628
0.5000	100.0	0.2500	1.0000	2.0000	919-000-629	919-000-630
0.6250	100.0	0.3750	1.0000	2.2500	919-000-631	919-000-632
0.7500	100.0	0.5000	1.2500	2.6250	919-000-633	919-000-634
1.0000	100.0	0.5000	1.2500	2.7500	919-000-635	919-000-636
1.2500	100.0	0.5000	1.2500	2.7500	919-000-637	919-000-638
1.5000	100.0	0.7500	1.2500	2.8750	919-000-639	919-000-640
1.7500	100.0	0.7500	1.2500	3.0000	919-000-641	919-000-642
2.0000	100.0	0.7500	1.2500	3.2500	919-000-643	919-000-644
0.1250	110.0	0.1250	0.6250	1.2500	919-000-645	919-000-646
0.1875	110.0	0.1875	0.6875	1.3750	919-000-647	919-000-648
0.2500	110.0	0.2500	0.7500	1.5000	919-000-649	919-000-650
0.3750	110.0	0.2500	0.8750	1.7500	919-000-651	919-000-652
0.5000	110.0	0.2500	1.0000	2.0000	919-000-653	919-000-654
0.6250	110.0	0.3750	1.0000	2.2500	919-000-655	919-000-656
0.7500	110.0	0.5000	1.2500	2.6250	919-000-657	919-000-658
1.0000	110.0	0.5000	1.2500	2.7500	919-000-659	919-000-660
1.2500	110.0	0.5000	1.2500	2.7500	919-000-661	919-000-662
1.5000	110.0	0.7500	1.2500	2.8750	919-000-663	919-000-664
1.7500	110.0	0.7500	1.2500	3.0000	919-000-665	919-000-666
2.0000	110.0	0.7500	1.2500	3.2500	919-000-667	919-000-668
0.1250	120.0	0.1250	0.6250	1.2500	919-000-669	919-000-670
0.1875	120.0	0.1875	0.6875	1.3750	919-000-671	919-000-672
0.2500	120.0	0.2500	0.7500	1.5000	919-000-673	919-000-674
0.3750	120.0	0.2500	0.8750	1.7500	919-000-675	919-000-676
0.5000	120.0	0.2500	1.0000	2.0000	919-000-677	919-000-678
0.6250	120.0	0.3750	1.0000	2.2500	919-000-679	919-000-680
0.7500	120.0	0.5000	1.2500	2.6250	919-000-681	919-000-682
1.0000	120.0	0.5000	1.2500	2.7500	919-000-683	919-000-684
1.2500	120.0	0.5000	1.2500	2.7500	919-000-685	919-000-686
1.5000	120.0	0.7500	1.2500	2.8750	919-000-687	919-000-688
1.7500	120.0	0.7500	1.2500	3.0000	919-000-689	919-000-690
2.0000	120.0	0.7500	1.2500	3.2500	919-000-691	919-000-692



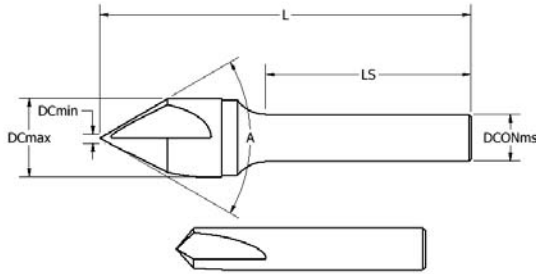
COUNTERSINK ANGLE	HSS SET	COBALT SET
60°	919-000-050	919-000-044
82°	919-000-051	919-000-045
90°	919-000-052	919-000-046
100°	919-000-047	919-000-041
110°	919-000-048	919-000-042
120°	919-000-049	919-000-043

SINGLE-FLUTE COUNTERSINK SETS

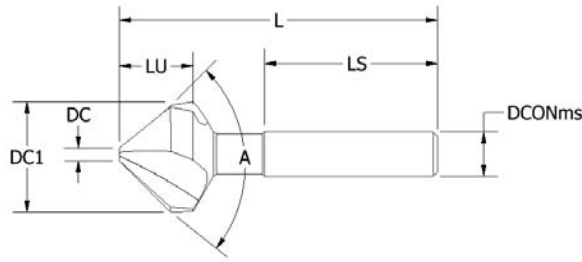
Available in HSS & Cobalt



CARBIDE

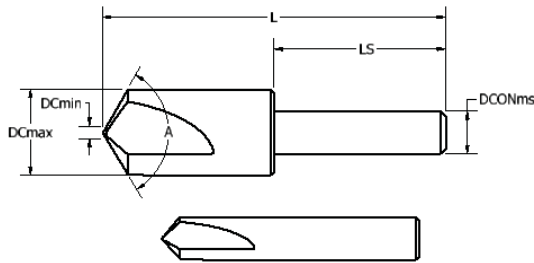


DCONMS [in.]	A [°]	LS [in.]	L [in.]	DCMAX [in.]	DCMIN [in.]	UNCOATED	TiALN COATED
0.1250	60.0	0.7500	1.5000	0.1250	0.0156	917-000-301	917-000-302
0.1875	60.0	1.0000	2.0000	0.1875	0.0313	917-000-303	917-000-304
0.2500	60.0	1.0000	2.0000	0.2500	0.0625	917-000-305	917-000-306
0.2500	60.0	1.7500	2.8750	0.3750	0.0625	917-000-307	917-000-308
0.2500	60.0	1.6250	2.8750	0.5000	0.0625	917-000-309	917-000-310
0.3750	60.0	1.6250	3.0000	0.6250	0.0625	917-000-311	917-000-312
0.3750	60.0	1.5000	3.0000	0.7500	0.0625	917-000-313	917-000-314
0.5000	60.0	1.5000	3.2500	1.0000	0.1250	917-000-315	917-000-316
0.7500	60.0	1.5000	3.2500	1.2500	0.1875	917-000-317	917-000-318
0.1250	82.0	0.7500	1.5000	0.1250	0.0156	917-000-321	917-000-322
0.1875	82.0	1.0000	2.0000	0.1875	0.0313	917-000-323	917-000-324
0.2500	82.0	1.0000	2.0000	0.2500	0.0625	917-000-325	917-000-326
0.2500	82.0	1.7500	2.6250	0.3750	0.0625	917-000-327	917-000-328
0.2500	82.0	1.6250	2.6250	0.5000	0.0625	917-000-329	917-000-330
0.3750	82.0	1.6250	2.7500	0.6250	0.0625	917-000-331	917-000-332
0.3750	82.0	1.5000	2.7500	0.7500	0.0625	917-000-333	917-000-334
0.5000	82.0	1.5000	3.0000	1.0000	0.0938	917-000-335	917-000-336
0.7500	82.0	1.5000	3.2500	1.2500	0.1250	917-000-337	917-000-338
0.1250	90.0	0.7500	1.5000	0.1250	0.0156	917-000-341	917-000-342
0.1875	90.0	1.0000	2.0000	0.1875	0.0313	917-000-343	917-000-344
0.2500	90.0	1.0000	2.0000	0.2500	0.0625	917-000-345	917-000-346
0.2500	90.0	1.7500	2.6250	0.3750	0.0625	917-000-347	917-000-348
0.2500	90.0	1.6250	2.6250	0.5000	0.0625	917-000-349	917-000-350
0.3750	90.0	1.6250	2.7500	0.6250	0.0625	917-000-351	917-000-352
0.3750	90.0	1.5000	2.7500	0.7500	0.0625	917-000-353	917-000-354
0.5000	90.0	1.5000	3.0000	1.0000	0.0938	917-000-355	917-000-356
0.7500	90.0	1.5000	3.2500	1.2500	0.1250	917-000-357	917-000-358
0.1250	100.0	0.7500	1.5000	0.1250	0.0156	917-000-361	917-000-362
0.1875	100.0	1.0000	2.0000	0.1875	0.0313	917-000-363	917-000-364
0.2500	100.0	1.0000	2.0000	0.2500	0.0625	917-000-365	917-000-366
0.2500	100.0	1.7500	2.6250	0.3750	0.0625	917-000-367	917-000-368
0.2500	100.0	1.6250	2.6250	0.5000	0.0625	917-000-369	917-000-370
0.3750	100.0	1.6250	2.7500	0.6250	0.0625	917-000-371	917-000-372
0.3750	100.0	1.5000	2.7500	0.7500	0.0625	917-000-373	917-000-374
0.5000	100.0	1.5000	3.0000	1.0000	0.0625	917-000-375	917-000-376
0.7500	100.0	1.5000	3.2500	1.2500	0.0938	917-000-377	917-000-378



DC1 [in.]	A [°]	DCONMS [in.]	DC [in.]	LU [in.]	LS [in.]	L [in.]	PRODUCT #
0.2500	60.0	0.2031	0.0590	0.2550	1.2500	1.7500	919-000-265
0.3125	60.0	0.2500	0.0510	0.3360	1.2031	1.7500	919-000-266
0.3750	60.0	0.2500	0.0870	0.4060	1.2031	1.7500	919-000-267
0.5000	60.0	0.2500	0.0980	0.5350	1.2500	1.8750	919-000-268
0.6250	60.0	0.3750	0.1100	0.6490	1.5000	2.2500	919-000-269
0.7500	60.0	0.3750	0.1180	0.7500	1.5000	2.5000	919-000-270
1.0000	60.0	0.3750	0.1260	0.9760	1.5000	2.7500	919-000-271
1.2500	60.0	0.5000	0.1970	1.1620	1.7500	3.2500	919-000-272
0.2500	82.0	0.2031	0.0590	0.2000	1.2500	1.7500	919-000-273
0.3125	82.0	0.2500	0.0510	0.2600	1.2031	1.7500	919-000-274
0.3750	82.0	0.2500	0.0870	0.3220	1.2031	1.7500	919-000-275
0.5000	82.0	0.2500	0.0980	0.4180	1.2500	1.8750	919-000-276
0.6250	82.0	0.3750	0.1100	0.4990	1.5000	2.2500	919-000-277
0.7500	82.0	0.3750	0.1180	0.5670	1.5000	2.5000	919-000-278
1.0000	82.0	0.3750	0.1260	0.7210	1.5000	2.7500	919-000-279
1.2500	82.0	0.5000	0.1970	0.8560	1.7500	3.2500	919-000-280
0.2500	90.0	0.2031	0.0590	0.1850	1.2500	1.7500	919-000-281
0.3125	90.0	0.2500	0.0510	0.2400	1.2031	1.7500	919-000-282
0.3750	90.0	0.2500	0.0870	0.3000	1.2031	1.7500	919-000-283
0.5000	90.0	0.2500	0.0980	0.3880	1.2500	1.8750	919-000-284
0.6250	90.0	0.3750	0.1100	0.4610	1.5000	2.2500	919-000-285
0.7500	90.0	0.3750	0.1180	0.5190	1.5000	2.5000	919-000-286
1.0000	90.0	0.3750	0.1260	0.6560	1.5000	2.7500	919-000-287
1.2500	90.0	0.5000	0.1970	0.7770	1.7500	3.2500	919-000-288
0.2500	100.0	0.2031	0.0590	0.1700	1.2500	1.7500	919-000-289
0.3125	100.0	0.2500	0.0510	0.2190	1.2031	1.7500	919-000-290
0.3750	100.0	0.2500	0.0870	0.2770	1.2031	1.7500	919-000-291
0.5000	100.0	0.2500	0.0980	0.3560	1.2500	1.8750	919-000-292
0.6250	100.0	0.3750	0.1100	0.4190	1.5000	2.2500	919-000-293
0.7500	100.0	0.3750	0.1180	0.4680	1.5000	2.5000	919-000-294
1.0000	100.0	0.3750	0.1260	0.5850	1.5000	2.7500	919-000-295
1.2500	100.0	0.5000	0.1970	0.6920	1.7500	3.2500	919-000-296

COBALT

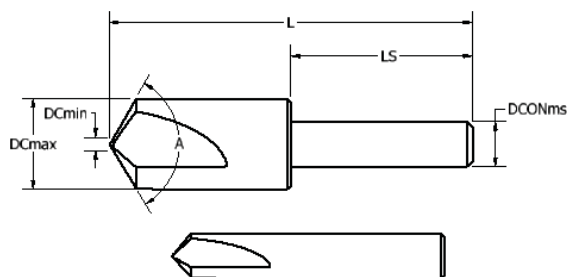


HSS



DCONMS [in.]	A [°]	LS [in.]	L [in.]	DCMAX [in.]	DCMIN [in.]	UNCOATED	TIN COATED
0.2500	60.0	0.7500	1.5000	0.2500	0.0625	917-000-031	917-000-032
0.2500	60.0	0.8750	1.7500	0.3750	0.0625	917-000-055	917-000-056
0.2500	60.0	1.0000	2.0000	0.5000	0.0938	917-000-019	917-000-020
0.3750	60.0	1.0000	2.2500	0.6250	0.0938	917-000-067	917-000-068
0.5000	60.0	1.2500	2.6250	0.7500	0.1250	917-000-043	917-000-044
0.5000	60.0	1.2500	2.7500	1.0000	0.1250	917-000-079	917-000-080
0.5000	60.0	1.2500	3.0000	1.2500	0.1250	917-000-103	917-000-104
0.7500	60.0	1.2500	3.2500	1.5000	0.1250	917-000-121	917-000-122
0.7500	60.0	1.2500	3.5000	1.7500	0.1250	917-000-133	917-000-134
0.7500	60.0	1.2500	3.7500	2.0000	0.1250	917-000-151	917-000-152
0.2500	82.0	0.7500	1.5000	0.2500	0.0625	917-000-033	917-000-034
0.2500	82.0	0.8750	1.7500	0.3750	0.0625	917-000-057	917-000-058
0.2500	82.0	1.0000	2.0000	0.5000	0.0625	917-000-021	917-000-022
0.3750	82.0	1.0000	2.2500	0.6250	0.0625	917-000-069	917-000-070
0.5000	82.0	1.2500	2.6250	0.7500	0.0938	917-000-045	917-000-046
0.5000	82.0	1.2500	2.7500	1.0000	0.0938	917-000-081	917-000-082
0.5000	82.0	1.2500	2.7500	1.2500	0.0938	917-000-105	917-000-106
0.7500	82.0	1.2500	2.8750	1.5000	0.0938	917-000-123	917-000-124
0.7500	82.0	1.2500	3.0000	1.7500	0.0938	917-000-135	917-000-136
0.7500	82.0	1.2500	3.2500	2.0000	0.0938	917-000-153	917-000-154
0.2500	90.0	0.7500	1.5000	0.2500	0.0625	917-000-035	917-000-036
0.2500	90.0	0.8750	1.7500	0.3750	0.0625	917-000-059	917-000-060
0.2500	90.0	1.0000	2.0000	0.5000	0.0625	917-000-023	917-000-024
0.3750	90.0	1.0000	2.2500	0.6250	0.0625	917-000-071	917-000-072
0.5000	90.0	1.2500	2.6250	0.7500	0.0938	917-000-047	917-000-048
0.5000	90.0	1.2500	2.7500	1.0000	0.0938	917-000-083	917-000-084
0.5000	90.0	1.2500	2.7500	1.2500	0.0938	917-000-107	917-000-108
0.7500	90.0	1.2500	2.8750	1.5000	0.0938	917-000-125	917-000-126
0.7500	90.0	1.2500	3.0000	1.7500	0.0938	917-000-137	917-000-138
0.7500	90.0	1.2500	3.2500	2.0000	0.0938	917-000-155	917-000-156

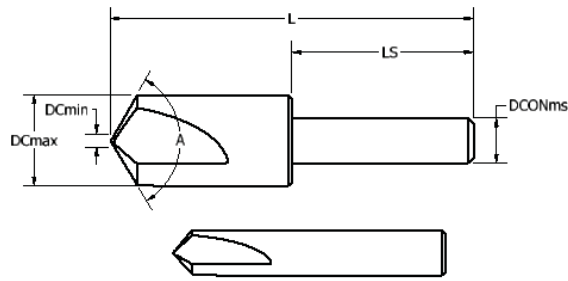
For set information see **page 198**



DCONMS [in.]	A [°]	LS [in.]	L [in.]	DCMAX [in.]	DCMIN [in.]	UNCOATED	TiN COATED
0.2500	100.0	0.7500	1.5000	0.5000	0.0625	917-000-025	917-000-026
0.2500	100.0	0.8750	1.7500	0.3750	0.0625	917-000-049	917-000-050
0.2500	100.0	1.0000	2.0000	0.5000	0.0625	917-000-013	917-000-014
0.3750	100.0	1.0000	2.2500	0.6250	0.0625	917-000-061	917-000-062
0.5000	100.0	1.2500	2.6250	0.7500	0.0625	917-000-037	917-000-038
0.5000	100.0	1.2500	2.7500	1.0000	0.0625	917-000-073	917-000-074
0.5000	100.0	1.2500	2.7500	1.2500	0.0625	917-000-097	917-000-098
0.7500	100.0	1.2500	2.8750	1.5000	0.0625	917-000-115	917-000-116
0.7500	100.0	1.2500	3.0000	1.7500	0.0625	917-000-127	917-000-128
0.7500	100.0	1.2500	3.2500	2.0000	0.0625	917-000-145	917-000-146
0.2500	110.0	0.7500	1.5000	0.2500	0.0313	917-000-027	917-000-028
0.2500	110.0	0.8750	1.7500	0.3750	0.0313	917-000-051	917-000-052
0.2500	110.0	1.0000	2.0000	0.5000	0.0625	917-000-015	917-000-016
0.3750	110.0	1.0000	2.2500	0.6250	0.0625	917-000-063	917-000-064
0.5000	110.0	1.2500	2.6250	0.7500	0.0625	917-000-039	917-000-040
0.5000	110.0	1.2500	2.7500	1.0000	0.0625	917-000-075	917-000-076
0.5000	110.0	1.2500	2.7500	1.2500	0.0625	917-000-099	917-000-100
0.7500	110.0	1.2500	2.8750	1.5000	0.0625	917-000-117	917-000-118
0.7500	110.0	1.2500	3.0000	1.7500	0.0625	917-000-129	917-000-130
0.7500	110.0	1.2500	3.2500	2.0000	0.0625	917-000-147	917-000-148
0.2500	120.0	0.7500	1.5000	0.2500	0.0313	917-000-029	917-000-030
0.2500	120.0	0.8750	1.7500	0.3750	0.0313	917-000-053	917-000-054
0.2500	120.0	1.0000	2.0000	0.5000	0.0625	917-000-017	917-000-018
0.3750	120.0	1.0000	2.2500	0.6250	0.0625	917-000-065	917-000-066
0.5000	120.0	1.2500	2.6250	0.7500	0.0625	917-000-041	917-000-042
0.5000	120.0	1.2500	2.7500	1.0000	0.0625	917-000-077	917-000-078
0.5000	120.0	1.2500	2.7500	1.2500	0.0625	917-000-101	917-000-102
0.7500	120.0	1.2500	2.8750	1.5000	0.0625	917-000-119	917-000-120
0.7500	120.0	1.2500	3.0000	1.7500	0.0625	917-000-131	917-000-132
0.7500	120.0	1.2500	3.2500	2.0000	0.0625	917-000-149	917-000-150

For set information see page 198

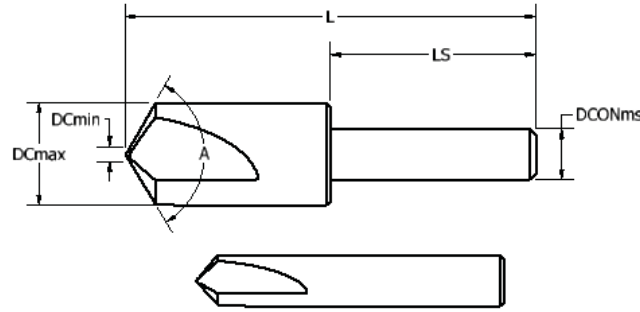
HSS



DCONMS [in.]	A [°]	LS [in.]	L [in.]	DCMAX [in.]	DCMIN [in.]	UNCOATED	TIN COATED
0.2500	60.0	0.7500	1.5000	0.2500	0.0625	917-000-157	917-000-158
0.2500	60.0	0.8750	1.7500	0.3750	0.0625	917-000-159	917-000-160
0.2500	60.0	1.0000	2.0000	0.5000	0.0938	917-000-161	917-000-162
0.3750	60.0	1.0000	2.2500	0.6250	0.0938	917-000-163	917-000-164
0.5000	60.0	1.2500	2.6250	0.7500	0.1250	917-000-165	917-000-166
0.5000	60.0	1.2500	2.7500	1.0000	0.1250	917-000-167	917-000-168
0.5000	60.0	1.2500	3.0000	1.2500	0.1250	917-000-169	917-000-170
0.7500	60.0	1.2500	3.2500	1.5000	0.1250	917-000-171	917-000-172
0.7500	60.0	1.2500	3.5000	1.7500	0.1250	917-000-173	917-000-174
0.7500	60.0	1.2500	3.7500	2.0000	0.1250	917-000-175	917-000-176
0.2500	82.0	0.7500	1.5000	0.2500	0.0625	917-000-177	917-000-178
0.2500	82.0	0.8750	1.7500	0.3750	0.0625	917-000-179	917-000-180
0.2500	82.0	1.0000	2.0000	0.5000	0.0625	917-000-181	917-000-182
0.3750	82.0	1.0000	2.2500	0.6250	0.0625	917-000-183	917-000-184
0.5000	82.0	1.2500	2.7500	0.7500	0.0938	917-000-185	917-000-186
0.5000	82.0	1.2500	2.7500	1.0000	0.0938	917-000-187	917-000-188
0.5000	82.0	2.7500	3.0000	1.2500	0.0938	917-000-189	917-000-190
0.7500	82.0	1.2500	2.8750	1.5000	0.0938	917-000-191	917-000-192
0.7500	82.0	1.2500	3.0000	1.7500	0.0938	917-000-193	917-000-194
0.7500	82.0	1.2500	3.2500	2.0000	0.0938	917-000-195	917-000-196
0.2500	90.0	0.7500	1.5000	0.2500	0.0625	917-000-197	917-000-198
0.2500	90.0	0.8750	1.7500	0.3750	0.0625	917-000-199	917-000-200
0.2500	90.0	1.0000	2.0000	0.5000	0.0625	917-000-201	917-000-202
0.3750	90.0	1.0000	2.2500	0.6250	0.0625	917-000-203	917-000-204
0.5000	90.0	1.2500	2.6250	0.7500	0.0938	917-000-205	917-000-206
0.5000	90.0	1.2500	2.7500	1.0000	0.0938	917-000-207	917-000-208
0.5000	90.0	1.2500	2.7500	1.2500	0.0938	917-000-209	917-000-210
0.7500	90.0	1.2500	2.8750	1.5000	0.0938	917-000-211	917-000-212
0.7500	90.0	1.2500	3.0000	1.7500	0.0938	917-000-213	917-000-214
0.7500	90.0	1.2500	3.2500	2.0000	0.0938	917-000-215	917-000-216

COBALT

For set information see page 198



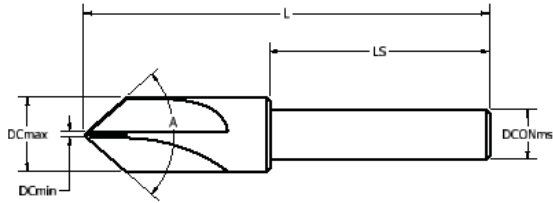
COBALT

DCONMS [in.]	A [°]	LS [in.]	L [in.]	DCMAX [in.]	DCMIN [in.]	UNCOATED	TiN COATED
0.2500	100.0	0.7500	1.5000	0.2500	0.0625	917-000-217	917-000-218
0.2500	100.0	0.8750	1.7500	0.3750	0.0625	917-000-219	917-000-220
0.2500	100.0	1.0000	2.0000	0.5000	0.0625	917-000-221	917-000-222
0.3750	100.0	1.0000	2.2500	0.6250	0.0625	917-000-223	917-000-224
0.5000	100.0	1.2500	2.6250	0.7500	0.0625	917-000-225	917-000-226
0.5000	100.0	1.2500	2.7500	1.0000	0.0625	917-000-227	917-000-228
0.5000	100.0	1.2500	2.7500	1.2500	0.0625	917-000-229	917-000-230
0.7500	100.0	1.2500	2.8750	1.5000	0.0625	917-000-231	917-000-232
0.7500	100.0	1.2500	3.0000	1.7500	0.0625	917-000-233	917-000-234
0.7500	100.0	1.2500	3.2500	2.0000	0.0625	917-000-235	917-000-236
0.2500	110.0	0.7500	1.5000	0.2500	0.0313	917-000-237	917-000-238
0.2500	110.0	0.8750	1.7500	0.3750	0.0313	917-000-239	917-000-240
0.2500	110.0	1.0000	2.0000	0.5000	0.0625	917-000-241	917-000-242
0.3750	110.0	1.0000	2.2500	0.6250	0.0625	917-000-243	917-000-244
0.5000	110.0	1.2500	2.6250	0.7500	0.0625	917-000-245	917-000-246
0.5000	110.0	1.2500	2.7500	1.0000	0.0625	917-000-247	917-000-248
0.5000	110.0	1.2500	2.7500	1.2500	0.0625	917-000-249	917-000-250
0.7500	110.0	1.2500	2.8750	1.5000	0.0625	917-000-251	917-000-252
0.7500	110.0	1.2500	3.0000	1.7500	0.0625	917-000-253	917-000-254
0.7500	110.0	1.2500	3.2500	2.0000	0.0625	917-000-255	917-000-256
0.2500	120.0	0.7500	1.5000	0.2500	0.0313	917-000-257	917-000-258
0.2500	120.0	0.8750	1.7500	0.3750	0.0313	917-000-259	917-000-260
0.2500	120.0	1.0000	2.0000	0.5000	0.0625	917-000-261	917-000-262
0.3750	120.0	1.0000	2.2500	0.6250	0.0625	917-000-263	917-000-264
0.5000	120.0	1.2500	2.6250	0.7500	0.0625	917-000-265	917-000-266
0.5000	120.0	1.2500	2.7500	1.0000	0.0625	917-000-267	917-000-268
0.5000	120.0	1.2500	2.7500	1.2500	0.0625	917-000-269	917-000-270
0.7500	120.0	1.2500	2.8750	1.5000	0.0625	917-000-271	917-000-272
0.7500	120.0	1.2500	3.0000	1.7500	0.0625	917-000-273	917-000-274
0.7500	120.0	1.2500	3.2500	2.0000	0.0625	917-000-275	917-000-276



COUNTERSINK ANGLE	HSS SET	COBALT SET
60°	917-000-004	917-000-010
82°	917-000-005	917-000-011
90°	917-000-006	917-000-012
100°	917-000-001	917-000-007
110°	917-000-002	917-000-008
120°	917-000-003	917-000-009

3-FLUTE CENTER REAMER SETS
Available in HSS & Cobalt

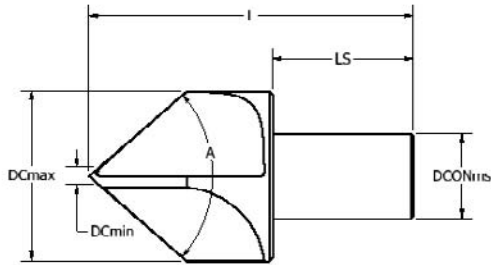


DCMAX [in.]	A [°]	DCMIN [in.]	DCONMS [in.]	LS [in.]	L [in.]	HSS UNCOATED	HSS TiN COATED	COBALT UNCOATED	COBALT TiN COATED
0.5000	60.0	0.1094	0.5000	2.2500	3.8750	919-000-001	919-000-002	919-000-519	919-000-520
0.6250	60.0	0.1563	0.5000	2.2500	4.0000	919-000-013	919-000-014	919-000-521	919-000-522
0.7500	60.0	0.2031	0.5000	2.2500	4.1250	919-000-007	919-000-008	919-000-523	919-000-524
0.8750	60.0	0.2031	0.5000	2.2500	4.2500	919-000-019	919-000-020	919-000-525	919-000-526
1.0000	60.0	0.2031	0.5000	2.2500	4.3750	919-000-025	919-000-026	919-000-527	919-000-528
0.5000	82.0	0.1094	0.5000	2.2500	3.8750	919-000-003	919-000-004	919-000-529	919-000-530
0.6250	82.0	0.1250	0.5000	2.2500	4.0000	919-000-015	919-000-016	919-000-531	919-000-532
0.7500	82.0	0.1406	0.5000	2.2500	4.1250	919-000-009	919-000-010	919-000-533	919-000-534
0.8750	82.0	0.1563	0.5000	2.2500	4.2500	919-000-021	919-000-022	919-000-535	919-000-536
1.0000	82.0	0.1719	0.5000	2.2500	4.3750	919-000-027	919-000-028	919-000-537	919-000-538
0.5000	90.0	0.1094	0.5000	2.2500	3.8750	919-000-005	919-000-006	919-000-539	919-000-540
0.6250	90.0	0.1250	0.5000	2.2500	4.0000	919-000-017	919-000-018	919-000-541	919-000-542
0.7500	90.0	0.1406	0.5000	2.2500	4.1250	919-000-011	919-000-012	919-000-543	919-000-544
0.8750	90.0	0.1563	0.5000	2.2500	4.2500	919-000-023	919-000-024	919-000-545	919-000-546
1.0000	90.0	0.1719	0.5000	2.2500	4.3750	919-000-029	919-000-030	919-000-547	919-000-548

HSS
COBALT



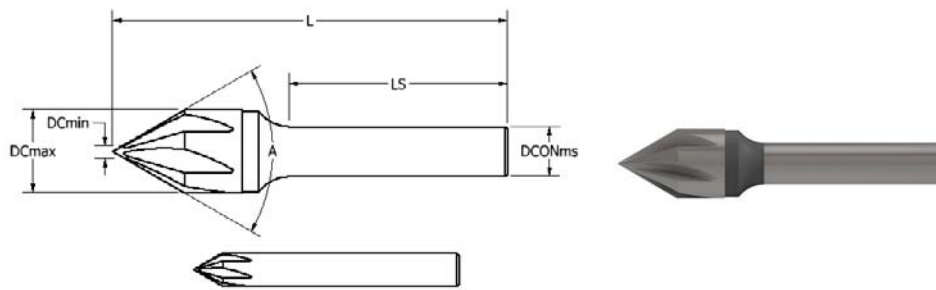
HSS
COBALT



DCMAX [in.]	A [°]	DCMIN [in.]	DCONMS [in.]	LS [in.]	L [in.]	HSS UNCOATED	HSS TIN COATED	COBALT UNCOATED	COBALT TIN COATED
1.2500	60.0	0.4375	0.5000	1.2500	3.0000	917-000-091	917-000-092	917-000-277	917-000-278
1.5000	60.0	0.5625	0.7500	1.2500	3.2500	917-000-085	917-000-086	917-000-279	917-000-280
1.7500	60.0	0.5625	0.7500	1.2500	3.5000	917-000-109	917-000-110	917-000-281	917-000-282
2.0000	60.0	0.5625	0.7500	1.2500	3.7500	917-000-139	917-000-140	917-000-283	917-000-284
1.2500	82.0	0.3750	0.5000	1.2500	2.7500	917-000-093	917-000-094	917-000-285	917-000-286
1.5000	82.0	0.5156	0.7500	1.2500	2.8750	917-000-087	917-000-088	917-000-287	917-000-288
1.7500	82.0	0.5156	0.7500	1.2500	3.0000	917-000-111	917-000-112	917-000-289	917-000-290
2.0000	82.0	0.5313	0.7500	1.2500	3.2500	917-000-141	917-000-142	917-000-291	917-000-292
1.2500	90.0	0.3594	0.5000	1.2500	2.7500	917-000-095	917-000-096	917-000-293	917-000-294
1.5000	90.0	0.5000	0.7500	1.2500	2.8750	917-000-089	917-000-090	917-000-295	917-000-296
1.7500	90.0	0.5000	0.7500	1.2500	3.0000	917-000-113	917-000-114	917-000-297	917-000-298
2.0000	90.0	0.5000	0.7500	1.2500	3.2500	917-000-143	917-000-144	917-000-299	917-000-300

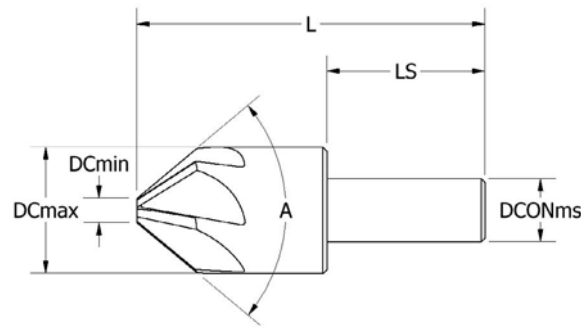


CARBIDE

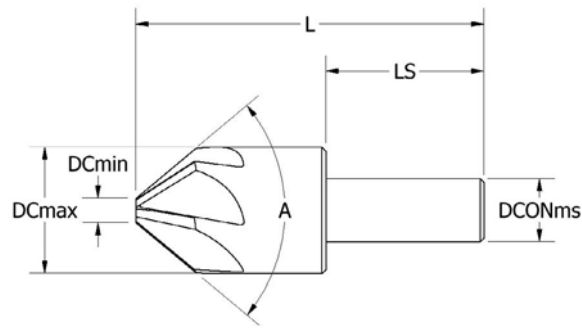


DCMAX [in.]	A [°]	DCMIN [in.]	DCONMS [in.]	LS [in.]	L [in.]	UNCOATED	TiAlN COATED
0.1250	60.0	0.0469	0.1250	0.7500	1.5000	919-000-989	919-000-990
0.1875	60.0	0.0469	0.1875	1.0000	2.0000	919-000-991	919-000-992
0.2500	60.0	0.0625	0.2500	1.0000	2.0000	919-000-993	919-000-994
0.3750	60.0	0.0781	0.2500	1.7500	2.7500	919-000-995	919-000-996
0.5000	60.0	0.0938	0.2500	1.6250	2.7500	919-000-997	919-000-998
0.6250	60.0	0.1094	0.3750	1.6250	2.8750	919-000-999	919-001-001
0.7500	60.0	0.1094	0.3750	1.5000	3.0000	919-001-002	919-001-003
1.0000	60.0	0.1563	0.5000	1.5000	3.2500	919-001-004	919-001-005
1.2500	60.0	0.1563	0.7500	1.5000	3.7500	919-001-006	919-001-007
1.5000	60.0	0.1875	0.7500	1.5000	3.7500	919-001-008	919-001-009
0.1250	82.0	0.0469	0.1250	0.7500	1.5000	919-001-012	919-001-013
0.1875	82.0	0.0625	0.1875	1.0000	2.0000	919-001-014	919-001-015
0.2500	82.0	0.0781	0.2500	1.0000	2.0000	919-001-016	919-001-017
0.3750	82.0	0.1094	0.2500	1.7500	2.6250	919-001-018	919-001-019
0.5000	82.0	0.1250	0.2500	1.6250	2.6250	919-001-020	919-001-021
0.6250	82.0	0.1406	0.3750	1.6250	2.7500	919-001-022	919-001-023
0.7500	82.0	0.1563	0.3750	1.5000	2.7500	919-001-024	919-001-025
1.0000	82.0	0.1719	0.5000	1.5000	3.0000	919-001-026	919-001-027
1.2500	82.0	0.1719	0.7500	1.5000	3.2500	919-001-028	919-001-029
1.5000	82.0	0.1875	0.7500	1.5000	3.2500	919-001-030	919-001-031
0.1250	90.0	0.0469	0.1250	0.7500	1.5000	919-001-034	919-001-035
0.1875	90.0	0.0625	0.1875	1.0000	2.0000	919-001-036	919-001-037
0.2500	90.0	0.0781	0.2500	1.0000	2.0000	919-001-038	919-001-039
0.3750	90.0	0.1094	0.2500	1.7500	2.6250	919-001-040	919-001-041
0.5000	90.0	0.1250	0.2500	1.6250	2.6250	919-001-042	919-001-043
0.6250	90.0	0.1406	0.3750	1.6250	2.7500	919-001-044	919-001-045
0.7500	90.0	0.1563	0.3750	1.5000	2.7500	919-001-046	919-001-047
1.0000	90.0	0.1719	0.5000	1.5000	3.0000	919-001-048	919-001-049
1.2500	90.0	0.1719	0.7500	1.5000	3.2500	919-001-050	919-001-051
1.5000	90.0	0.1875	0.7500	1.5000	3.2500	919-001-052	919-001-053
0.1250	100.0	0.0625	0.1250	0.7500	1.5000	919-001-056	919-001-057
0.1875	100.0	0.0781	0.1875	1.0000	2.0000	919-001-058	919-001-059
0.2500	100.0	0.0781	0.2500	1.0000	2.0000	919-001-060	919-001-061
0.3750	100.0	0.1094	0.2500	1.7500	2.6250	919-001-062	919-001-063
0.5000	100.0	0.1250	0.2500	1.6250	2.6250	919-001-064	919-001-065
0.6250	100.0	0.1563	0.3750	1.6250	2.7500	919-001-066	919-001-067
0.7500	100.0	0.1719	0.3750	1.5000	2.7500	919-001-068	919-001-069
1.0000	100.0	0.1875	0.5000	1.5000	3.0000	919-001-071	919-001-072
1.2500	100.0	0.1875	0.7500	1.5000	3.2500	919-001-073	919-001-074
1.5000	100.0	0.2188	0.7500	1.5000	3.2500	919-001-075	919-001-076

For set information see page 207

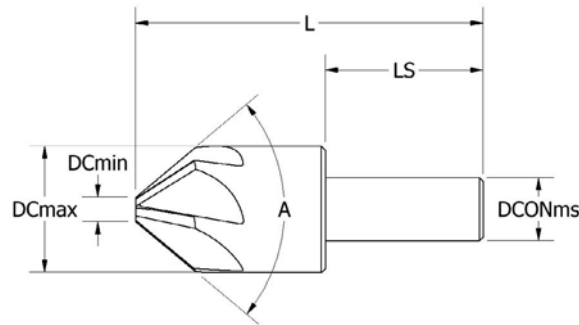


DCMAX [in.]	A [°]	DCMIN [in.]	DCONMS [in.]	LS [in.]	L [in.]	UNCOATED	TIN COATED
0.1250	60.0	0.0469	0.1250	0.6250	1.2500	919-000-297	919-000-298
0.1875	60.0	0.0625	0.1875	0.6875	1.3750	919-000-299	919-000-300
0.2500	60.0	0.0781	0.2500	0.7500	1.5000	919-000-301	919-000-302
0.3125	60.0	0.0938	0.2500	0.8750	1.7500	919-000-303	919-000-304
0.3750	60.0	0.1250	0.2500	0.8750	1.7500	919-000-305	919-000-306
0.5000	60.0	0.1563	0.2500	1.0000	2.0000	919-000-307	919-000-308
0.5000	60.0	0.1563	0.3750	1.0000	2.0000	919-000-309	919-000-310
0.6250	60.0	0.2031	0.2500	1.0000	2.2500	919-000-311	919-000-312
0.6250	60.0	0.2031	0.3750	1.0000	2.2500	919-000-313	919-000-314
0.7500	60.0	0.2500	0.5000	1.2500	2.6250	919-000-315	919-000-316
0.8750	60.0	0.2813	0.5000	1.2500	2.7500	919-000-317	919-000-318
1.0000	60.0	0.3281	0.5000	1.2500	2.7500	919-000-319	919-000-320
1.2500	60.0	0.4063	0.5000	1.2500	3.0000	919-000-321	919-000-322
1.5000	60.0	0.5000	0.7500	1.2500	3.2500	919-000-323	919-000-324
1.7500	60.0	0.5781	0.7500	1.2500	3.5000	919-000-325	919-000-326
2.0000	60.0	0.6563	0.7500	1.2500	3.7500	919-000-327	919-000-328
2.5000	60.0	0.8281	1.0000	1.5000	5.0000	919-000-329	919-000-330
3.0000	60.0	1.0000	1.0000	1.5000	5.2500	919-000-331	919-000-332
0.1250	82.0	0.0250	0.1250	0.6250	1.2500	919-000-334	919-000-335
0.1875	82.0	0.0313	0.1875	0.6875	1.3750	919-000-336	919-000-337
0.2500	82.0	0.0469	0.2500	0.7500	1.5000	919-000-338	919-000-339
0.3125	82.0	0.0625	0.2500	0.8750	1.7500	919-000-340	919-000-341
0.3750	82.0	0.0781	0.2500	0.8750	1.7500	919-000-342	919-000-343
0.5000	82.0	0.1094	0.2500	1.0000	2.0000	919-000-344	919-000-345
0.5000	82.0	0.1094	0.3750	1.0000	2.0000	919-000-346	919-000-347
0.6250	82.0	0.1250	0.2500	1.0000	2.2500	919-000-348	919-000-349
0.6250	82.0	0.1250	0.3750	1.0000	2.2500	919-000-350	919-000-351
0.7500	82.0	0.1563	0.5000	1.2500	2.6250	919-000-352	919-000-353
0.8750	82.0	0.1719	0.5000	1.2500	2.7500	919-000-354	919-000-355
1.0000	82.0	0.2031	0.5000	1.2500	2.7500	919-000-356	919-000-357
1.2500	82.0	0.2500	0.5000	1.2500	2.7500	919-000-358	919-000-359
1.5000	82.0	0.3125	0.7500	1.2500	2.8750	919-000-360	919-000-361
1.7500	82.0	0.3594	0.7500	1.2500	3.0000	919-000-362	919-000-363
2.0000	82.0	0.4063	0.7500	1.2500	3.2500	919-000-364	919-000-365
2.5000	82.0	0.5000	1.0000	1.5000	5.0000	919-000-366	919-000-367
3.0000	82.0	0.5938	1.0000	1.5000	5.2500	919-000-368	919-000-369



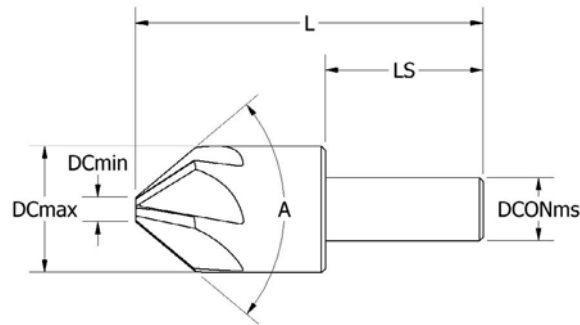
HSS

DCMAX [in.]	A [°]	DCMIN [in.]	DCONMS [in.]	LS [in.]	L [in.]	UNCOATED	TiN COATED
0.1250	90.0	0.0250	0.1250	0.6250	1.2500	919-000-371	919-000-372
0.1875	90.0	0.0313	0.1875	0.6875	1.3750	919-000-373	919-000-374
0.2500	90.0	0.0469	0.2500	0.7500	1.5000	919-000-375	919-000-376
0.3125	90.0	0.0625	0.2500	0.8750	1.7500	919-000-377	919-000-378
0.3750	90.0	0.0781	0.2500	0.8750	1.7500	919-000-379	919-000-380
0.5000	90.0	0.1094	0.2500	1.0000	2.0000	919-000-381	919-000-382
0.5000	90.0	0.1094	0.3750	1.0000	2.0000	919-000-383	919-000-384
0.6250	90.0	0.1250	0.2500	1.0000	2.2500	919-000-385	919-000-386
0.6250	90.0	0.1250	0.3750	1.0000	2.2500	919-000-387	919-000-388
0.7500	90.0	0.1563	0.5000	1.2500	2.6250	919-000-389	919-000-390
0.8750	90.0	0.1719	0.5000	1.2500	2.7500	919-000-391	919-000-392
1.0000	90.0	0.2031	0.5000	1.2500	2.7500	919-000-393	919-000-394
1.2500	90.0	0.2500	0.5000	1.2500	2.7500	919-000-395	919-000-396
1.5000	90.0	0.3125	0.7500	1.2500	2.8750	919-000-397	919-000-398
1.7500	90.0	0.3594	0.7500	1.2500	3.0000	919-000-399	919-000-400
2.0000	90.0	0.4063	0.7500	1.2500	3.2500	919-000-401	919-000-402
2.5000	90.0	0.5000	1.0000	1.5000	5.0000	919-000-403	919-000-404
3.0000	90.0	0.5938	1.0000	1.5000	5.2500	919-000-405	919-000-406
0.1250	100.0	0.0250	0.1250	0.6250	1.2500	919-000-408	919-000-409
0.1875	100.0	0.0313	0.1875	0.6875	1.3750	919-000-410	919-000-411
0.2500	100.0	0.0469	0.2500	0.7500	1.5000	919-000-412	919-000-413
0.3125	100.0	0.0625	0.2500	0.8750	1.7500	919-000-414	919-000-415
0.3750	100.0	0.0781	0.2500	0.8750	1.7500	919-000-416	919-000-417
0.5000	100.0	0.1094	0.2500	1.0000	2.0000	919-000-418	919-000-419
0.5000	100.0	0.1094	0.3750	1.0000	2.0000	919-000-420	919-000-421
0.6250	100.0	0.1250	0.2500	1.0000	2.2500	919-000-422	919-000-423
0.6250	100.0	0.1250	0.3750	1.0000	2.2500	919-000-424	919-000-425
0.7500	100.0	0.1563	0.5000	1.2500	2.6250	919-000-426	919-000-427
0.8750	100.0	0.1719	0.5000	1.2500	2.7500	919-000-428	919-000-429
1.0000	100.0	0.2031	0.5000	1.2500	2.7500	919-000-430	919-000-431
1.2500	100.0	0.2500	0.5000	1.2500	2.7500	919-000-432	919-000-433
1.5000	100.0	0.3125	0.7500	1.2500	2.8750	919-000-434	919-000-435
1.7500	100.0	0.3594	0.7500	1.2500	3.0000	919-000-436	919-000-437
2.0000	100.0	0.4063	0.7500	1.2500	3.2500	919-000-438	919-000-439
2.5000	100.0	0.5000	1.0000	1.5000	5.0000	919-000-440	919-000-441
2.5000	100.0	0.5000	1.0000	1.5000	5.0000	919-000-442	919-000-443



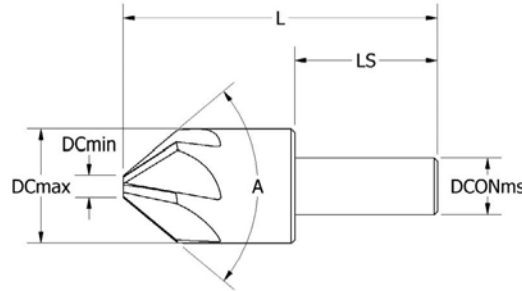
DCMAX [in.]	A [°]	DCMIN [in.]	DCONMS [in.]	LS [in.]	L [in.]	UNCOATED	TIN COATED
0.1250	110.0	0.0200	0.1250	0.6250	1.2500	919-000-445	919-000-446
0.1875	110.0	0.0313	0.1875	0.6875	1.3750	919-000-447	919-000-448
0.2500	110.0	0.0469	0.2500	0.7500	1.5000	919-000-449	919-000-450
0.3125	110.0	0.0469	0.2500	0.8750	1.7500	919-000-451	919-000-452
0.3750	110.0	0.0625	0.2500	0.8750	1.7500	919-000-453	919-000-454
0.5000	110.0	0.0781	0.2500	1.0000	2.0000	919-000-455	919-000-456
0.5000	110.0	0.0781	0.3750	1.0000	2.0000	919-000-457	919-000-458
0.6250	110.0	0.1094	0.2500	1.0000	2.2500	919-000-459	919-000-460
0.6250	110.0	0.1094	0.3750	1.0000	2.2500	919-000-461	919-000-462
0.7500	110.0	0.1250	0.5000	1.2500	2.6250	919-000-463	919-000-464
0.8750	110.0	0.1406	0.5000	1.2500	2.7500	919-000-465	919-000-466
1.0000	110.0	0.1719	0.5000	1.2500	2.7500	919-000-467	919-000-468
1.2500	110.0	0.2188	0.5000	1.2500	2.7500	919-000-469	919-000-470
1.5000	110.0	0.2500	0.7500	1.2500	2.8750	919-000-471	919-000-472
1.7500	110.0	0.2969	0.7500	1.2500	3.0000	919-000-473	919-000-474
2.0000	110.0	0.3438	0.7500	1.2500	3.2500	919-000-475	919-000-476
2.5000	110.0	0.4375	1.0000	1.5000	5.0000	919-000-477	919-000-478
3.0000	110.0	0.5156	1.0000	1.5000	5.2500	919-000-479	919-000-480
0.1250	120.0	0.0200	0.1250	0.6250	1.2500	919-000-482	919-000-483
0.1875	120.0	0.0313	0.1875	0.6875	1.3750	919-000-484	919-000-485
0.2500	120.0	0.0469	0.2500	0.7500	1.5000	919-000-486	919-000-487
0.3125	120.0	0.0469	0.2500	0.8750	1.7500	919-000-488	919-000-489
0.3750	120.0	0.0625	0.2500	0.8750	1.7500	919-000-490	919-000-491
0.5000	120.0	0.0781	0.2500	1.0000	2.0000	919-000-492	919-000-493
0.5000	120.0	0.0781	0.3750	1.0000	2.0000	919-000-494	919-000-495
0.6250	120.0	0.1094	0.2500	1.0000	2.2500	919-000-496	919-000-497
0.6250	120.0	0.1094	0.3750	1.0000	2.2500	919-000-498	919-000-499
0.7500	120.0	0.1250	0.5000	1.2500	2.6250	919-000-500	919-000-501
0.8750	120.0	0.1406	0.5000	1.2500	2.7500	919-000-502	919-000-503
1.0000	120.0	0.1719	0.5000	1.2500	2.7500	919-000-504	919-000-505
1.2500	120.0	0.2188	0.5000	1.2500	2.7500	919-000-506	919-000-507
1.5000	120.0	0.2500	0.7500	1.2500	2.8750	919-000-508	919-000-509
1.7500	120.0	0.2969	0.7500	1.2500	3.0000	919-000-510	919-000-511
2.0000	120.0	0.3438	0.7500	1.2500	3.2500	919-000-512	919-000-513
2.5000	120.0	0.4375	1.0000	1.5000	5.0000	919-000-514	919-000-515
3.0000	120.0	0.5156	1.0000	1.5000	5.2500	919-000-516	919-000-517

HSS



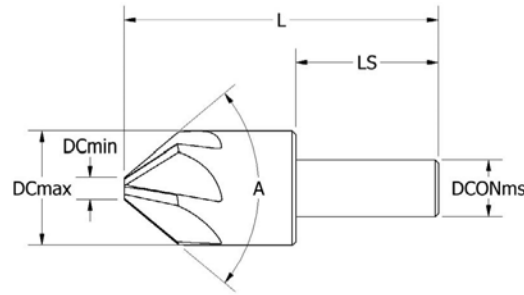
DCMAX [in.]	A [°]	DCMIN [in.]	DCONMS [in.]	LS [in.]	L [in.]	UNCOATED	TiN COATED
0.1250	60.0	0.0469	0.1250	0.6250	1.2500	919-000-693	919-000-694
0.1875	60.0	0.0625	0.1875	0.6875	1.3750	919-000-695	919-000-696
0.2500	60.0	0.0781	0.2500	0.7500	1.5000	919-000-697	919-000-698
0.3125	60.0	0.0938	0.2500	0.8750	1.7500	919-000-699	919-000-700
0.3750	60.0	0.1250	0.2500	0.8750	1.7500	919-000-701	919-000-702
0.5000	60.0	0.1563	0.2500	1.0000	2.0000	919-000-703	919-000-704
0.5000	60.0	0.1563	0.3750	1.0000	2.0000	919-000-705	919-000-706
0.6250	60.0	0.2031	0.2500	1.0000	2.2500	919-000-707	919-000-708
0.6250	60.0	0.2031	0.3750	1.0000	2.2500	919-000-709	919-000-710
0.7500	60.0	0.2500	0.5000	1.2500	2.6250	919-000-711	919-000-712
0.8750	60.0	0.2813	0.5000	1.2500	2.7500	919-000-713	919-000-714
1.0000	60.0	0.3281	0.5000	1.2500	2.7500	919-000-715	919-000-716
1.2500	60.0	0.4063	0.5000	1.2500	2.7500	919-000-717	919-000-718
1.5000	60.0	0.5000	0.7500	1.2500	2.8750	919-000-719	919-000-720
1.7500	60.0	0.5781	0.7500	1.2500	3.0000	919-000-721	919-000-722
2.0000	60.0	0.6563	0.7500	1.2500	3.2500	919-000-723	919-000-724
2.5000	60.0	0.8281	1.0000	1.5000	5.0000	919-000-725	919-000-726
3.0000	60.0	1.0000	1.0000	1.5000	5.2500	919-000-727	919-000-728
0.1250	82.0	0.0250	0.1250	0.6250	1.2500	919-000-729	919-000-730
0.1875	82.0	0.0313	0.1875	0.6875	1.3750	919-000-731	919-000-732
0.2500	82.0	0.0469	0.2500	0.7500	1.5000	919-000-733	919-000-734
0.3125	82.0	0.0625	0.2500	0.8750	1.7500	919-000-735	919-000-736
0.3750	82.0	0.0781	0.2500	0.8750	1.7500	919-000-737	919-000-738
0.5000	82.0	0.1094	0.2500	1.0000	2.0000	919-000-739	919-000-740
0.5000	82.0	0.1094	0.3750	1.0000	2.0000	919-000-741	919-000-742
0.6250	82.0	0.1250	0.2500	1.0000	2.2500	919-000-743	919-000-744
0.6250	82.0	0.1250	0.3750	1.0000	2.2500	919-000-745	919-000-746
0.7500	82.0	0.1563	0.5000	1.2500	2.6250	919-000-747	919-000-748
0.8750	82.0	0.1719	0.5000	1.2500	2.7500	919-000-749	919-000-750
1.0000	82.0	0.2031	0.5000	1.2500	2.7500	919-000-751	919-000-752
1.2500	82.0	0.2500	0.5000	1.2500	2.7500	919-000-753	919-000-754
1.5000	82.0	0.3125	0.7500	1.2500	2.8750	919-000-755	919-000-756
1.7500	82.0	0.3594	0.7500	1.2500	3.0000	919-000-757	919-000-758
2.0000	82.0	0.4063	0.7500	1.2500	3.2500	919-000-759	919-000-760
2.0000	82.0	0.5000	1.0000	1.5000	5.0000	919-000-761	919-000-762
3.0000	82.0	0.5938	1.0000	1.5000	5.2500	919-000-763	919-000-764

COBALT



COBALT

DCMAX [in.]	A [°]	DCMIN [in.]	DCONMS [in.]	LS [in.]	L [in.]	UNCOATED	TIN COATED
0.1250	90.0	0.0250	0.1250	0.6250	1.2500	919-000-765	919-000-766
0.1875	90.0	0.0313	0.1875	0.6875	1.3750	919-000-767	919-000-768
0.2500	90.0	0.0469	0.2500	0.7500	1.5000	919-000-769	919-000-770
0.3125	90.0	0.0625	0.2500	0.8750	1.7500	919-000-771	919-000-772
0.3750	90.0	0.0781	0.2500	0.8750	1.7500	919-000-773	919-000-774
0.5000	90.0	0.1094	0.2500	1.0000	2.0000	919-000-775	919-000-776
0.5000	90.0	0.1094	0.3750	1.0000	2.0000	919-000-777	919-000-778
0.6250	90.0	0.1250	0.2500	1.0000	2.2500	919-000-779	919-000-780
0.6250	90.0	0.1250	0.3750	1.0000	2.2500	919-000-781	919-000-782
0.7500	90.0	0.1563	0.5000	1.2500	2.6250	919-000-783	919-000-784
0.8750	90.0	0.1719	0.5000	1.2500	2.7500	919-000-785	919-000-786
1.0000	90.0	0.2031	0.5000	1.2500	2.7500	919-000-787	919-000-788
1.2500	90.0	0.2500	0.5000	1.2500	2.7500	919-000-789	919-000-790
1.5000	90.0	0.3125	0.7500	1.2500	2.8750	919-000-791	919-000-792
1.7500	90.0	0.3594	0.7500	1.2500	3.0000	919-000-793	919-000-794
2.0000	90.0	0.4063	0.7500	1.2500	3.2500	919-000-795	919-000-796
2.5000	90.0	0.5000	1.0000	1.5000	5.0000	919-000-797	919-000-798
3.0000	90.0	0.5938	1.0000	1.5000	5.2500	919-000-799	919-000-800
0.1250	100.0	0.0250	0.1250	0.6250	1.2500	919-000-801	919-000-802
0.1875	100.0	0.0313	0.1875	0.6875	1.3750	919-000-803	919-000-804
0.2500	100.0	0.0469	0.2500	0.7500	1.5000	919-000-805	919-000-806
0.3125	100.0	0.0625	0.2500	0.8750	1.7500	919-000-807	919-000-808
0.3750	100.0	0.0781	0.2500	0.8750	1.7500	919-000-809	919-000-810
0.5000	100.0	0.1094	0.2500	1.0000	2.0000	919-000-811	919-000-812
0.5000	100.0	0.1094	0.3750	1.0000	2.0000	919-000-813	919-000-814
0.6250	100.0	0.1250	0.2500	1.0000	2.2500	919-000-815	919-000-816
0.6250	100.0	0.1250	0.3750	1.0000	2.2500	919-000-817	919-000-818
0.7500	100.0	0.1563	0.5000	1.2500	2.6250	919-000-819	919-000-820
0.8750	100.0	0.1719	0.5000	1.2500	2.7500	919-000-821	919-000-822
1.0000	100.0	0.2031	0.5000	1.2500	2.7500	919-000-823	919-000-824
1.2500	100.0	0.2500	0.5000	1.2500	2.7500	919-000-825	919-000-826
1.5000	100.0	0.3125	0.7500	1.2500	2.8750	919-000-827	919-000-828
1.7500	100.0	0.3594	0.7500	1.2500	3.0000	919-000-829	919-000-830
2.0000	100.0	0.4063	0.7500	1.2500	3.2500	919-000-831	919-000-832
2.5000	100.0	0.5000	1.0000	1.5000	5.0000	919-000-833	919-000-834
3.0000	100.0	0.5938	1.0000	1.5000	5.2500	919-000-835	919-000-836



DCMAX [in.]	A [°]	DCMIN [in.]	DCONMS [in.]	LS [in.]	L [in.]	UNCOATED	TIN COATED
0.1250	110.0	0.0200	0.1250	0.6250	1.2500	919-000-837	919-000-838
0.1875	110.0	0.0313	0.1875	0.6875	1.3750	919-000-839	919-000-840
0.2500	110.0	0.0469	0.2500	0.7500	1.5000	919-000-841	919-000-842
0.3125	110.0	0.0469	0.2500	0.8750	1.7500	919-000-843	919-000-844
0.3750	110.0	0.0625	0.2500	0.8750	1.7500	919-000-845	919-000-846
0.5000	110.0	0.0781	0.2500	1.0000	2.0000	919-000-847	919-000-848
0.5000	110.0	0.0781	0.3750	1.0000	2.0000	919-000-849	919-000-850
0.6250	110.0	0.1094	0.2500	1.0000	2.2500	919-000-851	919-000-852
0.6250	110.0	0.1094	0.3750	1.0000	2.2500	919-000-853	919-000-854
0.7500	110.0	0.1250	0.5000	1.2500	2.6250	919-000-855	919-000-856
0.8750	110.0	0.1406	0.5000	1.2500	2.7500	919-000-857	919-000-858
1.0000	110.0	0.1719	0.5000	1.2500	2.7500	919-000-859	919-000-860
1.2500	110.0	0.2188	0.5000	1.2500	2.7500	919-000-861	919-000-862
1.5000	110.0	0.2500	0.7500	1.2500	2.8750	919-000-863	919-000-864
1.7500	110.0	0.2969	0.7500	1.2500	3.0000	919-000-865	919-000-866
2.0000	110.0	0.3438	0.7500	1.2500	3.2500	919-000-867	919-000-868
2.5000	110.0	0.4375	1.0000	1.5000	5.0000	919-000-869	919-000-870
3.0000	110.0	0.5156	1.0000	1.5000	5.2500	919-000-871	919-000-872
0.1250	120.0	0.0200	0.1250	0.6250	1.2500	919-000-873	919-000-874
0.1875	120.0	0.0313	0.1875	0.6875	1.3750	919-000-875	919-000-876
0.2500	120.0	0.0469	0.2500	0.7500	1.5000	919-000-877	919-000-878
0.3125	120.0	0.0469	0.2500	0.8750	1.7500	919-000-879	919-000-880
0.3750	120.0	0.0625	0.2500	0.8750	1.7500	919-000-881	919-000-882
0.5000	120.0	0.0781	0.2500	1.0000	2.0000	919-000-883	919-000-884
0.5000	120.0	0.0781	0.3750	1.0000	2.0000	919-000-885	919-000-886
0.6250	120.0	0.1094	0.2500	1.0000	2.2500	919-000-887	919-000-888
0.6250	120.0	0.1094	0.3750	1.0000	2.2500	919-000-889	919-000-890
0.7500	120.0	0.1250	0.5000	1.2500	2.6250	919-000-891	919-000-892
0.8750	120.0	0.1406	0.5000	1.2500	2.7500	919-000-893	919-000-894
1.0000	120.0	0.1719	0.5000	1.2500	2.7500	919-000-895	919-000-896
1.2500	120.0	0.2188	0.5000	1.2500	2.7500	919-000-897	919-000-898
1.5000	120.0	0.2500	0.7500	1.2500	2.8750	919-000-899	919-000-900
1.7500	120.0	0.2969	0.7500	1.2500	3.0000	919-000-901	919-000-902
2.0000	120.0	0.3438	0.7500	1.2500	3.2500	919-000-903	919-000-904
2.5000	120.0	0.4375	1.0000	1.5000	5.0000	919-000-905	919-000-906
3.0000	120.0	0.5156	1.0000	1.5000	5.2500	919-000-907	919-000-908



COUNTERSINK ANGLE	HSS SET	COBALT SET
60°	919-000-333	919-000-038
82°	919-000-370	919-000-039
90°	919-000-407	919-000-040
100°	919-000-444	919-000-035
110°	919-000-481	919-000-036
120°	919-000-518	919-000-037

6-FLUTE COUNTERSINK SETS
Available in HSS & Cobalt

COBALT

COUNTERBORES

ARCH[®]
Cutting Tools

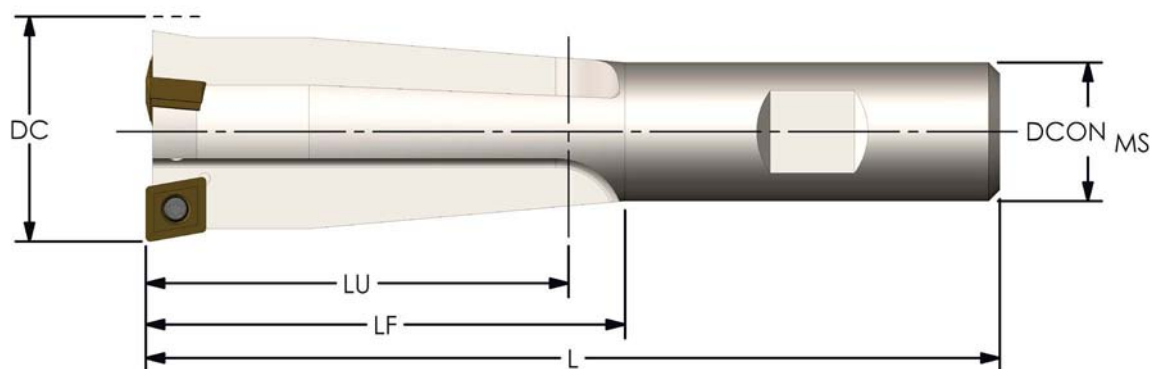


- Diameter range from 0.562" – 0.750" (8mm-20mm) socket head cap Screw bore
- Single tool to counterbore, dual chamfer all in one setup* (PC2 series)
- Back boring Reduces production time by eliminating second operation* (PC3 series)
- Achieves a true 90° bottom with all PC- series tool holders
- Excellent surface finish can be achieved
- Machining to production dimension without separate fine bore process



PC1

- Socket head cap screw (SHCS) bore diameter range 0.562" – 0.750" (8mm – 20mm)
- Excellent surface finish
- No secondary fine boring operation required to achieve required dimensions
- Achieves a true 90° bottom
- PD1 proprietary insert is an economic choice with 4 cutting edges



PRODUCT #	DESIGNATION	Size/ Application	DC [in.]	DCONMS [in.]	LU [in.]	L [in.]	LF [in.]	Insert	Screw	ZC
970-000-001	PC1-312-2-750-04	5/16"	0.500	0.750	1.000	3.375	1.345	PD1 042004	PD1-16	2
970-000-003	PC1-375-2-750-04	3/8"	0.594	0.750	1.188	3.500	1.470	PD1 042004	PD1-16	2
970-000-005	PC1-437-2-750-05	7/16"	0.687	0.750	1.374	3.625	1.595	PD1 052804	PD1-2	2
970-000-007	PC1-500-2-750-06	1/2"	0.781	0.750	1.562	3.750	1.720	PD1 063306	PD1-22	2
970-000-008	PC1-625-3-750-06	5/8"	1.000	0.750	2.000	4.250	2.220	PD1 063306	PD1-22	3
970-000-010	PC1-750-3-750-07	3/4"	1.188	0.750	2.376	4.625	2.595	PD1 074006	PD1-25	3
970-000-002	PC1-315-2-750-04	M8	0.591	0.750	1.182	3.500	1.470	PD1 042004	PD1-16	2
970-000-004	PC1-394-2-750-05	M10	0.709	0.750	1.418	3.625	1.595	PD1 052804	PD1-2	2
970-000-006	PC1-472-2-750-06	M12	0.787	0.750	1.574	3.750	1.720	PD1 063306	PD1-22	2
970-000-009	PC1-630-3-750-06	M16	1.024	0.750	2.048	4.250	2.220	PD1 063306	PD1-22	3
970-000-011	PC1-787-3-750-07	M20	1.299	0.750	2.598	4.750	2.720	PD1 074006	PD1-25	3



Recommendations:

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

- It is recommended to use precision holders i.e. hydraulic, shrink fit
- It is recommended to use internal coolant – minimum recommended pressure 145 psi

PRODUCT #	DESIGNATION	HP600	HK356	HN300
914-000-085	PD1 042004	•		
914-000-083			•	
914-000-084				•
914-000-088	PD1 052804	•		
914-000-086			•	
914-000-087				•
914-000-091	PD1 063306	•		
914-000-089			•	
914-000-090				•
914-000-094	PD1 074006	•		
914-000-092			•	
914-000-093				•
914-000-097	PD1 094508	•		
914-000-095			•	
914-000-096				•
914-000-100	PD1 125812	•		
914-000-098			•	
914-000-99				•
914-000-103	PD1 156812	•		
914-000-101			•	
914-000-102				•



PD1

PRODUCT #	Insert Screw
968-000-112	PD1-16
968-000-113	PD1-2
968-000-114	PD1-22
968-000-115	PD1-25
968-000-116	PD1-35
968-000-117	PD1-5
968-000-118	PD1-6

PACKAGE SIZE OF 5



PACKAGE SIZE OF 10

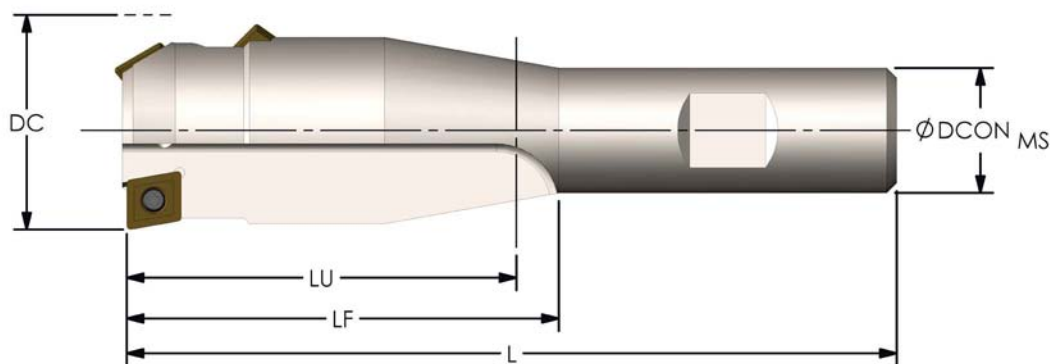
ISO	MATERIAL	HARDNESS	GRADE	Vc (SFM)*	DIAMETER inch (metric)	
					5/16" - 1/2"	1/2" - 3/4" (20mm)
					Fz (INCH PER TOOTH)*	
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HP600	250-675	.0015-.0040	.0020-.0060
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC				
M	STAINLESS STEELS (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	HP600	150-450	.0018-.0025	.0025-.0060
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC				
K	GRAY IRONS Class 20,30,40,50,60,G3000, G3500	≤ 220 BHN or ≤ 19 HRC	HK365	200-700	.0025-.0045	.0035-.0070
	DUCTILE IRONS D&M series, 250,300,350,400,60-40- 18,65-45-12	≤ 260 BHN or ≤ 26 HRC				
N	NON-FERROUS Aluminum, Aluminum cast, Brass, copper, Bronze, Non Metallic"	≤ 271 BHN or ≤ 28 HRC	HN300	300-750	.0020-.0060	.0030-.0090
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	HP600	60-275	.0018-.0055	.0020-.0060
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	HP600	45-200	.0015-.0030	.0017-.0050
	TITANIUM 6AL-4V, ASTM 1, 2, 3,6AL-2S	≤ 275 BHN or ≤ 28 HRC				

Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



PC2

- Socket head cap screw (SHCS) bore diameter range 0.562" – 0.750" (8mm – 20mm)
- Excellent surface finish
- No secondary fine boring operation required to achieve required dimensions
- Achieves a true 90° bottom
- PD1 proprietary insert is an economic choice with 4 cutting edges
- Counterbored and dual chamfer all in one set up with the PC2



PRODUCT #	DESIGNATION	Size/ Application	DC [in.]	DCONMS [in.]	LU [in.]	L [in.]	LF [in.]	INSERT	SCREW	ZC
970-000-012	PC2-312-3-750-04	5/16"	0.500	0.750	1.000	3.375	1.345	PD1 042004	PD1-16	3
970-000-014	PC2-375-3-750-04	3/8"	0.594	0.750	1.188	30.500	1.470	PD1 042004	PD1-16	3
970-000-016	PC2-437-3-750-05	7/16"	0.687	0.750	1.374	3.625	1.595	PD1 052804	PD1-2	3
970-000-018	PC2-500-3-750-06	1/2"	0.781	0.750	1.562	3.750	1.720	PD1 063306	PD1-22	3
970-000-019	PC2-625-3-750-06	5/8"	1.000	0.750	2.000	4.250	2.220	PD1 063306	PD1-22	3
970-000-021	PC2-750-3-750-07	3/4"	1.188	0.750	2.376	4.625	2.595	PD1 074006	PD1-25	3
970-000-013	PC2-315-3-750-04	M8	0.591	0.750	1.182	30.500	1.470	PD1 042004	PD1-16	3
970-000-015	PC2-394-3-750-05	M10	0.709	0.750	1.418	3.625	1.595	PD1 052804	PD1-2	3
970-000-017	PC2-472-3-750-06	M12	0.787	0.750	1.574	3.750	1.720	PD1 063306	PD1-22	3
970-000-020	PC2-630-3-750-06	M16	1.024	0.750	2.048	4.250	2.220	PD1 063306	PD1-22	3
970-000-022	PC2-787-3-750-07	M20	1.299	0.750	2.598	4.750	2.720	PD1 074006	PD1-25	3

Recommendations:

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

- It is recommended to use precision holders i.e. hydraulic, shrink fit
- It is recommended to use internal coolant – minimum recommended pressure 145 psi



PRODUCT #	DESIGNATION	HP600	HK356	HN300
914-000-085	PD1 042004	•		
914-000-083			•	
914-000-084				•
914-000-088	PD1 052804	•		
914-000-086			•	
914-000-087				•
914-000-091	PD1 063306	•		
914-000-089			•	
914-000-090				•
914-000-094	PD1 074006	•		
914-000-092			•	
914-000-093				•
914-000-097	PD1 094508	•		
914-000-095			•	
914-000-096				•
914-000-100	PD1 125812	•		
914-000-098			•	
914-000-99				•
914-000-103	PD1 156812	•		
914-000-101			•	
914-000-102				•



PD1

PRODUCT #	Insert Screw
968-000-112	PD1-16
968-000-113	PD1-2
968-000-114	PD1-22
968-000-115	PD1-25
968-000-116	PD1-35
968-000-117	PD1-5
968-000-118	PD1-6

PACKAGE SIZE OF 5



FIGURE 1

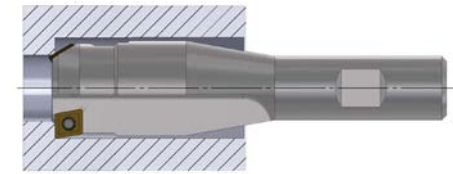


FIGURE 2

PACKAGE SIZE OF 10

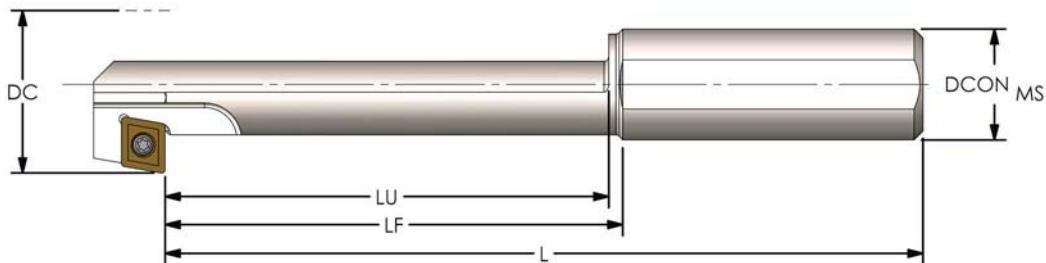
ISO	MATERIAL	HARDNESS	GRADE	Vc (SFM)*	DIAMETER inch (metric)	
					5/16" - 1/2"	1/2" - 3/4" (20mm)
					Fz (INCH PER TOOTH)*	
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HP600	250-675	.0015-.0040	.0020-.0060
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC				
M	STAINLESS STEELS (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	HP600	150-450	.0018-.0025	.0025-.0060
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC				
K	GRAY IRONS Class 20,30,40,50,60,G3000, G3500	≤ 220 BHN or ≤ 19 HRC	HK356	200-700	.0025-.0045	.0035-.0070
	DUCTILE IRONS D&M series, 250,300,350,400,60-40- 18,65-45-12	≤ 260 BHN or ≤ 26 HRC				
N	NON-FERROUS Aluminum, Aluminum cast, Brass, copper, Bronze, Non Metallic"	≤ 271 BHN or ≤ 28 HRC	HN300	300-750	.0020-.0060	.0030-.0090
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	HP600	60-275	.0018-.0055	.0020-.0060
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	HP600	45-200	.0015-.0030	.0017-.0050
	TITANIUM 6AL-4V, ASTM 1, 2, 3,6AL-2S	≤ 275 BHN or ≤ 28 HRC				

Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



PC3

- Socket head cap screw (SHCS) bore diameter range 0.562" – 0.750" (8mm – 20mm)
- Excellent surface finish
- No secondary fine boring operation required to achieve required dimensions
- Achieves a true 90° bottom
- PD1 proprietary insert is an economic choice with 4 cutting edges
- Reduce cycle time when back boring by eliminating second operation with the PC3



PRODUCT #	DESIGNATION	Size/ Application	DC [in.]	DCONMS [in.]	LU [in.]	L [in.]	LF [in.]	INSERT	SCREW	ZC
970-000-023	PC3-312-1-750-04	5/16"	0.500	0.750	1.030	3.375	1.345	PD1 042004	PD1-16	1
970-000-025	PC3-375-1-750-04	3/8"	0.594	0.750	1.218	3.500	1.470	PD1 042004	PD1-16	1
970-000-027	PC3-437-1-750-05	7/16"	0.687	0.750	1.748	4.000	1.970	PD1 052804	PD1-2	1
970-000-029	PC3-500-1-750-06	1/2"	0.781	0.750	1.983	4.250	2.220	PD1 063306	PD1-22	1
970-000-030	PC3-625-1-750-06	5/8"	1.000	0.750	2.530	4.750	2.720	PD1 063306	PD1-22	1
970-000-032	PC3-750-1-750-07	3/4"	1.188	0.750	3.000	5.125	3.095	PD1 074006	PD1-25	1
970-000-024	PC3-315-1-750-04	M8	0.591	0.750	1.212	3.500	1.470	PD1 042004	PD1-16	1
970-000-026	PC3-394-1-750-05	M10	0.709	0.750	1.448	3.750	1.720	PD1 052804	PD1-2	1
970-000-028	PC3-472-1-750-06	M12	0.787	0.750	1.998	4.250	2.220	PD1 063306	PD1-22	1
970-000-031	PC3-630-1-750-06	M16	1.024	0.750	2.590	4.750	2.720	PD1 063306	PD1-22	1
970-000-033	PC3-787-1-750-07	M20	1.299	0.750	3.278	5.375	3.345	PD1 074006	PD1-25	1



Recommendations:

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

- It is recommended to use precision holders i.e. hydraulic, shrink fit
- It is recommended to use internal coolant – minimum recommended pressure 145 psi

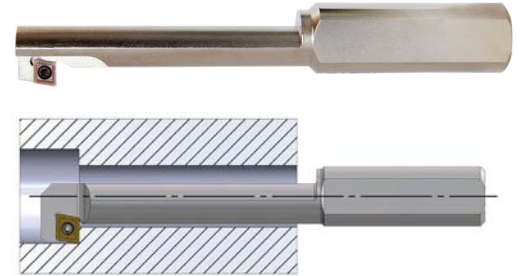
PRODUCT #	DESIGNATION	HP600	HK356	HN300
914-000-085	PD1 042004	•		
914-000-083			•	
914-000-084				•
914-000-088	PD1 052804	•		
914-000-086			•	
914-000-087				•
914-000-091	PD1 063306	•		
914-000-089			•	
914-000-090				•
914-000-094	PD1 074006	•		
914-000-092			•	
914-000-093				•
914-000-097	PD1 094508	•		
914-000-095			•	
914-000-096				•
914-000-100	PD1 125812	•		
914-000-098			•	
914-000-99				•
914-000-103	PD1 156812	•		
914-000-101			•	
914-000-102				•



PD1

PRODUCT #	Insert Screw
968-000-112	PD1-16
968-000-113	PD1-2
968-000-114	PD1-22
968-000-115	PD1-25
968-000-116	PD1-35
968-000-117	PD1-5
968-000-118	PD1-6

PACKAGE SIZE OF 5



PACKAGE SIZE OF 10

ISO	MATERIAL	HARDNESS	GRADE	Vc (SFM)*	DIAMETER inch (metric)	
					5/16" - 1/2"	1/2" - 3/4" (20mm)
					Fz (INCH PER TOOTH)*	
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HP600	250-675	.0015-.0040	.0020-.0060
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC				
M	STAINLESS STEELS (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	HP600	150-450	.0018-.0025	.0025-.0060
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC				
K	GRAY IRONS Class 20,30,40,50,60,G3000, G3500	≤ 220 BHN or ≤ 19 HRC	HK365	200-700	.0025-.0045	.0035-.0070
	DUCTILE IRONS D&M series, 250,300,350,400,60-40- 18,65-45-12	≤ 260 BHN or ≤ 26 HRC				
N	NON-FERROUS Aluminum, Aluminum cast, Brass, copper, Bronze, Non Metallic"	≤ 271 BHN or ≤ 28 HRC	HN300	300-750	.0020-.0060	.0030-.0090
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	HP600	60-275	.0018-.0055	.0020-.0060
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	HP600	45-200	.0015-.0030	.0017-.0050
	TITANIUM 6AL-4V, ASTM 1, 2, 3,6AL-2S	≤ 275 BHN or ≤ 28 HRC				

Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



COBALT

DC [in.]	DCONMS [in.]	D [in.]	LU [in.]	LS [in.]	L [in.]	LF [in.]	LP [in.]	SIZE/ APPLICATION	PRODUCT#
0.1860	0.1563	0.1120	0.5000	1.6250	3.0000	1.3750	0.1875	#4 Nominal	902-000-001
0.2020	0.1563	0.1270	0.5000	1.6250	3.0000	1.3750	0.1875	#4 +1/64 O/S	902-000-002
0.2170	0.1563	0.1430	0.5000	1.6250	3.0000	1.3750	0.1875	#4 +1/32 O/S	902-000-003
0.2050	0.1875	0.1250	0.5000	1.6250	3.0000	1.3750	0.1875	#5 Nominal	902-000-004
0.2210	0.1875	0.1400	0.5000	1.6250	3.0000	1.3750	0.1875	#5 +1/64 O/S	902-000-005
0.2370	0.1875	0.1560	0.5000	1.6250	3.0000	1.3750	0.1875	#5 +1/32 O/S	902-000-006
0.2280	0.2188	0.1380	0.5000	1.6250	3.0000	1.3750	0.2031	#6 Nominal	902-000-007
0.2440	0.2188	0.1530	0.5000	1.6250	3.0000	1.3750	0.2031	#6 +1/64 O/S	902-000-008
0.2600	0.2188	0.1690	0.5000	1.6250	3.0000	1.3750	0.2031	#6 +1/32 O/S	902-000-009
0.2720	0.2500	0.1640	0.5000	1.6250	3.0000	1.3750	0.2500	#8 Nominal	902-000-010
0.2880	0.2500	0.1790	0.5000	1.6250	3.0000	1.3750	0.2500	#8 +1/64 O/S	902-000-011
0.3040	0.2500	0.1950	0.5000	1.6250	3.0000	1.3750	0.2500	#8 +1/32 O/S	902-000-012
0.3140	0.2813	0.1900	0.7813	2.4687	4.5000	2.0313	0.2656	#10 Nominal	902-000-013
0.3300	0.2813	0.2050	0.7813	2.4687	4.5000	2.0313	0.2656	#10 +1/64 O/S	902-000-014
0.3460	0.2813	0.2210	0.7813	2.4687	4.5000	2.0313	0.2656	#10 +1/32 O/S	902-000-015
0.3820	0.3125	0.2500	0.7813	2.4218	4.5000	2.0782	0.3125	1/4" Nominal	902-000-016
0.3980	0.3125	0.2650	0.7813	2.4218	4.5000	2.0782	0.3125	1/4" +1/64 O/S	902-000-017
0.4140	0.3125	0.2810	0.7813	2.4218	4.5000	2.0782	0.3125	1/4" +1/32 O/S	902-000-018
0.4750	0.3750	0.3120	0.7813	2.4218	4.5000	2.0782	0.3594	5/16" Nominal	902-000-019
0.4910	0.3750	0.3280	0.7813	2.4218	4.5000	2.0782	0.3594	5/16" +1/64 O/S	902-000-020
0.5070	0.3750	0.3430	0.7813	2.4218	4.5000	2.0782	0.3594	5/16" +1/32 O/S	902-000-021
0.5720	0.5000	0.3750	0.9063	2.4687	5.0000	2.5313	0.5000	3/8" Nominal	902-000-022
0.5880	0.5000	0.3900	0.9063	2.4687	5.0000	2.5313	0.5000	3/8" +1/64 O/S	902-000-023
0.6040	0.5000	0.4060	0.9063	2.4687	5.0000	2.5313	0.5000	3/8" +1/32 O/S	902-000-024
0.6630	0.5000	0.4370	0.9375	2.5000	5.0000	2.5000	0.5000	7/16" Nominal	902-000-025
0.6790	0.5000	0.4520	0.9375	2.5000	5.0000	2.5000	0.5000	7/16" +1/64 O/S	902-000-026
0.6950	0.5000	0.4680	0.9375	2.5000	5.0000	2.5000	0.5000	7/16" +1/32 O/S	902-000-027
0.7570	0.5000	0.5000	1.0156	3.0468	6.0000	2.9532	0.5000	1/2" Nominal	902-000-028
0.7730	0.5000	0.5150	1.0156	3.0468	6.0000	2.9532	0.5000	1/2" +1/64 O/S	902-000-029
0.7890	0.5000	0.5310	1.0156	3.0468	6.0000	2.9532	0.5000	1/2" +1/32 O/S	902-000-030
0.9450	0.6250	0.6250	1.0156	3.0625	6.0000	2.9375	0.6250	5/8" Nominal	902-000-031
0.9610	0.6250	0.6410	1.0156	3.0625	6.0000	2.9375	0.6250	5/8" +1/64 O/S	902-000-032
0.9770	0.6250	0.6560	1.0156	3.0625	6.0000	2.9375	0.6250	5/8" +1/32 O/S	902-000-033
1.1870	0.7500	0.7660	1.2500	3.0625	7.0000	3.9375	0.7344	3/4" Nominal	902-000-034
1.2030	0.7500	0.7810	1.2500	3.0625	7.0000	3.9375	0.7344	3/4" +1/32 O/S	902-000-035
1.3750	0.8750	0.8910	1.2500	3.0000	7.0000	4.0000	0.8906	7/8" Nominal	902-000-036
1.3910	0.8750	0.9060	1.2500	3.0000	7.0000	4.0000	0.8906	7/8" +1/32 O/S	902-000-037
1.5620	1.0000	1.0160	1.2500	3.0000	7.0000	4.0000	1.0625	1" Nominal	902-000-038
1.5880	1.0000	1.0320	1.2500	3.0000	7.0000	4.0000	1.0625	1" +1/32 O/S	902-000-039



COMPLETE 7-PIECE TOOL SETS	PRODUCT #
#6, #8, #10, 1/4", 5/16", 3/8", 1/2" Nominal	902-000-040
#6, #8, #10, 1/4", 5/16", 3/8", 1/2" +1/64 O/S	902-000-041
#6, #8, #10, 1/4", 5/16", 3/8", 1/2" +1/32 O/S	902-000-042

**PRECISION CAP SCREW
COUNTERBORES SET**



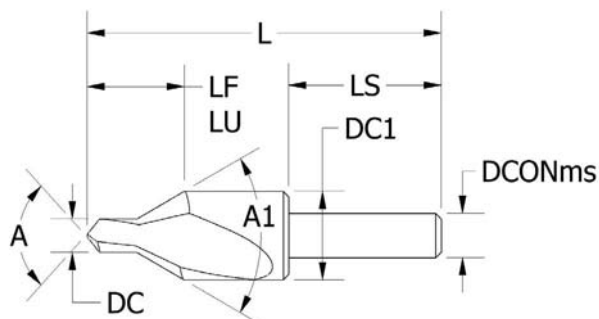
DC [mm]	DCONMS [mm]	D [mm]	LU [mm]	LS [mm]	L [mm]	LF [mm]	LP [mm]	SIZE/ APPLICATION	PRODUCT#
6.00	5.00	2.50	14.00	31.50	71.00	39.50	3.50	M3 - Before Thread	902-000-043
6.00	5.00	3.20	14.00	31.50	71.00	39.50	3.50	M3 - Fine	902-000-044
6.00	5.00	3.40	14.00	31.50	71.00	39.50	3.50	M3 - Medium	902-000-045
6.50	5.00	2.90	14.00	31.50	71.00	39.50	3.50	M3.5 - Before Thread	902-000-046
6.50	5.00	3.70	14.00	31.50	71.00	39.50	3.50	M3.5 - Fine	902-000-047
6.50	5.00	3.90	14.00	31.50	71.00	39.50	4.00	M3.5 - Medium	902-000-048
8.00	5.00	3.30	14.00	31.50	71.00	39.50	4.50	M4 - Before Thread	902-000-049
8.00	5.00	4.30	14.00	31.50	71.00	39.50	4.50	M4 - Fine	902-000-050
8.00	5.00	4.50	14.00	31.50	71.00	39.50	4.50	M4 - Medium	902-000-051
10.00	8.00	4.20	18.00	35.50	80.00	44.50	4.50	M5 - Before Thread	902-000-052
10.00	8.00	5.30	18.00	35.50	80.00	44.50	4.50	M5 - Fine	902-000-053
10.00	8.00	5.50	18.00	35.50	80.00	44.50	4.50	M5 - Medium	902-000-054
11.00	8.00	5.00	18.00	35.50	80.00	44.50	5.50	M6 - Before Thread	902-000-055
11.00	8.00	6.40	18.00	35.50	80.00	44.50	5.50	M6 - Fine	902-000-056
11.00	8.00	6.60	18.00	35.50	80.00	44.50	7.00	M6 - Medium	902-000-057
15.00	12.50	6.80	22.00	40.00	100.00	60.00	7.00	M8 - Before Thread	902-000-058
15.00	12.50	8.40	22.00	40.00	100.00	60.00	9.00	M8 - Fine	902-000-059
15.00	12.50	9.00	22.00	40.00	100.00	60.00	9.00	M8 - Medium	902-000-060
18.00	12.50	8.50	22.00	40.00	100.00	60.00	9.00	M10 - Before Thread	902-000-061
18.00	12.50	10.50	22.00	40.00	100.00	60.00	11.00	M10 - Fine	902-000-062
18.00	12.50	11.00	22.00	40.00	100.00	60.00	11.00	M10 - Medium	902-000-063
20.00	12.50	10.20	22.00	40.00	100.00	60.00	10.50	M12 - Before Thread	902-000-064
20.00	12.50	13.00	22.00	40.00	100.00	60.00	14.00	M12 - Fine	902-000-065
20.00	12.50	14.00	22.00	40.00	100.00	60.00	14.00	M12 - Medium	902-000-066



PRECISION METRIC CAP SCREW COUNTERBORES SET

COMPLETE 6-PIECE TOOL SETS	SIZE/ APPLICATION	PRODUCT #
M3, M4, M5, M6, M8, M10	Before Thread	902-000-067
M3, M4, M5, M6, M8, M10	Fine	902-000-068
M3, M4, M5, M6, M8, M10	Medium	902-000-069

COBALT



FLAT HEAD SCREWS MACHINE SCREW

SCREW SIZE	DC [in.]	DCONMS [in.]	DC1 [in.]	LU [in.]	LS [in.]	L [in.]	LF [in.]	A [°]	A1 [°]	FLAT HEAD SCREWS MACHINE SCREW
#5	0.1270	0.2500	0.3125	0.3022	0.8750	1.7500	0.3022	118.0	82.0	906-000-296
#6	0.1400	0.2500	0.3125	0.2979	0.8750	1.7500	0.2979	118.0	82.0	906-000-297
#8	0.1660	0.2500	0.3750	0.4144	0.8750	1.7500	0.4144	118.0	82.0	906-000-298
#10	0.1920	0.2500	0.4375	0.4059	1.0000	2.0000	0.4059	118.0	82.0	906-000-299
#12	0.2200	0.2500	0.4375	0.4280	1.0000	2.0000	0.4280	118.0	82.0	906-000-300
1/4"	0.2520	0.2500	0.5000	0.4488	1.0000	2.0000	0.4488	118.0	82.0	906-000-301
5/16"	0.3150	0.3750	0.6250	0.5531	1.0000	2.2500	0.5531	118.0	82.0	906-000-302
3/8"	0.3780	0.5000	0.7500	0.6575	1.2500	2.6250	0.6575	118.0	82.0	906-000-303

FLAT HEAD SCREWS SELF TAPPING SCREW

SCREW SIZE	DC [in.]	DCONMS [in.]	DC1 [in.]	LU [in.]	LS [in.]	L [in.]	LF [in.]	A [°]	A1 [°]	FLAT HEAD SCREWS SELF-TAPPING SCREW
#6	0.0990	0.2500	0.3125	0.2801	0.8750	1.7500	0.2801	118.0	82.0	906-000-304
#8	0.1160	0.2500	0.3750	0.3214	0.8750	1.7500	0.3214	118.0	82.0	906-000-305
#10	0.1350	0.2500	0.4375	0.3777	1.0000	2.0000	0.3777	118.0	82.0	906-000-306
#12	0.1570	0.2500	0.4375	0.4017	1.0000	2.0000	0.4017	118.0	82.0	906-000-307
1/4"	0.1840	0.2500	0.5000	0.4554	1.0000	2.0000	0.4554	118.0	82.0	906-000-308

DRILL & CHAMFER MILLS

ARCH[®]
Cutting Tools



EC WELDON SHANK

- Cost effective chamfer milling in all ISO materials
- Increase machine utilization when chamfering in process
- Versatile tool for many different weld prep, hole prep, and chamfer operations
- Value add when machining small batches in different material classes
- Easy indexing with three effective cutting edges

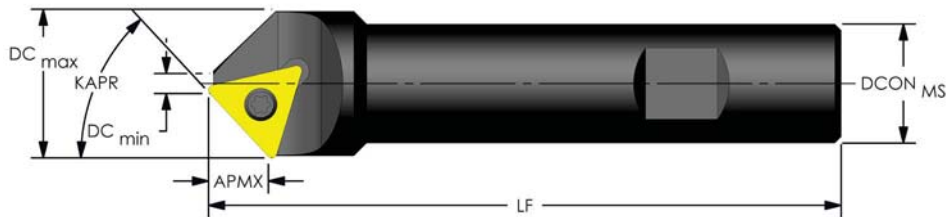


FIGURE 1

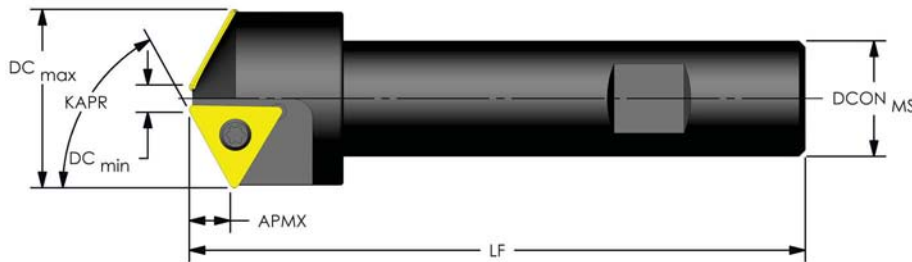


FIGURE 2



PRODUCT #	DESIGNATION	FIGURE	KAPR [°]	DCMAX [in.]	DCMIN [in.]	LF [in.]	DCONMS [in.]	APMX [in.]	INSERT	SCREW
909-000-520	E05C-D.500-1-.750-3	1	5	0.594	0.500	4.000	0.750	0.568	TCMT 32.52	MTS-35
909-000-521	E10C-D.500-1-.750-3	1	10	0.688	0.500	4.000	0.750	0.558		MTS-35
909-000-522	E15C-D.500-1-.750-3	1	15	0.782	0.500	4.000	0.750	0.546		MTS-35
909-000-523	E15C-D1.00-2-.750-3	2	15	1.280	1.000	4.000	0.750	0.546		MTS-35
909-000-524	E20C-D.375-1-.750-3	1	20	0.750	0.375	4.000	0.750	0.527		MTS-35
909-000-525	E30C-D.250-1-.750-3	1	30	0.800	0.250	4.000	0.750	0.484		MTS-35
909-000-526	E30C-D.750-2-.750-3	2	30	1.300	0.750	4.000	0.750	0.484		MTS-35
909-000-527	E41C-D.188-1-.750-3	1	41	0.914	0.188	4.000	0.750	0.418		MTS-35
909-000-528	E41C-D.562-2-.750-3	2	41	1.288	0.562	4.000	0.750	0.418		MTS-35
909-000-529	E45C-D.188-1-.750-3	1	45	0.972	0.188	4.000	0.750	0.390		MTS-35
909-000-530	E45C-D.500-2-.750-3	2	45	1.290	0.500	4.000	0.750	0.390		MTS-35
909-000-531	E60C-D.188-2-.750-3	2	60	1.160	0.188	4.000	0.750	0.266		MTS-35



PRODUCT #	DESIGNATION
913-000-451	TCMT 32.52-ZM1

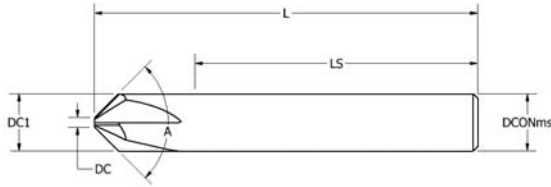
PRODUCT #	Insert Screw
968-000-087	MTS-184
968-000-088	MTS-2
968-000-092	MTS-255
968-000-082	MTS-25-DR
968-000-084	MTS-3-DR
968-000-083	MTS-35-DR
968-000-085	MTS-4-DR

PACKAGE SIZE OF 5

ISO	MATERIAL	HARDNESS	Vc (SFM)*	Fz (INCH PER TOOTH)*
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	220-650	.0032 - .0080
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	180-500	.0030 - .0065
M	STAINLESS STEELS (Free MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	200-450	.0026 - .0065
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	120-350	.0025 - .0075
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	250-700	.0030 - .0100
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40- 18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	150-450	.0030 - .0092
N	NON-FERROUS Aluminum, Aluminum cast, Brass, copper, Bronze, Non Metallic"	≤ 271 BHN or ≤ 28 HRC	250-950	.0050 - .0130
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	80-250	.0030 - .0065
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, REne 41	≤ 275 BHN or ≤ 28 HRC	50-160	.0025 - .0060
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC	90-250	.0025 - .0075
* HIGHER VC AND FZ APPLY TO LIGHT/FINISHING ENGAGEMENT				
* LOWER VC AND FZ APPLY TO HEAVY/ROUGHING ENGAGEMENT				

Speeds & feeds are starting Recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

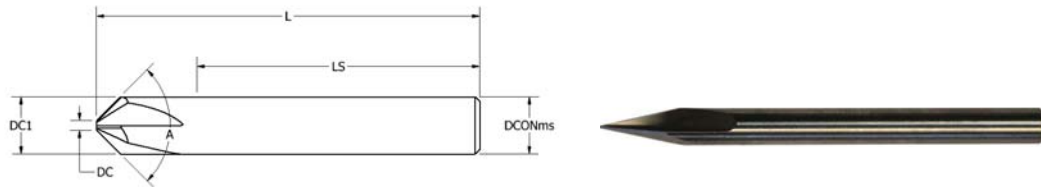
CARBIDE



DC [in.]	DCONMS [in.]	DC1 [in.]	LS [in.]	L [in.]	A [°]	UNCOATED	AITIN COATED	TIAIN COATED
						2 FLUTE	2 FLUTE	2 FLUTE
0.0060	0.1250	0.1250	0.7500	1.5000	30.0	909-000-198	909-000-342	909-000-249
0.0060	0.1250	0.1250	0.7500	1.5000	40.0	909-000-203	909-000-347	909-000-254
0.0060	0.1250	0.1250	0.7500	1.5000	45.0	909-000-207	909-000-351	909-000-258
0.0060	0.1250	0.1250	0.7500	1.5000	50.0	909-000-209	909-000-353	909-000-260
0.0060	0.1250	0.1250	0.7500	1.5000	60.0	909-000-035	909-000-355	909-000-262
0.0060	0.1250	0.1250	0.7500	1.5000	70.0	909-000-214	909-000-360	909-000-267
0.0060	0.1250	0.1250	0.7500	1.5000	80.0	909-000-215	909-000-361	909-000-268
0.0060	0.1250	0.1250	0.7500	1.5000	82.0	909-000-036	909-000-362	909-000-269
0.0060	0.1250	0.1250	0.7500	1.5000	90.0	909-000-037	909-000-367	909-000-274
0.0060	0.1250	0.1250	0.7500	1.5000	100.0	909-000-033	909-000-326	909-000-233
0.0060	0.1250	0.1250	0.7500	1.5000	110.0	909-000-188	909-000-330	909-000-237
0.0060	0.1250	0.1250	0.7500	1.5000	120.0	909-000-034	909-000-331	909-000-238
0.0060	0.1250	0.1250	0.7500	1.5000	130.0	909-000-192	909-000-336	909-000-243
0.0060	0.1250	0.1250	0.7500	1.5000	140.0	909-000-193	909-000-337	909-000-244
0.0060	0.1250	0.1250	0.7500	1.5000	150.0	909-000-194	909-000-338	909-000-245
0.0060	0.1875	0.1875	1.0000	2.0000	30.0	909-000-199	909-000-343	909-000-250
0.0060	0.1875	0.1875	1.0000	2.0000	40.0	909-000-204	909-000-348	909-000-255
0.0060	0.1875	0.1875	1.0000	2.0000	45.0	909-000-208	909-000-352	909-000-259
0.0060	0.1875	0.1875	1.0000	2.0000	50.0	909-000-210	909-000-354	909-000-261
0.0060	0.1875	0.1875	1.0000	2.0000	60.0	909-000-211	909-000-356	909-000-263
0.0060	0.1875	0.1875	1.0000	2.0000	82.0	909-000-216	909-000-363	909-000-270
0.0060	0.1875	0.1875	1.0000	2.0000	90.0	909-000-219	909-000-368	909-000-275
0.0060	0.1875	0.1875	1.0000	2.0000	120.0	909-000-189	909-000-332	909-000-239
0.0060	0.1875	0.1875	1.2500	2.5000	150.0	909-000-195	909-000-339	909-000-246

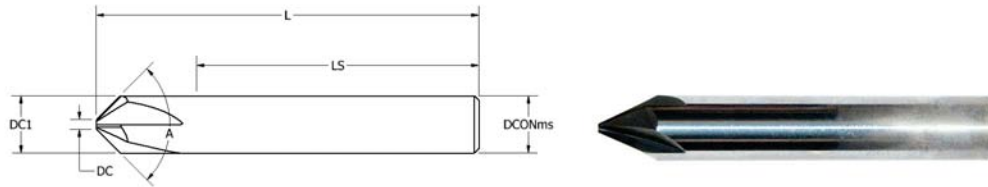


CARBIDE

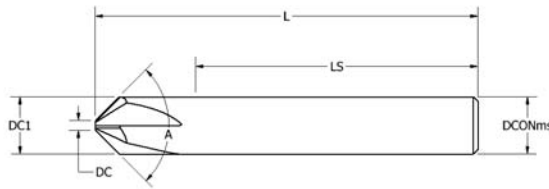


DC [in.]	DCONMS [in.]	DC1 [in.]	LS [in.]	L [in.]	A [°]	UNCOATED	AITIN COATED	TiAIN COATED
						2 FLUTE	2 FLUTE	2 FLUTE
0.0400	0.2500	0.2500	1.2500	2.5000	30.0	909-000-200	909-000-344	909-000-251
0.0400	0.2500	0.2500	1.2500	2.5000	40.0	909-000-205	909-000-349	909-000-256
0.0400	0.2500	0.2500	1.2500	2.5000	60.0	909-000-046	909-000-357	909-000-264
0.0400	0.2500	0.2500	1.2500	2.5000	82.0	909-000-050	909-000-364	909-000-271
0.0400	0.2500	0.2500	1.2500	2.5000	90.0	909-000-054	909-000-369	909-000-276
0.0400	0.2500	0.2500	1.2500	2.5000	100.0	909-000-038	909-000-327	909-000-234
0.0400	0.2500	0.2500	1.2500	2.5000	120.0	909-000-042	909-000-333	909-000-240
0.0600	0.3750	0.3750	1.2500	2.5000	30.0	909-000-201	909-000-345	909-000-252
0.0600	0.3750	0.3750	1.2500	2.5000	40.0	909-000-206	909-000-350	909-000-257
0.0600	0.3750	0.3750	1.2500	2.5000	60.0	909-000-061	909-000-358	909-000-265
0.0600	0.3750	0.3750	1.2500	2.5000	82.0	909-000-062	909-000-365	909-000-272
0.0600	0.3750	0.3750	1.2500	2.5000	90.0	909-000-063	909-000-300	909-000-277
0.0600	0.3750	0.3750	1.2500	2.5000	100.0	909-000-059	909-000-328	909-000-235
0.0600	0.3750	0.3750	1.2500	2.5000	120.0	909-000-060	909-000-334	909-000-241
0.0600	0.3750	0.3750	1.2500	2.5000	150.0	909-000-196	909-000-340	909-000-247
0.0800	0.5000	0.5000	1.5000	3.0000	30.0	909-000-202	909-000-346	909-000-253
0.0800	0.5000	0.5000	1.5000	3.0000	60.0	909-000-066	909-000-359	909-000-266
0.0800	0.5000	0.5000	1.5000	3.0000	82.0	909-000-067	909-000-366	909-000-273
0.0800	0.5000	0.5000	1.5000	3.0000	90.0	909-000-068	909-000-371	909-000-278
0.0800	0.5000	0.5000	1.5000	3.0000	100.0	909-000-064	909-000-329	909-000-236
0.0800	0.5000	0.5000	1.5000	3.0000	120.0	909-000-065	909-000-335	909-000-242

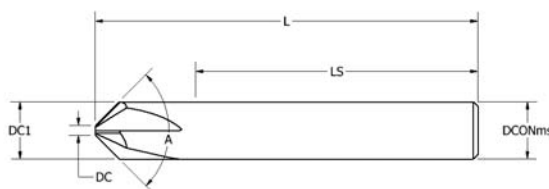
CARBIDE



DC [in.]	DCONMS [in.]	DC1 [in.]	LS [in.]	L [in.]	A [°]	UNCOATED	TiAIN COATED
						4 FLUTE	4 FLUTE
0.0250	0.1250	0.1250	0.7500	1.5000	60.0	909-000-071	909-000-286
0.0250	0.1250	0.1250	0.7500	1.5000	82.0	909-000-072	909-000-290
0.0250	0.1250	0.1250	0.7500	1.5000	90.0	909-000-073	909-000-294
0.0250	0.1250	0.1250	0.7500	1.5000	100.0	909-000-069	909-000-279
0.0250	0.1250	0.1250	0.7500	1.5000	120.0	909-000-070	909-000-283
0.0400	0.2500	0.2500	1.2500	2.5000	60.0	909-000-082	909-000-287
0.0400	0.2500	0.2500	1.2500	2.5000	82.0	909-000-086	909-000-291
0.0400	0.2500	0.2500	1.2500	2.5000	90.0	909-000-090	909-000-295
0.0400	0.2500	0.2500	1.2500	2.5000	100.0	909-000-074	909-000-280
0.0400	0.2500	0.2500	1.2500	2.5000	120.0	909-000-078	909-000-079
0.0600	0.3750	0.3750	1.2500	2.5000	60.0	909-000-097	909-000-288
0.0600	0.3750	0.3750	1.2500	2.5000	82.0	909-000-098	909-000-292
0.0600	0.3750	0.3750	1.2500	2.5000	90.0	909-000-099	909-000-296
0.0600	0.3750	0.3750	1.2500	2.5000	100.0	909-000-095	909-000-281
0.0600	0.3750	0.3750	1.2500	2.5000	120.0	909-000-096	909-000-284
0.0800	0.5000	0.5000	1.5000	3.0000	60.0	909-000-108	909-000-109
0.0800	0.5000	0.5000	1.5000	3.0000	82.0	909-000-112	909-000-113
0.0800	0.5000	0.5000	1.5000	3.0000	90.0	909-000-116	909-000-297
0.0800	0.5000	0.5000	1.5000	3.0000	100.0	909-000-100	909-000-282
0.0800	0.5000	0.5000	1.5000	3.0000	120.0	909-000-104	909-000-285

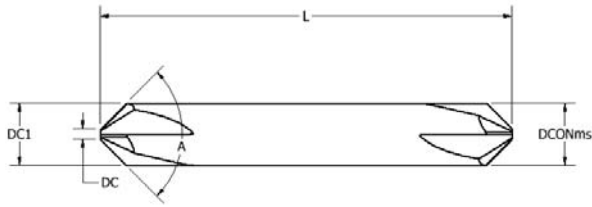


DC [in.]	DCONMS [in.]	DC1 [in.]	LS [in.]	L [in.]	A [°]	UNCOATED	AITIN COATED	TiAIN COATED
						3 FLUTE	3 FLUTE	3 FLUTE
0.0600	0.2500	0.2500	1.2500	2.5000	30.0	909-000-404	909-000-376	909-000-302
0.0600	0.3750	0.3750	1.2500	2.5000	30.0	909-000-405	909-000-377	909-000-303
0.0600	0.2500	0.2500	1.2500	2.5000	40.0	909-000-406	909-000-378	909-000-304
0.0600	0.3750	0.3750	1.2500	2.5000	40.0	909-000-407	909-000-379	909-000-305
0.0600	0.2500	0.2500	1.2500	2.5000	45.0	909-000-408	909-000-380	909-000-306
0.0600	0.3750	0.3750	1.2500	2.5000	45.0	909-000-409	909-000-381	909-000-307
0.0600	0.2500	0.2500	1.2500	2.5000	50.0	909-000-410	909-000-382	909-000-308
0.0600	0.3750	0.3750	1.2500	2.5000	50.0	909-000-411	909-000-383	909-000-309
0.0600	0.2500	0.2500	1.2500	2.5000	60.0	909-000-412	909-000-384	909-000-310
0.0600	0.3750	0.3750	1.2500	2.5000	60.0	909-000-413	909-000-385	909-000-311
0.0600	0.2500	0.2500	1.2500	2.5000	82.0	909-000-414	909-000-386	909-000-312
0.0600	0.3750	0.3750	1.2500	2.5000	82.0	909-000-415	909-000-387	909-000-313
0.0600	0.2500	0.2500	1.2500	2.5000	90.0	909-000-416	909-000-388	909-000-314
0.0600	0.3750	0.3750	1.2500	2.5000	90.0	909-000-417	909-000-389	909-000-315
0.0600	0.2500	0.2500	1.2500	2.5000	100.0	909-000-400	909-000-372	909-000-298
0.0600	0.2500	0.2500	1.2500	2.5000	120.0	909-000-401	909-000-373	909-000-299
0.0600	0.3750	0.3750	1.2500	2.5000	120.0	909-000-402	909-000-374	909-000-300
0.0600	0.2500	0.2500	1.2500	2.5000	150.0	909-000-403	909-000-375	909-000-301

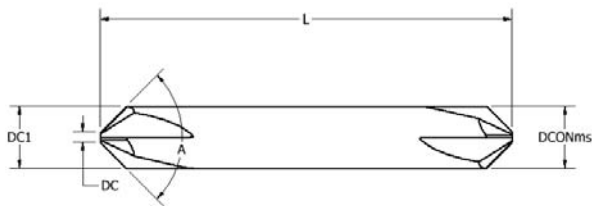


DC [in.]	DCONMS [in.]	DC1 [in.]	LS [in.]	L [in.]	A [°]	UNCOATED	AITIN COATED	TiAIN COATED
						4 FLUTE	4 FLUTE	4 FLUTE
0.0800	0.5000	0.5000	1.5000	3.0000	30.0	909-000-421	909-000-393	909-000-319
0.0800	0.5000	0.5000	1.5000	3.0000	40.0	909-000-422	909-000-394	909-000-320
0.0800	0.5000	0.5000	1.5000	3.0000	45.0	909-000-423	909-000-395	909-000-321
0.0800	0.5000	0.5000	1.5000	3.0000	50.0	909-000-424	909-000-396	909-000-322
0.0800	0.5000	0.5000	1.5000	3.0000	60.0	909-000-425	909-000-397	909-000-323
0.0800	0.5000	0.5000	1.5000	3.0000	82.0	909-000-426	909-000-398	909-000-324
0.0800	0.5000	0.5000	1.5000	3.0000	90.0	909-000-427	909-000-399	909-000-325
0.0800	0.5000	0.5000	1.5000	3.0000	100.0	909-000-418	909-000-390	909-000-316
0.0800	0.5000	0.5000	1.5000	3.0000	120.0	909-000-419	909-000-391	909-000-317
0.0800	0.5000	0.5000	1.5000	3.0000	150.0	909-000-420	909-000-392	909-000-318

CARBIDE



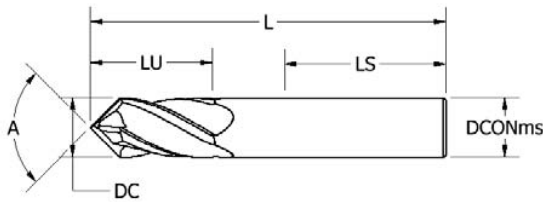
DC [in.]	DCONMS [in.]	DC1 [in.]	LS [in.]	L [in.]	60°	82°	90°	100°	120°
0.0060	0.1250	0.1250	1.0000	2.0000	909-000-119	909-000-120	909-000-121	909-000-117	909-000-118
0.0060	0.1875	0.1875	1.2500	2.5000	909-000-124	909-000-125	909-000-126	909-000-122	909-000-123
0.0400	0.2500	0.2500	1.2500	2.5000	909-000-135	909-000-139	909-000-140	909-000-127	909-000-131
0.0600	0.3125	0.3125	1.2500	2.5000	909-000-143	909-000-144	909-000-145	909-000-141	909-000-142
0.0600	0.3750	0.3750	1.2500	2.5000	909-000-148	909-000-149	909-000-150	909-000-146	909-000-147
0.0800	0.5000	0.5000	1.5000	3.0000	909-000-153	909-000-154	909-000-155	909-000-151	909-000-152



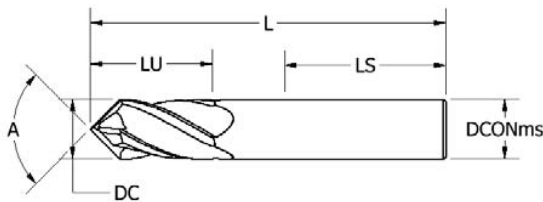
DC [in.]	DCONMS [in.]	DC1 [in.]	LS [in.]	L [in.]	60°	82°	90°	100°	120°
0.0250	0.1250	0.1250	1.0000	2.0000	909-000-158	909-000-159	909-000-160	909-000-156	909-000-157
0.0400	0.1875	0.1875	1.2500	2.5000	909-000-163	909-000-164	909-000-165	909-000-161	909-000-162
0.0400	0.2500	0.2500	1.2500	2.5000	909-000-168	909-000-169	909-000-170	909-000-166	909-000-167
0.0600	0.3125	0.3125	1.2500	2.5000	909-000-173	909-000-174	909-000-175	909-000-171	909-000-172
0.0600	0.3750	0.3750	1.2500	2.5000	909-000-178	909-000-179	909-000-180	909-000-176	909-000-177
0.0800	0.5000	0.5000	1.5000	3.0000	909-000-183	909-000-184	909-000-185	909-000-181	909-000-182



CARBIDE

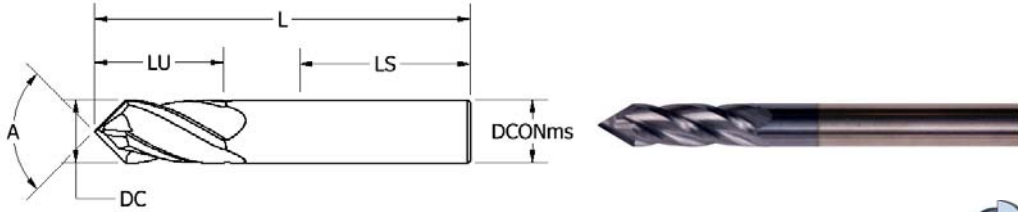


DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	LU [in.]	60°	90°
0.0313	0.1250	1.1338	1.5000	0.1250	933-000-001	933-000-002
0.0625	0.1250	1.1517	1.5000	0.1875	933-000-003	933-000-004
0.0938	0.1250	1.0446	1.5000	0.3750	933-000-005	933-000-006
0.1250	0.1250	0.6250	1.5000	0.5000	933-000-007	933-000-008
0.1875	0.1875	1.0000	2.0000	0.6250	933-000-009	933-000-010
0.2500	0.2500	1.3750	2.5000	0.7500	933-000-011	933-000-012
0.2500	0.2500	1.3750	2.5000	0.7500	933-000-013	933-000-014
0.3750	0.3750	1.1250	2.5000	1.0000	933-000-015	933-000-016
0.4375	0.4375	1.3750	2.7500	1.0000	933-000-017	933-000-018
0.5000	0.5000	1.6250	3.0000	1.0000	933-000-019	933-000-020
0.6250	0.6250	1.8750	3.5000	1.2500	933-000-021	933-000-022
0.7500	0.7500	2.1250	4.0000	1.5000	933-000-023	933-000-024



DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	LU [in.]	60°	90°
0.0313	0.1250	1.1338	1.5000	0.1250	933-000-025	933-000-026
0.0625	0.1250	1.1517	1.5000	0.1875	933-000-027	933-000-028
0.0938	0.1250	1.0446	1.5000	0.3750	933-000-029	933-000-030
0.1250	0.1250	0.6250	1.5000	0.5000	933-000-031	933-000-032
0.1875	0.1875	1.0000	2.0000	0.6250	933-000-033	933-000-034
0.2500	0.2500	1.3750	2.5000	0.7500	933-000-035	933-000-036
0.3125	0.3125	1.3125	2.5000	0.8125	933-000-040	933-000-041
0.3750	0.3750	1.1250	2.5000	1.0000	933-000-042	933-000-043
0.4375	0.4375	1.3750	2.7500	1.0000	933-000-044	933-000-045
0.5000	0.5000	1.6250	3.0000	1.0000	933-000-046	933-000-047
0.6250	0.6250	1.8750	3.5000	1.2500	933-000-048	933-000-049
0.7500	0.7500	2.1250	4.0000	1.5000	933-000-050	933-000-051

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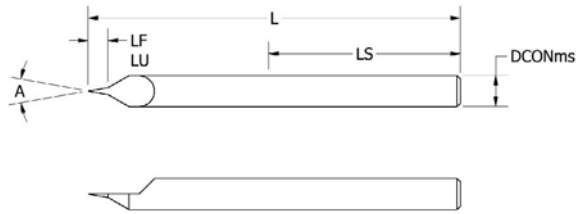


DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	LU [in.]	A [°]	AITiN COATED	
						2 FLUTE	4 FLUTE
0.0313	0.1250	1.1338	1.5000	0.1250	60.0	933-000-066	933-000-104
0.0625	0.1250	1.1517	1.5000	0.1875	60.0	933-000-067	933-000-105
0.0938	0.1250	1.0446	1.5000	0.3750	60.0	933-000-068	933-000-106
0.1250	0.1250	0.6250	1.5000	0.5000	60.0	933-000-069	933-000-107
0.1875	0.1875	1.0000	2.0000	0.6250	60.0	933-000-070	933-000-108
0.2500	0.2500	1.3750	2.5000	0.7500	60.0	933-000-071	933-000-109
0.3125	0.3125	1.3125	2.5000	0.8125	60.0	933-000-072	933-000-110
0.3750	0.3750	1.1250	2.5000	1.0000	60.0	933-000-073	933-000-111
0.4375	0.4375	1.3750	2.7500	1.0000	60.0	933-000-074	933-000-112
0.5000	0.5000	1.6250	3.0000	1.0000	60.0	933-000-075	933-000-113
0.6250	0.6250	1.8750	3.5000	1.2500	60.0	933-000-076	933-000-114
0.7500	0.7500	2.1250	4.0000	1.5000	60.0	933-000-077	933-000-115
0.0313	0.1250	1.1338	1.5000	0.1250	90.0	933-000-078	933-000-116
0.0625	0.1250	1.1517	1.5000	0.1875	90.0	933-000-079	933-000-117
0.0938	0.1250	1.0446	1.5000	0.3750	90.0	933-000-080	933-000-118
0.1250	0.1250	0.6250	1.5000	0.5000	90.0	933-000-081	933-000-119
0.1875	0.1875	1.0000	2.0000	0.6250	90.0	933-000-082	933-000-120
0.2500	0.2500	1.3750	2.5000	0.7500	90.0	933-000-083	933-000-121
0.3125	0.3125	1.3125	2.5000	0.8125	90.0	933-000-084	933-000-122
0.3750	0.3750	1.1250	2.5000	1.0000	90.0	933-000-085	933-000-123
0.4375	0.4375	1.3750	2.7500	1.0000	90.0	933-000-086	933-000-124
0.5000	0.5000	1.6250	3.0000	1.0000	90.0	933-000-087	933-000-125
0.6250	0.6250	1.8750	3.5000	1.2500	90.0	933-000-088	933-000-126
0.7500	0.7500	2.1250	4.0000	1.5000	90.0	933-000-089	933-000-127

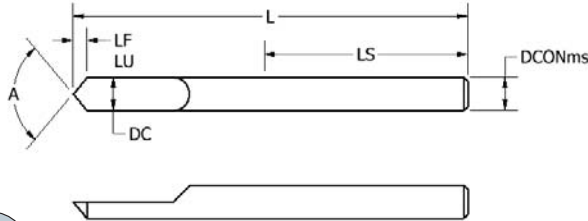
ENGRAVING TOOLS

ARCH[®]
Cutting Tools

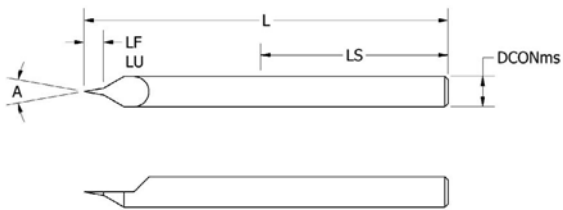
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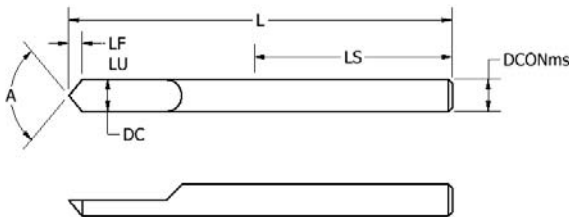
DCONMS [in.]	LU [in.]	LS [in.]	L [in.]	LF [in.]	A [°]	UNCOATED	AITiN COATED
						1 FLUTE	1 FLUTE
0.1250	0.0800	0.7500	1.5000	0.0800	10.0	937-000-002	937-000-135
0.1250	0.0800	0.7500	1.5000	0.0800	15.0	937-000-004	937-000-137
0.1250	0.0800	0.7500	1.5000	0.0800	20.0	937-000-005	937-000-138



DC [in.]	DCONMS [in.]	LU [in.]	LS [in.]	L [in.]	LF [in.]	A [°]	UNCOATED	AITiN COATED
							1 FLUTE	1 FLUTE
0.1250	0.1250	0.2330	0.7500	1.5000	0.2330	30.0	937-000-010	937-000-143
0.1250	0.1250	0.1720	0.7500	1.5000	0.1720	40.0	937-000-020	937-000-153
0.1250	0.1250	0.1510	0.7500	1.5000	0.1510	45.0	937-000-026	937-000-159
0.1250	0.1250	0.1340	0.7500	1.5000	0.1340	50.0	937-000-027	937-000-160
0.1250	0.1250	0.1080	0.7500	1.5000	0.1080	60.0	937-000-032	937-000-165
0.1250	0.1250	0.0720	0.7500	1.5000	0.0720	82.0	937-000-038	937-000-171
0.1250	0.1250	0.0630	0.7500	1.5000	0.0630	90.0	937-000-043	937-000-176
0.1250	0.1250	0.0520	0.7500	1.5000	0.0520	100.0	937-000-001	937-000-134
0.1250	0.1250	0.0360	0.7500	1.5000	0.0360	120.0	937-000-003	937-000-136

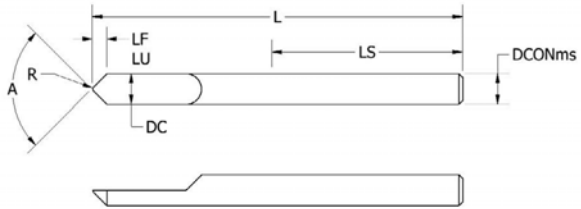


DCONMS [in.]	LU [in.]	LS [in.]	L [in.]	LF [in.]	A [°]	TiAIN COATED	AMORPHOUS DIAMOND
						1 FLUTE	1 FLUTE
0.1250	0.0800	0.7500	1.5000	0.0800	10.0	937-000-062	937-000-050
0.1250	0.0800	0.7500	1.5000	0.0800	15.0	937-000-064	937-000-052
0.1250	0.0800	0.7500	1.5000	0.0800	20.0	937-000-065	937-000-053



DC [in.]	DCONMS [in.]	LU [in.]	LS [in.]	L [in.]	LF [in.]	A [°]	TiAIN COATED	AMORPHOUS DIAMOND
							1 FLUTE	1 FLUTE
0.1250	0.1250	0.2330	0.7500	1.5000	0.2330	30.0	937-000-070	937-000-054
0.1250	0.1250	0.1720	0.7500	1.5000	0.1720	40.0	937-000-080	937-000-055
0.1250	0.1250	0.1510	0.7500	1.5000	0.1510	45.0	937-000-086	937-000-056
0.1250	0.1250	0.1340	0.7500	1.5000	0.1340	50.0	937-000-087	937-000-057
0.1250	0.1250	0.1080	0.7500	1.5000	0.1080	60.0	937-000-092	937-000-058
0.1250	0.1250	0.0720	0.7500	1.5000	0.0720	82.0	937-000-098	937-000-059
0.1250	0.1250	0.0630	0.7500	1.5000	0.0630	90.0	937-000-103	937-000-060
0.1250	0.1250	0.0520	0.7500	1.5000	0.0520	100.0	937-000-061	937-000-049
0.1250	0.1250	0.0360	0.7500	1.5000	0.0360	120.0	937-000-063	937-000-051

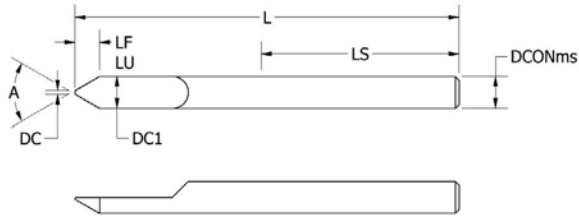
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DC [in.]	DCONMS [in.]	LU [in.]	LS [in.]	L [in.]	LF [in.]	R [in.]	A [°]	UNCOATED	AITiN COATED	TiAIN COATED
								1 FLUTE	1 FLUTE	1 FLUTE
0.1250	0.1250	0.2260	0.7500	1.5000	0.2260	0.0025	30.0	937-000-011	937-000-144	937-000-071
0.1250	0.1250	0.1670	0.7500	1.5000	0.1670	0.0025	40.0	937-000-021	937-000-154	937-000-081
0.1250	0.1250	0.1060	0.7500	1.5000	0.1060	0.0025	60.0	937-000-033	937-000-166	937-000-093
0.1250	0.1250	0.0610	0.7500	1.5000	0.0610	0.0025	90.0	937-000-044	937-000-177	937-000-104
0.1250	0.1250	0.2190	0.7500	1.5000	0.2190	0.0050	30.0	937-000-012	937-000-145	937-000-072
0.1250	0.1250	0.1620	0.7500	1.5000	0.1620	0.0050	40.0	937-000-022	937-000-155	937-000-082
0.1250	0.1250	0.1030	0.7500	1.5000	0.1030	0.0050	60.0	937-000-034	937-000-167	937-000-094
0.1250	0.1250	0.0600	0.7500	1.5000	0.0600	0.0050	90.0	937-000-045	937-000-178	937-000-105
0.1250	0.1250	0.2050	0.7500	1.5000	0.2050	0.0100	30.0	937-000-013	937-000-146	937-000-073
0.1250	0.1250	0.1520	0.7500	1.5000	0.1520	0.0100	40.0	937-000-023	937-000-156	937-000-083
0.1250	0.1250	0.0980	0.7500	1.5000	0.0980	0.0100	60.0	937-000-035	937-000-168	937-000-095
0.1250	0.1250	0.0580	0.7500	1.5000	0.0580	0.0100	90.0	937-000-046	937-000-179	937-000-106
0.1250	0.1250	0.1900	0.7500	1.5000	0.1900	0.0150	30.0	937-000-014	937-000-147	937-000-074
0.1250	0.1250	0.1430	0.7500	1.5000	0.1430	0.0150	40.0	937-000-024	937-000-157	937-000-084
0.1250	0.1250	0.0930	0.7500	1.5000	0.0930	0.0150	60.0	937-000-036	937-000-169	937-000-096
0.1250	0.1250	0.0560	0.7500	1.5000	0.0560	0.0150	90.0	937-000-047	937-000-180	937-000-107
0.1250	0.1250	0.1760	0.7500	1.5000	0.1760	0.0200	30.0	937-000-015	937-000-148	937-000-075
0.1250	0.1250	0.1280	0.7500	1.5000	0.1280	0.0200	40.0	937-000-025	937-000-158	937-000-085
0.1250	0.1250	0.0880	0.7500	1.5000	0.0880	0.0200	60.0	937-000-037	937-000-170	937-000-097
0.1250	0.1250	0.0540	0.7500	1.5000	0.0540	0.0200	90.0	937-000-048	937-000-181	937-000-108

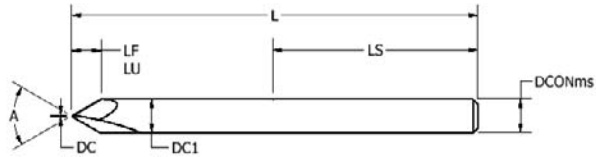


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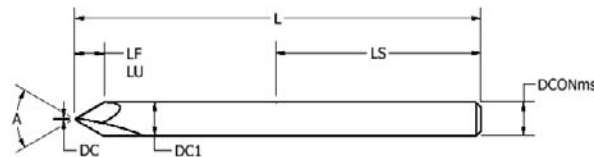


DC [in.]	DCONMS [in.]	DC1 [in.]	LU [in.]	LS [in.]	L [in.]	LF [in.]	A [°]	UNCOATED	AlTiN COATED	TiAlN COATED
								1 FLUTE	1 FLUTE	1 FLUTE
0.0050	0.1250	0.1250	0.2240	0.7500	1.5000	0.2240	30.0	937-000-006	937-000-139	937-000-066
0.0050	0.1250	0.1250	0.1650	0.7500	1.5000	0.1650	40.0	937-000-016	937-000-149	937-000-076
0.0050	0.1250	0.1250	0.1040	0.7500	1.5000	0.1040	60.0	937-000-028	937-000-161	937-000-088
0.0050	0.1250	0.1250	0.0600	0.7500	1.5000	0.0600	90.0	937-000-039	937-000-172	937-000-099
0.0100	0.1250	0.1250	0.2150	0.7500	1.5000	0.2150	30.0	937-000-007	937-000-140	937-000-067
0.0100	0.1250	0.1250	0.1580	0.7500	1.5000	0.1580	40.0	937-000-017	937-000-150	937-000-077
0.0100	0.1250	0.1250	0.1000	0.7500	1.5000	0.1000	60.0	937-000-029	937-000-162	937-000-089
0.0100	0.1250	0.1250	0.0580	0.7500	1.5000	0.0580	90.0	937-000-040	937-000-173	937-000-100
0.0150	0.1250	0.1250	0.2050	0.7500	1.5000	0.2050	30.0	937-000-008	937-000-141	937-000-068
0.0150	0.1250	0.1250	0.1510	0.7500	1.5000	0.1510	40.0	937-000-018	937-000-151	937-000-078
0.0150	0.1250	0.1250	0.0950	0.7500	1.5000	0.0950	60.0	937-000-030	937-000-163	937-000-090
0.0150	0.1250	0.1250	0.0550	0.7500	1.5000	0.0550	90.0	937-000-041	937-000-174	937-000-101
0.0200	0.1250	0.1250	0.1960	0.7500	1.5000	0.1960	30.0	937-000-009	937-000-142	937-000-069
0.0200	0.1250	0.1250	0.1440	0.7500	1.5000	0.1440	40.0	937-000-019	937-000-152	937-000-079
0.0200	0.1250	0.1250	0.0910	0.7500	1.5000	0.0910	60.0	937-000-031	937-000-164	937-000-091
0.0200	0.1250	0.1250	0.0530	0.7500	1.5000	0.0530	90.0	937-000-042	937-000-175	937-000-102

CARBIDE



DC [in.]	DCNMS [in.]	DC1 [in.]	LU [in.]	LS [in.]	L [in.]	LF [in.]	A [°]	UNCOATED	AITIN COATED	TIAIN COATED
								2 FLUTE	1 FLUTE	1 FLUTE
0.0050	0.1250	0.1250	0.2240	0.7500	1.5000	0.2240	30.0	947-000-006	947-000-030	937-000-113
0.0050	0.1250	0.1250	0.1650	0.7500	1.5000	0.1650	40.0	947-000-011	947-000-034	937-000-117
0.0050	0.1250	0.1250	0.1040	0.7500	1.5000	0.1040	60.0	947-000-016	947-000-038	937-000-121
0.0050	0.1250	0.1250	0.0600	0.7500	1.5000	0.0600	90.0	947-000-021	947-000-042	937-000-125
0.0050	0.1250	0.1250	0.0350	0.7500	1.5000	0.0350	120.0	947-000-001	947-000-026	937-000-109
0.0100	0.1250	0.1250	0.2150	0.7500	1.5000	0.2150	30.0	947-000-008	947-000-031	937-000-114
0.0100	0.1250	0.1250	0.1580	0.7500	1.5000	0.1580	40.0	947-000-013	947-000-035	937-000-118
0.0100	0.1250	0.1250	0.1000	0.7500	1.5000	0.1000	60.0	947-000-018	947-000-039	937-000-122
0.0100	0.1250	0.1250	0.0580	0.7500	1.5000	0.0580	90.0	947-000-023	947-000-043	937-000-126
0.0100	0.1250	0.1250	0.0330	0.7500	1.5000	0.0330	120.0	947-000-003	947-000-027	937-000-110



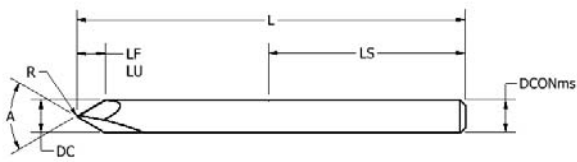
For Non-Ferrous Applications



DC [in.]	DCNMS [in.]	DC1 [in.]	LU [in.]	LS [in.]	L [in.]	LF [in.]	A [°]	UNCOATED	DLC COATED
								2 FLUTE	2 FLUTE
0.0050	0.1250	0.1250	0.2240	0.7500	1.5000	0.2240	30.0	947-000-007	937-000-130
0.0050	0.1250	0.1250	0.1650	0.7500	1.5000	0.1650	40.0	947-000-012	937-000-131
0.0050	0.1250	0.1250	0.1040	0.7500	1.5000	0.1040	60.0	947-000-017	937-000-132
0.0050	0.1250	0.1250	0.0600	0.7500	1.5000	0.0600	90.0	947-000-022	937-000-133
0.0050	0.1250	0.1250	0.0350	0.7500	1.5000	0.0350	120.0	947-000-002	937-000-129



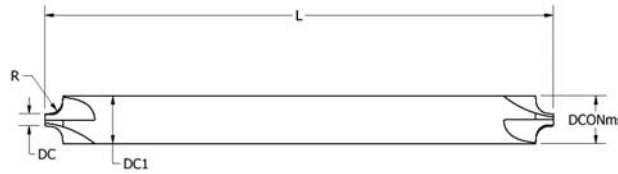
CARBIDE



DC [in.]	DCONMS [in.]	LU [in.]	LS [in.]	L [in.]	LF [in.]	R [in.]	A [°]	UNCOATED	AITIN COATED	TiAIN COATED
								2 FLUTE	2 FLUTE	2 FLUTE
0.1250	0.1250	0.2180	0.7500	1.5000	0.2180	0.0050	30.0	947-000-009	947-000-032	937-000-115
0.1250	0.1250	0.1600	0.7500	1.5000	0.1600	0.0050	40.0	947-000-014	947-000-036	937-000-119
0.1250	0.1250	0.1030	0.7500	1.5000	0.1030	0.0050	60.0	947-000-019	947-000-040	937-000-123
0.1250	0.1250	0.0600	0.7500	1.5000	0.0600	0.0050	90.0	947-000-024	947-000-044	937-000-127
0.1250	0.1250	0.0350	0.7500	1.5000	0.0350	0.0050	120.0	937-000-111	947-000-028	937-000-111
0.1250	0.1250	0.2040	0.7500	1.5000	0.2040	0.0100	30.0	947-000-010	947-000-033	937-000-116
0.1250	0.1250	0.1500	0.7500	1.5000	0.1500	0.0100	40.0	947-000-015	947-000-037	937-000-120
0.1250	0.1250	0.0980	0.7500	1.5000	0.0980	0.0100	60.0	947-000-020	947-000-041	937-000-124
0.1250	0.1250	0.0580	0.7500	1.5000	0.0580	0.0100	90.0	947-000-025	947-000-045	937-000-128
0.1250	0.1250	0.0340	0.7500	1.5000	0.0340	0.0100	120.0	947-000-005	947-000-029	937-000-112

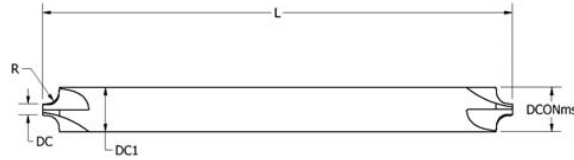
CORNER ROUNDING

ARCH[®]
Cutting Tools

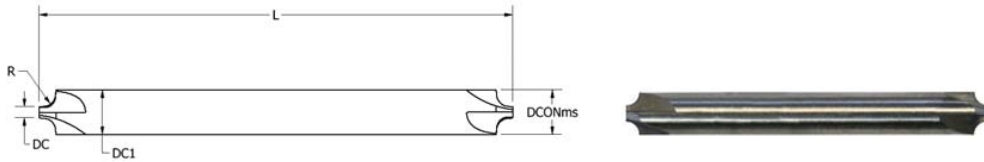


DC [in.]	DCONMS [in.]	DC1 [in.]	L [in.]	R [in.]	UNCOATED	AlTiN COATED	TiAlN COATED
					2 FLUTE	2 FLUTE	2 FLUTE
0.0080	0.1250	0.1250	1.5000	0.0050	932-000-634	932-000-745	932-000-463
0.0200	0.1250	0.1250	1.5000	0.0050	932-000-635	932-000-746	932-000-464
0.0460	0.1250	0.1250	1.5000	0.0050	932-000-636	932-000-747	932-000-465
0.0460	0.1875	0.1875	4.0000	0.0050	932-000-856	932-000-874	932-000-574
0.0200	0.1250	0.1250	1.5000	0.0060	932-000-637	932-000-748	932-000-466
0.0460	0.1250	0.1250	1.5000	0.0060	932-000-638	932-000-749	932-000-467
0.0200	0.1250	0.1250	1.5000	0.0070	932-000-639	932-000-750	932-000-468
0.0460	0.1250	0.1250	1.5000	0.0070	932-000-640	932-000-751	932-000-469
0.0080	0.1250	0.1250	1.5000	0.0080	932-000-641	932-000-752	932-000-470
0.0200	0.1250	0.1250	1.5000	0.0080	932-000-642	932-000-753	932-000-471
0.0460	0.1250	0.1250	1.5000	0.0080	932-000-643	932-000-754	932-000-472
0.0460	0.1875	0.1875	4.0000	0.0080	932-000-857	932-000-875	932-000-575
0.0200	0.1250	0.1250	1.5000	0.0090	932-000-644	932-000-755	932-000-473
0.0460	0.1250	0.1250	1.5000	0.0090	932-000-645	932-000-756	932-000-474
0.0080	0.1250	0.1250	1.5000	0.0100	932-000-646	932-000-757	932-000-475
0.0200	0.1250	0.1250	1.5000	0.0100	932-000-647	932-000-758	932-000-476
0.0460	0.1250	0.1250	1.5000	0.0100	932-000-648	932-000-759	932-000-477
0.0460	0.1875	0.1875	4.0000	0.0100	932-000-858	932-000-876	932-000-576
0.0200	0.1250	0.1250	1.5000	0.0110	932-000-649	932-000-760	932-000-478
0.0460	0.1250	0.1250	1.5000	0.0110	932-000-650	932-000-761	932-000-479
0.0200	0.1250	0.1250	1.5000	0.0120	932-000-651	932-000-762	932-000-480
0.0460	0.1250	0.1250	1.5000	0.0120	932-000-652	932-000-763	932-000-481
0.0200	0.1250	0.1250	1.5000	0.0130	932-000-653	932-000-764	932-000-482
0.0460	0.1250	0.1250	1.5000	0.0130	932-000-654	932-000-765	932-000-483
0.0200	0.1250	0.1250	1.5000	0.0140	932-000-655	932-000-766	932-000-484
0.0460	0.1250	0.1250	1.5000	0.0140	932-000-656	932-000-767	932-000-485
0.0080	0.1250	0.1250	1.5000	0.0150	932-000-657	932-000-768	932-000-486
0.0200	0.1250	0.1250	1.5000	0.0150	932-000-658	932-000-769	932-000-487
0.0460	0.1250	0.1250	1.5000	0.0150	932-000-659	932-000-770	932-000-488
0.0460	0.1875	0.1875	4.0000	0.0150	932-000-859	932-000-877	932-000-577
0.0460	0.1250	0.1250	1.5000	0.0180	932-000-660	932-000-771	932-000-489
0.0080	0.1250	0.1250	1.5000	0.0200	932-000-661	932-000-772	932-000-490
0.0200	0.1250	0.1250	1.5000	0.0200	932-000-662	932-000-773	932-000-491
0.0460	0.1250	0.1250	1.5000	0.0200	932-000-663	932-000-774	932-000-492
0.0460	0.1875	0.1875	4.0000	0.0200	932-000-860	932-000-878	932-000-578
0.0460	0.1250	0.1250	1.5000	0.0220	932-000-664	932-000-775	932-000-493
0.0200	0.1250	0.1250	1.5000	0.0250	932-000-665	932-000-776	932-000-494
0.0460	0.1250	0.1250	1.5000	0.0250	932-000-666	932-000-777	932-000-495
0.0460	0.1875	0.1875	4.0000	0.0250	932-000-861	932-000-879	932-000-579
0.0460	0.1250	0.1250	1.5000	0.0270	932-000-667	932-000-778	932-000-496
0.0200	0.1250	0.1250	1.5000	0.0300	932-000-668	932-000-779	932-000-497
0.0460	0.1250	0.1250	1.5000	0.0300	932-000-669	932-000-780	932-000-498
0.0460	0.1875	0.1875	4.0000	0.0300	932-000-862	932-000-880	932-000-580

CARBIDE



DC [in.]	DCONMS [in.]	DC1 [in.]	L [in.]	R [in.]	UNCOATED	AlTiN COATED	TiAlN COATED
					2 FLUTE	2 FLUTE	2 FLUTE
0.0200	0.1250	0.1250	1.5000	0.0310	932-000-670	932-000-781	932-000-499
0.0460	0.1250	0.1250	1.5000	0.0310	932-000-671	932-000-782	932-000-500
0.0460	0.1875	0.1875	4.0000	0.0310	932-000-863	932-000-881	932-000-581
0.0460	0.1250	0.1250	1.5000	0.0320	932-000-672	932-000-783	932-000-501
0.0200	0.1250	0.1250	1.5000	0.0350	932-000-673	932-000-784	932-000-502
0.0460	0.1250	0.1250	1.5000	0.0350	932-000-674	932-000-785	932-000-503
0.0460	0.1875	0.1875	4.0000	0.0350	932-000-864	932-000-882	932-000-582
0.0200	0.1250	0.1250	1.5000	0.0390	932-000-675	932-000-786	932-000-504
0.0460	0.1250	0.1250	1.5000	0.0390	932-000-676	932-000-787	932-000-505
0.0460	0.1875	0.1875	4.0000	0.0390	932-000-865	932-000-883	932-000-583
0.1000	0.1875	0.1875	2.0000	0.0390	932-000-677	932-000-788	932-000-506
0.0460	0.1875	0.1875	2.0000	0.0430	932-000-678	932-000-789	932-000-507
0.0200	0.1250	0.1250	1.5000	0.0470	932-000-679	932-000-790	932-000-508
0.0460	0.1875	0.1875	2.0000	0.0470	932-000-680	932-000-791	932-000-509
0.0460	0.1875	0.1875	4.0000	0.0470	932-000-866	932-000-884	932-000-584
0.1250	0.2500	0.2500	2.0000	0.0470	932-000-681	932-000-792	932-000-510
0.0200	0.1250	0.1250	1.5000	0.0500	932-000-682	932-000-793	932-000-511
0.0460	0.1875	0.1875	2.0000	0.0500	932-000-683	932-000-794	932-000-512
0.0460	0.2500	0.2500	4.0000	0.0500	932-000-867	932-000-885	932-000-585
0.1250	0.2500	0.2500	2.0000	0.0500	932-000-684	932-000-795	932-000-513
0.0460	0.1875	0.1875	2.0000	0.0550	932-000-685	932-000-796	932-000-514
0.0200	0.1875	0.1875	2.0000	0.0600	932-000-686	932-000-797	932-000-515
0.0460	0.1875	0.1875	2.0000	0.0600	932-000-687	932-000-798	932-000-516
0.0460	0.2500	0.2500	4.0000	0.0600	932-000-868	932-000-886	932-000-586
0.0200	0.1875	0.2500	2.0000	0.0600	932-000-689	932-000-799	932-000-517
0.0460	0.1875	0.1875	2.0000	0.0620	932-000-690	932-000-800	932-000-518
0.1250	0.2500	0.1875	2.0000	0.0620	932-000-691	932-000-801	932-000-519
0.0460	0.2500	0.2500	4.0000	0.0620	932-000-869	932-000-887	932-000-587
0.1250	0.2500	0.2500	2.0000	0.0620	932-000-691	932-000-802	932-000-520
0.0460	0.2500	0.2500	2.0000	0.0720	932-000-692	932-000-803	932-000-521
0.0460	0.2500	0.2500	2.0000	0.0780	932-000-693	932-000-804	932-000-522
0.0460	0.2500	0.2500	4.0000	0.0780	932-000-870	932-000-888	932-000-588
0.0450	0.2500	0.2500	2.0000	0.0890	932-000-694	932-000-805	932-000-523
0.0450	0.2500	0.2500	2.0000	0.0930	932-000-695	932-000-806	932-000-524
0.0450	0.3125	0.3125	4.0000	0.0930	932-000-871	932-000-889	932-000-589
0.0450	0.2500	0.2500	2.0000	0.1000	932-000-696	932-000-807	932-000-525
0.0450	0.3125	0.3125	4.0000	0.1000	932-000-872	932-000-890	932-000-590
0.0580	0.3125	0.3125	2.5000	0.1090	932-000-697	932-000-808	932-000-526
0.0580	0.3125	0.3125	2.5000	0.1180	932-000-698	932-000-809	932-000-527
0.0580	0.3125	0.3125	2.5000	0.1250	932-000-699	932-000-810	932-000-528
0.0580	0.3750	0.3750	4.0000	0.1250	932-000-873	932-000-891	932-000-591
0.0580	0.3750	0.3750	2.5000	0.1400	932-000-700	932-000-811	932-000-529
0.0580	0.3750	0.3750	2.5000	0.1560	932-000-701	932-000-812	932-000-530

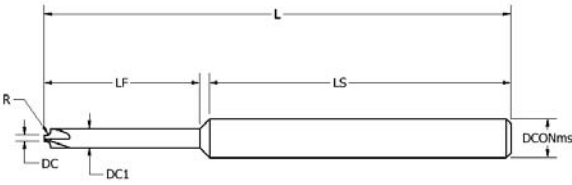


CARBIDE

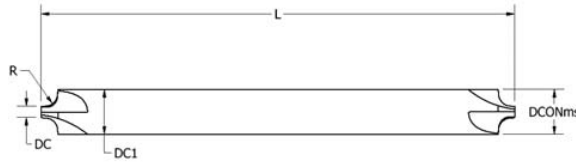


DC [in.]	DCONMS [in.]	DC1 [in.]	L [in.]	R [in.]	UNCOATED	AITIN COATED	TIAIN COATED
					4 FLUTE	4 FLUTE	4 FLUTE
0.0580	0.1250	0.1250	1.5000	0.0050	932-000-702	932-000-813	932-000-531
0.2490	0.3750	0.3750	2.5000	0.0050	932-000-703	932-000-814	932-000-532
0.0580	0.1250	0.1250	1.5000	0.0080	932-000-704	932-000-815	932-000-533
0.2490	0.3750	0.3750	2.5000	0.0080	932-000-705	932-000-816	932-000-534
0.0580	0.1250	0.1250	1.5000	0.0100	932-000-706	932-000-817	932-000-535
0.2490	0.3750	0.3750	2.5000	0.0100	932-000-707	932-000-818	932-000-536
0.0580	0.1250	0.1250	1.5000	0.0150	932-000-708	932-000-819	932-000-537
0.1070	0.1875	0.1875	2.0000	0.0150	932-000-709	932-000-820	932-000-538
0.2490	0.3750	0.3750	2.5000	0.0150	932-000-710	932-000-821	932-000-539
0.0580	0.1250	0.1250	1.5000	0.0200	932-000-711	932-000-822	932-000-540
0.1070	0.1875	0.1875	2.0000	0.0200	932-000-712	932-000-823	932-000-541
0.2490	0.3750	0.3750	2.5000	0.0200	932-000-713	932-000-824	932-000-542
0.0580	0.1250	0.1250	1.5000	0.0250	932-000-714	932-000-825	932-000-543
0.1070	0.1875	0.1875	2.0000	0.0250	932-000-715	932-000-826	932-000-544
0.2490	0.3750	0.3750	2.5000	0.0250	932-000-716	932-000-827	932-000-545
0.0580	0.1250	0.1250	1.5000	0.0300	932-000-717	932-000-828	932-000-546
0.1070	0.1875	0.1875	2.0000	0.0300	932-000-718	932-000-829	932-000-547
0.2490	0.3750	0.3750	2.5000	0.0300	932-000-719	932-000-830	932-000-548
0.0580	0.1250	0.1250	1.5000	0.0310	932-000-720	932-000-831	932-000-549
0.1070	0.1875	0.1875	2.0000	0.0310	932-000-721	932-000-832	932-000-550
0.2490	0.3750	0.3750	2.5000	0.0310	932-000-722	932-000-833	932-000-551
0.2490	0.3750	0.3750	2.5000	0.0320	932-000-723	932-000-834	932-000-552
0.2490	0.3750	0.3750	2.5000	0.0350	932-000-724	932-000-835	932-000-553
0.0580	0.1875	0.1875	2.0000	0.0390	932-000-725	932-000-836	932-000-554
0.2490	0.3750	0.3750	2.5000	0.0390	932-000-726	932-000-837	932-000-555
0.2490	0.3750	0.3750	2.5000	0.0430	932-000-727	932-000-838	932-000-556
0.0580	0.1875	0.1875	2.0000	0.0470	932-000-728	932-000-839	932-000-557
0.1070	0.2500	0.2500	2.0000	0.0470	932-000-729	932-000-840	932-000-558
0.2490	0.3750	0.3750	2.5000	0.0470	932-000-730	932-000-841	932-000-559
0.0580	0.1875	0.1875	2.0000	0.0500	932-000-731	932-000-842	932-000-560
0.1070	0.2500	0.2500	2.0000	0.0500	932-000-732	932-000-843	932-000-561
0.2490	0.3750	0.3750	2.5000	0.0500	932-000-733	932-000-844	932-000-562
0.0580	0.1875	0.1875	2.0000	0.0600	932-000-734	932-000-845	932-000-563
0.1070	0.2500	0.2500	2.0000	0.0600	932-000-735	932-000-846	932-000-564
0.0580	0.1875	0.1875	2.0000	0.0620	932-000-736	932-000-847	932-000-565
0.1070	0.2500	0.2500	2.0000	0.0620	932-000-737	932-000-848	932-000-566
0.0580	0.2500	0.2500	2.0000	0.0780	932-000-738	932-000-849	932-000-567
0.1070	0.3125	0.3125	2.5000	0.0780	932-000-739	932-000-850	932-000-568
0.0580	0.2500	0.2500	2.0000	0.0930	932-000-740	932-000-851	932-000-569
0.1070	0.3125	0.3125	2.5000	0.0930	932-000-741	932-000-852	932-000-570
0.1070	0.3125	0.3125	2.5000	0.1000	932-000-742	932-000-853	932-000-571
0.1070	0.3750	0.3750	2.5000	0.1180	932-000-743	932-000-854	932-000-572
0.1070	0.3750	0.3750	2.5000	0.1250	932-000-744	932-000-855	932-000-573

CARBIDE



DC [in.]	DCNMS [in.]	DC1 [in.]	LS [in.]	L [in.]	LF [in.]	R [in.]	UNCOATED	AITIN COATED	TiAIN COATED
							2 FLUTE	2 FLUTE	2 FLUTE
0.0100	0.1250	0.0310	1.2970	1.5000	0.1560	0.0050	932-000-265	932-000-301	932-000-229
0.0100	0.1250	0.0310	1.2030	1.5000	0.2500	0.0050	932-000-266	932-000-302	932-000-230
0.0100	0.1250	0.0310	1.0780	1.5000	0.3750	0.0050	932-000-267	932-000-303	932-000-231
0.0100	0.1250	0.0310	1.2970	1.5000	0.1560	0.0050	932-000-268	932-000-304	932-000-232
0.0100	0.1250	0.0310	1.2030	1.5000	0.2500	0.0050	932-000-269	932-000-305	932-000-233
0.0100	0.1250	0.0310	1.0780	1.5000	0.3750	0.0050	932-000-270	932-000-306	932-000-234
0.0100	0.1250	0.0620	1.1565	1.5000	0.3120	0.0050	932-000-271	932-000-307	932-000-235
0.0100	0.1250	0.0620	0.9685	1.5000	0.5000	0.0050	932-000-272	932-000-308	932-000-236
0.0100	0.1250	0.0620	1.2185	2.0000	0.7500	0.0050	932-000-273	932-000-309	932-000-237
0.0100	0.1250	0.0930	1.2340	2.0000	0.7500	0.0050	932-000-274	932-000-310	932-000-238
0.0100	0.1250	0.0930	0.8590	2.0000	1.1250	0.0050	932-000-275	932-000-311	932-000-239
0.0100	0.1250	0.0310	1.2970	1.5000	0.1560	0.0080	932-000-276	932-000-312	932-000-240
0.0100	0.1250	0.0310	1.2030	1.5000	0.2500	0.0080	932-000-277	932-000-313	932-000-241
0.0100	0.1250	0.0310	1.0780	1.5000	0.3750	0.0080	932-000-278	932-000-314	932-000-242
0.0100	0.1250	0.0310	1.2970	1.5000	0.1560	0.0100	932-000-279	932-000-315	932-000-243
0.0100	0.1250	0.0310	1.2030	1.5000	0.2500	0.0100	932-000-280	932-000-316	932-000-244
0.0100	0.1250	0.0310	1.0780	1.5000	0.3750	0.0100	932-000-281	932-000-317	932-000-245
0.0200	0.1250	0.0620	1.1565	1.5000	0.3120	0.0100	932-000-282	932-000-318	932-000-246
0.0200	0.1250	0.0620	0.9685	1.5000	0.5000	0.0100	932-000-283	932-000-319	932-000-247
0.0200	0.1250	0.0620	1.2185	2.0000	0.7500	0.0100	932-000-284	932-000-320	932-000-248
0.0200	0.1250	0.0930	1.2340	2.0000	0.7500	0.0100	932-000-285	932-000-321	932-000-249
0.0200	0.1250	0.0930	0.8590	2.0000	1.1250	0.0100	932-000-286	932-000-322	932-000-250
0.0200	0.1250	0.0620	1.1565	1.5000	0.3120	0.0150	932-000-287	932-000-323	932-000-251
0.0200	0.1250	0.0620	0.9685	1.5000	0.5000	0.0150	932-000-288	932-000-324	932-000-252
0.0200	0.1250	0.0620	1.2185	2.0000	0.7500	0.0150	932-000-289	932-000-325	932-000-253
0.0200	0.1250	0.0930	1.2340	2.0000	0.7500	0.0150	932-000-290	932-000-326	932-000-254
0.0200	0.1250	0.0930	0.8590	2.0000	1.1250	0.0150	932-000-291	932-000-327	932-000-255
0.0200	0.1250	0.0620	1.1565	1.5000	0.3120	0.0200	932-000-292	932-000-328	932-000-256
0.0200	0.1250	0.0620	0.9685	1.5000	0.5000	0.0200	932-000-293	932-000-329	932-000-257
0.0200	0.1250	0.0620	1.2185	2.0000	0.7500	0.0200	932-000-294	932-000-330	932-000-258
0.0200	0.1250	0.0930	1.2340	2.0000	0.7500	0.0200	932-000-295	932-000-331	932-000-259
0.0200	0.1250	0.0930	0.8590	2.0000	1.1250	0.0200	932-000-296	932-000-332	932-000-260
0.0200	0.1250	0.0930	1.2340	2.0000	0.7500	0.0250	932-000-297	932-000-333	932-000-261
0.0200	0.1250	0.0930	0.8590	2.0000	1.1250	0.0250	932-000-298	932-000-334	932-000-262
0.0200	0.1250	0.0930	1.2340	2.0000	0.7500	0.0300	932-000-299	932-000-335	932-000-263
0.0200	0.1250	0.0930	0.8590	2.0000	1.1250	0.0300	932-000-300	932-000-336	932-000-264

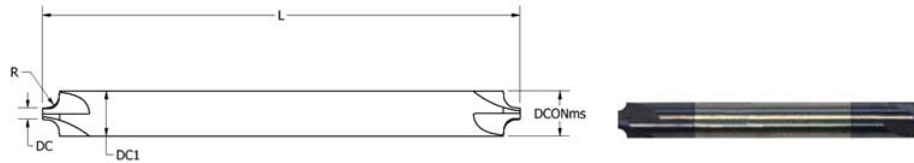


DC [in.]	DCONMS [in.]	DC1 [in.]	L [in.]	R [in.]	UNCOATED	TIN COATED	AITIN COATED
					2 FLUTE	2 FLUTE	2 FLUTE
0.0470	0.1250	0.1250	1.5000	0.0050	932-000-337	932-000-892	932-000-592
0.0470	0.1250	0.1250	1.5000	0.0080	932-000-338	932-000-893	932-000-593
0.0470	0.1250	0.1250	1.5000	0.0100	932-000-339	932-000-894	932-000-594
0.0470	0.1250	0.1250	1.5000	0.0120	932-000-340	932-000-895	932-000-595
0.0470	0.1250	0.1250	1.5000	0.0150	932-000-341	932-000-896	932-000-596
0.0470	0.1250	0.1250	1.5000	0.0180	932-000-342	932-000-897	932-000-597
0.0470	0.1250	0.1250	1.5000	0.0200	932-000-343	932-000-898	932-000-598
0.0470	0.1250	0.1250	1.5000	0.0220	932-000-344	932-000-899	932-000-599
0.0470	0.1250	0.1250	1.5000	0.0250	932-000-345	932-000-900	932-000-600
0.0470	0.1250	0.1250	1.5000	0.0270	932-000-346	932-000-901	932-000-601
0.0470	0.1250	0.1250	1.5000	0.0300	932-000-347	932-000-902	932-000-602
0.0470	0.1250	0.1250	1.5000	0.0310	932-000-348	932-000-903	932-000-603
0.0470	0.1250	0.1250	1.5000	0.0320	932-000-349	932-000-904	932-000-604
0.0470	0.1250	0.1250	1.5000	0.0350	932-000-350	932-000-905	932-000-605
0.0470	0.1250	0.1250	1.5000	0.0390	932-000-351	932-000-906	932-000-606
0.0470	0.1875	0.1875	2.0000	0.0430	932-000-352	932-000-907	932-000-607
0.0470	0.1875	0.1875	2.0000	0.0470	932-000-353	932-000-908	932-000-608
0.0470	0.1875	0.1875	2.0000	0.0500	932-000-354	932-000-909	932-000-609
0.0470	0.1875	0.1875	2.0000	0.0550	932-000-355	932-000-910	932-000-610
0.0470	0.1875	0.1875	2.0000	0.0600	932-000-356	932-000-911	932-000-611
0.0470	0.1875	0.1875	2.0000	0.0620	932-000-357	932-000-912	932-000-612
0.0470	0.1875	0.1875	2.0000	0.0670	932-000-358	932-000-913	932-000-613
0.0470	0.2500	0.2500	2.0000	0.0720	932-000-359	932-000-914	932-000-614
0.0470	0.2500	0.2500	2.0000	0.0780	932-000-360	932-000-915	932-000-615
0.0470	0.2500	0.2500	2.0000	0.0890	932-000-361	932-000-916	932-000-616
0.0470	0.2500	0.2500	2.0000	0.0930	932-000-362	932-000-917	932-000-617
0.0470	0.2500	0.2500	2.0000	0.1000	932-000-363	932-000-918	932-000-618
0.0600	0.3125	0.3125	2.5000	0.1040	932-000-364	932-000-919	932-000-619
0.0600	0.3125	0.3125	2.5000	0.1090	932-000-365	932-000-920	932-000-620
0.0600	0.3125	0.3125	2.5000	0.1180	932-000-366	932-000-921	932-000-621
0.0600	0.3125	0.3125	2.5000	0.1250	932-000-367	932-000-922	932-000-622
0.0600	0.3750	0.3750	2.5000	0.1400	932-000-368	932-000-923	932-000-623
0.0600	0.3750	0.3750	2.5000	0.1560	932-000-369	932-000-924	932-000-624



DC [in.]	DCONMS [in.]	DC1 [in.]	L [in.]	R [in.]	UNCOATED	TIN COATED	AITIN COATED
					4 FLUTE	4 FLUTE	4 FLUTE
0.2500	0.3750	0.3750	2.5000	0.0100	932-000-370	932-000-925	932-000-625
0.2500	0.3750	0.3750	2.5000	0.0150	932-000-371	932-000-926	932-000-626
0.2500	0.3750	0.3750	2.5000	0.0200	932-000-372	932-000-927	932-000-627
0.2500	0.3750	0.3750	2.5000	0.0250	932-000-373	932-000-928	932-000-628
0.2500	0.3750	0.3750	2.5000	0.0300	932-000-374	932-000-929	932-000-629
0.2500	0.3750	0.3750	2.5000	0.0310	932-000-375	932-000-930	932-000-630
0.2500	0.3750	0.3750	2.5000	0.0390	932-000-376	932-000-931	932-000-631
0.2500	0.3750	0.3750	2.5000	0.0470	932-000-377	932-000-932	932-000-632
0.2500	0.3750	0.3750	2.5000	0.0500	932-000-378	932-000-933	932-000-633

CARBIDE

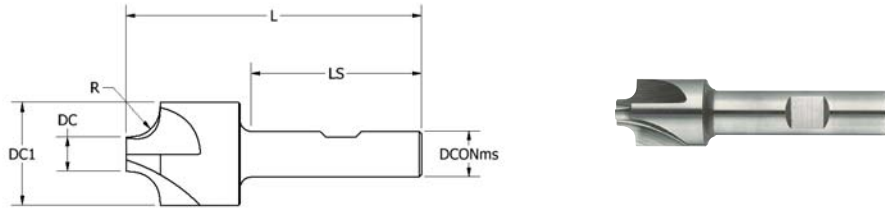


DC [in.]	DCONMS [in.]	DC1 [in.]	L [in.]	R [in.]	TiAIN COATED	AMORPHOUS DIAMOND
					2 FLUTE	2 FLUTE
0.0470	0.1250	0.1250	1.5000	0.0050	932-000-421	932-000-379
0.0470	0.1250	0.1250	1.5000	0.0080	932-000-422	932-000-380
0.0470	0.1250	0.1250	1.5000	0.0100	932-000-423	932-000-381
0.0470	0.1250	0.1250	1.5000	0.0120	932-000-424	932-000-382
0.0470	0.1250	0.1250	1.5000	0.0150	932-000-425	932-000-383
0.0470	0.1250	0.1250	1.5000	0.0180	932-000-426	932-000-384
0.0470	0.1250	0.1250	1.5000	0.0200	932-000-427	932-000-385
0.0470	0.1250	0.1250	1.5000	0.0220	932-000-428	932-000-386
0.0470	0.1250	0.1250	1.5000	0.0270	932-000-429	932-000-387
0.0470	0.1250	0.1250	1.5000	0.0270	932-000-430	932-000-388
0.0470	0.1250	0.1250	1.5000	0.0300	932-000-431	932-000-389
0.0470	0.1250	0.1250	1.5000	0.0310	932-000-432	932-000-390
0.0470	0.1250	0.1250	1.5000	0.0320	932-000-433	932-000-391
0.0470	0.1250	0.1250	1.5000	0.0350	932-000-434	932-000-392
0.0470	0.1250	0.1250	1.5000	0.0390	932-000-435	932-000-393
0.0470	0.1875	0.1875	2.0000	0.0430	932-000-436	932-000-394
0.0470	0.1875	0.1875	2.0000	0.0470	932-000-437	932-000-395
0.0470	0.1875	0.1875	2.0000	0.0500	932-000-438	932-000-396
0.0470	0.1875	0.1875	2.0000	0.0550	932-000-439	932-000-397
0.0470	0.1875	0.1875	2.0000	0.0600	932-000-440	932-000-398
0.0470	0.1875	0.1875	2.0000	0.0620	932-000-441	932-000-399
0.0470	0.1875	0.1875	2.0000	0.0670	932-000-442	932-000-400
0.0470	0.2500	0.2500	2.0000	0.0720	932-000-443	932-000-401
0.0470	0.2500	0.2500	2.0000	0.0780	932-000-444	932-000-402
0.0470	0.2500	0.2500	2.0000	0.0890	932-000-445	932-000-403
0.0470	0.2500	0.2500	2.0000	0.0930	932-000-446	932-000-404
0.0470	0.2500	0.2500	2.0000	0.1000	932-000-447	932-000-405
0.0600	0.3125	0.3125	2.5000	0.1040	932-000-448	932-000-406
0.0600	0.3125	0.3125	2.5000	0.1090	932-000-449	932-000-407
0.0600	0.3125	0.3125	2.5000	0.1180	932-000-450	932-000-408
0.0600	0.3125	0.3125	2.5000	0.1250	932-000-451	932-000-409
0.0600	0.3750	0.3750	2.5000	0.1400	932-000-452	932-000-410
0.0600	0.3750	0.3750	2.5000	0.1560	932-000-453	932-000-411



DC [in.]	DCONMS [in.]	DC1 [in.]	L [in.]	R [in.]	TiAIN COATED	AMORPHOUS DIAMOND
					4 FLUTE	4 FLUTE
0.2500	0.3750	0.3750	2.5000	0.0100	932-000-454	932-000-412
0.2500	0.3750	0.3750	2.5000	0.0150	932-000-455	932-000-413
0.2500	0.3750	0.3750	2.5000	0.0200	932-000-456	932-000-414
0.2500	0.3750	0.3750	2.5000	0.0250	932-000-457	932-000-415
0.2500	0.3750	0.3750	2.5000	0.0300	932-000-458	932-000-416
0.2500	0.3750	0.3750	2.5000	0.0310	932-000-459	932-000-417
0.2500	0.3750	0.3750	2.5000	0.0390	932-000-460	932-000-418
0.2500	0.3750	0.3750	2.5000	0.0470	932-000-461	932-000-419
0.2500	0.3750	0.3750	2.5000	0.0500	932-000-462	932-000-420

METRIC RADIUS

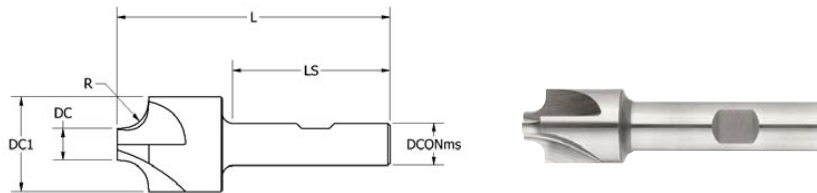


CRM125 HSS



DC [in.]	DCONMS [in.]	DC1 [in.]	LS [in.]	L [in.]	R [in.]	UNCOATED	TiN Coated	TiCN COATED	TiAIN COATED
0.2270	0.3750	0.4375	1.6880	2.5000	0.0394(1mm)	932-000-133	932-000-136	932-000-135	932-000-134
0.2500	0.3750	0.4375	1.6880	2.5000	0.0591(1.5mm)	932-000-137	932-000-140	932-000-139	932-000-138
0.2730	0.3750	0.5000	1.6880	2.5000	0.0787(2mm)	932-000-141	932-000-144	932-000-143	932-000-142
0.2330	0.3750	0.5000	1.6880	2.5000	0.0984(2.5mm)	932-000-145	932-000-148	932-000-147	932-000-146
0.2570	0.5000	0.6250	2.0000	3.0000	0.1181(3mm)	932-000-149	932-000-152	932-000-151	932-000-150
0.2790	0.5000	0.7500	2.0000	3.0000	0.1378(3.5mm)	932-000-153	932-000-156	932-000-155	932-000-154
0.3030	0.5000	0.7500	2.0000	3.0000	0.1575(4mm)	932-000-157	932-000-160	932-000-159	932-000-158
0.3890	0.5000	0.8750	2.0000	3.0000	0.1772(4.5mm)	932-000-161	932-000-164	932-000-163	932-000-162
0.3490	0.5000	0.8750	2.0000	3.0000	0.1969(5mm)	932-000-165	932-000-168	932-000-167	932-000-166
0.3950	0.7500	1.0000	2.2500	3.2500	0.2362	932-000-169	932-000-172	932-000-171	932-000-170
0.3790	0.7500	1.0000	2.2500	3.2500	0.2756(7mm)	932-000-173	932-000-176	932-000-175	932-000-174
0.3630	0.7500	1.1250	2.2500	3.2500	0.3150	932-000-177	932-000-180	932-000-179	932-000-178
0.3460	0.7500	1.1250	2.2500	3.2500	0.3543(9mm)	932-000-181	932-000-184	932-000-183	932-000-182
0.3920	0.7500	1.3750	2.2500	3.7500	0.3937	932-000-185	932-000-188	932-000-187	932-000-186
0.3760	1.0000	1.3750	2.5000	3.7500	0.4331(11mm)	932-000-189	932-000-192	932-000-191	932-000-190
0.4220	1.0000	1.5000	2.5000	4.1250	0.4724	932-000-193	932-000-196	932-000-195	932-000-194
0.3430	1.0000	1.5000	2.5000	4.1250	0.5118(13mm)	932-000-197	932-000-200	932-000-199	932-000-198
0.4520	1.0000	1.6250	2.5000	4.1250	0.5512	932-000-201	932-000-204	932-000-203	932-000-202
0.4980	1.0000	1.8750	2.5000	4.2500	0.5906(15mm)	932-000-205	932-000-208	932-000-207	932-000-206
0.5440	1.0000	2.0000	2.5000	4.2500	0.6299	932-000-209	932-000-212	932-000-211	932-000-210
0.5280	1.0000	2.1250	2.5000	4.2500	0.6693(17mm)	932-000-213	932-000-216	932-000-215	932-000-214
0.6410	1.0000	2.2500	2.5000	4.2500	0.7087	932-000-217	932-000-220	932-000-219	932-000-218
0.6200	1.0000	2.2500	2.5000	4.2500	0.7480(19mm)	932-000-221	932-000-224	932-000-223	932-000-222
0.6040	1.0000	2.3125	2.5000	4.2500	0.7874(20mm)	932-000-225	932-000-228	932-000-227	932-000-226

IMPERIAL RADIUS



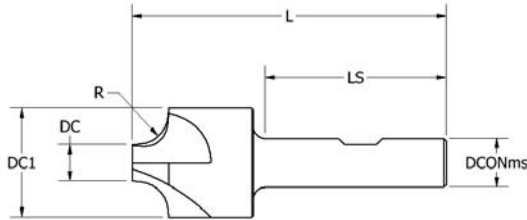
CRCO126 Cobalt Steel



DC [in.]	DCONMS [in.]	DC1 [in.]	LS [in.]	L [in.]	R [in.]	UNCOATED	TiN Coated	TiCN COATED	TiAIN COATED
0.2430	0.3750	0.4375	1.6880	2.5000	0.0313	932-000-001	932-000-004	932-000-003	932-000-002
0.2430	0.3750	0.4375	1.6880	2.5000	0.0625	932-000-005	932-000-008	932-000-007	932-000-006
0.2430	0.3750	0.5000	1.6880	2.5000	0.0938	932-000-009	932-000-012	932-000-011	932-000-010
0.2430	0.5000	0.6250	1.9370	3.0000	0.1250	932-000-013	932-000-016	932-000-015	932-000-014
0.3050	0.5000	0.7500	2.0000	3.0000	0.1563	932-000-017	932-000-020	932-000-019	932-000-018
0.3680	0.7500	0.8750	2.2500	3.1250	0.1875	932-000-021	932-000-024	932-000-023	932-000-022
0.3680	0.7500	1.0000	2.2500	3.2500	0.2500	932-000-025	932-000-028	932-000-027	932-000-026
0.3680	0.8750	1.1250	2.1870	3.5000	0.3125	932-000-029	932-000-032	932-000-031	932-000-030
0.3670	0.8750	1.2500	2.2500	3.7500	0.3750	932-000-033	932-000-036	932-000-035	932-000-034
0.3670	1.0000	1.5000	2.5000	4.1250	0.5000	932-000-037	932-000-040	932-000-039	932-000-038



IMPERIAL RADIUS



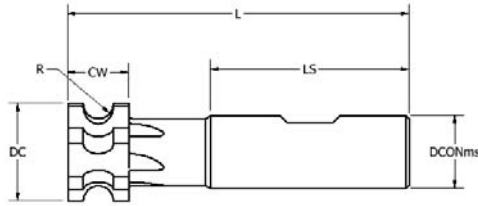
CRE124



DC [in.]	DCONMS [in.]	DC1 [in.]	LS [in.]	L [in.]	R [in.]	UNCOATED	TiN Coated	TiCN COATED	TIAlN COATED
0.2430	0.3750	0.4375	1.6880	2.5000	0.0313	932-000-041	932-000-044	932-000-043	932-000-042
0.2430	0.3750	0.4375	1.6880	2.5000	0.0625	932-000-045	932-000-048	932-000-047	932-000-046
0.2430	0.3750	0.5000	1.6880	2.5000	0.0938	932-000-049	932-000-052	932-000-051	932-000-050
0.2430	0.5000	0.6250	1.9370	3.0000	0.1250	932-000-053	932-000-056	932-000-055	932-000-054
0.3050	0.5000	0.7500	2.0000	3.0000	0.1563	932-000-057	932-000-060	932-000-059	932-000-058
0.3680	0.5000	0.8750	1.9380	2.9375	0.1875	932-000-065	932-000-068	932-000-067	932-000-066
0.3680	0.7500	0.8750	2.2500	3.1250	0.1875	932-000-061	932-000-064	932-000-063	932-000-062
0.3680	0.5000	1.0000	1.9370	3.0000	0.2500	932-000-073	932-000-076	932-000-075	932-000-070
0.3680	0.7500	1.0000	2.2500	3.2500	0.2500	932-000-069	932-000-072	932-000-071	932-000-074
0.3680	0.5000	1.1250	1.9370	3.2500	0.3125	932-000-081	932-000-084	932-000-083	932-000-078
0.3680	0.7500	1.1250	2.1870	3.5000	0.3125	932-000-077	932-000-080	932-000-079	932-000-082
0.3670	0.5000	1.2500	2.0000	3.5000	0.3750	932-000-089	932-000-092	932-000-091	932-000-086
0.3670	0.8750	1.2500	2.2500	3.7500	0.3750	932-000-085	932-000-088	932-000-087	932-000-090
0.3670	0.7500	1.3750	2.1870	3.7500	0.4375	932-000-097	932-000-100	932-000-099	932-000-094
0.3670	1.0000	1.3750	2.4370	4.0000	0.4375	932-000-093	932-000-096	932-000-095	932-000-098
0.3670	0.7500	1.5000	2.3120	3.8750	0.5000	932-000-105	932-000-108	932-000-107	932-000-106
0.3670	1.0000	1.5000	2.5000	4.1250	0.5000	932-000-101	932-000-104	932-000-103	932-000-102
0.5540	0.7500	1.9375	2.2500	4.0000	0.6250	932-000-113	932-000-116	932-000-115	932-000-114
0.5540	1.0000	1.9375	2.5000	4.2500	0.6250	932-000-109	932-000-112	932-000-111	932-000-110
0.6160	0.7500	2.2500	2.2500	4.1250	0.7500	932-000-121	932-000-124	932-000-123	932-000-122
0.6160	1.0000	2.2500	2.4380	4.3125	0.7500	932-000-117	932-000-120	932-000-119	932-000-118
0.6160	0.7500	2.7500	2.2500	4.5000	1.0000	932-000-129	932-000-132	932-000-131	932-000-130
0.6160	1.0000	2.7500	2.5000	4.7500	1.0000	932-000-125	932-000-128	932-000-127	932-000-126



CONCAVE

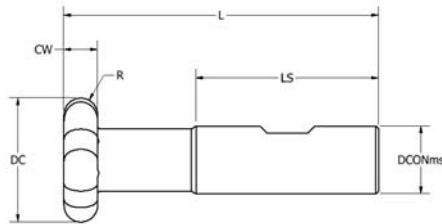


CCS150



DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CW [in.]	R [in.]	Zc	UNCOATED	TiN COATED	TiCN COATED	TiAlN COATED
0.7500	0.5000	2.1250	3.0000	0.3750	0.0313	6	905-000-008	905-000-035	905-000-025	905-000-017
0.7500	0.5000	2.1250	3.0000	0.3750	0.0625	6	905-000-007	905-000-034	905-000-026	905-000-016
0.7500	0.5000	2.1250	3.0000	0.3750	0.1250	6	905-000-009	905-000-036	905-000-027	905-000-018
1.0000	0.7500	2.2500	3.5000	0.6250	0.1250	6	905-000-004	905-000-031	905-000-022	905-000-013
1.0000	0.7500	2.2500	3.5000	0.6250	0.1563	6	905-000-006	905-000-033	905-000-023	905-000-015
1.0000	0.7500	2.2500	3.5000	0.6250	0.1563	6	905-000-005	905-000-032	905-000-024	905-000-014
1.2500	0.7500	2.2500	4.0000	1.0000	0.2500	4	905-000-003	905-000-030	905-000-020	905-000-012
1.2500	0.7500	2.2500	4.0000	1.0000	0.3125	4	905-000-002	905-000-029	905-000-021	905-000-011
1.5000	0.7500	2.2500	4.1875	1.0000	0.3750	4	905-000-001	905-000-028	905-000-019	905-000-010

CONVEX



CVS130



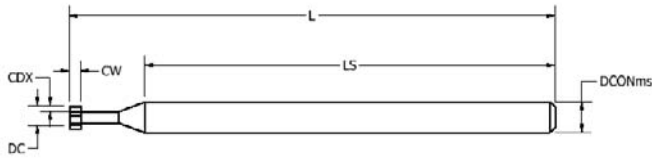
DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CW [in.]	R [in.]	Zc	UNCOATED	TiN COATED	TiCN COATED	TiAlN COATED
0.7500	0.5000	2.4375	3.0000	0.0625	0.0313	6	922-000-001	922-000-004	922-000-003	922-000-002
0.7500	0.5000	2.2500	3.0000	0.1250	0.0625	6	922-000-005	922-000-008	922-000-007	922-000-006
0.8750	0.5000	2.1875	3.0000	0.1875	0.0938	6	922-000-009	922-000-012	922-000-011	922-000-010
1.2500	0.7500	2.6250	3.5000	0.2500	0.1250	6	922-000-013	922-000-016	922-000-015	922-000-014
1.3125	0.7500	2.5625	3.5000	0.3125	0.1563	6	922-000-017	922-000-020	922-000-019	922-000-018
1.3750	0.7500	2.5000	3.5000	0.3750	0.1875	6	922-000-021	922-000-024	922-000-023	922-000-022
1.5000	0.7500	2.8750	4.0000	0.5000	0.2500	6	922-000-025	922-000-028	922-000-027	922-000-026
1.6250	0.7500	2.7500	4.0000	0.6250	0.3125	6	922-000-029	922-000-032	922-000-031	922-000-030
1.7500	0.7500	2.6250	4.0000	0.7500	0.3750	6	922-000-033	922-000-036	922-000-035	922-000-034

KEYSEAT CUTTERS

ARCH[®]
Cutting Tools



Ø .0625"-.1875"

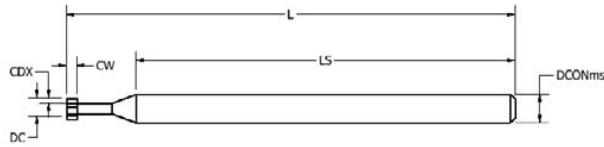


DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	UNCOATED	AITiN COATED	TiAIN COATED
						6 FLUTE	6 FLUTE	6 FLUTE
0.0625	0.1250	1.7138	2.0000	0.0153	0.0156	943-000-811	943-000-941	943-000-873
0.0625	0.1250	1.6982	2.0000	0.0153	0.0313	943-000-812	943-000-942	943-000-874
0.0625	0.1250	1.6901	2.0000	0.0153	0.0394	943-000-813	943-000-943	943-000-875
0.0625	0.1250	1.6826	2.0000	0.0153	0.0469	943-000-814	943-000-944	943-000-876
0.0625	0.1250	1.6669	2.0000	0.0153	0.0625	943-000-815	943-000-945	943-000-877
0.0781	0.1250	1.7371	2.0000	0.0191	0.0156	943-000-816	943-000-946	943-000-878
0.0781	0.1250	1.7215	2.0000	0.0191	0.0313	943-000-817	943-000-947	943-000-879
0.0781	0.1250	1.7134	2.0000	0.0191	0.0394	943-000-818	943-000-948	943-000-880
0.0781	0.1250	1.7059	2.0000	0.0191	0.0469	943-000-819	943-000-949	943-000-881
0.0781	0.1250	1.6903	2.0000	0.0191	0.0625	943-000-820	943-000-950	943-000-882
0.0937	0.1250	1.7148	2.0000	0.0234	0.0156	943-000-821	943-000-951	943-000-883
0.0937	0.1250	1.6991	2.0000	0.0234	0.0313	943-000-822	943-000-952	943-000-884
0.0937	0.1250	1.6910	2.0000	0.0234	0.0394	943-000-823	943-000-953	943-000-885
0.0937	0.1250	1.6835	2.0000	0.0234	0.0469	943-000-824	943-000-954	943-000-886
0.0937	0.1250	1.6679	2.0000	0.0234	0.0625	943-000-825	943-000-955	943-000-887
0.1250	0.1250	1.6772	2.0000	0.0310	0.0156	943-000-826	943-000-956	943-000-888
0.1250	0.1250	1.6615	2.0000	0.0310	0.0313	943-000-827	943-000-957	943-000-889
0.1250	0.1250	1.6534	2.0000	0.0310	0.0394	943-000-828	943-000-958	943-000-890
0.1250	0.1250	1.6459	2.0000	0.0310	0.0469	943-000-829	943-000-959	943-000-891
0.1250	0.1250	1.6303	2.0000	0.0310	0.0625	943-000-830	943-000-960	943-000-892
0.1250	0.1250	1.5990	2.0000	0.0310	0.0938	943-000-831	943-000-961	943-000-893
0.1250	0.1250	1.5678	2.0000	0.0310	0.1250	943-000-832	943-000-962	943-000-894
0.1875	0.1875	1.5249	2.0000	0.0468	0.0156	943-000-833	943-000-963	943-000-895
0.1875	0.1875	1.5093	2.0000	0.0468	0.0313	943-000-834	943-000-964	943-000-896
0.1875	0.1875	1.5011	2.0000	0.0468	0.0394	943-000-835	943-000-965	943-000-897
0.1875	0.1875	1.4936	2.0000	0.0468	0.0469	943-000-836	943-000-966	943-000-898
0.1875	0.1875	1.4780	2.0000	0.0468	0.0625	943-000-837	943-000-967	943-000-899
0.1875	0.1875	1.4468	2.0000	0.0468	0.0938	943-000-838	943-000-968	943-000-900
0.1875	0.1875	1.4155	2.0000	0.0468	0.1250	943-000-839	943-000-969	943-000-901
0.1875	0.1875	1.3530	2.0000	0.0468	0.1875	943-000-840	943-000-970	943-000-902

CARBIDE

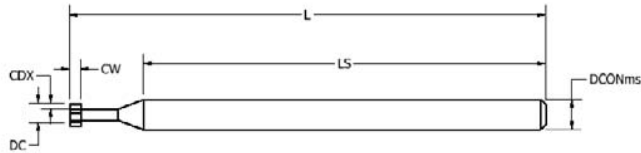


Ø .125"- .375"



DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc	UNCOATED
0.1250	0.2500	1.4744	2.0000	0.0310	0.0156	6	943-000-378
0.1250	0.2500	1.4588	2.0000	0.0310	0.0313	6	943-000-379
0.1250	0.2500	1.4507	2.0000	0.0310	0.0394	6	943-000-380
0.1250	0.2500	1.4432	2.0000	0.0310	0.0469	6	943-000-381
0.1250	0.2500	1.4275	2.0000	0.0310	0.0625	6	943-000-382
0.1875	0.2500	1.4393	2.0000	0.0468	0.0156	6	943-000-383
0.1875	0.2500	1.4236	2.0000	0.0468	0.0313	6	943-000-384
0.1875	0.2500	1.4155	2.0000	0.0468	0.0394	6	943-000-385
0.1875	0.2500	1.4080	2.0000	0.0468	0.0469	6	943-000-386
0.1875	0.2500	1.3924	2.0000	0.0468	0.0625	6	943-000-387
0.2500	0.2500	1.4971	2.0000	0.0625	0.0156	8	943-000-388
0.2500	0.2500	1.4815	2.0000	0.0625	0.0313	8	943-000-389
0.2500	0.2500	1.4734	2.0000	0.0625	0.0394	8	943-000-390
0.2500	0.2500	1.4659	2.0000	0.0625	0.0469	8	943-000-391
0.2500	0.2500	1.4502	2.0000	0.0625	0.0625	8	943-000-392
0.3125	0.3750	1.3236	2.0000	0.0778	0.0156	8	943-000-393
0.3125	0.3750	1.3079	2.0000	0.0778	0.0313	8	943-000-394
0.3125	0.3750	1.2998	2.0000	0.0778	0.0394	8	943-000-395
0.3125	0.3750	1.2923	2.0000	0.0778	0.0469	8	943-000-396
0.3125	0.3750	1.2767	2.0000	0.0778	0.0625	8	943-000-397
0.3125	0.3750	1.2604	2.0000	0.0778	0.0787	8	943-000-398
0.3125	0.3750	1.2454	2.0000	0.0778	0.0938	8	943-000-399
0.3750	0.3750	1.3814	2.0000	0.0935	0.0156	8	943-000-400
0.3750	0.3750	1.3658	2.0000	0.0935	0.0313	8	943-000-401
0.3750	0.3750	1.3577	2.0000	0.0935	0.0394	8	943-000-402
0.3750	0.3750	1.3502	2.0000	0.0935	0.0469	8	943-000-403
0.3750	0.3750	1.3345	2.0000	0.0935	0.0625	8	943-000-404
0.3750	0.3750	1.3183	2.0000	0.0935	0.0787	8	943-000-405
0.3750	0.3750	1.3033	2.0000	0.0935	0.0938	8	943-000-406
0.3750	0.3750	1.2720	2.0000	0.0935	0.1250	8	943-000-407

Ø .125" - .375"

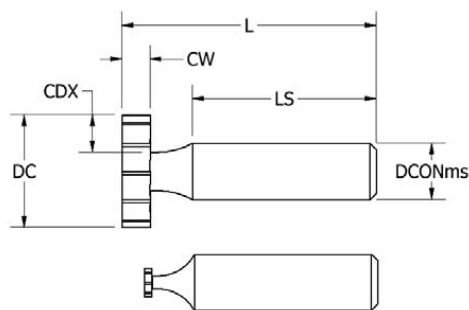


DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	UNCOATED	TIAlN COATED
						6 FLUTE	6 FLUTE
0.1250	0.2500	1.4744	2.0000	0.0310	0.0156	943-000-378	943-001-143
0.1250	0.2500	1.4588	2.0000	0.0310	0.0313	943-000-379	943-001-146
0.1250	0.2500	1.4507	2.0000	0.0310	0.0394	943-000-380	943-001-149
0.1250	0.2500	1.4432	2.0000	0.0310	0.0469	943-000-381	943-001-152
0.1250	0.2500	1.4275	2.0000	0.0310	0.0625	943-000-382	943-001-155
0.1250	0.2500	1.3963	2.0000	0.0310	0.0938	943-000-845	943-000-908
0.1250	0.2500	1.3650	2.0000	0.0310	0.1250	943-000-846	943-000-909
0.1875	0.2500	1.4393	2.0000	0.0468	0.0156	943-000-383	943-001-158
0.1875	0.2500	1.4236	2.0000	0.0468	0.0313	943-000-384	943-001-161
0.1875	0.2500	1.4155	2.0000	0.0468	0.0394	943-000-385	943-001-164
0.1875	0.2500	1.4080	2.0000	0.0468	0.0469	943-000-386	943-001-167
0.1875	0.2500	1.3924	2.0000	0.0468	0.0625	943-000-387	943-001-170
0.1875	0.2500	1.3611	2.0000	0.0468	0.0938	943-000-851	943-000-915
0.1875	0.2500	1.3299	2.0000	0.0468	0.1250	943-000-852	943-000-916
0.1875	0.2500	1.2674	2.0000	0.0468	0.1875	943-000-853	943-000-917



DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	UNCOATED	AlTiN COATED	TIAlN COATED
						8 FLUTE	8 FLUTE	8 FLUTE
0.2500	0.2500	1.4971	2.0000	0.0625	0.0156	943-000-388	943-000-971	943-001-173
0.2500	0.2500	1.4815	2.0000	0.0625	0.0313	943-000-389	943-000-972	943-001-176
0.2500	0.2500	1.4734	2.0000	0.0625	0.0394	943-000-390	943-000-973	943-001-179
0.2500	0.2500	1.4502	2.0000	0.0625	0.0625	943-000-392	943-000-974	943-001-182
0.2500	0.2500	1.4502	2.0000	0.0625	0.0625	943-000-854	943-000-975	943-001-185
0.2500	0.2500	1.3877	2.0000	0.0625	0.1250	943-000-855	943-000-976	943-000-923
0.2500	0.2500	1.3252	2.0000	0.0625	0.1875	943-000-856	943-000-977	943-000-924
0.2500	0.2500	1.2627	2.0000	0.0625	0.2500	943-000-857	943-000-978	943-000-925
0.3125	0.3750	1.3236	2.0000	0.0778	0.0156	943-000-393	943-000-979	943-001-188
0.3125	0.3750	1.3079	2.0000	0.0778	0.0313	943-000-394	943-000-980	943-001-191
0.3125	0.3750	1.2998	2.0000	0.0778	0.0394	943-000-395	943-000-981	943-001-194
0.3125	0.3750	1.2923	2.0000	0.0778	0.0469	943-000-396	943-000-982	943-001-197
0.3125	0.3750	1.2767	2.0000	0.0778	0.0625	943-000-397	943-000-983	943-001-200
0.3125	0.3750	1.2604	2.0000	0.0778	0.0787	943-000-398	943-000-984	943-001-203
0.3125	0.3750	1.2454	2.0000	0.0778	0.0938	943-000-399	943-000-985	943-001-206
0.3750	0.3750	1.3814	2.0000	0.0935	0.0156	943-000-400	943-000-986	943-001-209
0.3750	0.3750	1.3658	2.0000	0.0935	0.0313	943-000-401	943-000-987	943-001-212
0.3750	0.3750	1.3577	2.0000	0.0935	0.0394	943-000-402	943-000-988	943-001-215
0.3750	0.3750	1.3502	2.0000	0.0935	0.0469	943-000-403	943-000-989	943-001-218
0.3750	0.3750	1.3345	2.0000	0.0935	0.0625	943-000-404	943-000-990	943-001-221
0.3750	0.3750	1.3183	2.0000	0.0935	0.0787	943-000-405	943-000-991	943-001-224
0.3750	0.3750	1.3033	2.0000	0.0935	0.0938	943-000-406	943-000-992	943-001-227
0.3750	0.3750	1.2720	2.0000	0.0935	0.1250	943-000-407	943-000-993	943-001-231

CARBIDE



CARBIDE HEAD/STEEL SHANK

American Standard#	DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc	PRODUCT #
204	0.5100	0.5000	1.6250	2.0625	0.1460	0.0625	10	943-000-343
304	0.5100	0.5000	1.6250	2.0938	0.1460	0.0938	10	943-000-344
404	0.5100	0.5000	1.6250	2.1250	0.1460	0.1250	10	943-000-345
305	0.6350	0.5000	1.6250	2.0938	0.1925	0.0938	10	943-000-346
405	0.6350	0.5000	1.6250	2.1250	0.1925	0.1250	10	943-000-347
505	0.6350	0.5000	1.6250	2.1563	0.1770	0.1563	10	943-000-348
605	0.6350	0.5000	1.6250	2.1875	0.1770	0.1875	10	943-000-349
406	0.7600	0.5000	1.6250	2.1250	0.2550	0.1250	10	943-000-350
506	0.7600	0.5000	1.6250	2.1563	0.2550	0.1563	10	943-000-351
606	0.7600	0.5000	1.6250	2.1875	0.2395	0.1875	10	943-000-352
806	0.7600	0.5000	1.6250	2.2500	0.2395	0.2500	10	943-000-353
507	0.8970	0.5000	1.6250	2.1563	0.3080	0.1563	12	943-000-354
607	0.8970	0.5000	1.6250	2.1875	0.3080	0.1875	12	943-000-355
707	0.8970	0.5000	1.6250	2.2188	0.2925	0.2188	12	943-000-356
807	0.8970	0.5000	1.6250	2.2500	0.2925	0.2500	12	943-000-357
608	1.0120	0.5000	1.6250	2.1875	0.3500	0.1875	12	943-000-358
708	1.0120	0.5000	1.6250	2.2188	0.3500	0.2188	12	943-000-359
808	1.0120	0.5000	1.6250	2.2500	0.3500	0.2500	12	943-000-360
1008	1.0120	0.5000	1.6250	2.3125	0.3345	0.3125	12	943-000-361
1208	1.0120	0.5000	1.6250	2.3750	0.3345	0.3750	12	943-000-362

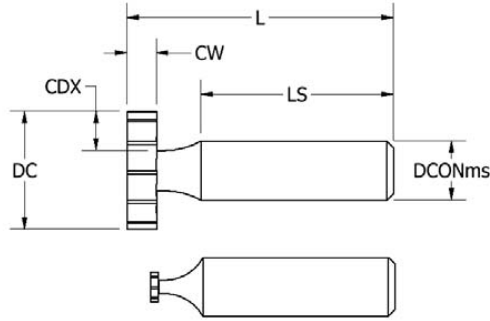


SOLID CARBIDE

American Standard#	DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc	PRODUCT #
609	1.1370	0.5000	1.6250	2.1875	0.3970	0.1875	12	943-000-363
709	1.1370	0.5000	1.6250	2.2188	0.3970	0.2188	12	943-000-364
809	1.1370	0.5000	1.6250	2.2500	0.3810	0.2500	12	943-000-365
1009	1.1370	0.5000	1.6250	2.3125	0.3810	0.3125	12	943-000-366
610	1.2650	0.5000	1.6250	2.1875	0.4610	0.1875	14	943-000-367
710	1.2650	0.5000	1.6250	2.2188	0.4610	0.2188	14	943-000-368
810	1.2650	0.5000	1.6250	2.2500	0.4450	0.2500	14	943-000-369
1010	1.2650	0.5000	1.6250	2.3125	0.4140	0.3125	14	943-000-370
1210	1.2650	0.5000	1.6250	2.3750	0.3985	0.3750	14	943-000-371
811	1.3900	0.5000	1.6250	2.2500	0.4945	0.2500	14	943-000-372
1011	1.3900	0.5000	1.6250	2.3125	0.4610	0.3125	14	943-000-373
1211	1.3900	0.5000	1.6250	2.3750	0.4610	0.3750	14	943-000-374
812	1.5150	0.5000	1.6250	2.2500	0.5400	0.2500	14	943-000-375
1012	1.5150	0.5000	1.6250	2.3125	0.5235	0.3125	14	943-000-376
1212	1.5150	0.5000	1.6250	2.3750	0.5235	0.3750	14	943-000-377



CARBIDE

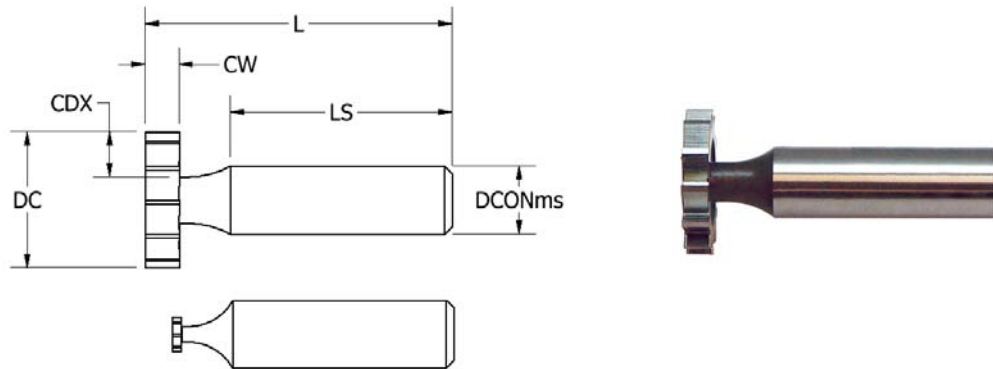


CARBIDE TIPPED

American Standard#	DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc	Straight Tooth	Stagger Tooth
204	0.5100	0.5000	1.6250	2.0625	0.1875	0.0625	6	943-000-640	943-000-641
304	0.5100	0.5000	1.6250	2.0938	0.1750	0.0938	6	943-000-645	943-000-646
404	0.5100	0.5000	1.6250	2.1250	0.1595	0.1250	6	943-000-650	943-000-651
305	0.6350	0.5000	1.6250	2.0938	0.2220	0.0938	6	943-000-655	943-000-656
405	0.6350	0.5000	1.6250	2.1250	0.2060	0.1250	6	943-000-660	943-000-661
505	0.6350	0.5000	1.6250	2.1563	0.1910	0.1563	6	943-000-665	943-000-666
605	0.6350	0.5000	1.6250	2.1875	0.1910	0.1875	6	943-000-670	943-000-671
406	0.7600	0.5000	1.6250	2.1250	0.2715	0.1250	6	943-000-675	943-000-676
506	0.7600	0.5000	1.6250	2.1563	0.2565	0.1563	6	943-000-680	943-000-681
606	0.7600	0.5000	1.6250	2.1875	0.2405	0.1875	6	943-000-685	943-000-686
806	0.7600	0.5000	1.6250	2.2500	0.2405	0.2500	6	943-000-690	943-000-691
507	0.8970	0.5000	1.6250	2.1563	0.3250	0.1563	6	943-000-695	943-000-696
607	0.8970	0.5000	1.6250	2.1875	0.3090	0.1875	6	943-000-700	943-000-701
707	0.8970	0.5000	1.6250	2.2188	0.3090	0.2188	6	943-000-705	943-000-706
807	0.8970	0.5000	1.6250	2.2500	0.2775	0.2500	6	943-000-710	943-000-711
608	1.0120	0.5000	1.6250	2.1875	0.3665	0.1875	8	943-000-715	943-000-716
708	1.0120	0.5000	1.6250	2.2188	0.3665	0.2188	8	943-000-720	943-000-721
808	1.0120	0.5000	1.6250	2.2500	0.3350	0.2500	8	943-000-725	943-000-726
1008	1.0120	0.5000	1.6250	2.3125	0.3055	0.3125	8	943-000-730	943-000-731
1208	1.0120	0.5000	1.6250	2.3750	0.3055	0.3750	8	943-000-735	943-000-736
609	1.1370	0.5000	1.6250	2.1875	0.4125	0.1875	8	943-000-740	943-000-741
709	1.1370	0.5000	1.6250	2.2188	0.4125	0.2188	8	943-000-745	943-000-746
809	1.1370	0.5000	1.6250	2.2500	0.3820	0.2500	8	943-000-750	943-000-751
1009	1.1370	0.5000	1.6250	2.3125	0.3510	0.3125	8	943-000-755	943-000-756
610	1.2650	0.5000	1.6250	2.1875	0.4460	0.1875	8	943-000-760	943-000-761
710	1.2650	0.5000	1.6250	2.2188	0.4460	0.2188	8	943-000-765	943-000-766
810	1.2650	0.5000	1.6250	2.2500	0.4460	0.2500	8	943-000-770	943-000-771
1010	1.2650	0.5000	1.6250	2.3125	0.4150	0.3125	8	943-000-775	943-000-776
1210	1.2650	0.5000	1.6250	2.3750	0.3990	0.3750	8	943-000-780	943-000-781
811	1.3900	0.5000	1.6250	2.2500	0.4945	0.2500	8	943-000-785	943-000-786
1011	1.3900	0.5000	1.6250	2.3125	0.4615	0.3125	8	943-000-790	943-000-791
1211	1.3900	0.5000	1.6250	2.3750	0.4615	0.3750	8	943-000-795	943-000-796
812	1.5150	0.5000	1.6250	2.2500	0.5400	0.2500	8	943-000-800	943-000-801
1012	1.5150	0.5000	1.6250	2.3125	0.5240	0.3125	8	943-000-805	943-000-806
1212	1.5150	0.5000	1.6250	2.3750	0.5240	0.3750	8	943-000-809	943-000-810



HSS

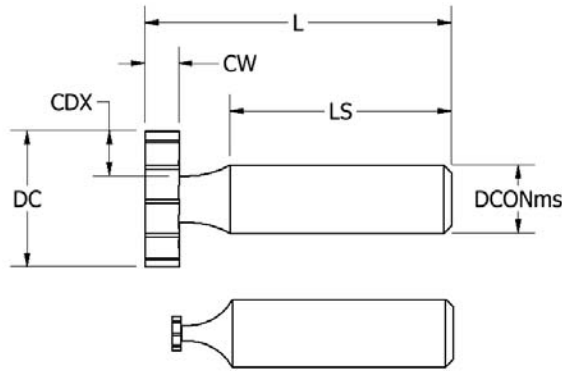


American Standard#	DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc		STRAIGHT TOOTH	STAGGER TOOTH
							STRAIGHT	STAGGERED		
202	0.2600	0.5000	1.6250	2.0625	0.0750	0.0625	8	6	943-000-001	943-000-005
202 1/2	0.3225	0.5000	1.6250	2.0625	0.1063	0.0625	8	6	943-000-009	943-000-013
302 1/2	0.3225	0.5000	1.6250	2.0938	0.1063	0.0938	8	6	943-000-017	943-000-021
203	0.3850	0.5000	1.6250	2.0625	0.1375	0.0625	8	6	943-000-025	943-000-029
303	0.3850	0.5000	1.6250	2.0938	0.1375	0.0938	8	6	943-000-033	943-000-037
403	0.3850	0.5000	1.6250	2.1250	0.1275	0.1250	8	6	943-000-041	943-000-045
204	0.5100	0.5000	1.6250	2.0625	0.1900	0.0625	10	8	943-000-049	943-000-053
304	0.5100	0.5000	1.6250	2.0938	0.1750	0.0938	10	8	943-000-057	943-000-061
404	0.5100	0.5000	1.6250	2.1250	0.1595	0.1250	10	8	943-000-065	943-000-069
305	0.6350	0.5000	1.6250	2.0938	0.2220	0.0938	10	8	943-000-073	943-000-077
405	0.6350	0.5000	1.6250	2.1250	0.2060	0.1250	10	8	943-000-081	943-000-085
505	0.6350	0.5000	1.6250	2.1563	0.1910	0.1563	10	8	943-000-089	943-000-093
605	0.6350	0.5000	1.6250	2.1875	0.1910	0.1875	10	8	943-000-097	943-000-101
406	0.7600	0.5000	1.6250	2.1250	0.2685	0.1250	10	8	943-000-105	943-000-109
506	0.7600	0.5000	1.6250	2.1563	0.2535	0.1563	10	8	943-000-113	943-000-117
606	0.7600	0.5000	1.6250	2.1875	0.2405	0.1875	10	8	943-000-121	943-000-125
806	0.7600	0.5000	1.6250	2.2500	0.2405	0.2500	10	8	943-000-129	943-000-133

DC(Cutter Diameter)		
1/4" up to and including 3/4"	+0.010"	+0.015"
7/8" up to and including 1-1/8"	+0.012"	+0.017"
1-1/4" up to and including 1-1/2"	+0.015"	+0.020"
DCONMS(Shank Diameter)		
	-0.0001"	-0.0005"

CW(Width)		
1/16" up to and including 5/32"	+0.0000"	-0.0005"
3/16" up to and including 7/32"	-0.0002"	-0.0007"
1/4"	-0.0003"	-0.0008"
5/16"	-0.0004"	-0.0009"
3/8"	-0.0005"	-0.0010"

For set information see **page 256**



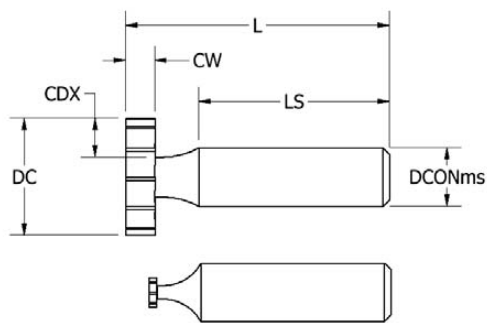
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American Standard#	DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc		STRAIGHT TOOTH	STAGGER TOOTH
							STRAIGHT	STAGGERED		
507	0.8970	0.5000	1.6250	2.1563	0.3250	0.1563	12	10	943-000-137	943-000-141
607	0.8970	0.5000	1.6250	2.1875	0.3090	0.1875	12	10	943-000-145	943-000-149
707	0.8970	0.5000	1.6250	2.2188	0.3090	0.2188	12	10	943-000-153	943-000-157
807	0.8970	0.5000	1.6250	2.2500	0.2775	0.2500	12	10	943-000-161	943-000-165
608	1.0120	0.5000	1.6250	2.1875	0.3665	0.1875	12	10	943-000-169	943-000-173
708	1.0120	0.5000	1.6250	2.2188	0.3350	0.2188	12	10	943-000-177	943-000-181
808	1.0120	0.5000	1.6250	2.2500	0.3350	0.2500	12	10	943-000-185	943-000-189
1008	1.0120	0.5000	1.6250	2.3125	0.3055	0.3125	12	10	943-000-193	943-000-197
1208	1.0120	0.5000	1.6250	2.3750	0.3055	0.3750	12	10	943-000-201	943-000-205
609	1.1370	0.5000	1.6250	2.1875	0.4125	0.1875	12	10	943-000-209	943-000-213
709	1.1370	0.5000	1.6250	2.2188	0.4125	0.2188	12	10	943-000-217	943-000-221
809	1.1370	0.5000	1.6250	2.2500	0.3810	0.2500	12	10	943-000-225	943-000-229
1009	1.1370	0.5000	1.6250	2.3125	0.3510	0.3125	12	10	943-000-233	943-000-237
610	1.2650	0.5000	1.6250	2.1875	0.4765	0.1875	14	12	943-000-241	943-000-245
710	1.2650	0.5000	1.6250	2.2188	0.4450	0.2188	14	12	943-000-249	943-000-253
810	1.2650	0.5000	1.6250	2.2500	0.4450	0.2500	14	12	943-000-257	943-000-261
1010	1.2650	0.5000	1.6250	2.6250	0.4150	0.3125	14	12	943-000-265	943-000-269
1210	1.2650	0.5000	1.6250	2.3750	0.3990	0.3750	14	12	943-000-273	943-000-277
811	1.3900	0.5000	1.6250	2.2500	0.4945	0.2500	14	12	943-000-281	943-000-285
1011	1.3900	0.5000	1.6250	2.3125	0.4615	0.3125	14	12	943-000-289	943-000-293
1211	1.3900	0.5000	1.6250	2.3750	0.4615	0.3750	14	12	943-000-297	943-000-301
812	1.5150	0.5000	1.6250	2.2500	0.5400	0.2500	16	14	943-000-305	943-000-309
1012	1.5150	0.5000	1.6250	2.3125	0.5240	0.3125	16	14	943-000-313	943-000-317
1212	1.5150	0.5000	1.6250	2.3750	0.5240	0.3750	16	14	943-000-321	943-000-325

DC(Cutter Diameter)		
1/4" up to and including 3/4"	+0.010"	+0.015"
7/8" up to and including 1-1/8"	+0.012"	+0.017"
1-1/4" up to and including 1-1/2"	+0.015"	+0.020"
DCONMS(Shank Diameter)		
	-0.0001"	-0.0005"

CW(Width)		
1/16" up to and including 5/32"	+0.0000"	-0.0005"
3/16" up to and including 7/32"	-0.0002"	-0.0007"
1/4"	-0.0003"	-0.0008"
5/16"	-0.0004"	-0.0009"
3/8"	-0.0005"	-0.0010"

For set information see page 256

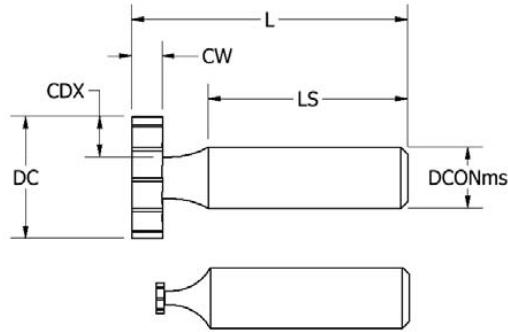


LEFT HAND

American Standard#	DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc	Straight Tooth
202	0.2600	0.5000	1.6250	2.0625	0.0750	0.0625	8	943-000-618
202 1/2	0.3225	0.5000	1.6250	2.0625	0.1063	0.0625	8	943-000-621
302 1/2	0.3225	0.5000	1.6250	2.0938	0.1063	0.0938	8	943-000-624
203	0.3850	0.5000	1.6250	2.0625	0.1375	0.0625	8	943-000-627
303	0.3850	0.5000	1.6250	2.0938	0.1375	0.0938	8	943-000-630
403	0.3850	0.5000	1.6250	2.1250	0.1275	0.1250	8	943-000-633
204	0.5100	0.5000	1.6250	2.0625	0.1900	0.0625	10	943-000-636
304	0.5100	0.5000	1.6250	2.0938	0.1750	0.0938	10	943-000-639
404	0.5100	0.5000	1.6250	2.1250	0.1595	0.1250	10	943-000-649
305	0.6350	0.5000	1.6250	2.0938	0.2220	0.0938	10	943-000-644
405	0.6350	0.5000	1.6250	2.1250	0.2060	0.1250	10	943-000-654
505	0.6350	0.5000	1.6250	2.1563	0.1910	0.1563	10	943-000-664
605	0.6350	0.5000	1.6250	2.1875	0.1910	0.1875	10	943-000-669
406	0.7600	0.5000	1.6250	2.1250	0.2685	0.1250	10	943-000-659
506	0.7600	0.5000	1.6250	2.1563	0.2535	0.1563	10	943-000-674
606	0.7600	0.5000	1.6250	2.1875	0.2405	0.1875	10	943-000-689
806	0.7600	0.5000	1.6250	2.2500	0.2405	0.2500	10	943-000-679
507	0.8970	0.5000	1.6250	2.1563	0.3250	0.1563	12	943-000-684
607	0.8970	0.5000	1.6250	2.1875	0.3090	0.1875	12	943-000-694
707	0.8970	0.5000	1.6250	2.2188	0.3090	0.2188	12	943-000-699
807	0.8970	0.5000	1.6250	2.2500	0.2775	0.2500	12	943-000-724
608	1.0120	0.5000	1.6250	2.1875	0.3665	0.1875	12	943-000-704
708	1.0120	0.5000	1.6250	2.2188	0.3350	0.2188	12	943-000-709
808	1.0120	0.5000	1.6250	2.2500	0.3350	0.2500	12	943-000-729
1008	1.0120	0.5000	1.6250	2.3125	0.3055	0.3125	12	943-000-769
1208	1.0120	0.5000	1.6250	2.3750	0.3055	0.3750	12	943-000-714
609	1.1370	0.5000	1.6250	2.1875	0.4125	0.1875	12	943-000-719
709	1.1370	0.5000	1.6250	2.2188	0.4125	0.2188	12	943-000-734
809	1.1370	0.5000	1.6250	2.2500	0.3810	0.2500	12	943-000-739
1009	1.1370	0.5000	1.6250	2.3125	0.3510	0.3125	12	943-000-774
610	1.2650	0.5000	1.6250	2.1875	0.4765	0.1875	14	943-000-744
710	1.2650	0.5000	1.6250	2.2188	0.4450	0.2188	14	943-000-749
810	1.2650	0.5000	1.6250	2.2500	0.4450	0.2500	14	943-000-754
1010	1.2650	0.5000	1.6250	2.3125	0.4150	0.3125	14	943-000-779
1210	1.2650	0.5000	1.6250	2.3750	0.3990	0.3750	14	943-000-794
811	1.3900	0.5000	1.6250	2.2500	0.4945	0.2500	14	943-000-759
1011	1.3900	0.5000	1.6250	2.3125	0.4615	0.3125	14	943-000-784
1211	1.3900	0.5000	1.6250	2.3750	0.4615	0.3750	14	943-000-799
812	1.5150	0.5000	1.6250	2.2500	0.5400	0.2500	16	943-000-764
1012	1.5150	0.5000	1.6250	2.3125	0.5240	0.3125	16	943-000-789
1212	1.5150	0.5000	1.6250	2.3750	0.5240	0.3750	16	943-000-804

For set information see **page 256**

HSS



American Standard#	DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc		STRAIGHT TOOTH	STAGGER TOOTH
							STRAIGHT	STAGGERED		
202	0.2600	0.5000	1.6250	2.0625	0.0750	0.0625	8	6	943-000-619	943-000-620
202 1/2	0.3225	0.5000	1.6250	2.0625	0.1063	0.0625	8	6	943-000-622	943-000-623
302 1/2	0.3225	0.5000	1.6250	2.0938	0.1063	0.0938	8	6	943-000-625	943-000-626
203	0.3850	0.5000	1.6250	2.0625	0.1375	0.0625	8	6	943-000-628	943-000-629
303	0.3850	0.5000	1.6250	2.0938	0.1375	0.0938	8	6	943-000-631	943-000-632
403	0.3850	0.5000	1.6250	2.1250	0.1275	0.1250	8	6	943-000-634	943-000-635
204	0.5100	0.5000	1.6250	2.0625	0.1900	0.0625	10	8	943-000-637	943-000-638
304	0.5100	0.5000	1.6250	2.0938	0.1750	0.0938	10	8	943-000-642	943-000-643
404	0.5100	0.5000	1.6250	2.1250	0.1595	0.1250	10	8	943-000-652	943-000-653
305	0.6350	0.5000	1.6250	2.0938	0.2220	0.0938	10	8	943-000-647	943-000-648
405	0.5100	0.5000	1.6250	2.1250	0.1595	0.1250	10	8	943-000-657	943-000-658
505	0.6350	0.5000	1.6250	2.1563	0.1910	0.1563	10	8	943-000-667	943-000-668
605	0.6350	0.5000	1.6250	2.1875	0.1910	0.1875	10	8	943-000-672	943-000-673
406	0.7600	0.5000	1.6250	2.1250	0.2685	0.1250	10	8	943-000-662	943-000-663
506	0.7600	0.5000	1.6250	2.1563	0.2535	0.1563	10	8	943-000-677	943-000-678
606	0.7600	0.5000	1.6250	2.1875	0.2405	0.1875	10	8	943-000-692	943-000-693
806	0.7600	0.5000	1.6250	2.2500	0.2405	0.2500	10	8	943-000-682	943-000-683
507	0.8970	0.5000	1.6250	2.1563	0.3250	0.1563	12	10	943-000-687	943-000-688
607	0.8970	0.5000	1.6250	2.1875	0.3090	0.1875	12	10	943-000-697	943-000-698
707	0.8970	0.5000	1.6250	2.2188	0.3090	0.2188	12	10	943-000-702	943-000-703
807	0.8970	0.5000	1.6250	2.2500	0.2775	0.2500	12	10	943-000-727	943-000-728
608	1.0120	0.5000	1.6250	2.1875	0.3665	0.1875	12	10	943-000-707	943-000-708
708	1.0120	0.5000	1.6250	2.2188	0.3350	0.2188	12	10	943-000-712	943-000-713
808	1.0120	0.5000	1.6250	2.2500	0.3350	0.2500	12	10	943-000-732	943-000-733
1008	1.0120	0.5000	1.6250	2.3125	0.3055	0.3125	12	10	943-000-772	943-000-773
1208	1.0120	0.5000	1.6250	2.3750	0.3055	0.3750	12	10	943-000-717	943-000-718
609	1.1370	0.5000	1.6250	2.1875	0.4125	0.1875	12	10	943-000-722	943-000-723
709	1.1370	0.5000	1.6250	2.2188	0.4125	0.2188	12	10	943-000-737	943-000-738
809	1.1370	0.5000	1.6250	2.2500	0.3810	0.2500	12	10	943-000-742	943-000-743
1009	1.1370	0.5000	1.6250	2.3125	0.3510	0.3125	12	10	943-000-777	943-000-778
610	1.2650	0.5000	1.6250	2.1875	0.4765	0.1875	14	12	943-000-747	943-000-748
710	1.2650	0.5000	1.6250	2.2188	0.4450	0.2188	14	12	943-000-752	943-000-753
810	1.2650	0.5000	1.6250	2.2500	0.4450	0.2500	14	12	943-000-757	943-000-758
1010	1.2650	0.5000	1.6250	2.3125	0.4150	0.3125	14	12	943-000-782	943-000-783
1210	1.2650	0.5000	1.6250	2.3750	0.3990	0.3750	14	12	943-000-797	943-000-798
811	1.3900	0.5000	1.6250	2.2500	0.4945	0.2500	14	12	943-000-762	943-000-763
1011	1.3900	0.5000	1.6250	2.3125	0.4615	0.3125	14	12	943-000-787	943-000-788
1211	1.3900	0.5000	1.6250	2.3750	0.4615	0.3750	14	12	943-000-802	943-000-803
812	1.5150	0.5000	1.6250	2.2500	0.5400	0.2500	16	14	943-000-767	943-000-768
1012	1.5150	0.5000	1.6250	2.3125	0.5240	0.3125	16	14	943-000-792	943-000-793
1212	1.5150	0.5000	1.6250	2.3750	0.5240	0.3750	16	14	943-000-807	943-000-808

For set information see page 256



HSS



10-PIECE WOODRUFF KEYSEAT CUTTER SETS

TEETH SET	PRODUCT #
STRAIGHT	943-000-337
STAGGERED	943-000-338

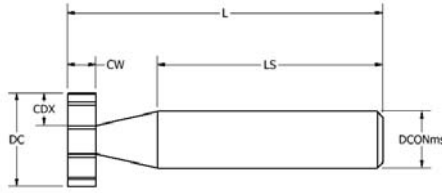
AMERICAN STANDARD SIZES	
403	406
204	606
404	806
305	608
505	808

Many tools are available with additional coatings.
Please call for quote.

**41-PIECE WOODRUFF
KEYSEAT CUTTER SETS**

TEETH SET	PRODUCT #
STRAIGHT	943-000-329
STAGGERED	943-000-330

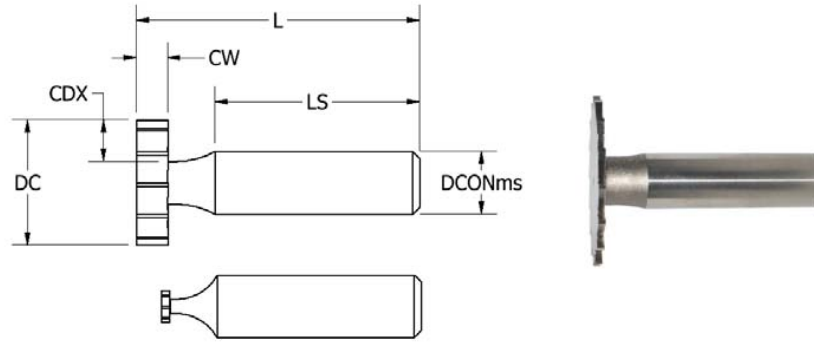




HSS

Tolerance	h12	h8	[+2/-0]	[js18]	e8								
DIN850 DESIGNATION	DC [mm]	DCONMS [mm]	LS [mm]	L [mm]	CDX [mm]	CW [mm]	Material	Zc	Hand of Cut	UNCOATED	TiN COATED	TiAlN COATED	
A 4,5 x 1	4.50	6.00	36.00	50.00	1.35	1.00	HSS	6	R	943-000-480	943-001-452	943-001-450	
B 4,5 x 1	4.50	6.00	36.00	50.00	1.35	1.00	HSS	4	R	943-000-481	943-001-455	943-001-453	
A 7,5 x 1,5	7.50	6.00	36.00	50.00	2.35	1.50	HSS	8	R	943-000-482	943-001-458	943-001-456	
B 7,5 x 1,5	7.50	6.00	36.00	50.00	2.35	1.50	HSS	6	R	943-000-483	943-001-461	943-001-459	
A 7,5 x 2	7.50	6.00	36.00	50.00	2.15	2.00	HSS	8	R	943-000-484	943-001-464	943-001-462	
B 7,5 x 2	7.50	6.00	36.00	50.00	2.15	2.00	HSS	6	R	943-000-485	943-001-467	943-001-465	
A 10,5 x 2	10.50	6.00	36.00	50.00	3.25	2.00	HSS	8	R	943-000-486	943-001-470	943-001-468	
B 10,5 x 2	10.00	6.00	36.00	50.00	3.00	2.00	HSS	6	R	943-000-487	943-001-473	943-001-471	
A 10,5 x 2,5	10.50	6.00	36.00	50.00	3.25	2.50	HSS	8	R	943-000-488	943-001-476	943-001-474	
B 10,5 x 2,5	10.50	6.00	36.00	50.00	3.25	2.50	HSS	6	R	943-000-489	943-001-479	943-001-477	
A 10,5 x 3	10.50	6.00	36.00	50.00	3.15	3.00	HSS	8	R	943-000-490	943-001-482	943-001-480	
B 10,5 x 3	10.50	6.00	36.00	50.00	3.15	3.00	HSS	6	R	943-000-491	943-001-485	943-001-483	
A 13,5 x 3	13.50	10.00	40.00	56.00	4.45	3.00	HSS	10	R	943-000-492	943-001-488	943-001-486	
B 13,5 x 3	13.50	10.00	40.00	56.00	4.45	3.00	HSS	8	R	943-000-493	943-001-491	943-001-489	
A 13,5 x 4	13.50	10.00	40.00	56.00	4.45	4.00	HSS	10	R	943-000-494	943-001-494	943-001-492	
B 13,5 x 4	13.50	10.00	40.00	56.00	4.45	4.00	HSS	8	R	943-000-495	943-001-497	943-001-495	
A 16,5 x 3	16.50	10.00	40.00	56.00	5.95	3.00	HSS	10	R	943-000-496	943-001-500	943-001-498	
B 16,5 x 3	16.50	10.00	40.00	56.00	5.95	3.00	HSS	8	R	943-000-497	943-001-503	943-001-501	
A 16,5 x 4	16.50	10.00	40.00	56.00	5.95	4.00	HSS	10	R	943-000-498	943-001-506	943-001-504	
B 16,5 x 4	16.50	10.00	40.00	56.00	5.95	4.00	HSS	8	R	943-000-499	943-001-509	943-001-507	
A 16,5 x 5	16.50	10.00	40.00	56.00	5.75	5.00	HSS	10	R	943-000-500	943-001-512	943-001-510	
B 16,5 x 5	16.50	10.00	40.00	56.00	5.75	5.00	HSS	8	R	943-000-501	943-001-515	943-001-513	
A 19,5 x 4	19.50	10.00	40.00	63.00	6.95	4.00	HSS	10	R	943-000-502	943-001-518	943-001-516	
B 19,5 x 4	19.50	10.00	40.00	63.00	6.95	4.00	HSS	8	R	943-000-503	943-001-521	943-001-519	
A 19,5 x 5	19.50	10.00	40.00	63.00	6.75	5.00	HSS	10	R	943-000-504	943-001-524	943-001-522	
B 19,5 x 5	19.50	10.00	40.00	63.00	6.75	5.00	HSS	8	R	943-000-505	943-001-527	943-001-525	
A 19,5 x 6	19.50	10.00	40.00	63.00	6.50	6.00	HSS	10	R	943-000-506	943-001-530	943-001-528	
B 19,5 x 6	19.50	10.00	40.00	63.00	6.50	6.00	HSS	8	R	943-000-507	943-001-533	943-001-531	
A 22,5 x 5	22.50	10.00	40.00	63.00	8.25	5.00	HSS	12	R	943-000-508	943-001-536	943-001-534	
B 22,5 x 5	22.50	10.00	40.00	63.00	8.25	5.00	HSS	10	R	943-000-509	943-001-539	943-001-537	
A 22,5 x 6	22.50	10.00	40.00	63.00	8.25	6.00	HSS	12	R	943-000-510	943-001-542	943-001-540	
B 22,5 x 6	22.50	10.00	40.00	63.00	8.25	6.00	HSS	10	R	943-000-511	943-001-545	943-001-543	
A 22,5 x 8	22.50	10.00	40.00	63.00	8.00	8.00	HSS	12	R	943-000-512	943-001-548	943-001-546	
B 22,5 x 8	22.50	10.00	40.00	63.00	8.00	8.00	HSS	10	R	943-000-513	943-001-551	943-001-549	
A 25,5 x 6	25.50	10.00	40.00	63.00	9.00	6.00	HSS	12	R	943-000-514	943-001-554	943-001-552	
B 25,5 x 6	25.50	10.00	40.00	63.00	9.00	6.00	HSS	10	R	943-000-515	943-001-557	943-001-555	
A 28,5 x 6	28.50	10.00	40.00	71.00	10.00	6.00	HSS	12	R	943-000-516	943-001-560	943-001-558	
B 28,5 x 6	28.50	10.00	40.00	71.00	10.00	6.00	HSS	10	R	943-000-517	943-001-563	943-001-561	
A 28,5 x 8	28.50	10.00	40.00	71.00	10.00	8.00	HSS	12	R	943-000-518	943-001-566	943-001-564	
B 28,5 x 8	28.50	10.00	40.00	71.00	10.00	8.00	HSS	10	R	943-000-519	943-001-569	943-001-567	
A 28,5 x 10	28.50	12.00	45.00	71.00	9.60	10.00	HSS	12	R	943-000-520	943-001-572	943-001-570	
B 28,5 x 10	28.50	12.00	45.00	71.00	9.60	10.00	HSS	10	R	943-000-521	943-001-575	943-001-573	
A 32,5 x 7	32.50	12.00	45.00	71.00	12.00	7.00	HSS	14	R	943-000-522	943-001-578	943-001-576	
B 32,5 x 7	32.50	12.00	45.00	71.00	12.00	7.00	HSS	12	R	943-000-523	943-001-581	943-001-579	
A 32,5 x 8	32.50	12.00	45.00	71.00	12.00	8.00	HSS	14	R	943-000-524	943-001-584	943-001-582	
B 32,5 x 8	32.50	12.00	45.00	71.00	12.00	8.00	HSS	12	R	943-000-525	943-001-587	943-001-585	
A 32,5 x 10	32.50	12.00	45.00	71.00	11.60	10.00	HSS	14	R	943-000-526	943-001-590	943-001-588	
B 32,5 x 10	32.50	12.00	45.00	71.00	11.60	10.00	HSS	12	R	943-000-527	943-001-593	943-001-591	
A 45,5 x 10	45.50	12.00	45.00	71.00	16.85	10.00	HSS	18	R	943-000-528	943-001-596	943-001-594	
B 45,5 x 10	45.50	12.00	45.00	71.00	16.85	10.00	HSS	16	R	943-000-529	943-001-599	943-001-597	

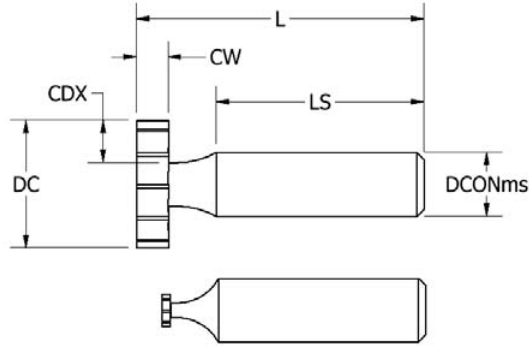
*DIN 850 - Form A: Straight Shank, Straight Teeth
*DIN 850 - Form B: Straight Shank, Staggered Teeth



NARROW WIDTH

DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc	PRODUCT #
0.2500	0.5000	1.6250	2.0156	0.0700	0.0156	8	943-000-533
0.2500	0.5000	1.6250	2.0200	0.0700	0.0200	8	943-000-530
0.2500	0.5000	1.6250	2.0313	0.0700	0.0313	8	943-000-534
0.2500	0.5000	1.6250	2.0469	0.0700	0.0469	8	943-000-535
0.3125	0.5000	1.6250	2.0156	0.1013	0.0156	8	943-000-536
0.3125	0.5000	1.6250	2.0200	0.1013	0.0200	8	943-000-531
0.3125	0.5000	1.6250	2.0313	0.1013	0.0313	8	943-000-537
0.3125	0.5000	1.6250	2.0469	0.1013	0.0469	8	943-000-538
0.3750	0.5000	1.6250	2.0156	0.1325	0.0156	8	943-000-539
0.3750	0.5000	1.6250	2.0200	0.1325	0.0200	8	943-000-532
0.3750	0.5000	1.6250	2.0313	0.1325	0.0313	8	943-000-540
0.3750	0.5000	1.6250	2.0469	0.1325	0.0469	8	943-000-541
0.5000	0.5000	1.6250	2.0156	0.1850	0.0156	10	943-000-542
0.5000	0.5000	1.6250	2.0200	0.1850	0.0200	10	943-000-543
0.5000	0.5000	1.6250	2.0313	0.1850	0.0313	10	943-000-544
0.5000	0.5000	1.6250	2.0469	0.1850	0.0469	10	943-000-545
0.6250	0.5000	1.6250	2.0200	0.2170	0.0200	10	943-000-546
0.6250	0.5000	1.6250	2.0313	0.2170	0.0313	10	943-000-547
0.6250	0.5000	1.6250	2.0469	0.2170	0.0469	10	943-000-548
0.6250	0.5000	1.6250	2.0625	0.2170	0.0625	10	943-000-549
0.6250	0.5000	1.6250	2.0781	0.2170	0.0781	10	943-000-550
0.7500	0.5000	1.6250	2.0313	0.2635	0.0313	10	943-000-551
0.7500	0.5000	1.6250	2.0469	0.2635	0.0469	10	943-000-552
0.7500	0.5000	1.6250	2.0625	0.2635	0.0625	10	943-000-553
0.7500	0.5000	1.6250	2.0781	0.2635	0.0781	10	943-000-554
0.7500	0.5000	1.6250	2.0938	0.2635	0.0938	10	943-000-555
0.7500	0.5000	1.6250	2.1094	0.2635	0.1094	10	943-000-556
0.8750	0.5000	1.6250	2.0313	0.3140	0.0313	12	943-000-557
0.8750	0.5000	1.6250	2.0469	0.3140	0.0469	12	943-000-558
0.8750	0.5000	1.6250	2.0625	0.3140	0.0625	12	943-000-559
0.8750	0.5000	1.6250	2.0781	0.3140	0.0781	12	943-000-560
0.8750	0.5000	1.6250	2.0938	0.3140	0.0938	12	943-000-561
0.8750	0.5000	1.6250	2.1094	0.3140	0.1094	12	943-000-562
0.8750	0.5000	1.6250	2.1250	0.3140	0.1250	12	943-000-563
0.8750	0.5000	1.6250	2.1406	0.3140	0.1406	12	943-000-564
1.0000	0.5000	1.6250	2.0313	0.3605	0.0313	12	943-000-565
1.0000	0.5000	1.6250	2.0469	0.3605	0.0469	12	943-000-566
1.0000	0.5000	1.6250	2.0625	0.3605	0.0625	12	943-000-567
1.0000	0.5000	1.6250	2.0781	0.3605	0.0781	12	943-000-568
1.0000	0.5000	1.6250	2.0938	0.3605	0.0938	12	943-000-569
1.0000	0.5000	1.6250	2.1094	0.3605	0.1094	12	943-000-570
1.0000	0.5000	1.6250	2.1250	0.3605	0.1250	12	943-000-571
1.0000	0.5000	1.6250	2.1406	0.3605	0.1406	12	943-000-572
1.0000	0.5000	1.6250	2.1563	0.3605	0.1563	12	943-000-573
1.0000	0.5000	1.6250	2.1719	0.3605	0.1719	12	943-000-574

HSS



Tolerance		
DC(Cutter Diameter)		
1/4" up to and including 3/4"	+0.010"	+0.015"
7/8" up to and including 1-1/8"	+0.012"	+0.017"
1-1/4" up to and including 1-1/2"	+0.015"	+0.020"
DCONMS(Shank Diameter)		
-0.0001"	-0.0005"	
CW(Width)		
+0.0005"	-0.0005"	



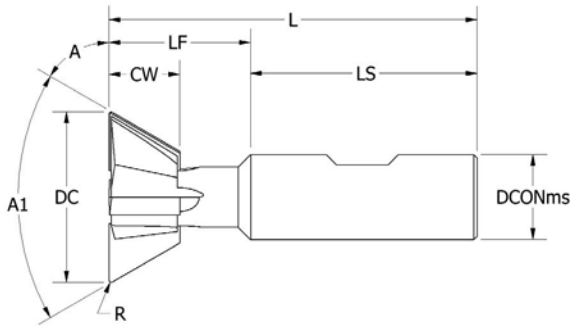
NARROW WIDTH

DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc	PRODUCT #
1.1250	0.5000	1.6250	2.0469	0.4065	0.0469	12	943-000-575
1.1250	0.5000	1.6250	2.0625	0.4065	0.0625	12	943-000-576
1.1250	0.5000	1.6250	2.0781	0.4065	0.0781	12	943-000-577
1.1250	0.5000	1.6250	2.0938	0.4065	0.0938	12	943-000-578
1.1250	0.5000	1.6250	2.1094	0.4065	0.1094	12	943-000-579
1.1250	0.5000	1.6250	2.1250	0.4065	0.1250	12	943-000-580
1.1250	0.5000	1.6250	2.1406	0.4065	0.1406	12	943-000-581
1.1250	0.5000	1.6250	2.1563	0.4065	0.1563	12	943-000-582
1.1250	0.5000	1.6250	2.1719	0.4065	0.1719	12	943-000-583
1.2500	0.5000	1.6250	2.0469	0.4690	0.0469	14	943-000-584
1.2500	0.5000	1.6250	2.0625	0.4690	0.0625	14	943-000-585
1.2500	0.5000	1.6250	2.0781	0.4690	0.0781	14	943-000-586
1.2500	0.5000	1.6250	2.0938	0.4690	0.0938	14	943-000-587
1.2500	0.5000	1.6250	2.1094	0.4690	0.1094	14	943-000-588
1.2500	0.5000	1.6250	2.1250	0.4690	0.1250	14	943-000-589
1.2500	0.5000	1.6250	2.1406	0.4690	0.1406	14	943-000-590
1.2500	0.5000	1.6250	2.1563	0.4690	0.1563	14	943-000-591
1.2500	0.5000	1.6250	2.1719	0.4690	0.1719	14	943-000-592
1.3750	0.5000	1.6250	2.0469	0.4870	0.0469	14	943-000-593
1.3750	0.5000	1.6250	2.0625	0.4870	0.0625	14	943-000-594
1.3750	0.5000	1.6250	2.0781	0.4870	0.0781	14	943-000-595
1.3750	0.5000	1.6250	2.0938	0.4870	0.0938	14	943-000-596
1.3750	0.5000	1.6250	2.1094	0.4870	0.1094	14	943-000-597
1.3750	0.5000	1.6250	2.1250	0.4870	0.1250	14	943-000-598
1.3750	0.5000	1.6250	2.1406	0.4870	0.1406	14	943-000-599
1.3750	0.5000	1.6250	2.1563	0.4870	0.1563	14	943-000-600
1.3750	0.5000	1.6250	2.1719	0.4870	0.1719	14	943-000-601
1.3750	0.5000	1.6250	2.1875	0.4870	0.1875	14	943-000-602
1.3750	0.5000	1.6250	2.2031	0.4870	0.2031	14	943-000-603
1.3750	0.5000	1.6250	2.2188	0.4870	0.2188	14	943-000-604
1.5000	0.5000	1.6250	2.0469	0.5325	0.0469	16	943-000-605
1.5000	0.5000	1.6250	2.0625	0.5325	0.0625	16	943-000-606
1.5000	0.5000	1.6250	2.0781	0.5325	0.0781	16	943-000-607
1.5000	0.5000	1.6250	2.0938	0.5325	0.0938	16	943-000-608
1.5000	0.5000	1.6250	2.1094	0.5325	0.1094	16	943-000-609
1.5000	0.5000	1.6250	2.1250	0.5325	0.1250	16	943-000-610
1.5000	0.5000	1.6250	2.1406	0.5325	0.1406	16	943-000-611
1.5000	0.5000	1.6250	2.1563	0.5325	0.1563	16	943-000-612
1.5000	0.5000	1.6250	2.1719	0.5325	0.1719	16	943-000-613
1.5000	0.5000	1.6250	2.1875	0.5325	0.1875	16	943-000-614
1.5000	0.5000	1.6250	2.2031	0.5325	0.2031	16	943-000-615
1.5000	0.5000	1.6250	2.2188	0.5325	0.2188	16	943-000-616
1.5000	0.5000	1.6250	2.2344	0.5325	0.2344	16	943-000-617

HSS

DOVETAIL CUTTERS

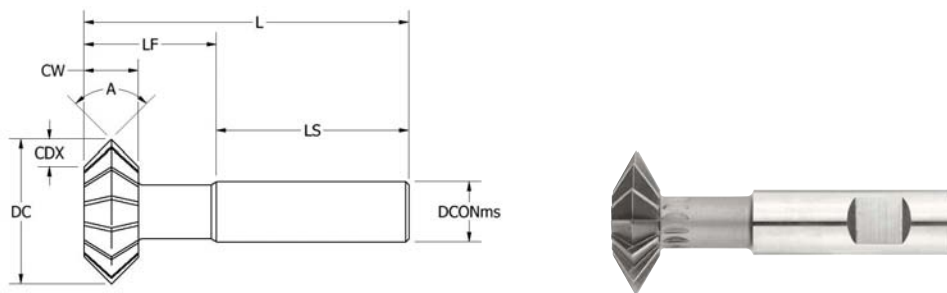
ARCH[®]
Cutting Tools



DC [in]	CW [in]	DCONMS [in]	L [in]	LF [in]	A [°]	A1 [°]	R [in]	Zc	Material	Hand of Cut	UNCOATED	TiN COATED	TiAIN COATED
0.3750	0.1250	0.3750	2.1250	0.3750	45.0	90.0	N/A	6	HSS	R	929-000-077	929-000-146	929-000-144
0.3750	0.1250	0.3750	2.1250	0.3750	45.0	90.0	N/A	6	HSS-Co	R	929-000-080	929-000-195	929-000-193
0.3750	0.1875	0.3750	2.1250	0.4375	60.0	60.0	N/A	8	HSS	R	929-000-001	929-000-004	929-000-002
0.3750	0.1875	0.3750	2.1250	0.4375	60.0	60.0	N/A	8	HSS-Co	R	929-000-081	929-000-198	929-000-196
0.5000	0.1250	0.3750	2.1250	0.4375	45.0	90.0	N/A	8	HSS	R	929-000-005	929-000-008	929-000-006
0.5000	0.1250	0.3750	2.1250	0.4375	45.0	90.0	N/A	8	HSS-Co	R	929-000-082	929-000-201	929-000-199
0.5000	0.1563	0.3750	2.1250	0.5625	45.0	90.0	0.0200	3	Carbide Tipped	R	929-000-061	929-000-098	929-000-096
0.5000	0.2188	0.3750	2.1250	0.4375	60.0	60.0	N/A	8	HSS	R	929-000-009	929-000-012	929-000-010
0.5000	0.2188	0.3750	2.1250	0.4375	60.0	60.0	N/A	8	HSS-Co	R	929-000-083	929-000-204	929-000-202
0.5000	0.2188	0.3750	2.1250	0.5625	60.0	60.0	0.0200	3	Carbide Tipped	R	929-000-062	929-000-101	929-000-099
0.7500	0.1875	0.3750	2.1250	0.5625	45.0	90.0	N/A	8	HSS	R	929-000-013	929-000-016	929-000-014
0.7500	0.1875	0.3750	2.1250	0.5625	45.0	90.0	N/A	8	HSS-Co	R	929-000-084	929-000-207	929-000-205
0.7500	0.2500	0.3750	2.2500	0.7031	45.0	90.0	0.0200	3	Carbide Tipped	R	929-000-063	929-000-104	929-000-102
0.7500	0.3125	0.3750	2.1250	0.5625	60.0	60.0	N/A	8	HSS	R	929-000-017	929-000-020	929-000-018
0.7500	0.3125	0.3750	2.1250	0.5625	60.0	60.0	N/A	8	HSS-Co	R	929-000-085	929-000-210	929-000-208
0.7500	0.2500	0.3750	2.2500	0.7188	60.0	60.0	0.0200	3	Carbide Tipped	R	929-000-064	929-000-107	929-000-105
1.0000	0.2500	0.5000	2.5000	0.5625	45.0	90.0	N/A	10	HSS	R	929-000-078	929-000-164	929-000-162
1.0000	0.2500	0.5000	2.5000	0.5625	45.0	90.0	N/A	10	HSS-Co	R	929-000-086	929-000-213	929-000-211
1.0000	0.3125	0.5000	2.5000	0.8125	45.0	90.0	0.0200	4	Carbide Tipped	R	929-000-065	929-000-110	929-000-108
1.0000	0.4375	0.5000	2.5000	0.7500	60.0	60.0	N/A	10	HSS	R	929-000-079	929-000-167	929-000-165
1.0000	0.4375	0.5000	2.5000	0.7500	60.0	60.0	N/A	10	HSS-Co	R	929-000-087	929-000-216	929-000-214
1.0000	0.3750	0.5000	2.5000	0.7500	60.0	60.0	0.0200	4	Carbide Tipped	R	929-000-066	929-000-113	929-000-111
1.2500	0.3125	0.6250	2.7500	0.8750	45.0	90.0	0.0200	4	Carbide Tipped	R	929-000-067	929-000-116	929-000-114
1.2500	0.5000	0.6250	2.7500	0.8750	60.0	60.0	0.0200	4	Carbide Tipped	R	929-000-068	929-000-119	929-000-117
1.3750	0.3750	0.6250	2.8750	0.9688	45.0	90.0	N/A	10	HSS	R	929-000-021	929-000-028	929-000-026
1.3750	0.3750	0.6250	2.8750	0.9688	45.0	90.0	N/A	10	HSS-Co	R	929-000-088	929-000-219	929-000-217
1.3750	0.5625	0.6250	2.8750	0.9688	60.0	60.0	N/A	12	HSS	R	929-000-029	929-000-036	929-000-034
1.3750	0.5625	0.6250	2.8750	0.9688	60.0	60.0	N/A	12	HSS-Co	R	929-000-089	929-000-222	929-000-220
1.5000	0.5000	0.7500	3.2500	1.3125	45.0	90.0	0.0200	4	Carbide Tipped	R	929-000-069	929-000-122	929-000-120
1.5000	0.6250	0.7500	3.2500	1.3125	60.0	60.0	0.0200	4	Carbide Tipped	R	929-000-070	929-000-125	929-000-123
1.8750	0.5000	0.8750	3.2500	1.2188	45.0	90.0	N/A	12	HSS	R	929-000-037	929-000-040	929-000-038
1.8750	0.5000	0.8750	3.2500	1.2188	45.0	90.0	N/A	12	HSS-Co	R	929-000-090	929-000-225	929-000-223
1.8750	0.8125	0.8750	3.2500	1.2188	60.0	60.0	N/A	12	HSS	R	929-000-041	929-000-044	929-000-042
1.8750	0.8125	0.8750	3.2500	1.2188	60.0	60.0	N/A	12	HSS-Co	R	929-000-091	929-000-228	929-000-226
2.0000	0.6250	1.0000	4.2500	2.0000	45.0	90.0	0.0200	6	Carbide Tipped	R	929-000-071	929-000-128	929-000-126
2.0000	0.7500	1.0000	4.2500	2.1250	60.0	60.0	0.0200	6	Carbide Tipped	R	929-000-072	929-000-131	929-000-129
2.2500	1.0625	1.0000	3.7500	1.4688	60.0	60.0	N/A	12	HSS	R	929-000-049	929-000-052	929-000-050
2.2500	1.0625	1.0000	3.7500	1.4688	60.0	60.0	N/A	12	HSS-Co	R	929-000-093	929-000-234	929-000-232
2.5000	0.7500	1.0000	3.7500	1.4688	45.0	90.0	N/A	12	HSS	R	929-000-053	929-000-056	929-000-054
2.5000	0.7500	1.0000	3.7500	1.4688	45.0	90.0	N/A	12	HSS-Co	R	929-000-094	929-000-237	929-000-235
2.5000	0.7500	1.2500	4.3750	2.0625	45.0	90.0	0.0200	6	Carbide Tipped	R	929-000-073	929-000-134	929-000-132
2.5000	1.1250	1.0000	3.7500	1.4688	60.0	60.0	N/A	12	HSS	R	929-000-057	929-000-060	929-000-058
2.5000	1.1250	1.0000	3.7500	1.4688	60.0	60.0	N/A	12	HSS-Co	R	929-000-095	929-000-240	929-000-238
2.5000	0.8750	1.2500	4.3750	2.1875	60.0	60.0	0.0200	6	Carbide Tipped	R	929-000-074	929-000-137	929-000-135
3.0000	1.0000	1.2500	4.5000	2.2500	45.0	90.0	0.0200	6	Carbide Tipped	R	929-000-075	929-000-140	929-000-138
3.0000	1.1250	1.2500	4.5000	2.3750	60.0	60.0	0.0200	6	Carbide Tipped	R	929-000-076	929-000-143	929-000-141

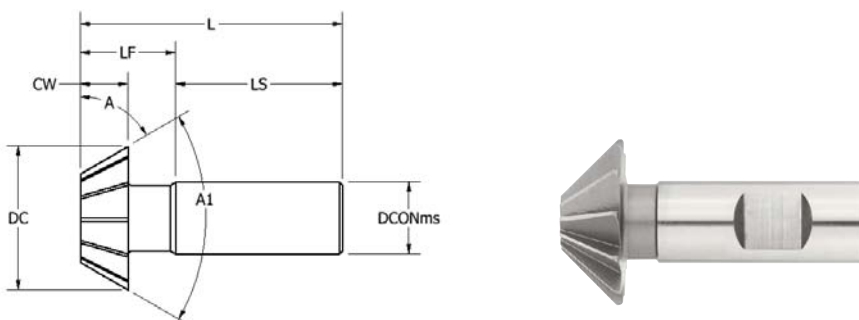


HSS



DA129 DOUBLE ANGLE

DC [in]	DCONMS [in]	LS [in]	L [in]	LF [in]	CDX [in]	CW [in]	A [°]	Zc	UNCOATED	TiN COATED	TiCN COATED	TiAIN COATED
0.7500	0.3750	1.5625	2.3750	0.8125	0.1624	0.1875	60.0	10	924-000-001	924-000-004	924-000-003	924-000-002
1.0000	0.5000	1.7813	2.8438	1.0625	0.2706	0.3125	60.0	12	924-000-005	924-000-008	924-000-007	924-000-006
1.3750	0.6250	1.9063	3.2188	1.3125	0.3789	0.4375	60.0	14	924-000-009	924-000-012	924-000-011	924-000-010
1.5000	0.6250	2.0000	3.3750	1.3750	0.4330	0.5000	60.0	14	924-000-013	924-000-016	924-000-015	924-000-014
1.8750	0.7500	2.0313	3.7813	1.7500	0.5413	0.6250	60.0	16	924-000-017	924-000-020	924-000-019	924-000-018
2.2500	0.8750	2.0313	4.1563	2.1250	0.6495	0.7500	60.0	18	924-000-021	924-000-024	924-000-023	924-000-022
2.2500	0.7500	2.0313	3.1250	1.0938	0.4330	0.5000	60.0	16	924-000-025	924-000-028	924-000-027	924-000-026
0.7500	0.3750	0.7500	0.3750	0.8750	0.1250	0.2500	90.0	10	924-000-029	924-000-032	924-000-031	924-000-030
1.0000	0.5000	1.7813	2.9063	1.1250	0.1875	0.3750	90.0	12	924-000-033	924-000-036	924-000-035	924-000-034
1.3750	0.6250	1.9063	3.2813	1.3750	0.2500	0.5000	90.0	14	924-000-037	924-000-040	924-000-039	924-000-038
1.5000	0.6250	2.0000	3.4375	1.4375	0.2813	0.5625	90.0	14	924-000-041	924-000-044	924-000-043	924-000-042
1.8750	0.7500	2.0313	3.7813	1.7500	0.3125	0.6250	90.0	16	924-000-045	924-000-048	924-000-047	924-000-046
2.2500	0.8750	2.0313	4.1563	2.1250	0.3750	0.7500	90.0	18	924-000-049	924-000-052	924-000-051	924-000-050
2.2500	0.7500	2.0313	3.1250	1.0938	0.2500	0.5000	90.0	16	924-000-053	924-000-056	924-000-055	924-000-054

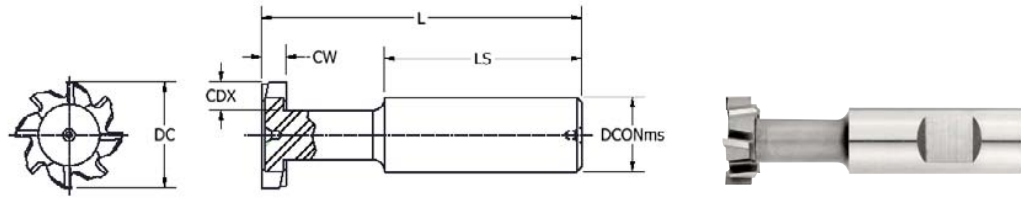


CH126 SINGLE-ANGLE

DC [in]	DCONMS [in]	LS [in]	L [in]	LF [in]	CW [in]	A [°]	A1 [°]	Zc	UNCOATED	TiN COATED	TiCN COATED	TiAIN COATED
0.5000	0.3750	1.6875	2.1250	0.4375	0.1250	45.0	90.0	8	909-000-001	909-000-004	909-000-003	909-000-002
0.7500	0.3750	1.6250	2.1250	0.1875	0.1875	45.0	90.0	8	909-000-009	909-000-012	909-000-011	909-000-010
1.0000	0.5000	1.8125	2.5000	0.6875	0.3125	45.0	90.0	10	909-000-017	909-000-020	909-000-019	909-000-018
1.5000	0.7500	1.8750	2.7500	0.8750	0.5000	45.0	90.0	12	909-000-025	909-000-028	909-000-027	909-000-026
0.5000	0.3750	1.5938	2.1250	0.5313	0.2188	60.0	60.0	8	909-000-005	909-000-008	909-000-007	909-000-006
0.7500	0.3750	1.5625	2.1250	0.5625	0.3125	60.0	60.0	8	909-000-013	909-000-016	909-000-015	909-000-014
1.0000	0.5000	1.7500	2.5000	0.7500	0.4375	60.0	60.0	10	909-000-021	909-000-024	909-000-023	909-000-022
1.5000	0.7500	1.7500	2.7500	1.0000	0.6250	60.0	60.0	12	909-000-029	909-000-032	909-000-031	909-000-030

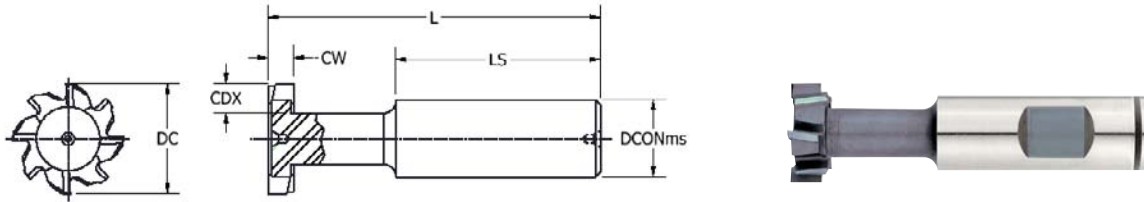
T-SLOT CUTTERS

ARCH[®]
Cutting Tools



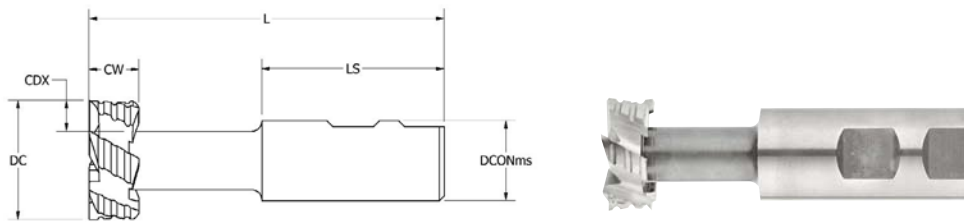
TS109

DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc	Uncoated	TiN COATED	TiCN COATED	TiAlN COATED
0.5625	0.5000	1.8125	2.5938	0.1484	0.2344	8	964-000-025	964-000-029	964-000-028	964-000-027
0.6563	0.5000	1.8125	2.6875	0.1641	0.2656	8	964-000-030	964-000-034	964-000-033	964-000-032
0.7813	0.7500	2.0625	3.2500	0.1875	0.3281	8	964-000-035	964-000-039	964-000-038	964-000-037
0.9688	0.7500	2.0625	3.4375	0.2188	0.3906	8	964-000-040	964-000-044	964-000-043	964-000-042
1.0000	0.7500	2.0313	3.1250	0.2500	0.0938	8	964-000-045	964-000-048	964-000-047	964-000-046
1.0000	0.7500	2.0000	3.1250	0.2500	0.1250	8	964-000-049	964-000-052	964-000-051	964-000-050
1.0000	0.7500	2.0313	3.1875	0.2500	0.1563	8	964-000-053	964-000-056	964-000-055	964-000-054
1.0000	0.7500	2.0000	3.1875	0.2500	0.1875	8	964-000-057	964-000-060	964-000-059	964-000-058
1.0000	0.7500	2.0000	3.2500	0.2500	0.2500	8	964-000-061	964-000-064	964-000-063	964-000-062
1.0000	0.7500	2.0000	3.3125	0.2500	0.3125	8	964-000-065	964-000-068	964-000-067	964-000-066
1.0000	0.7500	2.0000	3.3750	0.2500	0.3750	8	964-000-069	964-000-072	964-000-071	964-000-070
1.0000	0.7500	2.0000	3.5000	0.2500	0.5000	8	964-000-073	964-000-076	964-000-075	964-000-074
1.2500	1.0000	2.3125	3.9375	0.2969	0.4844	8	964-000-077	964-000-081	964-000-080	964-000-079
1.4688	1.0000	2.3125	4.4375	0.3438	0.6250	8	964-000-082	964-000-086	964-000-085	964-000-084
1.5000	1.0000	2.5313	4.1250	0.3750	0.0938	8	964-000-087	964-000-090	964-000-089	964-000-088
1.5000	1.0000	2.5000	4.1250	0.3750	0.1250	8	964-000-091	964-000-094	964-000-093	964-000-092
1.5000	1.0000	2.5313	4.1875	0.3750	0.1563	8	964-000-095	964-000-098	964-000-097	964-000-096
1.5000	1.0000	2.5000	4.1875	0.3750	0.1875	8	964-000-099	964-000-102	964-000-101	964-000-100
1.5000	1.0000	2.5000	4.2500	0.3750	0.2500	8	964-000-103	964-000-106	964-000-105	964-000-104
2.0000	1.2500	2.6563	4.5000	0.4375	0.0938	8	964-000-107	964-000-110	964-000-109	964-000-108
1.5000	1.0000	2.5000	4.3750	0.3750	0.3750	8	964-000-111	964-000-114	964-000-113	964-000-112
1.5000	1.0000	2.5000	4.5000	0.3750	0.5000	8	964-000-115	964-000-118	964-000-117	964-000-116
1.8438	1.2500	2.3125	4.8125	0.4063	0.8281	12	964-000-119	964-000-123	964-000-122	964-000-121
2.0000	1.2500	2.6563	4.5000	0.4375	0.0938	12	964-000-124	964-000-127	964-000-126	964-000-125
2.0000	1.2500	2.6250	4.5000	0.4375	0.1250	12	964-000-128	964-000-131	964-000-130	964-000-129
2.0000	1.2500	2.6563	4.5625	0.4375	0.1563	12	964-000-132	964-000-135	964-000-134	964-000-133
2.0000	1.2500	2.6250	4.5625	0.4375	0.1875	12	964-000-136	964-000-139	964-000-138	964-000-137
2.0000	1.2500	2.6250	4.6250	0.4375	0.2500	12	964-000-140	964-000-143	964-000-142	964-000-141
2.0000	1.2500	2.6250	4.6875	0.4375	0.3125	12	964-000-144	964-000-147	964-000-146	964-000-145
2.0000	1.2500	2.6250	4.7500	0.4375	0.3750	12	964-000-148	964-000-151	964-000-150	964-000-149
2.0000	1.2500	2.6250	4.8750	0.4375	0.5000	12	964-000-152	964-000-155	964-000-154	964-000-153
2.2188	1.2500	2.2813	5.3750	0.5000	1.0938	12	964-000-156	964-000-157	964-000-159	964-000-158
2.6563	1.2500	2.4375	5.9063	0.5625	1.3438	12	964-000-161	964-000-165	964-000-164	964-000-163



TS112 COBALT STEEL

DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc	AlCrN Coated
0.5625	0.5000	1.8125	2.5938	0.1484	0.2344	8	964-000-026
0.6563	0.5000	1.8125	2.6875	0.1641	0.2656	8	964-000-031
0.7813	0.7500	2.0625	3.2500	0.1875	0.3281	8	964-000-036
0.9688	0.7500	2.0625	3.4375	0.2188	0.3906	8	964-000-041
1.2500	1.0000	2.3125	3.9375	0.2969	0.4844	8	964-000-078
1.4688	1.0000	2.3125	4.4375	0.3438	0.6250	8	964-000-083
1.8438	1.2500	2.3125	4.8125	0.3594	0.8281	12	964-000-120
2.2188	1.2500	2.2813	5.3750	0.5000	1.0938	12	964-000-157
2.6563	1.2500	2.4375	5.9063	0.5625	1.3438	12	964-000-162



TS111 ROUGHER/FINISHER

DC [in.]	DCONMS [in.]	LS [in.]	L [in.]	CDX [in.]	CW [in.]	Zc	Uncoated	TIN COATED	TICN COATED	TiAIN COATED
0.9688	0.7500	2.0313	3.4375	0.2444	0.3906	5	964-000-006	964-000-024	964-000-018	964-000-012
1.2500	1.0000	2.2813	3.9375	0.3225	0.4844	6	964-000-001	964-000-019	964-000-013	964-000-007
1.4688	1.0000	2.2813	4.4375	0.3694	0.6250	6	964-000-002	964-000-020	964-000-014	964-000-008
1.8438	1.2500	2.2813	4.8125	0.4319	0.8281	6	964-000-003	964-000-021	964-000-015	964-000-009
2.2188	1.2500	2.2813	5.3750	0.4944	1.0938	8	964-000-005	964-000-023	964-000-017	964-000-011
2.6563	1.2500	2.3750	5.9063	0.5881	1.3438	10	964-000-004	964-000-022	964-000-016	964-000-010

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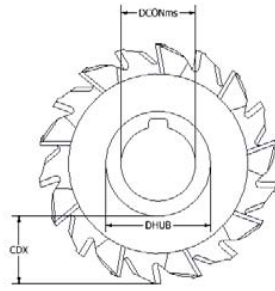
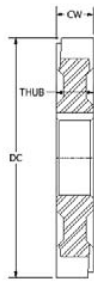
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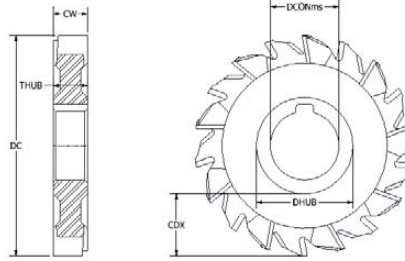
- General Purpose
- Ideal for Deep Slotting
- Alternate tooth design allows excellent chip REMoval



HSS

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAlN COATED
2.1250	0.1875	0.7500	0.5313	1.0000	0.1875	14	952-001-237	952-001-240	952-001-239	952-001-238
2.1250	0.2500	0.7500	0.5313	1.0000	0.2500	14	952-001-241	952-001-244	952-001-243	952-001-242
2.1250	0.3125	0.7500	0.5313	1.0000	0.3125	14	952-001-245	952-001-248	952-001-247	952-001-246
2.1250	0.3750	0.7500	0.5313	1.0000	0.3750	14	952-001-249	952-001-252	952-001-251	952-001-250
2.5000	0.2500	0.8750	0.6248	1.1880	0.2500	16	952-001-253	952-001-256	952-001-255	952-001-254
2.5000	0.3125	0.8750	0.6248	1.1880	0.3125	16	952-001-257	952-001-260	952-001-259	952-001-258
2.5000	0.3750	0.8750	0.6248	1.1880	0.3750	16	952-001-261	952-001-264	952-001-263	952-001-262
2.5000	0.5000	0.8750	0.6248	1.1880	0.5000	16	952-001-265	952-001-268	952-001-267	952-001-266
2.7500	0.2500	1.0000	0.6248	1.4380	0.2500	16	952-001-269	952-001-272	952-001-271	952-001-270
2.7500	0.3125	1.0000	0.6248	1.4380	0.3125	16	952-001-273	952-001-276	952-001-275	952-001-274
2.7500	0.3750	1.0000	0.6248	1.4380	0.3750	16	952-001-277	952-001-280	952-001-279	952-001-278
2.7500	0.4375	1.0000	0.6248	1.4380	0.4375	16	952-001-281	952-001-284	952-001-283	952-001-282
2.7500	0.5000	1.0000	0.6248	1.4380	0.5000	16	952-001-285	952-001-288	952-001-287	952-001-286
3.0000	0.1875	1.0000	0.7188	1.5000	0.1875	16	952-001-289	952-001-292	952-001-291	952-001-290
3.0000	0.1875	1.2500	0.5938	1.7500	0.1875	18	952-001-293	952-001-296	952-001-295	952-001-294
3.0000	0.2188	1.0000	0.7188	1.5000	0.2188	16	952-001-577	952-001-580	952-001-579	952-001-578
3.0000	0.2188	1.2500	0.5938	1.7500	0.2188	18	952-001-581	952-001-584	952-001-583	952-001-582
3.0000	0.2500	1.0000	0.7188	1.5000	0.2500	16	952-001-297	952-001-300	952-001-299	952-001-298
3.0000	0.2500	1.2500	0.5938	1.7500	0.2500	18	952-001-301	952-001-304	952-001-303	952-001-302
3.0000	0.2813	1.0000	0.7188	1.5000	0.2813	16	952-001-585	952-001-588	952-001-587	952-001-586
3.0000	0.2813	1.2500	0.5938	1.7500	0.2813	18	952-001-589	952-001-592	952-001-591	952-001-590
3.0000	0.3125	1.0000	0.7188	1.5000	0.3125	16	952-001-305	952-001-308	952-001-307	952-001-298
3.0000	0.3125	1.2500	0.5938	1.7500	0.3125	18	952-001-309	952-001-312	952-001-311	952-001-302
3.0000	0.3438	1.0000	0.7188	1.5000	0.3438	16	952-001-593	952-001-596	952-001-595	952-001-594
3.0000	0.3438	1.2500	0.5938	1.7500	0.3438	18	952-001-597	952-001-600	952-001-599	952-001-598
3.0000	0.3750	1.0000	0.7188	1.5000	0.3750	16	952-001-313	952-001-316	952-001-315	952-001-314
3.0000	0.3750	1.2500	0.5938	1.7500	0.3750	18	952-001-317	952-001-320	952-001-319	952-001-318
3.0000	0.4063	1.0000	0.7188	1.5000	0.4063	16	952-001-601	952-001-604	952-001-603	952-001-602
3.0000	0.4063	1.2500	0.5938	1.7500	0.4063	18	952-001-605	952-001-608	952-001-607	952-001-606
3.0000	0.4375	1.0000	0.7188	1.5000	0.4375	16	952-001-321	952-001-324	952-001-323	952-001-322
3.0000	0.4375	1.2500	0.5938	1.7500	0.4375	18	952-001-325	952-001-328	952-001-327	952-001-326
3.0000	0.5000	1.0000	0.7188	1.5000	0.5000	16	952-001-329	952-001-332	952-001-331	952-001-330
3.0000	0.5000	1.2500	0.5938	1.7500	0.5000	18	952-001-333	952-001-336	952-001-335	952-001-334
3.0000	0.5625	1.0000	0.7188	1.5000	0.5625	16	952-001-337	952-001-340	952-001-339	952-001-338
3.0000	0.5625	1.2500	0.5938	1.7500	0.5625	18	952-001-341	952-001-344	952-001-343	952-001-342
3.0000	0.6250	1.0000	0.7188	1.5000	0.6250	16	952-001-345	952-001-348	952-001-347	952-001-346
3.0000	0.6250	1.2500	0.5938	1.7500	0.6250	18	952-001-349	952-001-352	952-001-351	952-001-350
3.0000	0.6875	1.0000	0.7188	1.5000	0.6875	16	952-001-353	952-001-356	952-001-355	952-001-354
3.0000	0.6875	1.2500	0.5938	1.7500	0.6875	18	952-001-357	952-001-360	952-001-359	952-001-358
3.0000	0.7500	1.0000	0.7188	1.5000	0.7500	16	952-001-361	952-001-364	952-001-363	952-001-362
3.0000	0.7500	1.2500	0.5938	1.7500	0.7500	18	952-001-365	952-001-368	952-001-367	952-001-366
3.0000	0.8125	1.0000	0.7188	1.5000	0.8125	16	952-001-369	952-001-372	952-001-371	952-001-370
3.0000	0.8125	1.2500	0.5938	1.7500	0.8125	18	952-001-373	952-001-376	952-001-375	952-001-374
3.0000	0.8750	1.0000	0.7188	1.5000	0.8750	16	952-001-377	952-001-380	952-001-379	952-001-378
3.0000	0.8750	1.2500	0.5938	1.7500	0.8750	18	952-001-381	952-001-384	952-001-383	952-001-382
3.0000	0.9375	1.0000	0.7188	1.5000	0.9375	16	952-001-385	952-001-388	952-001-387	952-001-386
3.0000	0.9375	1.2500	0.5938	1.7500	0.9375	18	952-001-389	952-001-392	952-001-391	952-001-390

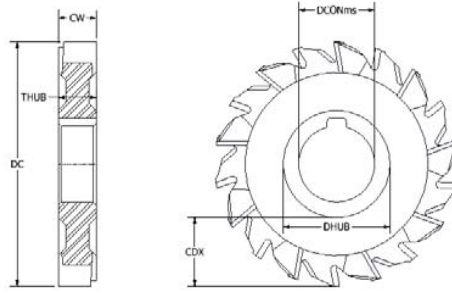
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DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAlN COATED
3.0000	1.0000	1.0000	0.7188	1.5000	1.0000	16	952-001-393	952-001-396	952-001-395	952-001-394
3.0000	1.0000	1.2500	0.5938	1.7500	1.0000	18	952-001-397	952-001-400	952-001-399	952-001-398
3.0000	1.2500	1.0000	0.7188	1.5000	1.2500	16	952-001-401	952-001-404	952-001-403	952-001-402
3.0000	1.2500	1.2500	0.5938	1.7500	1.2500	18	952-001-405	952-001-408	952-001-407	952-001-406
3.2500	0.2500	1.2500	0.7188	1.7500	0.2500	18	952-001-409	952-001-412	952-001-411	952-001-410
3.2500	0.3750	1.2500	0.7188	1.7500	0.3750	18	952-001-413	952-001-416	952-001-415	952-001-414
3.2500	0.5000	1.2500	0.7188	1.7500	0.5000	18	952-001-417	952-001-420	952-001-419	952-001-418
3.2500	0.7500	1.2500	0.7188	1.7500	0.7500	18	952-001-421	952-001-424	952-001-423	952-001-422
3.5000	0.2188	1.0000	0.9688	1.5000	0.2188	18	952-001-529	952-001-532	952-001-531	952-001-530
3.5000	0.2188	1.2500	0.8438	1.7500	0.2188	18	952-001-533	952-001-536	952-001-535	952-001-534
3.5000	0.2500	1.0000	0.9688	1.5000	0.2500	18	952-001-425	952-001-428	952-001-427	952-001-426
3.5000	0.2500	1.2500	0.8438	1.7500	0.2500	18	952-001-429	952-001-432	952-001-431	952-001-430
3.5000	0.2813	1.0000	0.9688	1.5000	0.2813	18	952-001-537	952-001-540	952-001-539	952-001-538
3.5000	0.2813	1.2500	0.8438	1.7500	0.2813	18	952-001-541	952-001-544	952-001-543	952-001-542
3.5000	0.3125	1.0000	0.9688	1.5000	0.3125	18	952-001-433	952-001-436	952-001-435	952-001-434
3.5000	0.3125	1.2500	0.8438	1.7500	0.3125	18	952-001-437	952-001-440	952-001-439	952-001-438
3.5000	0.3438	1.0000	0.9688	1.5000	0.3438	18	952-001-545	952-001-548	952-001-547	952-001-546
3.5000	1.2500	1.2500	3.5000	1.7500	0.3438	18	952-001-549	952-001-552	952-001-551	952-001-550
3.5000	0.3750	1.0000	0.9688	1.5000	0.3750	18	952-001-441	952-001-444	952-001-443	952-001-442
3.5000	0.3750	1.2500	0.8438	1.7500	0.3750	18	952-001-445	952-001-448	952-001-447	952-001-446
3.5000	0.4063	1.0000	0.9688	1.5000	0.4063	18	952-001-553	952-001-556	952-001-555	952-001-554
3.5000	0.4063	1.2500	0.8438	1.7500	0.4063	18	952-001-557	952-001-560	952-001-559	952-001-558
3.5000	0.4375	1.0000	0.9688	1.5000	0.4375	18	952-001-449	952-001-452	952-001-451	952-001-450
3.5000	0.4375	1.2500	0.8438	1.7500	0.4375	18	952-001-453	952-001-456	952-001-455	952-001-454
3.5000	0.5000	1.0000	0.9688	1.5000	0.5000	18	952-001-457	952-001-460	952-001-459	952-001-458
3.5000	0.5000	1.2500	0.8438	1.7500	0.5000	18	952-001-461	952-001-464	952-001-463	952-001-462
3.5000	0.5625	1.0000	0.9688	1.5000	0.5625	18	952-001-465	952-001-468	952-001-467	952-001-466
3.5000	0.5625	1.2500	0.8438	1.7500	0.5625	18	952-001-469	952-001-472	952-001-471	952-001-470
3.5000	0.6250	1.0000	0.9688	1.5000	0.6250	18	952-001-473	952-001-476	952-001-475	952-001-474
3.5000	0.6250	1.2500	0.8438	1.7500	0.6250	18	952-001-477	952-001-480	952-001-479	952-001-478
3.5000	0.6875	1.0000	0.9688	1.5000	0.6875	18	952-001-481	952-001-484	952-001-483	952-001-482
3.5000	0.6875	1.2500	0.8438	1.7500	0.6875	18	952-001-485	952-001-488	952-001-487	952-001-486
3.5000	0.7500	1.0000	0.9688	1.5000	0.6875	18	952-001-489	952-001-492	952-001-491	952-001-490
3.5000	0.7500	1.2500	0.8438	1.7500	0.7500	18	952-001-493	952-001-496	952-001-495	952-001-494
3.5000	0.8125	1.0000	0.9688	1.5000	0.8125	18	952-001-497	952-001-500	952-001-499	952-001-498
3.5000	0.8125	1.2500	0.8438	1.7500	0.8125	18	952-001-501	952-001-504	952-001-503	952-001-502
3.5000	0.8750	1.0000	0.9688	1.5000	0.8750	18	952-001-505	952-001-508	952-001-507	952-001-506
3.5000	0.8750	1.2500	0.8438	1.7500	0.8750	18	952-001-509	952-001-512	952-001-511	952-001-510
3.5000	0.9375	1.0000	0.9688	1.5000	0.9375	18	952-001-513	952-001-516	952-001-515	952-001-514
3.5000	0.9375	1.2500	0.8438	1.7500	0.9375	18	952-001-517	952-001-520	952-001-519	952-001-518
3.5000	1.0000	1.0000	0.9688	1.5000	1.0000	18	952-001-521	952-001-524	952-001-523	952-001-522
3.5000	1.0000	1.2500	0.8438	1.7500	1.0000	18	952-001-525	952-001-528	952-001-527	952-001-526
3.7500	0.2500	1.2500	0.9688	1.7500	0.2500	18	952-001-561	952-001-564	952-001-563	952-001-562
3.7500	0.3750	1.2500	0.9688	1.7500	0.3750	18	952-001-565	952-001-568	952-001-567	952-001-566
3.7500	0.5000	1.2500	0.9688	1.7500	0.5000	18	952-001-569	952-001-572	952-001-571	952-001-570
3.7500	0.7500	1.2500	0.9688	1.7500	0.7500	18	952-001-573	952-001-576	952-001-575	952-001-574
4.0000	0.1875	1.0000	1.1563	1.6250	0.1875	18	952-001-609	952-001-612	952-001-611	952-001-610

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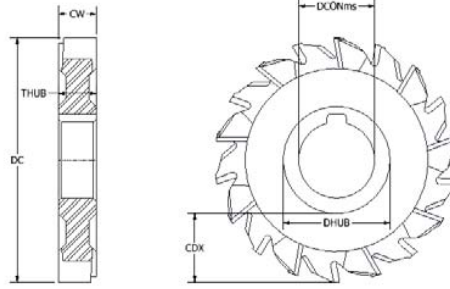
HSS



HSS

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAlN COATED
4.0000	0.1875	1.2500	1.0938	1.7500	0.1875	18	952-001-613	952-001-616	952-001-615	952-001-614
4.0000	0.2188	1.0000	1.1563	1.6250	0.2188	18	952-001-817	952-001-820	952-001-819	952-001-818
4.0000	0.2188	1.2500	1.0938	1.7500	0.2188	18	952-001-821	952-001-824	952-001-823	952-001-822
4.0000	0.2500	1.0000	1.1563	1.6250	0.2500	18	952-001-617	952-001-620	952-001-619	952-001-618
4.0000	0.2500	1.2500	1.0938	1.7500	0.2500	18	952-001-621	952-001-624	952-001-623	952-001-622
4.0000	0.2813	1.0000	1.1563	1.6250	0.2813	18	952-001-825	952-001-828	952-001-827	952-001-826
4.0000	0.2813	1.2500	1.0938	1.7500	0.2813	18	952-001-829	952-001-832	952-001-831	952-001-830
4.0000	0.3125	1.0000	1.1563	1.6250	0.3125	18	952-001-625	952-001-628	952-001-627	952-001-626
4.0000	0.3125	1.2500	1.0938	1.7500	0.3125	18	952-001-629	952-001-632	952-001-631	952-001-630
4.0000	0.3438	1.0000	1.1563	1.6250	0.3438	18	952-001-833	952-001-836	952-001-835	952-001-834
4.0000	0.3438	1.2500	1.0938	1.7500	0.3438	18	952-001-837	952-001-840	952-001-839	952-001-838
4.0000	0.3750	1.0000	1.1563	1.6250	0.3750	18	952-001-633	952-001-636	952-001-635	952-001-634
4.0000	0.3750	1.2500	1.0938	1.7500	0.3750	18	952-001-637	952-001-640	952-001-639	952-001-638
4.0000	0.4063	1.0000	1.1563	1.6250	0.4063	18	952-001-841	952-001-844	952-001-843	952-001-842
4.0000	0.4063	1.2500	1.0938	1.7500	0.4063	18	952-001-845	952-001-848	952-001-847	952-001-846
4.0000	0.4375	1.0000	1.1563	1.6250	0.4375	18	952-001-641	952-001-644	952-001-643	952-001-642
4.0000	0.4375	1.2500	1.0938	1.7500	0.4375	18	952-001-645	952-001-648	952-001-647	952-001-646
4.0000	0.5000	1.0000	1.1563	1.6250	0.5000	18	952-001-649	952-001-652	952-001-651	952-001-650
4.0000	0.5000	1.2500	1.0938	1.7500	0.5000	18	952-001-653	952-001-656	952-001-655	952-001-654
4.0000	0.5625	1.0000	1.1563	1.6250	0.5625	18	952-001-657	952-001-660	952-001-659	952-001-658
4.0000	0.5625	1.2500	1.0938	1.7500	0.5625	18	952-001-661	952-001-664	952-001-663	952-001-662
4.0000	0.6250	1.0000	1.1563	1.6250	0.6250	18	952-001-665	952-001-668	952-001-667	952-001-666
4.0000	0.6250	1.2500	1.0938	1.7500	0.6250	18	952-001-669	952-001-672	952-001-671	952-001-670
4.0000	0.6875	1.0000	1.1563	1.6250	0.6875	18	952-001-673	952-001-676	952-001-675	952-001-674
4.0000	0.6875	1.2500	1.0938	1.7500	0.6875	18	952-001-677	952-001-680	952-001-679	952-001-678
4.0000	0.7500	1.0000	1.1563	1.6250	0.7500	18	952-001-681	952-001-684	952-001-683	952-001-682
4.0000	0.7500	1.2500	1.0938	1.7500	0.7500	18	952-001-685	952-001-688	952-001-687	952-001-686
4.0000	0.8125	1.0000	1.1563	1.6250	0.8125	18	952-001-689	952-001-692	952-001-691	952-001-690
4.0000	0.8125	1.2500	1.0938	1.7500	0.8125	18	952-001-693	952-001-696	952-001-695	952-001-694
4.0000	0.8750	1.0000	1.1563	1.6250	0.8750	18	952-001-697	952-001-700	952-001-699	952-001-698
4.0000	0.8750	1.2500	1.0938	1.7500	0.8750	18	952-001-701	952-001-704	952-001-703	952-001-702
4.0000	0.9375	1.0000	1.1563	1.6250	0.9375	18	952-001-705	952-001-708	952-001-707	952-001-706
4.0000	0.9375	1.2500	1.0938	1.7500	0.9375	18	952-001-709	952-001-712	952-001-711	952-001-710
4.0000	1.0000	1.0000	1.1563	1.6250	1.0000	18	952-001-713	952-001-716	952-001-715	952-001-714
4.0000	1.0000	1.2500	1.0938	1.7500	1.0000	18	952-001-717	952-001-720	952-001-719	952-001-718
4.0000	1.1250	1.2500	1.0938	1.7500	1.1250	18	952-001-721	952-001-724	952-001-723	952-001-722
4.0000	1.2500	1.2500	1.0938	1.7500	1.1250	18	952-001-725	952-001-728	952-001-727	952-001-726
4.0000	1.3750	1.2500	1.0938	1.7500	1.3750	18	952-001-745	952-001-748	952-001-747	952-001-746
4.0000	1.5000	1.2500	1.0938	1.7500	1.5000	18	952-001-749	952-001-752	952-001-751	952-001-750
4.2500	0.2500	1.2500	1.2188	1.7500	0.2500	18	952-001-729	952-001-732	952-001-731	952-001-730
4.2500	0.3750	1.2500	1.2188	1.7500	0.3750	18	952-001-733	952-001-736	952-001-735	952-001-734
4.2500	0.5000	1.2500	1.2188	1.7500	0.5000	18	952-001-737	952-001-740	952-001-739	952-001-738
4.2500	0.7500	1.2500	1.2188	1.7500	0.7500	18	952-001-741	952-001-744	952-001-743	952-001-742
4.5000	0.2188	1.0000	1.4063	1.6250	0.2188	18	952-001-809	952-001-812	952-001-811	952-001-810
4.5000	0.2188	1.2500	1.2813	1.8750	0.2188	18	952-001-813	952-001-816	952-001-815	952-001-814
4.5000	0.2500	1.0000	1.4063	1.6250	0.2500	18	952-001-753	952-001-756	952-001-755	952-001-754
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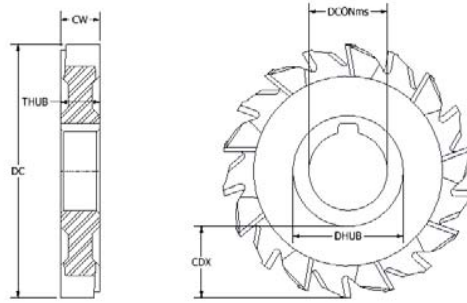
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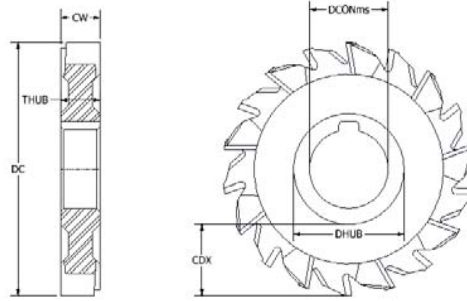
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4.5000	0.3125	1.0000	1.4063	1.6250	0.3125	18	952-001-761	952-001-764	952-001-763	952-001-762
4.5000	1.2500	1.2500	4.5000	1.8750	0.3125	18	952-001-765	952-001-768	952-001-767	952-001-766
4.5000	0.3750	1.0000	1.4063	1.6250	0.3750	18	952-001-769	952-001-772	952-001-771	952-001-770
4.5000	0.3750	1.2500	1.2813	1.8750	0.3750	18	952-001-773	952-001-776	952-001-775	952-001-774
4.5000	0.5000	1.0000	1.4063	1.6250	0.5000	18	952-001-777	952-001-780	952-001-779	952-001-778
4.5000	0.5000	1.2500	1.2813	1.8750	0.5000	18	952-001-781	952-001-784	952-001-783	952-001-782
4.5000	0.6250	1.0000	1.4063	1.6250	0.6250	18	952-001-785	952-001-788	952-001-787	952-001-786
4.5000	0.6250	1.2500	1.2813	1.8750	0.6250	18	952-001-789	952-001-792	952-001-791	952-001-790
4.5000	0.7500	1.0000	1.4063	1.6250	0.7500	18	952-001-793	952-001-796	952-001-795	952-001-794
4.5000	0.7500	1.2500	1.2813	1.8750	0.7500	18	952-001-797	952-001-800	952-001-799	952-001-798
4.5000	1.0000	1.0000	1.4063	1.6250	1.0000	18	952-001-801	952-001-804	952-001-803	952-001-802
4.5000	1.0000	1.2500	1.2813	1.8750	1.0000	18	952-001-805	952-001-808	952-001-807	952-001-806
5.0000	0.1875	1.0000	1.6563	1.6250	0.1875	24	952-001-849	952-001-852	952-001-851	952-001-850
5.0000	0.1875	1.2500	1.5313	1.8750	0.1875	24	952-001-853	952-001-856	952-001-855	952-001-854
5.0000	0.2188	1.0000	1.6563	1.6250	0.2188	24	952-001-945	952-001-948	952-001-947	952-001-946
5.0000	0.2188	1.2500	1.5313	1.8750	0.2188	24	952-001-949	952-001-952	952-001-951	952-001-950
5.0000	0.2500	1.0000	1.6563	1.6250	0.2500	24	952-001-857	952-001-860	952-001-859	952-001-858
5.0000	0.2500	1.2500	1.5313	1.8750	0.2500	24	952-001-861	952-001-864	952-001-863	952-001-862
5.0000	0.2813	1.0000	1.6563	1.6250	0.2813	24	952-001-953	952-001-956	952-001-955	952-001-954
5.0000	0.2813	1.2500	1.5313	1.8750	0.2813	24	952-001-957	952-001-960	952-001-959	952-001-958
5.0000	0.3125	1.0000	1.6563	1.6250	0.3125	24	952-001-865	952-001-868	952-001-867	952-001-866
5.0000	0.3125	1.2500	1.5313	1.8750	0.3125	24	952-001-869	952-001-872	952-001-871	952-001-870
5.0000	0.3438	1.0000	1.6563	1.6250	0.3438	24	952-001-961	952-001-964	952-001-963	952-001-962
5.0000	0.3438	1.2500	1.5313	1.8750	0.3438	24	952-001-965	952-001-968	952-001-967	952-001-966
5.0000	0.3750	1.0000	1.6563	1.6250	0.3750	24	952-001-873	952-001-876	952-001-875	952-001-874
5.0000	0.3750	1.2500	1.5313	1.8750	0.3750	24	952-001-877	952-001-880	952-001-879	952-001-878
5.0000	0.4063	1.0000	1.6563	1.6250	0.4063	24	952-001-969	952-001-972	952-001-971	952-001-970
5.0000	0.4063	1.2500	1.5313	1.8750	0.4063	24	952-001-973	952-001-976	952-001-975	952-001-974
5.0000	0.4375	1.0000	1.6563	1.6250	0.4375	24	952-001-881	952-001-884	952-001-883	952-001-882
5.0000	0.4375	1.2500	1.5313	1.8750	0.4375	24	952-001-885	952-001-888	952-001-887	952-001-886
5.0000	0.4688	1.0000	1.6563	1.6250	0.4688	24	952-001-977	952-001-980	952-001-979	952-001-978
5.0000	0.4688	1.2500	1.5313	1.8750	0.4688	24	952-001-981	952-001-984	952-001-983	952-001-982
5.0000	0.5000	1.0000	1.6563	1.6250	0.5000	24	952-001-889	952-001-892	952-001-891	952-001-890
5.0000	0.5000	1.2500	1.5313	1.8750	0.5000	24	952-001-893	952-001-896	952-001-895	952-001-894
5.0000	0.5313	1.2500	1.5313	1.8750	0.5313	24	952-001-985	952-001-988	952-001-987	952-001-986
5.0000	0.5625	1.2500	1.5313	1.8750	0.5625	24	952-001-897	952-001-900	952-001-899	952-001-898
5.0000	0.5938	1.2500	1.5313	1.8750	0.5938	24	952-001-989	952-001-992	952-001-991	952-001-990
5.0000	0.6250	1.2500	1.5313	1.8750	0.6250	24	952-001-901	952-001-904	952-001-903	952-001-902
5.0000	0.6875	1.2500	1.5313	1.8750	0.6875	24	952-001-905	952-001-908	952-001-907	952-001-906
5.0000	0.7500	1.2500	1.5313	1.8750	0.7500	24	952-001-909	952-001-912	952-001-911	952-001-910
5.0000	0.8125	1.2500	1.5313	1.8750	0.8125	24	952-001-913	952-001-916	952-001-915	952-001-914
5.0000	0.8750	1.2500	1.5313	1.8750	0.8750	24	952-001-917	952-001-920	952-001-919	952-001-918
5.0000	0.9375	1.2500	1.5313	1.8750	0.9375	24	952-001-921	952-001-924	952-001-923	952-001-922
5.0000	1.0000	1.2500	1.5313	1.8750	1.0000	24	952-001-925	952-001-928	952-001-927	952-001-926
5.5000	0.2500	1.2500	1.7813	1.8750	0.2500	24	952-001-929	952-001-932	952-001-931	952-001-930
5.5000	0.3750	1.2500	1.7813	1.8750	0.3750	24	952-001-933	952-001-936	952-001-935	952-001-934
5.5000	0.5000	1.2500	1.7813	1.8750	0.5000	24	952-001-937	952-001-940	952-001-939	952-001-938

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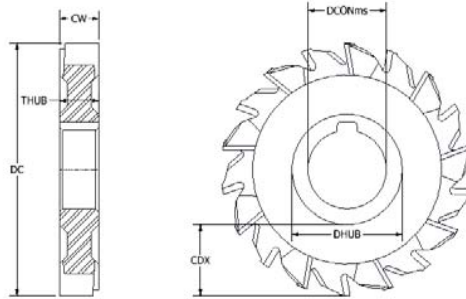
DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	UNCOATED	TIN COATED*	TICN COATED*	TiAIN COATED
5.5000	0.7500	1.2500	1.7813	1.8750	0.7500	24	952-001-941	952-001-944	952-001-943	952-001-942
6.0000	0.1875	1.0000	2.1563	1.6250	0.1875	24	952-001-993	952-001-996	952-001-995	952-001-994
6.0000	0.1875	1.2500	2.0313	1.8750	0.1875	24	952-001-997	952-002-000	952-001-999	952-001-998
6.0000	0.1875	1.5000	1.8438	2.2500	0.1875	28	952-002-001	952-002-004	952-002-003	952-002-002
6.0000	0.2188	1.0000	2.1563	1.6250	0.2188	24	952-002-145	952-002-148	952-002-147	952-002-146
6.0000	0.2188	1.2500	2.0313	1.8750	0.2188	24	952-002-149	952-002-152	952-002-151	952-002-150
6.0000	0.2188	1.5000	1.8438	2.2500	0.2188	28	952-002-153	952-002-156	952-002-155	952-002-154
6.0000	0.2500	1.0000	2.1563	1.6250	0.2500	24	952-002-005	952-002-008	952-002-007	952-002-006
6.0000	0.2500	1.2500	2.0313	1.8750	0.2500	24	952-002-009	952-002-012	952-002-011	952-002-010
6.0000	0.2500	1.5000	1.8438	2.2500	0.2500	28	952-002-013	952-002-016	952-002-015	952-002-014
6.0000	0.2813	1.0000	2.1563	1.6250	0.2813	24	952-002-157	952-002-160	952-002-159	952-002-158
6.0000	0.2813	1.2500	2.0313	1.8750	0.2813	24	952-002-161	952-002-164	952-002-163	952-002-162
6.0000	0.2813	1.5000	1.8438	2.2500	0.2813	28	952-002-165	952-002-168	952-002-167	952-002-166
6.0000	0.3125	1.0000	2.1563	1.6250	0.3125	24	952-002-017	952-002-020	952-002-019	952-002-018
6.0000	0.3125	1.2500	2.0313	1.8750	0.3125	24	952-002-021	952-002-024	952-002-023	952-002-022
6.0000	0.3125	1.5000	1.8438	2.2500	0.3125	28	952-002-025	952-002-028	952-002-027	952-002-026
6.0000	0.3438	1.0000	2.1563	1.6250	0.3438	24	952-002-169	952-002-172	952-002-171	952-002-170
6.0000	0.3438	1.2500	2.0313	1.8750	0.3438	24	952-002-173	952-002-176	952-002-175	952-002-174
6.0000	0.3438	1.5000	1.8438	2.2500	0.3438	28	952-002-177	952-002-180	952-002-179	952-002-178
6.0000	0.3750	1.0000	2.1563	1.6250	0.3750	24	952-002-029	952-002-032	952-002-031	952-002-030
6.0000	0.3750	1.2500	2.0313	1.8750	0.3750	24	952-002-033	952-002-036	952-002-035	952-002-034
6.0000	0.3750	1.5000	1.8438	2.2500	0.3750	28	952-002-037	952-002-040	952-002-039	952-002-038
6.0000	0.4063	1.0000	2.1563	1.6250	0.4063	24	952-002-181	952-002-184	952-002-183	952-002-182
6.0000	0.4063	1.2500	2.0313	1.8750	0.4063	24	952-002-185	952-002-188	952-002-187	952-002-186
6.0000	0.4063	1.5000	1.8438	2.2500	0.4063	28	952-002-189	952-002-192	952-002-191	952-002-190
6.0000	0.4375	1.0000	2.1563	1.6250	0.4375	24	952-002-041	952-002-044	952-002-043	952-002-042
6.0000	0.4375	1.2500	2.0313	1.8750	0.4375	24	952-002-045	952-002-048	952-002-047	952-002-046
6.0000	0.4375	1.5000	1.8438	2.2500	0.4375	28	952-002-049	952-002-052	952-002-051	952-002-050
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6.0000	0.4688	1.2500	2.0313	1.8750	0.4688	24	952-002-197	952-002-200	952-002-199	952-002-198
6.0000	0.4688	1.5000	1.8438	2.2500	0.4688	28	952-002-201	952-002-204	952-002-203	952-002-202
6.0000	0.5000	1.0000	2.1563	1.6250	0.5000	24	952-002-053	952-002-056	952-002-055	952-002-054
6.0000	0.5000	1.2500	2.0313	1.8750	0.5000	24	952-002-057	952-002-060	952-002-059	952-002-058
6.0000	0.5000	1.5000	1.8438	2.2500	0.5000	28	952-002-061	952-002-064	952-002-063	952-002-062
6.0000	0.5313	1.2500	2.0313	1.8750	0.5313	24	952-002-205	952-002-208	952-002-207	952-002-206
6.0000	0.5625	1.2500	2.0313	1.8750	0.5625	24	952-002-065	952-002-068	952-002-067	952-002-066
6.0000	0.5625	1.5000	1.8438	2.2500	0.5625	28	952-002-069	952-002-072	952-002-071	952-002-070
6.0000	0.6250	1.2500	2.0313	1.8750	0.6250	24	952-002-073	952-002-076	952-002-075	952-002-074
6.0000	0.6250	1.5000	1.8438	2.2500	0.6250	28	952-002-077	952-002-080	952-002-079	952-002-078
6.0000	0.6875	1.2500	2.0313	1.8750	0.6875	24	952-002-081	952-002-084	952-002-083	952-002-082
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6.0000	0.7500	1.2500	2.0313	1.8750	0.7500	28	952-002-089	952-002-092	952-002-091	952-002-090
6.0000	0.7500	1.5000	1.8438	2.2500	0.7500	24	952-002-093	952-002-096	952-002-095	952-002-094
6.0000	0.8125	1.2500	2.0313	1.8750	0.8125	24	952-002-097	952-002-100	952-002-099	952-002-098
6.0000	0.8125	1.5000	1.8438	2.2500	0.8125	28	952-002-101	952-002-104	952-002-103	952-002-102
6.0000	0.8750	1.2500	2.0313	1.8750	0.8750	24	952-002-105	952-002-108	952-002-107	952-002-106
6.0000	0.8750	1.5000	1.8438	2.2500	0.8750	28	952-002-109	952-002-112	952-002-111	952-002-110

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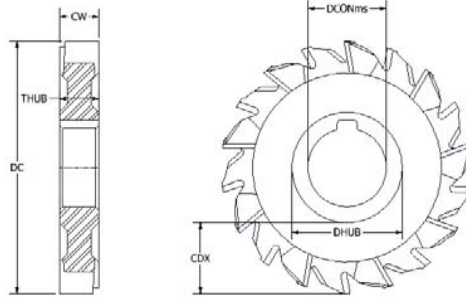
DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAIN COATED
6.0000	0.9375	1.2500	2.0313	1.8750	0.9375	24	952-002-113	952-002-116	952-002-115	952-002-114
6.0000	0.9375	1.5000	1.8438	2.2500	0.9375	28	952-002-117	952-002-120	952-002-119	952-002-118
6.0000	1.0000	1.2500	2.0313	1.8750	1.0000	24	952-002-121	952-002-124	952-002-123	952-002-122
6.0000	1.0000	1.5000	1.8438	2.2500	1.0000	28	952-002-125	952-002-128	952-002-127	952-002-126
6.0000	1.2500	1.0625	2.0313	1.8750	1.0625	24	952-002-129	952-002-132	952-002-131	952-002-130
6.0000	1.1250	1.2500	2.0313	1.8750	1.1250	24	952-002-133	952-002-136	952-002-135	952-002-134
6.0000	1.1875	1.2500	2.0313	1.8750	1.1875	24	952-002-137	952-002-140	952-002-139	952-002-138
6.0000	1.2500	1.2500	2.0313	1.8750	1.2500	24	952-002-141	952-002-144	952-002-143	952-002-142
7.0000	0.2500	1.2500	2.5313	1.8750	0.2500	24	952-002-209	952-002-212	952-002-211	952-002-210
7.0000	0.2500	1.5000	2.3438	2.2500	0.2500	28	952-002-213	952-002-216	952-002-215	952-002-214
7.0000	0.3125	1.2500	2.5313	1.8750	0.3125	24	952-002-217	952-002-220	952-002-219	952-002-218
7.0000	0.3125	1.5000	2.3438	2.2500	0.3125	28	952-002-221	952-002-224	952-002-223	952-002-222
7.0000	0.3750	1.2500	2.5313	1.8750	0.3750	24	952-002-225	952-002-228	952-002-227	952-002-226
7.0000	0.3750	1.5000	2.3438	2.2500	0.3750	28	952-002-229	952-002-232	952-002-231	952-002-230
7.0000	0.4375	1.2500	2.5313	1.8750	0.4375	24	952-002-233	952-002-236	952-002-235	952-002-234
7.0000	0.4375	1.5000	2.3438	2.2500	0.4375	28	952-002-237	952-002-240	952-002-239	952-002-238
7.0000	0.5000	1.2500	2.5313	1.8750	0.5000	24	952-002-241	952-002-244	952-002-243	952-002-242
7.0000	0.5000	1.5000	2.3438	2.2500	0.5000	28	952-002-245	952-002-248	952-002-247	952-002-246
7.0000	0.5625	1.2500	2.5313	1.8750	0.5625	24	952-002-249	952-002-252	952-002-251	952-002-250
7.0000	0.5625	1.5000	2.3438	2.2500	0.5625	28	952-002-253	952-002-256	952-002-255	952-002-254
7.0000	0.6250	1.2500	2.5313	1.8750	0.6250	24	952-002-257	952-002-260	952-002-259	952-002-258
7.0000	0.6250	1.5000	2.3438	2.2500	0.6250	28	952-002-261	952-002-264	952-002-263	952-002-262
7.0000	0.6875	1.2500	2.5313	1.8750	0.6875	24	952-002-265	952-002-268	952-002-267	952-002-266
7.0000	0.6875	1.5000	2.3438	2.2500	0.6875	28	952-002-269	952-002-272	952-002-271	952-002-270
7.0000	0.7500	1.2500	2.5313	1.8750	0.7500	24	952-002-273	952-002-276	952-002-275	952-002-274
7.0000	0.7500	1.5000	2.3438	2.2500	0.7500	28	952-002-277	952-002-280	952-002-279	952-002-278
7.0000	0.8125	1.2500	2.5313	1.8750	0.8125	24	952-002-281	952-002-284	952-002-283	952-002-282
7.0000	0.8125	1.5000	2.3438	2.2500	0.8125	28	952-002-285	952-002-288	952-002-287	952-002-286
7.0000	0.8750	1.2500	2.5313	1.8750	0.8750	24	952-002-289	952-002-292	952-002-291	952-002-290
7.0000	0.8750	1.5000	2.3438	2.2500	0.8750	28	952-002-293	952-002-296	952-002-295	952-002-294
7.0000	0.9375	1.2500	2.5313	1.8750	0.9375	24	952-002-297	952-002-300	952-002-299	952-002-298
7.0000	0.9375	1.5000	2.3438	2.2500	0.9375	28	952-002-301	952-002-304	952-002-303	952-002-302
7.0000	1.0000	1.2500	2.5313	1.8750	1.0000	24	952-002-305	952-002-308	952-002-307	952-002-306
7.0000	1.0000	1.5000	2.3438	2.2500	1.0000	28	952-002-309	952-002-312	952-002-311	952-002-310
8.0000	0.1875	1.2500	3.0313	1.8750	0.1875	28	952-002-313	952-002-316	952-002-315	952-002-314
8.0000	0.1875	1.5000	2.7188	2.5000	0.1875	28	952-002-317	952-002-320	952-002-319	952-002-318
8.0000	0.2188	1.2500	3.0313	1.8750	0.2188	28	952-002-425	952-002-428	952-002-427	952-002-426
8.0000	0.2188	1.5000	2.7188	2.5000	0.2188	28	952-002-429	952-002-432	952-002-431	952-002-430
8.0000	0.2500	1.2500	3.0313	1.8750	0.2500	28	952-002-321	952-002-324	952-002-323	952-002-322
8.0000	0.2500	1.5000	2.7188	2.5000	0.2500	28	952-002-325	952-002-328	952-002-327	952-002-326
8.0000	0.2813	1.2500	3.0313	1.8750	0.2813	28	952-002-433	952-002-436	952-002-435	952-002-434
8.0000	0.2813	1.5000	2.7188	2.5000	0.2813	28	952-002-437	952-002-440	952-002-439	952-002-438
8.0000	0.3125	1.2500	3.0313	1.8750	0.3125	28	952-002-329	952-002-332	952-002-331	952-002-330
8.0000	0.3125	1.5000	2.7188	2.5000	0.3125	28	952-002-333	952-002-336	952-002-335	952-002-334
8.0000	0.3438	1.2500	3.0313	1.8750	0.3438	28	952-002-441	952-002-444	952-002-443	952-002-442
8.0000	0.3438	1.5000	2.7188	2.5000	0.3438	28	952-002-445	952-002-448	952-002-447	952-002-446
8.0000	0.3750	1.2500	3.0313	1.8750	0.3750	28	952-002-337	952-002-340	952-002-339	952-002-338

*Make To Order



DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAlN COATED
8.0000	0.3750	1.5000	2.8438	2.2500	0.3750	28	952-002-341	952-002-344	952-002-343	952-002-342
8.0000	0.4063	1.2500	3.0313	1.8750	0.4063	28	952-002-449	952-002-452	952-002-451	952-002-450
8.0000	0.4063	1.5000	2.7188	2.5000	0.4063	28	952-002-453	952-002-456	952-002-455	952-002-454
8.0000	0.4375	1.2500	3.0313	1.8750	0.4375	28	952-002-345	952-002-348	952-002-347	952-002-346
8.0000	0.4375	1.5000	2.8438	2.2500	0.4375	28	952-002-349	952-002-352	952-002-351	952-002-350
8.0000	0.4688	1.2500	3.0313	1.8750	0.4688	28	952-002-457	952-002-460	952-002-459	952-002-458
8.0000	0.4688	1.5000	2.7188	2.5000	0.4688	28	952-002-461	952-002-464	952-002-463	952-002-462
8.0000	0.5000	1.2500	3.0313	1.8750	0.5000	28	952-002-353	952-002-356	952-002-355	952-002-354
8.0000	0.5000	1.5000	2.8438	2.2500	0.5000	28	952-002-357	952-002-360	952-002-359	952-002-358
8.0000	0.5313	1.2500	3.0313	1.8750	0.5313	28	952-002-465	952-002-468	952-002-467	952-002-466
8.0000	0.5313	1.5000	2.7188	2.5000	0.5313	28	952-002-469	952-002-472	952-002-471	952-002-470
8.0000	0.5625	1.2500	3.0313	1.8750	0.5625	28	952-002-361	952-002-364	952-002-363	952-002-362
8.0000	0.5625	1.5000	2.7188	2.5000	0.5625	28	952-002-365	952-002-368	952-002-367	952-002-366
8.0000	0.5938	1.2500	3.0313	1.8750	0.5938	28	952-002-473	952-002-476	952-002-475	952-002-474
8.0000	0.5938	1.5000	2.7188	2.5000	0.5938	28	952-002-477	952-002-480	952-002-479	952-002-478
8.0000	0.6250	1.2500	3.0313	1.8750	0.6250	28	952-002-369	952-002-372	952-002-371	952-002-370
8.0000	0.6250	1.5000	2.8438	2.2500	0.6250	28	952-002-373	952-002-376	952-002-375	952-002-374
8.0000	0.6875	1.2500	3.0313	1.8750	0.6875	28	952-002-377	952-002-380	952-002-379	952-002-378
8.0000	0.6875	1.5000	2.7188	2.5000	0.6875	28	952-002-381	952-002-384	952-002-383	952-002-382
8.0000	0.7500	1.2500	3.0313	1.8750	0.7500	28	952-002-385	952-002-388	952-002-387	952-002-386
8.0000	0.7500	1.5000	2.8438	2.2500	0.7500	28	952-002-389	952-002-392	952-002-391	952-002-390
8.0000	0.8125	1.2500	3.0313	1.8750	0.8125	28	952-002-393	952-002-396	952-002-395	952-002-394
8.0000	0.8125	1.5000	2.8438	2.2500	0.8125	28	952-002-397	952-002-400	952-002-399	952-002-398
8.0000	0.8750	1.2500	3.0313	1.8750	0.8750	28	952-002-401	952-002-404	952-002-403	952-002-402
8.0000	0.8750	1.5000	2.8438	2.2500	0.8750	28	952-002-405	952-002-408	952-002-407	952-002-406
8.0000	0.9375	1.2500	3.0313	1.8750	0.9375	28	952-002-409	952-002-412	952-002-411	952-002-410
8.0000	0.9375	1.5000	2.8438	2.2500	0.9375	28	952-002-413	952-002-416	952-002-415	952-002-414
8.0000	1.0000	1.2500	3.0313	1.8750	1.0000	28	952-002-417	952-002-420	952-002-419	952-002-418
8.0000	1.0000	1.5000	2.8438	2.2500	1.0000	28	952-002-421	952-002-424	952-002-423	952-002-422
9.0000	0.2500	1.2500	3.2188	2.5000	0.2500	28	952-002-481	952-002-484	952-002-483	952-002-482
9.0000	0.2500	1.5000	3.2188	2.5000	0.2500	28	952-002-485	952-002-488	952-002-487	952-002-486
9.0000	0.3125	1.2500	3.2188	2.5000	0.3125	28	952-002-489	952-002-492	952-002-491	952-002-490
9.0000	0.3125	1.5000	3.2188	2.5000	0.3125	28	952-002-493	952-002-496	952-002-495	952-002-494
9.0000	0.3750	1.2500	3.2188	2.5000	0.3750	28	952-002-497	952-002-500	952-002-499	952-002-498
9.0000	0.3750	1.5000	3.2188	2.5000	0.3750	28	952-002-501	952-002-504	952-002-503	952-002-502
9.0000	0.4375	1.2500	3.2188	2.5000	0.4375	28	952-002-505	952-002-508	952-002-507	952-002-506
9.0000	0.4375	1.5000	3.2188	2.5000	0.4375	28	952-002-509	952-002-512	952-002-511	952-002-510
9.0000	0.5000	1.2500	3.2188	2.5000	0.5000	28	952-002-513	952-002-516	952-002-515	952-002-514
9.0000	0.5000	1.5000	3.2188	2.5000	0.5000	28	952-002-517	952-002-520	952-002-519	952-002-518

*Make To Order



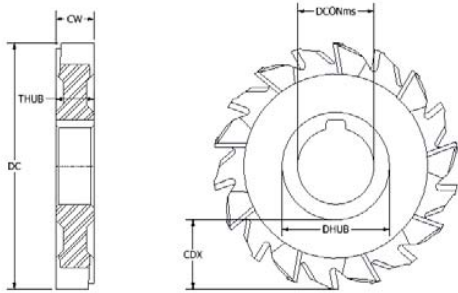
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DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	UNCOATED	TIN COATED*	TICN COATED*	TiAIN COATED
9.0000	0.5625	1.2500	3.2188	2.5000	0.5625	28	952-002-521	952-002-524	952-002-523	952-002-522
9.0000	0.5625	1.5000	3.2188	2.5000	0.5625	28	952-002-525	952-002-528	952-002-527	952-002-526
9.0000	0.6250	1.2500	3.2188	2.5000	0.6250	28	952-002-529	952-002-532	952-002-531	952-002-530
9.0000	0.6250	1.5000	3.2188	2.5000	0.6250	28	952-002-533	952-002-536	952-002-535	952-002-534
9.0000	0.6875	1.2500	3.2188	2.5000	0.6875	28	952-002-537	952-002-540	952-002-539	952-002-538
9.0000	0.6875	1.5000	3.2188	2.5000	0.6875	28	952-002-541	952-002-544	952-002-543	952-002-542
9.0000	0.7500	1.2500	3.2188	2.5000	0.7500	28	952-002-545	952-002-548	952-002-547	952-002-546
9.0000	0.7500	1.5000	3.2188	2.5000	0.7500	28	952-002-549	952-002-552	952-002-551	952-002-550
9.0000	0.8125	1.2500	3.2188	2.5000	0.8125	28	952-002-553	952-002-556	952-002-555	952-002-554
9.0000	0.8125	1.5000	3.2188	2.5000	0.8125	28	952-002-557	952-002-560	952-002-559	952-002-558
9.0000	0.8750	1.2500	3.2188	2.5000	0.8750	28	952-002-561	952-002-564	952-002-563	952-002-562
9.0000	0.8750	1.5000	3.2188	2.5000	0.8750	28	952-002-565	952-002-568	952-002-567	952-002-566
9.0000	0.9375	1.2500	3.2188	2.5000	0.9375	28	952-002-569	952-002-572	952-002-571	952-002-570
9.0000	0.9375	1.5000	3.2188	2.5000	0.9375	28	952-002-573	952-002-576	952-002-575	952-002-574
9.0000	1.0000	1.2500	3.2188	2.5000	1.0000	28	952-002-577	952-002-580	952-002-579	952-002-578
9.0000	1.0000	1.5000	3.2188	2.5000	1.0000	28	952-002-581	952-002-584	952-002-583	952-002-582
10.0000	0.1875	1.5000	3.8438	2.2500	0.1875	32	952-001-157	952-001-160	952-001-159	952-001-158
10.0000	0.2188	1.5000	3.3438	3.2500	0.2188	32	952-001-213	952-001-216	952-001-163	952-001-214
10.0000	0.2500	1.5000	3.8438	2.2500	0.2500	32	952-001-161	952-001-164	952-001-215	952-001-162
10.0000	0.2813	1.5000	3.3438	3.2500	0.2813	32	952-001-217	952-001-220	952-001-219	952-001-218
10.0000	0.3125	1.5000	3.8438	2.2500	0.3125	32	952-001-165	952-001-168	952-001-167	952-001-166
10.0000	0.3438	1.5000	3.3438	3.2500	0.3438	32	952-001-221	952-001-224	952-001-223	952-001-222
10.0000	0.3750	1.5000	3.8438	2.2500	0.3750	32	952-001-169	952-001-172	952-001-171	952-001-170
10.0000	0.4063	1.5000	3.3438	3.2500	0.4063	32	952-001-225	952-001-228	952-001-227	952-001-226
10.0000	0.4375	1.5000	3.8438	2.2500	0.4375	32	952-001-173	952-001-176	952-001-175	952-001-174
10.0000	0.4688	1.5000	3.3438	3.2500	0.4688	32	952-001-229	952-001-232	952-001-231	952-001-230
10.0000	0.5000	1.5000	3.8438	2.2500	0.5000	32	952-001-177	952-001-180	952-001-179	952-001-178
10.0000	0.5313	1.5000	3.3438	3.2500	0.5313	32	952-001-233	952-001-236	952-001-235	952-001-234
10.0000	0.5625	1.5000	3.8438	2.2500	0.5625	32	952-001-181	952-001-184	952-001-183	952-001-182
10.0000	0.6250	1.5000	3.8438	2.2500	0.6250	32	952-001-185	952-001-188	952-001-187	952-001-186
10.0000	0.6875	1.5000	3.8438	2.2500	0.6875	32	952-001-189	952-001-192	952-001-191	952-001-190
10.0000	0.7500	1.5000	3.8438	2.2500	0.7500	32	952-001-193	952-001-196	952-001-195	952-001-194
10.0000	0.8125	1.5000	3.8438	2.2500	0.8125	32	952-001-197	952-001-200	952-001-199	952-001-198
10.0000	0.8750	1.5000	3.8438	2.2500	0.8750	32	952-001-201	952-001-204	952-001-203	952-001-202
10.0000	0.9375	1.5000	3.8438	2.2500	0.9375	32	952-001-205	952-001-208	952-001-207	952-001-206
10.0000	1.0000	1.5000	3.8438	2.2500	1.0000	32	952-001-209	952-001-212	952-001-211	952-001-210

*Make To Order



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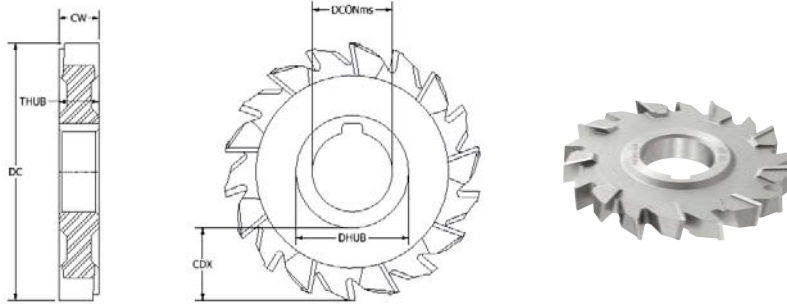
A Style

- Coarse Pitch Design
- Ground Flutes
- Flutes ground on 20° helix with 15° radial rake
- Refer to page 513 for interlocking set information



DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAlN COATED
4.0000	0.2188	1.2500	1.0938	1.7500	0.2188	10	952-000-041	952-000-044	952-000-043	952-000-042
4.0000	0.2500	1.2500	1.0938	1.7500	0.2500	10	952-000-001	952-000-004	952-000-003	952-000-002
4.0000	0.2813	1.2500	1.0938	1.7500	0.2813	10	952-000-045	952-000-048	952-000-047	952-000-046
4.0000	0.3125	1.2500	1.0938	1.7500	0.3125	10	952-000-005	952-000-008	952-000-007	952-000-006
4.0000	0.3438	1.2500	1.0938	1.7500	0.3438	10	952-000-049	952-000-052	952-000-051	952-000-050
4.0000	0.3750	1.2500	1.0938	1.7500	0.3750	10	952-000-009	952-000-012	952-000-014	952-000-010
4.0000	0.4375	1.2500	1.0938	1.7500	0.4375	10	952-000-013	952-000-016	952-000-018	952-000-014
4.0000	0.5000	1.2500	1.0938	1.7500	0.5000	10	952-000-017	952-000-020	952-000-019	952-000-018
4.0000	0.5625	1.2500	1.0938	1.7500	0.5625	10	952-000-021	952-000-024	952-000-023	952-000-022
4.0000	0.6250	1.2500	1.0938	1.7500	0.6250	10	952-000-025	952-000-028	952-000-027	952-000-026
4.0000	0.6875	1.2500	1.0938	1.7500	0.6875	10	952-000-029	952-000-032	952-000-031	952-000-030
4.0000	0.7500	1.2500	1.0938	1.7500	0.7500	10	952-000-033	952-000-036	952-000-035	952-000-034
4.0000	1.0000	1.2500	1.0938	1.7500	1.0000	10	952-000-037	952-000-040	952-000-039	952-000-038
6.0000	0.2188	1.2500	2.0313	1.8750	0.2188	16	952-000-093	952-000-096	952-000-095	952-000-094
6.0000	0.2500	1.2500	2.0313	1.8750	0.2500	16	952-000-053	952-000-056	952-000-055	952-000-054
6.0000	0.2813	1.2500	2.0313	1.8750	0.2813	16	952-000-097	952-000-100	952-000-099	952-000-098
6.0000	0.3125	1.2500	2.0313	1.8750	0.3125	16	952-000-057	952-000-060	952-000-059	952-000-058
6.0000	0.3438	1.2500	2.0313	1.8750	0.3438	16	952-000-101	952-000-104	952-000-103	952-000-102
6.0000	0.3750	1.2500	2.0313	1.8750	0.3750	16	952-000-061	952-000-064	952-000-063	952-000-062
6.0000	0.4375	1.2500	2.0313	1.8750	0.4375	16	952-000-065	952-000-068	952-000-067	952-000-066
6.0000	0.5000	1.2500	2.0313	1.8750	0.5000	16	952-000-069	952-000-072	952-000-071	952-000-070
6.0000	0.5625	1.2500	2.0313	1.8750	0.5625	16	952-000-073	952-000-076	952-000-075	952-000-074
6.0000	0.6250	1.2500	2.0313	1.8750	0.6250	16	952-000-077	952-000-080	952-000-079	952-000-078
6.0000	0.6875	1.2500	2.0313	1.8750	0.6875	16	952-000-081	952-000-084	952-000-083	952-000-082
6.0000	0.7500	1.2500	2.0313	1.8750	0.7500	16	952-000-085	952-000-088	952-000-087	952-000-086
6.0000	1.0000	1.2500	2.0313	1.8750	1.0000	16	952-000-089	952-000-092	952-000-091	952-000-090
8.0000	0.3750	1.2500	2.7188	2.5000	0.3750	20	952-000-105	952-000-108	952-000-107	952-000-106
8.0000	0.5000	1.2500	2.7188	2.5000	0.5000	20	952-000-109	952-000-112	952-000-111	952-000-110
8.0000	0.7500	1.2500	2.7188	2.5000	0.7500	20	952-000-113	952-000-116	952-000-115	952-000-114

*Make To Order



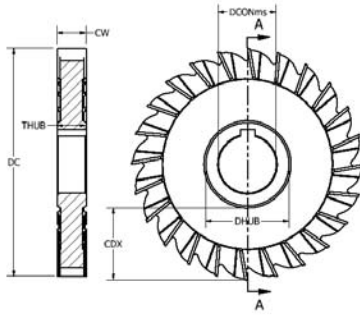
WK Style

- Excellent for Milling Keys
- Reduced Side Clearance to Maintain Width
- Diameters Furnished 1/32" Oversized for REsharpening
- REfer to page 513 for interlocking set information



DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAIN COATED
2.1563	0.1875	0.7500	0.5469	1.0000	0.1875	14	952-002-637	952-002-640	952-002-639	952-002-638
2.1563	0.2500	0.7500	0.5469	1.0000	0.2500	14	952-002-641	952-002-644	952-002-643	952-002-642
2.1563	0.3125	0.7500	0.5469	1.0000	0.3125	14	952-002-585	952-002-588	952-002-587	952-002-586
2.1563	0.3750	0.7500	0.5469	1.0000	0.3750	14	952-002-593	952-002-596	952-002-595	952-002-594
2.7813	0.2500	1.0000	0.6404	1.4380	0.2500	16	952-002-645	952-002-648	952-002-647	952-002-646
2.7813	0.3125	1.0000	0.6404	1.4380	0.3125	16	952-002-589	952-002-592	952-002-591	952-002-590
2.7813	0.3750	1.0000	0.6404	1.4380	0.3750	16	952-002-597	952-002-600	952-002-599	952-002-598
2.7813	0.4375	1.0000	0.6404	1.4380	0.4375	16	952-002-605	952-002-608	952-002-607	952-002-606
2.7813	0.5000	1.0000	0.6404	1.4380	0.5000	16	952-002-613	952-002-616	952-002-615	952-002-614
3.5313	0.3750	1.0000	1.0154	1.4380	0.3750	18	952-002-601	952-002-604	952-002-603	952-002-602
3.5313	0.4375	1.0000	1.0154	1.4380	0.4375	18	952-002-609	952-002-612	952-002-611	952-002-610
3.5313	0.5000	1.0000	0.9844	1.5000	0.5000	18	952-002-617	952-002-620	952-002-619	952-002-618
3.5313	0.5625	1.0000	0.9844	1.5000	0.5625	18	952-002-621	952-002-624	952-002-623	952-002-622
3.5313	0.6250	1.0000	0.9844	1.5000	0.6250	18	952-002-625	952-002-628	952-002-627	952-002-626
3.5313	0.6875	1.0000	0.9844	1.5000	0.6875	18	952-002-629	952-002-632	952-002-631	952-002-630
3.5313	0.7500	1.0000	0.9844	1.5000	0.7500	18	952-002-633	952-002-636	952-002-635	952-002-634

*Make To Order



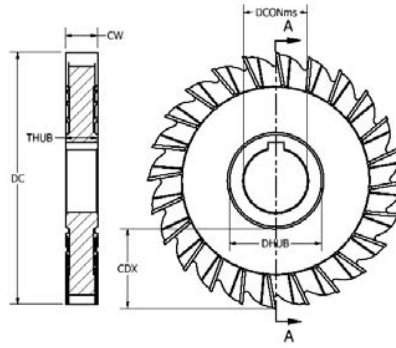
B Style

- Additional teeth for improved finish
- Excellent for thin walled parts, interrupted cuts or finish requirements



DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	UNCOATED	TIN COATED*	TICN COATED*	TiAIN COATED
2.0000	0.1875	0.5000	0.4998	0.9380	0.1875	14	952-000-169	952-000-172	952-000-171	952-000-170
2.0000	0.1875	0.6250	0.4998	0.9380	0.1875	14	952-000-173	952-000-176	952-000-175	952-000-174
2.0000	0.2500	0.5000	0.4998	0.9380	0.2500	14	952-000-177	952-000-180	952-000-179	952-000-178
2.0000	0.2500	0.6250	0.4998	0.9380	0.2500	14	952-000-181	952-000-184	952-000-183	952-000-182
2.0000	0.3750	0.5000	0.4998	0.9380	0.3750	14	952-000-185	952-000-188	952-000-187	952-000-186
2.0000	0.3750	0.6250	0.4998	0.9380	0.3750	14	952-000-189	952-000-192	952-000-191	952-000-190
2.5000	0.2500	0.8750	0.6248	1.1880	0.2500	16	952-000-193	952-000-196	952-000-195	952-000-194
2.5000	0.3125	0.8750	0.6248	1.1880	0.3125	16	952-000-197	952-000-200	952-000-199	952-000-198
2.5000	0.3750	0.8750	0.6248	1.1880	0.3750	16	952-000-201	952-000-204	952-000-203	952-000-202
2.5000	0.5000	0.8750	0.6248	1.1880	0.5000	16	952-000-205	952-000-208	952-000-207	952-000-206
3.0000	0.1875	1.0000	0.7188	1.5000	0.1875	20	952-000-209	952-000-212	952-000-211	952-000-210
3.0000	0.2188	1.0000	0.7188	1.5000	0.2188	20	952-000-265	952-000-268	952-000-267	952-000-266
3.0000	0.2500	1.0000	0.7188	1.5000	0.2500	20	952-000-213	952-000-216	952-000-215	952-000-214
3.0000	0.2813	1.0000	0.7188	1.5000	0.2813	20	952-000-269	952-000-272	952-000-271	952-000-270
3.0000	0.3125	1.0000	0.7188	1.5000	0.3125	20	952-000-217	952-000-220	952-000-219	952-000-218
3.0000	0.3438	1.0000	0.7188	1.5000	0.3438	20	952-000-273	952-000-276	952-000-275	952-000-274
3.0000	0.3750	1.0000	0.7188	1.5000	0.3750	20	952-000-221	952-000-224	952-000-223	952-000-222
3.0000	0.4063	1.0000	0.7188	1.5000	0.4063	20	952-000-277	952-000-280	952-000-279	952-000-278
3.0000	0.4375	1.0000	0.7188	1.5000	0.4375	20	952-000-225	952-000-228	952-000-227	952-000-226
3.0000	0.5000	1.0000	0.7188	1.5000	0.5000	20	952-000-229	952-000-232	952-000-231	952-000-230
3.0000	0.5625	1.0000	0.7188	1.5000	0.5625	20	952-000-233	952-000-236	952-000-235	952-000-234
3.0000	0.6250	1.0000	0.7188	1.5000	0.6250	20	952-000-237	952-000-240	952-000-239	952-000-238
3.0000	0.6875	1.0000	0.7188	1.5000	0.6875	20	952-000-241	952-000-244	952-000-243	952-000-242
3.0000	0.7500	1.0000	0.7188	1.5000	0.7500	20	952-000-245	952-000-248	952-000-247	952-000-246
3.0000	0.8125	1.0000	0.7188	1.5000	0.8125	24	952-000-249	952-000-252	952-000-251	952-000-250
3.0000	0.8750	1.0000	0.7188	1.5000	0.8750	24	952-000-253	952-000-256	952-000-255	952-000-254
3.0000	0.9375	1.0000	0.7188	1.5000	0.9375	24	952-000-257	952-000-260	952-000-259	952-000-258
3.0000	1.0000	1.0000	0.7188	1.5000	1.0000	24	952-000-261	952-000-264	952-000-263	952-000-262
4.0000	0.2188	1.0000	1.1563	1.6250	0.2188	24	952-000-385	952-000-388	952-000-387	952-000-386
4.0000	0.2188	1.2500	1.0938	1.7500	0.2188	24	952-000-389	952-000-392	952-000-391	952-000-390
4.0000	0.2500	1.0000	1.1563	1.6250	0.2500	24	952-000-281	952-000-284	952-000-283	952-000-282
4.0000	0.2500	1.2500	1.0938	1.7500	0.2500	24	952-000-285	952-000-288	952-000-287	952-000-286
4.0000	0.2813	1.0000	1.1563	1.6250	0.2813	24	952-000-393	952-000-396	952-000-395	952-000-394
4.0000	0.2813	1.2500	1.0938	1.7500	0.2813	24	952-000-397	952-000-400	952-000-399	952-000-398
4.0000	0.3125	1.0000	1.1563	1.6250	0.3125	24	952-000-289	952-000-292	952-000-291	952-000-290
4.0000	0.3125	1.2500	1.0938	1.7500	0.3125	24	952-000-293	952-000-296	952-000-295	952-000-294
4.0000	0.3438	1.0000	1.1563	1.6250	0.3438	24	952-000-401	952-000-404	952-000-403	952-000-402
4.0000	0.3438	1.2500	1.0938	1.7500	0.3438	24	952-000-405	952-000-408	952-000-407	952-000-406
4.0000	0.3750	1.0000	1.1563	1.6250	0.3750	24	952-000-297	952-000-300	952-000-299	952-000-298
4.0000	0.3750	1.2500	1.0938	1.7500	0.3750	24	952-000-301	952-000-304	952-000-303	952-000-302
4.0000	0.4063	1.0000	1.1563	1.6250	0.4063	24	952-000-409	952-000-412	952-000-411	952-000-410
4.0000	0.4063	1.2500	1.0938	1.7500	0.4063	24	952-000-413	952-000-416	952-000-415	952-000-414
4.0000	0.4375	1.0000	1.1563	1.6250	0.4375	24	952-000-305	952-000-308	952-000-307	952-000-306
4.0000	0.4375	1.2500	1.0938	1.7500	0.4375	24	952-000-309	952-000-312	952-000-311	952-000-310
4.0000	0.5000	1.0000	1.1563	1.6250	0.5000	24	952-000-313	952-000-316	952-000-315	952-000-314
4.0000	0.5000	1.2500	1.0938	1.7500	0.5000	24	952-000-317	952-000-320	952-000-319	952-000-318

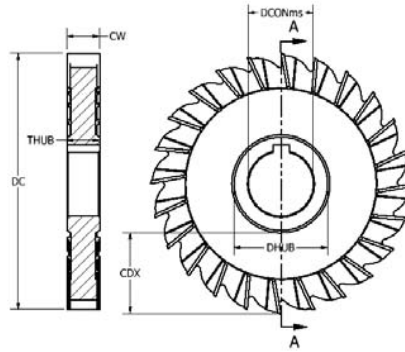
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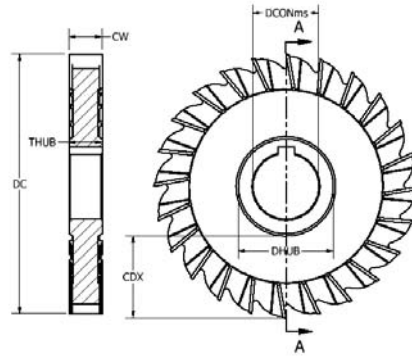
DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	UNCOATED	TIN COATED*	TICN COATED*	TIAIN COATED
4.0000	0.5625	1.0000	1.1563	1.6250	0.5625	24	952-000-321	952-000-324	952-000-323	952-000-322
4.0000	0.5625	1.2500	1.0938	1.7500	0.5625	24	952-000-325	952-000-328	952-000-327	952-000-326
4.0000	0.6250	1.0000	1.1563	1.6250	0.6250	24	952-000-329	952-000-332	952-000-331	952-000-330
4.0000	0.6250	1.2500	1.0938	1.7500	0.6250	24	952-000-333	952-000-336	952-000-335	952-000-334
4.0000	0.6875	1.0000	1.1563	1.6250	0.6875	24	952-000-337	952-000-340	952-000-339	952-000-338
4.0000	0.6875	1.2500	1.0938	1.7500	0.6875	24	952-000-341	952-000-344	952-000-343	952-000-342
4.0000	0.7500	1.0000	1.1563	1.6250	0.7500	24	952-000-345	952-000-348	952-000-347	952-000-346
4.0000	0.7500	1.2500	1.0938	1.7500	0.7500	24	952-000-349	952-000-352	952-000-351	952-000-350
4.0000	0.8125	1.0000	1.1563	1.6250	0.8125	24	952-000-353	952-000-356	952-000-355	952-000-354
4.0000	0.8125	1.2500	1.0938	1.7500	0.8125	24	952-000-357	952-000-360	952-000-359	952-000-358
4.0000	0.8750	1.0000	1.1563	1.6250	0.8750	24	952-000-361	952-000-364	952-000-363	952-000-362
4.0000	0.8750	1.2500	1.0938	1.7500	0.8750	24	952-000-365	952-000-368	952-000-367	952-000-366
4.0000	0.9375	1.0000	1.1563	1.6250	0.9375	24	952-000-369	952-000-372	952-000-371	952-000-370
4.0000	0.9375	1.2500	1.0938	1.7500	0.9375	24	952-000-373	952-000-376	952-000-375	952-000-374
4.0000	1.0000	1.0000	1.1563	1.6250	1.0000	24	952-000-377	952-000-380	952-000-379	952-000-378
4.0000	1.0000	1.2500	1.0938	1.7500	1.0000	24	952-000-381	952-000-384	952-000-383	952-000-382
5.0000	0.2500	1.0000	1.6563	1.6250	0.2500	26	952-000-417	952-000-420	952-000-419	952-000-418
5.0000	0.2500	1.2500	1.5313	1.8750	0.2500	26	952-000-421	952-000-424	952-000-423	952-000-422
5.0000	0.2813	1.0000	1.6563	1.6250	0.2813	26	952-000-521	952-000-524	952-000-523	952-000-522
5.0000	0.2813	1.2500	1.5313	1.8750	0.2813	26	952-000-525	952-000-528	952-000-527	952-000-526
5.0000	0.3125	1.0000	1.6563	1.6250	0.3125	26	952-000-425	952-000-428	952-000-427	952-000-426
5.0000	0.3125	1.2500	1.5313	1.8750	0.3125	26	952-000-429	952-000-432	952-000-431	952-000-430
5.0000	0.3438	1.0000	1.6563	1.6250	0.3438	26	952-000-529	952-000-532	952-000-531	952-000-530
5.0000	0.3438	1.2500	1.5313	1.8750	0.3438	26	952-000-533	952-000-536	952-000-535	952-000-534
5.0000	0.3750	1.0000	1.6563	1.6250	0.3750	26	952-000-433	952-000-436	952-000-435	952-000-434
5.0000	0.3750	1.2500	1.5313	1.8750	0.3750	26	952-000-437	952-000-440	952-000-439	952-000-438
5.0000	0.4063	1.0000	1.6563	1.6250	0.4063	26	952-000-537	952-000-540	952-000-539	952-000-538
5.0000	0.4063	1.2500	1.5313	1.8750	0.4063	26	952-000-541	952-000-544	952-000-543	952-000-542
5.0000	0.4375	1.0000	1.6563	1.6250	0.4375	26	952-000-441	952-000-444	952-000-443	952-000-442
5.0000	0.4375	1.2500	1.5313	1.8750	0.4375	26	952-000-445	952-000-448	952-000-447	952-000-446
5.0000	0.5000	1.0000	1.6563	1.6250	0.5000	26	952-000-449	952-000-452	952-000-451	952-000-450
5.0000	0.5000	1.2500	1.5313	1.8750	0.5000	26	952-000-453	952-000-456	952-000-455	952-000-454
5.0000	0.5625	1.0000	1.6563	1.6250	0.5625	26	952-000-457	952-000-460	952-000-459	952-000-458
5.0000	0.5625	1.2500	1.5313	1.8750	0.5625	26	952-000-461	952-000-464	952-000-463	952-000-462
5.0000	0.6250	1.0000	1.6563	1.6250	0.6250	26	952-000-465	952-000-468	952-000-467	952-000-466
5.0000	0.6250	1.2500	1.5313	1.8750	0.6250	26	952-000-469	952-000-472	952-000-471	952-000-470
5.0000	0.6875	1.0000	1.6563	1.6250	0.6875	26	952-000-473	952-000-476	952-000-475	952-000-474
5.0000	0.6875	1.2500	1.5313	1.8750	0.6875	26	952-000-477	952-000-480	952-000-479	952-000-478
5.0000	0.7500	1.0000	1.6563	1.6250	0.7500	26	952-000-481	952-000-484	952-000-483	952-000-482

*Make To Order



DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAlN COATED
5.0000	0.7500	1.2500	1.5313	1.8750	0.7500	26	952-000-485	952-000-488	952-000-487	952-000-486
5.0000	0.8125	1.0000	1.6563	1.6250	0.8125	26	952-000-489	952-000-492	952-000-491	952-000-490
5.0000	0.8125	1.2500	1.5313	1.8750	0.8125	26	952-000-493	952-000-496	952-000-495	952-000-494
5.0000	0.8750	1.0000	1.6563	1.6250	0.8750	26	952-000-497	952-000-500	952-000-499	952-000-498
5.0000	0.8750	1.2500	1.5313	1.8750	0.8750	26	952-000-501	952-000-504	952-000-503	952-000-502
5.0000	0.9375	1.0000	1.6563	1.6250	0.9375	26	952-000-505	952-000-508	952-000-507	952-000-506
5.0000	0.9375	1.2500	1.5313	1.8750	0.9375	26	952-000-509	952-000-512	952-000-511	952-000-510
5.0000	1.0000	1.0000	1.6563	1.6250	1.0000	26	952-000-513	952-000-516	952-000-515	952-000-514
5.0000	1.0000	1.2500	1.5313	1.8750	1.0000	26	952-000-517	952-000-520	952-000-519	952-000-518
6.0000	0.2500	1.2500	2.0313	1.8750	0.2500	26	952-000-545	952-000-548	952-000-547	952-000-546
6.0000	0.2813	1.2500	2.0313	1.8750	0.2813	30	952-000-605	952-000-608	952-000-607	952-000-606
6.0000	0.3125	1.2500	2.0313	1.8750	0.3125	30	952-000-549	952-000-552	952-000-551	952-000-550
6.0000	0.3438	1.2500	2.0313	1.8750	0.3438	30	952-000-609	952-000-612	952-000-611	952-000-610
6.0000	0.3750	1.2500	2.0313	1.8750	0.3750	30	952-000-553	952-000-556	952-000-555	952-000-554
6.0000	0.4063	1.2500	2.0313	1.8750	0.4063	30	952-000-613	952-000-616	952-000-615	952-000-614
6.0000	0.4375	1.2500	2.0313	1.8750	0.4375	30	952-000-557	952-000-560	952-000-559	952-000-558
6.0000	0.5000	1.0000	2.1563	1.6250	0.5000	30	952-000-561	952-000-564	952-000-563	952-000-562
6.0000	0.5000	1.2500	2.0313	1.8750	0.5000	30	952-000-565	952-000-568	952-000-567	952-000-566
6.0000	0.5625	1.2500	2.0313	1.8750	0.5625	30	952-000-569	952-000-572	952-000-571	952-000-570
6.0000	0.6250	1.2500	2.0313	1.8750	0.6250	30	952-000-573	952-000-576	952-000-575	952-000-574
6.0000	0.6875	1.2500	2.0313	1.8750	0.6875	30	952-000-577	952-000-580	952-000-579	952-000-578
6.0000	0.7500	1.0000	2.1563	1.6250	0.7500	30	952-000-581	952-000-584	952-000-583	952-000-582
6.0000	0.7500	1.2500	2.0313	1.8750	0.7500	30	952-000-585	952-000-588	952-000-587	952-000-586
6.0000	0.8125	1.2500	2.0313	1.8750	0.8125	30	952-000-589	952-000-592	952-000-591	952-000-590
6.0000	0.8750	1.2500	2.0313	1.8750	0.8750	30	952-000-593	952-000-596	952-000-595	952-000-594
6.0000	0.9375	1.2500	2.0313	1.8750	0.9375	30	952-000-597	952-000-600	952-000-599	952-000-598
6.0000	1.0000	1.2500	2.0313	1.8750	1.0000	30	952-000-601	952-000-604	952-000-603	952-000-602
7.0000	0.2500	1.2500	2.5313	1.8750	0.2500	32	952-000-617	952-000-620	952-000-619	952-000-618
7.0000	0.3125	1.2500	2.5313	1.8750	0.3125	32	952-000-621	952-000-624	952-000-623	952-000-622
7.0000	0.3750	1.2500	2.5313	1.8750	0.3750	32	952-000-625	952-000-628	952-000-627	952-000-626
7.0000	0.4375	1.2500	2.5313	1.8750	0.4375	32	952-000-629	952-000-632	952-000-631	952-000-630
7.0000	0.5000	1.2500	2.5313	1.8750	0.5000	32	952-000-633	952-000-636	952-000-635	952-000-634
7.0000	0.5625	1.2500	2.5313	1.8750	0.5625	32	952-000-637	952-000-640	952-000-639	952-000-638
7.0000	0.6250	1.2500	2.5313	1.8750	0.6250	32	952-000-641	952-000-644	952-000-643	952-000-642
7.0000	0.6875	1.2500	2.5313	1.8750	0.6875	32	952-000-645	952-000-648	952-000-647	952-000-646
7.0000	0.7500	1.2500	2.5313	1.8750	0.7500	32	952-000-649	952-000-652	952-000-651	952-000-650
7.0000	0.8125	1.2500	2.5313	1.8750	0.8125	32	952-000-653	952-000-656	952-000-655	952-000-654
7.0000	0.8750	1.2500	2.5313	1.8750	0.8750	32	952-000-657	952-000-660	952-000-659	952-000-658
7.0000	0.9375	1.2500	2.5313	1.8750	0.9375	32	952-000-661	952-000-664	952-000-663	952-000-662
7.0000	1.0000	1.2500	2.5313	1.8750	1.0000	32	952-000-665	952-000-668	952-000-667	952-000-666
8.0000	0.2500	1.2500	3.0313	1.8750	0.2500	34	952-000-669	952-000-672	952-000-671	952-000-670
8.0000	0.3125	1.2500	3.0313	1.8750	0.3125	34	952-000-673	952-000-676	952-000-675	952-000-674
8.0000	0.3750	1.2500	3.0313	1.8750	0.3750	34	952-000-677	952-000-680	952-000-679	952-000-678

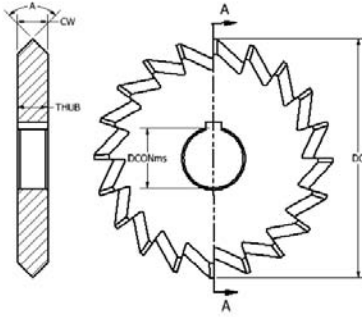
*Make To Order



HSS

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAlN COATED
8.0000	0.4375	1.2500	3.0313	1.8750	0.4375	34	952-000-681	952-000-684	952-000-683	952-000-682
8.0000	0.5000	1.2500	3.0313	1.8750	0.5000	34	952-000-685	952-000-688	952-000-687	952-000-686
8.0000	0.5625	1.2500	3.0313	1.8750	0.5625	34	952-000-689	952-000-692	952-000-691	952-000-690
8.0000	0.6250	1.2500	3.0313	1.8750	0.6250	34	952-000-693	952-000-696	952-000-695	952-000-694
8.0000	0.6875	1.0000	3.0313	1.8750	0.6875	34	952-000-697	952-000-700	952-000-699	952-000-698
8.0000	0.7500	1.2500	3.0313	1.8750	0.7500	34	952-000-701	952-000-704	952-000-703	952-000-702
8.0000	0.8125	1.2500	3.0313	1.8750	0.8125	34	952-000-705	952-000-708	952-000-707	952-000-706
8.0000	0.8750	1.2500	3.0313	1.8750	0.8750	34	952-000-709	952-000-712	952-000-711	952-000-710
8.0000	0.9375	1.2500	3.0313	1.8750	0.9375	34	952-000-713	952-000-716	952-000-715	952-000-714
8.0000	1.0000	1.2500	3.0313	1.8750	1.0000	34	952-000-717	952-000-720	952-000-719	952-000-718
9.0000	0.2500	1.2500	3.2188	2.5000	0.2500	36	952-000-721	952-000-724	952-000-723	952-000-722
9.0000	0.3125	1.2500	3.2188	2.5000	0.3125	36	952-000-725	952-000-728	952-000-727	952-000-726
9.0000	0.3750	1.2500	3.2188	2.5000	0.3750	36	952-000-729	952-000-732	952-000-731	952-000-730
9.0000	0.4375	1.2500	3.2188	2.5000	0.4375	36	952-000-733	952-000-736	952-000-735	952-000-734
9.0000	0.5000	1.2500	3.2188	2.5000	0.5000	36	952-000-737	952-000-740	952-000-739	952-000-738
9.0000	0.5625	1.2500	3.2188	2.5000	0.5625	36	952-000-741	952-000-744	952-000-743	952-000-742
9.0000	0.6250	1.2500	3.2188	2.5000	0.6250	36	952-000-745	952-000-748	952-000-747	952-000-746
9.0000	0.6875	1.0000	3.2188	2.5000	0.6875	36	952-000-749	952-000-752	952-000-751	952-000-750
9.0000	0.7500	1.2500	3.2188	2.5000	0.7500	36	952-000-753	952-000-756	952-000-755	952-000-754
9.0000	0.8125	1.2500	3.2188	2.5000	0.8125	36	952-000-757	952-000-760	952-000-759	952-000-758
9.0000	0.8750	1.2500	3.2188	2.5000	0.8750	36	952-000-761	952-000-764	952-000-763	952-000-762
9.0000	0.9375	1.2500	3.2188	2.5000	0.9375	36	952-000-765	952-000-768	952-000-767	952-000-766
9.0000	1.0000	1.2500	3.2188	2.5000	1.0000	36	952-000-769	952-000-772	952-000-771	952-000-770
10.0000	0.2500	1.5000	3.3438	3.2500	0.2500	38	952-000-117	952-000-120	952-000-119	952-000-118
10.0000	0.3125	1.5000	3.3438	3.2500	0.3125	38	952-000-121	952-000-124	952-000-123	952-000-122
10.0000	0.3750	1.5000	3.3438	3.2500	0.3750	38	952-000-125	952-000-128	952-000-127	952-000-126
10.0000	0.4375	1.5000	3.3438	3.2500	0.4375	38	952-000-129	952-000-132	952-000-131	952-000-130
10.0000	0.5000	1.5000	3.3438	3.2500	0.5000	38	952-000-133	952-000-136	952-000-135	952-000-134
10.0000	0.5625	1.5000	3.3438	3.2500	0.5625	38	952-000-137	952-000-140	952-000-139	952-000-138
10.0000	0.6250	1.5000	3.3438	3.2500	0.6250	38	952-000-141	952-000-144	952-000-143	952-000-142
10.0000	0.6875	1.5000	3.3438	3.2500	0.6875	38	952-000-145	952-000-148	952-000-147	952-000-146
10.0000	0.7500	1.5000	3.3438	3.2500	0.7500	38	952-000-149	952-000-152	952-000-151	952-000-150
10.0000	0.8125	1.5000	3.3438	3.2500	0.8125	38	952-000-153	952-000-156	952-000-155	952-000-154
10.0000	0.8750	1.5000	3.3438	3.2500	0.8750	38	952-000-157	952-000-160	952-000-159	952-000-158
10.0000	0.9375	1.5000	3.3438	3.2500	0.9375	38	952-000-161	952-000-164	952-000-163	952-000-162
10.0000	1.0000	1.5000	3.3438	3.2500	1.0000	38	952-000-165	952-000-168	952-000-167	952-000-166

*Make To Order



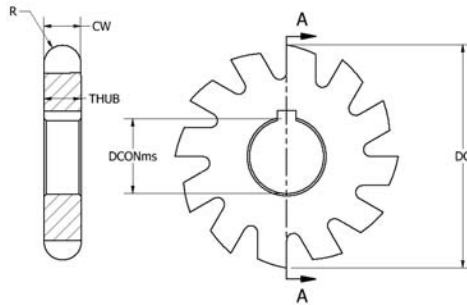
DA Style

- Three Standard Angles
- Excellent for thin Milling Notches, Chamfers, Serrations and Angles



DC [in.]	CW [in.]	DCONMS [in.]	THUB [in.]	A [°]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAIN COATED
2.7500	0.5000	1.0000	1.2500	45.0	20	900-000-001	900-000-004	900-000-003	900-000-002
2.7500	0.5000	1.0000	0.5000	60.0	20	900-000-005	900-000-008	900-000-007	900-000-006
2.7500	0.5000	1.0000	0.5000	90.0	20	900-000-041	900-000-044	900-000-043	900-000-042
4.0000	0.5000	1.2500	0.5000	60.0	20	900-000-009	900-000-012	900-000-011	900-000-010
4.0000	0.5000	1.2500	0.5000	90.0	20	900-000-045	900-000-048	900-000-047	900-000-046
4.0000	0.7500	1.2500	0.7500	60.0	20	900-000-013	900-000-016	900-000-015	900-000-014
4.0000	0.7500	1.2500	0.7500	90.0	20	900-000-049	900-000-052	900-000-051	900-000-050
4.0000	1.0000	1.2500	1.0000	60.0	20	900-000-017	900-000-020	900-000-019	900-000-018
4.0000	1.0000	1.2500	1.0000	90.0	20	900-000-053	900-000-056	900-000-055	900-000-054
5.0000	0.7500	1.2500	0.7500	60.0	24	900-000-021	900-000-024	900-000-023	900-000-022
5.0000	0.7500	1.2500	0.7500	90.0	24	900-000-057	900-000-060	900-000-059	900-000-058
5.0000	1.0000	1.2500	1.0000	60.0	24	900-000-025	900-000-028	900-000-027	900-000-026
5.0000	1.0000	1.2500	1.0000	90.0	24	900-000-061	900-000-064	900-000-063	900-000-062
6.0000	1.0000	1.2500	1.0000	60.0	28	900-000-029	900-000-032	900-000-031	900-000-030
6.0000	1.0000	1.2500	1.0000	90.0	28	900-000-065	900-000-068	900-000-067	900-000-066
6.0000	1.2500	1.2500	1.2500	60.0	28	900-000-033	900-000-036	900-000-035	900-000-034
6.0000	1.0000	1.2500	1.0000	90.0	28	900-000-069	900-000-072	900-000-071	900-000-070
6.0000	1.5000	1.2500	1.5000	60.0	28	900-000-037	900-000-040	900-000-039	900-000-038
6.0000	1.2500	1.2500	1.2500	90.0	28	900-000-073	900-000-076	900-000-075	900-000-074

*Make To Order



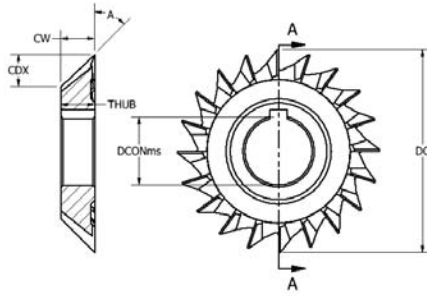
CVS Style

- Convex Radius



DC [in.]	CW [in.]	DCONMS [in.]	THUB [in.]	R [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAIN COATED
2.2500	0.1250	1.0000	0.1250	0.0625	16	921-000-001	921-000-004	921-000-003	921-000-002
2.2500	0.1875	1.0000	0.1875	0.0938	16	921-000-005	921-000-008	921-000-007	921-000-006
2.5000	0.2500	1.0000	0.2500	0.1250	14	921-000-009	921-000-012	921-000-011	921-000-010
2.7500	0.3125	1.0000	0.3125	0.1563	14	921-000-013	921-000-016	921-000-015	921-000-014
2.7500	0.3750	1.0000	0.1875	0.0938	12	921-000-017	921-000-020	921-000-019	921-000-018
3.0000	0.4375	1.0000	0.2188	0.1094	12	921-000-021	921-000-024	921-000-023	921-000-022
3.0000	0.5000	1.0000	0.2500	0.1250	12	921-000-025	921-000-028	921-000-027	921-000-026
3.5000	0.6250	1.2500	0.6250	0.3125	12	921-000-029	921-000-032	921-000-031	921-000-030
3.7500	0.7500	1.2500	0.7500	0.3750	12	921-000-033	921-000-036	921-000-035	921-000-034
4.0000	0.8750	1.2500	0.8750	0.4375	12	921-000-037	921-000-040	921-000-039	921-000-038
4.2500	1.0000	1.2500	1.0000	0.5000	10	921-000-041	921-000-044	921-000-043	921-000-042
4.2500	1.1250	1.2500	1.1250	0.5625	10	921-000-045	921-000-048	921-000-047	921-000-046
4.5000	1.2500	1.2500	1.2500	0.6250	10	921-000-049	921-000-052	921-000-051	921-000-050
4.7500	1.3750	1.2500	1.3750	0.6875	10	921-000-053	921-000-056	921-000-055	921-000-054
5.0000	1.5000	1.2500	1.5000	0.7500	10	921-000-057	921-000-060	921-000-059	921-000-058

*Make To Order

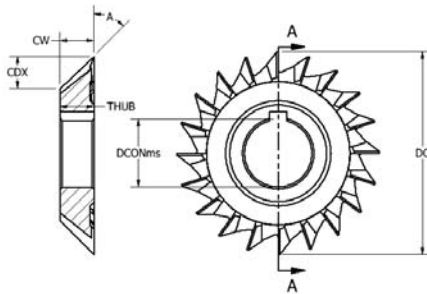


FL Style



DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	THUB [in.]	A [°]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAlN COATED
2.7500	0.5000	1.0000	0.5000	0.5000	45.0	20	900-000-077	900-000-080	900-000-079	900-000-078
2.7500	0.5000	1.0000	0.2887	0.5000	60.0	20	900-000-157	900-000-160	900-000-159	900-000-158
3.0000	0.5000	1.2500	0.5000	0.5000	45.0	20	900-000-085	900-000-088	900-000-087	900-000-086
3.0000	0.5000	1.2500	0.2887	0.5000	60.0	20	900-000-165	900-000-168	900-000-167	900-000-166
4.0000	0.5000	1.2500	0.5000	0.5000	45.0	20	900-000-093	900-000-096	900-000-095	900-000-094
4.0000	0.5000	1.2500	0.2887	0.5000	60.0	20	900-000-173	900-000-176	900-000-175	900-000-174
4.0000	0.7500	1.2500	0.7500	0.7500	45.0	20	900-000-101	900-000-104	900-000-103	900-000-102
4.0000	0.7500	1.2500	0.4330	0.7500	60.0	20	900-000-181	900-000-184	900-000-183	900-000-182
4.0000	1.0000	1.2500	1.0000	1.0000	45.0	20	900-000-109	900-000-112	900-000-111	900-000-110
4.0000	1.0000	1.2500	0.5774	1.0000	60.0	20	900-000-189	900-000-192	900-000-191	900-000-190
5.0000	0.7500	1.2500	0.7500	0.7500	45.0	24	900-000-117	900-000-120	900-000-119	900-000-118
4.0000	0.7500	1.2500	0.4330	0.7500	60.0	24	900-000-197	900-000-200	900-000-199	900-000-198
5.0000	1.0000	1.2500	1.0000	1.0000	45.0	24	900-000-125	900-000-128	900-000-127	900-000-126
5.0000	1.0000	1.2500	0.5774	1.0000	60.0	24	900-000-205	900-000-208	900-000-207	900-000-206
6.0000	0.7500	1.2500	0.7500	0.7500	45.0	28	900-000-133	900-000-136	900-000-135	900-000-134
6.0000	0.7500	1.2500	0.4330	0.7500	60.0	28	900-000-213	900-000-216	900-000-215	900-000-214
6.0000	1.0000	1.2500	1.0000	1.0000	45.0	28	900-000-141	900-000-144	900-000-143	900-000-142
6.0000	1.0000	1.2500	0.5774	1.0000	60.0	28	900-000-221	900-000-224	900-000-223	900-000-222
6.0000	1.2500	1.2500	1.2500	1.2500	45.0	28	900-000-149	900-000-152	900-000-151	900-000-150
6.0000	1.2500	1.2500	0.7217	1.2500	60.0	28	900-000-229	900-000-232	900-000-231	900-000-230

*Make To Order

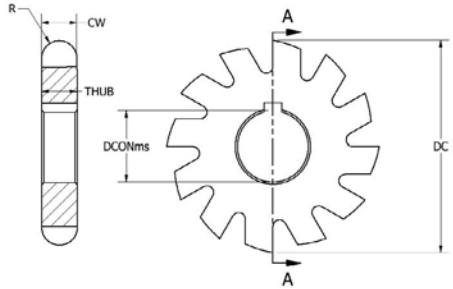


FR Style



DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	THUB [in.]	A [°]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAlN COATED
2.7500	0.5000	1.0000	0.5000	0.5000	45.0	20	900-000-081	900-000-084	900-000-083	900-000-082
2.7500	0.5000	1.0000	0.2887	0.5000	60.0	20	900-000-161	900-000-164	900-000-163	900-000-162
3.0000	0.5000	1.2500	0.5000	0.5000	45.0	20	900-000-089	900-000-092	900-000-091	900-000-090
3.0000	0.5000	1.2500	0.2887	0.5000	60.0	20	900-000-169	900-000-172	900-000-171	900-000-170
4.0000	0.5000	1.2500	0.5000	0.5000	45.0	20	900-000-097	900-000-100	900-000-099	900-000-098
4.0000	0.5000	1.2500	0.2887	0.5000	60.0	20	900-000-177	900-000-180	900-000-179	900-000-178
4.0000	0.7500	1.2500	0.7500	0.7500	45.0	20	900-000-105	900-000-108	900-000-107	900-000-106
4.0000	0.7500	1.2500	0.4330	0.7500	60.0	20	900-000-185	900-000-188	900-000-187	900-000-186
4.0000	1.0000	1.2500	1.0000	1.0000	45.0	20	900-000-113	900-000-116	900-000-115	900-000-114
4.0000	1.0000	1.2500	0.5774	1.0000	60.0	20	900-000-193	900-000-196	900-000-195	900-000-194
5.0000	0.7500	1.2500	0.7500	0.7500	45.0	24	900-000-121	900-000-124	900-000-123	900-000-122
5.0000	0.7500	1.2500	0.4330	0.7500	60.0	24	900-000-201	900-000-204	900-000-203	900-000-202
5.0000	1.0000	1.2500	1.0000	1.0000	45.0	24	900-000-129	900-000-132	900-000-131	900-000-130
5.0000	1.0000	1.2500	0.5774	1.0000	60.0	24	900-000-209	900-000-212	900-000-211	900-000-210
6.0000	0.7500	1.2500	0.7500	0.7500	45.0	28	900-000-137	900-000-140	900-000-139	900-000-138
6.0000	0.7500	1.2500	0.4330	0.7500	60.0	28	900-000-217	900-000-220	900-000-219	900-000-218
6.0000	1.0000	1.2500	1.0000	1.0000	45.0	28	900-000-145	900-000-148	900-000-147	900-000-146
6.0000	1.0000	1.2500	0.5774	1.0000	60.0	28	900-000-225	900-000-228	900-000-227	900-000-226
6.0000	1.2500	1.2500	1.2500	1.2500	45.0	28	900-000-153	900-000-156	900-000-155	900-000-154
6.0000	1.2500	1.2500	0.7217	1.2500	60.0	28	900-000-233	900-000-236	900-000-235	900-000-234

*Make To Order

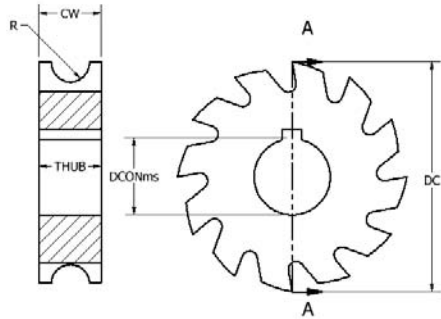


CVL Style
• Convex Radius



DC [in.]	CW [in.]	DCONMS [in.]	THUB [in.]	R [in.]	Zc	UNCOATED	TIN COATED*	TiCN COATED*	TiAIN COATED
4.0000	0.1250	1.2500	0.1250	0.0625	22	921-000-061	921-000-064	921-000-063	921-000-062
4.0000	0.1875	1.2500	0.1875	0.0938	22	921-000-065	921-000-068	921-000-067	921-000-066
4.0000	0.2500	1.2500	0.2500	0.1250	22	921-000-069	921-000-072	921-000-071	921-000-070
5.0000	0.3125	1.2500	0.3125	0.1563	18	921-000-073	921-000-076	921-000-075	921-000-083
5.0000	0.3750	1.2500	0.3750	0.1875	18	921-000-077	921-000-080	921-000-079	921-000-078
5.0000	0.4375	1.2500	0.4375	0.2188	18	921-000-081	921-000-084	921-000-083	921-000-082
5.0000	0.5000	1.2500	0.5000	0.2500	18	921-000-085	921-000-088	921-000-087	921-000-086
5.0000	0.6250	1.2500	0.6250	0.3125	18	921-000-089	921-000-092	921-000-091	921-000-090
6.0000	0.7500	1.2500	0.7500	0.3750	14	921-000-093	921-000-096	921-000-095	921-000-094
6.0000	0.8750	1.2500	0.8750	0.4375	14	921-000-097	921-000-100	921-000-099	921-000-098
6.0000	1.0000	1.2500	1.0000	0.5000	14	921-000-101	921-000-104	921-000-103	921-000-102
6.0000	1.2500	1.2500	1.2500	0.6250	14	921-000-105	921-000-108	921-000-107	921-000-106

*Make To Order



CC Style
• Concave Radius



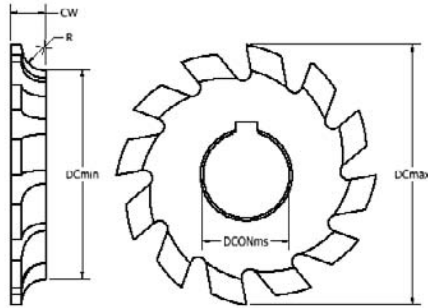
DC [in.]	CW [in.]	DCONMS [in.]	THUB [in.]	R [in.]	Zc	UNCOATED	TIN COATED*	TiCN COATED*	TiAIN COATED
2.2500	0.2500	1.0000	0.2500	0.0625	16	904-000-005	904-000-012	904-000-011	904-000-010
2.2500	0.3750	1.0000	0.3750	0.0938	16	904-000-029	904-000-032	904-000-031	904-000-030
2.5000	0.4375	1.0000	0.4375	0.1250	14	904-000-033	904-000-036	904-000-035	904-000-034
2.7500	0.5625	1.0000	0.5625	0.1563	14	904-000-037	904-000-040	904-000-039	904-000-038
2.7500	0.6250	1.0000	0.6250	0.1875	12	904-000-041	904-000-044	904-000-043	904-000-042
3.0000	0.7500	1.0000	0.7500	0.2188	12	904-000-045	904-000-048	904-000-047	904-000-046
3.0000	0.8125	1.0000	0.8125	0.2500	12	904-000-049	904-000-052	904-000-051	904-000-050
3.5000	1.0000	1.2500	1.0000	0.3125	12	904-000-053	904-000-056	904-000-055	904-000-054
3.7500	1.1875	1.2500	1.1875	0.3750	12	904-000-057	904-000-060	904-000-059	904-000-058
4.0000	1.3750	1.2500	1.3750	0.4375	12	904-000-001	904-000-004	904-000-003	904-000-002
4.2500	1.5625	1.2500	1.5625	0.5000	10	904-000-006	904-000-009	904-000-008	904-000-007
4.2500	1.6875	1.2500	1.6875	0.5625	10	904-000-013	904-000-016	904-000-015	904-000-014
4.5000	1.8750	1.2500	1.8750	0.6250	10	904-000-017	904-000-020	904-000-019	904-000-018
4.7500	2.0625	1.2500	2.0625	0.6875	10	904-000-021	904-000-024	904-000-023	904-000-022
5.0000	2.2500	1.2500	2.2500	0.7500	10	904-000-025	904-000-028	904-000-027	904-000-026

*Make To Order

HSS



HSS

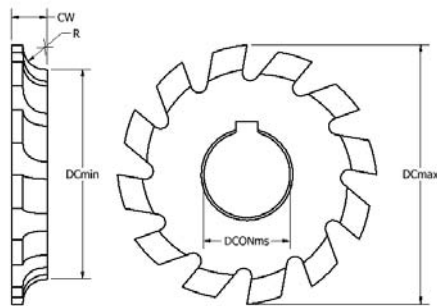


CR Style
• Right hand rotation



CW [in.]	DCONMS [in.]	R [in.]	DCmax [in.]	DCmin [in.]	Zc	HAND	UNCOATED	TiN COATED*	TiCN COATED*	TiAIN COATED
0.2500	1.0000	0.1250	2.5000	2.2500	14	L	918-000-025	918-000-028	918-000-027	918-000-026
0.4063	1.0000	0.2500	3.0000	2.5000	12	L	918-000-029	918-000-032	918-000-031	918-000-030
0.5625	1.2500	0.3750	3.7500	3.0000	12	L	918-000-033	918-000-036	918-000-035	918-000-034
0.7500	1.2500	0.5000	4.2500	3.2500	10	L	918-000-037	918-000-040	918-000-039	918-000-038
0.9375	1.2500	0.6250	4.2500	3.0000	10	L	918-000-041	918-000-044	918-000-043	918-000-042
1.1250	1.2500	0.7500	4.5000	3.0000	10	L	918-000-045	918-000-048	918-000-047	918-000-046

*Make To Order



CL Style
• Left hand rotation

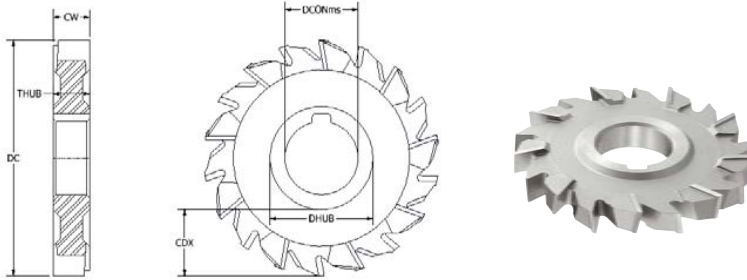


CW [in.]	DCONMS [in.]	R [in.]	DCmax [in.]	DCmin [in.]	Zc	HAND	UNCOATED	TiN COATED*	TiCN COATED*	TiAIN COATED
0.2500	1.0000	0.1250	2.5000	2.2500	14	R	918-000-001	918-000-004	918-000-003	918-000-002
0.4063	1.0000	0.2500	3.0000	2.5000	12	R	918-000-005	918-000-008	918-000-007	918-000-006
0.5625	1.2500	0.3750	3.7500	3.0000	12	R	918-000-009	918-000-012	918-000-011	918-000-010
0.7500	1.2500	0.5000	4.2500	3.2500	10	R	918-000-013	918-000-016	918-000-015	918-000-014
0.9375	1.2500	0.6250	4.2500	3.0000	10	R	918-000-017	918-000-020	918-000-019	918-000-018
1.1250	1.2500	0.7500	4.5000	3.0000	10	R	918-000-021	918-000-024	918-000-023	918-000-022

*Make To Order



COBALT



DS Style

- Free Cutting Design
- Long Tool Life
- REfer to page 513 for interlocking set information

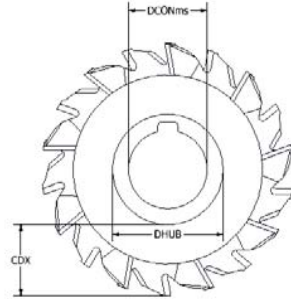
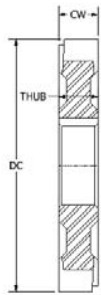


DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAlN COATED
3.0000	0.1875	1.0000	0.7188	1.5000	0.1875	16	952-000-841	952-000-844	952-000-843	952-000-842
3.0000	0.2500	1.0000	0.7188	1.5000	0.2500	16	952-000-845	952-000-848	952-000-847	952-000-846
3.0000	0.3125	1.0000	0.7188	1.5000	0.3125	16	952-000-849	952-000-852	952-000-851	952-000-850
3.0000	0.3750	1.0000	0.7188	1.5000	0.3750	16	952-000-853	952-000-856	952-000-855	952-000-854
3.0000	0.5000	1.0000	0.7188	1.5000	0.5000	16	952-000-857	952-000-860	952-000-859	952-000-858
3.0000	0.5000	1.2500	0.5938	1.7500	0.5000	16	952-000-861	952-000-864	952-000-863	952-000-862
4.0000	0.2500	1.0000	1.2188	1.5000	0.2500	18	952-000-865	952-000-868	952-000-867	952-000-866
4.0000	0.2500	1.2500	1.0938	1.7500	0.2500	18	952-000-869	952-000-872	952-000-871	952-000-870
4.0000	0.3125	1.0000	1.2188	1.5000	0.3125	18	952-000-873	952-000-876	952-000-875	952-000-874
4.0000	0.3125	1.2500	1.0938	1.7500	0.3125	18	952-000-877	952-000-880	952-000-879	952-000-878
4.0000	0.3750	1.2500	1.0938	1.7500	0.3750	18	952-000-881	952-000-884	952-000-883	952-000-882
4.0000	0.5000	1.2500	1.0938	1.7500	0.5000	18	952-000-885	952-000-888	952-000-887	952-000-886
4.0000	0.7500	1.2500	1.0938	1.7500	0.7500	18	952-000-889	952-000-892	952-000-891	952-000-890
6.0000	0.2500	1.2500	2.0313	1.8750	0.2500	24	952-000-893	952-000-896	952-000-895	952-000-894
6.0000	0.3750	1.2500	2.0313	1.8750	0.3750	24	952-000-897	952-000-900	952-000-899	952-000-898
6.0000	0.5000	1.2500	2.0313	1.8750	0.5000	24	952-000-901	952-000-904	952-000-903	952-000-902
6.0000	0.7500	1.2500	2.0313	1.8750	0.7500	24	952-000-905	952-000-908	952-000-907	952-000-906
6.0000	1.0000	1.2500	2.0313	1.8750	1.0000	24	952-000-909	952-000-912	952-000-911	952-000-910

*Make To Order



T15 SUPREME



NS Style

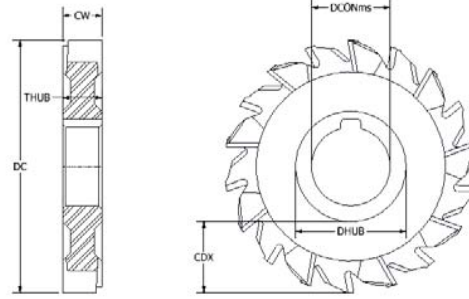
- RESistant to High Heat and Abrasive Wear
- Free Cutting Design
- REfer to page 513 for interlocking set information



DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAlN COATED
3.0000	0.1875	1.0000	0.7188	1.5000	0.1875	18	952-000-913	952-000-916	952-000-915	952-000-914
3.0000	0.2188	1.0000	0.7188	1.5000	0.2188	18	952-000-937	952-000-940	952-000-939	952-000-938
3.0000	0.2500	1.0000	0.7188	1.5000	0.2500	18	952-000-917	952-000-920	952-000-919	952-000-918
3.0000	0.2813	1.0000	0.7188	1.5000	0.2813	18	952-000-941	952-000-944	952-000-943	952-000-942
3.0000	0.3125	1.0000	0.7188	1.5000	0.3125	18	952-000-921	952-000-924	952-000-923	952-000-922
3.0000	0.3438	1.0000	0.7188	1.5000	0.3438	18	952-000-945	952-000-948	952-000-947	952-000-946
3.0000	0.3750	1.0000	0.7188	1.5000	0.3750	18	952-000-925	952-000-928	952-000-927	952-000-926
3.0000	0.4063	1.0000	0.7188	1.5000	0.4063	18	952-000-949	952-000-952	952-000-951	952-000-950
3.0000	0.4375	1.0000	0.7188	1.5000	0.4375	18	952-000-929	952-000-932	952-000-931	952-000-930
3.0000	0.4688	1.0000	0.7188	1.5000	0.4688	18	952-000-953	952-000-956	952-000-955	952-000-954
3.0000	0.5000	1.0000	0.7188	1.5000	0.5000	18	952-000-933	952-000-936	952-000-935	952-000-934
4.0000	0.2188	1.2500	1.0938	1.7500	0.2188	22	952-000-993	952-000-996	952-000-995	952-000-994
4.0000	0.2500	1.2500	1.0938	1.7500	0.2500	22	952-000-957	952-000-960	952-000-959	952-000-958
4.0000	0.2813	1.2500	1.0938	1.7500	0.2813	22	952-000-997	952-001-000	952-000-999	952-000-998
4.0000	0.3125	1.2500	1.0938	1.7500	0.3125	22	952-000-961	952-000-964	952-000-963	952-000-962
4.0000	0.3438	1.2500	1.0938	1.7500	0.3438	22	952-001-001	952-001-004	952-001-003	952-001-002
4.0000	0.3750	1.2500	1.0938	1.7500	0.3750	22	952-000-965	952-000-968	952-000-967	952-000-966
4.0000	0.4063	1.2500	1.0938	1.7500	0.4063	22	952-001-005	952-001-008	952-001-007	952-001-006
4.0000	0.4375	1.2500	1.0938	1.7500	0.4375	22	952-000-969	952-000-972	952-000-971	952-000-970
4.0000	0.4688	1.2500	1.0938	1.7500	0.4688	22	952-001-009	952-001-012	952-001-011	952-001-010
4.0000	0.5000	1.2500	1.0938	1.7500	0.5000	22	952-000-973	952-000-976	952-000-975	952-000-974
4.0000	0.5625	1.2500	1.0938	1.7500	0.5625	22	952-000-977	952-000-980	952-000-979	952-000-978
4.0000	0.6250	1.2500	1.0938	1.7500	0.6250	22	952-000-981	952-000-984	952-000-983	952-000-982
4.0000	0.6875	1.2500	1.0938	1.7500	0.6875	22	952-000-985	952-000-988	952-000-987	952-000-986
5.0000	0.7500	1.2500	1.5313	1.8750	0.7500	22	952-000-989	952-000-992	952-000-991	952-000-990
5.0000	0.2188	1.2500	1.5313	1.8750	0.2188	26	952-001-065	952-001-068	952-001-067	952-001-066
5.0000	0.2500	1.2500	1.5313	1.8750	0.2500	26	952-001-013	952-001-016	952-001-015	952-001-014
5.0000	0.2500	1.2500	1.5313	1.8750	0.2500	26	952-001-069	952-001-072	952-001-071	952-001-070
5.0000	0.3125	1.2500	1.5313	1.8750	0.3125	26	952-001-017	952-001-020	952-001-019	952-001-018
5.0000	0.3438	1.2500	1.5313	1.8750	0.3438	26	952-001-073	952-001-076	952-001-075	952-001-074
5.0000	0.3750	1.2500	1.5313	1.8750	0.3750	26	952-001-021	952-001-024	952-001-023	952-001-022
5.0000	0.4063	1.2500	1.5313	1.8750	0.4063	26	952-001-077	952-001-080	952-001-079	952-001-078
5.0000	0.4375	1.2500	1.5313	1.8750	0.4375	26	952-001-025	952-001-028	952-001-027	952-001-026
5.0000	0.4688	1.2500	1.5313	1.8750	0.4688	26	952-001-081	952-001-084	952-001-083	952-001-082
5.0000	0.5000	1.2500	1.5313	1.8750	0.5000	26	952-001-029	952-001-032	952-001-031	952-001-030
5.0000	0.5625	1.2500	1.5313	1.8750	0.5625	26	952-001-033	952-001-036	952-001-035	952-001-034
5.0000	0.6250	1.2500	1.5313	1.8750	0.6250	26	952-001-037	952-001-040	952-001-039	952-001-038
5.0000	0.6875	1.2500	1.5313	1.8750	0.6875	26	952-001-041	952-001-044	952-001-043	952-001-042
5.0000	0.7500	1.2500	1.5313	1.8750	0.7500	26	952-001-045	952-001-048	952-001-047	952-001-046

*Make To Order

T-15



T15 SUPREME

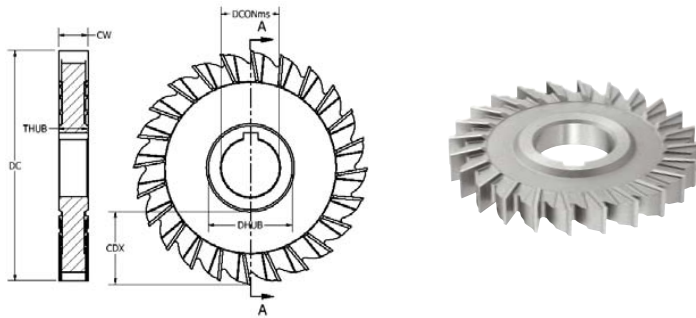


COBALT

T-15

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAIN COATED
5.0000	0.8125	1.2500	1.5313	1.8750	0.8125	26	952-001-049	952-001-052	952-001-051	952-001-050
5.0000	0.8750	1.2500	1.5313	1.8750	0.8750	26	952-001-053	952-001-056	952-001-055	952-001-054
5.0000	0.9375	1.2500	1.5313	1.8750	0.9375	26	952-001-057	952-001-060	952-001-059	952-001-058
5.0000	1.0000	1.2500	1.5313	1.8750	1.0000	26	952-001-061	952-001-064	952-001-063	952-001-062
6.0000	0.2188	1.2500	2.0313	1.8750	0.2188	30	952-001-137	952-001-140	952-001-139	952-001-138
6.0000	0.2500	1.2500	2.0313	1.8750	0.2500	30	952-001-085	952-001-088	952-001-087	952-001-086
6.0000	0.2813	1.2500	2.0313	1.8750	0.2813	30	952-001-141	952-001-144	952-001-143	952-001-142
6.0000	0.3125	1.2500	2.0313	1.8750	0.3125	30	952-001-089	952-001-092	952-001-091	952-001-090
6.0000	0.3438	1.2500	2.0313	1.8750	0.3438	30	952-001-145	952-001-148	952-001-147	952-001-146
6.0000	0.3750	1.2500	2.0313	1.8750	0.3750	30	952-001-093	952-001-096	952-001-095	952-001-094
6.0000	0.4063	1.2500	2.0313	1.8750	0.4063	30	952-001-149	952-001-152	952-001-151	952-001-150
6.0000	0.4375	1.2500	2.0313	1.8750	0.4375	30	952-001-097	952-001-100	952-001-099	952-001-098
6.0000	0.4688	1.2500	2.0313	1.8750	0.4688	30	952-001-153	952-001-156	952-001-155	952-001-154
6.0000	0.5000	1.2500	2.0313	1.8750	0.5000	30	952-001-101	952-001-104	952-001-103	952-001-102
6.0000	0.5625	1.2500	2.0313	1.8750	0.5625	30	952-001-105	952-001-108	952-001-107	952-001-106
6.0000	0.6250	1.2500	2.0313	1.8750	0.6250	30	952-001-109	952-001-112	952-001-111	952-001-110
6.0000	0.6875	1.2500	2.0313	1.8750	0.6875	30	952-001-113	952-001-116	952-001-115	952-001-114
6.0000	0.7500	1.2500	2.0313	1.8750	0.7500	30	952-001-117	952-001-120	952-001-119	952-001-118
6.0000	0.8125	1.2500	2.0313	1.8750	0.8125	30	952-001-121	952-001-124	952-001-123	952-001-122
6.0000	0.8750	1.2500	2.0313	1.8750	0.8750	30	952-001-125	952-001-128	952-001-127	952-001-126
6.0000	0.9375	1.2500	2.0313	1.8750	0.9375	30	952-001-129	952-001-132	952-001-131	952-001-130
6.0000	1.0000	1.2500	2.0313	1.8750	1.0000	30	952-001-133	952-001-136	952-001-135	952-001-134

*Make To Order



DB Style

- Additional Teeth for Fine Finishes
- Cobalt

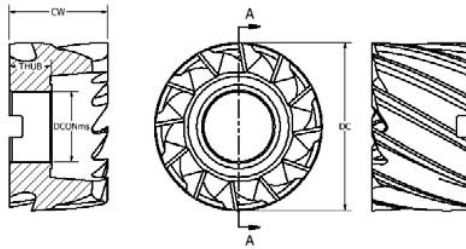


DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAIN COATED
3.0000	0.2500	1.0000	0.7188	1.5000	0.2500	20	952-000-773	952-000-776	952-000-775	952-000-774
3.0000	0.3125	1.0000	0.7188	1.5000	0.3125	20	952-000-777	952-000-780	952-000-779	952-000-778
3.0000	0.3750	1.0000	0.7188	1.5000	0.3750	20	952-000-781	952-000-784	952-000-783	952-000-782
3.0000	0.5000	1.0000	0.7188	1.5000	0.5000	20	952-000-785	952-000-788	952-000-787	952-000-786
4.0000	0.2500	1.0000	1.1563	1.6250	0.2500	24	952-000-789	952-000-792	952-000-791	952-000-790
4.0000	0.2500	1.2500	1.0938	1.7500	0.2500	24	952-000-793	952-000-796	952-000-795	952-000-794
4.0000	0.3125	1.0000	1.1563	1.6250	0.3125	24	952-000-797	952-000-800	952-000-799	952-000-798
4.0000	1.0938	1.2500	1.0938	1.7500	1.0938	24	952-000-801	952-000-804	952-000-803	952-000-802
4.0000	0.3750	1.0000	1.1563	1.6250	0.3750	24	952-000-805	952-000-808	952-000-807	952-000-806
4.0000	0.3750	1.2500	1.0938	1.7500	0.3750	24	952-000-809	952-000-812	952-000-811	952-000-810
4.0000	0.5000	1.0000	1.1563	1.6250	0.5000	24	952-000-813	952-000-816	952-000-815	952-000-814
4.0000	0.5000	1.2500	1.0938	1.7500	0.5000	24	952-000-817	952-000-820	952-000-819	952-000-818
4.0000	0.7500	1.0000	1.1563	1.6250	0.7500	24	952-000-821	952-000-824	952-000-823	952-000-822
4.0000	0.7500	1.2500	1.0938	1.7500	0.7500	24	952-000-825	952-000-828	952-000-827	952-000-826
6.0000	0.2500	1.2500	2.0313	1.8750	0.2500	30	952-000-829	952-000-832	952-000-831	952-000-830
6.0000	0.3750	1.2500	2.0313	1.8750	0.3750	30	952-000-833	952-000-836	952-000-835	952-000-834
6.0000	0.5000	1.2500	2.0313	1.8750	0.5000	30	952-000-837	952-000-840	952-000-839	952-000-838

*Make To Order

PLAIN/SHELL MILLS

ARCH[®]
Cutting Tools



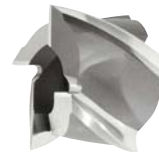
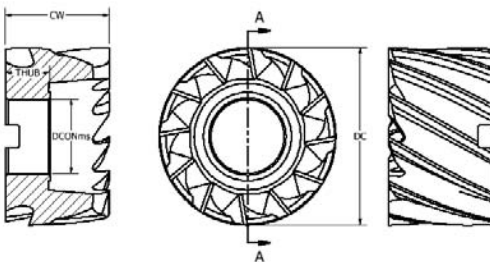
SMGP

- Ground Flutes
- Available in Right-Hand or Left-Hand by special order

GENERAL PURPOSE

DC [in.]	CW [in.]	DCONMS [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAIN COATED
1.2500	1.0000	0.5000	0.6250	8	938-000-001	938-000-004	938-000-003	938-000-002
1.5000	1.1250	0.5000	0.6250	8	938-000-005	938-000-008	938-000-007	938-000-006
1.7500	1.2500	0.7500	0.7500	8	938-000-009	938-000-012	938-000-011	938-000-010
2.0000	1.3750	0.7500	0.7500	10	938-000-013	938-000-016	938-000-015	938-000-014
2.2500	1.5000	1.0000	0.7500	10	938-000-017	938-000-020	938-000-019	938-000-018
2.5000	1.6250	1.0000	0.7500	10	938-000-021	938-000-024	938-000-023	938-000-022
2.7500	1.6250	1.0000	0.7500	10	938-000-025	938-000-028	938-000-027	938-000-026
3.0000	1.7500	1.2500	0.7500	12	938-000-029	938-000-032	938-000-031	938-000-030
3.5000	1.8750	1.2500	0.7500	12	938-000-033	938-000-036	938-000-035	938-000-034
4.0000	2.2500	1.5000	1.0000	14	938-000-037	938-000-040	938-000-039	938-000-038
4.5000	2.2500	1.5000	1.0000	14	938-000-041	938-000-044	938-000-043	938-000-042
5.0000	2.2500	1.5000	1.0000	16	938-000-045	938-000-048	938-000-047	938-000-046
6.0000	2.2500	1.5000	1.0000	16	938-000-049	938-000-052	938-000-051	938-000-050

*Make To Order



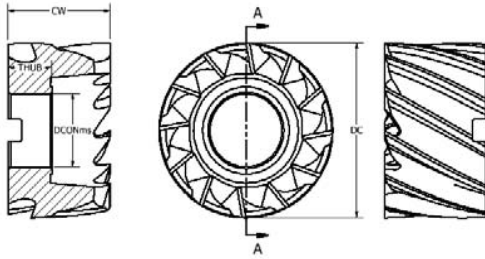
SMAL

- Deep Gullet Space
- Excellent for Non-Ferrous Materials
- High Rake and Polished Flutes

ALUMINUM CUTTING

DC [in.]	CW [in.]	DCONMS [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAIN COATED
1.2500	1.0000	0.5000	0.6250	4	938-000-053	938-000-056	938-000-055	938-000-054
1.5000	1.1250	0.5000	0.6250	4	938-000-057	938-000-060	938-000-059	938-000-058
2.0000	1.3750	0.7500	0.7500	4	938-000-061	938-000-064	938-000-063	938-000-062
2.5000	1.6250	1.0000	0.7500	4	938-000-065	938-000-068	938-000-067	938-000-066
3.0000	1.7500	1.2500	0.7500	6	938-000-069	938-000-072	938-000-071	938-000-070
5.0000	2.2500	1.5000	1.0000	6	938-000-073	938-000-076	938-000-075	938-000-074
5.0000	2.2500	1.5000	1.0000	8	938-000-077	938-000-080	938-000-079	938-000-078
6.0000	2.2500	1.5000	1.0000	8	938-000-081	938-000-084	938-000-083	938-000-082

*Make To Order

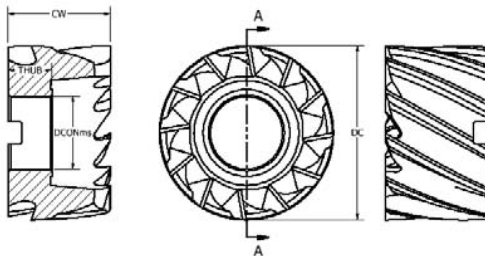


SMT15

- Recommended for finishing
- REsistant to High Heat and Abrasive Wear

DC [in.]	CW [in.]	DCONMS [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAIN COATED
1.2500	1.0000	0.5000	0.6250	8	938-000-133	938-000-136	938-000-135	938-000-134
1.5000	1.1250	0.5000	0.6250	8	938-000-137	938-000-140	938-000-139	938-000-138
2.0000	1.3750	0.7500	0.7500	10	938-000-141	938-000-144	938-000-143	938-000-142
2.5000	1.6250	1.0000	0.7500	10	938-000-145	938-000-148	938-000-147	938-000-146
3.0000	1.7500	1.2500	0.7500	12	938-000-149	938-000-152	938-000-151	938-000-150
4.0000	2.2500	1.5000	1.0000	14	938-000-153	938-000-156	938-000-155	938-000-154

*Make To Order



RM750

COARSE-PITCH

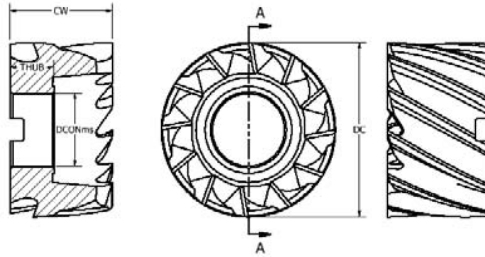
DC [in.]	CW [in.]	DCONMS [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAIN COATED
2.0000	1.3750	0.7500	0.7500	8	949-000-001	949-000-004	949-000-003	949-000-002
2.2500	1.5000	1.0000	0.7500	8	949-000-005	949-000-008	949-000-007	949-000-006
2.5000	1.6250	1.0000	0.7500	8	949-000-009	949-000-012	949-000-011	949-000-010
2.7500	1.6250	1.0000	0.7500	10	949-000-013	949-000-016	949-000-015	949-000-014
3.0000	2.0000	1.2500	0.7500	10	949-000-017	949-000-020	949-000-019	949-000-018
3.5000	1.8750	1.2500	0.7500	10	949-000-021	949-000-024	949-000-023	949-000-022
4.0000	2.2500	1.5000	1.0000	10	949-000-025	949-000-028	949-000-027	949-000-026
4.5000	2.2500	1.5000	1.0000	12	949-000-029	949-000-032	949-000-031	949-000-030
5.0000	2.2500	1.5000	1.0000	12	949-000-033	949-000-036	949-000-035	949-000-034
6.0000	2.2500	1.5000	1.0000	14	949-000-037	949-000-040	949-000-039	949-000-038

*Make To Order

COBALT



COBALT

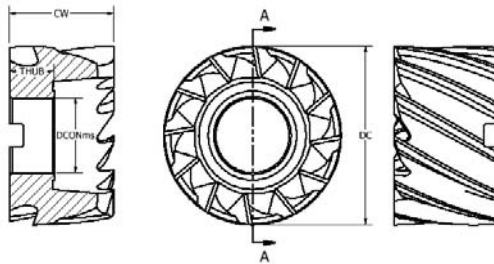


RP450

FINE-PITCH

DC [in.]	CW [in.]	DCONMS [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAIN COATED
2.0000	1.3750	0.7500	0.7500	8	949-000-041	949-000-042	949-000-043	949-000-044
2.2500	1.5000	1.0000	0.7500	8	949-000-045	949-000-046	949-000-047	949-000-048
2.5000	1.6250	1.0000	0.7500	8	949-000-049	949-000-050	949-000-051	949-000-052
2.7500	1.6250	1.0000	0.7500	10	949-000-053	949-000-054	949-000-055	949-000-056
3.0000	2.0000	1.2500	0.7500	10	949-000-057	949-000-058	949-000-059	949-000-060
3.5000	1.2500	1.8750	0.7500	10	949-000-061	949-000-062	949-000-063	949-000-064
4.0000	2.2500	1.5000	1.0000	10	949-000-065	949-000-066	949-000-067	949-000-068
4.5000	2.2500	1.5000	1.0000	12	949-000-069	949-000-070	949-000-071	949-000-072
5.0000	2.2500	1.5000	1.0000	12	949-000-073	949-000-074	949-000-075	949-000-076
6.0000	2.2500	1.5000	1.0000	14	949-000-077	949-000-078	949-000-079	949-000-080

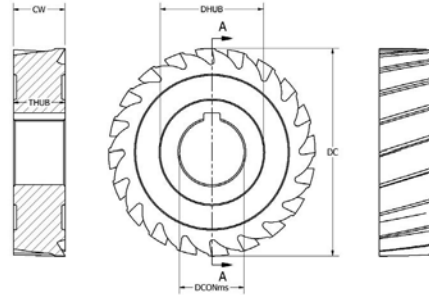
*Make To Order



SMM42

DC [in.]	CW [in.]	DCONMS [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAIN COATED
1.2500	1.0000	0.5000	0.6250	8	938-000-085	938-000-088	938-000-087	938-000-086
1.5000	1.1250	0.5000	0.6250	8	938-000-089	938-000-092	938-000-091	938-000-090
1.7500	1.2500	0.7500	0.7500	8	938-000-093	938-000-096	938-000-095	938-000-094
2.0000	1.3750	0.7500	0.7500	10	938-000-097	938-000-100	938-000-099	938-000-098
2.2500	1.5000	1.0000	0.7500	10	938-000-101	938-000-104	938-000-103	938-000-102
2.5000	1.6250	1.0000	0.7500	10	938-000-105	938-000-108	938-000-107	938-000-106
2.7500	1.6250	1.0000	0.7500	10	938-000-109	938-000-112	938-000-111	938-000-110
3.0000	1.7500	1.2500	0.7500	12	938-000-113	938-000-116	938-000-115	938-000-114
3.5000	1.8750	1.2500	0.7500	12	938-000-117	938-000-120	938-000-119	938-000-118
4.0000	2.2500	1.5000	1.0000	14	938-000-121	938-000-124	938-000-123	938-000-122
5.0000	2.2500	1.5000	1.0000	16	938-000-125	938-000-128	938-000-127	938-000-126
6.0000	2.2500	1.5000	1.0000	16	938-000-129	938-000-132	938-000-131	938-000-130

*Make To Order



LD Style

- Cutters up to 3/4" face width have straight teeth
- Cutters 3/4" face width and over have 18° left hand helix
- Right-Hand Cut, Left-Hand Helix allows for Rigidity and Improved Surface Finish

HSS

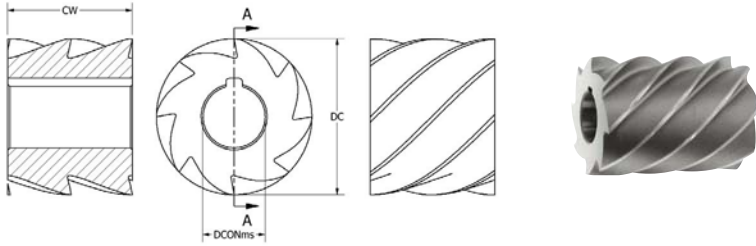
LIGHT-DUTY

DC [in.]	CW [in.]	DCONMS [in.]	DHUB [in.]	THUB [in.]	Zc	UNCOATED	TIN COATED*	TiCN COATED*	TiAlN COATED
2.5000	0.1875	1.0000	1.5000	0.1875	16	948-000-045	948-000-048	948-000-047	948-000-046
2.5000	0.2500	1.0000	1.5000	0.2500	16	948-000-049	948-000-052	948-000-051	948-000-050
2.5000	0.3125	1.0000	1.5000	0.3125	16	948-000-053	948-000-056	948-000-055	948-000-054
2.5000	0.3750	1.0000	1.5000	0.3750	16	948-000-057	948-000-060	948-000-059	948-000-058
2.5000	0.5000	1.0000	1.5000	0.5000	16	948-000-061	948-000-064	948-000-063	948-000-062
2.5000	0.6250	1.0000	1.5000	0.6250	16	948-000-065	948-000-068	948-000-067	948-000-066
2.5000	0.7500	1.0000	1.5000	0.7500	14	948-000-069	948-000-072	948-000-071	948-000-070
2.5000	1.0000	1.0000	1.5000	1.0000	14	948-000-073	948-000-076	948-000-075	948-000-074
2.5000	1.5000	1.0000	N/A	N/A	14	948-000-077	948-000-080	948-000-079	948-000-078
2.5000	2.0000	1.0000	N/A	N/A	14	948-000-081	948-000-084	948-000-083	948-000-082
2.5000	2.5000	1.0000	N/A	N/A	14	948-000-085	948-000-088	948-000-087	948-000-086
2.5000	3.0000	1.0000	N/A	N/A	14	948-000-089	948-000-092	948-000-091	948-000-090
3.0000	0.1875	1.0000	1.6300	0.1875	18	948-000-093	948-000-096	948-000-095	948-000-094
3.0000	0.2500	1.0000	1.6300	0.2500	18	948-000-097	948-000-100	948-000-099	948-000-098
3.0000	0.3125	1.0000	1.6300	0.3125	18	948-000-101	948-000-104	948-000-103	948-000-102
3.0000	0.3750	1.0000	1.6300	0.3750	18	948-000-105	948-000-108	948-000-107	948-000-106
3.0000	0.3750	1.2500	1.8800	0.3750	18	948-000-109	948-000-112	948-000-111	948-000-110
3.0000	0.5000	1.2500	1.8800	0.5000	18	948-000-113	948-000-116	948-000-115	948-000-114
3.0000	0.6250	1.2500	1.8800	0.6250	18	948-000-117	948-000-120	948-000-119	948-000-118
3.0000	0.7500	1.2500	1.8800	0.7500	16	948-000-121	948-000-124	948-000-123	948-000-122
3.0000	1.0000	1.2500	1.8800	1.0000	16	948-000-125	948-000-128	948-000-127	948-000-126
3.0000	1.2500	1.2500	N/A	N/A	16	948-000-129	948-000-132	948-000-131	948-000-130
3.0000	1.5000	1.2500	N/A	N/A	16	948-000-133	948-000-136	948-000-135	948-000-134
3.0000	2.0000	1.2500	N/A	N/A	16	948-000-137	948-000-140	948-000-139	948-000-138
3.0000	3.0000	1.2500	N/A	N/A	16	948-000-141	948-000-144	948-000-143	948-000-142
4.0000	0.2500	1.0000	1.6300	0.2500	20	948-000-145	948-000-148	948-000-147	948-000-146
4.0000	0.2500	1.2500	2.0000	0.2500	20	948-000-149	948-000-152	948-000-151	948-000-150
4.0000	0.3125	1.0000	1.6300	0.3125	20	948-000-153	948-000-156	948-000-155	948-000-154
4.0000	0.3750	1.0000	1.6300	0.3750	20	948-000-157	948-000-160	948-000-159	948-000-158
4.0000	0.3750	1.2500	2.0000	0.3750	20	948-000-161	948-000-164	948-000-163	948-000-162
4.0000	0.5000	1.2500	2.0000	0.5000	20	948-000-165	948-000-168	948-000-167	948-000-166
4.0000	0.6250	1.2500	2.0000	0.6250	20	948-000-169	948-000-172	948-000-171	948-000-170
4.0000	0.7500	1.2500	2.0000	0.7500	20	948-000-173	948-000-176	948-000-175	948-000-174
4.0000	1.0000	1.2500	2.0000	1.0000	20	948-000-177	948-000-180	948-000-179	948-000-178
4.0000	1.5000	1.2500	N/A	N/A	20	948-000-181	948-000-184	948-000-183	948-000-182
4.0000	2.0000	1.2500	N/A	N/A	20	948-000-185	948-000-188	948-000-187	948-000-186
4.0000	3.0000	1.2500	N/A	N/A	20	948-000-189	948-000-192	948-000-191	948-000-190
4.0000	4.0000	1.2500	N/A	N/A	20	948-000-193	948-000-196	948-000-195	948-000-194

*Make To Order



HSS



HD Style

- 45° Left-Hand Helix, Right-Hand Cuts
- Fewer teeth than "LD" Style making it better suited for heavy stock REmoval

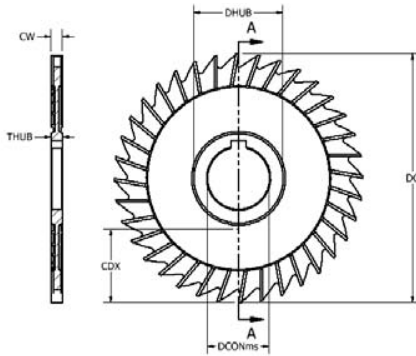
45° SPIRAL HEAVY-DUTY

DC [in.]	CW [in.]	DCONMS [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAlN COATED
2.5000	2.0000	1.0000	8	948-000-001	948-000-004	948-000-003	948-000-002
2.5000	4.0000	1.0000	8	948-000-005	948-000-008	948-000-007	948-000-006
3.0000	2.0000	1.2500	8	948-000-009	948-000-012	948-000-011	948-000-010
3.0000	2.5000	1.2500	8	948-000-013	948-000-016	948-000-015	948-000-014
3.0000	3.0000	1.2500	8	948-000-017	948-000-020	948-000-019	948-000-018
3.0000	4.0000	1.2500	8	948-000-021	948-000-024	948-000-023	948-000-022
3.0000	6.0000	1.2500	8	948-000-025	948-000-028	948-000-027	948-000-026
4.0000	2.0000	1.5000	10	948-000-029	948-000-032	948-000-031	948-000-030
4.0000	3.0000	1.5000	10	948-000-033	948-000-036	948-000-035	948-000-034
4.0000	4.0000	1.5000	10	948-000-037	948-000-040	948-000-039	948-000-038
4.0000	6.0000	1.5000	10	948-000-041	948-000-044	948-000-043	948-000-042

*Make To Order

SLITTING/JEWELER SAWS

ARCH[®]
Cutting Tools



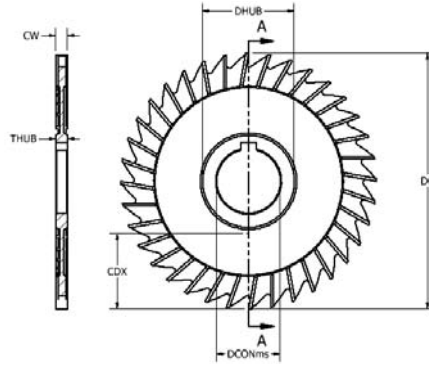
MT Style

- Fully Ground Surfaces
- Recommended for Thin Walled Parts



DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	UNCOATED	TIN COATED*	TICN COATED*	TiAIN COATED
2.5000	0.0625	0.8750	0.5938	1.2500	0.0625	28	950-001-169	950-001-172	950-001-171	950-001-170
2.5000	0.0938	0.8750	0.5938	1.2500	0.0938	28	950-001-177	950-001-180	950-001-179	950-001-178
2.5000	0.1250	0.8750	0.5938	1.2500	0.1250	28	950-001-173	950-001-176	950-001-175	950-001-174
3.0000	0.0625	1.0000	0.7188	1.5000	0.0625	32	950-001-181	950-001-184	950-001-183	950-001-182
3.0000	0.0781	1.0000	0.7188	1.5000	0.0781	32	950-001-197	950-001-200	950-001-199	950-001-198
3.0000	0.0938	1.0000	0.7188	1.5000	0.0938	32	950-001-209	950-001-212	950-001-211	950-001-210
3.0000	0.1094	1.0000	0.7188	1.5000	0.1094	32	950-001-221	950-001-224	950-001-223	950-001-222
3.0000	0.1250	1.0000	0.7188	1.5000	0.1250	32	950-001-185	950-001-188	950-001-187	950-001-186
3.0000	0.1406	1.0000	0.7188	1.5000	0.1406	32	950-001-201	950-001-204	950-001-203	950-001-202
3.0000	0.1563	1.0000	0.7188	1.5000	0.1563	32	950-001-213	950-001-216	950-001-215	950-001-214
3.0000	0.1719	1.0000	0.7188	1.5000	0.1719	32	950-001-225	950-001-228	950-001-227	950-001-226
3.0000	0.1875	1.0000	0.7188	1.5000	0.1875	32	950-001-189	950-001-192	950-001-191	950-001-190
3.0000	0.2031	1.0000	0.7188	1.5000	0.2031	32	950-001-205	950-001-208	950-001-207	950-001-206
3.0000	0.2188	1.0000	0.7188	1.5000	0.2188	32	950-001-217	950-001-220	950-001-219	950-001-218
3.0000	0.2344	1.0000	0.7188	1.5000	0.2344	32	950-001-229	950-001-232	950-001-231	950-001-230
3.0000	0.2500	1.0000	0.7188	1.5000	0.2500	32	950-001-193	950-001-196	950-001-195	950-001-194
4.0000	0.0625	1.0000	1.2188	1.5000	0.0625	36	950-001-233	950-001-236	950-001-235	950-001-234
4.0000	0.0625	1.2500	1.0313	1.8750	0.0625	36	950-001-237	950-001-240	950-001-239	950-001-238
4.0000	0.0781	1.0000	1.2188	1.5000	0.0781	36	950-001-265	950-001-268	950-001-267	950-001-266
4.0000	0.0781	1.2500	1.0313	1.8750	0.0781	36	950-001-269	950-001-272	950-001-271	950-001-270
4.0000	0.0938	1.0000	1.2188	1.5000	0.0938	36	950-001-289	950-001-292	950-001-291	950-001-290
4.0000	0.0938	1.2500	1.0313	1.8750	0.0938	36	950-001-293	950-001-296	950-001-295	950-001-294
4.0000	0.1094	1.0000	1.2188	1.5000	0.1094	36	950-001-313	950-001-316	950-001-315	950-001-314
4.0000	0.1094	1.2500	1.0313	1.8750	0.1094	36	950-001-317	950-001-320	950-001-319	950-001-318
4.0000	0.1250	1.0000	1.2188	1.5000	0.1250	36	950-001-241	950-001-244	950-001-243	950-001-242
4.0000	0.1250	1.2500	1.0313	1.8750	0.1250	36	950-001-245	950-001-248	950-001-247	950-001-246
4.0000	0.1406	1.0000	1.2188	1.5000	0.1406	36	950-001-273	950-001-276	950-001-275	950-001-274
4.0000	0.1406	1.2500	1.0313	1.8750	0.1406	36	950-001-277	950-001-280	950-001-279	950-001-278
4.0000	0.1563	1.0000	1.2188	1.5000	0.1563	36	950-001-297	950-001-300	950-001-299	950-001-298
4.0000	0.1563	1.2500	1.0313	1.8750	0.1563	36	950-001-301	950-001-304	950-001-303	950-001-302
4.0000	0.1719	1.0000	1.2188	1.5000	0.1719	36	950-001-321	950-001-324	950-001-323	950-001-322
4.0000	0.1719	1.2500	1.0313	1.8750	0.1719	36	950-001-325	950-001-328	950-001-327	950-001-326
4.0000	0.1875	1.0000	1.2188	1.5000	0.1875	36	950-001-249	950-001-252	950-001-251	950-001-250
4.0000	0.1875	1.2500	1.0313	1.8750	0.1875	36	950-001-253	950-001-256	950-001-255	950-001-254
4.0000	0.2031	1.0000	1.2188	1.5000	0.2031	36	950-001-281	950-001-284	950-001-283	950-001-282
4.0000	0.2031	1.2500	1.0313	1.8750	0.2031	36	950-001-285	950-001-288	950-001-287	950-001-286
4.0000	0.2188	1.0000	1.2188	1.5000	0.2188	36	950-001-305	950-001-308	950-001-307	950-001-306
4.0000	0.2188	1.2500	1.0313	1.8750	0.2188	36	950-001-309	950-001-312	950-001-311	950-001-310
4.0000	0.2344	1.0000	1.2188	1.5000	0.2344	36	950-001-329	950-001-332	950-001-331	950-001-330
4.0000	0.2344	1.2500	1.0313	1.8750	0.2344	36	950-001-333	950-001-336	950-001-335	950-001-334
4.0000	0.2500	1.0000	1.2188	1.5000	0.2500	36	950-001-257	950-001-260	950-001-259	950-001-258
4.0000	0.2500	1.2500	1.0313	1.8750	0.2500	36	950-001-261	950-001-264	950-001-263	950-001-262

*Make To Order



MT Style

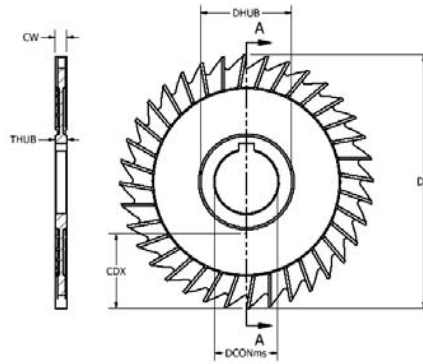


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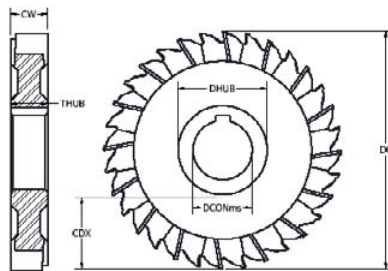
DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAIN COATED
5.0000	0.0625	1.0000	1.7188	1.5000	0.0625	40	950-001-337	950-001-340	950-001-339	950-001-338
5.0000	0.0625	1.2500	1.5313	1.8750	0.0625	40	950-001-341	950-001-344	950-001-343	950-001-342
5.0000	0.0938	1.0000	1.7188	1.5000	0.0938	40	950-001-369	950-001-372	950-001-371	950-001-370
5.0000	0.0938	1.2500	1.5313	1.8750	0.0938	40	950-001-373	950-001-376	950-001-375	950-001-374
5.0000	0.1250	1.0000	1.7188	1.5000	0.1250	40	950-001-345	950-001-348	950-001-347	950-001-346
5.0000	0.1250	1.2500	1.5313	1.8750	0.1250	40	950-001-349	950-001-352	950-001-351	950-001-350
5.0000	0.1563	1.0000	1.7188	1.5000	0.1563	40	950-001-377	950-001-380	950-001-379	950-001-378
5.0000	0.1563	1.2500	1.5313	1.8750	0.1563	40	950-001-381	950-001-384	950-001-383	950-001-382
5.0000	0.1875	1.0000	1.7188	1.5000	0.1875	40	950-001-353	950-001-356	950-001-355	950-001-354
5.0000	0.1875	1.2500	1.5313	1.8750	0.1875	40	950-001-357	950-001-360	950-001-359	950-001-358
5.0000	0.2188	1.0000	1.7188	1.5000	0.2188	40	950-001-385	950-001-388	950-001-387	950-001-386
5.0000	0.2188	1.2500	1.5313	1.8750	0.2188	40	950-001-389	950-001-392	950-001-391	950-001-390
5.0000	0.2500	1.0000	1.7188	1.5000	0.2500	40	950-001-361	950-001-364	950-001-363	950-001-362
5.0000	0.2500	1.2500	1.5313	1.8750	0.2500	40	950-001-365	950-001-368	950-001-367	950-001-366
6.0000	0.0625	1.0000	2.2188	1.5000	0.0625	42	950-001-393	950-001-396	950-001-395	950-001-394
6.0000	0.0625	1.2500	2.0313	1.8750	0.0625	42	950-001-397	950-001-400	950-001-399	950-001-398
6.0000	0.0781	1.0000	2.2188	1.5000	0.0781	42	950-001-441	950-001-444	950-001-443	950-001-442
6.0000	0.0781	1.2500	2.0313	1.8750	0.0781	42	950-001-445	950-001-448	950-001-447	950-001-446
6.0000	0.0938	1.0000	2.2188	1.5000	0.0938	42	950-001-481	950-001-484	950-001-483	950-001-482
6.0000	0.0938	1.2500	2.0313	1.8750	0.0938	42	950-001-485	950-001-488	950-001-487	950-001-486
6.0000	0.1094	1.0000	2.2188	1.5000	0.1094	42	950-001-521	950-001-524	950-001-523	950-001-522
6.0000	0.1094	1.2500	2.0313	1.8750	0.1094	42	950-001-525	950-001-528	950-001-527	950-001-526
6.0000	0.1250	1.0000	2.2188	1.5000	0.1250	42	950-001-401	950-001-404	950-001-403	950-001-402
6.0000	0.1250	1.2500	2.0313	1.8750	0.1250	42	950-001-405	950-001-408	950-001-407	950-001-406
6.0000	0.1406	1.0000	2.2188	1.5000	0.1406	42	950-001-449	950-001-452	950-001-451	950-001-450
6.0000	0.1406	1.2500	2.0313	1.8750	0.1406	42	950-001-453	950-001-456	950-001-455	950-001-454
6.0000	0.1563	1.0000	2.2188	1.5000	0.1563	42	950-001-489	950-001-492	950-001-491	950-001-490
6.0000	0.1563	1.2500	2.0313	1.8750	0.1563	42	950-001-493	950-001-496	950-001-495	950-001-494
6.0000	0.1719	1.0000	2.2188	1.5000	0.1719	42	950-001-529	950-001-532	950-001-531	950-001-530
6.0000	0.1719	1.2500	2.0313	1.8750	0.1719	42	950-001-533	950-001-536	950-001-535	950-001-534
6.0000	0.1875	1.0000	2.2188	1.5000	0.1875	42	950-001-409	950-001-412	950-001-411	950-001-410
6.0000	0.1875	1.2500	2.0313	1.8750	0.1875	42	950-001-413	950-001-416	950-001-415	950-001-414
6.0000	0.2031	1.0000	2.2188	1.5000	0.2031	42	950-001-457	950-001-460	950-001-459	950-001-458
6.0000	0.2031	1.2500	2.0313	1.8750	0.2031	42	950-001-461	950-001-464	950-001-463	950-001-462
6.0000	0.2188	1.0000	2.2188	1.5000	0.2188	42	950-001-497	950-001-500	950-001-499	950-001-498
6.0000	0.2188	1.2500	2.0313	1.8750	0.2188	42	950-001-501	950-001-504	950-001-503	950-001-502
6.0000	0.2344	1.0000	2.2188	1.5000	0.2344	42	950-001-537	950-001-540	950-001-539	950-001-538
6.0000	0.2344	1.2500	2.0313	1.8750	0.2344	42	950-001-541	950-001-544	950-001-543	950-001-542
6.0000	0.2500	1.0000	2.2188	1.5000	0.2500	42	950-001-417	950-001-420	950-001-419	950-001-418
6.0000	0.2500	1.2500	2.0313	1.8750	0.2500	42	950-001-421	950-001-424	950-001-423	950-001-422
6.0000	0.2656	1.0000	2.2188	1.5000	0.2656	42	950-001-465	950-001-468	950-001-467	950-001-466
6.0000	0.2656	1.2500	2.0313	1.8750	0.2656	42	950-001-469	950-001-472	950-001-471	950-001-470
6.0000	0.2813	1.0000	2.2188	1.5000	0.2813	42	950-001-505	950-001-508	950-001-507	950-001-506
6.0000	0.2813	1.2500	2.0313	1.8750	0.2813	42	950-001-509	950-001-512	950-001-511	950-001-510
6.0000	0.2969	1.0000	2.2188	1.5000	0.2969	42	950-001-545	950-001-548	950-001-547	950-001-546
6.0000	0.2969	1.2500	2.0313	1.8750	0.2969	42	950-001-549	950-001-552	950-001-551	950-001-550
6.0000	0.3125	1.0000	2.2188	1.5000	0.3125	42	950-001-425	950-001-428	950-001-427	950-001-426
6.0000	0.3125	1.2500	2.0313	1.8750	0.3125	42	950-001-429	950-001-432	950-001-431	950-001-430
6.0000	0.3281	1.0000	2.2188	1.5000	0.3281	42	950-001-473	950-001-476	950-001-475	950-001-474
6.0000	0.3281	1.2500	2.0313	1.8750	0.3281	42	950-001-477	950-001-480	950-001-479	950-001-478
6.0000	0.3438	1.0000	2.2188	1.5000	0.3438	42	950-001-513	950-001-516	950-001-515	950-001-514
6.0000	0.3438	1.2500	2.0313	1.8750	0.3438	42	950-001-517	950-001-520	950-001-519	950-001-518
6.0000	0.3594	1.0000	2.2188	1.5000	0.3594	42	950-001-553	950-001-556	950-001-555	950-001-554

*Make To Order



DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAlN COATED
6.0000	0.3594	1.2500	2.0313	1.8750	0.3594	42	950-001-557	950-001-560	950-001-559	950-001-558
6.0000	0.3750	1.0000	2.2188	1.5000	0.3750	42	950-001-433	950-001-436	950-001-435	950-001-434
6.0000	0.3750	1.2500	2.0313	1.8750	0.3750	42	950-001-437	950-001-440	950-001-439	950-001-438
7.0000	0.1250	1.0000	2.6563	1.6250	0.1250	48	950-001-561	950-001-564	950-001-563	950-001-562
7.0000	0.1250	1.2500	2.5313	1.8750	0.1250	48	950-001-565	950-001-568	950-001-567	950-001-566
7.0000	0.1875	1.0000	2.6563	1.6250	0.1875	48	950-001-569	950-001-572	950-001-571	950-001-570
7.0000	0.1875	1.2500	2.5313	1.8750	0.1875	48	950-001-573	950-001-576	950-001-575	950-001-574
8.0000	0.1250	1.0000	3.1563	1.6250	0.1250	48	950-001-577	950-001-580	950-001-579	950-001-578
8.0000	0.1250	1.2500	3.0313	1.8750	0.1250	48	950-001-581	950-001-584	950-001-583	950-001-582
8.0000	0.1250	1.5000	3.0313	1.8750	0.1250	48	950-001-585	950-001-588	950-001-587	950-001-586
8.0000	0.1563	1.2500	3.0313	0.1250	0.1563	48	950-001-613	950-001-616	950-001-615	950-001-614
8.0000	0.1563	1.5000	3.0313	1.8750	0.1563	48	950-001-617	950-001-620	950-001-619	950-001-618
8.0000	0.1875	1.2500	3.0313	1.8750	0.1875	48	950-001-589	950-001-592	950-001-591	950-001-590
8.0000	0.1875	1.5000	3.0313	1.8750	0.1875	48	950-001-593	950-001-596	950-001-595	950-001-594
8.0000	0.2188	1.2500	3.0313	1.8750	0.2188	48	950-001-621	950-001-624	950-001-623	950-001-622
8.0000	0.2188	1.5000	3.0313	1.8750	0.2188	48	950-001-625	950-001-628	950-001-627	950-001-626
8.0000	0.2500	1.2500	3.0313	1.8750	0.2500	48	950-001-597	950-001-600	950-001-599	950-001-598
8.0000	0.2500	1.5000	3.0313	1.8750	0.2500	48	950-001-601	950-001-604	950-001-603	950-001-602
8.0000	0.3750	1.2500	3.0313	1.8750	0.3750	48	950-001-605	950-001-608	950-001-607	950-001-606
8.0000	0.3750	1.5000	3.0313	1.8750	0.3750	48	950-001-609	950-001-612	950-001-611	950-001-610
10.0000	0.1875	1.2500	3.4063	3.1250	0.1875	56	950-001-137	950-001-140	950-001-139	950-001-138
10.0000	0.1875	1.5000	3.4063	3.1250	0.1875	56	950-001-141	950-001-144	950-001-143	950-001-142
10.0000	0.2188	1.2500	3.4063	3.1250	0.2188	56	950-001-161	950-001-164	950-001-163	950-001-162
10.0000	0.2188	1.5000	3.4063	3.1250	0.2188	56	950-001-165	950-001-168	950-001-167	950-001-166
10.0000	0.2500	1.2500	3.4063	3.1250	0.2500	56	950-001-145	950-001-148	950-001-147	950-001-146
10.0000	0.2500	1.5000	3.4063	3.1250	0.2500	56	950-001-149	950-001-152	950-001-151	950-001-150
10.0000	0.3750	1.2500	3.4063	3.1250	0.3750	56	950-001-153	950-001-156	950-001-155	950-001-154
10.0000	0.3750	1.5000	3.4063	3.1250	0.3750	56	950-001-157	950-001-160	950-001-159	950-001-158

*Make To Order



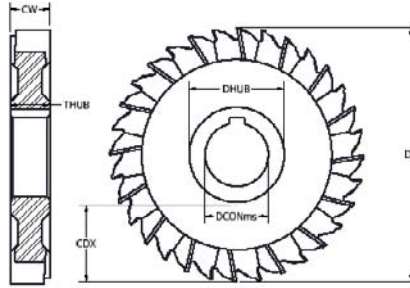
MS Style

- Excellent for Deep Slotting
- Free Cutting



DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAlN COATED
3.0000	0.0938	1.0000	0.7188	1.5000	0.0938	28	950-000-917	950-000-920	950-000-919	950-000-918
3.0000	0.1250	1.0000	0.7188	1.5000	0.1250	28	950-000-905	950-000-908	950-000-907	950-000-906
3.0000	0.1563	1.0000	0.7188	1.5000	0.1563	28	950-000-921	950-000-924	950-000-923	950-000-922
3.0000	0.1875	1.0000	0.7188	1.5000	0.1875	28	950-000-909	950-000-912	950-000-911	950-000-910
3.0000	0.2188	1.0000	0.7188	1.5000	0.2188	28	950-000-925	950-000-928	950-000-927	950-000-926
3.0000	0.2500	1.0000	0.7188	1.5000	0.2500	28	950-000-913	950-000-916	950-000-915	950-000-914
4.0000	0.0938	1.0000	1.2188	1.5000	0.0938	32	950-000-953	950-000-956	950-000-955	950-000-954
4.0000	0.0938	1.2500	1.0313	1.8750	0.0938	32	950-000-957	950-000-960	950-000-959	950-000-958
4.0000	0.1250	1.0000	1.2188	1.5000	0.1250	32	950-000-929	950-000-932	950-000-931	950-000-930
4.0000	0.1250	1.2500	1.0313	1.8750	0.1250	32	950-000-933	950-000-936	950-000-935	950-000-934
4.0000	0.1563	1.0000	1.2188	1.5000	0.1563	32	950-000-961	950-000-964	950-000-963	950-000-962
4.0000	0.1563	1.2500	1.0313	1.8750	0.1563	32	950-000-965	950-000-968	950-000-967	950-000-966

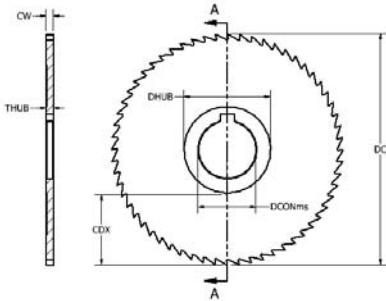
*Make To Order



HSS

DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAlN COATED
4.0000	0.1875	1.0000	1.2188	1.5000	0.1875	32	950-000-937	950-000-940	950-000-939	950-000-938
4.0000	0.1875	1.2500	1.0313	1.8750	0.1875	32	950-000-941	950-000-944	950-000-943	950-000-942
4.0000	0.2188	1.0000	1.2188	1.5000	0.2188	32	950-000-969	950-000-972	950-000-971	950-000-970
4.0000	0.2188	1.2500	1.0313	1.8750	0.2188	32	950-000-973	950-000-976	950-000-975	950-000-974
4.0000	0.2500	1.0000	1.2188	1.5000	0.2500	32	950-000-945	950-000-948	950-000-947	950-000-946
4.0000	0.2500	1.2500	1.0313	1.8750	0.2500	32	950-000-949	950-000-952	950-000-951	950-000-950
5.0000	0.0938	1.0000	1.7188	1.5000	0.0938	36	950-001-001	950-001-004	950-001-003	950-001-002
5.0000	0.0938	1.2500	1.5313	1.8750	0.0938	36	950-001-005	950-001-008	950-001-007	950-001-006
5.0000	0.1250	1.0000	1.7188	1.5000	0.1250	36	950-000-977	950-000-980	950-000-979	950-000-978
5.0000	0.1250	1.2500	1.5313	1.8750	0.1250	36	950-000-981	950-000-984	950-000-983	950-000-982
5.0000	0.1563	1.0000	1.7188	1.5000	0.1563	36	950-001-009	950-001-012	950-001-011	950-001-010
5.0000	0.1563	1.2500	1.5313	1.8750	0.1563	36	950-001-013	950-001-016	950-001-015	950-001-014
5.0000	0.1875	1.0000	1.7188	1.5000	0.1875	36	950-000-985	950-000-988	950-000-987	950-000-986
5.0000	0.1875	1.2500	1.5313	1.8750	0.1875	36	950-000-989	950-000-992	950-000-991	950-000-990
5.0000	0.2188	1.0000	1.7188	1.5000	0.2188	36	950-001-017	950-001-020	950-001-019	950-001-018
5.0000	0.2188	1.2500	1.5313	1.8750	0.2188	36	950-001-021	950-001-024	950-001-023	950-001-022
5.0000	0.2500	1.0000	1.7188	1.5000	0.2500	36	950-000-993	950-000-996	950-000-995	950-000-994
5.0000	0.2500	1.2500	1.5313	1.8750	0.2500	36	950-000-997	950-001-000	950-000-999	950-000-998
6.0000	0.1250	1.0000	2.2188	1.5000	0.1250	40	950-001-025	950-001-028	950-001-027	950-001-026
6.0000	0.1250	1.2500	2.0313	1.8750	0.1250	40	950-001-029	950-001-032	950-001-031	950-001-030
6.0000	0.1563	1.0000	2.2188	1.5000	0.1563	40	950-001-057	950-001-060	950-001-059	950-001-058
6.0000	0.1563	1.2500	2.0313	1.8750	0.1563	40	950-001-061	950-001-064	950-001-063	950-001-062
6.0000	0.1875	1.0000	2.2188	1.5000	0.1875	40	950-001-033	950-001-036	950-001-035	950-001-034
6.0000	0.1875	1.2500	2.0313	1.8750	0.1875	40	950-001-037	950-001-040	950-001-039	950-001-038
6.0000	0.2188	1.0000	2.2188	1.5000	0.2188	40	950-001-065	950-001-068	950-001-067	950-001-066
6.0000	0.2188	1.2500	2.0313	1.8750	0.2188	40	950-001-069	950-001-072	950-001-071	950-001-070
6.0000	0.2500	1.0000	2.2188	1.5000	0.2500	40	950-001-041	950-001-044	950-001-043	950-001-042
6.0000	0.2500	1.2500	2.0313	1.8750	0.2500	40	950-001-045	950-001-048	950-001-047	950-001-046
6.0000	0.3750	1.0000	2.2188	1.5000	0.3750	40	950-001-049	950-001-052	950-001-051	950-001-050
6.0000	0.3750	1.2500	2.0313	1.8750	0.3750	40	950-001-053	950-001-056	950-001-055	950-001-054
7.0000	0.1250	1.0000	2.7188	1.5000	0.1250	44	950-001-073	950-001-076	950-001-075	950-001-074
7.0000	0.1250	1.2500	2.5313	1.8750	0.1250	44	950-001-077	950-001-080	950-001-079	950-001-078
7.0000	0.1875	1.0000	2.7188	1.5000	0.1875	44	950-001-081	950-001-084	950-001-083	950-001-082
7.0000	0.1875	1.2500	2.5313	1.8750	0.1875	44	950-001-085	950-001-088	950-001-087	950-001-086
8.0000	0.1250	1.2500	3.0313	1.8750	0.1250	48	950-001-089	950-001-092	950-001-091	950-001-090
8.0000	0.1250	1.5000	3.0313	1.8750	0.1250	48	950-001-093	950-001-096	950-001-095	950-001-094
8.0000	0.1563	1.2500	3.0313	1.8750	0.1563	48	950-001-121	950-001-124	950-001-123	950-001-122
8.0000	0.1563	1.5000	3.0313	1.8750	0.1563	48	950-001-125	950-001-128	950-001-127	950-001-126
8.0000	0.1875	1.2500	3.0313	1.8750	0.1875	48	950-001-097	950-001-100	950-001-099	950-001-098
8.0000	0.1875	1.5000	3.0313	1.8750	0.1875	48	950-001-101	950-001-104	950-001-103	950-001-102
8.0000	0.2188	1.2500	3.0313	1.8750	0.2188	48	950-001-129	950-001-132	950-001-131	950-001-130
8.0000	0.2188	1.5000	3.0313	1.8750	0.2188	48	950-001-133	950-001-136	950-001-135	950-001-134
8.0000	0.2500	1.2500	3.0313	1.8750	0.2500	48	950-001-105	950-001-108	950-001-107	950-001-106
8.0000	0.2500	1.5000	3.0313	1.8750	0.2500	48	950-001-109	950-001-112	950-001-111	950-001-110
8.0000	0.3750	1.2500	3.0313	1.8750	0.3750	48	950-001-113	950-001-116	950-001-115	950-001-114
8.0000	0.3750	1.5000	3.0313	1.8750	0.3750	48	950-001-117	950-001-120	950-001-119	950-001-118
10.0000	0.1875	1.2500	3.4063	3.1250	0.1875	56	950-000-873	950-000-876	950-000-875	950-000-874
10.0000	0.1875	1.5000	3.4063	3.1250	0.1875	56	950-000-877	950-000-880	950-000-879	950-000-878
10.0000	0.2188	1.2500	3.4063	3.1250	0.2188	56	950-000-897	950-000-900	950-000-899	950-000-898
10.0000	0.2188	1.5000	3.4063	3.1250	0.2188	56	950-000-901	950-000-904	950-000-903	950-000-902
10.0000	0.2500	1.2500	3.4063	3.1250	0.2500	56	950-000-881	950-000-884	950-000-883	950-000-882
10.0000	0.2500	1.5000	3.4063	3.1250	0.2500	56	950-000-885	950-000-888	950-000-887	950-000-886
10.0000	0.3750	1.2500	3.4063	3.1250	0.3750	56	950-000-889	950-000-892	950-000-891	950-000-890
10.0000	0.3750	1.5000	3.4063	3.1250	0.3750	56	950-000-893	950-000-896	950-000-895	950-000-894

*Make To Order



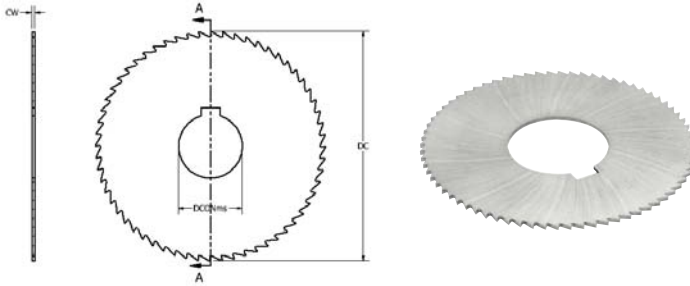
MC Style

- Designed for Slitting or Cutoff Operations
- O.D. Cutting Only, No Side Teeth
- Fully Ground Surfaces
- Square CornerED with Side Concavity



DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAIN COATED
2.5000	0.0313	0.8750	0.5938	1.2500	0.0313	36	950-000-677	950-000-680	950-000-679	950-000-678
2.5000	0.0469	0.8750	0.5938	1.2500	0.0469	36	950-000-685	950-000-688	950-000-687	950-000-686
2.5000	0.0625	0.8750	0.5938	1.2500	0.0625	36	950-000-669	950-000-672	950-000-671	950-000-670
2.5000	0.0938	0.8750	0.5938	1.2500	0.0938	36	950-000-681	950-000-684	950-000-683	950-000-682
2.5000	0.1250	0.8750	0.5938	1.2500	0.1250	36	950-000-673	950-000-676	950-000-675	950-000-674
3.0000	0.0313	1.0000	0.7188	1.5000	0.0313	36	950-000-697	950-000-700	950-000-699	950-000-698
3.0000	0.0469	1.0000	0.7188	1.5000	0.0469	36	950-000-709	950-000-712	950-000-711	950-000-710
3.0000	0.0625	1.0000	0.7188	1.5000	0.0625	36	950-000-689	950-000-692	950-000-691	950-000-690
3.0000	0.0938	1.0000	0.7188	1.5000	0.0938	36	950-000-701	950-000-704	950-000-703	950-000-702
3.0000	0.1250	1.0000	0.7188	1.5000	0.1250	36	950-000-693	950-000-696	950-000-695	950-000-694
3.0000	0.1563	1.0000	0.7188	1.5000	0.1563	36	950-000-705	950-000-708	950-000-707	950-000-706
4.0000	0.0313	1.0000	1.2188	1.5000	0.0313	40	950-000-737	950-000-740	950-000-739	950-000-738
4.0000	0.0313	1.2500	1.0313	1.8750	0.0313	40	950-000-741	950-000-744	950-000-743	950-000-742
4.0000	0.0469	1.0000	1.2188	1.5000	0.0469	40	950-000-761	950-000-764	950-000-763	950-000-762
4.0000	0.0469	1.2500	1.0313	1.8750	0.0469	40	950-000-765	950-000-768	950-000-767	950-000-766
4.0000	0.0625	1.0000	1.2188	1.5000	0.0625	40	950-000-713	950-000-716	950-000-715	950-000-714
4.0000	0.0625	1.2500	1.0313	1.8750	0.0625	40	950-000-717	950-000-720	950-000-719	950-000-718
4.0000	0.0938	1.0000	1.2188	1.5000	0.0938	40	950-000-745	950-000-748	950-000-747	950-000-746
4.0000	0.0938	1.2500	1.0313	1.8750	0.0938	40	950-000-749	950-000-752	950-000-751	950-000-750
4.0000	0.1250	1.0000	1.2188	1.5000	0.1250	40	950-000-721	950-000-724	950-000-723	950-000-722
4.0000	0.1250	1.2500	1.0313	1.8750	0.1250	40	950-000-725	950-000-728	950-000-727	950-000-726
4.0000	0.1563	1.0000	1.2188	1.5000	0.1563	40	950-000-753	950-000-756	950-000-755	950-000-754
4.0000	0.1563	1.2500	1.0313	1.8750	0.1563	40	950-000-757	950-000-760	950-000-759	950-000-758
4.0000	0.1875	1.0000	1.2188	1.5000	0.1875	40	950-000-729	950-000-732	950-000-731	950-000-730
4.0000	0.1875	1.2500	1.0313	1.8750	0.1875	40	950-000-733	950-000-736	950-000-735	950-000-734
5.0000	0.0313	1.0000	1.7188	1.5000	0.0313	44	950-000-793	950-000-796	950-000-795	950-000-794
5.0000	0.0313	1.2500	1.5313	1.8750	0.0313	44	950-000-797	950-000-800	950-000-799	950-000-798
5.0000	0.0625	1.0000	1.7188	1.5000	0.0625	44	950-000-769	950-000-772	950-000-771	950-000-770
5.0000	0.0625	1.2500	1.5313	1.8750	0.0625	44	950-000-773	950-000-776	950-000-775	950-000-774
5.0000	0.0938	1.0000	1.7188	1.5000	0.0938	44	950-000-801	950-000-804	950-000-803	950-000-802
5.0000	0.0938	1.2500	1.5313	1.8750	0.0938	44	950-000-805	950-000-808	950-000-807	950-000-806
5.0000	0.1250	1.0000	1.7188	1.5000	0.1250	44	950-000-777	950-000-780	950-000-779	950-000-778
5.0000	0.1250	1.2500	1.5313	1.8750	0.1250	44	950-000-781	950-000-784	950-000-783	950-000-782
5.0000	0.1563	1.0000	1.7188	1.5000	0.1563	44	950-000-809	950-000-812	950-000-811	950-000-810
5.0000	0.1563	1.2500	1.5313	1.8750	0.1563	44	950-000-813	950-000-816	950-000-815	950-000-814
5.0000	0.1875	1.0000	1.7188	1.5000	0.1875	44	950-000-785	950-000-788	950-000-787	950-000-786
5.0000	0.1875	1.2500	1.5313	1.8750	0.1875	44	950-000-789	950-000-792	950-000-791	950-000-790
6.0000	0.0313	1.0000	2.2188	1.5000	0.0313	48	950-000-841	950-000-844	950-000-843	950-000-842
6.0000	0.0313	1.2500	2.0313	1.8750	0.0313	48	950-000-845	950-000-848	950-000-847	950-000-846
6.0000	0.0625	1.0000	2.2188	1.5000	0.0625	48	950-000-817	950-000-820	950-000-819	950-000-818
6.0000	0.0625	1.2500	2.0313	1.8750	0.0625	48	950-000-821	950-000-824	950-000-823	950-000-822
6.0000	0.0938	1.0000	2.2188	1.5000	0.0938	48	950-000-849	950-000-852	950-000-851	950-000-850
6.0000	0.0938	1.2500	2.0313	1.8750	0.0938	48	950-000-853	950-000-856	950-000-855	950-000-854
6.0000	0.1250	1.0000	2.2188	1.5000	0.1250	48	950-000-825	950-000-828	950-000-827	950-000-826
6.0000	0.1250	1.2500	2.0313	1.8750	0.1250	48	950-000-829	950-000-832	950-000-831	950-000-830
6.0000	0.1563	1.0000	2.2188	1.5000	0.1563	48	950-000-857	950-000-860	950-000-859	950-000-858
6.0000	0.1563	1.2500	2.0313	1.8750	0.1563	48	950-000-861	950-000-864	950-000-863	950-000-862
6.0000	0.1875	1.0000	2.2188	1.5000	0.1875	48	950-000-833	950-000-836	950-000-835	950-000-834
6.0000	0.1875	1.2500	2.0313	1.8750	0.1875	48	950-000-837	950-000-840	950-000-839	950-000-838
8.0000	0.1250	1.0000	3.2188	1.5000	0.1250	58	950-000-865	950-000-868	950-000-867	950-000-866
8.0000	0.1250	1.2500	3.0313	1.8750	0.1250	58	950-000-869	950-000-872	950-000-871	950-000-870

*Make To Order

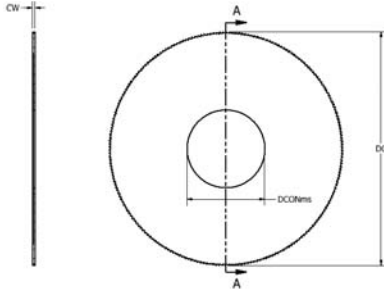


1470
• Fully Ground Surfaces

HSS

DC [in.]	CW [in.]	DCONMS [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAlN COATED
1.7500	0.0640	0.6250	0.0640	90	950-001-644	950-001-812	950-001-756	950-001-700
1.7500	0.0570	0.6250	0.0570	90	950-001-643	950-001-811	950-001-755	950-001-699
1.7500	0.0510	0.6250	0.0510	90	950-001-642	950-001-810	950-001-754	950-001-698
1.7500	0.0450	0.6250	0.0450	90	950-001-641	950-001-809	950-001-753	950-001-697
1.7500	0.0400	0.6250	0.0400	90	950-001-640	950-001-808	950-001-752	950-001-696
1.7500	0.0360	0.6250	0.0360	90	950-001-639	950-001-807	950-001-751	950-001-695
1.7500	0.0320	0.6250	0.0320	90	950-001-638	950-001-806	950-001-750	950-001-694
1.7500	0.0280	0.6250	0.0280	90	950-001-637	950-001-805	950-001-749	950-001-693
1.7500	0.0250	0.6250	0.0250	90	950-001-636	950-001-804	950-001-748	950-001-692
1.7500	0.0230	0.6250	0.0230	90	950-001-635	950-001-803	950-001-747	950-001-691
1.7500	0.0200	0.6250	0.0200	90	950-001-634	950-001-802	950-001-746	950-001-690
1.7500	0.0180	0.6250	0.0180	90	950-001-633	950-001-801	950-001-745	950-001-689
1.7500	0.0160	0.6250	0.0160	90	950-001-632	950-001-800	950-001-744	950-001-688
1.7500	0.0140	0.6250	0.0140	90	950-001-631	950-001-799	950-001-743	950-001-687
1.7500	0.0130	0.6250	0.0130	90	950-001-630	950-001-798	950-001-742	950-001-686
1.7500	0.0100	0.6250	0.0100	90	950-001-629	950-001-797	950-001-741	950-001-685
2.2500	0.0720	0.6250	0.0720	60	950-001-661	950-001-829	950-001-773	950-001-717
2.2500	0.0640	0.6250	0.0640	60	950-001-660	950-001-828	950-001-772	950-001-716
2.2500	0.0570	0.6250	0.0570	60	950-001-659	950-001-827	950-001-771	950-001-715
2.2500	0.0510	0.6250	0.0510	60	950-001-658	950-001-826	950-001-770	950-001-714
2.2500	0.0450	0.6250	0.0450	60	950-001-657	950-001-825	950-001-769	950-001-713
2.2500	0.0400	0.6250	0.0400	60	950-001-656	950-001-824	950-001-768	950-001-712
2.2500	0.0360	0.6250	0.0360	60	950-001-655	950-001-823	950-001-767	950-001-711
2.2500	0.0320	0.6250	0.0320	60	950-001-654	950-001-822	950-001-766	950-001-710
2.2500	0.0280	0.6250	0.0280	60	950-001-653	950-001-821	950-001-765	950-001-709
2.2500	0.0250	0.6250	0.0250	60	950-001-652	950-001-820	950-001-764	950-001-708
2.2500	0.0230	0.6250	0.0230	60	950-001-651	950-001-819	950-001-763	950-001-707
2.2500	0.0200	0.6250	0.0200	60	950-001-650	950-001-818	950-001-762	950-001-706
2.2500	0.0180	0.6250	0.0180	60	950-001-649	950-001-817	950-001-761	950-001-705
2.2500	0.0160	0.6250	0.0160	60	950-001-648	950-001-816	950-001-760	950-001-704
2.2500	0.0140	0.6250	0.0140	60	950-001-647	950-001-815	950-001-759	950-001-703
2.2500	0.0130	0.6250	0.0130	60	950-001-646	950-001-814	950-001-758	950-001-702
2.2500	0.0100	0.6250	0.0100	60	950-001-645	950-001-813	950-001-757	950-001-701
2.7500	0.1440	1.0000	0.1440	72	950-001-684	950-001-852	950-001-796	950-001-740
2.7500	0.1280	1.0000	0.1280	72	950-001-683	950-001-851	950-001-795	950-001-739
2.7500	0.1140	1.0000	0.1140	72	950-001-682	950-001-850	950-001-794	950-001-738
2.7500	0.1020	1.0000	0.1020	72	950-001-681	950-001-849	950-001-793	950-001-737
2.7500	0.0910	1.0000	0.0910	72	950-001-680	950-001-847	950-001-792	950-001-736
2.7500	0.0810	1.0000	0.0810	72	950-001-679	950-001-847	950-001-791	950-001-735
2.7500	0.0720	1.0000	0.0720	72	950-001-678	950-001-846	950-001-790	950-001-734
2.7500	0.0640	1.0000	0.0640	72	950-001-677	950-001-845	950-001-789	950-001-733
2.7500	0.0570	1.0000	0.0570	72	950-001-676	950-001-844	950-001-788	950-001-732
2.7500	0.0510	1.0000	0.0510	72	950-001-675	950-001-843	950-001-787	950-001-731
2.7500	0.0450	1.0000	0.0450	72	950-001-674	950-001-842	950-001-786	950-001-730
2.7500	0.0400	1.0000	0.0400	72	950-001-673	950-001-841	950-001-785	950-001-729
2.7500	0.0360	1.0000	0.0360	72	950-001-672	950-001-840	950-001-784	950-001-728
2.7500	0.0320	1.0000	0.0320	72	950-001-671	950-001-839	950-001-783	950-001-727
2.7500	0.0280	1.0000	0.0280	72	950-001-670	950-001-838	950-001-782	950-001-726
2.7500	0.0250	1.0000	0.0250	72	950-001-669	950-001-837	950-001-781	950-001-725
2.7500	0.0230	1.0000	0.0230	72	950-001-668	950-001-836	950-001-780	950-001-724
2.7500	0.0200	1.0000	0.0200	72	950-001-667	950-001-835	950-001-779	950-001-723
2.7500	0.0180	1.0000	0.0180	72	950-001-666	950-001-834	950-001-778	950-001-722
2.7500	0.0160	1.0000	0.0160	72	950-001-665	950-001-833	950-001-777	950-001-721
2.7500	0.0140	1.0000	0.0140	72	950-001-664	950-001-832	950-001-776	950-001-720
2.7500	0.0130	1.0000	0.0130	72	950-001-663	950-001-831	950-001-775	950-001-719
2.7500	0.0100	1.0000	0.0100	72	950-001-662	950-001-830	950-001-774	950-001-718

*Make To Order



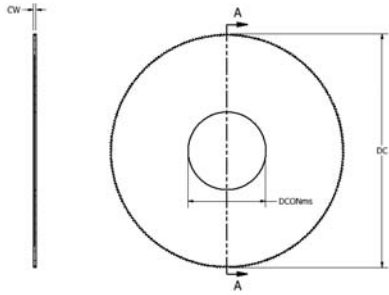
1490
• Fully Ground Surfaces



DC [in.]	CW [in.]	DCONMS [in.]	Zc	UNCOATED	TIN COATED*	TICN COATED*	TiAIN COATED
1.0000	0.0320	0.3750	80	950-000-191	950-000-578	950-000-449	950-000-320
1.0000	0.0280	0.3750	80	950-000-190	950-000-577	950-000-448	950-000-319
1.0000	0.0250	0.3750	80	950-000-189	950-000-576	950-000-447	950-000-318
1.0000	0.0230	0.3750	80	950-000-188	950-000-575	950-000-446	950-000-317
1.0000	0.0200	0.3750	80	950-000-187	950-000-574	950-000-445	950-000-316
1.0000	0.0180	0.3750	80	950-000-186	950-000-573	950-000-444	950-000-315
1.0000	0.0160	0.3750	80	950-000-185	950-000-572	950-000-443	950-000-314
1.0000	0.0140	0.3750	80	950-000-184	950-000-571	950-000-442	950-000-313
1.0000	0.0120	0.3750	100	950-000-183	950-000-570	950-000-441	950-000-312
1.0000	0.0100	0.3750	100	950-000-182	950-000-569	950-000-440	950-000-311
1.2500	0.0320	0.3750	100	950-000-171	950-000-558	950-000-429	950-000-300
1.2500	0.0280	0.3750	100	950-000-170	950-000-557	950-000-428	950-000-299
1.2500	0.0250	0.3750	100	950-000-169	950-000-556	950-000-427	950-000-298
1.2500	0.0230	0.3750	100	950-000-168	950-000-555	950-000-426	950-000-297
1.2500	0.0200	0.3750	100	950-000-167	950-000-554	950-000-425	950-000-296
1.2500	0.0180	0.3750	100	950-000-166	950-000-553	950-000-424	950-000-295
1.2500	0.0160	0.3750	100	950-000-165	950-000-552	950-000-423	950-000-294
1.2500	0.0140	0.3750	100	950-000-164	950-000-551	950-000-422	950-000-293
1.2500	0.0120	0.3750	120	950-000-163	950-000-550	950-000-421	950-000-292
1.2500	0.0100	0.3750	120	950-000-162	950-000-549	950-000-420	950-000-291
1.5000	0.0280	0.5000	110	950-000-161	950-000-548	950-000-419	950-000-290
1.5000	0.0250	0.5000	110	950-000-160	950-000-547	950-000-418	950-000-289
1.5000	0.0230	0.5000	110	950-000-159	950-000-546	950-000-417	950-000-288
1.5000	0.0200	0.5000	110	950-000-158	950-000-545	950-000-416	950-000-287
1.5000	0.0180	0.5000	110	950-000-157	950-000-544	950-000-415	950-000-286
1.5000	0.0160	0.5000	110	950-000-156	950-000-543	950-000-414	950-000-285
1.5000	0.0140	0.5000	110	950-000-155	950-000-542	950-000-413	950-000-284
1.5000	0.0120	0.5000	140	950-000-154	950-000-541	950-000-412	950-000-283
1.5000	0.0100	0.5000	140	950-000-153	950-000-540	950-000-411	950-000-282
1.7500	0.0320	0.5000	130	950-000-181	950-000-568	950-000-439	950-000-310
1.7500	0.0280	0.5000	130	950-000-180	950-000-567	950-000-438	950-000-309
1.7500	0.0250	0.5000	130	950-000-179	950-000-566	950-000-437	950-000-308
1.7500	0.0230	0.5000	130	950-000-178	950-000-565	950-000-436	950-000-307
1.7500	0.0200	0.5000	130	950-000-177	950-000-564	950-000-435	950-000-306
1.7500	0.0180	0.5000	130	950-000-176	950-000-563	950-000-434	950-000-305
1.7500	0.0160	0.5000	130	950-000-175	950-000-562	950-000-433	950-000-304
1.7500	0.0140	0.5000	130	950-000-174	950-000-561	950-000-432	950-000-303
1.7500	0.0120	0.5000	160	950-000-173	950-000-560	950-000-431	950-000-302
1.7500	0.0100	0.5000	160	950-000-172	950-000-559	950-000-430	950-000-301
2.0000	0.0570	0.5000	110	950-000-221	950-000-608	950-000-479	950-000-350
2.0000	0.0510	0.5000	110	950-000-220	950-000-607	950-000-478	950-000-349
2.0000	0.0450	0.5000	110	950-000-219	950-000-606	950-000-477	950-000-348
2.0000	0.0400	0.5000	110	950-000-218	950-000-605	950-000-476	950-000-347
2.0000	0.0350	0.5000	110	950-000-217	950-000-604	950-000-475	950-000-346

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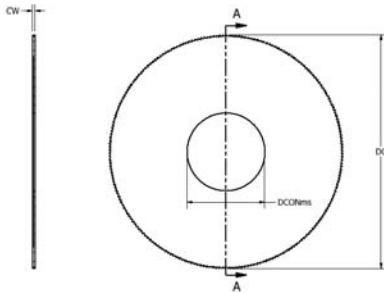


1490
• Fully Ground Surfaces



DC [in.]	CW [in.]	DCONMS [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAIN COATED
2.0000	0.0320	0.5000	110	950-000-216	950-000-603	950-000-474	950-000-345
2.0000	0.0280	0.5000	150	950-000-215	950-000-602	950-000-473	950-000-344
2.0000	0.0250	0.5000	150	950-000-214	950-000-601	950-000-472	950-000-343
2.0000	0.0230	0.5000	150	950-000-213	950-000-600	950-000-471	950-000-342
2.0000	0.0200	0.5000	150	950-000-212	950-000-599	950-000-470	950-000-341
2.0000	0.0180	0.5000	150	950-000-211	950-000-598	950-000-469	950-000-340
2.0000	0.0160	0.5000	150	950-000-210	950-000-597	950-000-468	950-000-339
2.0000	0.0140	0.5000	150	950-000-209	950-000-596	950-000-467	950-000-338
2.0000	0.0120	0.5000	190	950-000-208	950-000-595	950-000-466	950-000-337
2.0000	0.0100	0.5000	190	950-000-207	950-000-594	950-000-465	950-000-336
2.5000	0.0570	0.5000	140	950-000-206	950-000-593	950-000-464	950-000-335
2.5000	0.0510	0.5000	140	950-000-205	950-000-592	950-000-463	950-000-334
2.5000	0.0450	0.5000	140	950-000-204	950-000-591	950-000-462	950-000-333
2.5000	0.0400	0.5000	140	950-000-203	950-000-590	950-000-461	950-000-332
2.5000	0.0350	0.5000	140	950-000-202	950-000-589	950-000-460	950-000-331
2.5000	0.0320	0.5000	140	950-000-201	950-000-588	950-000-459	950-000-330
2.5000	0.0280	0.5000	190	950-000-200	950-000-587	950-000-458	950-000-329
2.5000	0.0250	0.5000	190	950-000-199	950-000-586	950-000-457	950-000-328
2.5000	0.0230	0.5000	190	950-000-198	950-000-585	950-000-456	950-000-327
2.5000	0.0200	0.5000	190	950-000-197	950-000-584	950-000-455	950-000-326
2.5000	0.0180	0.5000	190	950-000-196	950-000-583	950-000-454	950-000-325
2.5000	0.0160	0.5000	190	950-000-195	950-000-582	950-000-453	950-000-324
2.5000	0.0140	0.5000	190	950-000-194	950-000-581	950-000-452	950-000-323
2.5000	0.0120	0.5000	240	950-000-193	950-000-580	950-000-451	950-000-322
3.0000	0.0100	0.5000	240	950-000-192	950-000-579	950-000-450	950-000-321
3.0000	0.0570	0.5000	170	950-000-250	950-000-637	950-000-508	950-000-379
3.0000	0.0570	1.0000	170	950-000-251	950-000-638	950-000-509	950-000-380
3.0000	0.0510	0.5000	170	950-000-248	950-000-635	950-000-506	950-000-377
3.0000	0.0510	1.0000	170	950-000-249	950-000-636	950-000-507	950-000-378
3.0000	0.0450	0.5000	170	950-000-246	950-000-633	950-000-504	950-000-375
3.0000	0.0450	1.0000	170	950-000-247	950-000-634	950-000-505	950-000-376
3.0000	0.0400	0.5000	170	950-000-244	950-000-631	950-000-502	950-000-373
3.0000	0.0400	1.0000	170	950-000-245	950-000-632	950-000-503	950-000-374
3.0000	0.0350	0.5000	170	950-000-242	950-000-629	950-000-500	950-000-371
3.0000	0.0350	1.0000	170	950-000-243	950-000-630	950-000-501	950-000-372
3.0000	0.0320	0.5000	170	950-000-240	950-000-627	950-000-498	950-000-369
3.0000	0.0320	1.0000	170	950-000-241	950-000-628	950-000-499	950-000-370
3.0000	0.0280	0.5000	230	950-000-238	950-000-625	950-000-496	950-000-367
3.0000	0.0280	1.0000	230	950-000-239	950-000-626	950-000-497	950-000-368
3.0000	0.0250	0.5000	230	950-000-236	950-000-623	950-000-494	950-000-365
3.0000	0.0250	1.0000	230	950-000-237	950-000-624	950-000-495	950-000-366
3.0000	0.0230	0.5000	230	950-000-234	950-000-621	950-000-492	950-000-363
3.0000	0.0230	1.0000	230	950-000-235	950-000-622	950-000-493	950-000-364
3.0000	0.0200	0.5000	230	950-000-232	950-000-619	950-000-490	950-000-361

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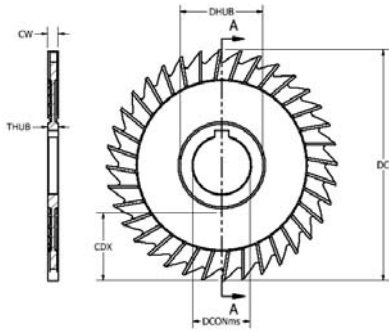
1490
• Fully Ground Surfaces



DC [in.]	CW [in.]	DCONMS [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAlN COATED
3.0000	0.0200	1.0000	230	950-000-233	950-000-620	950-000-491	950-000-362
3.0000	0.018	0.5000	230	950-000-230	950-000-617	950-000-488	950-000-359
3.0000	0.018	1.0000	230	950-000-231	950-000-618	950-000-489	950-000-360
3.0000	0.016	0.5000	230	950-000-228	950-000-615	950-000-486	950-000-357
3.0000	0.016	1.0000	230	950-000-229	950-000-616	950-000-487	950-000-358
3.0000	0.014	0.5000	230	950-000-226	950-000-613	950-000-484	950-000-355
3.0000	0.014	1.0000	230	950-000-227	950-000-614	950-000-485	950-000-356
3.0000	0.012	0.5000	280	950-000-224	950-000-611	950-000-482	950-000-353
3.0000	0.012	1.0000	280	950-000-225	950-000-612	950-000-483	950-000-354
3.0000	0.010	0.5000	280	950-000-222	950-000-609	950-000-480	950-000-351
3.0000	0.010	1.0000	280	950-000-223	950-000-610	950-000-481	950-000-352
4.0000	0.0570	0.5000	220	950-000-280	950-000-667	950-000-538	950-000-409
4.0000	0.0570	1.0000	220	950-000-281	950-000-668	950-000-539	950-000-410
4.0000	0.0510	0.5000	220	950-000-278	950-000-665	950-000-536	950-000-407
4.0000	0.0510	1.0000	220	950-000-279	950-000-666	950-000-537	950-000-408
4.0000	0.0450	0.5000	220	950-000-276	950-000-663	950-000-534	950-000-405
4.0000	0.0450	1.0000	220	950-000-277	950-000-664	950-000-535	950-000-406
4.0000	0.0400	0.5000	220	950-000-274	950-000-661	950-000-532	950-000-403
4.0000	0.0400	1.0000	220	950-000-275	950-000-662	950-000-533	950-000-404
4.0000	0.0350	0.5000	220	950-000-272	950-000-659	950-000-530	950-000-401
4.0000	0.0350	1.0000	220	950-000-273	950-000-660	950-000-531	950-000-402
4.0000	0.0320	0.5000	220	950-000-270	950-000-657	950-000-528	950-000-399
4.0000	0.0320	1.0000	220	950-000-271	950-000-658	950-000-529	950-000-400
4.0000	0.0280	0.5000	300	950-000-268	950-000-655	950-000-526	950-000-397
4.0000	0.0280	1.0000	300	950-000-269	950-000-656	950-000-527	950-000-398
4.0000	0.0250	0.5000	300	950-000-266	950-000-653	950-000-524	950-000-395
4.0000	0.0250	1.0000	300	950-000-267	950-000-654	950-000-525	950-000-396
4.0000	0.0230	0.5000	300	950-000-264	950-000-651	950-000-522	950-000-393
4.0000	0.0230	1.0000	300	950-000-265	950-000-652	950-000-523	950-000-394
4.0000	0.0200	0.5000	300	950-000-262	950-000-649	950-000-520	950-000-391
4.0000	0.0200	1.0000	300	950-000-263	950-000-650	950-000-521	950-000-392
4.0000	0.0180	0.5000	300	950-000-260	950-000-647	950-000-518	950-000-389
4.0000	0.0180	1.0000	300	950-000-261	950-000-648	950-000-519	950-000-390
4.0000	0.0160	0.5000	300	950-000-258	950-000-645	950-000-516	950-000-387
4.0000	0.0160	1.0000	300	950-000-259	950-000-646	950-000-517	950-000-388
4.0000	0.0140	0.5000	300	950-000-256	950-000-643	950-000-514	950-000-385
4.0000	0.0140	1.0000	300	950-000-257	950-000-644	950-000-515	950-000-386
4.0000	0.0120	0.5000	380	950-000-254	950-000-641	950-000-512	950-000-383
4.0000	0.012	1.0000	380	950-000-255	950-000-642	950-000-513	950-000-384
4.0000	0.0100	0.5000	380	950-000-252	950-000-639	950-000-510	950-000-381
4.0000	0.0100	1.0000	380	950-000-253	950-000-640	950-000-511	950-000-382

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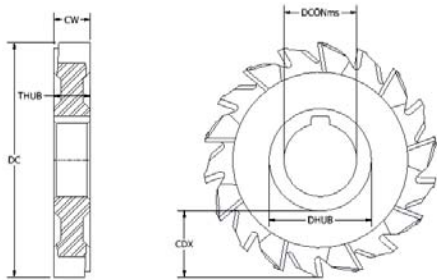
CMT Style - Straight Tooth

- For use in fine finish applications



DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAlN COATED
3.0000	0.0625	1.0000	0.7188	1.5000	0.0625	32	950-000-065	950-000-068	950-000-067	950-000-066
3.0000	0.0938	1.0000	0.7188	1.5000	0.0938	32	950-000-081	950-000-084	950-000-083	950-000-082
3.0000	0.1250	1.0000	0.7188	1.5000	0.1250	32	950-000-069	950-000-072	950-000-071	950-000-070
3.0000	0.1563	1.0000	0.7188	1.5000	0.1563	32	950-000-085	950-000-088	950-000-087	950-000-086
3.0000	0.1875	1.0000	0.7188	1.5000	0.1875	32	950-000-073	950-000-076	950-000-075	950-000-074
3.0000	0.2500	1.0000	0.7188	1.5000	0.2500	32	950-000-077	950-000-080	950-000-079	950-000-078
4.0000	0.0625	1.0000	1.2188	1.5000	0.0625	36	950-000-089	950-000-092	950-000-091	950-000-090
4.0000	0.0625	1.2500	1.0313	1.8750	0.0625	36	950-000-093	950-000-096	950-000-095	950-000-094
4.0000	0.0938	1.0000	1.2188	1.5000	0.0938	36	950-000-121	950-000-124	950-000-123	950-000-122
4.0000	0.0938	1.2500	1.0313	1.8750	0.0938	36	950-000-125	950-000-128	950-000-127	950-000-126
4.0000	0.1250	1.0000	1.2188	1.5000	0.1250	36	950-000-097	950-000-100	950-000-099	950-000-098
4.0000	0.1250	1.2500	1.0313	1.8750	0.1250	36	950-000-101	950-000-104	950-000-103	950-000-102
4.0000	0.1563	1.0000	1.2188	1.5000	0.1563	36	950-000-129	950-000-132	950-000-131	950-000-130
4.0000	0.1563	1.2500	1.0313	1.8750	0.1563	36	950-000-133	950-000-136	950-000-135	950-000-134
4.0000	0.1875	1.0000	1.2188	1.5000	0.1875	36	950-000-105	950-000-108	950-000-107	950-000-106
4.0000	0.1875	1.2500	1.0313	1.8750	0.1875	36	950-000-109	950-000-112	950-000-111	950-000-110
4.0000	0.2500	1.0000	1.2188	1.5000	0.2500	36	950-000-113	950-000-116	950-000-115	950-000-114
4.0000	0.2500	1.2500	1.0313	1.8750	0.2500	36	950-000-117	950-000-120	950-000-119	950-000-118
6.0000	0.1250	1.2500	2.0313	1.8750	0.1250	42	950-000-137	950-000-140	950-000-139	950-000-138
6.0000	0.1563	1.2500	2.0313	1.8750	0.1563	42	950-000-149	950-000-152	950-000-151	950-000-150
6.0000	0.1875	1.2500	2.0313	1.8750	0.1875	42	950-000-141	950-000-144	950-000-143	950-000-142
6.0000	0.2500	1.2500	2.0313	1.8750	0.2500	42	950-000-145	950-000-148	950-000-147	950-000-146

*Make To Order



CMS Style - Staggered Tooth

- For use in Deep Slotting Applications



DC [in.]	CW [in.]	DCONMS [in.]	CDX [in.]	DHUB [in.]	THUB [in.]	Zc	UNCOATED	TiN COATED*	TiCN COATED*	TiAlN COATED
3.0000	0.1250	1.0000	0.7188	1.5000	0.1250	28	950-000-001	950-000-004	950-000-003	950-000-002
3.0000	0.1563	1.0000	0.7188	1.5000	0.1563	28	950-000-013	950-000-016	950-000-015	950-000-014
3.0000	0.1875	1.0000	0.7188	1.5000	0.1875	28	950-000-005	950-000-008	950-000-007	950-000-006
3.0000	0.2500	1.0000	0.7188	1.5000	0.2500	28	950-000-009	950-000-012	950-000-011	950-000-010
4.0000	0.1250	1.0000	1.2188	1.5000	0.1250	32	950-000-017	950-000-020	950-000-019	950-000-018
4.0000	0.1250	1.2500	1.0313	1.8750	0.1250	32	950-000-021	950-000-024	950-000-023	950-000-022
4.0000	0.1563	1.0000	1.2188	1.5000	0.1563	32	950-000-041	950-000-044	950-000-043	950-000-042
4.0000	0.1563	1.2500	1.0313	1.8750	0.1563	32	950-000-045	950-000-048	950-000-047	950-000-046
4.0000	0.1875	1.0000	1.2188	1.5000	0.1875	32	950-000-025	950-000-028	950-000-027	950-000-026
4.0000	0.1875	1.2500	1.0313	1.8750	0.1875	32	950-000-029	950-000-032	950-000-031	950-000-030
4.0000	0.2500	1.0000	1.2188	1.5000	0.2500	32	950-000-033	950-000-036	950-000-035	950-000-034
4.0000	0.2500	1.2500	1.0313	1.8750	0.2500	32	950-000-037	950-000-040	950-000-039	950-000-038
6.0000	0.1250	1.2500	2.0313	1.8750	0.1250	40	950-000-049	950-000-052	950-000-051	950-000-050
6.0000	0.1563	1.2500	2.0313	1.8750	0.1563	40	950-000-061	950-000-064	950-000-063	950-000-062
6.0000	0.1875	1.2500	2.0313	1.8750	0.1875	40	950-000-053	950-000-056	950-000-055	950-000-054
6.0000	0.2500	1.2500	2.0313	1.8750	0.2500	40	950-000-057	950-000-060	950-000-059	950-000-058

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Cutting Tools



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The ARCH Specials platform is built for customizing solid round and rotating and non-rotating indexable tooling. From modified standards, to complex or combination tools; we can engineer and manufacture a stand alone solution or turn-key package for your application.



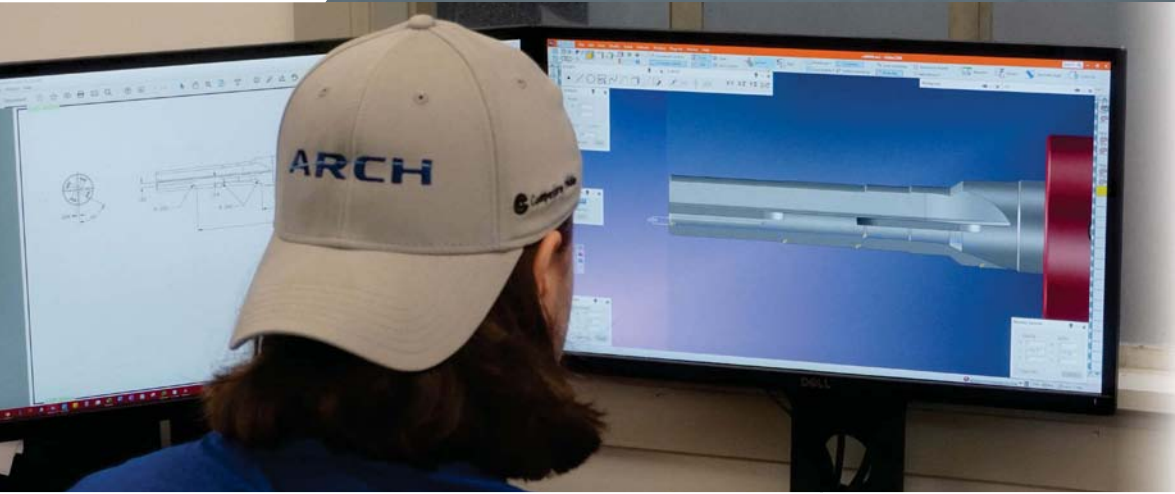
SOLID CARBIDE	HSS / COBALT
INDEXABLES	INTEGRAL SHANK
MICRO TOOLS	COMPLEX FORM TOOLS
MULTI-FEATURE TOOLS	PCD



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ARCH Cutting Tools is the 2020 winner of the ANCA Tool of the Year. Our team created this tool to demonstrate our design capabilities. This tool is a multifunctional tool designed to take the place of six separate cutting tools.

The customer increased profitability by reducing tool changes and the compliment of enhanced geometries in a combined process for better performance and tool life.



Our engineers talk to your engineers – fewer steps for your critical application

Productivity at the Spindle

We provide:

- Cost-reducing efficiencies
- Process improvements
- Advanced coatings
- Laser etching
- Comprehensive supply chain management
- Unmatched customer service



Your One Stop Shop for Custom Tooling Packages

ARCH Cutting Tool's Tooling Packages combine the widest range of our lightning-fast special cutting tool capabilities with our robust standards product portfolio to provide a single touch point, turn-key solution. Backed by American craftsmanship and ingenuity, you won't be disappointed.

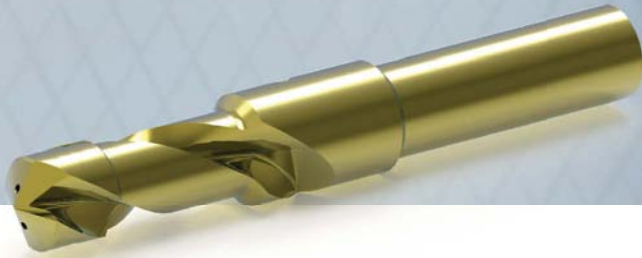
Operational Consultation

Our customers do extraordinary things, but everybody needs a competitive edge. This requires a precision tooling partner that can deliver customs and specials that meet exacting standards. Providing the special tools that our customers need to do their unparalleled work is just the beginning of the ARCH Specials story. Our engineers help identify your opportunities to increase value, improve quality and performance, and enhance manufacturing operations.

At high speeds, even the smallest variance is amplified. When a customer consults with us, they get design-for-manufacturability guidance. We can help reduce the number of steps required to produce a component and the number of cutting tools needed to do it. Each time you take out a step in the manufacturing process, you remove the introduction of an inconsistency, divergence, or variation, no matter how small.

Contact ARCH Specials:
(844) 321-ARCH
archctspecials@archgp.com





Solid Round Tools

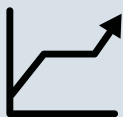
Including:

- Specialty end mills
- Multi- step custom diameter drills
- Micro Tools
- Countersinks
- Reamers
- Chamfer Mills & Drills
- Engraving Cutters
- Corner Rounding tools
- Dovetail Cutters
- T-Slot Cutters
- Chamber Reamers
- Application specific geometry and coating
- Customizable shank types and diameters



Precise specifications - Extraordinary applications

The performance advantages of custom tools machined with greater precision — such as optimized cylindrical concentricity — produce Increased throughput and enhanced machine usage. Simply put, achieving unique contours and cavities with tighter tolerances and Reduced scrap saves time and money. Single tool solutions eliminate the need for multiple tools and passes resulting in improved cycle time and CPU.



Improved surface finish in cone taper

ARCH engineers modified the geometry and edge prep on a cone drill which tripled tool life and significantly improved surface finish to Reduce scrap rates.

\$50,000

cost savings annually

30%

REduction in scrap



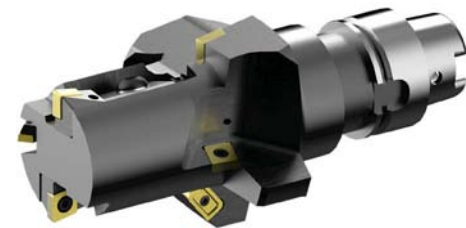
Indexables: Rotating & Non Rotating

Including:

- Custom Indexable profiles / lead angles
- Multi-step hole-making
- Indexable trepan
- Specialty Square shank
- Custom straddle and grooving mills
- Multi -process combination tools
- Integral shank designs
- Modular / redundant tooling packages
- Precision insert pockets



Indexable milling, drilling, boring, turning, and holding tools can all be optimized with our proven full product life cycle process. Our customers invariably enjoy enhanced efficiencies when our process is applied to their unique needs. They are enabled to develop specialized cutting tool solutions that not only improve their final product, but also how they operate as an organization. From the initial on-site or virtual consultation, to engineering and design assist, ARCH Specials brings Comprehensive and knowledge-driven results.



Performance and cost evaluation of inserts

ARCH Reviewed customer's high-volume inserts for cost improvements.

\$36,000

cost savings
annually



Coast to
Coast
Support

Custom PCD Tooling

ARCH CT is proud to offer Polycrystalline Diamond (PCD) with our proprietary internally developed design and manufacturing process. We create tool tolerances as tight as .003mm, provide CNC inspection reports with every tool, and offer unmatched lead times for new tools.

Key Features for PCD Tooling:

- Combining roughing and finishing tools
- Improved surface finishes
- Consistent results
- Tighter tolerances achievable
- Can be used in many materials including:
 - Aluminum Composite Material (ACM)
 - Composite panels
 - High pressure laminates (HPL)
 - Fiberglass

Our Capabilities

- Custom solutions, specific for your application and part configuration
- Combining PCD and carbide tooling in the same tool to lead to balanced, optimized solutions
- 1-2 week turnaround on re-tipped tools
- Reconditioning, sharpening, re-tipping ANY manufacturers PCD tools and in any style connection, including steerable connections



Before



After



After



Maximize tool life

Faster speeds and higher feed rates, results in increased through-put

25x
longer tool life
when compared to carbide

REDUCE. REUSE. **RECON360**

ANYONE'S TOOL, ANYONE'S POCKET

RECON360 is our new service program aimed at reducing tooling costs, saving raw materials, and providing a single touch point for your re-manufacturing needs. We can service any brand of insert, indexable or solid round tool nationwide.

REPAIR



Restore indexable cutting tool bodies to OEM or new condition.

RECONDITION



Restore solid round tools back to OEM or like new condition.

REGRIND



Clean-up worn areas on inserts and solid round cutting tools by regrinding.

RECOAT



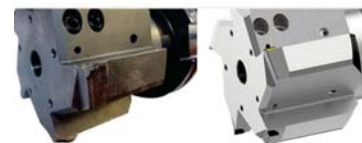
Strip and reapply coating to tools to increase tool life, improve process security, and reduce friction.

RESIZE



Grind inserts or solid round tools down to be used in a different size, shape or application.

RETIP



Braze new carbide, CBN, PCD, or ceramic edge on inserts & round tools.

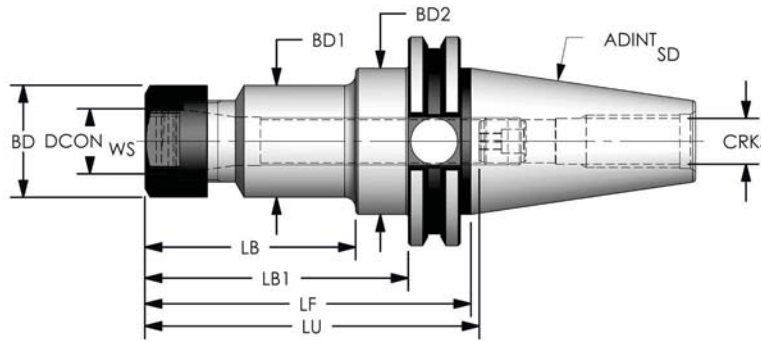
SUBMIT A QUOTE ONLINE



LEARN MORE

TOOL HOLDERS

ARCHi[®]
Cutting Tools



Balanced to:
G2.5 (20,000 rpm)

PRODUCT #	DESIGNATION	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	BD2 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	COLLET NUT	STOP SCREW	WRENCH
966-000-065	CT40-ER11-250-G2	CAT40	ER11	0.750	N/A	N/A	1.750	N/A	2.500	1.940	5/8-11	ER-11HN	ER-11S	ER-11W
966-000-067	CT40-ER11-400-G2	CAT40	ER11	0.750	N/A	1.750	2.620	3.250	4.000	1.940	5/8-11	ER-11HN	ER-11S	ER-11W
966-000-069	CT40-ER11-600-G2	CAT40	ER11	0.750	N/A	1.750	4.620	5.250	6.000	1.940	5/8-11	ER-11HN	ER-11S	ER-11W
966-000-071	CT40-ER16-250-G2	CAT40	ER16	1.100	N/A	N/A	1.750	N/A	2.500	3.000	5/8-11	ER-16HN	ER-16S	ER-16W
966-000-073	CT40-ER16-300-G2	CAT40	ER16	1.100	N/A	N/A	2.250	N/A	3.000	3.000	5/8-11	ER-16HN	ER-16S	ER-16W
966-000-075	CT40-ER16-400-G2	CAT40	ER16	1.100	N/A	N/A	3.250	N/A	4.000	3.000	5/8-11	ER-16HN	ER-16S	ER-16W
966-000-077	CT40-ER16-500-G2	CAT40	ER16	1.100	N/A	1.750	3.620	4.250	5.000	3.000	5/8-11	ER-16HN	ER-16S	ER-16W
966-000-079	CT40-ER16-600-G2	CAT40	ER16	1.100	N/A	1.750	4.620	5.250	6.000	3.000	5/8-11	ER-16HN	ER-16S	ER-16W
966-000-081	CT40-ER20-300-G2	CAT40	ER20	1.340	N/A	N/A	2.250	N/A	3.000	3.500	5/8-11	ER-20HN	ER-20S	ER-20W
966-000-083	CT40-ER20-400-G2	CAT40	ER20	1.340	N/A	1.750	2.620	3.250	4.000	3.950	5/8-11	ER-20HN	ER-20S	ER-20W
966-000-085	CT40-ER20-600-G2	CAT40	ER20	1.340	N/A	1.750	4.620	5.250	6.000	3.950	5/8-11	ER-20HN	ER-20S	ER-20W
966-000-087	CT40-ER20-800-G2	CAT40	ER20	1.340	N/A	1.750	6.620	7.250	8.000	3.950	5/8-11	ER-20HN	ER-20S	ER-20W
966-000-089	CT40-ER25-250-G2	CAT40	ER25	1.660	1.590	N/A	1.750	N/A	2.500	2.800	5/8-11	ER-25SN	ER-25S	ER-25W
966-000-091	CT40-ER25-400-G2	CAT40	ER25	1.660	1.590	1.750	2.620	3.250	4.000	4.300	5/8-11	ER-25SN	ER-25S	ER-25W
966-000-093	CT40-ER25-600-G2	CAT40	ER25	1.660	1.590	1.750	4.620	5.250	6.000	4.400	5/8-11	ER-25SN	ER-25S	ER-25W
966-000-095	CT40-ER32-300-G2	CAT40	ER32	1.980	1.750	N/A	2.250	N/A	3.000	3.450	5/8-11	ER-32SN	ER-32S	ER-32W
966-000-097	CT40-ER32-400-G2	CAT40	ER32	1.980	1.750	N/A	N/A	3.250	4.000	4.300	5/8-11	ER-32SN	ER-32S	ER-32W
966-000-099	CT40-ER32-600-G2	CAT40	ER32	1.980	1.750	N/A	N/A	5.250	6.000	4.600	5/8-11	ER-32SN	ER-32S	ER-32W
966-000-101	CT40-ER32-800-G2	CAT40	ER32	1.980	1.750	N/A	N/A	7.250	8.000	4.600	5/8-11	ER-32SN	ER-32S	ER-32W
966-000-103	CT40-ER40-300-G2	CAT40	ER40	2.250	N/A	N/A	N/A	2.250	3.000	3.300	5/8-11	ER-40SN	ER-40S	ER-40W
966-000-105	CT40-ER40-400-G2	CAT40	ER40	2.250	N/A	N/A	N/A	3.250	4.000	4.000	5/8-11	ER-40SN	ER-40S	ER-40W
966-000-107	CT40-ER40-600-G2	CAT40	ER40	2.250	N/A	N/A	N/A	5.250	6.000	4.500	5/8-11	ER-40SN	ER-40S	ER-40W
966-000-109	CT40-ER40-800-G2	CAT40	ER40	2.250	N/A	N/A	N/A	7.250	8.000	4.500	5/8-11	ER-40SN	ER-40S	ER-40W

All Hardware Included. Wrenches Sold Separately.

PRODUCT #	NUT
968-000-029	ER-11HN
968-000-033	ER-16HN
968-000-038	ER-20HN
968-000-044	ER-25SN
968-000-047	ER-32SN
968-000-050	ER-40SN
968-000-030	ER-11MN
968-000-034	ER-16MN
968-000-039	ER-20MN

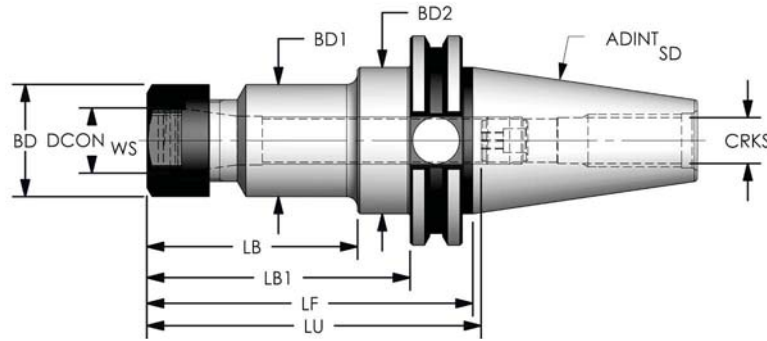
PACKAGE SIZE OF 1

PRODUCT #	ADJ. SCREW
968-000-032	ER-11S
968-000-036	ER-16S
968-000-041	ER-20S
968-000-043	ER-25S
968-000-046	ER-32S
968-000-049	ER-40S

PACKAGE SIZE OF 1

PRODUCT #	WRENCH
968-000-189	ER-11W
968-000-031	ER-11MW
968-000-035	ER-16MW
968-000-037	ER-16W
968-000-040	ER-20MW
968-000-042	ER-20W
968-000-045	ER-25W
968-000-048	ER-32W
968-000-051	ER-40W

PACKAGE SIZE OF 1



Balanced to:
G6.3 (12,000 rpm)

PRODUCT #	DESIGNATION	ADINTSD	DCONWS	BD [in.]	BD1 [in.]	BD2 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	COLLET NUT	STOP SCREW	WRENCH
966-000-066	CT40-ER11-250-G6	CAT40	ER11	0.750	N/A	N/A	1.750	N/A	2.500	1.940	5/8-11	ER-11HN	ER-11S	ER-11W
966-000-068	CT40-ER11-400-G6	CAT40	ER11	0.750	N/A	1.750	2.620	3.250	4.000	1.940	5/8-11	ER-11HN	ER-11S	ER-11W
966-000-070	CT40-ER11-600-G6	CAT40	ER11	0.750	N/A	1.750	4.620	5.250	6.000	1.940	5/8-11	ER-11HN	ER-11S	ER-11W
966-000-072	CT40-ER16-250-G6	CAT40	ER16	1.100	N/A	N/A	1.750	N/A	2.500	3.000	5/8-11	ER-16HN	ER-16S	ER-16W
966-000-074	CT40-ER16-300-G6	CAT40	ER16	1.100	N/A	N/A	2.250	N/A	3.000	3.000	5/8-11	ER-16HN	ER-16S	ER-16W
966-000-076	CT40-ER16-400-G6	CAT40	ER16	1.100	N/A	N/A	3.250	N/A	4.000	3.000	5/8-11	ER-16HN	ER-16S	ER-16W
966-000-078	CT40-ER16-500-G6	CAT40	ER16	1.100	N/A	1.750	3.620	4.250	5.000	3.000	5/8-11	ER-16HN	ER-16S	ER-16W
966-000-080	CT40-ER16-600-G6	CAT40	ER16	1.100	N/A	1.750	4.620	5.250	6.000	3.000	5/8-11	ER-16HN	ER-16S	ER-16W
966-000-082	CT40-ER20-300-G6	CAT40	ER20	1.340	N/A	N/A	2.250	N/A	3.000	3.500	5/8-11	ER-20HN	ER-20S	ER-20W
966-000-084	CT40-ER20-400-G6	CAT40	ER20	1.340	N/A	1.750	2.620	3.250	4.000	3.950	5/8-11	ER-20HN	ER-20S	ER-20W
966-000-086	CT40-ER20-600-G6	CAT40	ER20	1.340	N/A	1.750	4.620	5.250	6.000	3.950	5/8-11	ER-20HN	ER-20S	ER-20W
966-000-088	CT40-ER20-800-G6	CAT40	ER20	1.340	N/A	1.750	6.620	7.250	8.000	3.950	5/8-11	ER-20HN	ER-20S	ER-20W
966-000-090	CT40-ER25-250-G6	CAT40	ER25	1.660	1.590	N/A	1.750	N/A	2.500	2.800	5/8-11	ER-25SN	ER-25S	ER-25W
966-000-092	CT40-ER25-400-G6	CAT40	ER25	1.660	1.590	1.750	2.620	3.250	4.000	4.300	5/8-11	ER-25SN	ER-25S	ER-25W
966-000-094	CT40-ER25-600-G6	CAT40	ER25	1.660	1.590	1.750	4.620	5.250	6.000	4.400	5/8-11	ER-25SN	ER-25S	ER-25W
966-000-096	CT40-ER32-300-G6	CAT40	ER32	1.980	1.750	N/A	2.250	N/A	3.000	3.450	5/8-11	ER-32SN	ER-32S	ER-32W
966-000-098	CT40-ER32-400-G6	CAT40	ER32	1.980	1.750	N/A	N/A	3.250	4.000	4.300	5/8-11	ER-32SN	ER-32S	ER-32W
966-000-100	CT40-ER32-600-G6	CAT40	ER32	1.980	1.750	N/A	N/A	5.250	6.000	4.600	5/8-11	ER-32SN	ER-32S	ER-32W
966-000-102	CT40-ER32-800-G6	CAT40	ER32	1.980	1.750	N/A	N/A	7.250	8.000	4.600	5/8-11	ER-32SN	ER-32S	ER-32W
966-000-104	CT40-ER40-300-G6	CAT40	ER40	2.250	N/A	N/A	N/A	2.250	3.000	3.300	5/8-11	ER-40SN	ER-40S	ER-40W
966-000-106	CT40-ER40-400-G6	CAT40	ER40	2.250	N/A	N/A	N/A	3.250	4.000	4.000	5/8-11	ER-40SN	ER-40S	ER-40W
966-000-108	CT40-ER40-600-G6	CAT40	ER40	2.250	N/A	N/A	N/A	5.250	6.000	4.500	5/8-11	ER-40SN	ER-40S	ER-40W
966-000-110	CT40-ER40-800-G6	CAT40	ER40	2.250	N/A	N/A	N/A	7.250	8.000	4.500	5/8-11	ER-40SN	ER-40S	ER-40W

All Hardware Included. Wrenches Sold Separately.

PRODUCT #	NUT
968-000-029	ER-11HN
968-000-033	ER-16HN
968-000-038	ER-20HN
968-000-044	ER-25SN
968-000-047	ER-32SN
968-000-050	ER-40SN
968-000-030	ER-11MN
968-000-034	ER-16MN
968-000-039	ER-20MN

PACKAGE SIZE OF 1

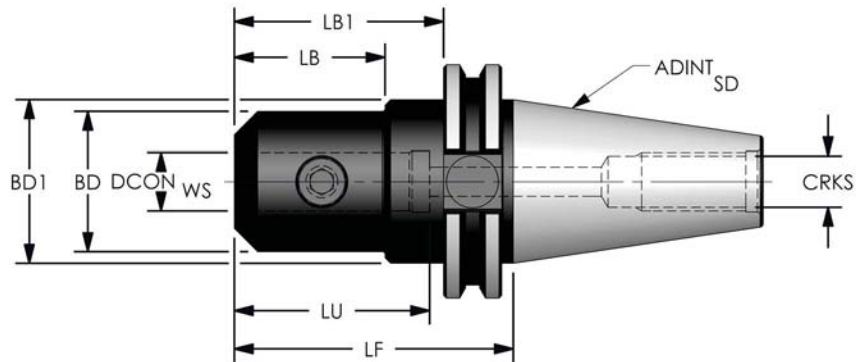
PRODUCT #	ADJ. SCREW
968-000-032	ER-11S
968-000-036	ER-16S
968-000-041	ER-20S
968-000-043	ER-25S
968-000-046	ER-32S
968-000-049	ER-40S

PACKAGE SIZE OF 1

PRODUCT #	WRENCH
968-000-189	ER-11W
968-000-031	ER-11MW
968-000-035	ER-16MW
968-000-037	ER-16W
968-000-040	ER-20MW
968-000-042	ER-20W
968-000-045	ER-25W
968-000-048	ER-32W
968-000-051	ER-40W

PACKAGE SIZE OF 1

ULTRA-DEX[®]



Balanced to:
G2.5 (20,000 rpm)

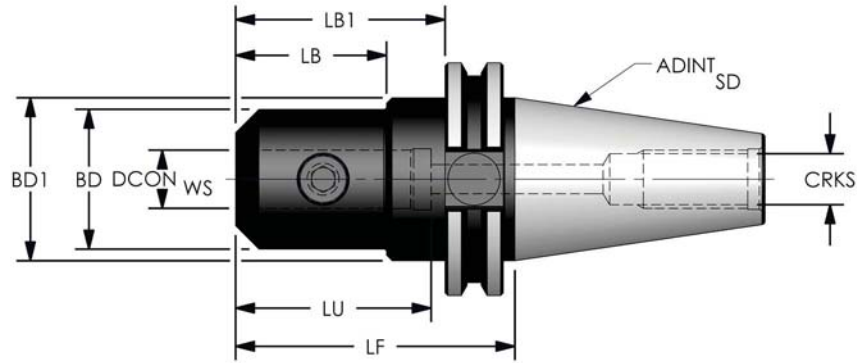
PRODUCT #	DESIGNATION	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	Set Screw
966-000-001	CT40-EM012-250-G2	CAT40	0.125	0.690	1.750	1.120	1.750	2.500	N/A	5/8-11	SS10-250
966-000-017	CT40-EM188-250-G2	CAT40	0.188	0.750	1.750	1.120	1.750	2.500	N/A	5/8-11	SS10-250
966-000-019	CT40-EM188-400-G2	CAT40	0.188	0.750	1.750	2.620	3.250	4.000	N/A	5/8-11	SS10-250
966-000-021	CT40-EM250-250-G2	CAT40	0.250	0.880	1.750	1.125	1.750	2.500	N/A	5/8-11	SS1/4-250
966-000-023	CT40-EM250-400-G2	CAT40	0.250	0.880	1.750	2.620	3.250	4.000	N/A	5/8-11	SS1/4-250
966-000-025	CT40-EM250-600-G2	CAT40	0.250	0.880	1.750	4.625	5.250	6.000	N/A	5/8-11	SS1/4-250
966-000-027	CT40-EM312-250-G2	CAT40	0.312	0.880	1.750	1.120	1.750	2.500	N/A	5/8-11	SS1/4-250
966-000-029	CT40-EM312-400-G2	CAT40	0.312	0.880	1.750	2.625	3.250	4.000	N/A	5/8-11	SS1/4-250
966-000-031	CT40-EM312-600-G2	CAT40	0.312	0.880	1.750	4.625	5.250	6.000	N/A	5/8-11	SS1/4-250
966-000-033	CT40-EM375-250-G2	CAT40	0.375	1.000	1.750	1.120	1.750	2.500	N/A	5/8-11	SS3/8-375
966-000-035	CT40-EM375-400-G2	CAT40	0.375	1.000	1.750	2.620	3.250	4.000	N/A	5/8-11	SS3/8-375
966-000-037	CT40-EM375-600-G2	CAT40	0.375	1.000	1.750	4.620	5.250	6.000	N/A	5/8-11	SS3/8-375
966-000-039	CT40-EM437-250-G2	CAT40	0.437	1.000	1.750	1.125	1.750	2.500	N/A	5/8-11	SS3/8-375
966-000-041	CT40-EM437-400-G2	CAT40	0.437	1.000	1.750	2.620	3.250	4.000	N/A	5/8-11	SS3/8-375
966-000-043	CT40-EM500-262-G2	CAT40	0.500	1.375	1.750	1.245	1.870	2.620	N/A	5/8-11	SS7/16-500
966-000-045	CT40-EM500-400-G2	CAT40	0.500	1.375	1.750	2.620	3.250	4.000	N/A	5/8-11	SS7/16-500
966-000-047	CT40-EM500-600-G2	CAT40	0.500	1.375	1.750	4.620	5.250	6.000	N/A	5/8-11	SS7/16-500

All Hardware Included

PRODUCT #	SET SCREWS
968-000-137	SS10-250
968-000-136	SS1/4-250
968-000-142	SS3/8-375
968-000-144	SS7/16-500
968-000-145	SS9/16-500
968-000-143	SS5/8-500
968-000-139	SS3/4-375
968-000-140	SS3/4-500
968-000-138	SS1-750

PACKAGE SIZE OF 5

ULTRA-DEX[®]



Balanced to:
G6.3 (12,000 rpm)

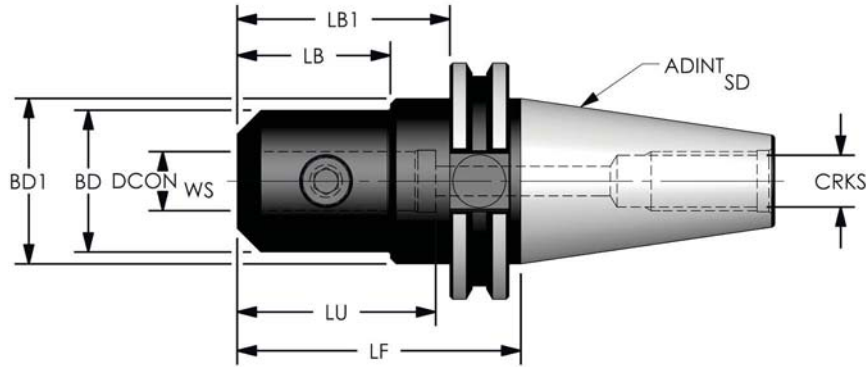
PRODUCT #	DESIGNATION	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	SET SCREW
966-000-002	CT40-EM012-250-G6	CAT40	0.125	0.690	1.750	1.120	1.750	2.500	N/A	5/8-11	SS10-250
966-000-018	CT40-EM188-250-G6	CAT40	0.188	0.750	1.750	1.120	1.750	2.500	N/A	5/8-11	SS10-250
966-000-020	CT40-EM188-400-G6	CAT40	0.188	0.750	1.750	2.620	3.250	4.000	N/A	5/8-11	SS10-250
966-000-022	CT40-EM250-250-G6	CAT40	0.250	0.880	1.750	1.125	1.750	2.500	N/A	5/8-11	SS1/4-250
966-000-024	CT40-EM250-400-G6	CAT40	0.250	0.880	1.750	2.620	3.250	4.000	N/A	5/8-11	SS1/4-250
966-000-026	CT40-EM250-600-G6	CAT40	0.250	0.880	1.750	4.625	5.250	6.000	N/A	5/8-11	SS1/4-250
966-000-028	CT40-EM312-250-G6	CAT40	0.312	0.880	1.750	1.120	1.750	2.500	N/A	5/8-11	SS1/4-250
966-000-030	CT40-EM312-400-G6	CAT40	0.312	0.880	1.750	2.625	3.250	4.000	N/A	5/8-11	SS1/4-250
966-000-032	CT40-EM312-600-G6	CAT40	0.312	0.880	1.750	4.625	5.250	6.000	N/A	5/8-11	SS1/4-250
966-000-034	CT40-EM375-250-G6	CAT40	0.375	1.000	1.750	1.120	1.750	2.500	N/A	5/8-11	SS3/8-375
966-000-036	CT40-EM375-400-G6	CAT40	0.375	1.000	1.750	2.620	3.250	4.000	N/A	5/8-11	SS3/8-375
966-000-038	CT40-EM375-600-G6	CAT40	0.375	1.000	1.750	4.620	5.250	6.000	N/A	5/8-11	SS3/8-375
966-000-040	CT40-EM437-250-G6	CAT40	0.437	1.000	1.750	1.125	1.750	2.500	N/A	5/8-11	SS3/8-375
966-000-042	CT40-EM437-400-G6	CAT40	0.437	1.000	1.750	2.620	3.250	4.000	N/A	5/8-11	SS3/8-375
966-000-044	CT40-EM500-262-G6	CAT40	0.500	1.375	1.750	1.245	1.870	2.620	N/A	5/8-11	SS7/16-500
966-000-046	CT40-EM500-400-G6	CAT40	0.500	1.375	1.750	2.620	3.250	4.000	N/A	5/8-11	SS7/16-500
966-000-048	CT40-EM500-600-G6	CAT40	0.500	1.375	1.750	4.620	5.250	6.000	N/A	5/8-11	SS7/16-500

All Hardware Included

PRODUCT #	SET SCREWS
968-000-137	SS10-250
968-000-136	SS1/4-250
968-000-142	SS3/8-375
968-000-144	SS7/16-500
968-000-145	SS9/16-500
968-000-143	SS5/8-500
968-000-139	SS3/4-375
968-000-140	SS3/4-500
968-000-138	SS1-750

PACKAGE SIZE OF 5

ULTRA-DEX[®]



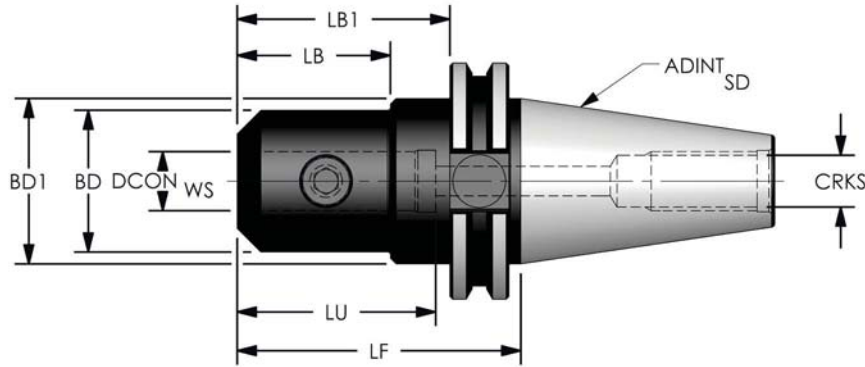
Balanced to:
G2.5 (20,000 rpm)

PRODUCT #	DESIGNATION	ADINTSD	DCONWS	BD	BD1	LB	LB1	LF	LU	CRKS	SET SCREW
			[in.]	[in.]	[in.]	[in.]	[in.]	[in.]	[in.]		
966-000-049	CT40-EM563-262-G2	CAT40	0.563	1.375	1.750	1.240	1.870	2.620	2.050	5/8-11	SS7/16-500
966-000-051	CT40-EM625-175-G2	CAT40	0.625	1.750	N/A	1.000	N/A	1.750	2.100	5/8-11	SS9/16-500
966-000-053	CT40-EM625-300-G2	CAT40	0.625	1.500	1.750	1.620	2.250	3.000	2.100	5/8-11	SS9/16-500
966-000-055	CT40-EM625-600-G2	CAT40	0.625	1.500	1.750	4.625	5.250	6.000	2.100	5/8-11	SS9/16-500
966-000-057	CT40-EM750-175-G2	CAT40	0.750	1.750	N/A	1.000	N/A	1.750	2.250	5/8-11	SS5/8-500
966-000-059	CT40-EM750-300-G2	CAT40	0.750	1.750	N/A	2.250	N/A	3.000	2.300	5/8-11	SS5/8-500
966-000-061	CT40-EM750-600-G2	CAT40	0.750	1.750	N/A	5.280	N/A	6.000	2.300	5/8-11	SS5/8-500
966-000-063	CT40-EM875-600-G2	CAT40	0.875	2.000	1.750	4.625	5.250	6.000	2.500	5/8-11	SS5/8-500
966-000-003	CT40-EM100-175-G2	CAT40	1.000	1.750	N/A	1.000	N/A	1.750	2.250	5/8-11	SS3/4-375
966-000-005	CT40-EM100-400-G2	CAT40	1.000	2.000	1.750	2.620	3.250	4.000	2.830	5/8-11	SS3/4-500
966-000-007	CT40-EM100-600-G2	CAT40	1.000	2.000	1.750	4.625	5.250	6.000	2.830	5/8-11	SS3/4-500
966-000-009	CT40-EM125-250-G2	CAT40	1.250	2.250	N/A	1.750	N/A	2.500	2.500	5/8-11	SS3/4-500
966-000-011	CT40-EM125-400-G2	CAT40	1.250	2.250	N/A	3.250	N/A	4.000	3.000	5/8-11	(2) SS3/4-500
966-000-013	CT40-EM125-600-G2	CAT40	1.250	2.250	1.750	4.625	5.250	6.000	3.000	5/8-11	(2) SS3/4-500
966-000-015	CT40-EM150-462-G2	CAT40	1.500	2.600	1.750	3.245	3.870	4.620	2.750	5/8-11	(2) SS3/4-500

All Hardware Included

PRODUCT #	SET SCREWS
968-000-137	SS10-250
968-000-136	SS1/4-250
968-000-142	SS3/8-375
968-000-144	SS7/16-500
968-000-145	SS9/16-500
968-000-143	SS5/8-500
968-000-139	SS3/4-375
968-000-140	SS3/4-500
968-000-138	SS1-750

PACKAGE SIZE OF 5



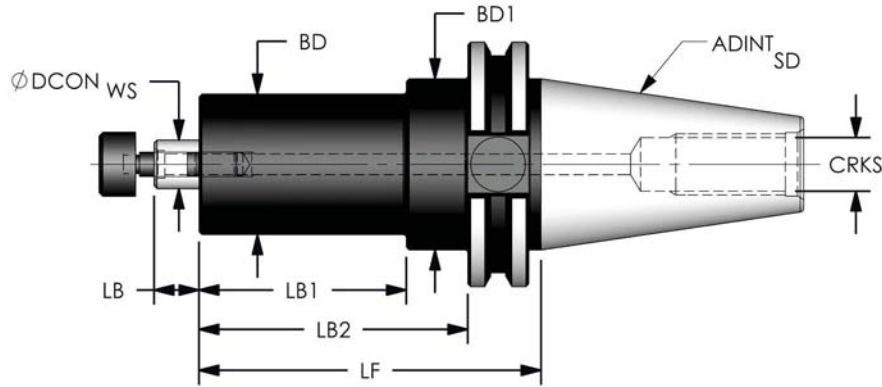
Balanced to:
G6.3 (12,000 rpm)

PRODUCT #	DESIGNATION	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	SET SCREW
966-000-050	CT40-EM563-262-G6	CAT40	0.563	1.375	1.750	1.240	1.870	2.620	2.050	5/8-11	SS7/16-500
966-000-052	CT40-EM625-175-G6	CAT40	0.625	1.750	N/A	1.000	N/A	1.750	2.100	5/8-11	SS9/16-500
966-000-054	CT40-EM625-300-G6	CAT40	0.625	1.500	1.750	1.620	2.250	3.000	2.100	5/8-11	SS9/16-500
966-000-056	CT40-EM625-600-G6	CAT40	0.625	1.500	1.750	4.625	5.250	6.000	2.100	5/8-11	SS9/16-500
966-000-058	CT40-EM750-175-G6	CAT40	0.750	1.750	N/A	1.000	N/A	1.750	2.250	5/8-11	SS5/8-500
966-000-060	CT40-EM750-300-G6	CAT40	0.750	1.750	N/A	2.250	N/A	3.000	2.300	5/8-11	SS5/8-500
966-000-062	CT40-EM750-600-G6	CAT40	0.750	1.750	N/A	5.280	N/A	6.000	2.300	5/8-11	SS5/8-500
966-000-064	CT40-EM875-600-G6	CAT40	0.875	2.000	1.750	4.625	5.250	6.000	2.500	5/8-11	SS5/8-500
966-000-004	CT40-EM100-175-G6	CAT40	1.000	1.750	N/A	1.000	N/A	1.750	2.250	5/8-11	SS3/4-375
966-000-006	CT40-EM100-400-G6	CAT40	1.000	2.000	1.750	2.620	3.250	4.000	2.830	5/8-11	SS3/4-500
966-000-008	CT40-EM100-600-G6	CAT40	1.000	2.000	1.750	4.625	5.250	6.000	2.830	5/8-11	SS3/4-500
966-000-010	CT40-EM125-250-G6	CAT40	1.250	2.250	N/A	1.750	N/A	2.500	2.500	5/8-11	SS3/4-500
966-000-012	CT40-EM125-400-G6	CAT40	1.250	2.250	N/A	3.250	N/A	4.000	3.000	5/8-11	(2) SS3/4-500
966-000-014	CT40-EM125-600-G6	CAT40	1.250	2.250	1.750	4.625	5.250	6.000	3.000	5/8-11	(2) SS3/4-500
966-000-016	CT40-EM150-462-G6	CAT40	1.500	2.600	1.750	3.245	3.870	4.620	2.750	5/8-11	(2) SS3/4-500

PRODUCT #	SET SCREWS
968-000-137	SS10-250
968-000-136	SS1/4-250
968-000-142	SS3/8-375
968-000-144	SS7/16-500
968-000-145	SS9/16-500
968-000-143	SS5/8-500
968-000-139	SS3/4-375
968-000-140	SS3/4-500
968-000-138	SS1-750

PACKAGE SIZE OF 5

ULTRA-DEX[®]



Balanced to:
G6.3 (12,000 rpm)



PRODUCT #	DESIGNATION	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LB2 [in.]	LF [in.]	CRKS	DRIVE KEY	LOCK SCREW	THREAD
966-000-134	CT40-SM050-138-G6	CAT40	0.500	1.438	N/A	0.460	0.625	N/A	1.380	5/8-11	UDK 250	U5001	1/4-28
966-000-135	CT40-SM050-350-G6	CAT40	0.500	1.438	1.750	0.460	2.580	3.210	3.500	5/8-11	UDK 250	U5001	1/4-28
966-000-136	CT40-SM075-150-G6	CAT40	0.750	1.750	N/A	0.680	1.430	N/A	1.500	5/8-11	UDK 312	U5002	3/8-24
966-000-137	CT40-SM075-400-G6	CAT40	0.750	1.750	N/A	0.680	3.250	N/A	4.000	5/8-11	UDK 312	U5002	3/8-24
966-000-138	CT40-SM075-600-G6	CAT40	0.750	1.750	N/A	0.680	5.250	N/A	6.000	5/8-11	UDK 312	U5002	3/8-24
966-000-139	CT40-SM100-200-G6	CAT40	1.000	2.190	1.750	0.680	0.620	1.250	2.000	5/8-11	UDK 375	U5003	1/2-20
966-000-140	CT40-SM100-400-G6	CAT40	1.000	2.190	1.750	0.680	2.620	3.250	4.000	5/8-11	UDK 375	U5003	1/2-20
966-000-141	CT40-SM100-600-G6	CAT40	1.000	2.190	1.750	0.680	4.620	5.250	6.000	5/8-11	UDK 375	U5003	1/2-20
966-000-142	CT40-SM125-212-G6	CAT40	1.250	2.750	1.750	0.680	0.745	1.375	2.120	5/8-11	UDK 500	U5004	5/8-18
966-000-143	CT40-SM125-400-G6	CAT40	1.250	2.750	1.750	0.680	2.620	3.250	4.000	5/8-11	UDK 500	U5004	5/8-18
966-000-144	CT40-SM150-250-G6	CAT40	1.500	3.380	1.750	0.940	1.120	1.750	2.500	5/8-11	UDK 625	U5005	3/4-16
966-000-145	CT40-SM150-400-G6	CAT40	1.500	3.380	1.750	0.940	2.620	3.250	4.000	5/8-11	UDK 625	U5005	3/4-16

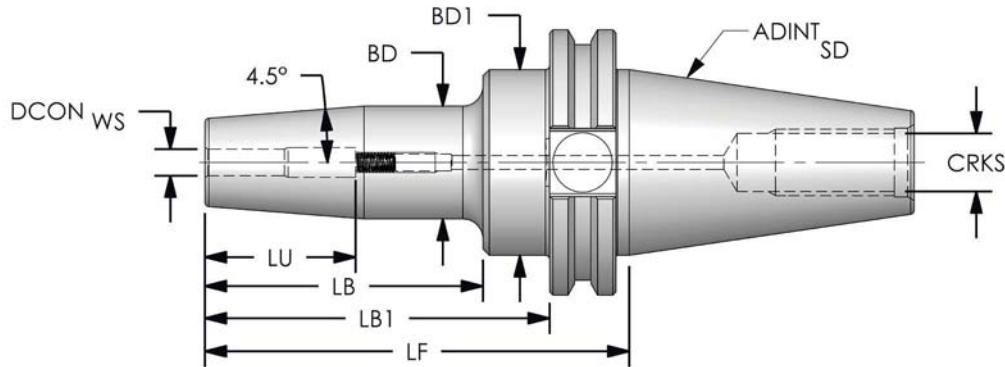


PRODUCT #	Arbor Screws
968-000-162	U5001
968-000-163	U5002
968-000-164	U5003
968-000-165	U5004
968-000-166	U5005
968-000-167	U5006
968-000-168	U5007
968-000-008	AS1/4-100
968-000-009	AS3/8-125
968-000-007	AS1/2-150

PACKAGE SIZE OF 1



PRODUCT #	DRIVE KEY
968-000-169	UDK 100
968-000-170	UDK 250
968-000-171	UDK 312
968-000-172	UDK 375
968-000-173	UDK 500
968-000-174	UDK 625
968-000-175	UDK 750



STANDARD LENGTH

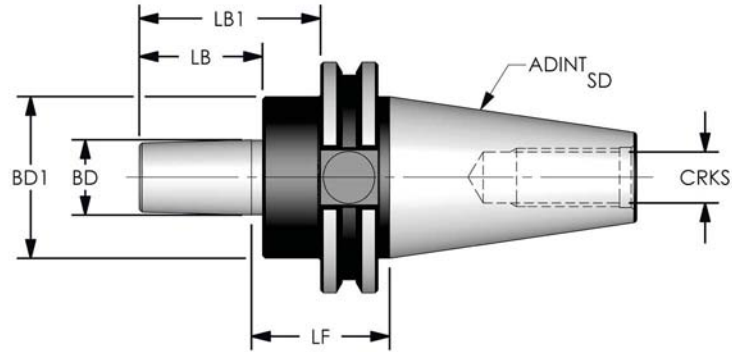
Balanced to:
G2.5 (20,000 rpm)

PRODUCT #	DESIGNATION	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	THREAD
966-000-116	CT40-SF012-400-G2	CAT40	0.125	0.500	1.750	2.620	3.250	4.000	0.790	5/8-11	N/A
966-000-121	CT40-SF188-400-G2	CAT40	0.188	0.500	1.750	2.620	3.250	4.000	0.790	5/8-11	N/A
966-000-123	CT40-SF250-400-G2	CAT40	0.250	0.750	1.750	2.620	3.250	4.000	1.420	5/8-11	10-32
966-000-126	CT40-SF375-400-G2	CAT40	0.375	0.750	1.750	2.620	3.250	4.000	1.530	5/8-11	1/4-28
966-000-128	CT40-SF500-400-G2	CAT40	0.500	1.000	1.750	2.620	3.250	4.000	1.850	5/8-11	7/16-20
966-000-130	CT40-SF625-400-G2	CAT40	0.625	1.000	1.750	2.625	3.250	4.000	1.970	5/8-11	9/16-18
966-000-132	CT40-SF750-400-G2	CAT40	0.750	1.250	1.750	2.625	3.250	4.000	2.040	5/8-11	5/8-18
966-000-118	CT40-SF100-400-G2	CAT40	1.000	2.090	1.750	2.625	3.250	4.000	2.280	5/8-11	3/4-16
966-000-120	CT40-SF125-400-G2	CAT40	1.250	2.090	1.750	2.625	3.250	4.000	2.280	5/8-11	3/4-16

EXTENDED LENGTH

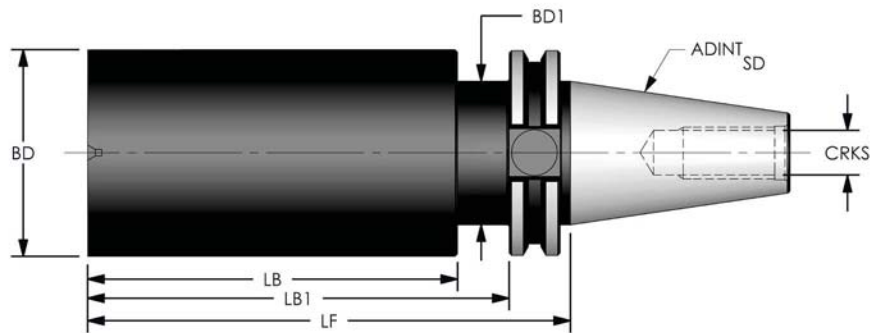
PRODUCT #	DESIGNATION	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	THREAD
966-000-117	CT40-SF012-600-G2	CAT40	0.125	0.750	1.750	2.620	5.250	6.000	0.790	5/8-11	N/A
966-000-122	CT40-SF188-600-G2	CAT40	0.188	0.750	1.750	2.620	5.250	6.000	0.790	5/8-11	N/A
966-000-124	CT40-SF250-600-G2	CAT40	0.250	0.750	1.750	2.620	5.250	6.000	1.420	5/8-11	10-32
966-000-127	CT40-SF375-600-G2	CAT40	0.375	1.000	1.750	2.620	5.250	6.000	1.530	5/8-11	1/4-28
966-000-129	CT40-SF500-600-G2	CAT40	0.500	1.000	1.750	2.620	5.250	6.000	1.850	5/8-11	7/16-20
966-000-131	CT40-SF625-600-G2	CAT40	0.625	1.250	1.750	2.625	5.250	6.000	1.970	5/8-11	9/16-18
966-000-133	CT40-SF750-600-G2	CAT40	0.750	1.250	1.750	2.625	5.250	6.000	2.040	5/8-11	5/8-18
966-000-119	CT40-SF100-600-G2	CAT40	1.000	2.090	1.750	2.625	5.250	6.000	2.280	5/8-11	3/4-16
966-000-125	CT40-SF250-800-G2	CAT40	0.250	1.000	1.750	6.625	7.250	8.000	1.420	5/8-11	10-32

ULTRA-DEX[®]

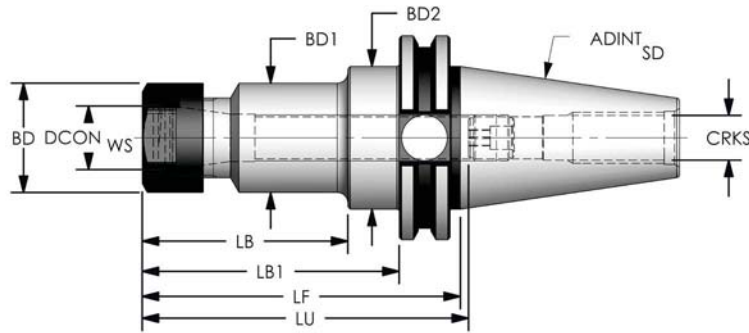


Balanced to:
G6.3 (12,000 rpm)

PRODUCT #	DESIGNATION	ADINTSD	Taper No.	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	CRKS	TAPER LENGTH
966-000-111	CT40-JT02-150-G6	CAT40	2	0.559	1.750	1.025	1.625	1.500	5/8-11	0.875
966-000-112	CT40-JT03-150-G6	CAT40	3	0.811	1.750	1.339	1.969	1.500	5/8-11	1.219
966-000-113	CT40-JT04-150-G6	CAT40	4	1.124	1.750	1.776	2.406	1.500	5/8-11	1.656
966-000-114	CT40-JT06-150-G6	CAT40	6	0.676	1.750	1.120	1.750	1.500	5/8-11	1.000
966-000-115	CT40-JT33-150-G6	CAT40	33	0.624	1.750	1.120	1.750	1.500	5/8-11	1.000



PRODUCT #	DESIGNATION	ADINTSD	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	CRKS [in.]
967-000-002	CT40-BB64-150	CAT40	2.520/(64mm)	1.750	4.526	5.156	5.910/(150mm)	5/8-11
967-000-003	CT40-BB64-250	CAT40	2.520/(64mm)	1.750	4.526	5.156	9.840/(250mm)	5/8-11
967-000-001	CT40-BB100-150	CAT40	3.940/(100mm)	1.750	8.463	9.093	5.910/(150mm)	5/8-11



Balanced to:
G2.5 (15,000 rpm)

PRODUCT #	DESIGNATION	ADINTSD	DCONWS	BD [in.]	BD1 [in.]	BD2 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	COLLET NUT	STOP SCREW	WRENCH
966-000-216	CT50-ER11-600-G2	CAT50	ER11	0.750	N/A	N/A	N/A	N/A	6.000	1.940	1-8	ER-11HN	ER-11S	ER-11W
966-000-218	CT50-ER16-400-G2	CAT50	ER16	1.100	1.100	2.750	2.620	3.250	4.000	4.500	1-8	ER-16HN	ER-16S	ER-16W
966-000-220	CT50-ER16-600-G2	CAT50	ER16	1.100	1.100	2.750	4.620	5.250	6.000	4.500	1-8	ER-16HN	ER-16S	ER-16W
966-000-222	CT50-ER16-800-G2	CAT50	ER16	1.100	1.100	2.750	6.620	7.250	8.000	4.500	1-8	ER-16HN	ER-16S	ER-16W
966-000-224	CT50-ER20-250-G2	CAT50	ER20	1.340	1.340	1.340	1.750	N/A	2.500	3.380	1-8	ER-20HN	ER-20S	ER-20W
966-000-226	CT50-ER20-400-G2	CAT50	ER20	1.340	1.340	2.750	2.620	3.250	4.000	4.000	1-8	ER-20HN	ER-20S	ER-20W
966-000-228	CT50-ER20-600-G2	CAT50	ER20	1.340	1.340	2.750	4.620	5.250	6.000	4.000	1-8	ER-20HN	ER-20S	ER-20W
966-000-230	CT50-ER20-800-G2	CAT50	ER20	1.340	1.340	2.750	6.620	7.250	8.000	4.000	1-8	ER-20HN	ER-20S	ER-20W
966-000-232	CT50-ER25-250-G2	CAT50	ER25	1.660	1.590	2.750	1.120	1.750	2.500	4.500	1-8	ER-25SN	ER-25S	ER-25W
966-000-234	CT50-ER25-400-G2	CAT50	ER25	1.660	1.590	2.750	2.620	3.250	4.000	4.500	1-8	ER-25SN	ER-25S	ER-25W
966-000-236	CT50-ER25-600-G2	CAT50	ER25	1.660	1.590	2.750	4.620	5.250	6.000	4.500	1-8	ER-25SN	ER-25S	ER-25W
966-000-238	CT50-ER25-800-G2	CAT50	ER25	1.660	1.590	2.750	6.620	7.250	8.000	4.500	1-8	ER-25SN	ER-25S	ER-25W
966-000-240	CT50-ER32-300-G2	CAT50	ER32	1.980	2.000	2.750	1.620	2.250	3.000	3.500	1-8	ER-32SN	ER-32S	ER-32W
966-000-242	CT50-ER32-400-G2	CAT50	ER32	1.980	2.000	2.750	2.620	3.250	4.000	4.000	1-8	ER-32SN	ER-32S	ER-32W
966-000-244	CT50-ER32-500-G2	CAT50	ER32	1.980	2.000	2.750	3.620	4.250	5.000	4.000	1-8	ER-32SN	ER-32S	ER-32W
966-000-246	CT50-ER32-600-G2	CAT50	ER32	1.980	2.000	2.750	4.620	5.250	6.000	4.000	1-8	ER-32SN	ER-32S	ER-32W
966-000-248	CT50-ER32-800-G2	CAT50	ER32	1.980	2.000	2.750	6.620	7.250	8.000	4.000	1-8	ER-32SN	ER-32S	ER-32W
966-000-250	CT50-ER40-300-G2	CAT50	ER40	2.500	2.500	2.750	1.620	2.250	3.000	4.000	1-8	ER-40SN	ER-40S	ER-40W
966-000-252	CT50-ER40-400-G2	CAT50	ER40	2.500	2.500	2.750	2.620	3.250	4.000	4.500	1-8	ER-40SN	ER-40S	ER-40W
966-000-254	CT50-ER40-500-G2	CAT50	ER40	2.500	2.500	2.750	3.620	4.250	5.000	4.500	1-8	ER-40SN	ER-40S	ER-40W
966-000-256	CT50-ER40-600-G2	CAT50	ER40	2.500	2.500	2.750	4.620	5.250	6.000	4.500	1-8	ER-40SN	ER-40S	ER-40W
966-000-258	CT50-ER40-800-G2	CAT50	ER40	2.500	2.500	2.750	6.620	7.250	8.000	4.500	1-8	ER-40SN	ER-40S	ER-40W

All Hardware Included. Wrenches Sold Separately.

PRODUCT #	NUT
968-000-029	ER-11HN
968-000-033	ER-16HN
968-000-038	ER-20HN
968-000-044	ER-25SN
968-000-047	ER-32SN
968-000-050	ER-40SN
968-000-030	ER-11MN
968-000-034	ER-16MN
968-000-039	ER-20MN

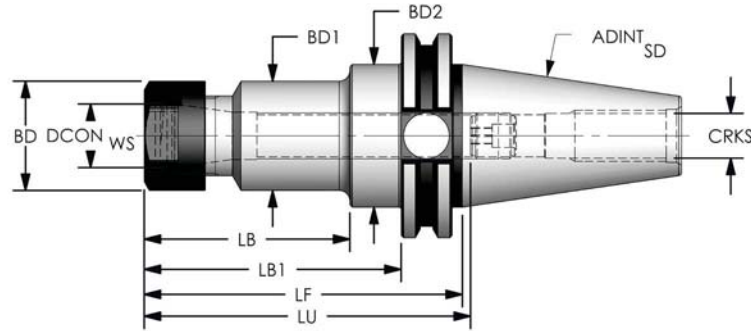
PACKAGE SIZE OF 1

PRODUCT #	ADJ. SCREW
968-000-032	ER-11S
968-000-036	ER-16S
968-000-041	ER-20S
968-000-043	ER-25S
968-000-046	ER-32S
968-000-049	ER-40S

PACKAGE SIZE OF 1

PRODUCT #	WRENCH
968-000-189	ER-11W
968-000-031	ER-11MW
968-000-035	ER-16MW
968-000-037	ER-16W
968-000-040	ER-20MW
968-000-042	ER-20W
968-000-045	ER-25W
968-000-048	ER-32W
968-000-051	ER-40W

PACKAGE SIZE OF 1



Balanced to:
G6.3 (12,000 rpm)

PRODUCT #	DESIGNATION	ADINTSD	DCONWS	BD [in.]	BD1 [in.]	BD2 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	COLLET NUT	STOP SCREW	WRENCH
966-000-217	CT50-ER11-600-G6	CAT50	ER11	0.750	N/A	N/A	N/A	N/A	6.000	1.940	1-8	ER-11HN	ER-11S	ER-11W
966-000-219	CT50-ER16-400-G6	CAT50	ER16	1.100	1.100	2.750	2.620	3.250	4.000	4.500	1-8	ER-16HN	ER-16S	ER-16W
966-000-221	CT50-ER16-600-G6	CAT50	ER16	1.100	1.100	2.750	4.620	5.250	6.000	4.500	1-8	ER-16HN	ER-16S	ER-16W
966-000-223	CT50-ER16-800-G6	CAT50	ER16	1.100	1.100	2.750	6.620	7.250	8.000	4.500	1-8	ER-16HN	ER-16S	ER-16W
966-000-225	CT50-ER20-250-G6	CAT50	ER20	1.340	1.340	1.340	1.750	N/A	2.500	3.380	1-8	ER-20HN	ER-20S	ER-20W
966-000-227	CT50-ER20-400-G6	CAT50	ER20	1.340	1.340	2.750	2.620	3.250	4.000	4.000	1-8	ER-20HN	ER-20S	ER-20W
966-000-229	CT50-ER20-600-G6	CAT50	ER20	1.340	1.340	2.750	4.620	5.250	6.000	4.000	1-8	ER-20HN	ER-20S	ER-20W
966-000-231	CT50-ER20-800-G6	CAT50	ER20	1.340	1.340	2.750	6.620	7.250	8.000	4.000	1-8	ER-20HN	ER-20S	ER-20W
966-000-233	CT50-ER25-250-G6	CAT50	ER25	1.660	1.590	2.750	1.120	1.750	2.500	4.500	1-8	ER-25SN	ER-25S	ER-25W
966-000-235	CT50-ER25-400-G6	CAT50	ER25	1.660	1.590	2.750	2.620	3.250	4.000	4.500	1-8	ER-25SN	ER-25S	ER-25W
966-000-237	CT50-ER25-600-G6	CAT50	ER25	1.660	1.590	2.750	4.620	5.250	6.000	4.500	1-8	ER-25SN	ER-25S	ER-25W
966-000-239	CT50-ER25-800-G6	CAT50	ER25	1.660	1.590	2.750	6.620	7.250	8.000	4.500	1-8	ER-25SN	ER-25S	ER-25W
966-000-241	CT50-ER32-300-G6	CAT50	ER32	1.980	2.000	2.750	1.620	2.250	3.000	3.500	1-8	ER-32SN	ER-32S	ER-32W
966-000-243	CT50-ER32-400-G6	CAT50	ER32	1.980	2.000	2.750	2.620	3.250	4.000	4.000	1-8	ER-32SN	ER-32S	ER-32W
966-000-245	CT50-ER32-500-G6	CAT50	ER32	1.980	2.000	2.750	3.620	4.250	5.000	4.000	1-8	ER-32SN	ER-32S	ER-32W
966-000-247	CT50-ER32-600-G6	CAT50	ER32	1.980	2.000	2.750	4.620	5.250	6.000	4.000	1-8	ER-32SN	ER-32S	ER-32W
966-000-249	CT50-ER32-800-G6	CAT50	ER32	1.980	2.000	2.750	6.620	7.250	8.000	4.000	1-8	ER-32SN	ER-32S	ER-32W
966-000-251	CT50-ER40-300-G6	CAT50	ER40	2.500	2.500	2.750	1.620	2.250	3.000	4.000	1-8	ER-40SN	ER-40S	ER-40W
966-000-253	CT50-ER40-400-G6	CAT50	ER40	2.500	2.500	2.750	2.620	3.250	4.000	4.500	1-8	ER-40SN	ER-40S	ER-40W
966-000-255	CT50-ER40-500-G6	CAT50	ER40	2.500	2.500	2.750	3.620	4.250	5.000	4.500	1-8	ER-40SN	ER-40S	ER-40W
966-000-257	CT50-ER40-600-G6	CAT50	ER40	2.500	2.500	2.750	4.620	5.250	6.000	4.500	1-8	ER-40SN	ER-40S	ER-40W
966-000-259	CT50-ER40-800-G6	CAT50	ER40	2.500	2.500	2.750	6.620	7.250	8.000	4.500	1-8	ER-40SN	ER-40S	ER-40W

PRODUCT #	NUT
968-000-029	ER-11HN
968-000-033	ER-16HN
968-000-038	ER-20HN
968-000-044	ER-25SN
968-000-047	ER-32SN
968-000-050	ER-40SN
968-000-030	ER-11MN
968-000-034	ER-16MN
968-000-039	ER-20MN

PACKAGE SIZE OF 1

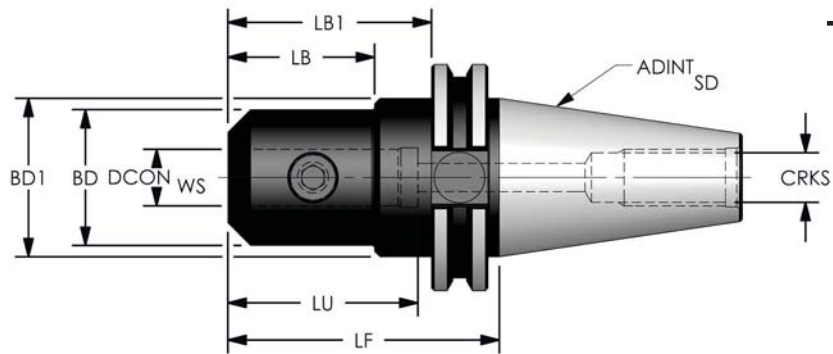
PRODUCT #	ADJ. SCREW
968-000-032	ER-11S
968-000-036	ER-16S
968-000-041	ER-20S
968-000-043	ER-25S
968-000-046	ER-32S
968-000-049	ER-40S

PACKAGE SIZE OF 1

PRODUCT #	WRENCH
968-000-189	ER-11W
968-000-031	ER-11MW
968-000-035	ER-16MW
968-000-037	ER-16W
968-000-040	ER-20MW
968-000-042	ER-20W
968-000-045	ER-25W
968-000-048	ER-32W
968-000-051	ER-40W

PACKAGE SIZE OF 1

ULTRA-DEX[®]



Balanced to:
G2.5 (15,000 rpm)

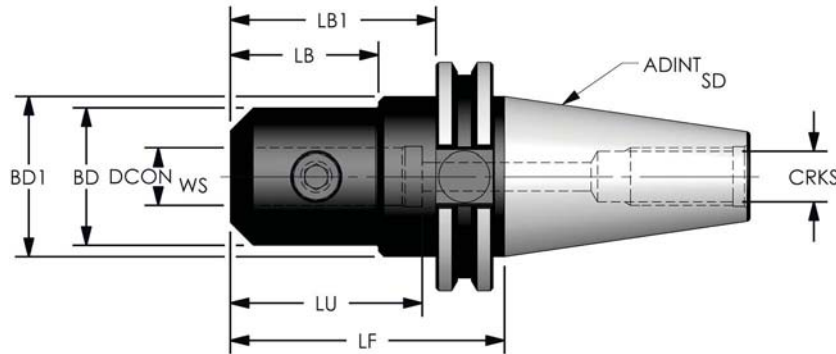
PRODUCT #	DESIGNATION	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	SET SCREW
966-000-162	CT50-EM188-250-G2	CAT50	0.188	0.680	2.750	1.125	1.750	2.500	N/A	1-8	SS10-250
966-000-164	CT50-EM188-400-G2	CAT50	0.188	0.680	2.750	2.625	3.250	4.000	N/A	1-8	SS10-250
966-000-170	CT50-EM250-250-G2	CAT50	0.250	0.880	2.750	1.125	1.750	2.500	N/A	1-8	SS1/4-250
966-000-172	CT50-EM250-400-G2	CAT50	0.250	0.880	2.750	2.625	3.250	4.000	N/A	1-8	SS1/4-250
966-000-174	CT50-EM250-600-G2	CAT50	0.250	0.880	2.750	4.625	5.250	6.000	N/A	1-8	SS1/4-250
966-000-176	CT50-EM312-250-G2	CAT50	0.312	1.000	2.750	1.125	1.750	2.500	N/A	1-8	SS1/4-250
966-000-178	CT50-EM312-400-G2	CAT50	0.312	1.000	2.750	2.625	3.250	4.000	N/A	1-8	SS1/4-250
966-000-180	CT50-EM312-600-G2	CAT50	0.312	1.000	2.750	4.625	5.250	6.000	N/A	1-8	SS1/4-250
966-000-182	CT50-EM375-250-G2	CAT50	0.375	1.000	2.750	1.125	1.750	2.500	N/A	1-8	SS3/8-375
966-000-184	CT50-EM375-400-G2	CAT50	0.375	1.000	2.750	2.625	3.250	4.000	N/A	1-8	SS3/8-375
966-000-186	CT50-EM375-600-G2	CAT50	0.375	1.000	2.750	4.625	5.250	6.000	N/A	1-8	SS3/8-375
966-000-188	CT50-EM437-250-G2	CAT50	0.437	1.000	2.750	1.125	1.750	2.500	N/A	1-8	SS3/8-375
966-000-190	CT50-EM437-400-G2	CAT50	0.437	1.000	2.750	2.625	3.250	4.000	N/A	1-8	SS3/8-375
966-000-192	CT50-EM437-600-G2	CAT50	0.437	1.000	2.750	4.625	5.250	6.000	N/A	1-8	SS3/8-375
966-000-194	CT50-EM500-262-G2	CAT50	0.500	1.375	2.750	1.245	1.870	2.620	N/A	1-8	SS7/16-500
966-000-196	CT50-EM500-400-G2	CAT50	0.500	1.375	2.750	2.620	3.250	4.000	N/A	1-8	SS7/16-500
966-000-198	CT50-EM500-600-G2	CAT50	0.500	1.375	2.750	4.625	5.250	6.000	N/A	1-8	SS7/16-500

All Hardware Included

PRODUCT #	SET SCREWS
968-000-137	SS10-250
968-000-136	SS1/4-250
968-000-142	SS3/8-375
968-000-144	SS7/16-500
968-000-145	SS9/16-500
968-000-143	SS5/8-500
968-000-139	SS3/4-375
968-000-140	SS3/4-500
968-000-138	SS1-750

PACKAGE SIZE OF 5

ULTRA-DEX[®]



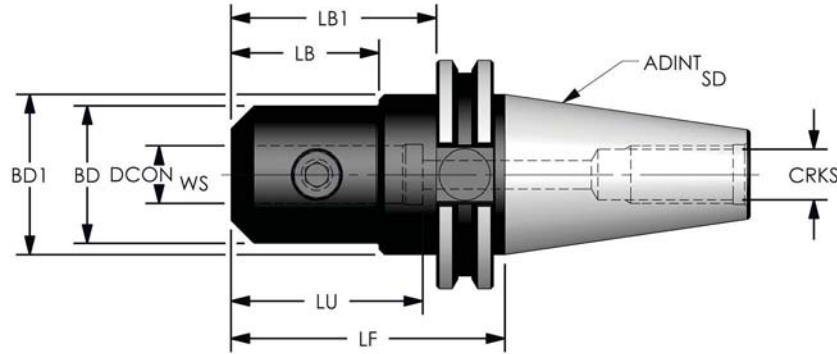
Balanced to:
G6.3 (12,000 rpm)

PRODUCT #	DESIGNATION	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	SET SCREW
966-000-163	CT50-EM188-250-G6	CAT50	0.188	0.680	2.750	1.125	1.750	2.500	N/A	1-8	SS10-250
966-000-165	CT50-EM188-400-G6	CAT50	0.188	0.680	2.750	2.625	3.250	4.000	N/A	1-8	SS10-250
966-000-171	CT50-EM250-250-G6	CAT50	0.250	0.880	2.750	1.125	1.750	2.500	N/A	1-8	SS1/4-250
966-000-173	CT50-EM250-400-G6	CAT50	0.250	0.880	2.750	2.625	3.250	4.000	N/A	1-8	SS1/4-250
966-000-175	CT50-EM250-600-G6	CAT50	0.250	0.880	2.750	4.625	5.250	6.000	N/A	1-8	SS1/4-250
966-000-177	CT50-EM312-250-G6	CAT50	0.312	1.000	2.750	1.125	1.750	2.500	N/A	1-8	SS1/4-250
966-000-179	CT50-EM312-400-G6	CAT50	0.312	1.000	2.750	2.625	3.250	4.000	N/A	1-8	SS1/4-250
966-000-181	CT50-EM312-600-G6	CAT50	0.312	1.000	2.750	4.625	5.250	6.000	N/A	1-8	SS1/4-250
966-000-183	CT50-EM375-250-G6	CAT50	0.375	1.000	2.750	1.125	1.750	2.500	N/A	1-8	SS3/8-375
966-000-185	CT50-EM375-400-G6	CAT50	0.375	1.000	2.750	2.625	3.250	4.000	N/A	1-8	SS3/8-375
966-000-187	CT50-EM375-600-G6	CAT50	0.375	1.000	2.750	4.625	5.250	6.000	N/A	1-8	SS3/8-375
966-000-189	CT50-EM437-250-G6	CAT50	0.437	1.000	2.750	1.125	1.750	2.500	N/A	1-8	SS3/8-375
966-000-191	CT50-EM437-400-G6	CAT50	0.437	1.000	2.750	2.625	3.250	4.000	N/A	1-8	SS3/8-375
966-000-193	CT50-EM437-600-G6	CAT50	0.437	1.000	2.750	4.625	5.250	6.000	N/A	1-8	SS3/8-375
966-000-195	CT50-EM500-262-G6	CAT50	0.500	1.375	2.750	1.245	1.870	2.620	N/A	1-8	SS7/16-500
966-000-197	CT50-EM500-400-G6	CAT50	0.500	1.375	2.750	2.620	3.250	4.000	N/A	1-8	SS7/16-500
966-000-199	CT50-EM500-600-G6	CAT50	0.500	1.375	2.750	4.625	5.250	6.000	N/A	1-8	SS7/16-500

All Hardware Included

PRODUCT #	SET SCREWS
968-000-137	SS10-250
968-000-136	SS1/4-250
968-000-142	SS3/8-375
968-000-144	SS7/16-500
968-000-145	SS9/16-500
968-000-143	SS5/8-500
968-000-139	SS3/4-375
968-000-140	SS3/4-500
968-000-138	SS1-750

PACKAGE SIZE OF 5



Balanced to:
G2.5 (15,000 rpm)

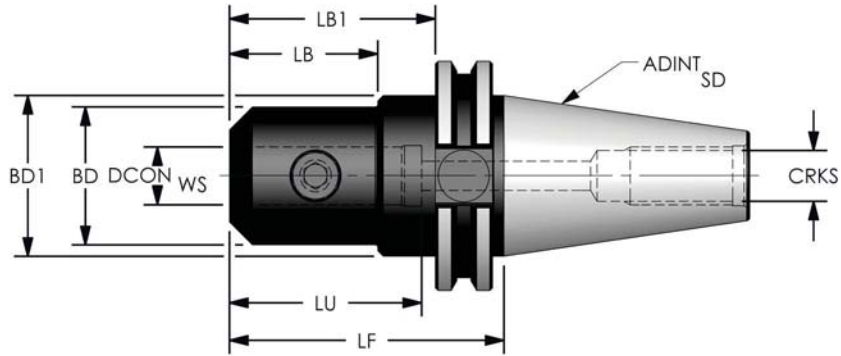
PRODUCT #	DESIGNATION	ADINT SD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	SET SCREW
966-000-200	CT50-EM625-138-G2	CAT50	0.625	2.750	N/A	0.630	N/A	1.380	N/A	1-8	SS9/16-500
966-000-202	CT50-EM625-300-G2	CAT50	0.625	1.750	2.750	1.625	2.250	3.000	N/A	1-8	SS9/16-500
966-000-204	CT50-EM625-600-G2	CAT50	0.625	1.750	2.750	4.625	5.250	6.000	N/A	1-8	SS9/16-500
966-000-206	CT50-EM750-138-G2	CAT50	0.750	2.750	N/A	0.630	N/A	1.380	N/A	1-8	SS5/8-500
966-000-208	CT50-EM750-300-G2	CAT50	0.750	1.750	2.750	1.625	2.250	3.000	N/A	1-8	SS5/8-500
966-000-210	CT50-EM750-600-G2	CAT50	0.750	1.750	2.750	4.625	5.250	6.000	N/A	1-8	SS5/8-500
966-000-212	CT50-EM875-400-G2	CAT50	0.875	2.000	2.750	2.625	3.250	4.000	2.500	1-8	SS5/8-500
966-000-214	CT50-EM875-600-G2	CAT50	0.875	2.000	1.750	4.625	5.250	6.000	2.500	1-8	SS5/8-500
966-000-146	CT50-EM100-138-G2	CAT50	1.000	2.750	N/A	0.630	N/A	1.380	2.250	1-8	SS3/4-500
966-000-148	CT50-EM100-400-G2	CAT50	1.000	2.000	2.750	2.620	3.250	4.000	2.830	1-8	SS3/4-500
966-000-150	CT50-EM100-600-G2	CAT50	1.000	2.000	2.750	4.620	5.250	6.000	2.830	1-8	SS3/4-500
966-000-152	CT50-EM125-200-G2	CAT50	1.250	2.750	N/A	1.250	N/A	2.000	2.550	1-8	SS3/4-750
966-000-154	CT50-EM125-400-G2	CAT50	1.250	2.750	N/A	3.250	N/A	4.000	3.000	1-8	(2) SS3/4-750
966-000-156	CT50-EM125-600-G2	CAT50	1.250	2.500	2.750	4.620	5.250	6.000	3.000	1-8	(2) SS3/4-750
966-000-158	CT50-EM150-200-G2	CAT50	1.500	2.750	N/A	1.250	N/A	2.000	2.750	1-8	SS3/4-500
966-000-160	CT50-EM150-450-G2	CAT50	1.500	2.500	2.750	3.120	3.750	4.500	2.750	1-8	(2) SS3/4-500
966-000-166	CT50-EM200-500-G2	CAT50	2.000	3.750	2.750	3.620	4.250	5.000	3.500	1-8	(2) SS1-750
966-000-168	CT50-EM200-800-G2	CAT50	2.000	3.750	2.750	6.625	7.250	8.000	3.500	1-8	(2) SS1-750

All Hardware Included

PRODUCT #	SET SCREWS
968-000-137	SS10-250
968-000-136	SS1/4-250
968-000-142	SS3/8-375
968-000-144	SS7/16-500
968-000-145	SS9/16-500
968-000-143	SS5/8-500
968-000-139	SS3/4-375
968-000-140	SS3/4-500
968-000-138	SS1-750

PACKAGE SIZE OF 5

ULTRA-DEX[®]



Balanced to:
G6.3 (12,000 rpm)

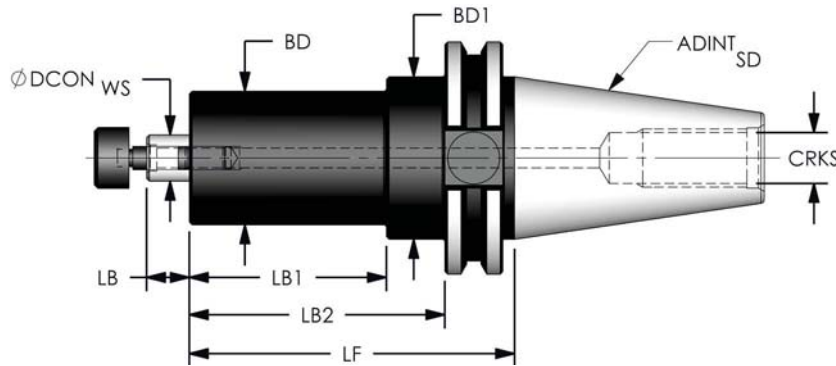
PRODUCT #	DESIGNATION	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	SET SCREW
966-000-201	CT50-EM625-138-G6	CAT50	0.625	2.750	N/A	0.630	N/A	1.380	N/A	1-8	SS9/16-500
966-000-203	CT50-EM625-300-G6	CAT50	0.625	1.750	2.750	1.625	2.250	3.000	N/A	1-8	SS9/16-500
966-000-205	CT50-EM625-600-G6	CAT50	0.625	1.750	2.750	4.625	5.250	6.000	N/A	1-8	SS9/16-500
966-000-207	CT50-EM750-138-G6	CAT50	0.750	2.750	N/A	0.630	N/A	1.380	N/A	1-8	SS5/8-500
966-000-209	CT50-EM750-300-G6	CAT50	0.750	1.750	2.750	1.625	2.250	3.000	N/A	1-8	SS5/8-500
966-000-211	CT50-EM750-600-G6	CAT50	0.750	1.750	2.750	4.625	5.250	6.000	N/A	1-8	SS5/8-500
966-000-213	CT50-EM875-400-G6	CAT50	0.875	2.000	2.750	2.625	3.250	4.000	2.500	1-8	SS5/8-500
966-000-215	CT50-EM875-600-G6	CAT50	0.875	2.000	1.750	4.625	5.250	6.000	2.500	1-8	SS5/8-500
966-000-147	CT50-EM100-138-G6	CAT50	1.000	2.750	N/A	0.630	N/A	1.380	2.250	1-8	SS3/4-500
966-000-149	CT50-EM100-400-G6	CAT50	1.000	2.000	2.750	2.620	3.250	4.000	2.830	1-8	SS3/4-500
966-000-151	CT50-EM100-600-G6	CAT50	1.000	2.000	2.750	4.620	5.250	6.000	2.830	1-8	SS3/4-500
966-000-153	CT50-EM125-200-G6	CAT50	1.250	2.750	N/A	1.250	N/A	2.000	2.550	1-8	SS3/4-750
966-000-155	CT50-EM125-400-G6	CAT50	1.250	2.750	N/A	3.250	N/A	4.000	3.000	1-8	(2) SS3/4-750
966-000-157	CT50-EM125-600-G6	CAT50	1.250	2.500	2.750	4.620	5.250	6.000	3.000	1-8	(2) SS3/4-750
966-000-159	CT50-EM150-200-G6	CAT50	1.500	2.750	N/A	1.250	N/A	2.000	2.750	1-8	SS3/4-500
966-000-161	CT50-EM150-450-G6	CAT50	1.500	2.500	2.750	3.120	3.750	4.500	2.750	1-8	(2) SS3/4-500
966-000-167	CT50-EM200-500-G6	CAT50	2.000	3.750	2.750	3.620	4.250	5.000	3.500	1-8	(2) SS1-750
966-000-169	CT50-EM200-800-G6	CAT50	2.000	3.750	2.750	6.625	7.250	8.000	3.500	1-8	(2) SS1-750

All Hardware Included

PRODUCT #	SET SCREWS
968-000-137	SS10-250
968-000-136	SS1/4-250
968-000-142	SS3/8-375
968-000-144	SS7/16-500
968-000-145	SS9/16-500
968-000-143	SS5/8-500
968-000-139	SS3/4-375
968-000-140	SS3/4-500
968-000-138	SS1-750

PACKAGE SIZE OF 5

ULTRA-DEX[®]



Balanced to:
G6.3 (12,000 rpm)



PRODUCT #	DESIGNATION	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LB2 [in.]	LF [in.]	CRKS	DRIVE KEY	LOCK SCREW	THREAD
966-000-282	CT50-SM050-200-G6	CAT50	0.500	1.560	2.750	0.460	1.085	1.710	2.000	1-8	UDK 250	U5001	1/4-28
966-000-283	CT50-SM050-400-G6	CAT50	0.500	1.560	2.750	0.460	3.085	3.710	4.000	1-8	UDK 250	U5001	1/4-28
966-000-284	CT50-SM050-600-G6	CAT50	0.500	1.560	2.750	0.460	5.085	5.710	6.000	1-8	UDK 250	U5001	1/4-28
966-000-285	CT50-SM075-150-G6	CAT50	0.750	2.750	N/A	0.680	0.750	N/A	1.500	1-8	UDK 312	U5002	3/8-24
966-000-286	CT50-SM075-400-G6	CAT50	0.750	1.750	2.750	0.680	2.625	3.250	4.000	1-8	UDK 312	U5002	3/8-24
966-000-287	CT50-SM075-600-G6	CAT50	0.750	1.750	2.750	0.680	4.625	5.250	6.000	1-8	UDK 312	U5002	3/8-24
966-000-288	CT50-SM100-150-G6	CAT50	1.000	2.750	N/A	0.680	1.460	N/A	1.500	1-8	UDK 375	U5003	1/2-20
966-000-289	CT50-SM100-400-G6	CAT50	1.000	2.750	2.750	0.680	2.625	3.250	4.000	1-8	UDK 375	U5003	1/2-20
966-000-290	CT50-SM100-600-G6	CAT50	1.000	2.750	2.750	0.680	4.625	5.250	6.000	1-8	UDK 375	U5003	1/2-20
966-000-291	CT50-SM125-150-G6	CAT50	1.250	2.750	N/A	0.680	0.750	N/A	1.500	1-8	UDK 500	U5004	5/8-18
966-000-292	CT50-SM125-400-G6	CAT50	1.250	2.750	N/A	0.680	3.250	N/A	4.000	1-8	UDK 500	U5004	5/8-18
966-000-293	CT50-SM125-600-G6	CAT50	1.250	2.750	N/A	0.680	5.250	N/A	6.000	1-8	UDK 500	U5004	5/8-18
966-000-294	CT50-SM150-250-G6	CAT50	1.500	3.750	2.750	0.940	1.125	1.750	2.500	1-8	UDK 625	U5005	3/4-16
966-000-295	CT50-SM150-400-G6	CAT50	1.500	3.750	2.750	0.940	2.625	3.250	4.000	1-8	UDK 625	U5005	3/4-16
966-000-296	CT50-SM150-600-G6	CAT50	1.500	3.750	2.750	0.940	4.625	5.250	6.000	1-8	UDK 625	U5005	3/4-16
966-000-297	CT50-SM200-250-G6	CAT50	2.000	4.440	2.750	0.940	1.125	1.750	2.500	1-8	UDK 750	U5006	1-14
966-000-298	CT50-SM200-400-G6	CAT50	2.000	4.440	2.750	0.940	2.625	3.250	4.000	1-8	UDK 750	U5006	1-14
966-000-299	CT50-SM200-600-G6	CAT50	2.000	4.440	2.750	0.940	4.625	5.250	6.000	1-8	UDK 750	U5006	1-14
966-000-300	CT50-SM250-250-G6*	CAT50	2.500	4.880	2.750	0.940	1.125	1.750	2.500	1-8	UDK 100	U5007	1-14
966-000-301	CT50-SM250-400-G6*	CAT50	2.500	4.880	2.750	0.940	2.625	3.250	4.000	1-8	UDK 100	U5007	1-14
966-000-302	CT50-SM250-600-G6*	CAT50	2.500	4.880	2.750	0.940	4.625	5.250	6.000	1-8	UDK 100	U5007	1-14

*Features x4 5/8-11 tapped holes on a 4" bolt circle.
All Hardware Included

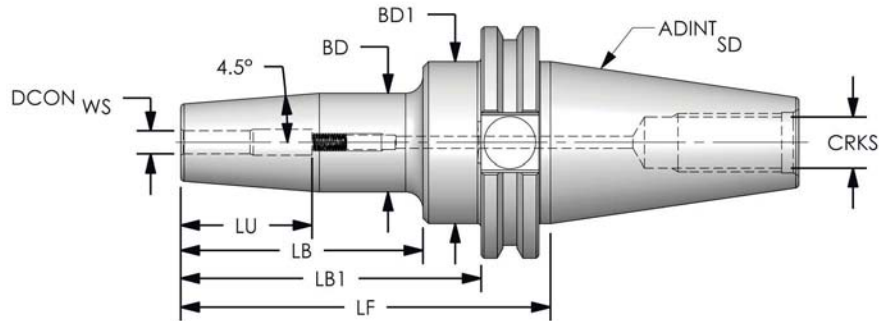


PRODUCT #	Arbor Screws
968-000-162	U5001
968-000-163	U5002
968-000-164	U5003
968-000-165	U5004
968-000-166	U5005
968-000-167	U5006
968-000-168	U5007
968-000-008	AS1/4-100
968-000-009	AS3/8-125
968-000-007	AS1/2-150



PRODUCT #	DRIVE KEY
968-000-169	UDK 100
968-000-170	UDK 250
968-000-171	UDK 312
968-000-172	UDK 375
968-000-173	UDK 500
968-000-174	UDK 625
968-000-175	UDK 750

PACKAGE SIZE OF 1



STANDARD LENGTH

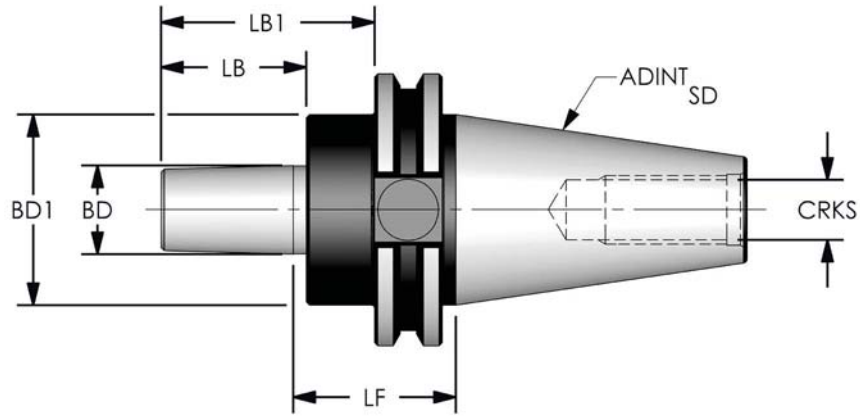
Balanced to:
G2.5 (20,000 rpm)

PRODUCT #	DESIGNATION	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	THREAD
966-000-265	CT50-SF012-400-G2	CAT50	0.125	0.787	2.750	2.620	3.250	4.000	0.375	1-8	N/A
966-000-268	CT50-SF188-400-G2	CAT50	0.188	0.750	2.750	2.620	3.250	4.000	0.563	1-8	N/A
966-000-269	CT50-SF250-400-G2	CAT50	0.250	0.750	2.750	2.620	3.250	4.000	1.420	1-8	10-32
966-000-272	CT50-SF375-400-G2	CAT50	0.375	0.750	2.750	2.620	3.250	4.000	1.530	1-8	1/4-28
966-000-275	CT50-SF500-400-G2	CAT50	0.500	1.000	2.750	2.620	3.250	4.000	1.850	1-8	7/16-20
966-000-278	CT50-SF625-400-G2	CAT50	0.625	1.000	2.750	2.620	3.250	4.000	1.970	1-8	9/16-18
966-000-280	CT50-SF750-400-G2	CAT50	0.750	1.250	2.750	2.620	3.250	4.000	2.040	1-8	5/8-18
966-000-266	CT50-SF100-400-G2	CAT50	1.000	2.090	2.750	2.620	3.250	4.000	2.280	1-8	3/4-16
966-000-267	CT50-SF125-400-G2	CAT50	1.250	2.090	2.750	2.620	3.250	4.000	2.280	1-8	3/4-16

EXTENDED LENGTH

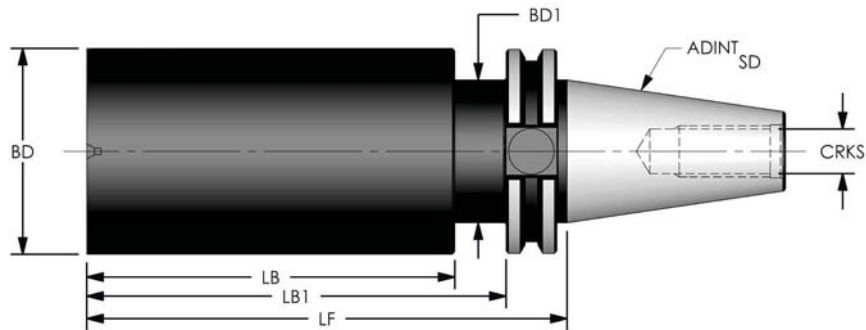
PRODUCT #	DESIGNATION	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	CRKS	THREAD
966-000-270	CT50-SF250-600-G2	CAT50	0.250	0.750	2.750	4.620	5.250	6.000	1.420	1-8	10-32
966-000-273	CT50-SF375-600-G2	CAT50	0.375	1.000	2.750	4.620	5.250	6.000	1.530	1-8	1/4-28
966-000-276	CT50-SF500-600-G2	CAT50	0.500	1.000	2.750	4.620	5.250	6.000	1.850	1-8	7/16-20
966-000-279	CT50-SF625-600-G2	CAT50	0.625	1.250	2.750	4.620	5.250	6.000	1.970	1-8	9/16-18
966-000-281	CT50-SF750-600-G2	CAT50	0.750	1.250	2.750	4.620	5.250	6.000	2.040	1-8	5/8-18
966-000-271	CT50-SF250-800-G2	CAT50	0.250	1.000	2.750	6.620	7.250	8.000	1.420	1-8	10-32
966-000-274	CT50-SF375-800-G2	CAT50	0.375	1.250	2.750	6.620	7.250	8.000	1.530	1-8	1/4-28
966-000-277	CT50-SF500-800-G2	CAT50	0.500	1.250	2.750	6.620	7.250	8.000	1.850	1-8	7/16-20

ULTRA-DEX[®]



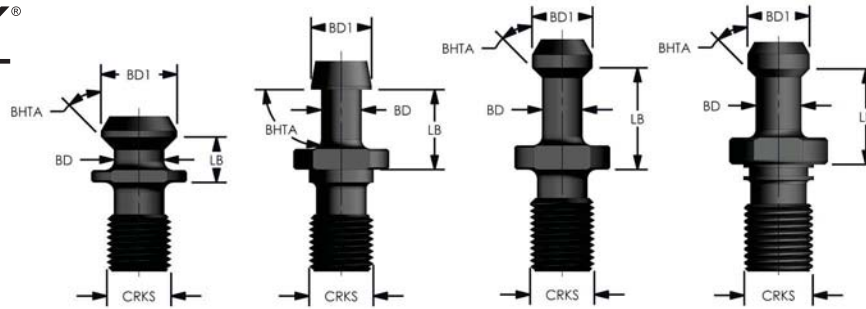
Balanced to:
G6.3 (12,000 rpm)

PRODUCT #	DESIGNATION	ADINTSD	TAPER NO.	BD [in.]	B1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	CRKS	TAPER LENGTH
966-000-260	CT50-JT02-150-G6	CAT50	2	0.559	2.750	0.995	1.625	1.500	1-8	0.875
966-000-261	CT50-JT03-150-G6	CAT50	3	0.811	2.750	1.339	1.969	1.500	1-8	1.219
966-000-262	CT50-JT04-150-G6	CAT50	4	1.124	2.750	1.776	2.406	1.500	1-8	1.656
966-000-263	CT50-JT06-150-G6	CAT50	6	0.676	2.750	1.120	1.750	1.500	1-8	1.000
966-000-264	CT50-JT33-150-G6	CAT50	33	0.624	2.750	1.120	1.750	1.500	1-8	1.000



PRODUCT #	DESIGNATION	ADINTSD	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	CRKS
967-000-004	CT50-BB100-150	CAT50	3.940/(100mm)	2.750	4.526	5.156	5.910/(150mm)	1-8
967-000-005	CT50-BB100-250	CAT50	3.940/(100mm)	2.750	8.460	9.090	9.840/(250mm)	1-8
967-000-006	CT50-BB150-150	CAT50	5.910/(150mm)	2.750	4.526	5.156	5.910/(150mm)	1-8

ULTRA-DEX[®]



PRODUCT #	DESIGNATION	BD [in.]	BD1 [in.]	LB [in.]	BHTA [°]	CRKS	COOLANT THRU	FIGURE
971-000-015	PSC-475	0.490	0.740	0.440	45°	5/8-11	YES	1
971-000-002	PS-475	0.490	0.740	0.440	45°	5/8-11	NO	1
971-000-004	PS-532x15	0.551	0.747	0.791	75°	5/8-11	NO	1
971-000-016	PSC-532x45	0.392	0.591	0.984	45°	5/8-11	YES	2
971-000-005	PS-532x45	0.392	0.591	0.984	45°	5/8-11	NO	2
971-000-006	PS-532x60	0.392	0.591	0.984	60°	5/8-11	NO	2
971-000-007	PS-532x90	0.392	0.591	0.984	90°	5/8-11	NO	2
971-000-003	PS-498	0.392	0.591	0.775	90°	5/8-11	NO	3
971-000-019	PSC-552	0.406	0.594	1.139	45°	5/8-11	YES	2
971-000-012	PS-552	0.406	0.594	1.139	45°	5/8-11	NO	2

CAT40

PRODUCT #	DESIGNATION	BD [in.]	BD1 [in.]	LB [in.]	BHTA [°]	CRKS	COOLANT THRU	FIGURE
971-000-017	PSC-535x45	0.667	0.904	1.384	45°	1-8	YES	4
971-000-008	PS-535x45	0.667	0.904	1.384	45°	1-8	NO	4
971-000-018	PSC-536x45	0.667	0.904	1.384	45°	1-8	YES	2
971-000-009	PS-536x45	0.667	0.904	1.384	45°	1-8	NO	2
971-000-010	PS-536x60	0.667	0.904	1.384	60°	1-8	NO	2
971-000-011	PS-536x90	0.667	0.904	1.384	90°	1-8	NO	2
971-000-014	PSC-274	0.820	1.140	0.700	45°	1-8	YES	1
971-000-001	PS-274	0.820	1.140	0.700	45°	1-8	NO	1
971-000-013	PSC-271x15	0.826	1.102	1.350	15°	1-8	YES	1

CAT50

Quick reference Guide - Following page Machine Cross reference

Each CAT taper machine Requires its own style retention knob, on the following page is a general quick reference of the most common manufacturers. Be sure to check which knob your machine Requires to ensure proper fit.

CAT40

- PSC-475 Fits Cincinnati Milacron, Maho, Mazak, Matsura
- PS-475 Fits Acroloc-Bayer, Maho, Mazak
- PSC-532x45 Fits Amura-Seiki, Comet, Daewoo, Dah Lih, Haas, Howa Kogyo, Ikegai, Kearny-Trecker, Kia, Kitamura, Miyano, Okuma Howa, YCI
- PS-532x45 Fits Amura-Seiki, Comet, Daewoo, Dah Lih, Haas, Howa Kogyo, Ikegai, Kearny-Trecker, Kia, Kitamura, Miyano, Okuma Howa, YCI
- PS-532x60 Fits Hitachi-Seiki, Kia, Mitsubishi, Okuma, Matsura, Howa Kogyo, Milltronic
- PS-532x90 Fits Kia, Mori Seiki
- PS-498 Fits Mazak
- PS-552 Fits Cincinnati Milacron
- PSC-552 Fits Cincinnati Milacron

CAT50

- PS-536x45 Fits Dah Lih, Haas, Ikegai, Kitamura, LeBlond Makino, YCI
- PSC-536x45 Fits Haas, LeBlond Makino
- PS-536x60 Fits Mitsubishi, Okuma, Matsura
- PS-536x90 Fits Hitachi-Seiki, Mori Seiki, Mazak
- PS-274 Fits Mazak
- PSC-274 Fits Burgmaster, Devlieg, Exello, Maho, Matsura, Mazak



PLEASE NOTE: retention knobs are available in many different types and sizes. ARCH Cutting Tools has provided a list with common machines that fit each of our knobs. Due to the vast amount of machines, please check each machine to verify that you are ordering the proper knob. retention knob dimensions for each machine can be typically found in the user manual or next to the power supply.

Quick reference Guide

Each CAT taper machine Requires its own style retention knob. Be sure to check which knob your machine Requires to ensure proper fit.

MANUFACTURER	DESIGNATION									
	PSC-475	PS-475	PS-532x15	PSC-532x45	PS-532x45	PS-532x60	PS-532x90	PS-498	PSC-552	PS-552
ACROLOC-BAYER	•	•								
ATRUMP				•	•					
BRIDGEPORT	•	•								
CARMAN	•	•								
CHEVALIER				•	•					
CHIRON	•	•								
CINCINNATI	•	•							•	•
COMET				•	•					
DAEWOO				•	•					
DAH LIH				•	•					
DOOSAN			•							
ENSHU				•	•	•				
EXCEL				•	•					
FADAL	•	•								
HAAS				•	•					
HAMAI				•	•					
HITACHI-SEIKI				•	•	•				
HOWA KOGYO				•	•					
HURCO	•	•		•	•					
IKEGAI				•	•					
JOHN FORD				•	•					
KASHAHARA				•	•					
KEARNY-TRECKER				•	•					
KIA				•	•		•			
KITAMURA				•	•					
KIWA				•	•					
LEBLOND MAKINO			•	•	•					
MAHO	•	•								
MASCO	•	•								
MATSUURA			•			•				
MAZAK	•	•								
MILLPORT				•	•					
MILLTRONICS	•					•				
MITSUBISHI						•				
MIYANO				•	•					
MORI SEIKI							•			
NOMURA						•				
OKUMA						•				
OKUMA HOWA				•	•					
OOYA				•	•					
OSAKA KIKO				•	•		•			
PRATT & WHITNEY	•			•	•					
ROKU-ROKU				•	•					
SAEILO				•	•					
SAKAZAKI				•	•	•				
SHARONA				•	•					
SHARP	•	•								
SHIZUOKA				•	•					
SHODA				•	•					
STAMA	•	•								
TAKISAWA				•	•					
TOSHIBA				•	•					
TOYAMA				•	•					
TOYO				•	•					
TOYODA				•	•					
TREE	•	•								
ULTRAMILL				•	•					
URAWA				•	•					
VULCAN				•	•					
YAM (YANG)							•			
YASDA				•	•					
YCI				•	•					

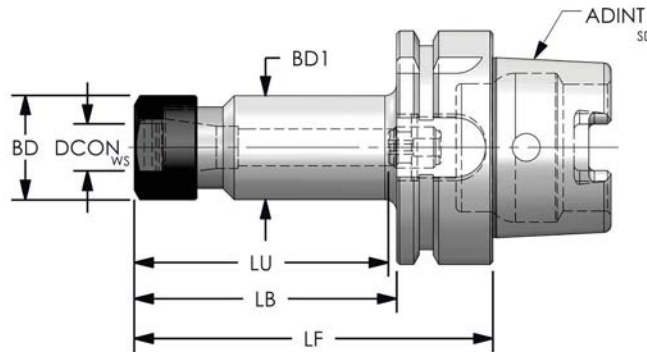
Quick Reference Guide

Each CAT taper machine Requires its own style Retention knob. Be sure to check which knob your machine requires to ensure proper fit.

MANUFACTURER	DESIGNATION								
	PSC-535x45	PS-535x45	PSC-536x45	PS-536x45	PS-536x60	PS-536x90	PSC-274	PS-274	PSC-271x15
AMURA-SEIKI	•	•	•	•					
DAH LIH	•	•	•	•					
ENSHU					•				
FADAL							•	•	
HAAS	•	•	•	•					
HAMAI	•	•	•	•					
HITACHI-SEIKI					•	•			
IKEGAI	•	•	•	•					
JOHNFORD	•	•							
KITAMURA	•	•	•	•					
KURAKI	•	•	•	•					
LEBLOND MAKINO	•	•	•	•					
MIGHTY	•	•	•	•					
MILLTRONICS							•	•	
MITSUBISHI	•	•	•	•					
MORI-SEIKI						•			
OKUMA					•				

**For more assistance
or training, connect with
our cutting tool experts**





Balanced to:
G2.5 (20,000 rpm)

PRODUCT #	DESIGNATION	ADINT SD	BD [in.]	BD1 [in.]	BD2 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	COLLET NUT	STOP SCREW	WRENCH
966-000-384	HSK40A-ER11-250-G2	HSK40A	0.750	N/A	N/A	N/A	N/A	2.500	1.500	ER-11HN	ER-11S	ER-11W
966-000-386	HSK40A-ER16-300-G2	HSK40A	1.100	N/A	N/A	N/A	N/A	3.000	1.700	ER-16HN	ER-16S	ER-16W
966-000-388	HSK40A-ER32-300-G2	HSK40A	1.980	N/A	N/A	N/A	N/A	3.000	1.620	ER-32SN	ER-32S	ER-32W
966-000-390	HSK50A-ER16-300-G2	HSK50A	1.100	N/A	N/A	N/A	N/A	3.000	1.610	ER-16HN	ER-16S	ER-16W
966-000-392	HSK50A-ER32-300-G2	HSK50A	1.980	N/A	N/A	N/A	N/A	3.000	1.500	ER-32SN	ER-32S	ER-32W
966-000-422	HSK63A-ER11-600-G2	HSK63A	0.750	0.750	N/A	4.976	N/A	6.000	1.940	ER-11HN	ER-11S	ER-11W
966-000-424	HSK63A-ER16-400-G2	HSK63A	1.100	1.100	N/A	2.976	N/A	4.000	3.000	ER-16HN	ER-16S	ER-16W
966-000-426	HSK63A-ER16-600-G2	HSK63A	1.100	1.100	N/A	4.976	N/A	6.000	3.000	ER-16HN	ER-16S	ER-16W
966-000-428	HSK63A-ER32-400-G2	HSK63A	1.980	1.750	N/A	2.976	N/A	4.000	4.300	ER-32SN	ER-32S	ER-32W
966-000-430	HSK63A-ER32-600-G2	HSK63A	1.980	1.750	N/A	4.976	N/A	6.000	4.300	ER-32SN	ER-32S	ER-32W
966-000-432	HSK63A-ER40-400-G2	HSK63A	2.250	2.366	2.080	2.344	2.976	4.000	4.000	ER-40SN	ER-40S	ER-40W
966-000-434	HSK63A-ER40-600-G2	HSK63A	2.250	2.366	2.080	4.344	4.976	6.000	4.500	ER-40SN	ER-40S	ER-40W

All Hardware Included. Wrenches Sold Separately.

PRODUCT #	NUT
968-000-029	ER-11HN
968-000-033	ER-16HN
968-000-038	ER-20HN
968-000-044	ER-25SN
968-000-047	ER-32SN
968-000-050	ER-40SN
968-000-030	ER-11MN
968-000-034	ER-16MN
968-000-039	ER-20MN

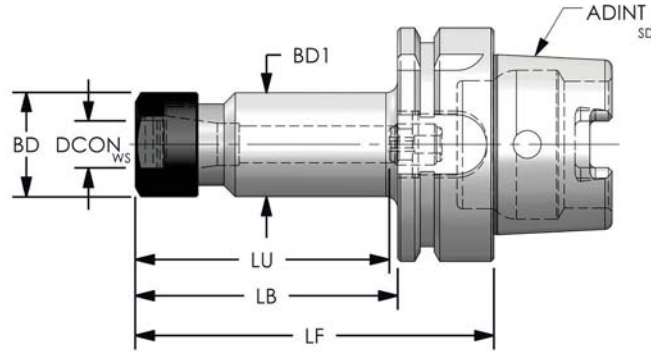
PACKAGE SIZE OF 1

PRODUCT #	ADJ. SCREW
968-000-032	ER-11S
968-000-036	ER-16S
968-000-041	ER-20S
968-000-043	ER-25S
968-000-046	ER-32S
968-000-049	ER-40S

PACKAGE SIZE OF 1

PRODUCT #	WRENCH
968-000-189	ER-11W
968-000-031	ER-11MW
968-000-035	ER-16MW
968-000-037	ER-16W
968-000-040	ER-20MW
968-000-042	ER-20W
968-000-045	ER-25W
968-000-048	ER-32W
968-000-051	ER-40W

PACKAGE SIZE OF 1



Balanced to:
G6.3 (12,000 rpm)

PRODUCT #	DESIGNATION	ADINTSD	BD [in.]	BD1 [in.]	BD2 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	COLLET NUT	STOP SCREW	WRENCH
966-000-385	HSK40A-ER11-250-G6	HSK40A	0.750	N/A	N/A	N/A	N/A	2.500	1.500	ER-11HN	ER-11S	ER-11W
966-000-387	HSK40A-ER16-300-G6	HSK40A	1.100	N/A	N/A	N/A	N/A	3.000	1.700	ER-16HN	ER-16S	ER-16W
966-000-389	HSK40A-ER32-300-G6	HSK40A	1.980	N/A	N/A	N/A	N/A	3.000	1.620	ER-32SN	ER-32S	ER-32W
966-000-391	HSK50A-ER16-300-G6	HSK50A	1.100	N/A	N/A	N/A	N/A	3.000	1.610	ER-16HN	ER-16S	ER-16W
966-000-393	HSK50A-ER32-300-G6	HSK50A	1.980	N/A	N/A	N/A	N/A	3.000	1.500	ER-32SN	ER-32S	ER-32W
966-000-423	HSK63A-ER11-600-G6	HSK63A	0.750	0.750	N/A	4.976	N/A	6.000	1.940	ER-11HN	ER-11S	ER-11W
966-000-425	HSK63A-ER16-400-G6	HSK63A	1.100	1.100	N/A	2.976	N/A	4.000	3.000	ER-16HN	ER-16S	ER-16W
966-000-427	HSK63A-ER16-600-G6	HSK63A	1.100	1.100	N/A	4.976	N/A	6.000	3.000	ER-16HN	ER-16S	ER-16W
966-000-429	HSK63A-ER32-400-G6	HSK63A	1.980	1.750	N/A	2.976	N/A	4.000	4.300	ER-32SN	ER-32S	ER-32W
966-000-431	HSK63A-ER32-600-G6	HSK63A	1.980	1.750	N/A	4.976	N/A	6.000	4.300	ER-32SN	ER-32S	ER-32W
966-000-433	HSK63A-ER40-400-G6	HSK63A	2.250	2.366	2.080	2.344	2.976	4.000	4.000	ER-40SN	ER-40S	ER-40W
966-000-435	HSK63A-ER40-600-G6	HSK63A	2.250	2.366	2.080	4.344	4.976	6.000	4.500	ER-40SN	ER-40S	ER-40W

All Hardware Included. Wrenches Sold Separately.

PRODUCT #	NUT
968-000-029	ER-11HN
968-000-033	ER-16HN
968-000-038	ER-20HN
968-000-044	ER-25SN
968-000-047	ER-32SN
968-000-050	ER-40SN
968-000-030	ER-11MN
968-000-034	ER-16MN
968-000-039	ER-20MN

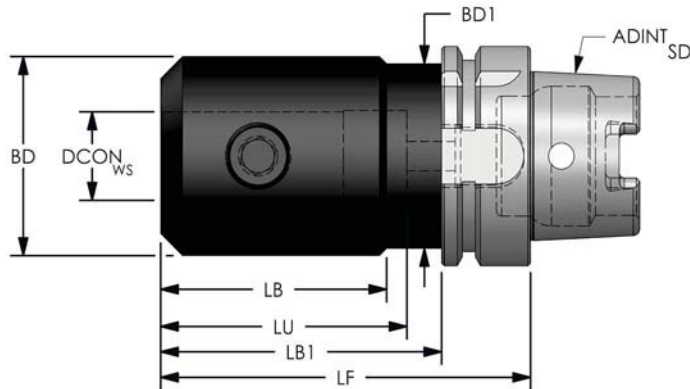
PACKAGE SIZE OF 1

PRODUCT #	ADJ. SCREW
968-000-032	ER-11S
968-000-036	ER-16S
968-000-041	ER-20S
968-000-043	ER-25S
968-000-046	ER-32S
968-000-049	ER-40S

PACKAGE SIZE OF 1

PRODUCT #	WRENCH
968-000-189	ER-11W
968-000-031	ER-11MW
968-000-035	ER-16MW
968-000-037	ER-16W
968-000-040	ER-20MW
968-000-042	ER-20W
968-000-045	ER-25W
968-000-048	ER-32W
968-000-051	ER-40W

PACKAGE SIZE OF 1



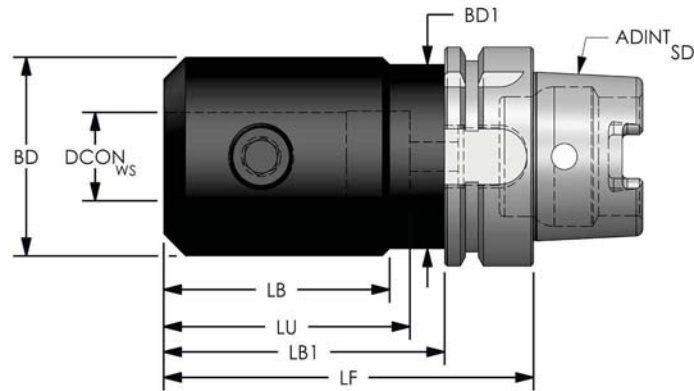
Balanced to:
G2.5 (20,000 rpm)

PRODUCT #	DESIGNATION	ADINTSD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	SET SCREW
966-000-402	HSK63A-EM250-300-G2	HSK63A	0.250	0.880	N/A	1.976	N/A	3.000	N/A	SS1/4-250
966-000-404	HSK63A-EM250-600-G2	HSK63A	0.250	0.880	N/A	4.976	N/A	6.000	N/A	SS1/4-250
966-000-406	HSK63A-EM375-300-G2	HSK63A	0.375	1.000	N/A	1.976	N/A	3.000	N/A	SS3/8-375
966-000-408	HSK63A-EM375-600-G2	HSK63A	0.375	1.000	N/A	4.976	N/A	6.000	N/A	SS3/8-375
966-000-410	HSK63A-EM500-300-G2	HSK63A	0.500	1.375	N/A	1.976	N/A	3.000	N/A	SS7/16-500
966-000-412	HSK63A-EM500-600-G2	HSK63A	0.500	1.375	N/A	4.976	N/A	6.000	N/A	SS7/16-500
966-000-414	HSK63A-EM625-300-G2	HSK63A	0.625	1.750	N/A	1.976	N/A	3.000	2.100	SS9/16-500
966-000-416	HSK63A-EM625-600-G2	HSK63A	0.625	1.750	N/A	4.976	N/A	6.000	2.100	SS9/16-500
966-000-418	HSK63A-EM750-300-G2	HSK63A	0.750	1.750	N/A	1.976	N/A	3.000	2.050	SS5/8-500
966-000-420	HSK63A-EM750-600-G2	HSK63A	0.750	1.750	N/A	4.976	N/A	6.000	2.300	SS5/8-500
966-000-394	HSK63A-EM100-425-G2	HSK63A	1.000	2.250	2.087	3.226	2.5940	4.250	2.830	SS3/4-500
966-000-396	HSK63A-EM100-600-G2	HSK63A	1.000	2.250	2.087	4.976	4.3440	6.000	2.830	SS3/4-500
966-000-398	HSK63A-EM125-425-G2	HSK63A	1.250	2.250	2.087	3.226	2.5940	4.250	3.000	(2) SS3/4-500
966-000-400	HSK63A-EM125-600-G2	HSK63A	1.250	2.250	2.087	4.976	4.3440	6.000	3.000	(2) SS3/4-500

All Hardware Included

PRODUCT #	SET SCREWS
968-000-137	SS10-250
968-000-136	SS1/4-250
968-000-142	SS3/8-375
968-000-144	SS7/16-500
968-000-145	SS9/16-500
968-000-143	SS5/8-500
968-000-139	SS3/4-375
968-000-140	SS3/4-500
968-000-138	SS1-750

PACKAGE SIZE OF 5



Balanced to:
G6.3 (12,000 rpm)

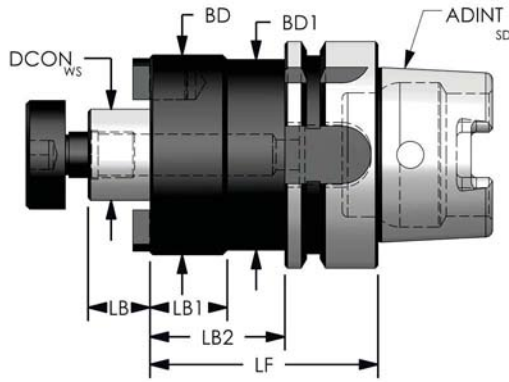
PRODUCT #	DESIGNATION	ADINT SD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	SET SCREW
966-000-403	HSK63A-EM250-300-G6	HSK63A	0.250	0.880	N/A	1.976	N/A	3.000	N/A	SS1/4-250
966-000-405	HSK63A-EM250-600-G6	HSK63A	0.250	0.880	N/A	4.976	N/A	6.000	N/A	SS1/4-250
966-000-407	HSK63A-EM375-300-G6	HSK63A	0.375	1.000	N/A	1.976	N/A	3.000	N/A	SS3/8-375
966-000-409	HSK63A-EM375-600-G6	HSK63A	0.375	1.000	N/A	4.976	N/A	6.000	N/A	SS3/8-375
966-000-411	HSK63A-EM500-300-G6	HSK63A	0.500	1.375	N/A	1.976	N/A	3.000	N/A	SS7/16-500
966-000-413	HSK63A-EM500-600-G6	HSK63A	0.500	1.375	N/A	4.976	N/A	6.000	N/A	SS7/16-500
966-000-415	HSK63A-EM625-300-G6	HSK63A	0.625	1.750	N/A	1.976	N/A	3.000	2.100	SS9/16-500
966-000-417	HSK63A-EM625-600-G6	HSK63A	0.625	1.750	N/A	4.976	N/A	6.000	2.100	SS9/16-500
966-000-419	HSK63A-EM750-300-G6	HSK63A	0.750	1.750	N/A	1.976	N/A	3.000	2.050	SS5/8-500
966-000-421	HSK63A-EM750-600-G6	HSK63A	0.750	1.750	N/A	4.976	N/A	6.000	2.300	SS5/8-500
966-000-395	HSK63A-EM100-425-G6	HSK63A	1.000	2.250	2.087	3.226	2.5940	4.250	2.830	SS3/4-500
966-000-397	HSK63A-EM100-600-G6	HSK63A	1.000	2.250	2.087	4.976	4.3440	6.000	2.830	SS3/4-500
966-000-399	HSK63A-EM125-425-G6	HSK63A	1.250	2.250	2.087	3.226	2.5940	4.250	3.000	(2) SS3/4-500
966-000-401	HSK63A-EM125-600-G6	HSK63A	1.250	2.250	2.087	4.976	4.3440	6.000	3.000	(2) SS3/4-500

All Hardware Included

PRODUCT #	SET SCREWS
968-000-137	SS10-250
968-000-136	SS1/4-250
968-000-142	SS3/8-375
968-000-144	SS7/16-500
968-000-145	SS9/16-500
968-000-143	SS5/8-500
968-000-139	SS3/4-375
968-000-140	SS3/4-500
968-000-138	SS1-750

PACKAGE SIZE OF 5

ULTRA-DEX[®]

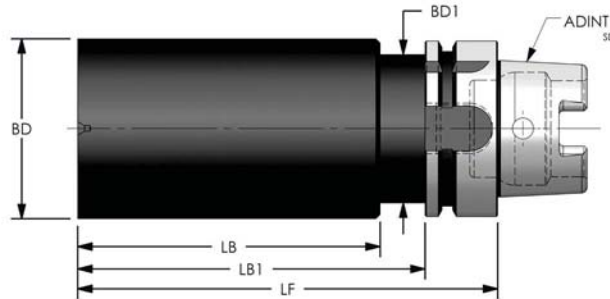


Balanced to:
G6.3 (12,000 rpm)



PRODUCT #	DESIGNATION	ADINT SD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LB2 [in.]	LF [in.]	DRIVE KEY	LOCK SCREW	THREAD
966-000-463	HSK63A-SM075-200-G6	HSK63A	0.750	1.750	N/A	0.680	0.976	N/A	2.000	UDK 312	U5002	3/8-24
966-000-464	HSK63A-SM100-250-G6	HSK63A	1.000	2.190	2.087	0.680	0.846	1.476	2.500	UDK 375	U5003	1/2-20
966-000-465	HSK63A-SM125-250-G6	HSK63A	1.250	2.750	2.087	0.680	0.846	1.476	2.500	UDK 500	U5004	5/8-18
966-000-466	HSK63A-SM150-250-G6	HSK63A	1.500	3.380	2.087	0.940	0.846	1.476	2.500	UDK 625	U5005	3/4-16

All Hardware Included



PRODUCT #	DESIGNATION	ADINT SD	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]
967-000-012	HSK40A-BB50-120	HSK40A	1.970/(50mm)	1.339	3.342	3.935	4.72/(120mm)
967-000-014	HSK50A-BB50-150	HSK50A	1.970/(50mm)	1.654	4.256	4.886	5.91/(150mm)
967-000-015	HSK50A-BB75-200	HSK50A	2.950/(75mm)	1.654	6.216	6.846	7.87/(200mm)
967-000-013	HSK50A-BB100-125	HSK50A	3.940/(100mm)	1.654	3.266	3.896	4.920/(125mm)
967-000-017	HSK63A-BB64-150	HSK63A	2.520/(64mm)	2.078	4.252	4.884	5.91/(150mm)
967-000-018	HSK63A-BB64-250	HSK63A	2.520/(64mm)	2.078	8.189	8.821	9.84/(250mm)
967-000-019	HSK63A-BB89-89	HSK63A	3.500/(89mm)	2.078	1.850	2.482	3.500/(89mm)
967-000-016	HSK63A-BB125-150	HSK63A	4.920/(125mm)	2.078	4.252	4.884	5.91/(150mm)

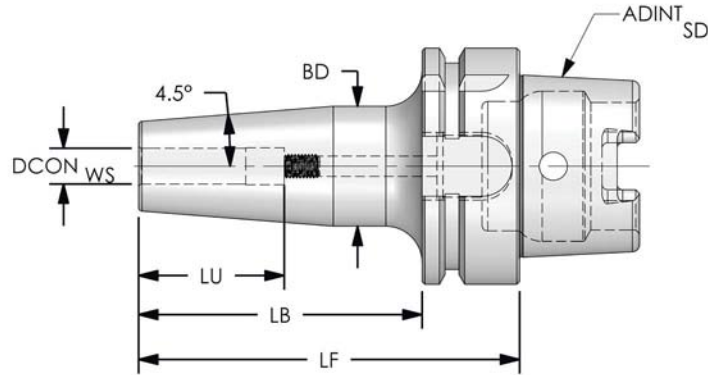


PRODUCT #	Arbor Screws
968-000-162	U5001
968-000-163	U5002
968-000-164	U5003
968-000-165	U5004
968-000-166	U5005
968-000-167	U5006
968-000-168	U5007
968-000-008	AS1/4-100
968-000-009	AS3/8-125
968-000-007	AS1/2-150



PRODUCT #	DRIVE KEY
968-000-169	UDK 100
968-000-170	UDK 250
968-000-171	UDK 312
968-000-172	UDK 375
968-000-173	UDK 500
968-000-174	UDK 625
968-000-175	UDK 750

PACKAGE SIZE OF 1



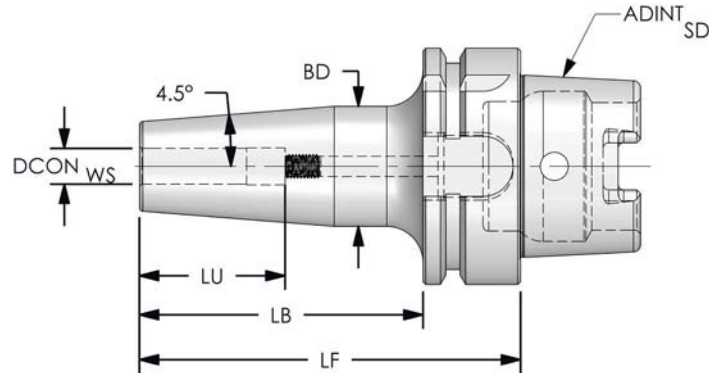
STANDARD LENGTH

Balanced to:
G2.5 (20,000 rpm)

PRODUCT #	DESIGNATION	ADINT SD	DCONWS [in.]	BD [in.]	LB [in.]	LF [in.]	LU [in.]	THREAD
966-000-436	HSK63A-SF012-400-G2	HSK63A	0.125	1.063	2.976	4.000	0.790	N/A
966-000-450	HSK63A-SF188-400-G2	HSK63A	0.188	1.063	2.976	4.000	0.790	N/A
966-000-453	HSK63A-SF250-400-G2	HSK63A	0.250	1.063	2.976	4.000	1.420	N/A
966-000-456	HSK63A-SF375-400-G2	HSK63A	0.375	1.260	2.976	4.000	1.530	1/4-28
966-000-458	HSK63A-SF500-400-G2	HSK63A	0.500	1.339	2.976	4.000	1.850	7/16-20
966-000-460	HSK63A-SF625-400-G2	HSK63A	0.625	1.339	2.976	4.000	1.970	9/16-18
966-000-461	HSK63A-SF750-400-G2	HSK63A	0.750	1.654	2.976	4.000	2.040	5/8-18
966-000-441	HSK63A-SF100-500-G2	HSK63A	1.000	2.087	3.976	5.000	2.280	3/4-16
966-000-446	HSK63A-SF125-500-G2	HSK63A	1.250	2.087	3.976	5.000	2.280	3/4-16

EXTENDED LENGTH

PRODUCT #	DESIGNATION	ADINT SD	DCONWS [in.]	BD [in.]	LB [in.]	LF [in.]	LU [in.]	THREAD
966-000-457	HSK63A-SF375-600-G2	HSK63A	0.375	1.260	4.976	6.000	1.530	1/4-28
966-000-459	HSK63A-SF500-600-G2	HSK63A	0.500	1.339	4.976	6.000	1.850	7/16-20
966-000-462	HSK63A-SF750-600-G2	HSK63A	0.750	1.654	4.976	6.000	2.040	5/8-18
966-000-442	HSK63A-SF100-700-G2	HSK63A	1.000	2.087	5.976	7.000	2.280	3/4-16



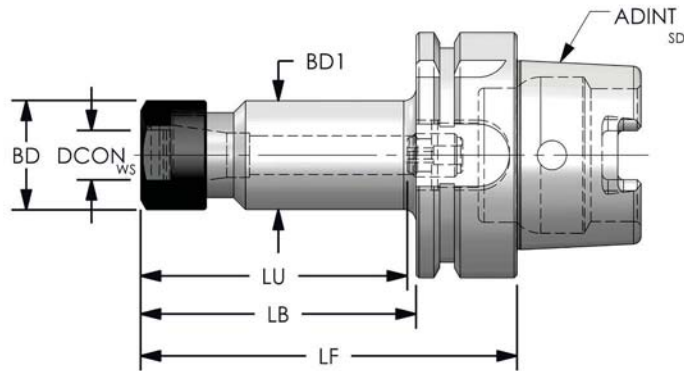
STANDARD LENGTH

Balanced to:
G2.5 (20,000 rpm)

PRODUCT #	DESIGNATION	ADINT SD	DCONWS [mm]	BD [in.]	LB [in.]	LF [in.]	LU [in.]	THREAD
966-000-437	HSK63A-SF06-400-G2	HSK63A	6.00	1.063	2.976	4.000	2.167	10-32
966-000-439	HSK63A-SF08-400-G2	HSK63A	8.00	1.063	2.976	4.000	1.970	1/4-28
966-000-443	HSK63A-SF10-400-G2	HSK63A	10.00	1.260	2.976	4.000	2.207	1/4-28
966-000-445	HSK63A-SF12-400-G2	HSK63A	12.00	1.260	2.976	4.000	2.404	7/16-20
966-000-448	HSK63A-SF16-400-G2	HSK63A	16.00	1.339	2.976	4.000	2.522	9/16-18
966-000-451	HSK63A-SF20-400-G2	HSK63A	20.00	1.654	2.976	4.000	2.600	5/8-18
966-000-454	HSK63A-SF25-500-G2	HSK63A	25.00	2.087	3.976	5.000	2.912	3/4-16

EXTENDED LENGTH

PRODUCT #	DESIGNATION	ADINT SD	DCONWS [mm]	BD [in.]	LB [in.]	LF [in.]	LU [in.]	THREAD
966-000-438	HSK63A-SF06-600-G2	HSK63A	6.00	1.063	4.976	6.000	2.167	10-32
966-000-440	HSK63A-SF08-600-G2	HSK63A	8.00	1.063	4.976	6.000	1.970	1/4-28
966-000-444	HSK63A-SF10-600-G2	HSK63A	10.00	1.260	4.976	6.000	2.207	1/4-28
966-000-447	HSK63A-SF12-600-G2	HSK63A	12.00	1.260	4.976	6.000	2.404	7/16-20
966-000-449	HSK63A-SF16-600-G2	HSK63A	16.00	1.260	4.976	6.000	2.522	9/16-18
966-000-452	HSK63A-SF20-600-G2	HSK63A	20.00	1.654	4.976	6.000	2.600	5/8-18
966-000-455	HSK63A-SF25-700-G2	HSK63A	25.00	2.087	5.976	7.000	2.912	3/4-16



Balanced to:
G2.5 (15,000 rpm)

PRODUCT #	DESIGNATION	ADINT SD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LF [in.]	LU [in.]	COLLET NUT	STOP SCREW	WRENCH
966-000-467	HSK80A-ER16-400-G2	HSK80A	ER-16	1.100	N/A	N/A	4.000	2.400	ER-16HN	ER-16S	ER-16W
966-000-469	HSK80A-ER32-400-G2	HSK80A	ER-32	1.980	N/A	N/A	4.000	2.050	ER-32SN	ER-32S	ER-32W
966-000-335	HSK100A-ER16-400-G2	HSK100A	ER-16	1.100	1.100	2.8580	4.000	3.000	ER-16HN	ER-16S	ER-16W
966-000-337	HSK100A-ER16-600-G2	HSK100A	ER-16	1.100	1.100	4.8580	6.000	3.000	ER-16HN	ER-16S	ER-16W
966-000-339	HSK100A-ER32-400-G2	HSK100A	ER-32	1.980	1.7500	2.8580	4.000	4.300	ER-32SN	ER-32S	ER-32W
966-000-341	HSK100A-ER32-600-G2	HSK100A	ER-32	1.980	1.7500	4.8580	6.000	4.300	ER-32SN	ER-32S	ER-32W
966-000-343	HSK100A-ER40-400-G2	HSK100A	ER-40	2.250	2.3660	2.8580	4.000	4.000	ER-40SN	ER-40S	ER-40W
966-000-345	HSK100A-ER40-600-G2	HSK100A	ER-40	2.250	2.3660	4.8580	6.000	4.500	ER-40SN	ER-40S	ER-40W

All Hardware Included. Wrenches Sold Separately.

PRODUCT #	NUT
968-000-029	ER-11HN
968-000-033	ER-16HN
968-000-038	ER-20HN
968-000-044	ER-25SN
968-000-047	ER-32SN
968-000-050	ER-40SN
968-000-030	ER-11MN
968-000-034	ER-16MN
968-000-039	ER-20MN

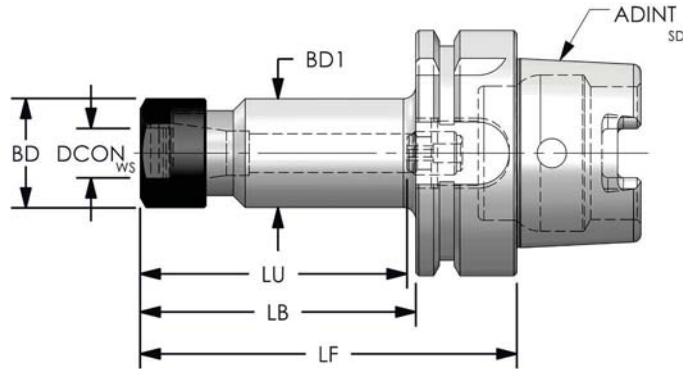
PACKAGE SIZE OF 1

PRODUCT #	ADJ. SCREW
968-000-032	ER-11S
968-000-036	ER-16S
968-000-041	ER-20S
968-000-043	ER-25S
968-000-046	ER-32S
968-000-049	ER-40S

PACKAGE SIZE OF 1

PRODUCT #	WRENCH
968-000-189	ER-11W
968-000-031	ER-11MW
968-000-035	ER-16MW
968-000-037	ER-16W
968-000-040	ER-20MW
968-000-042	ER-20W
968-000-045	ER-25W
968-000-048	ER-32W
968-000-051	ER-40W

PACKAGE SIZE OF 1



Balanced to:
G6.3 (12,000 rpm)

PRODUCT #	DESIGNATION	ADINT SD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LF [in.]	LU [in.]	COLLET NUT	STOP SCREW	WRENCH
966-000-468	HSK80A-ER16-400-G6	HSK80A	ER-16	1.100	N/A	N/A	4.00	2.400	ER-16N	ER-16S	ER-16W
966-000-470	HSK80A-ER32-400-G6	HSK80A	ER-32	1.980	N/A	N/A	4.00	2.050	ER-32N	ER-32S	ER-32W
966-000-336	HSK100A-ER16-400-G6	HSK100A	ER-16	1.100	N/A	2.8580	4.00	3.000	ER-16HN	ER-16S	ER-16W
966-000-338	HSK100A-ER16-600-G6	HSK100A	ER-16	1.100	N/A	4.8580	6.00	3.000	ER-16HN	ER-16S	ER-16W
966-000-340	HSK100A-ER32-400-G6	HSK100A	ER-32	1.980	N/A	2.8580	4.00	4.300	ER-32SN	ER-32S	ER-32W
966-000-342	HSK100A-ER32-600-G6	HSK100A	ER-32	1.980	N/A	4.8580	6.00	4.300	ER-32SN	ER-32S	ER-32W
966-000-344	HSK100A-ER40-400-G6	HSK100A	ER-40	2.250	N/A	2.8580	4.00	4.000	ER-40SN	ER-40S	ER-40W
966-000-346	HSK100A-ER40-600-G6	HSK100A	ER-40	2.250	N/A	4.8580	6.00	4.500	ER-40SN	ER-40S	ER-40W
966-000-382	HSK125A-ER16-500-G6	HSK125A	ER-16	1.100	N/A	5.0000	5.00	3.100	ER-16HN	ER-16S	ER-16W
966-000-383	HSK125A-ER40-500-G6	HSK125A	ER-40	2.250	N/A	5.0000	5.00	2.800	ER-40SN	ER-40S	ER-40W

All Hardware Included. Wrenches Sold Separately.

PRODUCT #	NUT
968-000-029	ER-11HN
968-000-033	ER-16HN
968-000-038	ER-20HN
968-000-044	ER-25SN
968-000-047	ER-32SN
968-000-050	ER-40SN
968-000-030	ER-11MN
968-000-034	ER-16MN
968-000-039	ER-20MN

PACKAGE SIZE OF 1

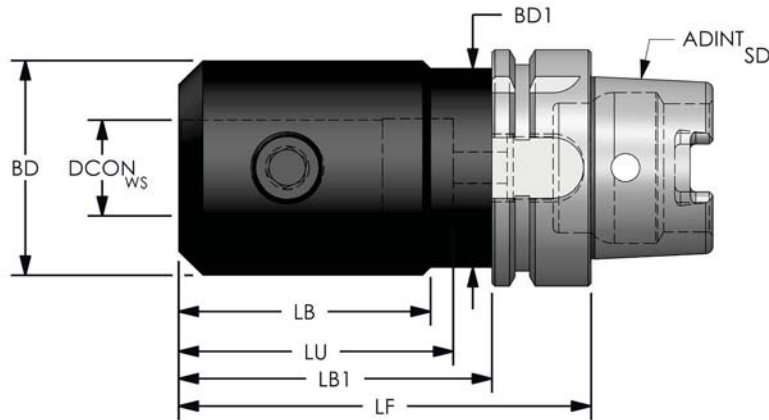
PRODUCT #	ADJ. SCREW
968-000-032	ER-11S
968-000-036	ER-16S
968-000-041	ER-20S
968-000-043	ER-25S
968-000-046	ER-32S
968-000-049	ER-40S

PACKAGE SIZE OF 1

PRODUCT #	WRENCH
968-000-189	ER-11W
968-000-031	ER-11MW
968-000-035	ER-16MW
968-000-037	ER-16W
968-000-040	ER-20MW
968-000-042	ER-20W
968-000-045	ER-25W
968-000-048	ER-32W
968-000-051	ER-40W

PACKAGE SIZE OF 1

ULTRA-DEX[®]



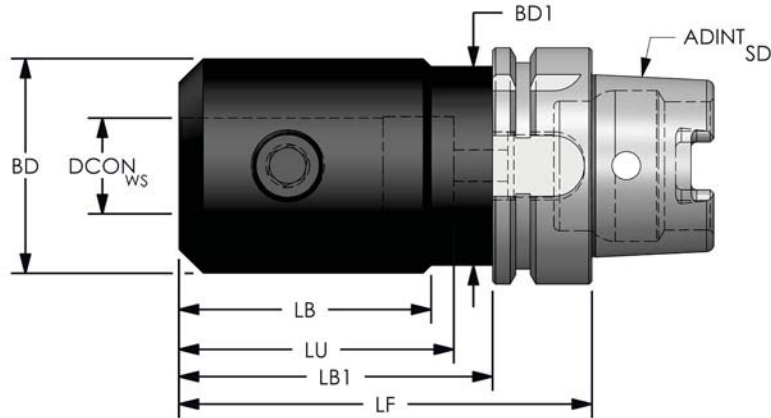
Balanced to:
G2.5 (15,000 rpm)

PRODUCT #	DESIGNATION	ADINT SD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	SET SCREW
966-000-315	HSK100A-EM250-400-G2	HSK100A	0.250	0.880	N/A	2.858	N/A	4.000	N/A	SS1/4-250
966-000-317	HSK100A-EM250-600-G2	HSK100A	0.250	0.880	N/A	4.858	N/A	6.000	N/A	SS1/4-250
966-000-319	HSK100A-EM375-400-G2	HSK100A	0.375	1.000	N/A	2.858	N/A	4.000	N/A	SS3/8-375
966-000-321	HSK100A-EM375-600-G2	HSK100A	0.375	1.000	N/A	4.858	N/A	6.000	N/A	SS3/8-375
966-000-323	HSK100A-EM500-400-G2	HSK100A	0.500	1.375	N/A	2.858	N/A	4.000	N/A	SS7/16-500
966-000-325	HSK100A-EM500-600-G2	HSK100A	0.500	1.375	N/A	4.858	N/A	6.000	N/A	SS7/16-500
966-000-327	HSK100A-EM625-400-G2	HSK100A	0.625	1.750	N/A	2.858	N/A	4.000	2.100	SS9/16-500
966-000-329	HSK100A-EM625-600-G2	HSK100A	0.625	1.750	N/A	4.858	N/A	6.000	2.100	SS9/16-500
966-000-331	HSK100A-EM750-400-G2	HSK100A	0.750	1.750	N/A	2.858	N/A	4.000	2.500	SS5/8-500
966-000-333	HSK100A-EM750-600-G2	HSK100A	0.750	1.750	N/A	4.858	N/A	6.000	2.500	SS5/8-500
966-000-303	HSK100A-EM100-400-G2	HSK100A	1.000	2.250	N/A	2.858	N/A	4.000	2.830	SS3/4-500
966-000-305	HSK100A-EM100-600-G2	HSK100A	1.000	2.250	N/A	4.858	N/A	6.000	2.830	SS3/4-500
966-000-307	HSK100A-EM125-425-G2	HSK100A	1.250	2.250	N/A	3.108	N/A	4.250	3.000	(2) SS3/4-500
966-000-309	HSK100A-EM125-600-G2	HSK100A	1.250	2.250	N/A	4.858	N/A	6.000	3.000	(2) SS3/4-500
966-000-311	HSK100A-EM150-450-G2	HSK100A	1.500	2.750	N/A	3.358	N/A	4.500	2.750	(2)SS3/4-500
966-000-313	HSK100A-EM200-550-G2	HSK100A	2.000	3.750	3.347	4.358	3.728	5.500	3.500	(2)SS1-750

All Hardware Included

PRODUCT #	SET SCREWS
968-000-137	SS10-250
968-000-136	SS1/4-250
968-000-142	SS3/8-375
968-000-144	SS7/16-500
968-000-145	SS9/16-500
968-000-143	SS5/8-500
968-000-139	SS3/4-375
968-000-140	SS3/4-500
968-000-138	SS1-750

PACKAGE SIZE OF 5



Balanced to:
G6.3 (12,000 rpm)

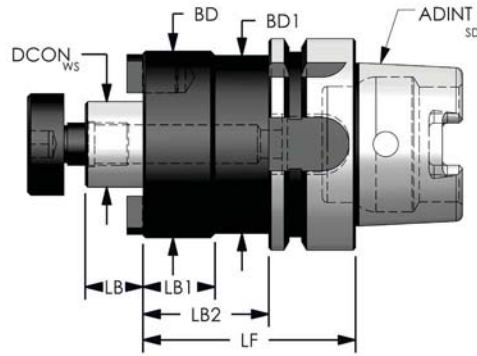
PRODUCT #	DESIGNATION	ADINT SD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]	LU [in.]	SET SCREW
966-000-316	HSK100A-EM250-400-G6	HSK100A	0.250	0.880	N/A	2.858	N/A	4.000	N/A	SS1/4-250
966-000-318	HSK100A-EM250-600-G6	HSK100A	0.250	0.880	N/A	4.858	N/A	6.000	N/A	SS1/4-250
966-000-320	HSK100A-EM375-400-G6	HSK100A	0.375	1.000	N/A	2.858	N/A	4.000	N/A	SS3/8-375
966-000-322	HSK100A-EM375-600-G6	HSK100A	0.375	1.000	N/A	4.858	N/A	6.000	N/A	SS3/8-375
966-000-324	HSK100A-EM500-400-G6	HSK100A	0.500	1.375	N/A	2.858	N/A	4.000	N/A	SS7/16-500
966-000-326	HSK100A-EM500-600-G6	HSK100A	0.500	1.375	N/A	4.858	N/A	6.000	N/A	SS7/16-500
966-000-328	HSK100A-EM625-400-G6	HSK100A	0.625	1.750	N/A	2.858	N/A	4.000	2.100	SS9/16-500
966-000-330	HSK100A-EM625-600-G6	HSK100A	0.625	1.750	N/A	4.858	N/A	6.000	2.100	SS9/16-500
966-000-332	HSK100A-EM750-400-G6	HSK100A	0.750	1.750	N/A	2.858	N/A	4.000	2.500	SS5/8-500
966-000-334	HSK100A-EM750-600-G6	HSK100A	0.750	1.750	N/A	4.858	N/A	6.000	2.500	SS5/8-500
966-000-304	HSK100A-EM100-400-G6	HSK100A	1.000	2.250	N/A	2.858	N/A	4.000	2.830	SS3/4-500
966-000-306	HSK100A-EM100-600-G6	HSK100A	1.000	2.250	N/A	4.858	N/A	6.000	2.830	SS3/4-500
966-000-308	HSK100A-EM125-425-G6	HSK100A	1.250	2.250	N/A	3.108	N/A	4.250	3.000	(2) SS3/4-500
966-000-310	HSK100A-EM125-600-G6	HSK100A	1.250	2.250	N/A	4.858	N/A	6.000	3.000	(2) SS3/4-500
966-000-312	HSK100A-EM150-450-G6	HSK100A	1.500	2.750	N/A	3.358	N/A	4.500	2.750	(2)SS3/4-500
966-000-314	HSK100A-EM200-550-G6	HSK100A	2.000	3.750	3.347	4.358	3.728	5.500	3.500	(2)SS1-750

All Hardware Included

PRODUCT #	SET SCREWS
968-000-137	SS10-250
968-000-136	SS1/4-250
968-000-142	SS3/8-375
968-000-144	SS7/16-500
968-000-145	SS9/16-500
968-000-143	SS5/8-500
968-000-139	SS3/4-375
968-000-140	SS3/4-500
968-000-138	SS1-750

PACKAGE SIZE OF 5

ULTRA-DEX[®]

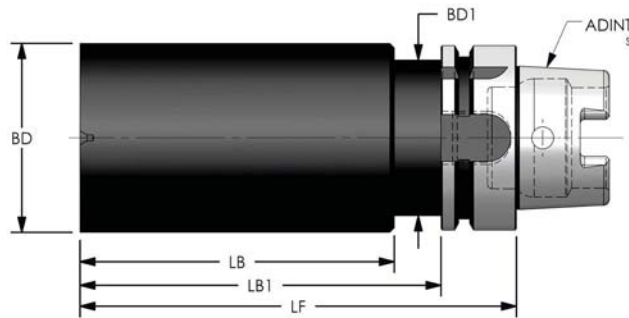


Balanced to:
G6.3 (12,000 rpm)



PRODUCT #	DESIGNATION	ADINT SD	DCONWS [in.]	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LB2 [in.]	LF [in.]	DRIVE KEY	LOCK SCREW	THREAD
966-000-377	HSK100A-SM075-200-G6	HSK100A	0.750	1.750	N/A	0.680	0.858	N/A	2.000	UDK 312	U5002	3/8-24
966-000-378	HSK100A-SM100-200-G6	HSK100A	1.000	2.190	N/A	0.680	0.858	N/A	2.000	UDK 375	U5003	1/2-20
966-000-379	HSK100A-SM125-250-G6	HSK100A	1.250	2.750	N/A	0.680	1.358	N/A	2.500	UDK 500	U5004	5/8-18
966-000-380	HSK100A-SM150-250-G6	HSK100A	1.500	3.380	3.347	0.940	1.358	0.728	2.500	UDK 625	U5005	3/4-16
966-000-381	HSK100A-SM200-300-G6	HSK100A	2.000	4.440	3.347	0.940	1.858	1.226	3.000	UDK 750	U5006	1-14

All Hardware Included



PRODUCT #	DESIGNATION	ADINT SD	BD [in.]	BD1 [in.]	LB [in.]	LB1 [in.]	LF [in.]
967-000-021	HSK80A-BB80-250	HSK80A	3.150/(80mm)	2.677	8.189	8.819	9.840/(250mm)
967-000-020	HSK80A-BB150-200	HSK80A	5.910/(150mm)	2.677	6.220	6.850	7.870/(200mm)
967-000-007	HSK100A-BB100-150	HSK100A	3.940/(100mm)	3.465	4.134	4.764	5.910/(150mm)
967-000-008	HSK100A-BB100-250	HSK100A	3.940/(100mm)	3.465	8.071	8.701	9.840/(250mm)
967-000-009	HSK100A-BB150-250	HSK100A	5.910/(150mm)	3.465	8.071	8.701	9.840/(250mm)
967-000-010	HSK125A-BB125-305	HSK125A	4.920/(125mm)	4.134	10.238	10.868	12.010/(305mm)
967-000-011	HSK125A-BB150-200	HSK125A	5.910/(150mm)	4.134	6.008	6.638	7.870/(200mm)

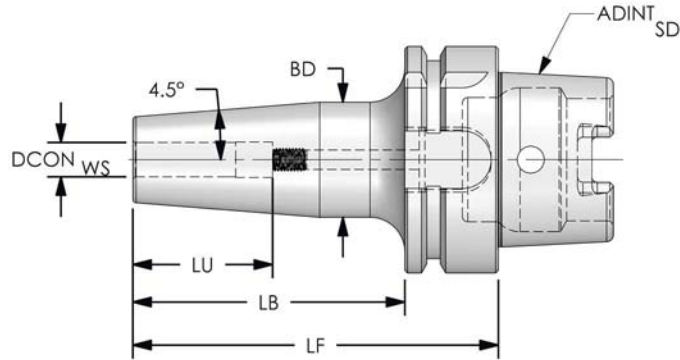


PRODUCT #	Arbor Screws
968-000-162	U5001
968-000-163	U5002
968-000-164	U5003
968-000-165	U5004
968-000-166	U5005
968-000-167	U5006
968-000-168	U5007
968-000-008	AS1/4-100
968-000-009	AS3/8-125
968-000-007	AS1/2-150



PRODUCT #	DRIVE KEY
968-000-169	UDK 100
968-000-170	UDK 250
968-000-171	UDK 312
968-000-172	UDK 375
968-000-173	UDK 500
968-000-174	UDK 625
968-000-175	UDK 750

PACKAGE SIZE OF 1



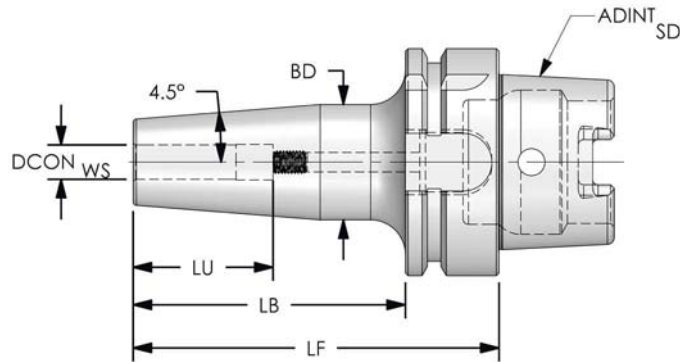
STANDARD LENGTH

Balanced to:
G2.5 (15,000 rpm)

PRODUCT #	DESIGNATION	ADINT SD	DCONWS [in.]	BD [in.]	LF [in.]	LU [in.]	LB [in.]	THREAD
966-000-347	HSK100A-SF012-400-G2	HSK100A	0.125	1.060	4.000	0.790	2.860	N/A
966-000-362	HSK100A-SF188-400-G2	HSK100A	0.188	1.060	4.000	0.790	2.860	N/A
966-000-365	HSK100A-SF250-400-G2	HSK100A	0.250	1.060	4.000	1.420	2.860	10-32
966-000-370	HSK100A-SF375-400-G2	HSK100A	0.375	1.260	4.000	1.530	2.860	1/4-28
966-000-372	HSK100A-SF500-400-G2	HSK100A	0.500	1.340	4.000	1.850	2.860	7/16-20
966-000-374	HSK100A-SF625-400-G2	HSK100A	0.625	1.340	4.000	1.970	2.860	9/16-18
966-000-375	HSK100A-SF750-500-G2	HSK100A	0.750	1.650	5.000	2.040	3.860	5/8-18
966-000-352	HSK100A-SF100-500-G2	HSK100A	1.000	2.090	5.000	2.280	3.860	3/4-16
966-000-357	HSK100A-SF125-500-G2	HSK100A	1.250	2.090	5.000	2.280	3.860	3/4-16

EXTENDED LENGTH

PRODUCT #	DESIGNATION	ADINT SD	DCONWS [in.]	BD [in.]	LF [in.]	LU [in.]	LB [in.]	THREAD
966-000-371	HSK100A-SF375-600-G2	HSK100A	0.375	1.260	6.000	1.530	4.860	1/4-28
966-000-373	HSK100A-SF500-600-G2	HSK100A	0.500	1.340	6.000	1.850	4.860	7/16-20
966-000-376	HSK100A-SF750-700-G2	HSK100A	0.750	1.650	7.000	2.040	5.860	5/8-18
966-000-353	HSK100A-SF100-700-G2	HSK100A	1.000	2.090	7.000	2.280	5.860	3/4-16
966-000-358	HSK100A-SF125-700-G2	HSK100A	1.250	2.090	7.000	2.280	5.860	3/4-16



STANDARD LENGTH

Balanced to:
G2.5 (15,000 rpm)

PRODUCT #	DESIGNATION	ADINT SD	DCONWS [mm]	BD [in.]	LB [in.]	LF [in.]	LU [in.]	THREAD
966-000-348	HSK100A-SF06-400-G2	HSK100A	6.00	1.063	2.858	4.000	2.167	10-32
966-000-350	HSK100A-SF08-400-G2	HSK100A	8.00	1.063	2.858	4.000	1.970	1/4-28
966-000-354	HSK100A-SF10-400-G2	HSK100A	10.00	1.260	2.858	4.000	2.207	1/4-28
966-000-356	HSK100A-SF12-400-G2	HSK100A	12.00	1.260	2.858	4.000	2.404	7/16-20
966-000-360	HSK100A-SF16-400-G2	HSK100A	16.00	1.339	2.858	4.000	2.522	9/16-18
966-000-363	HSK100A-SF20-500-G2	HSK100A	20.00	1.654	3.858	5.000	2.600	5/8-18
966-000-366	HSK100A-SF25-500-G2	HSK100A	25.00	2.087	3.858	5.000	2.912	3/4-16
966-000-368	HSK100A-SF32-500-G2	HSK100A	32.00	2.087	3.858	5.000	2.912	3/4-16

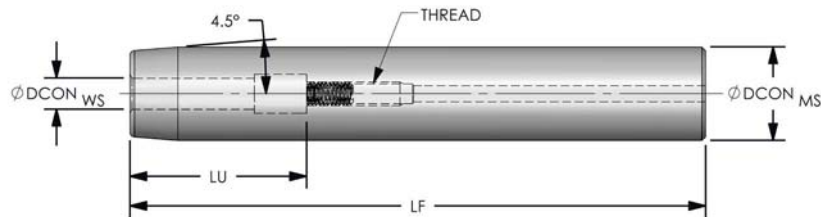
EXTENDED LENGTH

PRODUCT #	DESIGNATION	ADINT SD	DCONWS [mm]	BD [in.]	LB [in.]	LF [in.]	LU [in.]	THREAD
966-000-349	HSK100A-SF06-600-G2	HSK100A	6.00	1.063	4.858	6.000	2.167	10-32
966-000-351	HSK100A-SF08-600-G2	HSK100A	8.00	1.063	4.858	6.000	1.970	1/4-28
966-000-355	HSK100A-SF10-600-G2	HSK100A	10.00	1.260	4.858	6.000	2.207	1/4-28
966-000-359	HSK100A-SF12-600-G2	HSK100A	12.00	1.260	4.858	6.000	2.404	7/16-20
966-000-361	HSK100A-SF16-600-G2	HSK100A	16.00	1.260	4.858	6.000	2.522	9/16-18
966-000-364	HSK100A-SF20-700-G2	HSK100A	20.00	1.654	5.858	7.000	2.600	5/8-18
966-000-367	HSK100A-SF25-700-G2	HSK100A	25.00	2.087	5.858	7.000	2.912	3/4-16
966-000-369	HSK100A-SF32-700-G2	HSK100A	32.00	2.087	5.858	7.000	2.912	3/4-16



PRODUCT #	DESIGNATION	DESCRIPTION
969-000-005	HSK40A-CT	HSK40A Coolant Tube
969-000-007	HSK50A-CT	HSK50A Coolant Tube
969-000-009	HSK63A-CT	HSK63A Coolant Tube
969-000-011	HSK80A-CT	HSK80A Coolant Tube
969-000-001	HSK100A-CT	HSK100A Coolant Tube
969-000-003	HSK125A-CT	HSK125A Coolant Tube

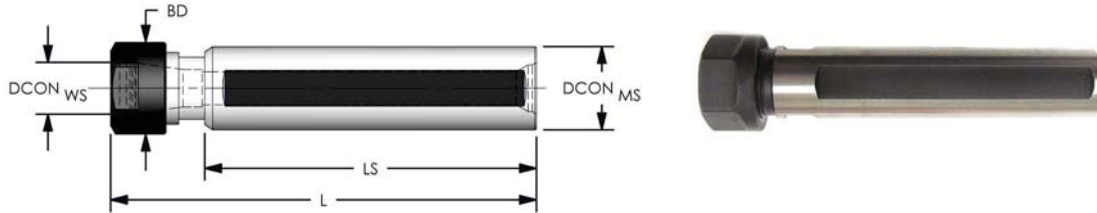
PRODUCT #	DESIGNATION	DESCRIPTION
969-000-006	HSK40A-S	HSK40A Coolant Tube Socket (3/8" Drive)
969-000-008	HSK50A-S	HSK50A Coolant Tube Socket (3/8" Drive)
969-000-010	HSK63A-S	HSK63A Coolant Tube Socket (3/8" Drive)
969-000-012	HSK80A-S	HSK80A Coolant Tube Socket (3/8" Drive)
969-000-002	HSK100A-S	HSK100A Coolant Tube Socket (1/2" Drive)
969-000-004	HSK125A-S	HSK125A Coolant Tube Socket (1/2" Drive)



PRODUCT #	DESIGNATION	DCONWS [in.]	DCONMS [in.]	LF [in.]	LU [in.]	THREAD
973-000-001	SS050-SF012-463	0.125	0.500	4.630	0.790	N/A
973-000-003	SS075-SF012-463	0.125	0.750	4.630	0.790	N/A
973-000-004	SS075-SF012-663	0.125	0.750	6.630	0.790	N/A
973-000-010	SS100-SF012-863	0.125	1.000	8.630	0.790	N/A
973-000-002	SS050-SF188-463	0.188	0.500	4.630	0.790	N/A
973-000-005	SS075-SF188-463	0.188	0.750	4.630	0.790	N/A
973-000-006	SS075-SF188-663	0.188	0.750	6.630	0.790	N/A
973-000-011	SS100-SF188-863	0.188	1.000	8.630	0.790	N/A
973-000-007	SS075-SF250-463	0.250	0.750	4.630	1.420	10-32
973-000-008	SS075-SF250-663	0.250	0.750	6.630	1.420	10-32
973-000-012	SS100-SF250-863	0.250	1.000	8.630	1.420	10-32
973-000-009	SS075-SF375-463	0.375	0.750	4.630	1.530	1/4-28
973-000-013	SS100-SF375-663	0.375	1.000	6.630	1.530	1/4-28
973-000-017	SS125-SF375-900	0.375	1.250	9.000	1.530	1/4-28
973-000-014	SS100-SF500-463	0.500	1.000	4.630	1.850	7/16-20
973-000-015	SS100-SF500-663	0.500	1.000	6.630	1.850	7/16-20
973-000-018	SS125-SF500-900	0.500	1.250	9.000	1.850	7/16-20
973-000-016	SS100-SF625-463	0.625	1.000	4.630	1.970	9/16-18
973-000-019	SS125-SF625-700	0.625	1.250	7.000	1.970	1/4-28
973-000-020	SS125-SF750-500	0.750	1.250	5.000	2.040	5/8-18
973-000-021	SS125-SF750-700	0.750	1.250	7.000	1.420	5/8-18



- Adjustable Stop Screw Allows Drills to be Pre-Set
- Balanced for Less Vibration & Longer Tool Life
- T.I.R. .0002
- Hardened & Tempered to Prevent Cracking
- Balanced Nuts (G2.5 at 15,000 RPM)
- Special Lengths Available



IMPERIAL

PRODUCT #	DESIGNATION	DCON WS	RANGE	BD [in.]	DCONMS [in.]	L [in.]	LS [in.]	COLLET NUT	SCREW	COLLET WRENCH
958-000-001	SS075-ER16-250	ER16	0.020" – 0.406" (.5mm - 10mm) 1/32" - 13/32"	1.100	0.750	3.800	2.500	ER-16HN	ER-16S	ER-16W
958-000-002	SS075-ER16-400	ER16		1.100	0.750	5.300	4.000	ER-16HN	ER-16S	ER-16W
958-000-005	SS100-ER16-250	ER16		1.100	1.000	3.800	2.500	ER-16HN	ER-16S	ER-16W
958-000-006	SS100-ER16-400	ER16		1.100	1.000	5.300	4.000	ER-16HN	ER-16S	ER-16W
958-000-007	SS100-ER16-600	ER16		1.100	1.000	7.300	6.000	ER-16HN	ER-16S	ER-16W
958-000-003	SS075-ER20-250	ER20	0.020" – 0.500" (.5mm - 13mm) 1/32" - 1/2"	1.340	0.750	3.600	2.500	ER-20HN	ER-20S	ER-20W
958-000-004	SS075-ER20-400	ER20		1.340	0.750	5.100	4.000	ER-20HN	ER-20S	ER-20W
958-000-008	SS100-ER20-250	ER20		1.340	1.000	3.600	2.500	ER-20HN	ER-20S	ER-20W
958-000-009	SS100-ER20-400	ER20		1.340	1.000	5.100	4.000	ER-20HN	ER-20S	ER-20W
958-000-010	SS100-ER20-600	ER20		1.340	1.000	7.100	6.000	ER-20HN	ER-20S	ER-20W

METRIC

PRODUCT #	DESIGNATION	DCON WS	RANGE	BD [in.]	DCONMS [mm]	L [in.]	LS [in.]	COLLET NUT	SCREW	COLLET WRENCH
958-000-011	SS22MM-ER16-250	ER16	.020" – .406" (.5mm - 10mm) 1/32" - 13/32"	1.100	22.00	3.800	2.500	ER-16HN	ER-16S	ER-16W
958-000-012	SS22MM-ER20-250	ER20	.020" – 0.500" (.5mm - 13mm) 1/32" - 1/2"	1.340	22.00	3.600	2.500	ER-20HN	ER-20S	ER-20W

All Hardware Included. Wrenches Sold Separately.

PRODUCT #	NUT
968-000-029	ER-11HN
968-000-033	ER-16HN
968-000-038	ER-20HN
968-000-044	ER-25SN
968-000-047	ER-32SN
968-000-050	ER-40SN
968-000-030	ER-11MN
968-000-034	ER-16MN
968-000-039	ER-20MN

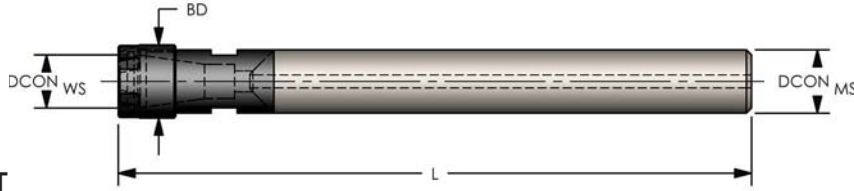
PACKAGE SIZE OF 1

PRODUCT #	ADJ. SCREW
968-000-032	ER-11S
968-000-036	ER-16S
968-000-041	ER-20S
968-000-043	ER-25S
968-000-046	ER-32S
968-000-049	ER-40S

PACKAGE SIZE OF 1

PRODUCT #	WRENCH
968-000-189	ER-11W
968-000-031	ER-11MW
968-000-035	ER-16MW
968-000-037	ER-16W
968-000-040	ER-20MW
968-000-042	ER-20W
968-000-045	ER-25W
968-000-048	ER-32W
968-000-051	ER-40W

PACKAGE SIZE OF 1



WITH FLAT

PRODUCT #	DESIGNATION	DCON WS	RANGE	COLLET NUT	L [in.]	DCONMS [in.]	BD [in.]
903-000-011	ST1/2 X 8.000 ER11 C W	ER11	.062 - .250 (1.5mm - 6.4mm) 1/16" - 1/4"	ER11-MN	8.000	0.500	0.625
903-000-027	ST5/8 X 7.000 ER11 C W	ER11		ER11-MN	7.000	0.625	0.625
903-000-021	ST5/8 X 10.000 ER11 C W	ER11		ER11-MN	10.000	0.625	0.625
903-000-029	ST5/8 X 7.000 ER16 C W	ER16	.062 - .406 (1.5mm - 10.3mm) 1/16" - 13/32"	ER16-MN	7.000	0.625	0.875
903-000-023	ST5/8 X 10.000 ER16 C W	ER16		ER16-MN	10.000	0.625	0.875
903-000-017	ST3/4 X 7.000 ER16 C W	ER16		ER16-MN	7.000	0.750	0.875
903-000-013	ST3/4 X 10.000 ER16 C W	ER16		ER16-MN	10.000	0.750	0.875
903-000-006	ST1 X 8.000 ER16 C W	ER16		ER16-MN	8.000	1.000	0.875
903-000-002	ST1 X 12.000 ER16 C W	ER16		ER16-MN	12.000	1.000	0.875
903-000-031	ST5/8 X 7.000 ER20 C W	ER20	.094 - 0.500 (2.4mm - 13mm) 3/32" - 1/2"	ER20-MN	7.000	0.625	1.125
903-000-025	ST5/8 X 10.000 ER20 C W	ER20		ER20-MN	10.000	0.625	1.125
903-000-019	ST3/4 X 7.000 ER20 C W	ER20		ER20-MN	7.000	0.750	1.125
903-000-015	ST3/4 X 10.000 ER20 C W	ER20		ER20-MN	10.000	0.750	1.125
903-000-008	ST1 X 8.000 ER20 C W	ER20		ER20-MN	8.000	1.000	1.125
903-000-004	ST1 X 12.000 ER20 C W	ER20		ER20-MN	12.000	1.000	1.125

WITHOUT FLAT

PRODUCT #	DESIGNATION	DCON WS	RANGE	COLLET NUT	L [in.]	DCONMS [in.]	BD [in.]
903-000-009	ST1/2 X 5.000 ER11 C	ER11	.062 - .250 (1.5mm - 6.4mm) 1/16" - 1/4"	ER11-MN	5.000	0.500	0.625
903-000-010	ST1/2 X 8.000 ER11 C	ER11		ER11-MN	8.000	0.500	0.625
903-000-026	ST5/8 X 7.000 ER11 C	ER11		ER11-MN	7.000	0.625	0.625
903-000-020	ST5/8 X 10.000 ER11 C	ER11		ER11-MN	10.000	0.625	0.625
903-000-028	ST5/8 X 7.000 ER16 C	ER16	.062 - .406 (1.5mm - 10.3mm) 1/16" - 13/32"	ER16-MN	7.000	0.625	0.875
903-000-022	ST5/8 X 10.000 ER16 C	ER16		ER16-MN	10.000	0.625	0.875
903-000-016	ST3/4 X 7.000 ER16 C	ER16		ER16-MN	7.000	0.750	0.875
903-000-012	ST3/4 X 10.000 ER16 C	ER16		ER16-MN	10.000	0.750	0.875
903-000-005	ST1 X 8.000 ER16 C	ER16		ER16-MN	8.000	1.000	0.875
903-000-001	ST1 X 12.000 ER16 C	ER16		ER16-MN	12.000	1.000	0.875
903-000-030	ST5/8 X 7.000 ER20 C	ER20	.094 - 0.500 (2.4mm - 13mm) 3/32" - 1/2"	ER20-MN	7.000	0.625	1.125
903-000-024	ST5/8 X 10.000 ER20 C	ER20		ER20-MN	10.000	0.625	1.125
903-000-018	ST3/4 X 7.000 ER20 C	ER20		ER20-MN	7.000	0.750	1.125
903-000-014	ST3/4 X 10.000 ER20 C	ER20		ER20-MN	10.000	0.750	1.125
903-000-007	ST1 X 8.000 ER20 C	ER20		ER20-MN	8.000	1.000	1.125
903-000-003	ST1 X 12.000 ER20 C	ER20		ER20-MN	12.000	1.000	1.125

All Hardware Included. Wrenches Sold Separately.

PRODUCT #	NUT
968-000-029	ER-11HN
968-000-033	ER-16HN
968-000-038	ER-20HN
968-000-044	ER-25SN
968-000-047	ER-32SN
968-000-050	ER-40SN
968-000-030	ER-11MN
968-000-034	ER-16MN
968-000-039	ER-20MN



PACKAGE SIZE OF 1



	Ø	PRODUCT #	DESIGNATION
ER16	1/8	916-000-041	ER16C-SS-1250
	5/32	916-000-042	ER16C-SS-1562
	3/16	916-000-043	ER16C-SS-1875
	7/32	916-000-044	ER16C-SS-2187
	1/4	916-000-045	ER16C-SS-2500
	9/32	916-000-046	ER16C-SS-2812
	5/16	916-000-047	ER16C-SS-3125
	11/32	916-000-048	ER16C-SS-3437
	3/8	916-000-049	ER16C-SS-3750
	13/32	916-000-050	ER16C-SS-4062
ER20	1/8	916-000-089	ER20C-SS-1250
	5/32	916-000-092	ER20C-SS-1562
	3/16	916-000-093	ER20C-SS-1875
	7/32	916-000-094	ER20C-SS-2187
	1/4	916-000-095	ER20C-SS-2500
	9/32	916-000-096	ER20C-SS-2812
	5/16	916-000-097	ER20C-SS-3125
	11/32	916-000-098	ER20C-SS-3437
	3/8	916-000-099	ER20C-SS-3750
	13/32	916-000-100	ER20C-SS-4062
	7/16	916-000-101	ER20C-SS-4375
	15/32	916-000-102	ER20C-SS-4687
	1/2	916-000-104	ER20C-SS-5000
	ER25	1/8	916-000-147
5/32		916-000-151	ER25C-SS-1562
3/16		916-000-154	ER25C-SS-1875
7/32		916-000-155	ER25C-SS-2187
1/4		916-000-156	ER25C-SS-2500
9/32		916-000-157	ER25C-SS-2812
5/16		916-000-158	ER25C-SS-3125
11/32		916-000-159	ER25C-SS-3437
3/8		916-000-160	ER25C-SS-3750
13/32		916-000-161	ER25C-SS-4062
7/16		916-000-162	ER25C-SS-4375
15/32		916-000-163	ER25C-SS-4687
1/2		916-000-165	ER25C-SS-5000
17/32		916-000-166	ER25C-SS-5312
9/16		916-000-167	ER25C-SS-5625
19/32		916-000-168	ER25C-SS-5937
5/8		916-000-170	ER25C-SS-6250

	Ø	PRODUCT #	DESIGNATION
ER32	1/8	916-000-220	ER32C-SS-1250
	5/32	916-000-224	ER32C-SS-1562
	3/16	916-000-228	ER32C-SS-1875
	7/32	916-000-232	ER32C-SS-2187
	1/4	916-000-233	ER32C-SS-2500
	9/32	916-000-234	ER32C-SS-2812
	5/16	916-000-235	ER32C-SS-3125
	11/32	916-000-236	ER32C-SS-3437
	3/8	916-000-237	ER32C-SS-3750
	13/32	916-000-238	ER32C-SS-4062
	7/16	916-000-239	ER32C-SS-4375
	15/32	916-000-240	ER32C-SS-4687
	1/2	916-000-242	ER32C-SS-5000
	17/32	916-000-243	ER32C-SS-5312
	9/16	916-000-244	ER32C-SS-5625
	19/32	916-000-245	ER32C-SS-5937
	5/8	916-000-247	ER32C-SS-6250
	ER40	21/32	916-000-248
11/16		916-000-249	ER32C-SS-6875
23/32		916-000-251	ER32C-SS-7187
3/4		916-000-252	ER32C-SS-7500
1/8		916-000-309	ER40C-SS-1250
5/32		916-000-313	ER40C-SS-1562
3/16		916-000-317	ER40C-SS-1875
7/32		916-000-321	ER40C-SS-2187
1/4		916-000-326	ER40C-SS-2500
9/32		916-000-329	ER40C-SS-2812
5/16		916-000-330	ER40C-SS-3125
11/32		916-000-331	ER40C-SS-3437
3/8		916-000-332	ER40C-SS-3750
13/32		916-000-333	ER40C-SS-4062
7/16		916-000-334	ER40C-SS-4375
15/32		916-000-335	ER40C-SS-4687
1/2		916-000-336	ER40C-SS-5000
17/32		916-000-337	ER40C-SS-5312
9/16		916-000-338	ER40C-SS-5625
19/32		916-000-339	ER405C-SS-5937
5/8		916-000-340	ER40C-SS-6250
21/32		916-000-341	ER40C-SS-6562
11/16	916-000-342	ER40C-SS-6875	
23/32	916-000-298	ER40C-SS-7187	
3/4	916-000-299	ER40C-SS-7500	
13/16	916-000-347	ER40C-SS-8125	
7/8	916-000-348	ER40C-SS-8750	
1	916-000-257	ER40C-SS-1000	



	Ø	PRODUCT #	DESIGNATION
ER16	4mm	916-000-051	ER16C-SS-4MM
	5mm	916-000-052	ER16C-SS-5MM
	6mm	916-000-053	ER16C-SS-6MM
	7mm	916-000-054	ER16C-SS-7MM
	8mm	916-000-055	ER16C-SS-8MM
	9mm	916-000-056	ER16C-SS-9MM
	10mm	916-000-040	ER16C-SS-10MM
ER20	4mm	916-000-105	ER20C-SS-4MM
	5mm	916-000-106	ER20C-SS-5MM
	6mm	916-000-107	ER20C-SS-6MM
	7mm	916-000-108	ER20C-SS-7MM
	8mm	916-000-109	ER20C-SS-8MM
	9mm	916-000-085	ER20C-SS-9MM
	10mm	916-000-087	ER20C-SS-10MM
	11mm	916-000-088	ER20C-SS-11MM
	12mm	916-000-090	ER20C-SS-12MM
	13mm	916-000-091	ER20C-SS-13MM
14mm	916-000-064	ER20C-SS-14MM	
ER25	4mm	916-000-164	ER25C-SS-4MM
	5mm	916-000-169	ER25C-SS-5MM
	6mm	916-000-171	ER25C-SS-6MM
	7mm	916-000-172	ER25C-SS-7MM
	8mm	916-000-173	ER25C-SS-8MM
	9mm	916-000-174	ER25C-SS-9MM
	10mm	916-000-145	ER25C-SS-10MM
	11mm	916-000-146	ER25C-SS-11MM
	12mm	916-000-148	ER25C-SS-12MM
	13mm	916-000-149	ER25C-SS-13MM
	14mm	916-000-150	ER25C-SS-14MM
	15mm	916-000-152	ER25C-SS-15MM
	16mm	916-000-153	ER25C-SS-16MM
17mm	916-000-120	ER25C-SS-17MM	

	Ø	PRODUCT #	DESIGNATION
ER32	4mm	916-000-241	ER32C-SS-4MM
	5mm	916-000-246	ER32C-SS-5MM
	6mm	916-000-250	ER32C-SS-6MM
	7mm	916-000-253	ER32C-SS-7MM
	8mm	916-000-254	ER32C-SS-8MM
	9mm	916-000-255	ER32C-SS-9MM
	10mm	916-000-218	ER32C-SS-10MM
	11mm	916-000-219	ER32C-SS-11MM
	12mm	916-000-221	ER32C-SS-12MM
	13mm	916-000-222	ER32C-SS-13MM
	14mm	916-000-223	ER32C-SS-14MM
	15mm	916-000-225	ER32C-SS-15MM
	16mm	916-000-226	ER32C-SS-16MM
	17mm	916-000-227	ER32C-SS-17MM
	18mm	916-000-229	ER32C-SS-18MM
	19mm	916-000-230	ER32C-SS-19MM
	ER40	20mm	916-000-231
6mm		916-000-343	ER40C-SS-6MM
7mm		916-000-346	ER40C-SS-7MM
8mm		916-000-349	ER40C-SS-8MM
9mm		916-000-350	ER40C-SS-9MM
10mm		916-000-307	ER40C-SS-10MM
11mm		916-000-308	ER40C-SS-11MM
12mm		916-000-310	ER40C-SS-12MM
13mm		916-000-311	ER40C-SS-13MM
14mm		916-000-312	ER40C-SS-14MM
15mm		916-000-314	ER40C-SS-15MM
16mm		916-000-315	ER40C-SS-16MM
17mm		916-000-316	ER40C-SS-17MM
18mm		916-000-318	ER40C-SS-18MM
19mm		916-000-319	ER40C-SS-19MM
20mm		916-000-320	ER40C-SS-20MM
21mm		916-000-322	ER40C-SS-21MM
22mm	916-000-323	ER40C-SS-22MM	
23mm	916-000-324	ER40C-SS-23MM	
24mm	916-000-325	ER40C-SS-24MM	
25mm	916-000-327	ER40C-SS-25MM	
26mm	916-000-328	ER40C-SS-26MM	



	Ø	PRODUCT #	DESIGNATION
ER11	1/16	916-000-001	ER11C-0625*
	3/32	916-000-002	ER11C-0937*
	1/8	916-000-003	ER11C-1250*
	5/32	916-000-004	ER11C-1562*
	3/16	916-000-005	ER11C-1875*
	7/32	916-000-007	ER11C-2187*
	1/4	916-000-008	ER11C-2500*
ER16	1/16	916-000-017	ER16C-0625
	3/32	916-000-018	ER16C-0937*
	1/8	916-000-020	ER16C-1250*
	5/32	916-000-021	ER16C-1562*
	3/16	916-000-022	ER16C-1875*
	7/32	916-000-024	ER16C-2187*
	1/4	916-000-025	ER16C-2500*
	9/32	916-000-026	ER16C-2812*
	5/16	916-000-028	ER16C-3125*
	11/32	916-000-029	ER16C-3437*
	3/8	916-000-030	ER16C-3750*
	13/32	916-000-032	ER16C-4062

	Ø	PRODUCT #	DESIGNATION	
ER20	3/32	916-000-058	ER20C-0937	
	1/8	916-000-061	ER20C-1250*	
	5/32	916-000-065	ER20C-1562*	
	3/16	916-000-066	ER20C-1875*	
	7/32	916-000-068	ER20C-2187*	
	1/4	916-000-069	ER20C-2500*	
	9/32	916-000-070	ER20C-2812*	
	5/16	916-000-072	ER20C-3125*	
	11/32	916-000-073	ER20C-3437	
	3/8	916-000-074	ER20C-3750*	
	13/32	916-000-076	ER20C-4062	
	7/16	916-000-077	ER20C-4375*	
	15/32	916-000-078	ER20C-4687	
	1/2	916-000-080	ER20C-5000*	
	ER25	1/8	916-000-113	ER25C-1250
		5/32	916-000-117	ER25C-1562*
		3/16	916-000-121	ER25C-1875*
7/32		916-000-122	ER25C-2187*	
1/4		916-000-123	ER25C-2500*	
9/32		916-000-124	ER25C-2812	
5/16		916-000-126	ER25C-3125*	
11/32		916-000-127	ER25C-3437	
3/8		916-000-128	ER25C-3750*	
13/32		916-000-130	ER25C-4062	
7/16		916-000-131	ER25C-4375*	
15/32		916-000-132	ER25C-4687	
1/2		916-000-134	ER25C-5000*	
17/32		916-000-135	ER25C-5312	
9/16		916-000-136	ER25C-5625*	
19/32	916-000-137	ER25C-5937		
5/8	916-000-139	ER25C-6250*		

IMPERIAL COLLETS SETS

PRODUCT #	DESIGNATION	Description
916-000-015	ER11CS	7 pcs (items with "*" in ER11 section included)
916-000-039	ER16CS	10 pcs (items with "*" in ER16 section included)
916-000-086	ER20CS	10 pcs (items with "*" in ER20 section included)
916-000-144	ER25CS	10 pcs (items with "*" in ER25 section included)
916-000-217	ER32CS	10 pcs (items with "*" in ER32 section included)
916-000-305	ER40CS	10 pcs (items with "*" in ER40 section included)



	Ø	PRODUCT #	DESIGNATION
ER32	3/32	916-000-176	ER32C-0937
	1/8	916-000-179	ER32C-1250*
	5/32	916-000-183	ER32C-1562
	3/16	916-000-187	ER32C-1875*
	7/32	916-000-191	ER32C-2187
	1/4	916-000-193	ER32C-2500*
	9/32	916-000-194	ER32C-2812
	5/16	916-000-195	ER32C-3125*
	11/32	916-000-196	ER32C-3437
	3/8	916-000-197	ER32C-3750*
	13/32	916-000-199	ER32C-4062
	7/16	916-000-200	ER32C-4375*
	15/32	916-000-201	ER32C-4687
	1/2	916-000-203	ER32C-5000*
	17/32	916-000-204	ER32C-5312
	9/16	916-000-205	ER32C-5625*
	19/32	916-000-206	ER32C-5937
	5/8	916-000-208	ER32C-6250*
	21/32	916-000-209	ER32C-6562
11/16	916-000-210	ER32C-6875	
23/32	916-000-212	ER32C-7187	
3/4	916-000-213	ER32C-7500*	

	Ø	PRODUCT #	DESIGNATION
ER40	1/8	916-000-260	ER40C-1250*
	5/32	916-000-264	ER40C-1562
	3/16	916-000-268	ER40C-1875*
	7/32	916-000-272	ER40C-2187
	1/4	916-000-277	ER40C-2500*
	9/32	916-000-280	ER40C-2812
	5/16	916-000-281	ER40C-3125*
	11/32	916-000-282	ER40C-3437
	3/8	916-000-283	ER40C-3750*
	13/32	916-000-285	ER40C-4062
	7/16	916-000-286	ER40C-4375
	15/32	916-000-287	ER40C-4687
	1/2	916-000-289	ER40C-5000*
	17/32	916-000-290	ER40C-5312
	9/16	916-000-291	ER40C-5625
	19/32	916-000-292	ER405C-5937
	5/8	916-000-294	ER40C-6250*
	21/32	916-000-295	ER40C-6562
	11/16	916-000-296	ER40C-6875
	23/32	916-000-298	ER40C-7187
	3/4	916-000-299	ER40C-7500*
	13/16	916-000-301	ER40C-8125
	7/8	916-000-302	ER40C-8750*
	1	916-000-257	ER40C-1000*

IMPERIAL COLLETS SETS

PRODUCT #	DESIGNATION	Description
916-000-015	ER11CS	7 pcs (items with "*" in ER11 section included)
916-000-039	ER16CS	10 pcs (items with "*" in ER16 section included)
916-000-086	ER20CS	10 pcs (items with "*" in ER20 section included)
916-000-144	ER25CS	10 pcs (items with "*" in ER25 section included)
916-000-217	ER32CS	10 pcs (items with "*" in ER32 section included)
916-000-305	ER40CS	10 pcs (items with "*" in ER40 section included)



	Ø	PRODUCT #	DESIGNATION
ER11	1mm	916-000-006	ER11C-1MM*
	2mm	916-000-009	ER11C-2MM*
	3mm	916-000-010	ER11C-3MM*
	4mm	916-000-011	ER11C-4MM*
	5mm	916-000-012	ER11C-5MM*
	6mm	916-000-013	ER11C-6MM*
	7mm	916-000-014	ER11C-7MM
ER16	1mm	916-000-023	ER16C-1MM*
	2mm	916-000-027	ER16C-2MM*
	3mm	916-000-031	ER16C-3MM*
	4mm	916-000-033	ER16C-4MM*
	5mm	916-000-034	ER16C-5MM*
	6mm	916-000-035	ER16C-6MM*
	7mm	916-000-036	ER16C-7MM
	8mm	916-000-037	ER16C-8MM*
	9mm	916-000-038	ER16C-9MM
	10mm	916-000-019	ER16C-10MM*

	Ø	PRODUCT #	DESIGNATION
ER20	1mm	916-000-067	ER20C-1MM
	2mm	916-000-071	ER20C-2MM*
	3mm	916-000-075	ER20C-3MM*
	4mm	916-000-079	ER20C-4MM*
	5mm	916-000-081	ER20C-5MM*
	6mm	916-000-082	ER20C-6MM*
	7mm	916-000-083	ER20C-7MM
	8mm	916-000-084	ER20C-8MM*
	9mm	916-000-085	ER20C-9MM
	10mm	916-000-059	ER20C-10MM*
	11mm	916-000-060	ER20C-11MM
	12mm	916-000-062	ER20C-12MM*
	13mm	916-000-063	ER20C-13MM
	14mm	916-000-064	ER20C-14MM*
ER25	2mm	916-000-125	ER25C-2MM*
	3mm	916-000-129	ER25C-3MM*
	4mm	916-000-133	ER25C-4MM*
	5mm	916-000-138	ER25C-5MM*
	6mm	916-000-140	ER25C-6MM*
	7mm	916-000-141	ER25C-7MM
	8mm	916-000-142	ER25C-8MM*
	9mm	916-000-143	ER25C-9MM
	10mm	916-000-111	ER25C-10MM*
	11mm	916-000-112	ER25C-11MM
	12mm	916-000-114	ER25C-12MM*
	13mm	916-000-115	ER25C-13MM
	14mm	916-000-116	ER25C-14MM*
	15mm	916-000-118	ER25C-15MM
16mm	916-000-119	ER25C-16MM*	
17mm	916-000-120	ER25C-17MM	

METRIC COLLETS SETS

PRODUCT #	DESIGNATION	Description
916-000-016	ER11MCS	6 pcs (items with "*" in ER11 section included)
916-000-057	ER16MCS	8 pcs (items with "*" in ER16 section included)
916-000-110	ER20MCS	9 pcs (items with "*" in ER20 section included)
916-000-175	ER25MCS	10 pcs (items with "*" in ER25 section included)
916-000-256	ER32MCS	11 pcs (items with "*" in ER32 section included)
916-000-351	ER40MCS	14 pcs (items with "*" in ER40 section included)

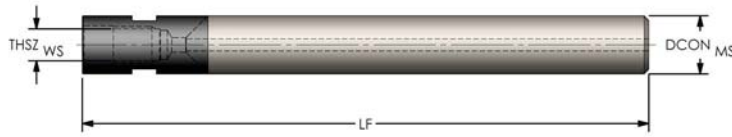


	Ø	PRODUCT #	DESIGNATION
ER32	3mm	916-000-198	ER32C-3MM*
	4mm	916-000-202	ER32C-4MM*
	5mm	916-000-207	ER32C-5MM*
	6mm	916-000-211	ER32C-6MM*
	7mm	916-000-214	ER32C-7MM
	8mm	916-000-215	ER32C-8MM*
	9mm	916-000-216	ER32C-9MM
	10mm	916-000-177	ER32C-10MM*
	11mm	916-000-178	ER32C-11MM
	12mm	916-000-180	ER32C-12MM*
	13mm	916-000-181	ER32C-13MM
	14mm	916-000-182	ER32C-14MM*
	15mm	916-000-184	ER32C-15MM
	16mm	916-000-185	ER32C-16MM*
	17mm	916-000-186	ER32C-17MM
	18mm	916-000-188	ER32C-18MM*
19mm	916-000-189	ER32C-19MM	
20mm	916-000-190	ER32C-20MM*	
21mm	916-000-192	ER32C-21MM	

	Ø	PRODUCT #	DESIGNATION
ER40	3mm	916-000-284	ER40C-3MM*
	4mm	916-000-288	ER40C-4MM*
	5mm	916-000-293	ER40C-5MM*
	6mm	916-000-297	ER40C-6MM*
	7mm	916-000-300	ER40C-7MM
	8mm	916-000-303	ER40C-8MM*
	9mm	916-000-304	ER40C-9MM
	10mm	916-000-258	ER40C-10MM*
	11mm	916-000-259	ER40C-11MM
	12mm	916-000-261	ER40C-12MM*
	13mm	916-000-262	ER40C-13MM
	14mm	916-000-263	ER40C-14MM*
	15mm	916-000-265	ER40C-15MM
	16mm	916-000-266	ER40C-16MM*
	17mm	916-000-267	ER40C-17MM
	18mm	916-000-269	ER40C-18MM*
	19mm	916-000-270	ER40C-19MM
	20mm	916-000-271	ER40C-20MM*
	21mm	916-000-273	ER40C-21MM
	22mm	916-000-274	ER40C-22MM*
23mm	916-000-275	ER40C-23MM	
24mm	916-000-276	ER40C-24MM*	
25mm	916-000-278	ER40C-25MM	
26mm	916-000-279	ER40C-26MM*	

METRIC COLLETS SETS

PRODUCT #	DESIGNATION	Description
916-000-016	ER11MCS	6 pcs (items with "*" in ER11 section included)
916-000-057	ER16MCS	8 pcs (items with "*" in ER16 section included)
916-000-110	ER20MCS	9 pcs (items with "*" in ER20 section included)
916-000-175	ER25MCS	10 pcs (items with "*" in ER25 section included)
916-000-256	ER32MCS	11 pcs (items with "*" in ER32 section included)
916-000-351	ER40MCS	14 pcs (items with "*" in ER40 section included)

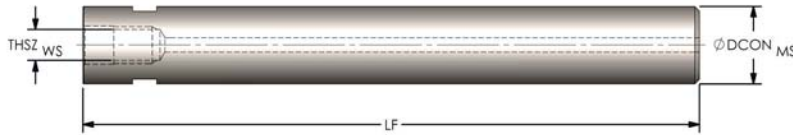


CARBIDE - WITH FLAT

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	THSZWS
942-000-003	CM06 L6.00-W.375*	0.375	6.000	M6
942-000-005	CM08 L5.00-W.500*	0.500	5.000	M8
942-000-007	CM08 L8.00-W.500*	0.500	8.000	M8
942-000-012	CM10 L7.00-W.750	0.750	7.000	M10
942-000-009	CM10 L10.00-W.750	0.750	10.000	M10
942-000-019	CM12 L7.00-W.750	0.750	7.000	M12
942-000-014	CM12 L10.00-W.750	0.750	10.000	M12
942-000-021	CM12 L8.00-W1.00	1.000	8.000	M12
942-000-016	CM12 L12.00-W1.00	1.000	12.000	M12
942-000-023	CM16 L14.00-W1.25*	1.250	14.000	M16
942-000-024	CM16 L14.00-W1.500*	1.500	14.000	M16

WITHOUT FLAT

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	THSZWS
942-000-006	CM08 L8.00-C.500*	0.500	8.000	M8
942-000-011	CM10 L7.00-C.750	0.750	7.000	M10
942-000-008	CM10 L10.00-C.750	0.750	10.000	M10
942-000-018	CM12 L7.00-C.750	0.750	7.000	M12
942-000-013	CM12 L10.00-C.750	0.750	10.000	M12
942-000-020	CM12 L8.00-C1.00	1.000	8.000	M12
942-000-015	CM12 L12.00-C1.00	1.000	12.000	M12
942-000-022	CM16 L14.00-C1.25*	1.250	14.000	M16



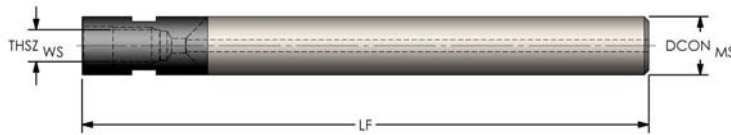
HEAVY METAL - WITH FLAT

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	THSZWS
942-000-026	HM06 L6.00-W.375*	0.375	6.000	M6
942-000-028	HM08 L6.00-W.500*	0.500	6.000	M8
942-000-031	HM12 L12.00-W.750*	0.750	12.000	M12
942-000-034	HM12 L8.00-W1.00*	1.000	8.000	M12
942-000-032	HM12 L12.00-W1.00*	1.000	12.000	M12
942-000-036	HM16 L12.00-W1.25*	1.250	12.000	M16
942-000-037	HM16 L12.00-W1.500*	1.500	12.000	M16

WITHOUT FLAT

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	THSZWS
942-000-025	HM06 L6.00-C.375*	0.375	6.000	M6
942-000-027	HM08 L6.00-C.500*	0.500	6.000	M8
942-000-029	HM12 L12.00-C.750*	0.750	12.000	M12
942-000-033	HM12 L8.00-C1.00*	1.000	8.000	M12
942-000-030	HM12 L12.00-C1.00*	1.000	12.000	M12
942-000-035	HM16 L12.00-C1.25*	1.250	12.000	M16

* Please allow up to 1 week for processing.



CARBIDE WITHOUT FLAT- METRIC

PRODUCT #	DESIGNATION	DCON MS [mm]	LF [mm]	THSZWS
942-000-001	CM06 L150MM-C10MM	10.00	150.00	M6
942-000-002	CM06 L180MM-C12MM	12.00	180.00	M6
942-000-004	CM08 L200MM-C16MM	16.00	200.00	M8
942-000-010	CM10 L250MM-C20MM	20.00	250.00	M10
942-000-017	CM12 L300MM-C25MM	25.00	300.00	M12

CHAPTER 2

NON-ROTATING

INSERTS

ARCH[®]
Cutting Tools

INSCRIBE CIRCLE SIZE

INCH	Diameter of Inscribed Circle (Inch)	METRIC						
		R	W	V	D	C	S	T
1.2 (5)	0.156		02		04	03	03	06
1.28	0.160							07
1.5 (6)	0.187		L3	08	05	04	04	08
1.8 (7)	0.219		03	09	06	05	05	09
2	0.250		04	11	07	06	06	11
2.5	0.313		05	13	09	08	07	13
3	0.375	09	06	16	11	09	09	16
4	0.500	12	08	22	15	12	12	22
5	0.625		10		19	16	15	27
6	0.750	19	13		23	19	19	33
08	8.00mm	08						
10	10.00mm	10						
12	12.00mm	12						
16	16.00mm	16						

*Exact tolerance is determined by the size of the insert

Shape	
A	Rectangle
C	80° Diamond
D	55° Diamond
S	Square
T	Triangle
V	35° Diamond
W	80° Trigon
R	Round

TOLERANCE	
Insert I.C.	Thickness
F = ± .002 to ± .004	± .002
G = ± .001	± .005
H = ± .005	± .001
K = ± .005	± .001
M = ± .002 to ± .007*	± .005



INCH	CORNER RADIUS	METRIC
0	.004	01
0.1	.002	--
0.5	.008	02
1	.015 (1/64)	04
2	.031 (1/32)	08
3	.046 (3/64)	12
4	.062 (1/16)	16

INCH	THICKNESS	METRIC
0.6	0.040	T0
0.75	0.046	-
1	1/16	01
1.2	5/64	T1
1.5	3/32	02
2	1/8	03
2.5	5/32	T3
3	3/16	04
4	1/4	06

CLEARANCE ANGLE	
B	5° Positive
C	7° Positive
D	15° Positive
N	0° Negative
P	11° Positive

TYPE	
A	With hole, without chipbreaker
B	Countersink on one side, with hole
G	Chipbreaker on both sides, with hole
T	Chipbreaker & ISO countersink one side, with hole
W	ISO Countersink on one side, with hole
X	Special Design

INSERT SPEEDS & FEEDS

Material	TURNING		MILLING		DRILLING	
	SFM	Inch/ Rev	SFM	Inch/ Rev	SFM	Inch/ Rev
P Mild Steel Annealed Alloy Steel Hardened Alloy Steel Cast Steel	490-1200	.004-.031	250-800	.003-.015	225-650	.0022-.006
	490-980		200-725		200-650	
	180-500		200-600		100-300	
	180-650		200-600		150-550	
M Stainless Steel	280-810	.004-.015	200-600	.003-.015	250-430	.002-.006
K Low Cast Iron High Cast Iron Cast Iron (CBN INSERTS)	590-1240	.004-.024	325-600	.004-.016	300-600	.0025-.009
	360-700		325-600		300-600	
	400-600	.002-.020				
N Alum. Alloy Un-heat Treated Alum. Alloy Heat Treated Cast Alum. & Copper Alloy	850-1980	.004-.018	860-1800	.007-.018	600-1100	.0038-.011
	550-1650		575-1230		315-790	
	360-950		280-930		250-760	
H Hardened Material (CBN INSERTS)	450-950	.002-.011				
S Heat Resistant Steels	100-300	.002-.006	100-300	.0024-.008	60-150	.0028-.008

CHIPBREAKER DESIGNATION

ISO	FINISHING	MEDIUM	ROUGHING
P	CX2, LX6, SP1, SP2, SX1, ZX3 CM1, CM3, CX2, LX6, ZM1	CX1, LX3, ZP1 CM1, CM2, LX3	CP2, LX2 LX2
M			
K	ZX3	ZK1, ZK2 CS1	
N	SX1, ZN1	CN1, LX2, LX3	
S	ZX3	ZK1, ZK2 CS1	

- Good
- ◐ Better
- Best

*HIGH PERFORMANCE GRADES

Grade	Description	Steel	Stainless Steel	Cast Iron	Ferrite Materials	Heat-Resistant	Steel Hardened Metal
		P	M	K	N	S	H
UD51	General purpose TiN (CVD) coated steel grade - used for roughing and semi-finishing of carbon alloy and stainless steel.	●	○	○		◐	
UD52	Tough general purpose steel grade with multi-layer titanium aluminum nitride coating for alloy steel, aluminum alloys, austenitic stainless and carbon steels, copper alloys and exotic alloys.	●	○			●	
HP230*	Productive steel turning grade under stable conditions.	●	○	◐			
HP250*	Universal steel turning grade-The best in efficiency and productivity.	●	○	◐			
UD21	Multi-layer titanium aluminum nitride grade. Excellent for machining cast iron.		◐	●			
HM240*	Stainless steel turning grade. Finishing to light roughing.	○	●		○		
HM250*	Turning grade for wide application in the stainless steel range. Finishing to roughing.	◐	●			○	
HS220*	Excellent for heat resistance and titanium alloys		○			●	
UD2	Uncoated - Used to cut cast iron, aluminum, non-ferrous alloys, non-metals and most high temp alloys. Provides excellent wear resistance.			○	◐		
HN432*	Ideal grade for aluminum. Low tendency for adhesion.			◐	●		
UD22	TiN coated insert. Suitable for semi-finishing and finishing of high temp alloys. Intended for cast iron machining.			●		◐	
UD32	TiAlN coated insert. Used in high speed medium load applications of stainless steel and finishing to semi-finishing of high temperature alloys.	◐	●	○	○	●	
HK036*	Stability in a wide range of applications with long tool life. First choice for turning cast iron.			●			
UD5C	Uncoated cermet grade for semi-finishing and finishing applications at medium to high cutting speeds on carbon and alloyed steels. Also used on stainless. Normally used without coolant.		○	○			
UD5CT	TiAlN coated cermet grade performs extremely well for semi-finish and finish applications in alloyed steels, stainless and high carbon steels.	●	◐	◐			
UD1	Uncoated – Designed with a polished surface and large rake angle, Intended for machining aluminum and other non-ferrous alloys. Also works well for semi machining on cast iron.		◐		●		
HP470*	Suitable for demanding steel milling applications, interrupted cut.	●	◐				
HM470*	Stainless steel milling grade. PVD, TiAlN coating.	◐	●				
HS470*	First choice for milling heat-resistant alloys.		○			●	
HS480*	Extremely heat-resistant tough grade for milling titanium.					●	
HK430*	Milling grade for cast iron.			●			
HP600*	Super tough substrate with PVD coating. Excellent for drilling steel and stainless steel.	●	◐	○	○	○	
HK356*	Stable cutting performance for drilling cast iron. Suitable for aluminum. Recommended for mild structural steel, difficult chip controlled steel.	◐	●	●	◐	◐	
HN300*	Drilling Grade for Aluminum				●		
UD2CBN	A Polycrystalline Cubic Boron Nitride (PCBN) Insert for cast iron, gray cast iron, chilled cast, and powder metal with long tool life. Coolant not recommended for use.			●			◐
UD5CBN	A Polycrystalline Cubic Boron Nitride (PCBN) Insert for precision finishing of hardened steels 50-65 rockwell. Coolant not recommended for use.			◐			●
UD2PCD	Polycrystalline Diamond with Carbide Reinforced Diamond, Sharpness and Low Cutting Pressure allowing tight tolerances. Finishing of all non-ferrous metals and non-metallics.				●		
UD25	Uncoated - Used to cut aluminum, brass, copper, nickel base alloys, titanium and non-ferrous materials.			○	○		
UD204	A PVD TiAlN coated fine grain substrate. Excellent for light to medium feeds on cast iron and semi-finishing to finishing of high temperature alloys. Excellent for high SFM.	◐		●		◐	
UD404	A PVD TiAlN coated tough general purpose grade. Well suited for milling alloy steels, stainless steel, high temperature alloy steels and hardened steels up to 60 Rc.	●	●	◐		●	
UD602	A CVD coating of Ti A1 ₂ O ₃ & TiN on a tough substrate. It is suitable for light to heavy milling of alloy steel and non alloy steel, even under unfavorable condition.	◐	◐			◐	



ZX3



CDGW Flat Top



CDHB Flat Top

PRODUCT #	DESIGNATION	Grade																
		HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1	
913-000-133	CDGT 1.510.5-ZX3								•									
913-000-134										•								
913-000-132											•							
913-000-131												•						
913-000-135													•					
913-000-136	CDGT 1.511-ZX3								•							•		
913-000-139										•								
913-000-140											•							
913-000-138												•						
913-000-137													•					
913-000-141	CDGW 1.510														•			
913-000-142																•		
913-000-145										•								
913-000-146											•							
913-000-144												•						
913-000-143	CDGW 1.510.5											•						
913-000-147													•					
913-000-148															•		•	
913-000-151										•								
913-000-152											•							
913-000-150	CDGW 1.511										•							
913-000-149												•						
913-000-153															•			
913-000-154																•		
913-000-157										•								•
913-000-158	CDHB 1.20.60									•								
913-000-156											•							
913-000-155												•						
913-000-159													•					
913-000-160														•				•
913-000-163	CDHB 1.20.60.5									•								
913-000-164											•							
913-000-162												•						
913-000-161													•					
913-000-165														•				
913-000-166	CDHB 1.20.60.5															•		
913-000-169																	•	
913-000-170											•							
913-000-168												•						
913-000-167													•					
913-000-171	CDHB 1.20.60.5														•			
913-000-172																•		

PACKAGE SIZE OF 10



CM1



CN1



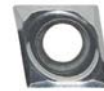
CX1



CX2



ZM1



ZN1



ZX3

PRODUCT #	DESIGNATION	Grade																
		HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1	
914-000-001	CCGT 21.50-CM1			•														
914-000-004	CCGT 32.50.5-CM1			•														
914-000-005	CCGT 32.50-CM1			•														
914-000-002	CCGT 21.50-CN1						•											
914-000-003	CCGT 21.51-CN1						•											
914-000-006	CCGT 32.51-CN1						•											
914-000-007	CCGT 32.52-CN1						•											
914-000-010	CCMT 21.51-CX1	•																
914-000-009					•													
914-000-011				•														
914-000-008	CCMT 21.52-CX1							•										
914-000-013				•														
914-000-012						•												
914-000-018	CCMT 32.51-CX1	•																
914-000-019				•														
914-000-017						•												
914-000-016	CCMT 32.52-CX1								•									
914-000-022				•														
914-000-023					•													
914-000-021	CCMT 431-CX1					•												
914-000-020																		
914-000-026					•													
914-000-025	CCMT 432-CX1					•												
914-000-024																		
914-000-028					•													
914-000-029	CCMT 432-CX1					•												
914-000-027																		
914-000-028																		
914-000-015	CCMT 32.50.5-CX2			•														
914-000-014						•												
913-000-076	CCMT 21.51-ZM1																•	
913-000-083	CCMT 32.50.5-ZM1																•	
913-000-087	CCMT 32.51-ZM1																•	
913-000-091	CCMT 32.52-ZM1																•	
913-000-095	CCMT 431-ZM1																•	
913-000-099	CCMT 432-ZM1																•	
913-000-072	CCGX 21.50.5-ZN1																x	
913-000-073	CCGX 21.51-ZN1																x	
913-000-074	CCGX 32.51-ZN1																x	
913-000-075	CCGX 32.52-ZN1																x	
913-000-078	CCMT 21.51-ZX3									•								
913-000-079												•						
913-000-077													•					
913-000-081	CCMT 21.52-ZX3									•								
913-000-082													•					
913-000-080														•				
913-000-085	CCMT 32.50.5-ZX3									•								
913-000-086														•				
913-000-084															•			
913-000-089	CCMT 32.51-ZX3									•								
913-000-090															•			
913-000-088																•		
913-000-093	CCMT 32.52-ZX3									•								
913-000-094																•		
913-000-092																	•	
913-000-097	CCMT 431-ZX3									•								
913-000-098																	•	
913-000-096																		•
913-000-101	CCMT 432-ZX3									•								
913-000-102																	•	
913-000-100																		•



LX6

PRODUCT #	DESIGNATION	Grade																
		HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1	
913-000-207	CPMT 1.81.20.5-LX6								•									
913-000-208										•								
913-000-206											•							
913-000-205												•						
913-000-209															•			
913-000-210																•		
913-000-213	CPMT 1.81.21-LX6								•									
913-000-214										•								
913-000-212											•							
913-000-211												•						
913-000-215															•			
913-000-216																•		
913-000-219	CPMT 21.50.5-LX6								•									
913-000-220										•								
913-000-218											•							
913-000-217												•						
913-000-221															•			
913-000-222																•		
913-000-225	CPMT 21.51-LX6								•									
913-000-226										•								
913-000-224											•							
913-000-223												•						
913-000-227															•			
913-000-228																•		
913-000-231	CPMT 21.52-LX6								•									
913-000-232										•								
913-000-230											•							
913-000-229												•						
913-000-233															•			
913-000-234																•		
913-000-237	CPMT 32.51-LX6								•									
913-000-238										•								
913-000-236											•							
913-000-235												•						
913-000-241	CPMT 32.52-LX6								•									
913-000-242										•								
913-000-240											•							
913-000-239												•						

PACKAGE SIZE OF 10



PRODUCT #	DESIGNATION	Grade															
		HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
914-000-049	DCGT 21.50-CM1			•													
914-000-052	DCGT 32.50-CM1			•													
914-000-050	DCGT 21.50-CN1						•										
914-000-051	DCGT 21.51-CN1						•										
914-000-053	DCGT 32.51-CN1						•										
914-000-054	DCGT 32.52-CN1						•										
914-000-059			•														
914-000-058	DCMT 21.51-CX1				•												
914-000-057							•										
914-000-061			•														
914-000-060	DCMT 21.52-CX1				•												
914-000-066		•															
914-000-067			•														
914-000-065	DCMT 32.51-CX1				•												
914-000-064							•										
914-000-070		•															
914-000-071	DCMT 32.52-CX1		•														
914-000-069					•												
914-000-068							•										
914-000-056	DCMT 21.50.5-CX2		•														
914-000-055					•												
914-000-063	DCMT 32.50.5-CX2		•														
914-000-062					•												
913-000-258								•									
913-000-259	DCMT 21.50.5-LX6								•								
913-000-257										•							
913-000-260	DCMT 21.50.5-ZM1												•				
913-000-261	DCMT 21.51-ZM1												•				
913-000-265	DCMT 32.51-ZM1												•				
913-000-269	DCMT 32.52-ZM1												•				
913-000-253	DCGX 21.50.5-ZN1																•
913-000-254	DCGX 21.51-ZN1																•
913-000-255	DCGX 32.51-ZN1																•
913-000-256	DCGX 32.52-ZN1																•
913-000-263								•									
913-000-264	DCMT 21.51-ZX3								•								
913-000-262										•							
913-000-267								•			•						
913-000-268	DCMT 32.51-ZX3								•								
913-000-266										•							
913-000-271								•									
913-000-272	DCMT 32.52-ZX3								•								
913-000-270										•							
913-000-302								•									
913-000-303									•								
913-000-300	DPMT 32.51-LX6									•							
913-000-299											•						
913-000-301												•					
913-000-307								•									
913-000-308									•								
913-000-305	DPMT 32.52-LX6									•							
913-000-304											•						
913-000-306												•					

PACKAGE SIZE OF 10



PRODUCT #	DESIGNATION	Grade															
		HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
914-000-130	SCGT 32.51-CN1						•										
914-000-133			•														
914-000-132	SCMT 32.51-CX1				•												
914-000-131								•									
914-000-136			•														
914-000-135	SCMT 32.52-CX1				•												
914-000-134								•									
914-000-138			•														
914-000-137	SCMT 431-CX1				•												
914-000-141			•														
914-000-140	SCMT 432-CX1				•												
914-000-139								•									
913-000-379									•								
913-000-380										•							
913-000-377	SCMT 21.51-LX6										•						
913-000-378												•					
913-000-381	SCMT 32.51-LX6											•					
913-000-385	SCMT 32.52-LX6											•					
913-000-382	SCMT 32.51-ZM1												•				
913-000-386	SCMT 32.52-ZM1												•				
913-000-374	SCGX 32.50.5-ZN1																•
913-000-375	SCGX 32.51-ZN1																•
913-000-376	SCGX 32.52-ZN1																•
913-000-383									•								
913-000-384	SCMT 32.51-ZX3									•							
913-000-387									•								
913-000-388	SCMT 32.52-ZX3									•							
913-000-389									•								
913-000-390	SCMT 431-ZX3									•							
913-000-391									•								
913-000-392	SCMT 432-ZX3									•							
913-000-396									•								
913-000-397										•							
913-000-394	SCMW 21.51										•						
913-000-393											•						
913-000-395												•					

PACKAGE SIZE OF 10



CX1



LX6



ZM1



ZN1



ZX3

PRODUCT #	DESIGNATION	Grade															
		HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
914-000-151			•														
914-000-150	TCMT 21.51-CX1				•												
914-000-149								•									
914-000-154			•														
914-000-153	TCMT 21.52-CX1				•												
914-000-152								•									
914-000-157			•														
914-000-156	TCMT 32.51-CX1				•												
914-000-155								•									
914-000-160			•														
914-000-159	TCMT 32.52-CX1				•												
914-000-158								•									
913-000-437	TCMT 1.21.20.5-LX6								•								
913-000-438										•							
913-000-436												•					
913-000-439	TCMT 21.51-ZM1													•			
913-000-446	TCMT 32.51-ZM1													•			
913-000-451	TCMT 32.52-ZM1													•			
913-000-431	TCGX 21.50.5-ZN1																•
913-000-432	TCGX 21.51-ZN1																•
913-000-433	TCGX 21.52-ZN1																•
913-000-434	TCGX 32.51-ZN1																•
913-000-435	TCGX 32.52-ZN1																•
913-000-441									•								
913-000-442	TCMT 21.51-ZX3									•							
913-000-440											•						
913-000-444									•								
913-000-445	TCMT 21.52-ZX3									•							
913-000-443											•						
913-000-449									•								
913-000-450	TCMT 32.51-ZX3									•							
913-000-447											•						
913-000-448												•					
913-000-454									•								
913-000-455	TCMT 32.52-ZX3									•							
913-000-452												•					
913-000-453													•				

PACKAGE SIZE OF 10



LX6

PRODUCT #	DESIGNATION	Grade															
		HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
913-000-509	TPMT 21.51-LX6								•								
913-000-510										•							
913-000-508												•					
913-000-507												•					
913-000-513	TPMT 21.52-LX6								•								
913-000-514										•							
913-000-512												•					
913-000-511												•					
913-000-517	TPMT 32.51-LX6								•								
913-000-518										•							
913-000-516												•					
913-000-515												•					
913-000-521	TPMT 32.52-LX6								•								
913-000-522										•							
913-000-520												•					
913-000-519												•					



CP1



ZM1



ZX3

PRODUCT #	DESIGNATION	Grade															
		HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
914-000-175	VBMT 331-CP1		•														
914-000-176	VBMT 332-CP1		•														
913-000-539	VBMT 331-ZM1													•			
913-000-542	VBMT 332-ZM1													•			
913-000-535	VBMT 21.50.5-ZX3							•									
913-000-536									•								
913-000-537	VBMT 21.51-ZX3							•									
913-000-538									•								
913-000-540	VBMT 331-ZX3							•									
913-000-541									•								
913-000-543	VBMT 332-ZX3							•									
913-000-544									•								

PACKAGE SIZE OF 10



CX1



LX6



ZX3

PRODUCT #	DESIGNATION	Grade															
		HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
914-000-185	WCMT 21.51-CX1		•														
914-000-184					•												
914-000-187	WCMT 21.52-CX1		•														
914-000-186					•												
914-000-189	WCMT 32.51-CX1		•														
914-000-188					•												
914-000-191	WCMT 32.52-CX1		•														
914-000-190					•												
913-000-579	WCMT 21.51-LX6							•									
913-000-580									•								
913-000-578											•						
913-000-577	WCMT 21.52-LX6										•						
913-000-583								•									
913-000-584										•							
913-000-582	WCMT 32.51-LX6											•					
913-000-581													•				
913-000-587									•								
913-000-588	WCMT 32.52-LX6											•					
913-000-586														•			
913-000-585															•		
913-000-591	WCMT 32.51-LX6							•									
913-000-592									•								
913-000-590																	
913-000-589	WCMT 32.52-LX6																
913-000-563																	
913-000-564																	
913-000-562	WCMT 1.210.5-ZX3																
913-000-561																	
913-000-567																	
913-000-568	WCMT 1.211-ZX3																
913-000-566																	
913-000-565																	
913-000-571	WCMT 1.51.50.5-ZX3																
913-000-572																	
913-000-570																	
913-000-569	WCMT 1.51.51-ZX3																
913-000-575																	
913-000-576																	
913-000-574	WCMT 1.51.51-ZX3																
913-000-573																	

PACKAGE SIZE OF 10



PRODUCT #	DESIGNATION	Grade															
		HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
914-000-036	CNMG 321-CM2				•												
914-000-037	CNMG 322-CM2				•												
914-000-038	CNMG 431-CM2				•												
914-000-042	CNMG 432-CM2				•												
914-000-030	CNGP 431-CM3			•													
914-000-031	CNGP 432-CM3			•													
914-000-047	CNMG 543-CP2		•														
914-000-048	CNMG 643-CP2		•														
914-000-039	CNMG 431-CS1					•											
914-000-040	CNMG 431-CX1	•															
914-000-041	CNMG 432-CX1		•														
914-000-044	CNMG 433-CX1	•															
914-000-045	CNMG 432-CX1		•														
914-000-043	CNMG 433-CX1							•									
914-000-046	CNMG 433-CX1							•									
913-000-177	CNMG 321-ZK1										•						
913-000-181	CNMG 322-ZK1										•						
913-000-185	CNMG 431-ZK1										•						
913-000-189	CNMG 432-ZK1										•						
913-000-193	CNMG 542-ZK1										•						
913-000-196	CNMG 543-ZK1										•						
913-000-199	CNMG 642-ZK1										•						
913-000-202	CNMG 643-ZK1										•						
913-000-178	CNMG 321-ZM1													•			
913-000-182	CNMG 322-ZM1													•			
913-000-186	CNMG 431-ZM1													•			
913-000-190	CNMG 432-ZM1													•			
913-000-179	CNMG 321-ZP1								•								
913-000-180	CNMG 322-ZP1									•							
913-000-183	CNMG 322-ZP1								•								
913-000-184	CNMG 322-ZP1									•							
913-000-187	CNMG 431-ZP1								•								
913-000-188	CNMG 431-ZP1									•							
913-000-191	CNMG 432-ZP1								•								
913-000-192	CNMG 432-ZP1									•							
913-000-194	CNMG 542-ZP1								•								
913-000-195	CNMG 542-ZP1									•							
913-000-197	CNMG 543-ZP1								•								
913-000-198	CNMG 543-ZP1									•							
913-000-200	CNMG 642-ZP1								•								
913-000-201	CNMG 642-ZP1									•							
913-000-203	CNMG 643-ZP1								•								
913-000-204	CNMG 643-ZP1									•							
914-000-032	CNMA 432																
914-000-033	CNMA 433																
914-000-034	CNMA 543																
914-000-035	CNMA 643																

PACKAGE SIZE OF 10



PRODUCT #	DESIGNATION	Grade															
		HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
914-000-075	DNMG 331-CM2				•												
914-000-077	DNMG 332-CM2				•												
914-000-079	DNMG 431-CM2				•												
914-000-081	DNMG 432-CM2				•												
914-000-072	DNGP 431-CM3			•													
914-000-076	DNMG 331-CX1		•														
914-000-078	DNMG 332-CX1		•														
914-000-080	DNMG 431-CX1		•														
914-000-082	DNMG 432-CX1		•														
913-000-294									•								
913-000-295	DNMG 542-LX2									•							
913-000-293											•						
913-000-297									•								
913-000-298	DNMG 543-LX2									•							
913-000-296											•						
913-000-277	DNMG 331-ZM1													•			
913-000-281	DNMG 332-ZM1													•			
913-000-285	DNMG 431-ZM1													•			
913-000-289	DNMG 432-ZM1													•			
913-000-278									•								
913-000-279	DNMG 331-ZP1									•							
913-000-282									•								
913-000-283	DNMG 332-ZP1									•							
913-000-286									•								
913-000-287	DNMG 431-ZP1									•							
913-000-287									•								
913-000-290	DNMG 432-ZP1								•								
913-000-291										•							
913-000-280	DNMG 331-ZX2										•						
913-000-284	DNMG 332-ZX2										•						
913-000-288	DNMG 431-ZX2										•						
913-000-292	DNMG 432-ZX2										•						
914-000-073	DNMA 431								•								
914-000-074	DNMA 432								•								

PACKAGE SIZE OF 10



LX2



RNMA Flat Top

PRODUCT #	DESIGNATION	Grade															
		HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
913-000-363									•								
913-000-364	RNMG 32-LX2									•							
913-000-362											•						
913-000-366									•								
913-000-367	RNMG 43-LX2									•							
913-000-365											•						
913-000-369									•								
913-000-370	RNMG 54-LX2									•							
913-000-368											•						
913-000-372									•								
913-000-373	RNMG 64-LX2										•						
913-000-371											•						
914-000-129	RNMA 43								•								

PACKAGE SIZE OF 10



CP2



CS1



CX1



ZK1



ZM1



ZP1



ZX2



SNMA Flat Top

PRODUCT #	DESIGNATION	Grade															
		HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
914-000-147	SNMG 543-CP2		•														
914-000-148	SNMG 643-CP2		•														
914-000-144	SNMG 432-CS1					•											
914-000-146			•														
914-000-145	SNMG 432-CX1						•										
913-000-411	SNMG 643-ZK1										•						
913-000-414	SNMG 644-ZK1										•						
913-000-398	SNMG 431-ZM1												•				
913-000-402	SNMG 432-ZM1												•				
913-000-399								•									
913-000-400	SNMG 431-ZP1							•	•								
913-000-403								•									
913-000-404	SNMG 432-ZP1							•	•								
913-000-406								•									
913-000-407	SNMG 542-ZP1							•	•								
913-000-408								•									
913-000-409	SNMG 543-ZP1							•	•								
913-000-412								•									
913-000-413	SNMG 643-ZP1							•	•								
913-000-415								•									
913-000-416	SNMG 644-ZP1							•	•								
913-000-401	SNMG 431-ZX2										•						
913-000-405	SNMG 432-ZX2										•						
913-000-410	SNMG 543-ZX2										•						
914-000-142	SNMA 432							•									
914-000-143	SNMA 543							•									

PACKAGE SIZE OF 10



CM2



CS1



CX1



LX2



ZM1



ZP1



ZX2



TNMA Flat Top

PRODUCT #	DESIGNATION	Grade															
		HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
914-000-164	TNMG 331-CM2				•												
914-000-167	TNMG 332-CM2				•												
914-000-168	TNMG 332-CS1					•											
914-000-165		•															
914-000-166	TNMG 331-CX1		•														
914-000-170		•															
914-000-171	TNMG 332-CX1		•														
914-000-169								•									
914-000-172	TNMG 431-CX1		•														
914-000-174			•														
914-000-173	TNMG 432-CX1							•									
913-000-490									•								
913-000-491	TNMG 542-LX2									•							
913-000-489											•						
913-000-493									•								
913-000-494	TNMG 543-LX2									•							
913-000-492											•						
913-000-473	TNMG 331-ZM1											•					
913-000-477	TNMG 332-ZM1											•					
913-000-481	TNMG 431-ZM1											•					
913-000-485	TNMG 432-ZM1											•					
913-000-474								•									
913-000-475	TNMG 331-ZP1								•								
913-000-478										•							
913-000-479	TNMG 332-ZP1									•							
913-000-482											•						
913-000-483	TNMG 431-ZP1									•							
913-000-486									•								
913-000-487	TNMG 432-ZP1									•							
913-000-476											•						
913-000-480	TNMG 332-ZX2										•						
913-000-484	TNMG 431-ZX2										•						
913-000-488	TNMG 432-ZX2										•						
914-000-161	TNMA 332							•									
914-000-162	TNMA 432							•									
914-000-163	TNMA 543							•									

PACKAGE SIZE OF 10



PRODUCT #	DESIGNATION	Grade															
		HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
914-000-180	VNMG 332-CM2				•												
914-000-181	VNMG 332-CS1					•											
914-000-178	VNMG 331-CX1	•															
914-000-179		•															
914-000-182	VNMG 332-CX1	•															
914-000-183		•															
913-000-559	VNMG 432-LX3							•									
913-000-560									•								
913-000-558										•							
913-000-557											•						
913-000-549	VNMG 331-ZM1													•			
913-000-553	VNMG 332-ZM1													•			
913-000-551	VNMG 331-ZX2							•									
913-000-552		•															
913-000-550	VNMG 332-ZX2							•									
913-000-555		•															
913-000-556		•															
913-000-554	VNMA 332									•							
914-000-177																	

PACKAGE SIZE OF 10



PRODUCT #	DESIGNATION	Grade															
		HP230	HP250	HM240	HM250	HS220	HN432	HK036	UD51	UD52	UD21	UD2	UD22	UD32	UD5C	UD5CT	UD1
914-000-199	WNMG 432-CM2				•												
914-000-200	WNMG 432-CS1					•											
914-000-193	WNMG 331-CX1	•															
914-000-194		•															
914-000-195	WNMG 332-CX1	•															
914-000-196		•															
914-000-197	WNMG 431-CX1	•															
914-000-198		•															
914-000-202	WNMG 432-CX1	•															
914-000-203		•															
914-000-201	WNMG 433-CX1							•									
914-000-204		•															
913-000-618	WNMG 331-ZM1													•			
913-000-622	WNMG 332-ZM1													•			
913-000-626	WNMG 431-ZM1													•			
913-000-631	WNMG 432-ZM1													•			
913-000-619	WNMG 331-ZP1							•									
913-000-620		•															
913-000-623	WNMG 332-ZP1							•									
913-000-624		•															
913-000-627	WNMG 431-ZP1							•									
913-000-628		•															
913-000-632	WNMG 432-ZP1							•									
913-000-633		•															
913-000-621	WNMG 331-ZX2																•
913-000-625	WNMG 332-ZX2																•
913-000-629	WNMG 431-ZX2																•
913-000-634	WNMG 432-ZX2																•
914-000-192	WNMA 432									•							

PACKAGE SIZE OF 10



PRODUCT #	Designation	UD5CBN	UD2CBN	UD2PCD
913-000-062		•		
913-000-060	CCGW 21.51-1		•	
913-000-061				•
913-000-065		•		
913-000-063	CCGW 21.52-1		•	
913-000-064				•
913-000-068		•		
913-000-066	CCGW 32.51-2		•	
913-000-067				•
913-000-071		•		
913-000-069	CCGW 32.52-2		•	
913-000-070				•
913-000-174	CNGA 431-2	•		
913-000-173			•	
913-000-176	CNGA 432-2	•		
913-000-175			•	
913-000-248		•		
913-000-246	DCGW 21.51-1		•	
913-000-247				•
913-000-250	DCGW 32.51-2	•		
913-000-249			•	
913-000-252	DCGW 32.52-2	•		
913-000-251			•	
913-000-274	DNGA 431-2	•		
913-000-273			•	
913-000-276	DNGA 432-2	•		
913-000-275			•	

PACKAGE SIZE OF 1



PRODUCT #	Designation	UD51	UD25
913-000-460	TDHB 1.280.750.1	•	
913-000-459			•
913-000-462	TDHB 1.280.750.5	•	
913-000-461			•
913-000-464	TDHB 1.280.751	•	
913-000-463			•
913-000-495	TPCB 220.5	•	
913-000-496			•
913-000-498	TPCB 221	•	
913-000-497			•
913-000-500	TPCB 222	•	
913-000-499			•
913-000-501	TPCH 220.5-SP1	•	
913-000-502	TPCH 221-SP1	•	
913-000-456	TD 320.5	•	
913-000-457	TD 321	•	
913-000-458	TD 322	•	
913-000-504	TPGH 321-SX1	•	
913-000-503			•
913-000-506	TPGH 322-SX1	•	
913-000-505			•

PACKAGE SIZE OF 10



PRODUCT #	Designation	UD5CBN	UD2CBN	UD2PCD
913-000-420	TCGW 21.51-1		•	
913-000-421				•
913-000-424	TCGW 21.52-1	•		
913-000-422			•	
913-000-423				•
913-000-427	TCGW 32.51-1	•		
913-000-425			•	
913-000-426				•
913-000-430	TCGW 32.52-1	•		
913-000-428			•	
913-000-429				•
913-000-466	TNGA 331-1	•		
913-000-465			•	
913-000-468	TNGA 332-1	•		
913-000-467			•	
913-000-531	VBGW 21.51-1			•
913-000-532	VBGW 21.52-1			•
913-000-533	VBGW 331-1			•
913-000-534	VBGW 332-1			•
913-000-546	VNGA 331-2	•		
913-000-545			•	
913-000-548	VNGA 332-2	•		
913-000-547			•	

PACKAGE SIZE OF 1



PRODUCT #	Designation	UD51
913-000-637	WPGT 1.510-SP2	UD51
913-000-636	WPGT 1.510.5-SP2	
913-000-638	WPGT 1.511-SP2	
913-000-640	WPGT 21.50-SP2	
913-000-639	WPGT 21.50.5-SP2	
913-000-641	WPGT 21.51-SP2	
913-000-642	WPMT 32.51-SP2	
913-000-643	WPMT 32.52-SP2	

PACKAGE SIZE OF 10



CCGT



DCGT



PRODUCT #	DESIGNATION	UD2PCD
913-000-056	CCGT 21.51-CB-1 *	
913-000-057	CCGT 21.52-CB-1 *	
913-000-058	CCGT 32.51-CB-1 *	
913-000-059	CCGT 32.52-CB-1 *	
913-000-243	DCGT 21.51-CB-1 *	
913-000-244	DCGT 32.51-CB-1 *	
913-000-245	DCGT 32.52-CB-1 *	

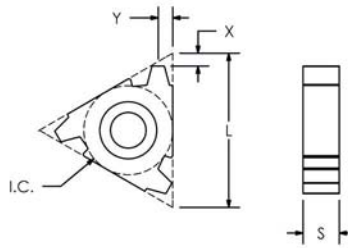
PACKAGE SIZE OF 1

PRODUCT #	DESIGNATION	UD2PCD
913-000-529	VBGT 331-CB-1 *	
913-000-530	VBGT 332-CB-1 *	

PACKAGE SIZE OF 1

PRODUCT #	Designation	UD2PCD
913-000-417	TCGT 21.51-CB-1 *	
913-000-418	TCGT 32.51-CB-1 *	
913-000-419	TCGT 32.52-CB-1 *	

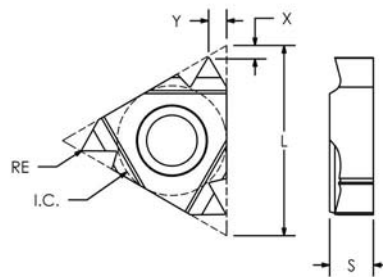
PACKAGE SIZE OF 1



AMERICAN ACME

PRODUCT #	DESIGNATION RIGHT HAND	PRODUCT #	DESIGNATION LEFT HAND	I.C. [in.]	L [in.]	S [in.]	Pitch [tpi]	X [in.]	Y [in.]	Anvil Right	Anvil Left	UD51
913-000-017	3IR16ACME	913-000-005	3IL16ACME	3/8"	0.630	0.156	16	0.040	0.040	Y13	YE3	
913-000-018	3IR14ACME	913-000-006	3IL14ACME	3/8"	0.630	0.156	14	0.040	0.050	Y13	YE3	
913-000-019	3IR12ACME	913-000-007	3IL12ACME	3/8"	0.630	0.156	12	0.050	0.050	Y13	YE3	
913-000-020	3IR10ACME	913-000-008	3IL10ACME	3/8"	0.630	0.156	10	0.050	0.050	Y13	YE3	
913-000-021	3IR8ACME	913-000-009	3IL8ACME	3/8"	0.630	0.156	8	0.060	0.060	Y13	YE3	

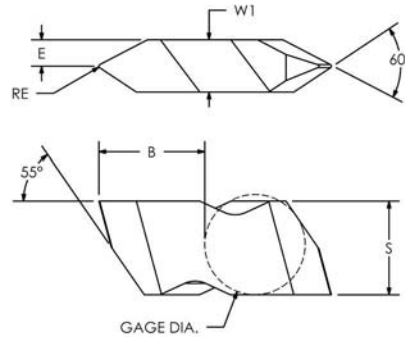
PACKAGE SIZE OF 10



PARTIAL PROFILE 60°

PRODUCT #	DESIGNATION RIGHT HAND	PRODUCT #	DESIGNATION LEFT HAND	I.C. [in.]	L [in.]	S [in.]	Pitch [mm]	Pitch [tpi]	RE [in.]	X [in.]	Y [in.]	Anvil Right	Anvil Left	UD51
913-000-004	2JIRA60	913-000-002	2JILA60	1/4"	0.630	0.125	0.7-1.50	36-18	0.004	0.040	0.045	Y13	YE3	
913-000-003	2JIR12UN	913-000-001	2JIL12UN	1/4"	0.630	0.125	1.0-2.00	28-12	0.004	0.030	0.035	Y13	YE3	
913-000-022	3IRA60	913-000-010	3ILA60	3/8"	0.630	0.156	0.05-1.50	48-16	0.002	0.030	0.040	Y13	YE3	
913-000-023	3IRG60	913-000-011	3ILG60	3/8"	0.630	0.156	1.75-3.00	14-8	0.006	0.050	0.070	Y13	YE3	
913-000-024	3IRAG60	913-000-012	3ILAG60	3/8"	0.630	0.156	0.05-3.00	48-8	0.002	0.050	0.070	Y13	YE3	
913-000-025	3JIRA60	N/A	N/A	3/8" SCB	0.630	0.156	0.05-1.50	48-16	0.002	0.020	0.030	Y13	N/A	
913-000-026	3JIRG60	N/A	N/A	3/8" SCB	0.630	0.156	1.75-3.00	14-8	0.006	0.040	0.060	Y13	N/A	
913-000-027	3JIRAG60	N/A	N/A	3/8" SCB	0.630	0.156	0.05-3.00	48-8	0.002	0.040	0.060	Y13	N/A	

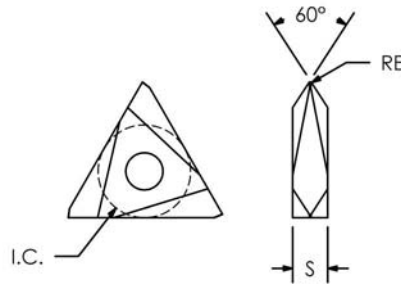
PACKAGE SIZE OF 10



TOP NOTCH THREADING

PRODUCT #	DESIGNATION RIGHT HAND	PRODUCT #	DESIGNATION LEFT HAND	S [in.]	W1 [in.]	E [in.]	RE [in.]	Ext. TPI	Int. TPI	B [in.]	GAGE DIA. [in.]	UD51
913-000-332	NTP-2R	913-000-331	NTP-2L	0.219	0.150	0.075	0.003/0.005	8-36	1-20	0.266	0.187	
913-000-334	NTP-3R	913-000-333	NTP-3L	0.344	0.195	0.098	0.005/0.008	6-20	5-12	0.400	0.375	
913-000-336	NTP-4R	913-000-335	NTP-4L	0.453	0.255	0.128	0.005/0.008	4-20	4-12	0.629	0.375	

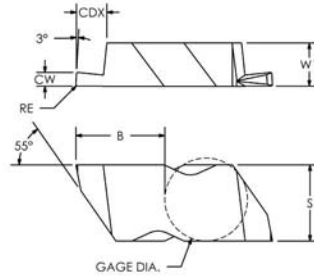
PACKAGE SIZE OF 1



ON EDGE

PRODUCT #	DESIGNATION RIGHT HAND	I.C. [in.]	S [in.]	RE [in.]	TPI	UD51
913-000-469	TNMA-43NV	0.500	0.187	0.003/0.005	5-24	
913-000-470	TNMA-43NV .010	0.500	0.187	0.001	4-20	
913-000-471	TNMC-43NV	0.500	0.187	0.003/0.005	5-24	
913-000-472	TNMC-43NV .010	0.500	0.187	0.001	4-20	

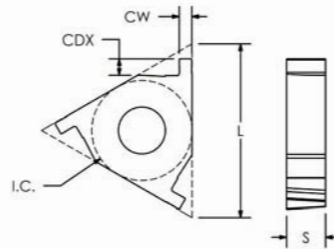
PACKAGE SIZE OF 1



TOP NOTCH GROOVING

PRODUCT #	DESIGNATION RIGHT HAND	PRODUCT #	DESIGNATION LEFT HAND	S [in.]	B [in.]	CDX [in.]	RE [in.]	W1 [in.]	CW [in.]	GAGE DIA. [in.]	UD51
913-000-312	NG-2R W.031	913-000-309	NG-2L W.031	0.219	0.270	0.050	0.002 / 0.005	0.150	0.031	0.187	
913-000-313	NG-2R W.062	913-000-310	NG-2L W.062	0.219	0.270	0.110	0.005 / 0.010	0.150	0.062	0.187	
913-000-314	NG-2R W.094	913-000-311	NG-2L W.094	0.219	0.270	0.110	0.005 / 0.010	0.150	0.094	0.187	
913-000-318	NG-3R W.062	913-000-315	NG-3L W.062	0.344	0.405	0.120	0.005 / 0.010	0.195	0.062	0.375	
913-000-319	NG-3R W.094	913-000-316	NG-3L W.094	0.344	0.405	0.180	0.005 / 0.010	0.195	0.094	0.375	
913-000-320	NG-3R W.125	913-000-317	NG-3L W.125	0.344	0.405	0.180	0.005 / 0.010	0.195	0.125	0.375	
913-000-324	NG-4R W.125	913-000-321	NG-4L W.125	0.453	0.636	0.250	0.005 / 0.010	0.255	0.125	0.375	
913-000-325	NG-4R W.189	913-000-322	NG-4L W.189	0.453	0.636	0.250	0.020 / 0.025	0.255	0.189	0.375	
913-000-326	NG-4R W.250	913-000-323	NG-4L W.250	0.453	0.636	0.250	0.020 / 0.025	0.255	0.250	0.375	
913-000-327	NG-6R W.281	913-000-329	NG-6L W.281	0.453	0.636	0.250	0.030 / 0.035	0.383	0.281	0.375	
913-000-328	NG-6R W.375	913-000-330	NG-6L W.375	0.453	0.636	0.250	0.030 / 0.035	0.383	0.375	0.375	

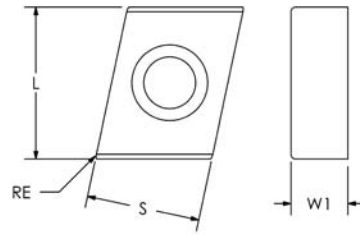
PACKAGE SIZE OF 1



GROOVING

PRODUCT #	DESIGNATION RIGHT HAND	I.C. [in.]	S [in.]	CW [in.]	CDX [in.]	Anvil Right	UD51
913-000-013	3IR NG W.031	3/8"	0.156	0.031	0.050	Y13M-1.5N	
913-000-014	3IR NG W.047	3/8"	0.156	0.047	0.070	Y13M-1.5N	
913-000-015	3IR NG W.062	3/8"	0.156	0.062	0.080	Y13M-1.5N	
913-000-016	3IR NG W.093	3/8"	0.156	0.093	0.070	Y13	

PACKAGE SIZE OF 10



PRODUCT #	DESIGNATION RIGHT HAND	PRODUCT #	DESIGNATION LEFT HAND	L [in.]	RE [in.]	S [in.]	W [in.]	UD501	UD502	UD201	UD202	UD207	UD101
913-000-111	CDE-323R02	913-000-103	CDE-323L02	0.500	0.015	0.375	0.1875				•		
913-000-112		913-000-104		0.500	0.015	0.375	0.1875					•	
913-000-113	CDE-323R05	913-000-105	CDE-323L05	0.500	0.031	0.375	0.1875						•
913-000-114		913-000-106		0.500	0.031	0.375	0.1875			•			
913-000-115		913-000-107		0.500	0.031	0.375	0.1875				•		
913-000-116		913-000-108		0.500	0.031	0.375	0.1875					•	
913-000-117		913-000-109		0.500	0.031	0.375	0.1875	•					
913-000-118		913-000-110		0.500	0.031	0.375	0.1875		•				
913-000-124	CDE-8X3R05	913-000-119	CDE-8X3L05	0.875	0.031	0.375	0.230						•
913-000-127		913-000-120		0.875	0.031	0.375	0.230				•		
913-000-128		913-000-121		0.875	0.031	0.375	0.230					•	
913-000-129		913-000-122		0.875	0.031	0.375	0.230	•					
913-000-130		913-000-123		0.875	0.031	0.375	0.230		•				

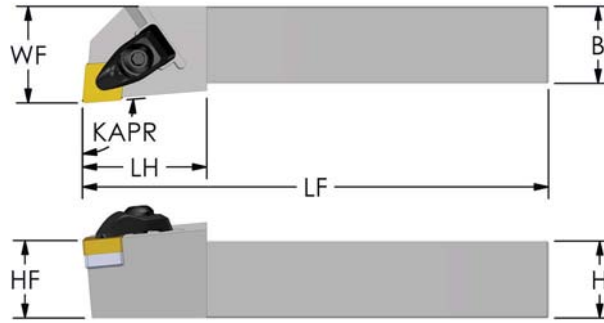
- Good
- ◐ Better
- Best

Grade	Description
UD501	TiN Coated Steel Milling Grade
UD502	TiAlN Coated Steel Milling Grade
UD201	TiN Coated Cast Iron Grade
UD202	TiAlN Coated Cast Iron Grade.
UD207	Supreme AlTiN Based Coated For High Wear Resistance
UD101	Coated Milling Insert for machining Aluminum. Excellent when machining all non-Ferrous Material.

	Steel	Stainless Steel	Cast Iron	Ferrite Materials	Heat-Resistant	Steel Hardened Metal
	P	M	K	N	S	H
UD501	●	○	○		◐	
UD502	●	○			●	
UD201		○	●			
UD202		○	●			
UD207		○	●		○	
UD101				●		

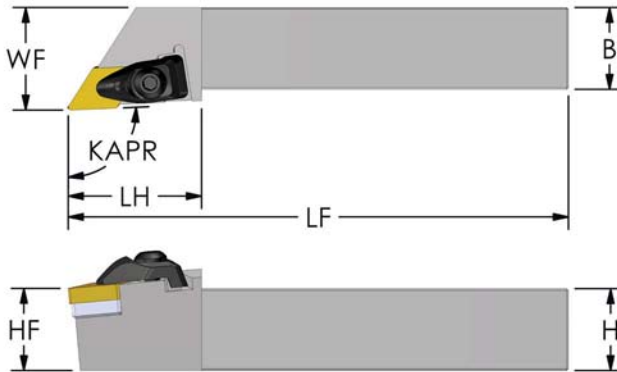
OD TURNING

ARCH[®]
Cutting Tools



NEGATIVE 80° DIAMOND (KAPR: 95°)

PRODUCT # Left Hand	PRODUCT # RIGHT HAND	DESIGNATION	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim	Shim Screw	Clamp Assy
974-000-001	974-000-004	DCLNR/L 12-4B	0.750	0.750	4.500	1.300	1.000	0.750	95.0	CNMG 432	ICSN-433	PB4-SS	PB4-CA
974-000-002	974-000-005	DCLNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	95.0	CNMG 432	ICSN-433	PB4-SS	PB4-CA
974-000-003	974-000-006	DCLNR/L 20-4D	1.250	1.250	6.000	1.600	1.500	1.250	95.0	CNMG 432	ICSN-433	PB4-SS	PB4-CA



NEGATIVE 55° DIAMOND (KAPR: 93°)

PRODUCT # Left Hand	PRODUCT # RIGHT HAND	DESIGNATION	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim	Shim Screw	Clamp Assy
974-000-007	974-000-010	DDJNR/L 12-4B	0.750	0.750	4.500	1.770	1.000	0.750	93.0	DNMG 432	IDSN-433	PB4-SS	PB4-CA
974-000-008	974-000-011	DDJNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	93.0	DNMG 432	IDSN-433	PB4-SS	PB4-CA
974-000-009	974-000-012	DDJNR/L 20-4D	1.250	1.250	6.000	1.600	1.500	1.250	93.0	DNMG 432	IDSN-433	PB4-SS	PB4-CA

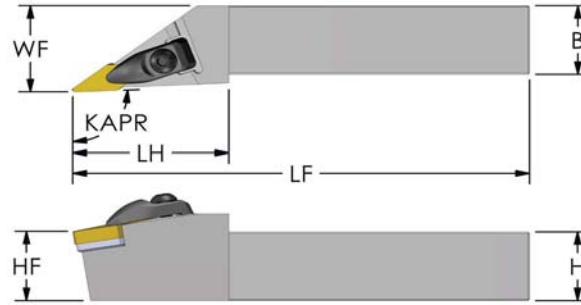
PRODUCT #	Shim Seat
968-000-053	ICSN-433
968-000-054	ICSN-533
968-000-055	ICSN-633
968-000-063	ISSN-432
968-000-064	ISSN-433
968-000-065	ISSN-533
968-000-066	ISSN-633
968-000-056	IDSN-322
968-000-057	IDSN-433
968-000-058	IDSN-533
968-000-067	ITSN-323
968-000-068	ITSN-433

PRODUCT #	Shim Seat
968-000-069	ITSN-533
968-000-070	ITSN-636
968-000-071	IVSN-322
968-000-072	IVSN-432
968-000-073	IVSN-433
968-000-074	IWSN-322
968-000-075	IWSN-433
968-000-059	IRSN-32
968-000-060	IRSN-43
968-000-061	IRSN-53
968-000-062	IRSN-63

PRODUCT #	Lock Pin
968-000-097	NL-33
968-000-098	NL-33L
968-000-099	NL-34
968-000-100	NL-34L
968-000-101	NL-44
968-000-102	NL-46
968-000-103	NL-56
968-000-104	NL-58
968-000-105	NL-68
968-000-106	NL-68L

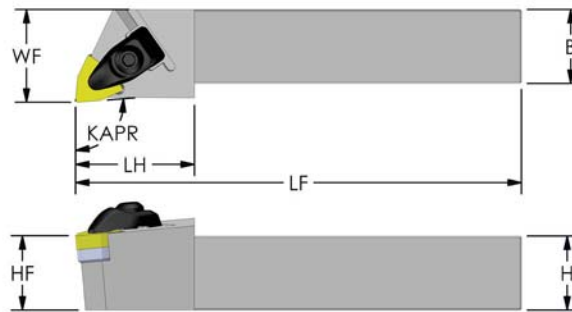
PACKAGE SIZE OF 5

PACKAGE SIZE OF 10



NEGATIVE 35° DIAMOND (KAPR: 93°)

PRODUCT # Left Hand	PRODUCT # RIGHT HAND	DESIGNATION	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim	Shim Screw	Clamp Assy
974-000-013	974-000-016	DVJNR/L 12-3B	0.750	0.750	4.500	1.770	1.000	0.750	93.0	VNMG 332	IVSN-322	PB3-SS	PB3L-CA
974-000-014	974-000-017	DVJNR/L 16-3D	1.000	1.000	6.000	1.600	1.250	1.000	93.0	VNMG 332	IVSN-322	PB3-SS	PB3L-CA
974-000-015	974-000-018	DVJNR/L 20-3D	1.250	1.250	6.000	1.600	1.500	1.250	93.0	VNMG 332	IVSN-322	PB3-SS	PB3L-CA



NEGATIVE TRIGON (KAPR: 95°)

PRODUCT # Left Hand	PRODUCT # RIGHT HAND	DESIGNATION	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim	Shim Screw	Clamp Assy
974-000-019	974-000-022	DWLNRL 12-4B	0.750	0.750	4.500	1.300	1.000	0.750	95.0	WNMG 432	IWSN-433	PB4-SS	PB4-CA
974-000-020	974-000-023	DWLNRL 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	95.0	WNMG 432	IWSN-433	PB4-SS	PB4-CA
974-000-021	974-000-024	DWLNRL 20-4D	1.250	1.250	6.000	1.600	1.500	1.250	95.0	WNMG 432	IWSN-433	PB4-SS	PB4-CA

PRODUCT #	Clamp
968-000-016	CL-6
968-000-017	CL-7
968-000-020	CL-9
968-000-010	CL-12
968-000-011	CL-19
968-000-012	CL-20

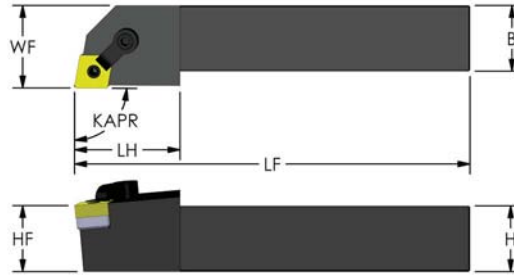
PRODUCT #	Clamp
968-000-013	CL-21
968-000-014	CL-22
968-000-015	CL-30
968-000-018	CL-84
968-000-019	CL-85

PACKAGE SIZE OF 1

PRODUCT #	Clamp Screw
968-000-176	XNS-36
968-000-177	XNS-47
968-000-178	XNS-48
968-000-179	XNS-510
968-000-180	XNS-58
968-000-181	XNS-59

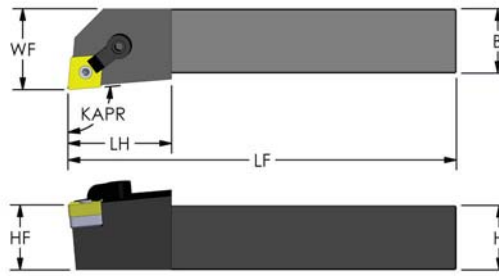
PACKAGE SIZE OF 5

ULTRA-DEX[®]



NEGATIVE 80° DIAMOND (KAPR: 90°)

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim	Lock Pin	Clamp	Screw
974-000-029	974-000-038	MCGNR/L 12-4B	0.750	0.750	4.500	1.300	1.000	0.750	90.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-030	974-000-039	MCGNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	90.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-032	974-000-041	MCGNR/L 20-4D	1.250	1.250	6.000	1.600	1.500	1.250	90.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-035	974-000-044	MCGNR/L 24-4D	1.500	1.500	6.000	1.600	2.000	1.500	90.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-031	974-000-040	MCGNR/L 16-5D	1.000	1.000	6.000	1.600	1.250	1.000	90.0	CNMG 543	ICSN-533	NL-58	CL-12	XNS-510
974-000-033	974-000-042	MCGNR/L 20-5D	1.250	1.250	6.000	1.600	1.500	1.250	90.0	CNMG 543	ICSN-533	NL-58	CL-12	XNS-510
974-000-036	974-000-045	MCGNR/L 24-5D	1.500	1.500	6.000	1.600	2.000	1.500	90.0	CNMG 543	ICSN-533	NL-58	CL-12	XNS-510
974-000-034	974-000-043	MCGNR/L 20-6D	1.250	1.250	6.000	1.600	1.500	1.250	90.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510
974-000-037	974-000-046	MCGNR/L 24-6D	1.500	1.500	6.000	1.600	2.000	1.500	90.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510



NEGATIVE 80° DIAMOND (KAPR: 95°)



PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim	Lock Pin	Clamp	Screw
974-000-065	974-000-075	MCLNR/L 12-4B	0.750	0.750	4.500	1.300	1.000	0.750	95.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-066	974-000-076	MCLNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	95.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-069	974-000-079	MCLNR/L 20-4D	1.250	1.250	6.000	1.600	1.500	1.250	95.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-067	974-000-077	MCLNR/L 16-5D	1.000	1.000	6.000	1.600	1.250	1.000	95.0	CNMG 543	ICSN-533	NL-58	CL-12	XNS-510
974-000-070	974-000-080	MCLNR/L 20-5D	1.250	1.250	6.000	1.600	1.570	1.250	95.0	CNMG 543	ICSN-533	NL-58	CL-12	XNS-510
974-000-072	974-000-082	MCLNR/L 24-5D	1.500	1.500	6.000	1.600	2.000	1.500	95.0	CNMG 543	ICSN-533	NL-58	CL-12	XNS-510
974-000-068	974-000-078	MCLNR/L 16-6D	1.000	1.000	6.000	1.600	1.250	1.000	95.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510
974-000-071	974-000-081	MCLNR/L 20-6D	1.250	1.250	6.000	1.600	1.570	1.250	95.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510
974-000-073	974-000-083	MCLNR/L 24-6D	1.500	1.500	6.000	1.600	2.000	1.500	95.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510
974-000-074	974-000-084	MCLNR/L 24-6E	1.500	1.500	7.000	1.600	2.000	1.500	95.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510

PRODUCT #	Shim Seat
968-000-053	ICSN-433
968-000-054	ICSN-533
968-000-055	ICSN-633
968-000-063	ISSN-432
968-000-064	ISSN-433
968-000-065	ISSN-533
968-000-066	ISSN-633
968-000-056	IDSN-322
968-000-057	IDSN-433
968-000-058	IDSN-533
968-000-067	ITSN-323
968-000-068	ITSN-433

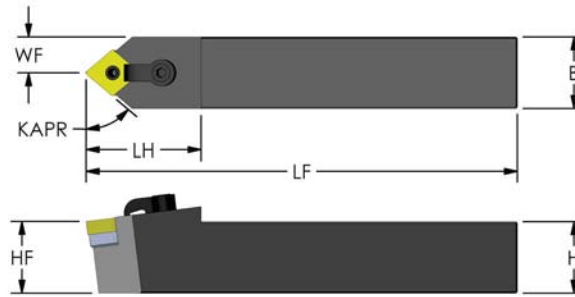
PRODUCT #	Shim Seat
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968-000-070	ITSN-636
968-000-071	IVSN-322
968-000-072	IVSN-432
968-000-073	IVSN-433
968-000-074	IWSN-322
968-000-075	IWSN-433
968-000-059	IRSN-32
968-000-060	IRSN-43
968-000-061	IRSN-53
968-000-062	IRSN-63

PRODUCT #	Lock Pin
968-000-097	NL-33
968-000-098	NL-33L
968-000-099	NL-34
968-000-100	NL-34L
968-000-101	NL-44
968-000-102	NL-46
968-000-103	NL-56
968-000-104	NL-58
968-000-105	NL-68
968-000-106	NL-68L

PACKAGE SIZE OF 5

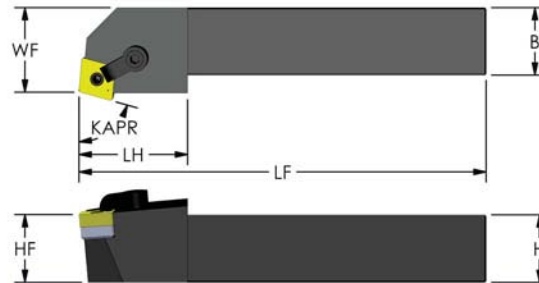
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ULTRA-DEX[®]



NEGATIVE 80° DIAMOND (KAPR: 50°)

PRODUCT #	DESIGNATION	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim	Lock Pin	Clamp	Screw
974-000-085	MCMNN 12-4B	0.750	0.750	4.500	1.300	0.3750	0.750	50.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-086	MCMNN 16-4D	1.000	1.000	6.000	1.600	0.5000	1.000	50.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-088	MCMNN 20-4D	1.250	1.250	6.000	1.600	0.5000	1.250	50.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-087	MCMNN 16-5D	1.000	1.000	6.000	1.600	0.6250	1.000	50.0	CNMG 543	ICSN-533	NL-58	CL-12	XNS-510
974-000-089	MCMNN 20-5D	1.250	1.250	6.000	1.600	0.6250	1.250	50.0	CNMG 543	ICSN-533	NL-58	CL-12	XNS-510
974-000-090	MCMNN 24-5D	1.500	1.500	6.000	1.600	0.7500	1.500	50.0	CNMG 543	ICSN-533	NL-58	CL-12	XNS-510
974-000-091	MCMNN 24-6D	1.500	1.500	6.000	2.050	0.7500	1.500	50.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510
974-000-092	MCMNN 24-6E	1.500	1.500	7.000	2.050	0.7500	1.500	50.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510



NEGATIVE 80° DIAMOND (KAPR: 75°)

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim	Lock Pin	Clamp	Screw
974-000-093	974-000-103	MCRNR/L 12-4B	0.750	0.750	4.500	1.300	0.750	0.750	75.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-094	974-000-104	MCRNR/L 16-4C	1.000	1.000	5.000	1.600	1.250	1.000	75.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-095	974-000-105	MCRNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	75.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-098	974-000-108	MCRNR/L 20-4D	1.250	1.250	6.000	1.600	1.500	1.250	75.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-101	974-000-111	MCRNR/L 24-4D	1.500	1.500	6.000	1.600	2.000	1.500	75.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-096	974-000-106	MCRNR/L 16-5D	1.000	1.000	6.000	1.600	1.250	1.000	75.0	CNMG 543	ICSN-533	NL-58	CL-12	XNS-510
974-000-099	974-000-109	MCRNR/L 20-5D	1.250	1.250	6.000	1.600	1.500	1.250	75.0	CNMG 543	ICSN-533	NL-58	CL-12	XNS-510
974-000-097	974-000-107	MCRNR/L 16-6D	1.000	1.000	6.000	1.600	1.250	1.000	75.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510
974-000-100	974-000-110	MCRNR/L 20-6D	1.250	1.250	6.000	1.600	1.500	1.250	75.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510
974-000-102	974-000-112	MCRNR/L 24-6D	1.500	1.500	6.000	1.600	2.000	1.500	75.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510

PRODUCT #	Clamp
968-000-016	CL-6
968-000-017	CL-7
968-000-020	CL-9
968-000-010	CL-12
968-000-011	CL-19
968-000-012	CL-20

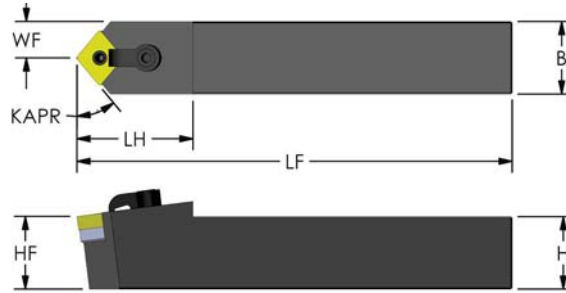
PRODUCT #	Clamp
968-000-013	CL-21
968-000-014	CL-22
968-000-015	CL-30
968-000-018	CL-84
968-000-019	CL-85

PRODUCT #	Clamp Screw
968-000-176	XNS-36
968-000-177	XNS-47
968-000-178	XNS-48
968-000-179	XNS-510
968-000-180	XNS-58
968-000-181	XNS-59

PACKAGE SIZE OF 1

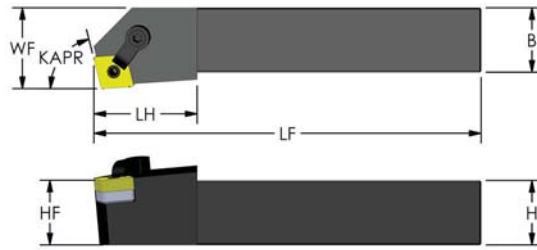
PACKAGE SIZE OF 5

ULTRA-DEX[®]



NEGATIVE 80° DIAMOND (KAPR: 40°)

PRODUCT #	DESIGNATION	B [in.]	H [in.]	LF [in.]	LH [in.]	HF [in.]	KAPR [°]	Insert	Shim	Lock Pin	Clamp	Screw
974-000-113	MCYNN 12-4B	0.750	0.750	4.500	1.300	0.750	40.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-114	MCYNN 16-4D	1.000	1.000	6.000	1.600	1.000	40.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-117	MCYNN 20-4D	1.250	1.250	6.000	1.600	1.250	40.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-115	MCYNN 16-5D	1.000	1.000	6.000	1.600	1.000	40.0	CNMG 543	ICSN-533	NL-58	CL-12	XNS-510
974-000-118	MCYNN 20-5D	1.250	1.250	6.000	1.600	1.250	40.0	CNMG 543	ICSN-533	NL-58	CL-12	XNS-510
974-000-116	MCYNN 16-6D	1.000	1.000	6.000	2.050	1.000	40.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510
974-000-119	MCYNN 20-6D	1.250	1.250	6.000	2.050	1.250	40.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510
974-000-120	MCYNN 24-6D	1.500	1.500	6.000	2.050	1.500	40.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510



NEGATIVE 80° DIAMOND (KAPR: 75°)

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim	Lock Pin	Clamp	Screw
974-000-047	974-000-056	MCKNR/L 12-4B	0.750	0.750	4.500	1.300	1.000	0.750	75.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-048	974-000-057	MCKNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	75.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-051	974-000-060	MCKNR/L 20-4D	1.250	1.250	6.000	1.600	1.500	1.250	75.0	CNMG 432	ICSN-433	NL-46	CL-20	XNS-48
974-000-049	974-000-058	MCKNR/L 16-5D	1.000	1.000	6.000	1.600	1.250	1.000	75.0	CNMG 543	ICSN-533	NL-58	CL-9	XNS-510
974-000-052	974-000-061	MCKNR/L 20-5D	1.250	1.250	6.000	1.600	1.500	1.250	75.0	CNMG 543	ICSN-533	NL-58	CL-9	XNS-510
974-000-050	974-000-059	MCKNR/L 16-6D	1.000	1.000	6.000	1.600	1.250	1.000	75.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510
974-000-053	974-000-062	MCKNR/L 20-6D	1.250	1.250	6.000	1.600	1.500	1.250	75.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510
974-000-054	974-000-063	MCKNR/L 24-6D	1.500	1.500	6.000	1.600	2.000	1.500	75.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510
974-000-055	974-000-064	MCKNR/L 24-6E	1.500	1.500	7.000	1.600	2.000	1.500	75.0	CNMG 643	ICSN-633	NL-68	CL-12	XNS-510

PRODUCT #	Shim Seat
968-000-053	ICSN-433
968-000-054	ICSN-533
968-000-055	ICSN-633
968-000-063	ISSN-432
968-000-064	ISSN-433
968-000-065	ISSN-533
968-000-066	ISSN-633
968-000-056	IDSN-322
968-000-057	IDSN-433
968-000-058	IDSN-533
968-000-067	ITSN-323
968-000-068	ITSN-433

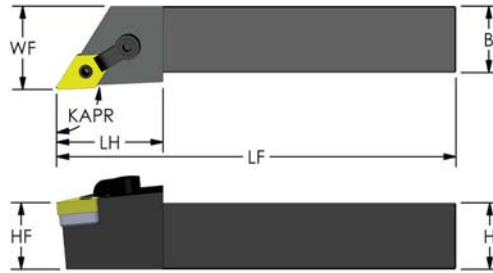
PRODUCT #	Shim Seat
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968-000-070	ITSN-636
968-000-071	IVSN-322
968-000-072	IVSN-432
968-000-073	IVSN-433
968-000-074	IWSN-322
968-000-075	IWSN-433
968-000-059	IRSN-32
968-000-060	IRSN-43
968-000-061	IRSN-53
968-000-062	IRSN-63

PRODUCT #	Lock Pin
968-000-097	NL-33
968-000-098	NL-33L
968-000-099	NL-34
968-000-100	NL-34L
968-000-101	NL-44
968-000-102	NL-46
968-000-103	NL-56
968-000-104	NL-58
968-000-105	NL-68
968-000-106	NL-68L

PACKAGE SIZE OF 5

PACKAGE SIZE OF 10

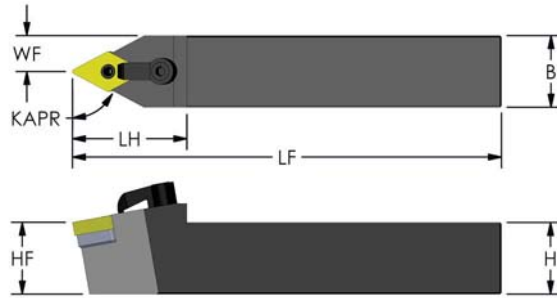
ULTRA-DEX[®]



NEGATIVE 55° DIAMOND (KAPR: 93°)



PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim	Lock Pin	Clamp	Screw
974-000-121	974-000-128	MDJNR/L 12-4B	0.750	0.750	4.500	1.770	1.000	0.750	93.0	DNMG 432	IDSN-433	NL-46	CL-22	XNS-48
974-000-122	974-000-129	MDJNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	93.0	DNMG 432	IDSN-433	NL-46	CL-22	XNS-48
974-000-124	974-000-131	MDJNR/L 20-4D	1.250	1.250	6.000	1.600	1.500	1.250	93.0	DNMG 432	IDSN-433	NL-46	CL-22	XNS-48
974-000-126	974-000-133	MDJNR/L 24-4D	1.500	1.500	6.000	1.600	2.000	1.500	93.0	DNMG 432	IDSN-433	NL-46	CL-22	XNS-48
974-000-123	974-000-130	MDJNR/L 16-5D	1.000	1.000	6.000	1.600	1.250	1.000	93.0	DNMG 543	IDSN-533	NL-58	CL-12	XNS-510
974-000-125	974-000-132	MDJNR/L 20-5D	1.250	1.250	6.000	1.600	1.500	1.250	93.0	DNMG 543	IDSN-533	NL-58	CL-12	XNS-510
974-000-127	974-000-134	MDJNR/L 24-5D	1.500	1.500	6.000	2.050	2.000	1.500	93.0	DNMG 543	IDSN-533	NL-58	CL-12	XNS-510



NEGATIVE 55° DIAMOND (KAPR: 62.5°)



PRODUCT #	DESIGNATION	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim	Lock Pin	Clamp	Screw
974-000-135	MDPNN 12-4B	0.750	0.750	4.500	1.770	0.3750	0.750	62.5	DNMG 432	IDSN-433	NL-46	CL-22	XNS-48
974-000-136	MDPNN 16-4D	1.000	1.000	6.000	1.600	0.5000	1.000	62.5	DNMG 432	IDSN-433	NL-46	CL-22	XNS-48
974-000-138	MDPNN 20-4D	1.250	1.250	6.000	1.600	0.5000	1.250	62.5	DNMG 432	IDSN-433	NL-46	CL-22	XNS-48
974-000-137	MDPNN 16-5D	1.000	1.000	6.000	2.050	0.6250	1.000	62.5	DNMG 543	IDSN-533	NL-58	CL-12	XNS-510
974-000-139	MDPNN 20-5D	1.250	1.250	6.000	2.050	0.6250	1.250	62.5	DNMG 543	IDSN-533	NL-58	CL-12	XNS-510
974-000-140	MDPNN 24-5D	1.500	1.500	6.000	2.050	0.7500	1.500	62.5	DNMG 543	IDSN-533	NL-58	CL-12	XNS-510
974-000-141	MDPNN 24-5E	1.500	1.500	7.000	2.050	0.7500	1.500	62.5	DNMG 543	IDSN-533	NL-58	CL-12	XNS-510

PRODUCT #	Clamp
968-000-016	CL-6
968-000-017	CL-7
968-000-020	CL-9
968-000-010	CL-12
968-000-011	CL-19
968-000-012	CL-20

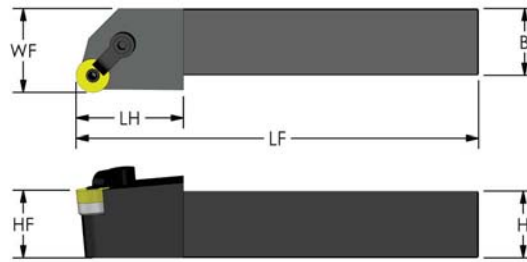
PRODUCT #	Clamp
968-000-013	CL-21
968-000-014	CL-22
968-000-015	CL-30
968-000-018	CL-84
968-000-019	CL-85

PRODUCT #	Clamp Screw
968-000-176	XNS-36
968-000-177	XNS-47
968-000-178	XNS-48
968-000-179	XNS-510
968-000-180	XNS-58
968-000-181	XNS-59

PACKAGE SIZE OF 1

PACKAGE SIZE OF 5

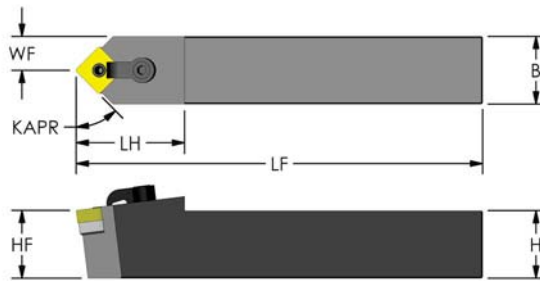
ULTRA-DEX[®]



NEGATIVE ROUND (0° LEAD)



PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	Insert	Shim	Lock Pin	Clamp	Screw
974-000-142	974-000-151	MRGNR/L 12-3B	0.750	0.750	4.500	1.300	1.000	0.750	RNMG 32	IRSN-32	NL-34	CL-6	XNS-36
974-000-143	974-000-152	MRGNR/L 12-4B	0.750	0.750	4.500	1.300	1.000	0.750	RNMG 43	IRSN-43	NL-46	CL-20	XNS-48
974-000-144	974-000-153	MRGNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	RNMG 43	IRSN-43	NL-46	CL-20	XNS-48
974-000-147	974-000-156	MRGNR/L 20-4D	1.250	1.250	6.000	1.600	1.500	1.250	RNMG 43	IRSN-43	NL-46	CL-20	XNS-48
974-000-145	974-000-154	MRGNR/L 16-5D	1.000	1.000	6.000	1.600	1.250	1.000	RNMG 54	IRSN-53	NL-58	CL-12	XNS-510
974-000-148	974-000-157	MRGNR/L 20-5D	1.250	1.250	6.000	1.600	1.500	1.250	RNMG 54	IRSN-53	NL-58	CL-12	XNS-510
974-000-146	974-000-155	MRGNR/L 16-6D	1.000	1.000	6.000	1.600	1.250	1.000	RNMG 64	IRSN-63	NL-68	CL-12	XNS-510
974-000-149	974-000-158	MRGNR/L 20-6D	1.250	1.250	6.000	1.600	1.500	1.250	RNMG 64	IRSN-63	NL-68	CL-12	XNS-510
974-000-150	974-000-159	MRGNR/L 24-6D	1.500	1.500	6.000	1.600	2.000	1.500	RNMG 64	IRSN-63	NL-68	CL-12	XNS-510



NEGATIVE SQUARE (KAPR: 45°)



PRODUCT #	DESIGNATION	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim	Lock Pin	Clamp	Screw
974-000-160	MSDNN 12-4B	0.750	0.750	4.500	1.300	0.3750	0.750	45.0	SNMG 432	ISSN-433	NL-46	CL-20	XNS-48
974-000-161	MSDNN 16-4D	1.000	1.000	6.000	1.600	0.5000	1.000	45.0	SNMG 432	ISSN-433	NL-46	CL-20	XNS-48
974-000-162	MSDNN 16-5D	1.000	1.000	6.000	1.600	0.5000	1.000	45.0	SNMG 543	ISSN-533	NL-58	CL-12	XNS-510
974-000-163	MSDNN 20-5D	1.250	1.250	6.000	1.600	0.5000	1.250	45.0	SNMG 543	ISSN-533	NL-58	CL-12	XNS-510
974-000-164	MSDNN 16-6D	1.000	1.000	6.000	1.600	0.6250	1.000	45.0	SNMG 643	ISSN-633	NL-68	CL-12	XNS-510
974-000-165	MSDNN 20-6D	1.250	1.250	6.000	1.600	0.6250	1.250	45.0	SNMG 643	ISSN-633	NL-68	CL-12	XNS-510
974-000-166	MSDNN 24-6D	1.500	1.500	6.000	1.600	0.7500	1.500	45.0	SNMG 643	ISSN-633	NL-68	CL-12	XNS-510

PRODUCT #	Shim Seat
968-000-053	ICSN-433
968-000-054	ICSN-533
968-000-055	ICSN-633
968-000-063	ISSN-432
968-000-064	ISSN-433
968-000-065	ISSN-533
968-000-066	ISSN-633
968-000-056	IDSN-322
968-000-057	IDSN-433
968-000-058	IDSN-533
968-000-067	ITSN-323
968-000-068	ITSN-433

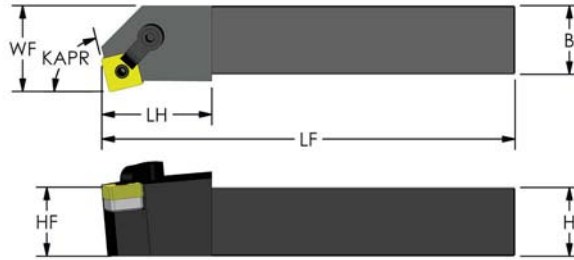
PRODUCT #	Shim Seat
968-000-069	ITSN-533
968-000-070	ITSN-636
968-000-071	IVSN-322
968-000-072	IVSN-432
968-000-073	IVSN-433
968-000-074	IWSN-322
968-000-075	IWSN-433
968-000-059	IRSN-32
968-000-060	IRSN-43
968-000-061	IRSN-53
968-000-062	IRSN-63

PRODUCT #	Lock Pin
968-000-097	NL-33
968-000-098	NL-33L
968-000-099	NL-34
968-000-100	NL-34L
968-000-101	NL-44
968-000-102	NL-46
968-000-103	NL-56
968-000-104	NL-58
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968-000-106	NL-68L

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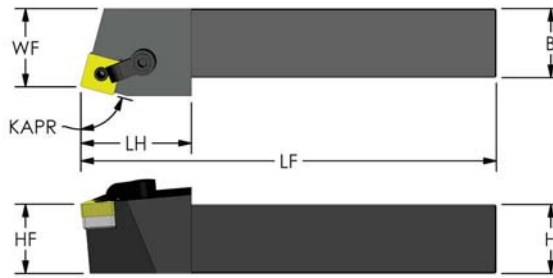
PACKAGE SIZE OF 10

ULTRA-DEX[®]



NEGATIVE SQUARE (KAPR: 75°) END CUTTING

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim	Lock Pin	Clamp	Screw
974-000-167	974-000-173	MSKNR/L 12-4B	0.750	0.750	4.500	1.300	1.000	0.750	75.0	SNMG 432	ISSN-433	NL-46	CL-20	XNS-48
974-000-168	974-000-174	MSKNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	75.0	SNMG 432	ISSN-433	NL-46	CL-20	XNS-48
974-000-169	974-000-175	MSKNR/L 16-5D	1.000	1.000	6.000	1.600	1.250	1.000	75.0	SNMG 543	ISSN-533	NL-58	CL-12	XNS-510
974-000-170	974-000-176	MSKNR/L 20-5D	1.250	1.250	6.000	1.600	1.500	1.250	75.0	SNMG 543	ISSN-533	NL-58	CL-12	XNS-510
974-000-171	974-000-177	MSKNR/L 20-6D	1.250	1.250	6.000	1.600	1.500	1.250	75.0	SNMG 643	ISSN-633	NL-68	CL-12	XNS-510
974-000-172	974-000-178	MSKNR/L 24-6D	1.500	1.500	6.000	1.600	2.000	1.500	75.0	SNMG 643	ISSN-633	NL-68	CL-12	XNS-510



NEGATIVE SQUARE (KAPR: 75°) SIDE CUTTING

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim	Lock Pin	Clamp	Screw
974-000-179	974-000-187	MSRNR/L 12-4B	0.750	0.750	4.500	1.300	0.880	0.750	75.0	SNMG 432	ISSN-433	NL-46	CL-20	XNS-48
974-000-180	974-000-188	MSRNR/L 16-4D	1.000	1.000	6.000	1.600	1.130	1.000	75.0	SNMG 432	ISSN-433	NL-46	CL-20	XNS-48
974-000-181	974-000-189	MSRNR/L 20-4D	1.250	1.250	6.000	1.600	1.380	1.250	75.0	SNMG 432	ISSN-433	NL-46	CL-20	XNS-48
974-000-182	974-000-190	MSRNR/L 16-5D	1.000	1.000	6.000	1.600	1.103	1.000	75.0	SNMG 543	ISSN-533	NL-58	CL-12	XNS-510
974-000-183	974-000-191	MSRNR/L 20-5D	1.250	1.250	6.000	1.600	1.353	1.250	75.0	SNMG 543	ISSN-533	NL-58	CL-12	XNS-510
974-000-184	974-000-192	MSRNR/L 16-6D	1.000	1.000	6.000	1.600	1.071	1.000	75.0	SNMG 643	ISSN-633	NL-68	CL-12	XNS-510
974-000-185	974-000-193	MSRNR/L 20-6D	1.250	1.250	6.000	1.600	1.315	1.250	75.0	SNMG 643	ISSN-633	NL-68	CL-12	XNS-510
974-000-186	974-000-194	MSRNR/L 24-6D	1.500	1.500	6.000	1.600	1.821	1.500	75.0	SNMG 643	ISSN-633	NL-68	CL-12	XNS-510

PRODUCT #	Clamp
968-000-016	CL-6
968-000-017	CL-7
968-000-020	CL-9
968-000-010	CL-12
968-000-011	CL-19
968-000-012	CL-20

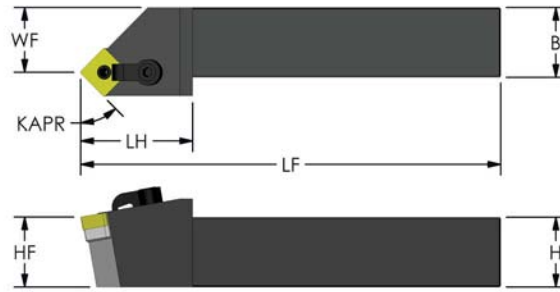
PRODUCT #	Clamp
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968-000-014	CL-22
968-000-015	CL-30
968-000-018	CL-84
968-000-019	CL-85

PRODUCT #	Clamp Screw
968-000-176	XNS-36
968-000-177	XNS-47
968-000-178	XNS-48
968-000-179	XNS-510
968-000-180	XNS-58
968-000-181	XNS-59

PACKAGE SIZE OF 1

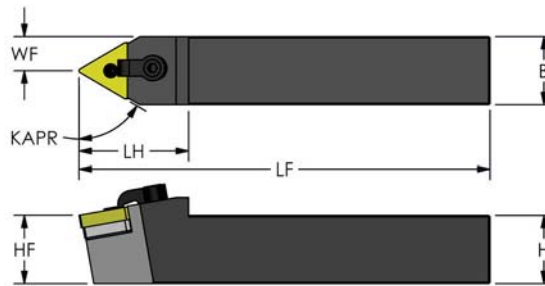
PACKAGE SIZE OF 5

ULTRA-DEX[®]



NEGATIVE SQUARE (KAPR: 45°)

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim	Lock Pin	Clamp	Screw
974-000-195	974-000-201	MSSNR/L 12-4B	0.750	0.750	4.500	1.300	0.675	0.750	45.0	SNMG 432	ISSN-433	NL-46	CL-20	XNS-48
974-000-196	974-000-202	MSSNR/L 16-4D	1.000	1.000	6.000	1.600	0.925	1.000	45.0	SNMG 432	ISSN-433	NL-46	CL-20	XNS-48
974-000-197	974-000-203	MSSNR/L 16-5D	1.000	1.000	6.000	1.600	0.847	1.000	45.0	SNMG 543	ISSN-533	NL-58	CL-12	XNS-510
974-000-198	974-000-204	MSSNR/L 20-5D	1.250	1.250	6.000	1.600	1.097	1.250	45.0	SNMG 543	ISSN-533	NL-58	CL-12	XNS-510
974-000-199	974-000-205	MSSNR/L 20-6D	1.250	1.250	6.000	1.600	1.011	1.250	45.0	SNMG 643	ISSN-633	NL-68	CL-12	XNS-510
974-000-200	974-000-206	MSSNR/L 24-6D	1.500	1.500	6.000	1.600	1.511	1.500	45.0	SNMG 643	ISSN-633	NL-68	CL-12	XNS-510



NEGATIVE TRIANGLE (KAPR: 60°)

PRODUCT #	DESIGNATION	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim	Lock Pin	Clamp	Screw
974-000-219	MTENN 10-3B	0.625	0.625	4.500	1.120	0.3125	0.625	60.0	TNMG 332	ITSN-323	NL-34L	CL-6	XNS-36
974-000-220	MTENN 12-3B	0.750	0.750	4.500	1.300	0.3750	0.750	60.0	TNMG 332	ITSN-323	NL-34L	CL-6	XNS-36
974-000-221	MTENN 12-4B	0.750	0.750	4.500	1.770	0.3750	0.750	60.0	TNMG 432	ITSN-433	NL-46	CL-20	XNS-48
974-000-222	MTENN 16-4D	1.000	1.000	6.000	1.600	0.5000	1.000	60.0	TNMG 432	ITSN-433	NL-46	CL-20	XNS-48
974-000-223	MTENN 20-5D	1.250	1.250	6.000	1.600	0.6250	1.250	60.0	TNMG 543	ITSN-533	NL-58	CL-9	XNS-510
974-000-224	MTENN 24-5D	1.500	1.500	6.000	1.600	0.7500	1.500	60.0	TNMG 543	ITSN-533	NL-58	CL-9	XNS-510

PRODUCT #	Shim Seat
968-000-053	ICSN-433
968-000-054	ICSN-533
968-000-055	ICSN-633
968-000-063	ISSN-432
968-000-064	ISSN-433
968-000-065	ISSN-533
968-000-066	ISSN-633
968-000-056	IDSN-322
968-000-057	IDSN-433
968-000-058	IDSN-533
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968-000-068	ITSN-433

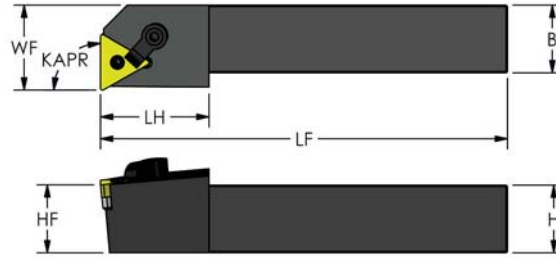
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968-000-070	ITSN-636
968-000-071	IVSN-322
968-000-072	IVSN-432
968-000-073	IVSN-433
968-000-074	IWSN-322
968-000-075	IWSN-433
968-000-059	IRSN-32
968-000-060	IRSN-43
968-000-061	IRSN-53
968-000-062	IRSN-63

PRODUCT #	Lock Pin
968-000-097	NL-33
968-000-098	NL-33L
968-000-099	NL-34
968-000-100	NL-34L
968-000-101	NL-44
968-000-102	NL-46
968-000-103	NL-56
968-000-104	NL-58
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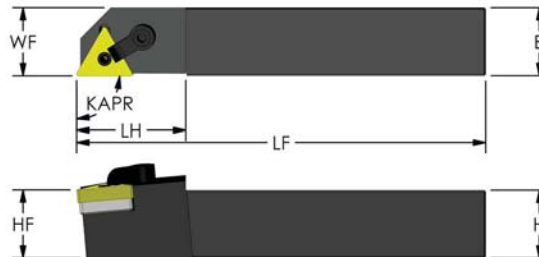
PACKAGE SIZE OF 10

ULTRA-DEX[®]



NEGATIVE TRIANGLE (KAPR: 90°) END CUTTING

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim	Lock Pin	Clamp	Screw
974-000-225	974-000-233	MTFNR/L 12-3B	0.750	0.750	4.500	1.300	1.000	0.750	90.0	TNMG 332	ITSN-323	NL-34L	CL-6	XNS-36
974-000-226	974-000-234	MTFNR/L 16-3D	1.000	1.000	6.000	1.600	1.250	1.000	90.0	TNMG 332	ITSN-323	NL-34L	CL-6	XNS-36
974-000-227	974-000-235	MTFNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	90.0	TNMG 432	ITSN-433	NL-46	CL-20	XNS-48
974-000-228	974-000-236	MTFNR/L 20-4D	1.250	1.250	6.000	1.600	1.500	1.250	90.0	TNMG 432	ITSN-433	NL-46	CL-20	XNS-48
974-000-229	974-000-237	MTFNR/L 16-5D	1.000	1.000	6.000	1.600	1.250	1.000	90.0	TNMG 543	ITSN-533	NL-58	CL-12	XNS-510
974-000-230	974-000-238	MTFNR/L 20-5D	1.250	1.250	6.000	1.600	1.500	1.250	90.0	TNMG 543	ITSN-533	NL-58	CL-12	XNS-510
974-000-231	974-000-239	MTFNR/L 24-5D	1.500	1.500	6.000	1.600	2.000	1.500	90.0	TNMG 543	ITSN-533	NL-58	CL-12	XNS-510
974-000-232	974-000-240	MTFNR/L 24-6D	1.500	1.500	6.000	1.600	2.000	1.500	90.0	TNMG 663	ITSN-636	NL-68L	CL-12	XNS-510



NEGATIVE TRIANGLE (KAPR: 90°) SIDE CUTTING

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim	Lock Pin	Clamp	Screw
974-000-207	974-000-213	MTANR/L 12-3B	0.750	0.750	4.500	1.300	0.750	0.750	90.0	TNMG 332	ITSN-323	NL-34L	CL-6	XNS-36
974-000-208	974-000-214	MTANR/L 16-3D	1.000	1.000	6.000	1.600	1.000	1.000	90.0	TNMG 332	ITSN-323	NL-34L	CL-6	XNS-36
974-000-209	974-000-215	MTANR/L 16-4D	1.000	1.000	6.000	1.600	1.000	1.000	90.0	TNMG 432	ITSN-433	NL-46	CL-20	XNS-48
974-000-210	974-000-216	MTANR/L 20-5D	1.250	1.250	6.000	1.600	1.250	1.250	90.0	TNMG 543	ITSN-533	NL-58	CL-12	XNS-510
974-000-211	974-000-217	MTANR/L 24-5D	1.500	1.500	6.000	1.600	1.500	1.500	90.0	TNMG 543	ITSN-533	NL-58	CL-12	XNS-510
974-000-212	974-000-218	MTANR/L 24-6D	1.500	1.500	6.000	1.600	1.500	1.500	90.0	TNMG 663	ITSN-636	NL-68L	CL-12	XNS-510

PRODUCT #	Clamp
968-000-016	CL-6
968-000-017	CL-7
968-000-020	CL-9
968-000-010	CL-12
968-000-011	CL-19
968-000-012	CL-20

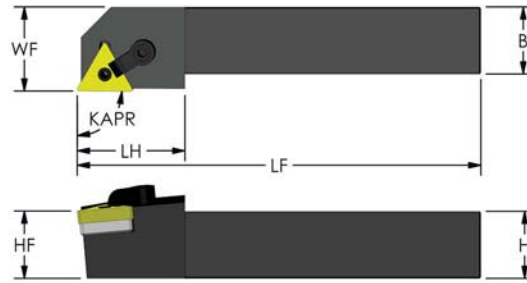
PRODUCT #	Clamp
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968-000-014	CL-22
968-000-015	CL-30
968-000-018	CL-84
968-000-019	CL-85

PRODUCT #	Clamp Screw
968-000-176	XNS-36
968-000-177	XNS-47
968-000-178	XNS-48
968-000-179	XNS-510
968-000-180	XNS-58
968-000-181	XNS-59

PACKAGE SIZE OF 1

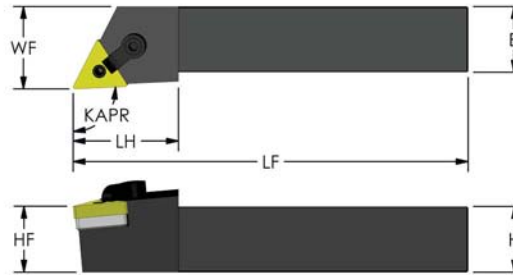
PACKAGE SIZE OF 5

ULTRA-DEX[®]



NEGATIVE TRIANGLE (KAPR: 90°) SIDE CUTTING

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim	Lock Pin	Clamp	Screw
974-000-241	974-000-251	MTGNR/L 10-3B	0.625	0.625	4.500	1.120	0.875	0.625	90.0	TNMG 332	ITSN-323	NL-34L	CL-6	XNS-36
974-000-242	974-000-252	MTGNR/L 12-3B	0.750	0.750	4.500	1.300	1.000	0.750	90.0	TNMG 332	ITSN-323	NL-34L	CL-6	XNS-36
974-000-243	974-000-253	MTGNR/L 16-3D	1.000	1.000	6.000	1.600	1.250	1.000	90.0	TNMG 332	ITSN-323	NL-34L	CL-6	XNS-36
974-000-244	974-000-254	MTGNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	90.0	TNMG 432	ITSN-433	NL-46	CL-20	XNS-48
974-000-246	974-000-256	MTGNR/L 20-4D	1.250	1.250	6.000	1.600	1.500	1.250	90.0	TNMG 432	ITSN-433	NL-46	CL-20	XNS-48
974-000-248	974-000-258	MTGNR/L 24-4D	1.500	1.500	6.000	1.600	2.000	1.500	90.0	TNMG 432	ITSN-433	NL-46	CL-20	XNS-48
974-000-249	974-000-259	MTGNR/L 24-4E	1.500	1.500	7.000	1.600	2.000	1.500	90.0	TNMG 432	ITSN-433	NL-46	CL-20	XNS-48
974-000-245	974-000-255	MTGNR/L 16-5D	1.000	1.000	6.000	1.600	1.250	1.000	90.0	TNMG 543	ITSN-533	NL-58	CL-9	XNS-510
974-000-247	974-000-257	MTGNR/L 20-5D	1.250	1.250	6.000	1.600	1.500	1.250	90.0	TNMG 543	ITSN-533	NL-58	CL-9	XNS-510
974-000-250	974-000-260	MTGNR/L 24-5D	1.500	1.500	6.000	1.600	2.000	1.500	90.0	TNMG 543	ITSN-533	NL-58	CL-9	XNS-510



NEGATIVE TRIANGLE (KAPR: 93°)

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim	Lock Pin	Clamp	Screw
974-000-261	974-000-269	MTJNR/L 12-3B	0.750	0.750	4.500	1.300	1.000	0.750	93.0	TNMG 332	ITSN-323	NL-34L	CL-6	XNS-36
974-000-262	974-000-270	MTJNR/L 16-3D	1.000	1.000	6.000	1.600	1.250	1.000	93.0	TNMG 332	ITSN-323	NL-34L	CL-6	XNS-36
974-000-263	974-000-271	MTJNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	93.0	TNMG 432	ITSN-433	NL-46	CL-20	XNS-48
974-000-265	974-000-273	MTJNR/L 20-4D	1.250	1.250	6.000	1.600	1.500	1.250	93.0	TNMG 432	ITSN-433	NL-46	CL-20	XNS-48
974-000-264	974-000-272	MTJNR/L 16-5D	1.000	1.000	6.000	1.600	1.250	1.000	93.0	TNMG 543	ITSN-533	NL-58	CL-9	XNS-510
974-000-266	974-000-274	MTJNR/L 20-5D	1.250	1.250	6.000	1.600	1.500	1.250	93.0	TNMG 543	ITSN-533	NL-58	CL-9	XNS-510
974-000-267	974-000-275	MTJNR/L 24-5D	1.500	1.500	6.000	1.600	2.000	1.500	93.0	TNMG 543	ITSN-533	NL-58	CL-9	XNS-510
974-000-268	974-000-276	MTJNR/L 24-6D	1.500	1.500	6.000	1.600	2.000	1.500	93.0	TNMG 663	ITSN-636	NL-68L	CL-12	XNS-510

PRODUCT #	Shim Seat
968-000-053	ICSN-433
968-000-054	ICSN-533
968-000-055	ICSN-633
968-000-063	ISSN-432
968-000-064	ISSN-433
968-000-065	ISSN-533
968-000-066	ISSN-633
968-000-056	IDSN-322
968-000-057	IDSN-433
968-000-058	IDSN-533
968-000-067	ITSN-323
968-000-068	ITSN-433

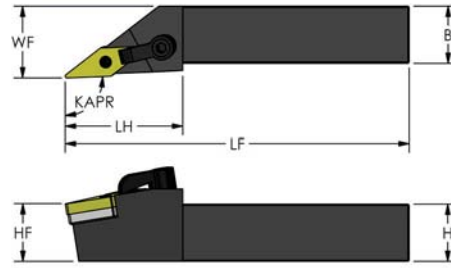
PRODUCT #	Shim Seat
968-000-069	ITSN-533
968-000-070	ITSN-636
968-000-071	IVSN-322
968-000-072	IVSN-432
968-000-073	IVSN-433
968-000-074	IWSN-322
968-000-075	IWSN-433
968-000-059	IRSN-32
968-000-060	IRSN-43
968-000-061	IRSN-53
968-000-062	IRSN-63

PRODUCT #	Lock Pin
968-000-097	NL-33
968-000-098	NL-33L
968-000-099	NL-34
968-000-100	NL-34L
968-000-101	NL-44
968-000-102	NL-46
968-000-103	NL-56
968-000-104	NL-58
968-000-105	NL-68
968-000-106	NL-68L

PACKAGE SIZE OF 5

PACKAGE SIZE OF 10

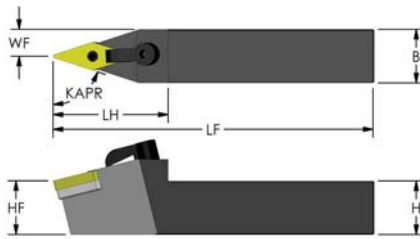
ULTRA-DEX[®]



NEGATIVE 35° DIAMOND (KAPR: 93°)



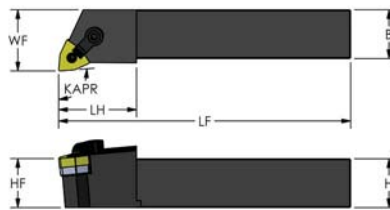
PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim	Lock Pin	Clamp	Screw
974-000-277	974-000-283	MVJNR/L 12-3B	0.750	0.750	4.500	1.770	1.000	0.750	93.0	VNMG 332	IVSN-322	NL-34L	CL-22	XNS-48
974-000-278	974-000-284	MVJNR/L 16-3D	1.000	1.000	6.000	1.600	1.250	1.000	93.0	VNMG 332	IVSN-322	NL-34L	CL-22	XNS-48
974-000-280	974-000-286	MVJNR/L 20-3D	1.250	1.250	6.000	1.600	1.500	1.250	93.0	VNMG 332	IVSN-322	NL-34L	CL-22	XNS-48
974-000-279	974-000-285	MVJNR/L 16-4D	1.000	1.000	6.000	2.050	1.250	1.000	93.0	VNMG 432	IVSN-432	NL-46	CL-30	XNS-510
974-000-281	974-000-287	MVJNR/L 20-4D	1.250	1.250	6.000	2.050	1.500	1.250	93.0	VNMG 432	IVSN-432	NL-46	CL-30	XNS-510
974-000-282	974-000-288	MVJNR/L 24-4D	1.500	1.500	6.000	2.050	2.000	1.500	93.0	VNMG 432	IVSN-432	NL-46	CL-30	XNS-510



NEGATIVE 35° DIAMOND (KAPR: 72.5°)



PRODUCT #	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim	Lock Pin	Clamp	Screw
974-000-289	MVVNN 12-3B	0.750	0.750	4.500	1.770	0.3750	0.750	72.5	VNMG 332	IVSN-322	NL-34L	CL-30	XNS-510
974-000-290	MVVNN 16-3D	1.000	1.000	6.000	2.050	0.5000	1.000	72.5	VNMG 332	IVSN-322	NL-34L	CL-30	XNS-510
974-000-292	MVVNN 20-3D	1.250	1.250	6.000	2.050	0.5000	1.250	72.5	VNMG 332	IVSN-322	NL-34L	CL-30	XNS-510
974-000-294	MVVNN 24-3D	1.500	1.500	6.000	2.050	0.6250	1.500	72.5	VNMG 332	IVSN-322	NL-34L	CL-30	XNS-510
974-000-291	MVVNN 16-4D	1.000	1.000	6.000	2.050	0.6250	1.000	72.5	VNMG 432	IVSN-432	NL-46	CL-30	XNS-510
974-000-293	MVVNN 20-4D	1.250	1.250	6.000	2.050	0.7500	1.250	72.5	VNMG 432	IVSN-432	NL-46	CL-30	XNS-510
974-000-295	MVVNN 24-4D	1.500	1.500	6.000	2.050	0.7500	1.500	72.5	VNMG 432	IVSN-432	NL-46	CL-30	XNS-510



NEGATIVE TRIGON (KAPR: 95°)



PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Shim	Lock Pin	Clamp	Screw
974-000-296	974-000-301	MWLNR/L 12-3B	0.750	0.750	4.500	1.300	1.000	0.750	95.0	WNMG 332	IWSN-322	NL-34L	CL-6	XNS-36
974-000-297	974-000-302	MWLNR/L 12-4B	0.750	0.750	4.500	1.300	1.000	0.750	95.0	WNMG 432	IWSN-433	NL-46	CL-20	XNS-48
974-000-298	974-000-303	MWLNR/L 16-4D	1.000	1.000	6.000	1.600	1.250	1.000	95.0	WNMG 432	IWSN-433	NL-46	CL-20	XNS-48
974-000-299	974-000-304	MWLNR/L 20-4D	1.250	1.250	6.000	1.600	1.500	1.250	95.0	WNMG 432	IWSN-433	NL-46	CL-20	XNS-48
974-000-300	974-000-305	MWLNR/L 24-4D	1.500	1.500	6.000	1.600	2.000	1.500	95.0	WNMG 432	IWSN-433	NL-46	CL-20	XNS-48

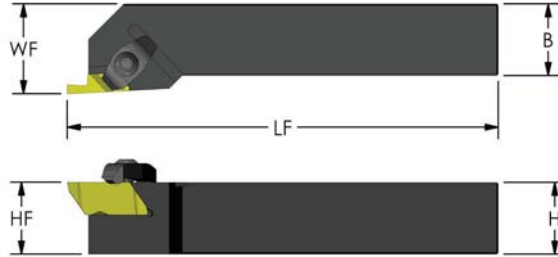
PRODUCT #	Clamp
968-000-016	CL-6
968-000-017	CL-7
968-000-020	CL-9
968-000-010	CL-12
968-000-011	CL-19
968-000-012	CL-20

PRODUCT #	Clamp
968-000-013	CL-21
968-000-014	CL-22
968-000-015	CL-30
968-000-018	CL-84
968-000-019	CL-85

PRODUCT #	Clamp Screw
968-000-176	XNS-36
968-000-177	XNS-47
968-000-178	XNS-48
968-000-179	XNS-510
968-000-180	XNS-58
968-000-181	XNS-59

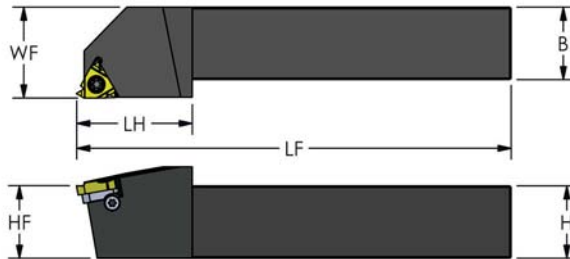
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PACKAGE SIZE OF 5



THREADING/GROOVING TOP NOTCH

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	Designation	B [in.]	H [in.]	LF [in.]	WF [in.]	HF [in.]	Insert	RH Clamp	LH Clamp	Clamp Screw
974-000-306	974-000-310	NSR/L 12-3B	0.750	0.750	4.500	1.000	0.750	NG 3R/3L	CM-72	CM-73	10-32
974-000-307	974-000-311	NSR/L 12-4B	0.750	0.750	4.500	1.000	0.750	NG 4R/4L	CM-72	CM-73	10-32
974-000-308	974-000-312	NSR/L 16-3D	1.000	1.000	6.000	1.250	1.000	NG 3R/3L	CM-72	CM-73	10-32
974-000-309	974-000-313	NSR/L 16-4D	1.000	1.000	6.000	1.250	1.000	NG 4R/4L	CM-72	CM-73	10-32



THREADING/GROOVING LAYDOWN

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	Designation	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	Insert	Insert Screw	Anvil Screw	Anvil Right	Anvil Left
974-000-025	974-000-027	LSSR/L 12-3B	0.750	0.750	4.500	1.300	1.000	0.750	3 IL/IR	SA3T	SY3T	YE3	YI3
974-000-026	974-000-028	LSSR/L 16-3D	1.000	1.000	6.000	1.600	1.250	1.000	3 IL/IR	SA3T	SY3T	YE3	YI3

PRODUCT #	Clamp
968-000-016	CL-6
968-000-017	CL-7
968-000-020	CL-9
968-000-010	CL-12
968-000-011	CL-19
968-000-012	CL-20

PRODUCT #	Clamp
968-000-013	CL-21
968-000-014	CL-22
968-000-015	CL-30
968-000-018	CL-84
968-000-019	CL-85

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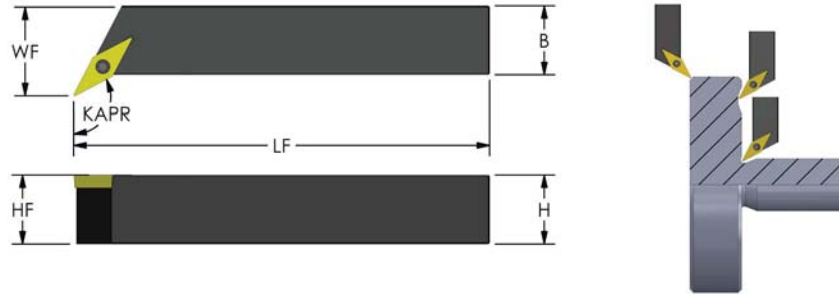
PRODUCT #	Anvil Screw
968-000-146	SY3T
968-000-147	SY4T
968-000-148	SY5T

PACKAGE SIZE OF 5

PRODUCT #	Insert Screw
968-000-124	SA3T
968-000-125	SA4T
968-000-126	SA5T

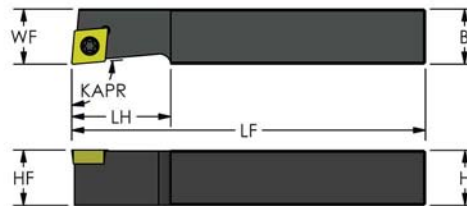
PACKAGE SIZE OF 5

ULTRA-DEX[®]



POSITIVE 35° DIAMOND (KAPR: 117.5°)

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	B [in.]	H [in.]	LF [in.]	WF [in.]	HF [in.]	KAPR	Insert	Screw
974-000-314	974-000-317	SVTBR/L 12-2B	0.750	0.750	4.500	0.935	0.750	117.5	VBMT 21.51	MTS-2.5L
974-000-315	974-000-318	SVTBR/L 12-3B	0.750	0.750	4.500	1.050	0.750	117.5	VBMT 331	MTS-3.5L
974-000-316	974-000-319	SVTBR/L 16-3D	1.000	1.000	6.000	1.300	1.000	117.5	VBMT 331	MTS-3.5L

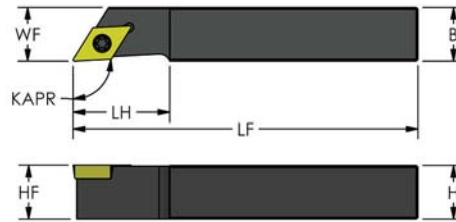


- Proper insert alignment for swiss processes
- Accepts standard ISO inserts
- Specials available upon request



POSITIVE 80° DIAMOND (KAPR: 95°)

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Screw
960-000-003	960-000-007	SCLCR/L 1212-3A	12.00(mm)	12.00(mm)	100.00(mm)	22.00(mm)	22.00(mm)	12.00(mm)	95.0	CCMT 32.51	MTS-35
960-000-004	960-000-008	SCLCR/L 1616-3A	16.00(mm)	16.00(mm)	100.00(mm)	28.00(mm)	28.00(mm)	16.00(mm)	95.0	CCMT 32.51	MTS-35
960-000-001	960-000-005	SCLCR/L 08-3A	0.500	0.500	4.000	0.8650	0.865	0.500	95.0	CCMT 32.51	MTS-35
960-000-002	960-000-006	SCLCR/L 10-3A	0.625	0.625	4.000	1.1200	1.120	0.625	95.0	CCMT 32.51	MTS-35



Positive 55° Diamond (KAPR: 93°)

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	B [in.]	H [in.]	LF [in.]	LH [in.]	WF [in.]	HF [in.]	KAPR [°]	Insert	Screw
960-000-011	960-000-015	SDJCR/L 1212-3A	12.00(mm)	12.00(mm)	100.00(mm)	22.00(mm)	22.00(mm)	12.00(mm)	93.0	DCMT 32.51	MTS-35
960-000-012	960-000-016	SDJCR/L 1616-3A	16.00(mm)	16.00(mm)	100.00(mm)	28.00(mm)	28.00(mm)	16.00(mm)	93.0	DCMT 32.51	MTS-35
960-000-009	960-000-013	SDJCR/L 08-3A	0.500	0.500	4.000	0.8650	0.865	0.500	93.0	DCMT 32.51	MTS-35
960-000-010	960-000-014	SDJCR/L 10-3A	0.625	0.625	4.000	1.1200	1.120	0.625	93.0	DCMT 32.51	MTS-35

PRODUCT #	Clamp Screw
968-000-176	XNS-36
968-000-177	XNS-47
968-000-178	XNS-48
968-000-179	XNS-510
968-000-180	XNS-58
968-000-181	XNS-59

PACKAGE SIZE OF 5

PRODUCT #	Anvil
968-000-185	Y13
968-000-182	YE3
968-000-187	Y14
968-000-186	Y13M-1.5N
968-000-183	YE4
968-000-188	Y15
968-000-184	YE5

PACKAGE SIZE OF 1

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

ID TURNING

ARCHi[®]
Cutting Tools

STEEL BORING BARS

The economical choice
for general machining

Up to 4:1 Ratio

.156"-2" Diameters





POSITIVE 80° DIAMOND (KAPR: 95°)

**4:1 Ratio
NO COOLANT**

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Insert Screw	Key
957-000-207	957-000-208	S02.5G SCLDR/L1.2 *	0.156	3.500	0.090	0.175	CDHB 1.20.60	MTS-182	T-6
957-000-211	957-000-212	S03G SCLDR/L1.2 *	0.187	3.500	0.102	0.205	CDHB 1.20.60	MTS-183	T-6
957-000-209	957-000-210	S03.5G SCLDR/L1.5 *	0.218	3.500	0.125	0.245	CDGW 1.510	MTS-184	T-6
957-000-214	957-000-216	S04G SCLDR/L1.5 *	0.250	3.500	0.172	0.312	CDGW 1.510	MTS-184	T-6
957-000-228	957-000-230	S05G SCLPR/L1.8 *	0.312	3.500	0.219	0.395	CPMT 1.81.20.5	MTS-224	T-7
957-000-248	957-000-250	S06K SCLPR/L2	0.375	5.000	0.250	0.460	CPMT 21.51	MTS-255	T-7
957-000-280	957-000-283	S08M SCLPR/L2	0.500	6.000	0.312	0.600	CPMT 21.51	MTS-255	T-7
957-000-317	957-000-319	S10Q SCLPR/L2	0.625	7.000	0.406	0.760	CPMT 21.51	MTS-255	T-7
957-000-282	957-000-285	S08M SCLPR/L3	0.500	6.000	0.344	0.625	CPMT 32.51	MTS-35	T-15
957-000-318	957-000-320	S10Q SCLPR/L3	0.625	7.000	0.406	0.760	CPMT 32.51	MTS-35	T-15
957-000-341	957-000-342	S12Q SCLPR/L3	0.750	7.000	0.500	0.920	CPMT 32.51	MTS-35	T-15
957-000-372	957-000-373	S16R SCLPR/L3	1.000	8.000	0.625	1.185	CPMT 32.51	MTS-35	T-15
957-000-244	957-000-246	S06K SCLCR/L2	0.375	5.000	0.250	0.460	CCMT 21.51	MTS-255	T-7
957-000-274	957-000-277	S08M SCLCR/L2	0.500	6.000	0.312	0.600	CCMT 21.51	MTS-255	T-7
957-000-313	957-000-315	S10Q SCLCR/L2	0.625	7.000	0.406	0.760	CCMT 21.51	MTS-255	T-7
957-000-276	957-000-279	S08M SCLCR/L3	0.500	6.000	0.344	0.625	CCMT 32.51	MTS-35	T-15
957-000-314	957-000-316	S10Q SCLCR/L3	0.625	7.000	0.406	0.760	CCMT 32.51	MTS-35	T-15
957-000-339	957-000-340	S12Q SCLCR/L3	0.750	7.000	0.500	0.920	CCMT 32.51	MTS-35	T-15
N/A	957-000-367	S12S SCLCR3	0.750	10.000	0.500	0.920	CCMT 32.51	MTS-35	T-15
957-000-370	957-000-371	S16R SCLCR/L3	1.000	8.000	0.625	1.185	CCMT 32.51	MTS-35	T-15
N/A	957-000-401	S16T SCLCR3	1.000	12.000	0.625	1.185	CCMT 32.51	MTS-35	T-15
957-000-425	957-000-427	S20U SCLCR/L3	1.250	14.000	0.765	1.465	CCMT 32.51	MTS-35	T-15
957-000-428	957-000-428	S20U SCLCR/L4	1.250	14.000	0.765	1.465	CCMT 432	MTS-4	T-20
957-000-440	957-000-441	S24U SCLCR/L4	1.500	14.000	0.890	1.730	CCMT 432	MTS-4	T-20

MINIMUM CLEARANCE

NO COOLANT

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Insert Screw	Key
957-000-215	957-000-217	S04G SCLDR/L1.5-138 *	0.250	3.500	0.138	0.275	CDGW 1.510	MTS-184	T-6
957-000-229	957-000-231	S05G SCLPR/L1.8-167 *	0.312	3.500	0.167	0.340	CPMT 1.81.20.5	MTS-224	T-7
957-000-249	957-000-251	S06K SCLPR/L2-203	0.375	5.000	0.203	0.410	CPMT 21.51	MTS-255	T-7
957-000-281	957-000-284	S08M SCLPR/L2-281	0.500	6.000	0.281	0.560	CPMT 21.51	MTS-255	T-7
957-000-245	957-000-247	S06K SCLCR/L2-203	0.375	5.000	0.203	0.410	CCMT 21.51	MTS-255	T-7
957-000-275	957-000-278	S08M SCLCR/L2-281	0.500	6.000	0.281	0.560	CCMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

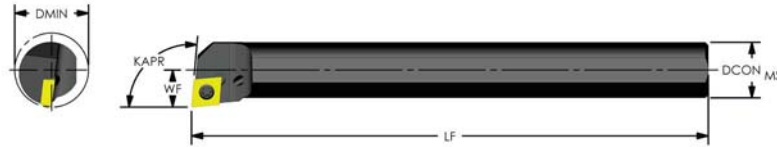
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PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

STEEL

ULTRA-DEX[®]



POSITIVE 80° DIAMOND (KAPR: 95°)

4:1 Ratio
COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Insert Screw	Key
957-000-001	957-000-003	A04G SCLDR/L1.5 *	0.250	3.500	0.172	0.312	CDGW 1.510	MTS-184	T-6
957-000-009	957-000-011	A05G SCLPR/L1.8 *	0.312	3.500	0.219	0.395	CPMT 1.81.20.5	MTS-224	T-7
957-000-023	957-000-025	A06K SCLPR/L2	0.375	5.000	0.250	0.460	CPMT 21.51	MTS-255	T-7
957-000-053	957-000-056	A08M SCLPR/L2	0.500	6.000	0.312	0.600	CPMT 21.51	MTS-255	T-7
957-000-087	957-000-089	A10Q SCLPR/L2	0.625	7.000	0.406	0.760	CPMT 21.51	MTS-255	T-7
957-000-055	957-000-058	A08M SCLPR/L3	0.500	6.000	0.344	0.625	CPMT 32.51	MTS-35	T-15
957-000-088	957-000-090	A10Q SCLPR/L3	0.625	7.000	0.406	0.760	CPMT 32.51	MTS-35	T-15
957-000-108	957-000-109	A12Q SCLPR/L3	0.750	7.000	0.500	0.920	CPMT 32.51	MTS-35	T-15
957-000-135	957-000-136	A16R SCLPR/L3	1.000	8.000	0.625	1.185	CPMT 32.51	MTS-35	T-15
957-000-019	957-000-021	A06K SCLCR/L2	0.375	5.000	0.250	0.460	CCMT 21.51	MTS-255	T-7
957-000-047	957-000-050	A08M SCLCR/L2	0.500	6.000	0.312	0.600	CCMT 21.51	MTS-255	T-7
957-000-083	957-000-085	A10Q SCLCR/L2	0.625	7.000	0.406	0.760	CCMT 21.51	MTS-255	T-7
957-000-049	957-000-052	A08M SCLCR/L3	0.500	6.000	0.344	0.625	CCMT 32.51	MTS-35	T-15
957-000-084	957-000-086	A10Q SCLCR/L3	0.625	7.000	0.406	0.760	CCMT 32.51	MTS-35	T-15
957-000-106	957-000-107	A12Q SCLCR/L3	0.750	7.000	0.500	0.920	CCMT 32.51	MTS-35	T-15
957-000-133	957-000-134	A16R SCLCR/L3	1.000	8.000	0.625	1.185	CCMT 32.51	MTS-35	T-15
957-000-182	957-000-184	A20U SCLCR/L3	1.250	14.000	0.765	1.465	CCMT 32.51	MTS-35	T-15
957-000-183	957-000-185	A20U SCLCR/L4	1.250	14.000	0.765	1.465	CCMT 432	MTS-4	T-20
957-000-198	957-000-199	A24U SCLCR/L4	1.500	14.000	0.890	1.730	CCMT 432	MTS-4	T-20

MINIMUM CLEARANCE

COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Insert Screw	Key
957-000-002	957-000-004	A04G SCLDR/L1.5-138 *	0.250	3.500	0.138	0.275	CDGW 1.510	MTS-184	T-6
957-000-010	957-000-012	A05G SCLPR/L1.8-167 *	0.312	3.500	0.167	0.340	CPMT 1.81.20.5	MTS-224	T-7
957-000-024	957-000-026	A06K SCLPR/L2-203	0.375	5.000	0.203	0.410	CPMT 21.51	MTS-255	T-7
957-000-054	957-000-057	A08M SCLPR/L2-281	0.500	6.000	0.281	0.560	CPMT 21.51	MTS-255	T-7
957-000-020	957-000-022	A06K SCLCR/L2-203	0.375	5.000	0.203	0.410	CCMT 21.51	MTS-255	T-7
957-000-048	957-000-051	A08M SCLCR/L2-281	0.500	6.000	0.281	0.560	CCMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

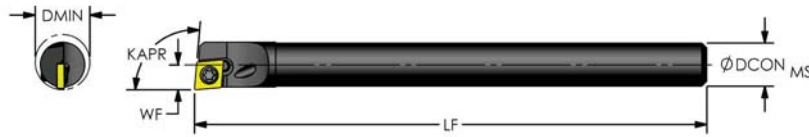
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PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

STEEL

ULTRA-DEX[®]



SERIES "C"

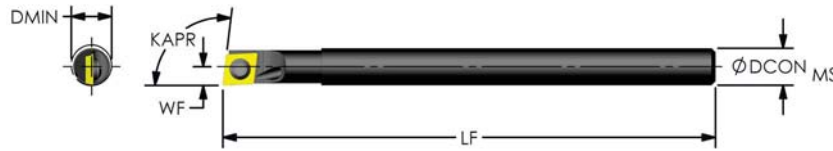


POSITIVE 80° DIAMOND (KAPR: 95°)

4:1 Ratio
COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
915-000-016	CSUD-180/187-2 1/2-5R *	0.187	2.500	0.104	0.208	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-021	CSUD-187-2 1/2-5R *	0.187	2.500	0.116	0.230	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-029	CSUD-250-3-5R *	0.250	3.000	0.145	0.285	95.0	CDHB 1.20.60.5	MTS-184	T-6

*bars do not have flats



SERIES "C"

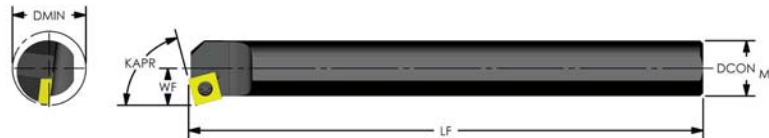


POSITIVE 80° DIAMOND (KAPR: 97°)

4:1 Ratio
COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
915-000-015	CSUD-165/187-2 1/2-7R *	0.187	2.500	0.095	0.180	97.0	CDHB 1.20.60.5	MTS-183	T-6

*bars do not have flats



POSITIVE 90° SQUARE (KAPR: 75°)

4:1 Ratio
NO COOLANT

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-255	S06K SSKCR2	0.375	5.000	0.250	0.460	75.0	SCMT 21.51	MTS-255	T-7
957-000-292	S08M SSKCR3	0.500	6.000	0.344	0.625	75.0	SCMT 32.51	MTS-35	T-15
957-000-325	S10Q SSKCR3	0.625	7.000	0.406	0.760	75.0	SCMT 32.51	MTS-35	T-15
957-000-350	S12Q SSKCR3	0.750	7.000	0.500	0.920	75.0	SCMT 32.51	MTS-35	T-15
957-000-379	S16R SSKCR4	1.000	8.000	0.625	1.185	75.0	SCMT 432	MTS-4	T-20

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

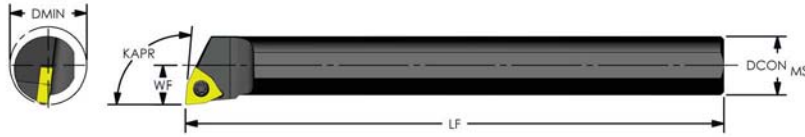
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PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

STEEL

ULTRA-DEX[®]



POSITIVE TRIGON (95° KAPR)

4:1 Ratio
NO COOLANT

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
N/A	957-000-213	S03G SWLCR1.2 *	0.187	3.500	0.102	0.205	95.0	WCMT 1.210.5	MTS-183	T-6
N/A	957-000-226	S04G SWLCR1.2 *	0.250	3.500	0.172	0.312	95.0	WCMT 1.210.5	MTS-184	T-6
N/A	957-000-240	S05G SWLCR1.5 *	0.312	3.500	0.219	0.395	95.0	WCMT 1.51.50.5	MTS-2	T-6
957-000-268	957-000-270	S06K SWLCR/L2	0.375	5.000	0.250	0.460	95.0	WCMT 21.51	MTS-255	T-7
957-000-305	957-000-307	S08M SWLCR/L2	0.500	6.000	0.312	0.600	95.0	WCMT 21.51	MTS-255	T-7
957-000-333	957-000-335	S10Q SWLCR/L2	0.625	7.000	0.406	0.760	95.0	WCMT 21.51	MTS-255	T-7
957-000-334	957-000-336	S10Q SWLCR/L3	0.625	7.000	0.406	0.760	95.0	WCMT 32.51	MTS-35	T-15
957-000-359	957-000-360	S12Q SWLCR/L3	0.750	7.000	0.500	0.920	95.0	WCMT 32.51	MTS-35	T-15
957-000-386	957-000-387	S16R SWLCR/L3	1.000	8.000	0.625	1.185	95.0	WCMT 32.51	MTS-35	T-15

MINIMUM CLEARANCE

NO COOLANT

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
N/A	957-000-227	S04G SWLCR1.2-138 *	0.250	3.500	0.138	0.275	95.0	WCMT 1.210.5	MTS-184	T-6
N/A	957-000-241	S05G SWLCR1.5-167 *	0.312	3.500	0.167	0.342	95.0	WCMT 1.51.50.5	MTS-2	T-6
957-000-269	957-000-271	S06K SWLCR/L2-203	0.375	5.000	0.203	0.410	95.0	WCMT 21.51	MTS-255	T-7
957-000-306	957-000-308	S08M SWLCR/L2-281	0.500	6.000	0.281	0.560	95.0	WCMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats



POSITIVE TRIGON (95° KAPR)

4:1 Ratio
COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-042	957-000-044	A06K SWLCR/L2	0.375	5.000	0.250	0.460	95.0	WCMT 21.51	MTS-255	T-7
957-000-076	957-000-078	A08M SWLCR/L2	0.500	6.000	0.312	0.600	95.0	WCMT 21.51	MTS-255	T-7
957-000-100	957-000-102	A10Q SWLCR/L2	0.625	7.000	0.406	0.760	95.0	WCMT 21.51	MTS-255	T-7
957-000-101	957-000-103	A10Q SWLCR/L3	0.625	7.000	0.406	0.760	95.0	WCMT 32.51	MTS-35	T-15
957-000-123	957-000-124	A12Q SWLCR/L3	0.750	7.000	0.500	0.920	95.0	WCMT 32.51	MTS-35	T-15
957-000-147	957-000-148	A16R SWLCR/L3	1.000	8.000	0.625	1.185	95.0	WCMT 32.51	MTS-35	T-15

MINIMUM CLEARANCE

COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-043	957-000-045	A06K SWLCR/L2-203	0.375	5.000	0.203	0.410	95.0	WCMT 21.51	MTS-255	T-7
957-000-077	957-000-079	A08M SWLCR/L2-281	0.500	6.000	0.281	0.560	95.0	WCMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

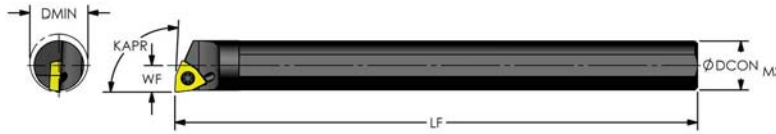
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PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

STEEL

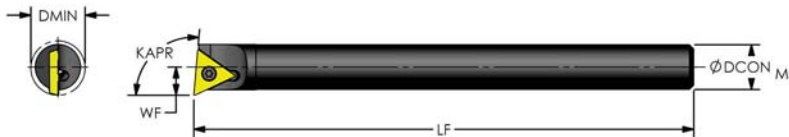
ULTRA-DEX[®]



POSITIVE TRIGON (KAPR: 93°) SERIES "G, Q, S"

4:1 Ratio
COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
915-000-059	915-000-060	GSUDW-187-4-3R/L	0.187	4.000	0.126	0.260	93.0	WPGT 1.511	MTS-184	T-6
915-000-061	915-000-062	GSUDW-250-4-3R/L	0.250	4.000	0.143	0.285	93.0	WPGT 1.511	MTS-184	T-6
915-000-063	915-000-064	GSUDW-312-4-3R/L	0.312	4.000	0.174	0.347	93.0	WPGT 1.511	MTS-184	T-6
915-000-082	915-000-083	QSUDW-375-5-3R/L	0.375	5.000	0.211	0.415	93.0	WPGT 21.50	MTS-255	T-7
915-000-084	915-000-085	QSUDW-500-6-3R/L	0.500	6.000	0.273	0.540	93.0	WPGT 21.50	MTS-255	T-7
915-000-101	915-000-102	SSUDW-625-7-3R/L	0.625	7.000	0.345	0.675	93.0	WPMT 32.51	MTS-35	T-15
915-000-103	915-000-104	SSUDW-750-8-3R/L	0.750	8.000	0.407	0.800	93.0	WPMT 32.51	MTS-35	T-15

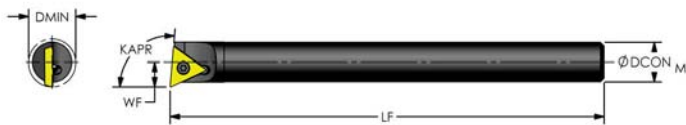


POSITIVE TRIANGLE (KAPR: 90°) SERIES "F, Q, S"

4:1 Ratio
COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
915-000-047	FSUD-250-4-0R *	0.250	4.000	0.156	0.300	90.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-077	QSUD-375-5-0R *	0.375	5.000	0.221	0.438	90.0	TPCB 220.5	ETS 4-40	T-10
915-000-094	SSUD-500-6-0R *	0.500	6.000	0.339	0.668	90.0	TD 320.5	ETS 4-40	T-10
915-000-097	SSUD-625-7-0R *	0.625	7.000	0.393	0.731	90.0	TD 320.5	ETS 4-40	T-10

* bars do not have flats



POSITIVE TRIANGLE (KAPR: 95°) SERIES "F, Q, S"

4:1 Ratio
COOLANT THRU

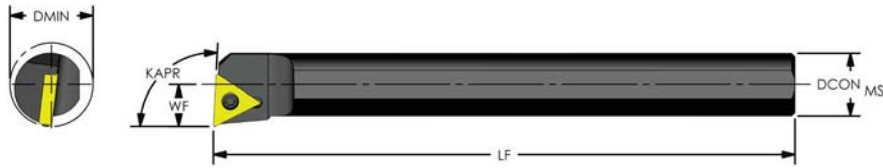
PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
N/A	915-000-040	FSUD-187-3 1/2-5R *	0.187	3.500	0.123	0.275	95.0	TDHB 1.280.750.5	MTS-224	T-7
N/A	915-000-048	FSUD-250-4-5R *	0.250	4.000	0.156	0.300	95.0	TDHB 1.280.750.5	MTS-224	T-7
N/A	915-000-052	FSUD-312-4-5R *	0.312	4.000	0.187	0.360	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-078	915-000-079	QSUD-375-5-5R/L *	0.375	5.000	0.221	0.438	95.0	TPCB 220.5	ETS 4-40	T-10
N/A	915-000-080	QSUD-500-6-5R *	0.500	6.000	0.296	0.563	95.0	TPCB 220.5	ETS 4-40	T-10
N/A	915-000-095	SSUD-500-6-5R *	0.500	6.000	0.339	0.668	95.0	TD 320.5	ETS 4-40	T-10
N/A	915-000-096	SSUD-625-4-5R *	0.625	4.000	0.393	0.731	95.0	TD 320.5	ETS 4-40	T-10
N/A	915-000-098	SSUD-625-7-5R *	0.625	7.000	0.393	0.731	95.0	TD 320.5	ETS 4-40	T-10
N/A	915-000-099	SSUD-750-4-5R *	0.750	4.000	0.460	0.855	95.0	TD 320.5	ETS 4-40	T-10
N/A	915-000-100	SSUD-750-8-5R *	0.750	8.000	0.460	0.855	95.0	TD 320.5	ETS 4-40	T-10
N/A	915-000-092	SSUD-1000-10-5R *	1.000	10.000	0.585	1.105	95.0	TD 320.5	ETS 4-40	T-10
N/A	915-000-093	SSUD-1250-12-5R *	1.250	12.000	0.710	1.355	95.0	TD 320.5	ETS 4-40	T-10

* bars do not have flats

STEEL

ULTRA-DEX[®]

STEEL



POSITIVE TRIANGLE (KAPR: 93°)

4:1 Ratio
NO COOLANT

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-222	957-000-224	S04G STUCR/L1.2 *	0.250	3.500	0.172	0.312	93.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-236	957-000-238	S05G STUCR/L1.2 *	0.312	3.500	0.219	0.395	93.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-260	957-000-262	S06K STUCR/L2	0.375	5.000	0.250	0.460	93.0	TCMT 21.51	MTS-255	T-7
957-000-297	957-000-299	S08M STUCR/L2	0.500	6.000	0.312	0.600	93.0	TCMT 21.51	MTS-255	T-7
957-000-328	957-000-329	S10Q STUCR/L2	0.625	7.000	0.406	0.760	93.0	TCMT 21.51	MTS-255	T-7
957-000-353	957-000-354	S12Q STUCR/L3	0.750	7.000	0.500	0.920	93.0	TCMT 32.51	MTS-35	T-15
957-000-382	957-000-383	S16R STUCR/L3	1.000	8.000	0.625	1.185	93.0	TCMT 32.51	MTS-35	T-15
957-000-266	957-000-264	S06K STUPR/L2	0.375	5.000	0.250	0.460	93.0	TPMT 21.51	MTS-255	T-7
957-000-301	957-000-303	S08M STUPR/L2	0.500	6.000	0.312	0.600	93.0	TPMT 21.51	MTS-255	T-7
957-000-330	957-000-331	S10Q STUPR/L2	0.625	7.000	0.406	0.760	93.0	TPMT 21.51	MTS-255	T-7
957-000-355	957-000-356	S12Q STUPR/L3	0.750	7.000	0.500	0.920	93.0	TPMT 32.51	MTS-35	T-15
957-000-384	957-000-385	S16R STUPR/L3	1.000	8.000	0.625	1.185	93.0	TPMT 32.51	MTS-35	T-15

MINIMUM CLEARANCE

NO COOLANT

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-223	957-000-225	S04G STUCR/L1.2-138 *	0.250	3.500	0.138	0.275	93.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-237	957-000-239	S05G STUCR/L1.2-167 *	0.312	3.500	0.167	0.340	93.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-261	957-000-263	S06K STUCR/L2-203	0.375	5.000	0.203	0.410	93.0	TCMT 21.51	MTS-255	T-7
957-000-298	957-000-300	S08M STUCR/L2-281	0.500	6.000	0.281	0.560	93.0	TCMT 21.51	MTS-255	T-7
957-000-265	957-000-267	S06K STUPR/L2-203	0.375	5.000	0.203	0.410	93.0	TPMT 21.51	MTS-255	T-7
957-000-302	957-000-304	S08M STUPR/L2-281	0.500	6.000	0.281	0.560	93.0	TPMT 21.51	MTS-255	T-7

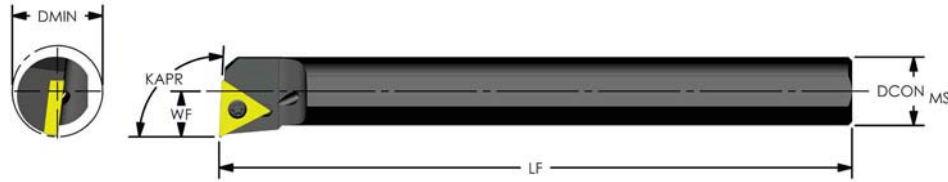
Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5



POSITIVE TRIANGLE (KAPR: 93°)

4:1 Ratio
COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-005	957-000-007	A04G STUCR/L1.2 *	0.250	3.500	0.172	0.312	93.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-013	957-000-015	A05G STUCR/L1.2 *	0.312	3.500	0.219	0.395	93.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-033	957-000-035	A06K STUCR/L2	0.375	5.000	0.250	0.460	93.0	TCMT 21.51	MTS-255	T-7
957-000-067	957-000-069	A08M STUCR/L2	0.500	6.000	0.312	0.600	93.0	TCMT 21.51	MTS-255	T-7
957-000-097	957-000-096	A10Q STUCR/L2	0.625	7.000	0.406	0.760	93.0	TCMT 21.51	MTS-255	T-7
957-000-120	957-000-119	A12Q STUCR/L3	0.750	7.000	0.500	0.920	93.0	TCMT 32.51	MTS-35	T-15
957-000-143	957-000-144	A16R STUCR/L3	1.000	8.000	0.625	1.185	93.0	TCMT 32.51	MTS-35	T-15
957-000-037	957-000-039	A06K STUPR/L2	0.375	5.000	0.250	0.460	93.0	TPMT 21.51	MTS-255	T-7
957-000-071	957-000-073	A08M STUPR/L2	0.500	6.000	0.312	0.600	93.0	TPMT 21.51	MTS-255	T-7
957-000-097	957-000-098	A10Q STUPR/L2	0.625	7.000	0.406	0.760	93.0	TPMT 21.51	MTS-255	T-7
957-000-119	957-000-120	A12Q STUPR/L3	0.750	7.000	0.500	0.920	93.0	TPMT 32.51	MTS-35	T-15
957-000-145	957-000-146	A16R STUPR/L3	1.000	8.000	0.625	1.185	93.0	TPMT 32.51	MTS-35	T-15

MINIMUM CLEARANCE

COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-006	957-000-008	A04G STUCR/L1.2-138 *	0.250	3.500	0.138	0.275	93.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-014	957-000-016	A05G STUCR/L1.2-167 *	0.312	3.500	0.167	0.340	93.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-034	957-000-036	A06K STUCR/L2-203	0.375	5.000	0.203	0.410	93.0	TCMT 21.51	MTS-255	T-7
957-000-068	957-000-070	A08M STUCR/L2-281	0.500	6.000	0.281	0.560	93.0	TCMT 21.51	MTS-255	T-7
957-000-038	957-000-040	A06K STUPR/L2-203	0.375	5.000	0.203	0.410	93.0	TPMT 21.51	MTS-255	T-7
957-000-072	957-000-074	A08M STUPR/L2-281	0.500	6.000	0.281	0.560	93.0	TPMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

ULTRA-DEX[®]

STEEL



POSITIVE TRIANGLE (KAPR: 90°)

4:1 Ratio
NO COOLANT

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-218	957-000-220	S04G STFCR/L1.2 *	0.250	3.500	0.172	0.312	90.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-232	957-000-234	S05G STFCR/L1.2 *	0.312	3.500	0.219	0.395	90.0	TCMT 1.21.20.5	MTS-184	T-6
N/A	957-000-256	S06K STFCR2	0.375	5.000	0.250	0.460	90.0	TCMT 21.51	MTS-255	T-7
N/A	957-000-293	S08M STFCR2	0.500	6.000	0.312	0.600	90.0	TCMT 21.51	MTS-255	T-7
N/A	957-000-326	S10Q STFCR2	0.625	7.000	0.406	0.760	90.0	TCMT 21.51	MTS-255	T-7
N/A	957-000-351	S12Q STFCR3	0.750	7.000	0.500	0.920	90.0	TCMT 32.51	MTS-35	T-15
N/A	957-000-380	S16R STFCR3	1.000	8.000	0.625	1.185	90.0	TCMT 32.51	MTS-35	T-15
N/A	957-000-258	S06K STFPR2	0.375	5.000	0.250	0.460	90.0	TPMT 21.51	MTS-255	T-7
N/A	957-000-295	S08M STFPR2	0.500	6.000	0.312	0.600	90.0	TPMT 21.51	MTS-255	T-7
N/A	957-000-327	S10Q STFPR2	0.625	7.000	0.406	0.760	90.0	TPMT 21.51	MTS-255	T-7
N/A	957-000-352	S12Q STFPR3	0.750	7.000	0.500	0.920	90.0	TPMT 32.51	MTS-35	T-15
N/A	957-000-381	S16R STFPR3	1.000	8.000	0.625	1.185	90.0	TPMT 32.51	MTS-35	T-15

MINIMUM CLEARANCE

NO COOLANT

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-219	957-000-221	S04G STFCR/L1.2-138 *	0.250	3.500	0.138	0.275	90.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-233	957-000-235	S05G STFCR/L1.2-167 *	0.312	3.500	0.167	0.340	90.0	TCMT 1.21.20.5	MTS-184	T-6
N/A	957-000-257	S06K STFCR2-203	0.375	5.000	0.203	0.410	90.0	TCMT 21.51	MTS-255	T-7
N/A	957-000-294	S08M STFCR2-281	0.500	6.000	0.281	0.560	90.0	TCMT 21.51	MTS-255	T-7
N/A	957-000-259	S06K STFPR2-203	0.375	5.000	0.203	0.410	90.0	TPMT 21.51	MTS-255	T-7
N/A	957-000-296	S08M STFPR2-281	0.500	6.000	0.281	0.560	90.0	TPMT 21.51	MTS-255	T-7

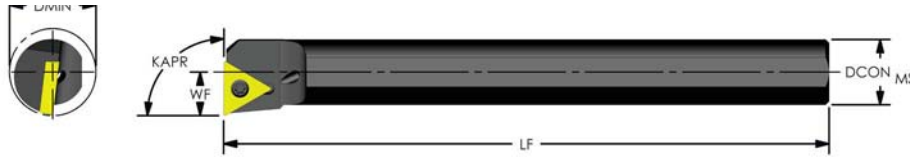
Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5



POSITIVE TRIANGLE (KAPR: 90°)

4:1 Ratio
COOLANT THRU

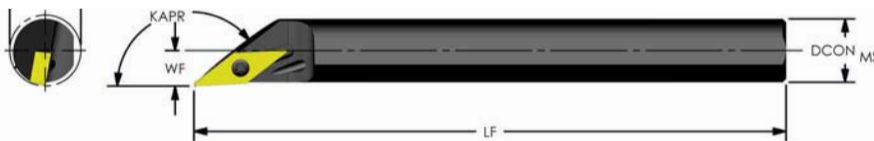
PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-029	A06K STFPCR2	0.375	5.000	0.250	0.460	90.0	TCMT 21.51	MTS-255	T-7
957-000-063	A08M STFPCR2	0.500	6.000	0.312	0.600	90.0	TCMT 21.51	MTS-255	T-7
957-000-093	A10Q STFPCR2	0.625	7.000	0.406	0.760	90.0	TCMT 21.51	MTS-255	T-7
957-000-116	A12Q STFPCR3	0.750	7.000	0.500	0.920	90.0	TCMT 32.51	MTS-35	T-15
957-000-141	A16R STFPCR3	1.000	8.000	0.625	1.185	90.0	TCMT 32.51	MTS-35	T-15
957-000-031	A06K STFPR2	0.375	5.000	0.250	0.460	90.0	TPMT 21.51	MTS-255	T-7
957-000-063	A08M STFPR2	0.500	6.000	0.312	0.600	90.0	TPMT 21.51	MTS-255	T-7
957-000-094	A10Q STFPR2	0.625	7.000	0.406	0.760	90.0	TPMT 21.51	MTS-255	T-7
957-000-117	A12Q STFPR3	0.750	7.000	0.500	0.920	90.0	TPMT 32.51	MTS-35	T-15
957-000-142	A16R STFPR3	1.000	8.000	0.625	1.185	90.0	TPMT 32.51	MTS-35	T-15

MINIMUM CLEARANCE

COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-030	A06K STFPCR2-203	0.375	5.000	0.203	0.410	90.0	TCMT 21.51	MTS-255	T-7
957-000-064	A08M STFPCR2-281	0.500	6.000	0.281	0.560	90.0	TCMT 21.51	MTS-255	T-7
957-000-032	A06K STFPR2-203	0.375	5.000	0.203	0.410	90.0	TPMT 21.51	MTS-255	T-7
957-000-066	A08M STFPR2-281	0.500	6.000	0.281	0.560	90.0	TPMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats



POSITIVE 35° DIAMOND (KAPR: 142°) PROFILING

4:1 Ratio
COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-041	A06K SVJBR2	0.375	5.000	0.223	0.445	142.0	VBMT 21.51	MTS-2.5L	T-7
957-000-075	A08M SVJBR2	0.500	6.000	0.285	0.570	142.0	VBMT 21.51	MTS-2.5L	T-7
957-000-099	A10Q SVJBR2	0.625	7.000	0.348	0.700	142.0	VBMT 21.51	MTS-2.5L	T-7
957-000-122	A12Q SVJBR3	0.750	7.000	0.421	0.840	142.0	VBMT 331	MTS-3.5L	T-15

ULTRA-DEX[®]

STEEL



POSITIVE 55° DIAMOND (KAPR: 93°) PROFILING

4:1 Ratio
NO COOLANT

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-253	957-000-254	S06K SDUCR/L2	0.375	5.000	0.375	0.585	93.0	DCMT 21.51	MTS-255	T-7
957-000-288	957-000-289	S08M SDUCR/L2	0.500	6.000	0.437	0.720	93.0	DCMT 21.51	MTS-255	T-7
957-000-323	957-000-324	S10Q SDUCR/L2	0.625	7.000	0.500	0.850	93.0	DCMT 21.51	MTS-255	T-7
957-000-344	957-000-345	S12Q SDUCR/L3	0.750	7.000	0.625	1.050	93.0	DCMT 32.51	MTS-35	T-15
957-000-375	957-000-376	S16R SDUCR/L3	1.000	8.000	0.750	1.310	93.0	DCMT 32.51	MTS-35	T-15
957-000-346	957-000-347	S12Q SDUPR/L3	0.750	7.000	0.625	1.050	93.0	DPMT 32.51	MTS-35	T-15
957-000-377	957-000-378	S16R SDUPR/L3	1.000	8.000	0.750	1.310	93.0	DPMT 32.51	MTS-35	T-15



POSITIVE 55° DIAMOND (KAPR: 93°) PROFILING

COOLANT THRU

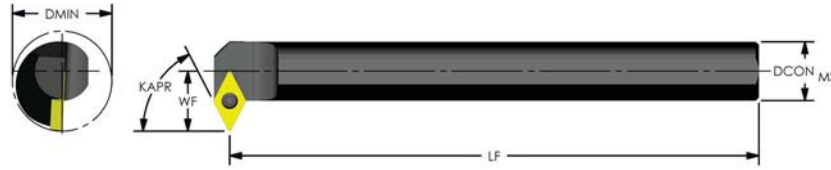
PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-027	957-000-028	A06K SDUCR/L2	0.375	5.000	0.375	0.585	93.0	DCMT 21.51	MTS-255	T-7
957-000-059	957-000-060	A08M SDUCR/L2	0.500	6.000	0.437	0.720	93.0	DCMT 21.51	MTS-255	T-7
957-000-091	957-000-092	A10Q SDUCR/L2	0.625	7.000	0.500	0.850	93.0	DCMT 21.51	MTS-255	T-7
957-000-110	957-000-111	A12Q SDUCR/L3	0.750	7.000	0.625	1.050	93.0	DCMT 32.51	MTS-35	T-15
957-000-137	957-000-138	A16R SDUCR/L3	1.000	8.000	0.750	1.310	93.0	DCMT 32.51	MTS-35	T-15
957-000-112	957-000-113	A12Q SDUPR/L3	0.750	7.000	0.625	1.050	93.0	DPMT 32.51	MTS-35	T-15
957-000-139	957-000-140	A16R SDUPR/L3	1.000	8.000	0.750	1.310	93.0	DPMT 32.51	MTS-35	T-15

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

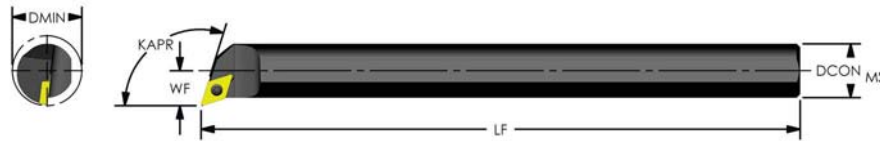
PACKAGE SIZE OF 5



POSITIVE 55° DIAMOND (KAPR: 62.5°) PROFILING

4:1 Ratio
NO COOLANT

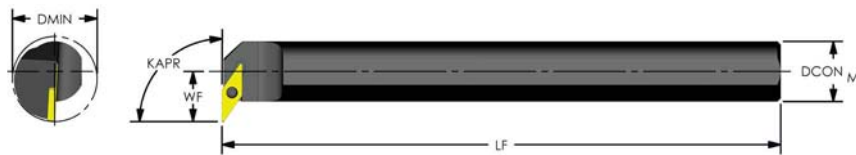
PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-286	S08M SDNCR2	0.500	6.000	0.508	0.780	62.5	DCMT 21.51	MTS-255	T-7
957-000-321	S10Q SDNCR2	0.625	6.860	0.562	0.920	62.5	DCMT 21.51	MTS-255	T-7
957-000-343	S12Q SDNCR3	0.750	6.800	0.765	1.190	62.5	DCMT 32.51	MTS-35	T-15
957-000-374	S16R SDNCR3	1.000	7.800	0.890	1.450	62.5	DCMT 32.51	MTS-35	T-15



POSITIVE 55° DIAMOND (KAPR: 107.5°) PROFILING

4:1 Ratio
NO COOLANT

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-252	S06K SDQCR2	0.375	5.000	0.281	0.490	107.5	DCMT 21.51	MTS-255	T-7
957-000-287	S08M SDQCR2	0.500	6.000	0.341	0.620	107.5	DCMT 21.51	MTS-255	T-7
957-000-322	S10Q SDQCR2	0.625	7.000	0.406	0.760	107.5	DCMT 21.51	MTS-255	T-7



POSITIVE 35° DIAMOND (KAPR: 90°) PROFILING

4:1 Ratio
NO COOLANT

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-332	S10Q SVFBR2	0.625	7.000	0.500	0.850	90.0	VBMT 21.51	MTS-2.5L	T-7
957-000-357	S12Q SVFBR2	0.750	7.000	0.625	1.050	90.0	VBMT 21.51	MTS-2.5L	T-7
957-000-404	S16X SVFBR3	1.000	9.000	0.750	1.310	90.0	VBMT 331	MTS-3.5L	T-15

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

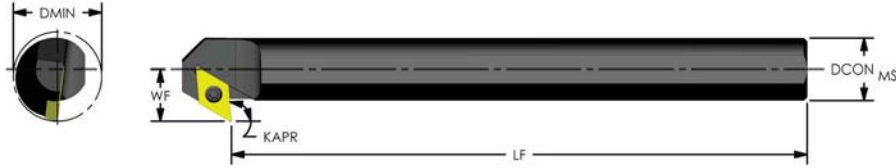
PACKAGE SIZE OF 5

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

ULTRA-DEX

STEEL



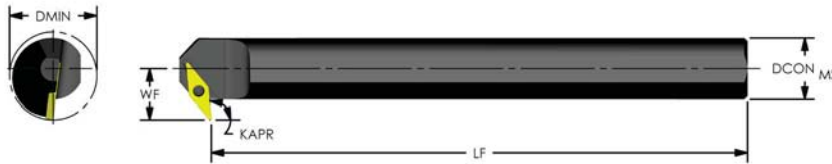
POSITIVE 55° DIAMOND (KAPR: 95°) BACK FACING

4:1 Ratio
NO COOLANT

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-242	957-000-243	S06J SDXCR/L2	0.375	4.500	0.375	0.585	95.0	DCMT 21.51	MTS-255	T-7
957-000-290	957-000-291	S08M SDXCR/L2	0.500	6.000	0.437	0.720	95.0	DCMT 21.51	MTS-255	T-7
957-000-309	957-000-310	S10M SDXCR/L2	0.625	6.000	0.500	0.850	95.0	DCMT 21.51	MTS-255	T-7
957-000-348	957-000-349	S12Q SDXCR/L3	0.750	7.000	0.625	1.050	95.0	DCMT 32.51	MTS-35	T-15
957-000-402	957-000-403	S16X SDXCR/L3	1.000	9.000	0.750	1.310	95.0	DCMT 32.51	MTS-35	T-15

COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-017	957-000-018	A06J SDXCR/L2	0.375	4.500	0.375	0.585	95.0	DCMT 21.51	MTS-255	T-7
957-000-061	957-000-062	A08M SDXCR/L2	0.500	6.000	0.437	0.720	95.0	DCMT 21.51	MTS-255	T-7
957-000-080	957-000-081	A10M SDXCR/L2	0.625	6.000	0.500	0.850	95.0	DCMT 21.51	MTS-255	T-7
957-000-114	957-000-115	A12Q SDXCR/L3	0.750	7.000	0.625	1.050	95.0	DCMT 32.51	MTS-35	T-15
957-000-162	957-000-163	A16X SDXCR/L3	1.000	9.000	0.750	1.310	95.0	DCMT 32.51	MTS-35	T-15



POSITIVE 35° DIAMOND (KAPR: 95°) BACK FACING

4:1 Ratio
NO COOLANT

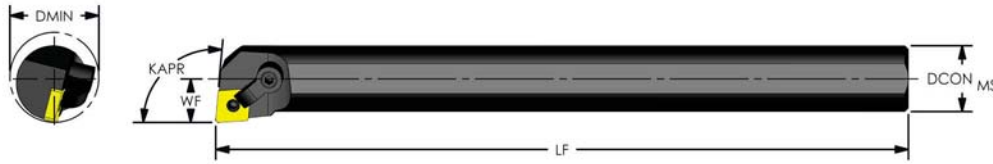
PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-358	S12Q SVXBR2	0.750	6.600	0.625	1.050	95.0	VBMT 21.51	MTS-2.5L	T-7
957-000-405	S16X SVXBR3	1.000	9.000	0.875	1.435	95.0	VBMT 331	MTS-3.5L	T-15

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5



NEGATIVE 80° DIAMOND (KAPR: 95°)

**4:1 Ratio
NO COOLANT**

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
957-000-361	957-000-362	S12R MCLNR/L3	0.750	8.000	0.500	0.920	95.0	CNMG 322	N/A	CL-7	XNS-36	NL-33
957-000-388	957-000-390	S16S MCLNR/L3	1.000	10.000	0.640	1.200	95.0	CNMG 322	N/A	CL-7	XNS-36	NL-33
957-000-389	957-000-391	S16S MCLNR/L4	1.000	10.000	0.640	1.200	95.0	CNMG 432	N/A	CL-20	XNS-47	NL-44
957-000-406	957-000-407	S20S MCLNR/L4	1.250	10.000	0.765	1.470	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
957-000-419	957-000-420	S20U MCLNR/L4	1.250	14.000	0.765	1.470	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
957-000-429	957-000-430	S24U MCLNR/L4	1.500	14.000	.890	1.730	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
957-000-442	957-000-443	S32V MCLNR/L4	2.000	16.000	1.281	2.400	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46

COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
957-000-125	957-000-126	A12R MCLNR/L3	0.750	8.000	0.500	0.920	95.0	CNMG 322	N/A	CL-7	XNS-36	NL-33
957-000-151	957-000-153	A16S MCLNR/L3	1.000	10.000	0.640	1.200	95.0	CNMG 322	N/A	CL-7	XNS-36	NL-33
957-000-152	957-000-154	A16S MCLNR/L4	1.000	10.000	0.640	1.200	95.0	CNMG 432	N/A	CL-20	XNS-47	NL-44
957-000-164	957-000-165	A20S MCLNR/L4	1.250	10.000	0.765	1.470	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
957-000-178	957-000-179	A20U MCLNR/L4	1.250	14.000	0.765	1.470	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
957-000-189	957-000-190	A24U MCLNR/L4	1.500	14.000	0.890	1.730	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
957-000-200	957-000-201	A32V MCLNR/L4	2.000	16.000	1.281	2.400	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46

PRODUCT #	Shim Seat
968-000-053	ICSN-433
968-000-054	ICSN-533
968-000-055	ICSN-633
968-000-063	ISSN-432
968-000-064	ISSN-433
968-000-065	ISSN-533
968-000-066	ISSN-633
968-000-056	IDSN-322
968-000-057	IDSN-433
968-000-058	IDSN-533
968-000-067	ITSN-323
968-000-068	ITSN-433

PACKAGE SIZE OF 10

PRODUCT #	Shim Seat
968-000-069	ITSN-533
968-000-070	ITSN-636
968-000-071	IVSN-322
968-000-072	IVSN-432
968-000-073	IVSN-433
968-000-074	IWSN-322
968-000-075	IWSN-433
968-000-059	IRSN-32
968-000-060	IRSN-43
968-000-061	IRSN-53
968-000-062	IRSN-63

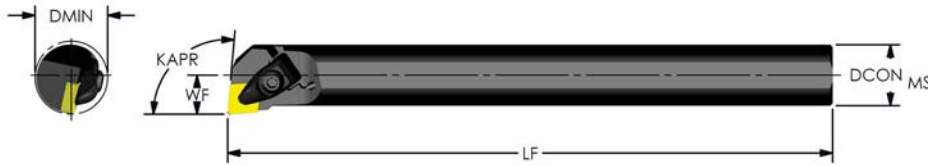
PACKAGE SIZE OF 10

PRODUCT #	Lock Pin
968-000-097	NL-33
968-000-098	NL-33L
968-000-099	NL-34
968-000-100	NL-34L
968-000-101	NL-44
968-000-102	NL-46
968-000-103	NL-56
968-000-104	NL-58
968-000-105	NL-68
968-000-106	NL-68L

PACKAGE SIZE OF 5

STEEL

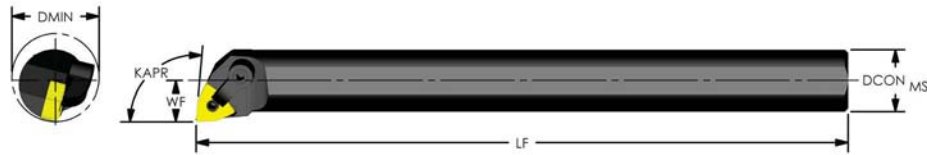
ULTRA-DEX



NEGATIVE 80° DIAMOND (KAPR: 95°)

4:1 Ratio
COOLANT THRU

PRODUCT #	Designation	DCON MS	LF	WF	DMIN	Insert	Shim	Shim Screw	Clamp Assy.
957-000-149	A16S DCLNR4	1.000	10.000	0.640	1.200	CNMG 432	N/A	N/A	PB4-CA
957-000-176	A20U DCLNR4	1.250	14.000	0.765	1.470	CNMG 432	ICSN 433	PB4-SS	PB4-CA
957-000-186	A24U DCLNR4	1.500	14.000	0.890	1.730	CNMG 432	ICSN 433	PB4-SS	PB4-CA



NEGATIVE TRIGON (KAPR: 95°)

4:1 Ratio
NO COOLANT

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
957-000-365	957-000-366	S12R MWLNR/L3	0.750	8.000	0.500	0.920	95.0	WNMG 332	N/A	CL-7	XNS-36	NL-33L
957-000-397	957-000-399	S16S MWLNR/L3	1.000	10.000	0.640	1.200	95.0	WNMG 332	N/A	CL-7	XNS-36	NL-33L
957-000-398	957-000-400	S16S MWLNR/L4	1.000	10.000	0.640	1.200	95.0	WNMG 432	N/A	CL-20	XNS-47	NL-44
957-000-410	957-000-411	S20S MWLNR/L4	1.250	10.000	0.765	1.470	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
957-000-423	957-000-424	S20U MWLNR/L4	1.250	14.000	0.765	1.470	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
957-000-438	957-000-439	S24U MWLNR/L4	1.500	14.000	0.890	1.730	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
957-000-444	957-000-445	S32V MWLNR/L4	2.000	16.000	1.281	2.400	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46

COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
957-000-129	957-000-130	A12R MWLNR/L3	0.750	8.000	0.500	0.920	95.0	WNMG 332	N/A	CL-7	XNS-36	NL-33L
957-000-158	957-000-160	A16S MWLNR/L3	1.000	10.000	0.640	1.200	95.0	WNMG 332	N/A	CL-7	XNS-36	NL-33L
957-000-159	957-000-161	A16S MWLNR/L4	1.000	10.000	0.640	1.200	95.0	WNMG 432	N/A	CL-20	XNS-47	NL-44
957-000-166	957-000-167	A20S MWLNR/L4	1.250	10.000	0.765	1.470	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
957-000-180	957-000-181	A20U MWLNR/L4	1.250	14.000	0.765	1.470	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
957-000-196	957-000-197	A24U MWLNR/L4	1.500	14.000	0.890	1.730	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
957-000-202	957-000-203	A32V MWLNR/L4	2.000	16.000	1.281	2.400	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46

PRODUCT #	Clamp
968-000-016	CL-6
968-000-017	CL-7
968-000-020	CL-9
968-000-010	CL-12
968-000-011	CL-19
968-000-012	CL-20

PACKAGE SIZE OF 1

PRODUCT #	Clamp
968-000-013	CL-21
968-000-014	CL-22
968-000-015	CL-30
968-000-018	CL-84
968-000-019	CL-85

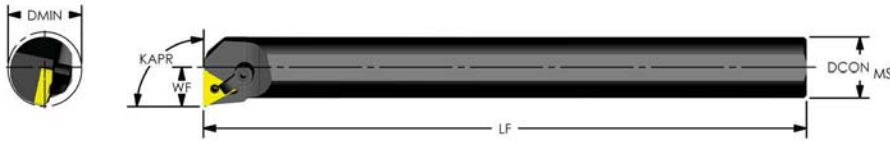
PACKAGE SIZE OF 1

PRODUCT #	Clamp Screw
968-000-176	XNS-36
968-000-177	XNS-47
968-000-178	XNS-48
968-000-179	XNS-510
968-000-180	XNS-58
968-000-181	XNS-59

PACKAGE SIZE OF 5

STEEL

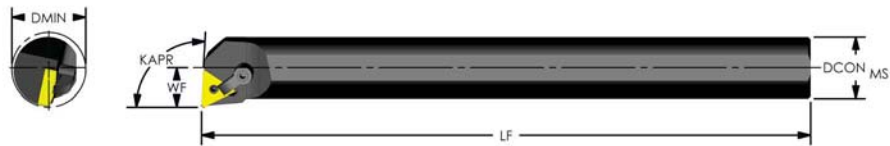
STEEL



NEGATIVE TRIANGLE (KAPR: 90°)

**4:1 Ratio
NO COOLANT**

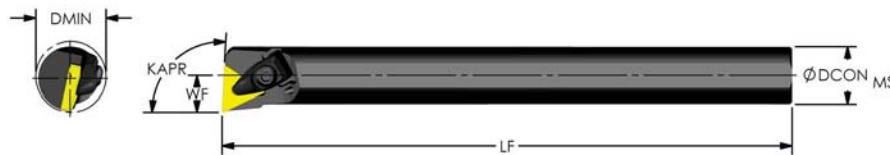
PRODUCT #	Designation	DCON MS	LF	WF	DMIN	KAPR	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
957-000-394	S16S MTFNR3	1.000	10.000	0.640	1.200	90.0	TNMG 332		CL-7	XNS-36	NL-33L
957-000-408	S20S MTFNR3	1.250	10.000	0.765	1.470	90.0	TNMG 332	ITSN-23	CL-7	XNS-36	NL-34L
957-000-421	S20U MTFNR3	1.250	14.000	0.765	1.470	90.0	TNMG 332	ITSN-323	CL-7	XNS-36	NL-34L
957-000-435	S24U MTFNR4	1.500	14.000	0.890	1.730	90.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46



NEGATIVE TRIANGLE (KAPR: 93°)

**4:1 Ratio
NO COOLANT**

PRODUCT #	Designation	DCON MS	LF	WF	DMIN	KAPR	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
957-000-395	S16S MTUNR3	1.000	10.000	0.640	1.200	93.0	TNMG 332	N/A	CL-7	XNS-36	NL-33L
957-000-409	S20S MTUNR3	1.250	10.000	0.765	1.470	93.0	TNMG 332	ITSN-323	CL-7	XNS-36	NL-34L
957-000-422	S20U MTUNR3	1.250	14.000	0.765	1.470	93.0	TNMG 332	ITSN-323	CL-7	XNS-36	NL-34L
957-000-436	S24U MTUNR4	1.500	14.000	0.890	1.730	93.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46



NEGATIVE TRIANGLE (KAPR: 93°)

**4:1 Ratio
COOLANT THRU**

PRODUCT #	Designation	DCON MS	LF	WF	DMIN	KAPR	Insert	Shim	Shim Screw	Clamp Assy.
957-000-150	A16S DTUNR4	1.000	10.000	0.640	1.200	93.0	TNMG 432	N/A	N/A	PB4-CA
957-000-177	A20U DTUNR4	1.250	14.000	0.765	1.470	93.0	TNMG 432	ITSN-433	PB4-SS	PB4-CA
957-000-188	A24U DTUNR4	1.500	14.000	0.890	1.730	93.0	TNMG 432	ITSN-433	PB4-SS	PB4-CA

PRODUCT #	Shim Seat
968-000-053	ICSN-433
968-000-054	ICSN-533
968-000-055	ICSN-633
968-000-063	ISSN-432
968-000-064	ISSN-433
968-000-065	ISSN-533
968-000-066	ISSN-633
968-000-056	IDSN-322
968-000-057	IDSN-433
968-000-058	IDSN-533
968-000-067	ITSN-323
968-000-068	ITSN-433

PACKAGE SIZE OF 10

PRODUCT #	Shim Seat
968-000-069	ITSN-533
968-000-070	ITSN-636
968-000-071	IVSN-322
968-000-072	IVSN-432
968-000-073	IVSN-433
968-000-074	IWSN-322
968-000-075	IWSN-433
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968-000-060	IRSN-43
968-000-061	IRSN-53
968-000-062	IRSN-63

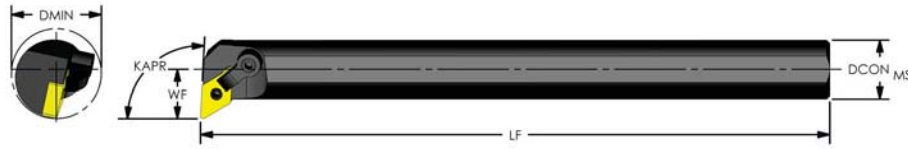
PACKAGE SIZE OF 10

PRODUCT #	Lock Pin
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968-000-098	NL-33L
968-000-099	NL-34
968-000-100	NL-34L
968-000-101	NL-44
968-000-102	NL-46
968-000-103	NL-56
968-000-104	NL-58
968-000-105	NL-68
968-000-106	NL-68L

PACKAGE SIZE OF 5

ULTRA-DEX

STEEL



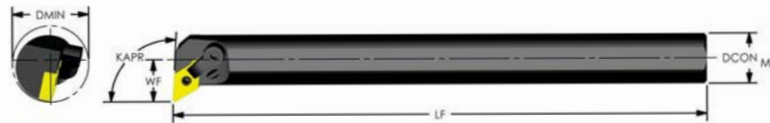
NEGATIVE 55° DIAMOND (KAPR: 93°) PROFILING

4:1 Ratio
NO COOLANT

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
957-000-363	957-000-364	S12R MDUNR/L3	0.750	8.000	0.625	1.050	93.0	DNMG 432	N/A	CL-7	XNS-36	NL-33L
957-000-392	957-000-393	S16S MDUNR/L3	1.000	10.000	0.750	1.310	93.0	DNMG 432	N/A	CL-7	XNS-36	NL-33L
957-000-414	957-000-416	S20T MDUNR/L3	1.250	12.000	1.000	1.700	93.0	DNMG 432	IDSN-322	CL-7	XNS-36	NL-34L
957-000-415	957-000-417	S20T MDUNR/L4	1.250	12.000	1.000	1.700	93.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
957-000-433	957-000-434	S24U MDUNR/L4	1.500	14.000	1.125	1.960	93.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46

COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
957-000-127	957-000-128	A12R MDUNR/L3	0.750	8.000	0.625	1.050	93.0	DNMG 332	N/A	CL-7	XNS-36	NL-33L
957-000-155	957-000-156	A16S MDUNR/L3	1.000	10.000	0.750	1.310	93.0	DNMG 332	N/A	CL-7	XNS-36	NL-33L
957-000-171	957-000-173	A20T MDUNR/L3	1.250	12.000	1.000	1.700	93.0	DNMG 332	IDSN-322	CL-7	XNS-36	NL-34L
957-000-172	957-000-174	A20T MDUNR/L4	1.250	12.000	1.000	1.700	93.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
957-000-193	957-000-194	A24U MDUNR/L4	1.500	14.000	1.125	1.960	93.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46



NEGATIVE 55° DIAMOND (KAPR: 93°)

4:1 Ratio
COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim	Shim Screw	Clamp Assy.
957-000-168	A20T DDUNR4	1.250	12	1.000	1.700	93.0	DNMG 432	IDSN 433	PB4-SS	PB4-CA
957-000-187	A24U DDUNR4	1.500	14	1.125	1.965	93.0	DNMG 432	IDSN 433	PB4-SS	PB4-CA

PRODUCT #	Shim Screw
968-000-109	PB3-SS
968-000-111	PB4-SS

PACKAGE SIZE OF 5

PRODUCT #	Clamp Assy.
968-000-107	PB3-CA
968-000-110	PB4-CA

PACKAGE SIZE OF 1

PRODUCT #	Clamp
968-000-016	CL-6
968-000-017	CL-7
968-000-020	CL-9
968-000-010	CL-12
968-000-011	CL-19
968-000-012	CL-20

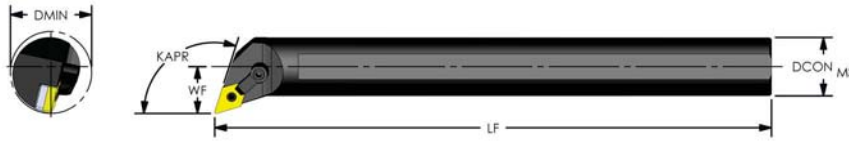
PACKAGE SIZE OF 1

PRODUCT #	Clamp
968-000-013	CL-21
968-000-014	CL-22
968-000-015	CL-30
968-000-018	CL-84
968-000-019	CL-85

PACKAGE SIZE OF 1

PRODUCT #	Clamp Screw
968-000-176	XNS-36
968-000-177	XNS-47
968-000-178	XNS-48
968-000-179	XNS-510
968-000-180	XNS-58
968-000-181	XNS-59

PACKAGE SIZE OF 5



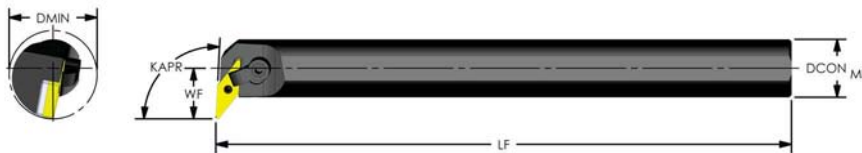
NEGATIVE 55° DIAMOND (KAPR: 72.5°) PROFILING

4:1 Ratio
NO COOLANT

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
957-000-412	957-000-413	S20T MDQNR/L4	1.250	12.000	1.000	1.700	72.5	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
957-000-431	957-000-432	S24U MDQNR/L4	1.500	14.000	1.125	1.960	72.5	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46

COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
957-000-169	957-000-170	A20T MDQNR/L4	1.250	12.000	1.000	1.700	72.5	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
957-000-191	957-000-192	A24U MDQNR/L4	1.500	14.000	1.125	1.960	72.5	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46



NEGATIVE 35° DIAMOND (KAPR: 93°) PROFILING

4:1 Ratio
NO COOLANT

PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
957-000-396	S16S MVUNR3	1.000	10.000	.875	1.435	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
957-000-418	S20T MVUNR3	1.250	12.000	1.000	1.705	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
957-000-437	S24U MVUNR3	1.500	14.000	1.120	1.960	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L

COOLANT THRU

PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
957-000-157	A16S MVUNR3	1.000	10.000	0.875	1.435	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
957-000-175	A20T MVUNR3	1.250	12.000	1.000	1.705	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
957-000-195	A24U MVUNR3	1.500	14.000	1.120	1.960	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L

PRODUCT #	Shim Seat
968-000-053	ICSN-433
968-000-054	ICSN-533
968-000-055	ICSN-633
968-000-063	ISSN-432
968-000-064	ISSN-433
968-000-065	ISSN-533
968-000-066	ISSN-633
968-000-056	IDSN-322
968-000-057	IDSN-433
968-000-058	IDSN-533
968-000-067	ITSN-323
968-000-068	ITSN-433

PACKAGE SIZE OF 10

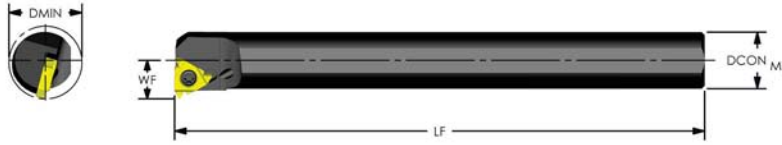
PRODUCT #	Shim Seat
968-000-069	ITSN-533
968-000-070	ITSN-636
968-000-071	IVSN-322
968-000-072	IVSN-432
968-000-073	IVSN-433
968-000-074	IWSN-322
968-000-075	IWSN-433
968-000-059	IRSN-32
968-000-060	IRSN-43
968-000-061	IRSN-53
968-000-062	IRSN-63

PACKAGE SIZE OF 10

PRODUCT #	Lock Pin
968-000-097	NL-33
968-000-098	NL-33L
968-000-099	NL-34
968-000-100	NL-34L
968-000-101	NL-44
968-000-102	NL-46
968-000-103	NL-56
968-000-104	NL-58
968-000-105	NL-68
968-000-106	NL-68L

PACKAGE SIZE OF 5

ULTRA-DEX[®]

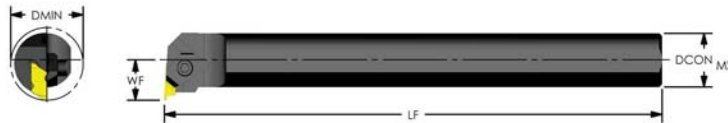


THREADING/GROOVING LAYDOWN

4:1 Ratio
COOLANT THRU

PRODUCT #	DESIGNATION RIGHT HAND	DCONMS [in.]	LF [in.]	WF [in.]	L [in.]	DMIN [in.]	Insert	Insert Screw	Anvil Screw	Anvil
957-000-046	A08M LSER2	0.500	6.000	0.308	N/A	0.588	2IR	SR34505	N/A	N/A
957-000-082	A10Q LSER2	0.625	7.000	0.371	N/A	0.721	2IR	SR34505	N/A	N/A
957-000-105	A12Q LSER3	0.750	7.000	0.510	N/A	0.935	3IR	MTS-35	N/A	N/A
957-000-132	A16R LSER3	1.000	8.000	0.650	N/A	1.210	3IR	SA3T	SY3T	YI3

PRODUCT #	DESIGNATION LEFT HAND	DCONMS [in.]	LF [in.]	WF [in.]	L [in.]	DMIN [in.]	Insert	Insert Screw	Anvil Screw	Anvil
957-000-104	A12Q LSEL3	0.750	7.000	0.510	N/A	0.935	3IL	MTS-35	N/A	N/A
957-000-131	A16R LSEL3	1.000	8.000	0.650	N/A	1.210	3IL	SA3T	SY3T	YE3



THREADING/GROOVING TOP NOTCH

4:1 Ratio
NO COOLANT

PRODUCT #	DESIGNATION RIGHT HAND	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Clamp	Clamp Screw
957-000-273	S08M NER2	0.500	6.000	0.437	0.730	NG 2L	CM-147	6-32
957-000-312	S10Q NER2	0.625	7.000	0.500	1.000	N/A	CM-75	6-32
957-000-338	S12Q NER2	0.750	7.000	0.562	1.120	N/A	CM-75	6-32
957-000-369	S16R NER3	1.000	8.000	0.688	1.250	NG 3L	CM-73	10-32

PRODUCT #	DESIGNATION LEFT HAND	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Clamp	Clamp Screw
957-000-272	S08M NEL2	0.500	6.000	0.437	0.730	NG 2R	CM-146	6-32
957-000-311	S10Q NEL2	0.625	7.000	0.500	1.000	NG 2R	CM-74	6-32
957-000-337	S12Q NEL2	0.750	7.000	0.562	1.120	NG 2R	CM-74	6-32
957-000-368	S16R NEL3	1.000	8.000	0.688	1.250	NG 3R	CM-72	10-32

PRODUCT #	Clamp
968-000-016	CL-6
968-000-017	CL-7
968-000-020	CL-9
968-000-010	CL-12
968-000-011	CL-19
968-000-012	CL-20

PACKAGE SIZE OF 1

PRODUCT #	Clamp
968-000-013	CL-21
968-000-014	CL-22
968-000-015	CL-30
968-000-018	CL-84
968-000-019	CL-85

PACKAGE SIZE OF 1

PRODUCT #	Anvil
968-000-185	YI3
968-000-182	YE3
968-000-187	YI4
968-000-186	YI3M-1.5N
968-000-183	YE4
968-000-188	YI5
968-000-184	YE5

PACKAGE SIZE OF 1

PRODUCT #	Anvil Screw
968-000-146	SY3T
968-000-147	SY4T
968-000-148	SY5T

PACKAGE SIZE OF 5

PRODUCT #	Insert Screw
968-000-124	SA3T
968-000-125	SA4T
968-000-126	SA5T

PACKAGE SIZE OF 5

STEEL

957-000-204



COOLANT THRU

- (1) A06K SCLCR2 (3/8" Bar)
- (1) A08M SCLCR2 (1/2" Bar)
- (1) A10Q SCLCR2 (5/8" Bar)
- (5) CCMT 21.51 ZX3-UD51

957-000-205



COOLANT THRU

- (1) A10Q SCLCR3 (5/8" Bar)
- (1) A12Q SCLCR3 (3/4" Bar)
- (1) A16R SCLCR3 (1" Bar)
- (5) CCMT 32.51 ZX3-UD51

957-000-206



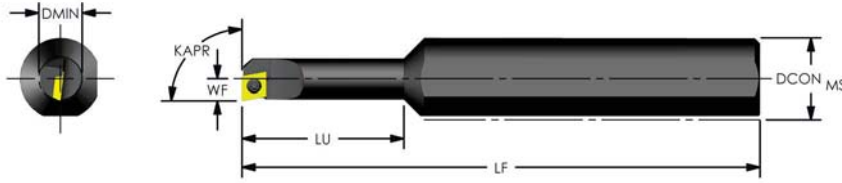
NO COOLANT

- (1) S03G SCLDR1.2
- (1) S03.5G SCLDR1.5
- (1) S04G SCLDR1.5
- (1) S05G SCLPR1.8
- (2) CDHB 1.20.60 UD51
- (2) CDGW 1.510 UD51
- (2) CPMT 1.81.20.5 LX6-UD52

PRODUCT #	PRODUCT KITS
957-000-204	PDBK-356
957-000-205	PDBK-671
957-000-206	PDBK-MINI

ULTRA-DEX[®]

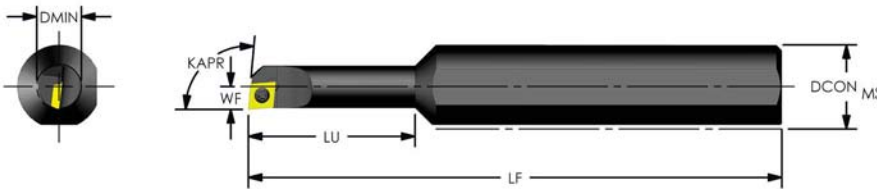
STEEL



POSITIVE 80° DIAMOND (KAPR: 90°) REDUCED NECK

NO COOLANT

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	LU [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-450	SCFDR2-5	0.625	4.000	0.500	0.138	0.276	90.0	CDGW 1.510	MTS-184	T-6
957-000-446	SCFDR2-15	0.625	4.000	1.000	0.138	0.276	90.0	CDGW 1.510	MTS-184	T-6
957-000-447	SCFDR2-25	0.625	4.000	0.750	0.167	0.334	90.0	CDGW 1.510	MTS-184	T-6
957-000-448	SCFDR2-35	0.625	4.000	1.250	0.167	0.334	90.0	CDGW 1.510	MTS-184	T-6
957-000-449	SCFDR2-45	0.625	4.000	1.000	0.203	0.450	90.0	CDGW 1.510	MTS-184	T-6
957-000-451	SCFDR2-55	0.625	4.000	1.500	0.203	0.450	90.0	CDGW 1.510	MTS-184	T-6



POSITIVE 80° DIAMOND (KAPR: 95°) REDUCED NECK

NO COOLANT

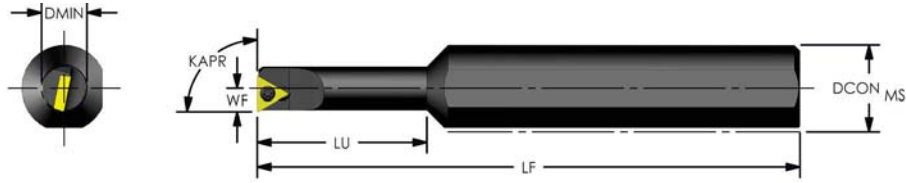
PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	LU [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-456	SCLDR2-5	0.625	4.000	0.500	0.138	0.276	95.0	CDGW 1.510	MTS-184	T-6
957-000-452	SCLDR2-15	0.625	4.000	1.000	0.138	0.276	95.0	CDGW 1.510	MTS-184	T-6
957-000-453	SCLDR2-25	0.625	4.000	0.750	0.167	0.334	95.0	CDGW 1.510	MTS-184	T-6
957-000-454	SCLDR2-35	0.625	4.000	1.250	0.167	0.334	95.0	CDGW 1.510	MTS-184	T-6
957-000-455	SCLDR2-45	0.625	4.000	1.000	0.203	0.450	95.0	CDGW 1.510	MTS-184	T-6
957-000-457	SCLDR2-55	0.625	4.000	1.500	0.203	0.450	95.0	CDGW 1.510	MTS-184	T-6

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

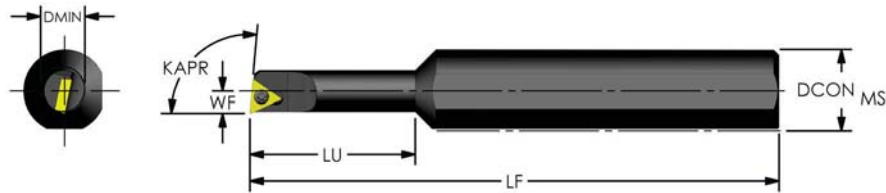
PACKAGE SIZE OF 5



POSITIVE TRIANGLE (KAPR: 90°) REDUCED NECK

NO COOLANT

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	LU [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-462	STFCR2-5	0.625	4.000	0.500	0.138	0.276	90.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-458	STFCR2-15	0.625	4.000	1.000	0.138	0.276	90.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-459	STFCR2-25	0.625	4.000	0.750	0.167	0.334	90.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-460	STFCR2-35	0.625	4.000	1.250	0.167	0.334	90.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-461	STFCR2-45	0.625	4.000	1.000	0.203	0.450	90.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-463	STFCR2-55	0.625	4.000	1.500	0.203	0.450	90.0	TCMT 1.21.20.5	MTS-184	T-6



POSITIVE TRIANGLE (KAPR: 95°) REDUCED NECK

NO COOLANT

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	LU [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
957-000-468	STLCR2-5	0.625	4.000	0.500	0.138	0.276	95.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-464	STLCR2-15	0.625	4.000	1.000	0.138	0.276	95.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-465	STLCR2-25	0.625	4.000	0.750	0.167	0.334	95.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-466	STLCR2-35	0.625	4.000	1.250	0.167	0.334	95.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-467	STLCR2-45	0.625	4.000	1.000	0.203	0.450	95.0	TCMT 1.21.20.5	MTS-184	T-6
957-000-469	STLCR2-55	0.625	4.000	1.500	0.203	0.450	95.0	TCMT 1.21.20.5	MTS-184	T-6

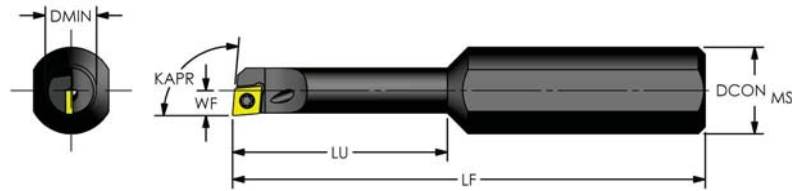
PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

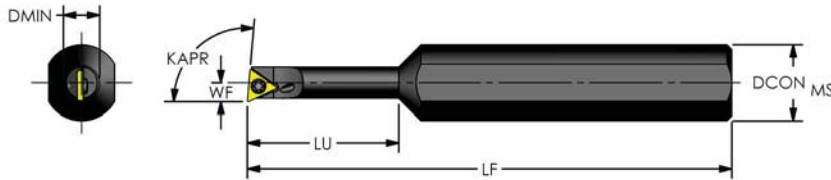
PACKAGE SIZE OF 5

ULTRA-DEX



POSITIVE 80° DIAMOND (KAPR: 95°) REDUCED NECK SERIES "C" COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	LU [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
915-000-017	CSUD-180/375-1/2-5R	0.375	2.500	0.500	0.104	0.208	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-018	CSUD-180/375-1-5R	0.375	2.500	1.000	0.104	0.208	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-022	CSUD-203/375-1/2-5R	0.375	2.500	0.500	0.116	0.230	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-023	CSUD-203/375-1-5R	0.375	2.500	1.000	0.116	0.230	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-026	CSUD-250/375-11/4-5R	0.375	2.500	1.250	0.145	0.285	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-019	CSUD-180/500-1/2-5R	0.500	2.750	0.500	0.104	0.208	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-020	CSUD-180/500-1-5R	0.500	2.750	1.000	0.104	0.208	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-024	CSUD-203/500-1/2-5R	0.500	2.750	0.500	0.116	0.230	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-025	CSUD-203/500-1-5R	0.500	2.750	1.000	0.116	0.230	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-028	CSUD-250/500-3/4-5R	0.500	2.750	0.750	0.145	0.285	95.0	CDHB 1.20.60.5	MTS-184	T-6
915-000-027	CSUD-250/500-11/4-5R	0.500	2.750	1.250	0.145	0.285	95.0	CDHB 1.20.60.5	MTS-184	T-6



POSITIVE TRIANGLE (KAPR: 95°) REDUCED NECK SERIES "F, Q" COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	LU [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
915-000-041	FSUD-203/500-1/2-5R	0.500	3.000	0.500	0.126	0.275	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-042	FSUD-203/500-1-5R	0.500	3.000	1.000	0.126	0.275	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-044	FSUD-250/500-3/4-5R	0.500	3.000	0.750	0.156	0.300	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-050	FSUD-312/500-1-5R	0.500	3.000	1.000	0.187	0.360	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-049	FSUD-312/500-11/2-5R	0.500	3.000	1.500	0.187	0.360	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-043	FSUD-203/625-1/2-5R	0.625	4.000	0.500	0.126	0.275	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-046	FSUD-250/625-3/4-5R	0.625	4.000	0.750	0.156	0.300	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-045	FSUD-250/625-11/4-5R	0.625	4.000	1.250	0.156	0.300	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-051	FSUD-312/625-1-5R	0.625	4.000	1.000	0.187	0.360	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-072	QSUD-375/500-11/8-5R	0.500	3.750	1.125	0.221	0.438	95.0	TPCB 220.5	ETS 4-40	T-10
915-000-073	QSUD-375/500-17/8-5R	0.500	3.750	1.875	0.221	0.438	95.0	TPCB 220.5	ETS 4-40	T-10
915-000-074	QSUD-375/625-11/8-5R	0.625	4.250	1.125	0.221	0.438	95.0	TPCB 220.5	ETS 4-40	T-10
915-000-075	QSUD-375/625-17/8-5R	0.625	4.250	1.875	0.221	0.438	95.0	TPCB 220.5	ETS 4-40	T-10
915-000-076	QSUD-375/750-11/2-5R	0.750	4.000	1.500	0.221	0.438	95.0	TPCB 220.5	ETS 4-40	T-10
915-000-081	QSUD-625/750-21/2-5R	0.750	4.500	2.500	0.353	0.688	95.0	TPCB 220.5	ETS 4-40	T-10

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

PACKAGE SIZE OF 5

STEEL

CARBIDE BORING BARS

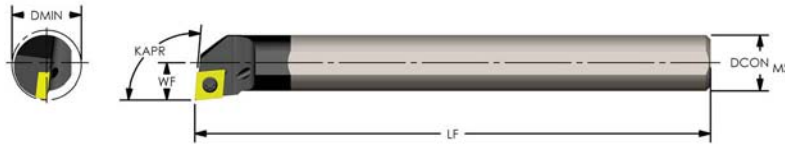
Maximum rigidity and efficiency for use in tougher applications

Up to 8:1 Ratio

.156"-1.5" Diameters



CARBIDE

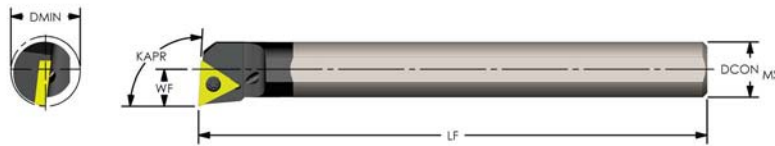


POSITIVE 80° DIAMOND (KAPR: 95°)

8:1 Ratio
COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [mm]	LF [mm]	WF [mm]	DMIN [mm]	KAPR [°]	Insert	Insert Screw	Key
920-000-428	920-000-429	M-E06H SCLDR/L04*	6.00	100.00	3.50	7.00	95.0	CDGW 1.510	MTS-184	T-6
920-000-432	920-000-433	M-E08K SCLCR/L06*	8.00	125.00	6.00	11.00	95.0	CCMT 21.51	MTS-255	T-7
920-000-436	920-000-437	M-E10M SCLCR/L06	10.00	150.00	7.00	13.00	95.0	CCMT 21.51	MTS-255	T-7
920-000-442	920-000-443	M-E12Q SCLCR/L06	12.00	180.00	9.00	16.00	95.0	CCMT 21.51	MTS-255	T-7
920-000-448	920-000-449	M-E16R SCLCR/L09	16.00	200.00	11.00	20.00	95.0	CCMT 32.51	MTS-35	T-15
920-000-454	920-000-455	M-E20S SCLCR/L09	20.00	250.00	13.00	25.00	95.0	CCMT 32.51	MTS-35	T-15
920-000-460	920-000-461	M-E25T SCLCR/L09	25.00	300.00	17.00	32.00	95.0	CCMT 32.51	MTS-35	T-15

*bars 8mm and smaller do not have flats

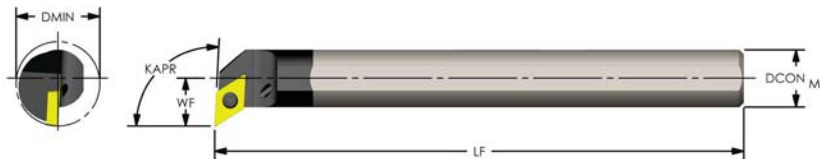


POSITIVE TRIANGLE (KAPR: 93°)

8:1 Ratio
COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [mm]	LF [mm]	WF [mm]	DMIN [mm]	KAPR [°]	Insert	Insert Screw	Key
920-000-430	920-000-431	M-E06H STUCR/L06*	6.00	100.00	3.50	7.00	93.0	TCMT 1.21.20.5	MTS-184	T-6
920-000-434	920-000-435	M-E08K STUCR/L06*	8.00	125.00	6.00	11.00	93.0	TCMT 1.21.20.5	MTS-184	T-6
920-000-440	920-000-441	M-E10M STUCR/L11	10.00	150.00	7.00	13.00	93.0	TCMT 21.51	MTS-255	T-7
920-000-446	920-000-447	M-E12Q STUCR/L11	12.00	180.00	9.00	16.00	93.0	TCMT 21.51	MTS-255	T-7
920-000-452	920-000-453	M-E16R STUCR/L11	16.00	200.00	11.00	20.00	93.0	TCMT 21.51	MTS-255	T-7
920-000-458	920-000-459	M-E20S STUCR/L16	20.00	250.00	13.00	25.00	93.0	TCMT 32.51	MTS-35	T-15
920-000-464	920-000-465	M-E25T STUCR/L16	25.00	300.00	17.00	32.00	93.0	TCMT 32.51	MTS-35	T-15

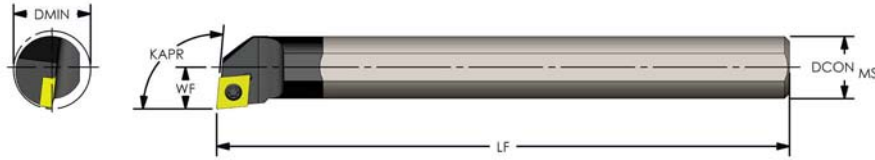
*bars 8mm and smaller do not have flats



POSITIVE 55° DIAMOND (KAPR: 93°) PROFILING

8:1 Ratio
COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [mm]	LF [mm]	WF [mm]	DMIN [mm]	KAPR [°]	Insert	Insert Screw	Key
920-000-438	920-000-439	M-E10M SDUCR/L07	10.00	150.00	9.00	15.00	93.0	DCMT 21.51	MTS-255	T-7
920-000-444	920-000-445	M-E12Q SDUCR/L07	12.00	180.00	11.00	18.00	93.0	DCMT 21.51	MTS-255	T-7
920-000-450	920-000-451	M-E16R SDUCR/L07	16.00	200.00	13.00	22.00	93.0	DCMT 21.51	MTS-255	T-7
920-000-456	920-000-457	M-E20S SDUCR/L11	20.00	250.00	15.00	27.00	93.0	DCMT 32.51	MTS-35	T-15
920-000-462	920-000-463	M-E25T SDUCR/L11	25.00	300.00	18.00	33.00	93.0	DCMT 32.51	MTS-35	T-15



POSITIVE 80° DIAMOND (KAPR: 95°)

**8:1 Ratio
NO COOLANT**

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-001	920-000-002	C02.5G SCLDR/L1.2*	0.156	3.500	0.090	0.175	95.0	CDHB 1.20.60	MTS-183	T-6
920-000-005	920-000-006	C03H SCLDR/L1.2*	0.187	4.000	0.102	0.205	95.0	CDHB 1.20.60	MTS-183	T-6
920-000-003	920-000-004	C03.5H SCLDR/L1.5*	0.218	4.000	0.125	0.245	95.0	CDGW 1.510	MTS-184	T-6
920-000-008	920-000-010	C04H SCLDR/L1.5*	0.250	4.000	0.172	0.312	95.0	CDGW 1.510	MTS-184	T-6
920-000-018	920-000-020	C05K SCLPR/L1.8*	0.312	5.000	0.219	0.395	95.0	CPMT 1.81.20.5	MTS-224	T-7
920-000-032	920-000-034	C06M SCLPR/L2	0.375	6.000	0.250	0.460	95.0	CPMT 21.51	MTS-255	T-7
920-000-062	920-000-065	C08J SCLPR/L2	0.500	4.500	0.312	0.600	95.0	CPMT 21.51	MTS-255	T-7
920-000-094	920-000-097	C08R SCLPR/L2	0.500	8.000	0.312	0.600	95.0	CPMT 21.51	MTS-255	T-7
920-000-064	920-000-067	C08J SCLPR/L3	0.500	4.500	0.344	0.625	95.0	CPMT 32.51	MTS-35	T-15
920-000-096	920-000-099	C08R SCLPR/L3	0.500	8.000	0.344	0.625	95.0	CPMT 32.51	MTS-35	T-15
920-000-028	920-000-030	C06M SCLCR/L2	0.375	6.000	0.250	0.460	95.0	CCMT 21.51	MTS-255	T-7
920-000-056	920-000-059	C08J SCLCR/L2	0.500	4.500	0.312	0.600	95.0	CCMT 21.51	MTS-255	T-7
920-000-088	920-000-091	C08R SCLCR/L2	0.500	8.000	0.312	0.600	95.0	CCMT 21.51	MTS-255	T-7
920-000-058	920-000-061	C08J SCLCR/L3	0.500	4.500	0.344	0.625	95.0	CCMT 32.51	MTS-35	T-15
920-000-090	920-000-093	C08R SCLCR/L3	0.500	8.000	0.344	0.625	95.0	CCMT 32.51	MTS-35	T-15

MINIMUM CLEARANCE

NO COOLANT

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-009	920-000-011	C04H SCLDR/L1.5-138 *	0.250	4.000	0.138	0.275	95.0	CDGW 1.510	MTS-184	T-6
920-000-019	920-000-021	C05K SCLPR/L1.8-167 *	0.312	5.000	0.167	0.340	95.0	CPMT 1.81.20.5	MTS-224	T-7
920-000-033	920-000-035	C06M SCLPR/L2-203	0.375	6.000	0.203	0.410	95.0	CPMT 21.51	MTS-255	T-7
920-000-063	920-000-066	C08J SCLPR/L2-281	0.500	4.500	0.281	0.560	95.0	CPMT 21.51	MTS-255	T-7
920-000-095	920-000-098	C08R SCLPR/L2-281	0.500	8.000	0.281	0.560	95.0	CPMT 21.51	MTS-255	T-7
920-000-029	920-000-031	C06M SCLCR/L2-203	0.375	6.000	0.203	0.410	95.0	CCMT 21.51	MTS-255	T-7
920-000-057	920-000-060	C08J SCLCR/L2-281	0.500	4.500	0.281	0.560	95.0	CCMT 21.51	MTS-255	T-7
920-000-089	920-000-092	C08R SCLCR/L2-281	0.500	8.000	0.281	0.560	95.0	CCMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

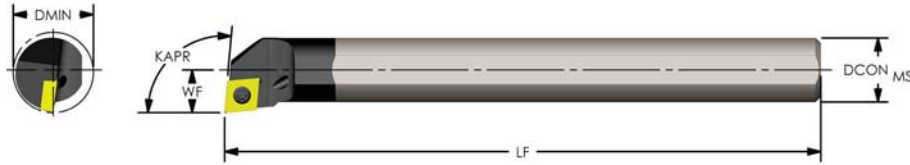
PACKAGE SIZE OF 5

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

CARBIDE



POSITIVE 80° DIAMOND (KAPR: 95°)

8:1 Ratio
COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCON MS	LF	WF	DMIN	KAPR	Insert	Insert Screw	Key
920-000-120	920-000-121	E02.5G SCLDR/L1.2 *	0.156	3.500	0.090	0.175	95.0	CDHB 1.20.60	MTS-183	T-6
920-000-124	920-000-125	E03H SCLDR/L1.2 *	0.187	4.000	0.102	0.205	95.0	CDHB 1.20.60	MTS-183	T-6
920-000-122	920-000-123	E03.5H SCLDR/L1.5 *	0.218	4.000	0.125	0.245	95.0	CDGW 1.510	MTS-184	T-6
920-000-127	920-000-129	E04H SCLDR/L1.5 *	0.250	4.000	0.172	0.312	95.0	CDGW 1.510	MTS-184	T-6
920-000-137	920-000-139	E05K SCLPR/L1.8 *	0.312	5.000	0.219	0.395	95.0	CPMT 1.81.20.5	MTS 224	T-7
920-000-151	920-000-153	E06M SCLPR/L2	0.375	6.000	0.250	0.460	95.0	CPMT 21.51	MTS-255	T-7
920-000-183	920-000-186	E08J SCLPR/L2	0.500	4.500	0.312	0.600	95.0	CPMT 21.51	MTS-255	T-7
920-000-219	920-000-222	E08R SCLPR/L2	0.500	8.000	0.312	0.600	95.0	CPMT 21.51	MTS-255	T-7
920-000-254	920-000-256	E10Q SCLPR/L2	0.625	7.000	0.406	0.770	95.0	CPMT 21.51	MTS-255	T-7
920-000-279	920-000-281	E10S SCLPR/L2	0.625	10.000	0.406	0.770	95.0	CPMT 21.51	MTS-255	T-7
920-000-185	920-000-188	E08J SCLPR/L3	0.500	4.500	0.344	0.625	95.0	CPMT 32.51	MTS-35	T-15
920-000-221	920-000-224	E08R SCLPR/L3	0.500	8.000	0.344	0.625	95.0	CPMT 32.51	MTS-35	T-15
920-000-255	920-000-257	E10Q SCLPR/L3	0.625	7.000	0.406	0.760	95.0	CPMT 32.51	MTS-35	T-15
920-000-280	920-000-282	E10S SCLPR/L3	0.625	10.000	0.406	0.760	95.0	CPMT 32.51	MTS-35	T-15
920-000-307	920-000-309	E12Q SCLPR/L3	0.750	7.000	0.500	0.920	95.0	CPMT 32.51	MTS-35	T-15
920-000-334	920-000-335	E12S SCLPR/L3	0.750	10.000	0.500	0.920	95.0	CPMT 32.51	MTS-35	T-15
920-000-364	920-000-365	E16R SCLPR/L3	1.000	8.000	0.625	1.185	95.0	CPMT 32.51	MTS-35	T-15
920-000-394	920-000-395	E16T SCLPR/L3	1.000	12.000	0.625	1.185	95.0	CPMT 32.51	MTS-35	T-15

MINIMUM CLEARANCE

COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-128	920-000-130	E04H SCLDR/L1.5-138 *	0.250	4.000	0.138	0.270	95.0	CDGW 1.510	MTS-184	T-6
920-000-138	920-000-140	E05K SCLPR/L1.8-167 *	0.312	5.000	0.167	0.340	95.0	CPMT 1.81.20.5	MTS 224	T-7
920-000-152	920-000-154	E06M SCLPR/L2-203	0.375	6.000	0.203	0.410	95.0	CPMT 21.51	MTS-255	T-7
920-000-184	920-000-187	E08J SCLPR/L2-281	0.500	4.500	0.281	0.560	95.0	CPMT 21.51	MTS-255	T-7
920-000-220	920-000-223	E08R SCLPR/L2-281	0.500	8.000	0.281	0.560	95.0	CPMT 21.51	MTS-255	T-7

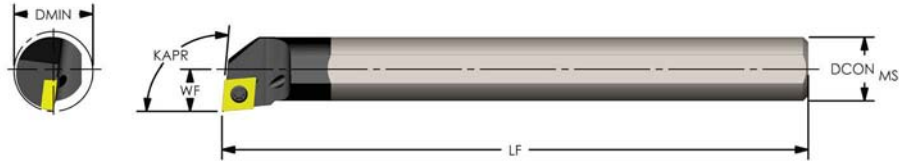
Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

PACKAGE SIZE OF 5



POSITIVE 80° DIAMOND (KAPR: 95°)

COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-147	920-000-149	E06M SCLCR/L2	0.375	6.000	0.250	0.460	95.0	CCMT 21.51	MTS-255	T-7
920-000-177	920-000-180	E08J SCLCR/L2	0.500	4.500	0.312	0.600	95.0	CCMT 21.51	MTS-255	T-7
920-000-213	920-000-216	E08R SCLCR/L2	0.500	8.000	0.312	0.600	95.0	CCMT 21.51	MTS-255	T-7
920-000-250	920-000-252	E10Q SCLCR/L2	0.625	7.000	0.406	0.760	95.0	CCMT 21.51	MTS-255	T-7
920-000-275	920-000-277	E10S SCLCR/L2	0.625	10.00	0.406	0.760	95.0	CCMT 21.51	MTS-255	T-7
920-000-179	920-000-182	E08J SCLCR/L3	0.500	4.500	0.344	0.625	95.0	CCMT 32.51	MTS-35	T-15
920-000-215	920-000-218	E08R SCLCR/L3	0.500	8.000	0.344	0.625	95.0	CCMT 32.51	MTS-35	T-15
920-000-251	920-000-253	E10Q SCLCR/L3	0.625	7.000	0.406	0.760	95.0	CCMT 32.51	MTS-35	T-15
920-000-276	920-000-278	E10S SCLCR/L3	0.625	10.00	0.406	0.760	95.0	CCMT 32.51	MTS-35	T-15
920-000-306	920-000-307	E12Q SCLCR/L3	0.750	7.000	0.500	0.920	95.0	CCMT 32.51	MTS-35	T-15
920-000-332	920-000-333	E12S SCLCR/L3	0.750	10.00	0.500	0.920	95.0	CCMT 32.51	MTS-35	T-15
920-000-362	920-000-363	E16R SCLCR/L3	1.000	8.000	0.625	1.185	95.0	CCMT 32.51	MTS-35	T-15
920-000-392	920-000-393	E16T SCLCR/L3	1.000	12.00	0.625	1.185	95.0	CCMT 32.51	MTS-35	T-15
920-000-417	920-000-419	E20U SCLCR/L3	1.250	14.00	0.765	1.465	95.0	CCMT 32.51	MTS-35	T-15
920-000-418	920-000-420	E20U SCLCR/L4	1.250	14.00	0.765	1.465	95.0	CCMT 432	MTS-4	T-20
920-000-426	920-000-427	E24U SCLCR/L4	1.500	14.00	0.890	1.730	95.0	CCMT 432	MTS-4	T-20

MINIMUM CLEARANCE

COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-148	920-000-150	E06M SCLCR/L2-203	0.375	6.000	0.203	0.410	95.0	CCMT 21.51	MTS-255	T-7
920-000-178	920-000-181	E08J SCLCR/L2-281	0.500	4.500	0.281	0.560	95.0	CCMT 21.51	MTS-255	T-7
920-000-214	920-000-217	E08R SCLCR/L2-281	0.500	8.000	0.281	0.560	95.0	CCMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

CARBIDE

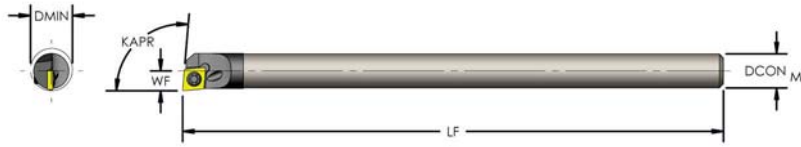


POSITIVE 80° DIAMOND (KAPR: 97°) SERIES "C"

8:1 Ratio
COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
915-000-001	CCUD-165/156-6-7R *	0.156	6.000	0.095	0.180	97.0	CDHB 1.20.60.5	MTS-183	T-6

* bars .312 and smaller do not have flats

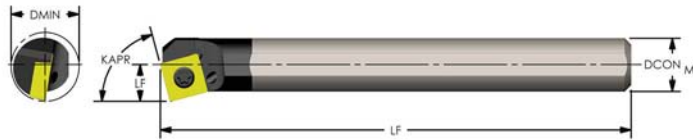


POSITIVE 80° DIAMOND (KAPR: 95°) SERIES "C"

8:1 Ratio
COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
915-000-002	CCUD-180/187-4-5R *	0.187	4.000	0.104	0.208	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-003	CCUD-180/187-6-5R *	0.187	6.000	0.104	0.208	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-006	CCUD-187-4-5R *	0.187	4.000	0.111	0.222	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-007	CCUD-187-6-5R *	0.187	6.000	0.111	0.222	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-011	CCUD-250-4-5R *	0.250	4.000	0.145	0.285	95.0	CDHB 1.20.60.5	MTS-184	T-6
915-000-013	CCUD-250-6-5R *	0.250	6.000	0.145	0.285	95.0	CDHB 1.20.60.5	MTS-184	T-6
915-000-014	CCUD-312-5-5R *	0.312	5.000	0.185	0.360	95.0	CDHB 1.20.60.5	MTS-184	T-6
915-000-012	CCUD-250-4-5R-1.5 *	0.250	4.000	0.145	0.285	95.0	CDGW 1.510	MTS-184	T-6

* bars .312 and smaller do not have flats



POSITIVE SQUARE (KAPR: 75°)

8:1 Ratio
COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-230	E08R SSKCR3	0.500	8.000	0.344	0.625	75.0	SCMT 32.51	MTS-35	T-15
920-000-288	E10S SSKCR3	0.625	10.00	0.406	0.760	75.0	SCMT 32.51	MTS-35	T-15

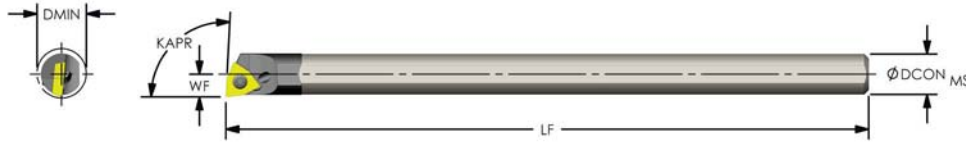
USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

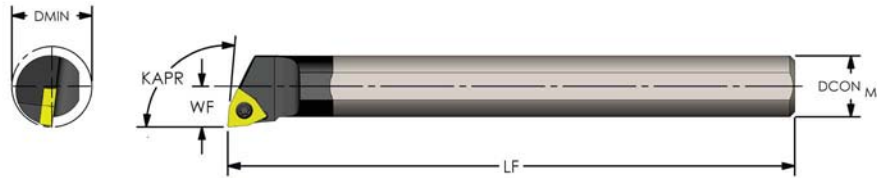
PACKAGE SIZE OF 5



POSITIVE TRIGON (KAPR: 93°) SERIES "G, Q, S"

8:1 Ratio
COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
915-000-053	915-000-054	GCUDW-187-6-3R/L	0.187	6.000	0.126	0.260	93.0	WPGT 1.511	MTS-184	T-6
915-000-055	915-000-056	GCUDW-250-6-3R/L	0.250	6.000	0.143	0.285	93.0	WPGT 1.511	MTS-184	T-6
915-000-057	915-000-058	GCUDW-312-6-3R/L	0.312	6.000	0.174	0.374	93.0	WPGT 1.511	MTS-184	T-6
915-000-068	915-000-069	QCUDW-375-6-3R/L	0.375	6.000	0.211	0.415	93.0	WPGT 21.50	MTS-255	T-7
915-000-070	915-000-071	QCUDW-500-8-3R/L	0.500	8.000	0.273	0.540	93.0	WPGT 21.50	MTS-255	T-7
N/A	915-000-090	SCUDW-625-10-3R	0.625	10.000	0.345	0.675	93.0	WPMT 32.51	MTS-35	T-15
N/A	915-000-091	SCUDW-750-10-3R	0.750	10.000	0.407	0.800	93.0	WPMT 32.51	MTS-35	T-15



POSITIVE TRIGON (KAPR: 95°)

8:1 Ratio
NO COOLANT

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
N/A	920-000-007	C03H SWLCR1.2 *	0.187	4.000	0.102	0.205	95.0	WCMT 1.210.5	MTS-183	T-6
N/A	920-000-016	C04H SWLCR1.2 *	0.250	4.000	0.172	0.312	95.0	WCMT 1.210.5	MTS-184	T-6
N/A	920-000-026	C05K SWLCR1.5 *	0.312	5.000	0.219	0.395	95.0	WCMT 1.51.50.5	MTS-2	T-6
920-000-052	920-000-054	C06M SWLCR/L2	0.375	6.000	0.250	0.460	95.0	WCMT 21.51	MTS-255	T-7
920-000-084	920-000-086	C08J SWLCR/L2	0.500	4.500	0.312	0.600	95.0	WCMT 21.51	MTS-255	T-7
920-000-116	920-000-118	C08R SWLCR/L2	0.500	8.000	0.312	0.600	95.0	WCMT 21.51	MTS-255	T-7

MINIMUM CLEARANCE

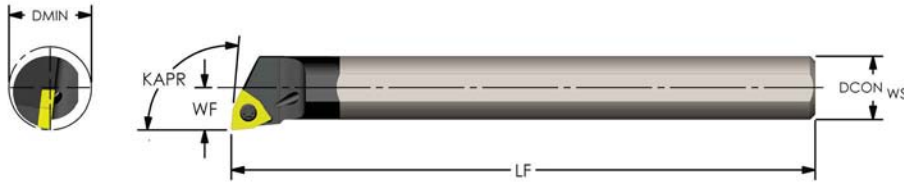
NO COOLANT

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
N/A	920-000-017	C04H SWLCR1.2-138 *	0.250	4.000	0.138	0.275	95.0	WCMT 1.210.5	MTS-184	T-6
N/A	920-000-027	C05K SWLCR1.5-167 *	0.312	5.000	0.167	0.345	95.0	WCMT 1.51.50.5	MTS-2	T-6
920-000-053	920-000-055	C06M SWLCR/L2-203	0.375	6.000	0.203	0.400	95.0	WCMT 21.51	MTS-255	T-7
920-000-085	920-000-087	C08J SWLCR/L2-281	0.500	4.500	0.281	0.560	95.0	WCMT 21.51	MTS-255	T-7
920-000-117	920-000-119	C08R SWLCR/L2-281	0.500	8.000	0.281	0.560	95.0	WCMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance Max depth of cut .015" - .020"
* bars .312 and smaller do not have flats

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

CARBIDE



POSITIVE TRIGON (KAPR: 95°)

8:1 Ratio
COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
N/A	920-000-126	E03H SWLCR1.2 *	0.187	4.000	0.102	0.205	95.0	WCMT 1.210.5	MTS-183	T-6
N/A	920-000-135	E04H SWLCR1.2 *	0.250	4.000	0.172	0.395	95.0	WCMT 1.210.5	MTS-184	T-6
N/A	920-000-145	E05K SWLCR1.5 *	0.312	5.000	0.219	0.410	95.0	WCMT1.51.50.5	MTS-2	T-6
920-000-173	920-000-175	E06M SWLCR/L2	0.375	6.000	0.250	0.460	95.0	WCMT 21.51	MTS-255	T-7
920-000-205	920-000-207	E08J SWLCR/L2	0.500	4.500	0.312	0.600	95.0	WCMT 21.51	MTS-255	T-7
920-000-244	920-000-246	E08R SWLCR/L2	0.500	8.000	0.312	0.600	95.0	WCMT 21.51	MTS-255	T-7
920-000-269	920-000-271	E10Q SWLCR/L2	0.625	7.000	0.406	0.760	95.0	WCMT 21.51	MTS-255	T-7
920-000-296	920-000-298	E10S SWLCR/L2	0.625	10.000	0.406	0.760	95.0	WCMT 21.51	MTS-255	T-7
920-000-270	920-000-272	E10Q SWLCR/L3	0.625	7.000	0.406	0.760	95.0	WCMT 32.51	MTS-35	T-15
920-000-297	920-000-299	E10S SWLCR/L3	0.625	10.000	0.406	0.760	95.0	WCMT 32.51	MTS-35	T-15
920-000-322	920-000-323	E12Q SWLCR/L3	0.750	7.000	0.500	0.920	95.0	WCMT 32.51	MTS-35	T-15
920-000-350	920-000-351	E12S SWLCR/L3	0.750	10.000	0.500	0.920	95.0	WCMT 32.51	MTS-35	T-15
920-000-378	920-000-379	E16R SWLCR/L3	1.000	8.000	0.625	1.185	95.0	WCMT 32.51	MTS-35	T-15
920-000-408	920-000-409	E16T SWLCR/L3	1.000	12.000	0.625	1.185	95.0	WCMT 32.51	MTS-35	T-15

MINIMUM CLEARANCE

COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
N/A	920-000-136	E04H SWLCR1.2-138 *	0.250	4.000	0.138	0.275	95.0	WCMT 1.210.5	MTS-184	T-6
N/A	920-000-146	E05K SWLCR1.5-167 *	0.312	5.000	0.167	0.345	95.0	WCMT 1.51.50.5	MTS-2	T-6
920-000-174	920-000-176	E06M SWLCR/L2-203	0.375	6.000	0.203	0.410	95.0	WCMT 21.51	MTS-255	T-7
920-000-206	920-000-208	E08J SWLCR/L2-281	0.500	4.500	0.281	0.560	95.0	WCMT 21.51	MTS-255	T-7
920-000-245	920-000-247	E08R SWLCR/L2-281	0.500	8.000	0.281	0.560	95.0	WCMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance Max depth of cut .015" - .020"
* bars .312 and smaller do not have flats

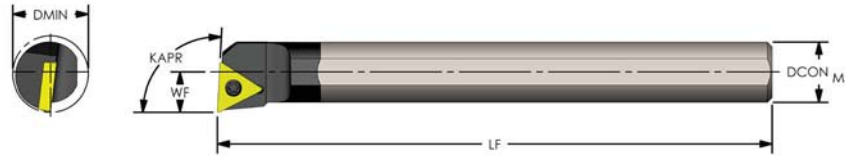
USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

PACKAGE SIZE OF 5



POSITIVE TRIANGLE (KAPR: 93°)

8:1 Ratio
NO COOLANT

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-012	920-000-014	C04H STUCR/L1.2 *	0.250	4.000	0.172	0.312	93.0	TCMT 1.21.20.5	MTS-184	T-6
920-000-022	920-000-024	C05K STUCR/L1.2 *	0.312	5.000	0.219	0.395	93.0	TCMT 1.21.20.5	MTS-184	T-6
920-000-044	920-000-046	C06M STUCR/L2	0.375	6.000	0.250	0.460	93.0	TCMT 21.51	MTS-255	T-7
920-000-076	920-000-078	C08J STUCR/L2	0.500	4.500	0.312	0.600	93.0	TCMT 21.51	MTS-255	T-7
920-000-108	920-000-110	C08R STUCR/L2	0.500	8.000	0.312	0.600	93.0	TCMT 21.51	MTS-255	T-7
920-000-048	920-000-050	C06M STUPR/L2	0.375	6.000	0.250	0.460	93.0	TPMT 21.51	MTS-255	T-7
920-000-080	920-000-082	C08J STUPR/L2	0.500	4.500	0.312	0.600	93.0	TPMT 21.51	MTS-255	T-7
920-000-112	920-000-114	C08R STUPR/L2	0.500	8.000	0.312	0.600	93.0	TPMT 21.51	MTS-255	T-7

MINIMUM CLEARANCE

NO COOLANT

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-013	920-000-015	C04H STUCR/L1.2-138 *	0.250	4.000	0.138	0.275	93.0	TCMT 1.21.20.5	MTS-184	T-6
920-000-023	920-000-025	C05K STUCR/L1.2-167 *	0.312	5.000	0.167	0.340	93.0	TCMT 1.21.20.5	MTS-184	T-6
920-000-045	920-000-047	C06M STUCR/L2-203	0.375	6.000	0.203	0.410	93.0	TCMT 21.51	MTS-255	T-7
920-000-077	920-000-079	C08J STUCR/L2-281	0.500	4.500	0.281	0.560	93.0	TCMT 21.51	MTS-255	T-7
920-000-109	920-000-111	C08R STUCR/L2-281	0.500	8.000	0.281	0.570	93.0	TCMT 21.51	MTS-255	T-7
920-000-049	920-000-051	C06M STUPR/L2-203	0.375	6.000	0.203	0.410	93.0	TPMT 21.51	MTS-255	T-7
920-000-081	920-000-083	C08J STUPR/L2-281	0.500	4.500	0.281	0.560	93.0	TPMT 21.51	MTS-255	T-7
920-000-113	920-000-115	C08R STUPR/L2-281	0.500	8.000	0.281	0.560	93.0	TPMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance Max depth of cut .015" - .020"
* bars .312 and smaller do not have flats

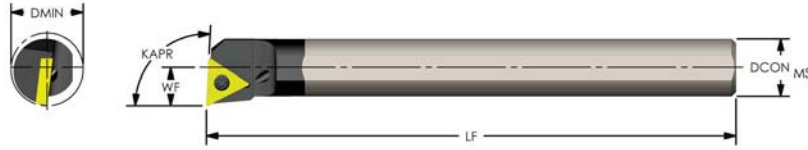
USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5



POSITIVE TRIANGLE (KAPR: 93°)

8:1 Ratio

COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-131	920-000-133	E04H STUCR/L1.2 *	0.250	4.000	0.172	0.312	93.0	TCMT 1.21.20.5	MTS-184	T-6
920-000-141	920-000-143	E05K STUCR/L1.2 *	0.312	5.000	0.219	0.395	93.0	TCMT 1.21.20.5	MTS-184	T-6
920-000-164	920-000-166	E06M STUCR/L2	0.375	6.000	0.250	0.460	93.0	TCMT 21.51	MTS-255	T-7
920-000-197	920-000-199	E08J STUCR/L2	0.500	4.500	0.312	0.600	93.0	TCMT 21.51	MTS-255	T-7
920-000-235	920-000-237	E08R STUCR/L2	0.500	8.000	0.312	0.600	93.0	TCMT 21.51	MTS-255	T-7
920-000-265	920-000-266	E10Q STUCR/L2	0.625	7.000	0.406	0.760	93.0	TCMT 21.51	MTS-255	T-7
920-000-291	920-000-292	E10S STUCR/L2	0.625	10.000	0.406	0.760	93.0	TCMT 21.51	MTS-255	T-7
920-000-318	920-000-319	E12Q STUCR/L3	0.750	7.000	0.500	0.920	93.0	TCMT 32.51	MTS-35	T-15
920-000-345	920-000-346	E12S STUCR/L3	0.750	10.000	0.500	0.920	93.0	TCMT 32.51	MTS-35	T-15
920-000-374	920-000-375	E16R STUCR/L3	1.000	8.000	0.625	1.185	93.0	TCMT 32.51	MTS-35	T-15
920-000-404	920-000-405	E16T STUCR/L3	1.000	12.000	0.625	1.185	93.0	TCMT 32.51	MTS-35	T-15
920-000-168	920-000-170	E06M STUPR/L2	0.375	6.000	0.250	0.460	93.0	TPMT 21.51	MTS-255	T-7
920-000-201	920-000-203	E08J STUPR/L2	0.500	4.500	0.312	0.600	93.0	TPMT 21.51	MTS-255	T-7
920-000-239	920-000-241	E08R STUPR/L2	0.500	8.000	0.312	0.600	93.0	TPMT 21.51	MTS-255	T-7
920-000-267	920-000-268	E10Q STUPR/L2	0.625	7.000	0.406	0.760	93.0	TPMT 21.51	MTS-255	T-7
920-000-293	920-000-294	E10S STUPR/L2	0.625	10.000	0.406	0.760	93.0	TPMT 21.51	MTS-255	T-7
920-000-320	920-000-321	E12Q STUPR/L3	0.750	7.000	0.500	0.920	93.0	TPMT 32.51	MTS-35	T-15
920-000-347	920-000-348	E12S STUPR/L3	0.750	10.000	0.500	0.920	93.0	TPMT 32.51	MTS-35	T-15
920-000-376	920-000-377	E16R STUPR/L3	1.000	8.000	0.625	1.185	93.0	TPMT 32.51	MTS-35	T-15
920-000-406	920-000-407	E16T STUPR/L3	1.000	12.000	0.625	1.185	93.0	TPMT 32.51	MTS-35	T-15

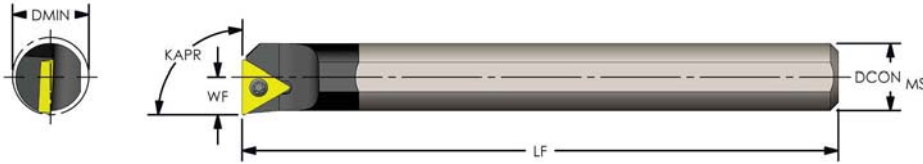
MINIMUM CLEARANCE

COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-132	920-000-134	E04H STUCR/L1.2-138 *	0.250	4.000	0.138	0.275	93.0	TCMT 1.21.20.5	MTS-184	T-6
920-000-142	920-000-144	E05K STUCR/L1.2-167 *	0.312	5.000	0.167	0.340	93.0	TCMT 1.21.20.5	MTS-184	T-6
920-000-165	920-000-167	E06M STUCR/L2-203	0.375	6.000	0.203	0.410	93.0	TCMT 21.51	MTS-255	T-7
920-000-198	920-000-200	E08J STUCR/L2-281	0.500	4.500	0.281	0.560	93.0	TCMT 21.51	MTS-255	T-7
920-000-236	920-000-238	E08R STUCR/L2-281	0.500	8.000	0.281	0.560	93.0	TCMT 21.51	MTS-255	T-7
920-000-169	920-000-170	E06M STUPR/L2-203	0.375	6.000	0.203	0.410	93.0	TPMT 21.51	MTS-255	T-7
920-000-202	920-000-204	E08J STUPR/L2-281	0.500	4.500	0.281	0.560	93.0	TPMT 21.51	MTS-255	T-7
920-000-240	920-000-242	E08R STUPR/L2-281	0.500	8.000	0.281	0.560	93.0	TPMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance Max depth of cut .015" - .020"
* bars .312 and smaller do not have flats

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT



POSITIVE TRIANGLE (KAPR: 90°)

8:1 Ratio
NO COOLANT

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-042	C06M STFPR2	0.375	6.000	0.250	0.460	90.0	TPMT 21.51	MTS-255	T-7
920-000-074	C08J STFPR2	0.500	4.500	0.312	0.600	90.0	TPMT 21.51	MTS-255	T-7
920-000-106	C08R STFPR2	0.500	8.000	0.312	0.600	90.0	TPMT 21.51	MTS-255	T-7
920-000-040	C06M STFPCR2	.375	6.000	0.250	0.460	90.0	TCMT 21.51	MTS-255	T-7
920-000-072	C08J STFPCR2	0.500	4.500	0.312	0.600	90.0	TCMT 21.51	MTS-255	T-7
920-000-104	C08R STFPCR2	0.500	8.000	0.312	0.600	90.0	TCMT 21.51	MTS-255	T-7

MINIMUM CLEARANCE

NO COOLANT

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-043	C06M STFPR2-203	0.375	6.000	0.203	0.410	90.0	TPMT 21.51	MTS-255	T-7
920-000-075	C08J STFPR2-281	0.500	4.500	0.281	0.560	90.0	TPMT 21.51	MTS-255	T-7
920-000-107	C08R STFPR2-281	0.500	8.000	0.281	0.560	90.0	TPMT 21.51	MTS-255	T-7
920-000-041	C06M STFPCR2-203	0.375	6.000	0.203	0.410	90.0	TCMT 21.51	MTS-255	T-7
920-000-073	C08J STFPCR2-281	0.500	4.500	0.281	0.560	90.0	TCMT 21.51	MTS-255	T-7
920-000-105	C08R STFPCR2-281	0.500	8.000	0.281	0.560	90.0	TCMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"

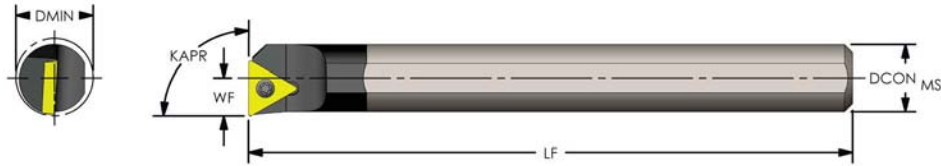
USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5



8:1 Ratio

POSITIVE TRIANGLE (KAPR: 90°)

COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-162	E06M STFPR2	0.375	6.000	0.250	0.460	90.0	TPMT 21.51	MTS-255	T-7
920-000-195	E08J STFPR2	0.500	4.500	0.312	0.600	90.0	TPMT 21.51	MTS-255	T-7
920-000-233	E08R STFPR2	0.500	8.000	0.312	0.600	90.0	TPMT 21.51	MTS-255	T-7
920-000-264	E10Q STFPR2	0.625	7.000	0.406	0.760	90.0	TPMT 21.51	MTS-255	T-7
920-000-290	E10S STFPR2	0.625	10.000	0.406	0.760	90.0	TPMT 21.51	MTS-255	T-7
920-000-317	E12Q STFPR3	0.750	7.000	0.500	0.920	90.0	TPMT 32.51	MTS-35	T-15
920-000-344	E12S STFPR3	0.750	10.000	0.500	0.920	90.0	TPMT 32.51	MTS-35	T-15
920-000-373	E16R STFPR3	1.000	8.000	0.625	1.185	90.0	TPMT 32.51	MTS-35	T-15
920-000-403	E16T STFPR3	1.000	12.000	0.625	1.185	90.0	TPMT 32.51	MTS-35	T-15
920-000-160	E06M STFPCR2	0.375	6.000	0.250	0.460	90.0	TCMT 21.51	MTS-255	T-7
920-000-193	E08J STFPCR2	0.500	4.500	0.312	0.600	90.0	TCMT 21.51	MTS-255	T-7
920-000-231	E08R STFPCR2	0.500	8.000	0.312	0.600	90.0	TCMT 21.51	MTS-255	T-7
920-000-263	E10Q STFPCR2	0.625	7.000	0.406	0.760	90.0	TCMT 21.51	MTS-255	T-7
920-000-289	E10S STFPCR2	0.625	10.000	0.406	0.760	90.0	TCMT 21.51	MTS-255	T-7
920-000-316	E12Q STFPCR3	0.750	7.000	0.500	0.920	90.0	TCMT 32.51	MTS-35	T-15
920-000-343	E12S STFPCR3	0.750	10.000	0.500	0.920	90.0	TCMT 32.51	MTS-35	T-15
920-000-372	E16R STFPCR3	1.000	8.000	0.625	1.185	90.0	TCMT 32.51	MTS-35	T-15
920-000-402	E16T STFPCR3	1.000	12.000	0.625	1.185	90.0	TCMT 32.51	MTS-35	T-15

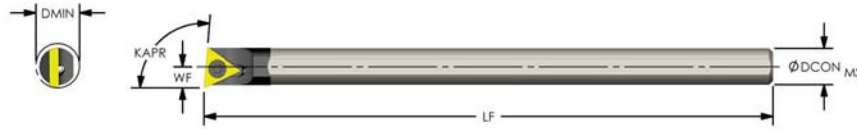
MINIMUM CLEARANCE

COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-163	E06M STFPR2-203	0.375	6.000	0.203	0.410	90.0	TPMT 21.51	MTS-255	T-7
920-000-196	E08J STFPR2-281	0.500	4.500	0.281	0.560	90.0	TPMT 21.51	MTS-255	T-7
920-000-234	E08R STFPR2-281	0.500	8.000	0.281	0.560	90.0	TPMT 21.51	MTS-255	T-7
920-000-161	E06M STFPCR2-203	0.375	6.000	0.203	0.410	90.0	TCMT 21.51	MTS-255	T-7
920-000-194	E08J STFPCR2-281	0.500	4.500	0.281	0.560	90.0	TCMT 21.51	MTS-255	T-7
920-000-232	E08R STFPCR2-281	0.500	8.000	0.281	0.560	90.0	TCMT 21.51	MTS-255	T-7

Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT



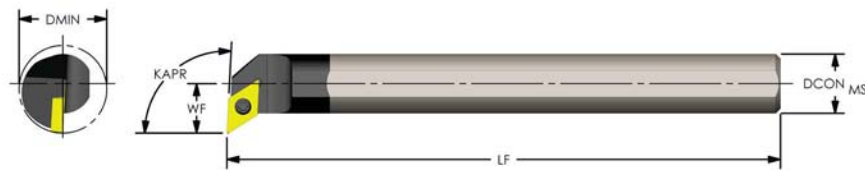
POSITIVE TRIANGLE (KAPR: 95°)

SERIES "F, Q, S"

8:1 Ratio
COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
915-000-030	FCUD-187-4-5R *	0.187	4.000	0.126	0.275	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-031	FCUD-187-6-5R *	0.187	6.000	0.126	0.275	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-034	FCUD-250-4-5R *	0.250	4.000	0.156	0.300	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-035	FCUD-250-6-5R *	0.250	6.000	0.156	0.300	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-038	FCUD-312-4-5R *	0.312	4.000	0.187	0.360	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-039	FCUD-312-6-5R *	0.312	6.000	0.187	0.360	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-066	QCUD-375-6-5R	0.375	6.000	0.228	0.438	95.0	TPCB 220.5	ETS 4-40	T-10
915-000-065	QCUD-375-10-5R	0.375	10.000	0.228	0.438	95.0	TPCB 220.5	ETS 4-40	T-10
915-000-067	QCUD-500-8-5R	0.500	8.000	0.296	0.563	95.0	TPCB 220.5	ETS 4-40	T-10
915-000-088	SCUD-625-6-5R	0.625	6.000	0.393	0.731	95.0	TD 320.5	ETS 4-40	T-10
915-000-087	SCUD-625-10-5R	0.625	10.000	0.393	0.731	95.0	TD 320.5	ETS 4-40	T-10
915-000-089	SCUD-750-10-5R	0.750	10.000	0.460	0.855	95.0	TD 320.5	ETS 4-40	T-10
915-000-086	SCUD-1000-12-5R	1.000	12.000	0.585	1.105	95.0	TD 320.5	ETS 4-40	T-10

*bars .312 and smaller do not have flats



POSITIVE 55° DIAMOND (KAPR: 93°) PROFILING

8:1 Ratio
NO COOLANT

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-036	920-000-037	C06M SDUCR/L2	0.375	6.000	0.375	0.585	93.0	DCMT 21.51	MTS-255	T-7
920-000-068	920-000-069	C08J SDUCR/L2	0.500	4.500	0.437	0.720	93.0	DCMT 21.51	MTS-255	T-7
920-000-100	920-000-101	C08R SDUCR/L2	0.500	8.000	0.437	0.720	93.0	DCMT 21.51	MTS-255	T-7

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

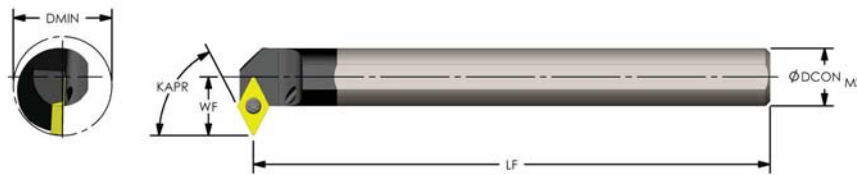
CARBIDE



POSITIVE 55° DIAMOND (KAPR: 93°) PROFILING

COOLANT THRU

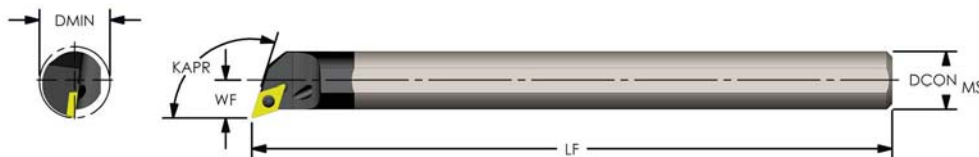
PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-156	920-000-157	E06M SDUCR/L2	0.375	6.000	0.375	0.585	93.0	DCMT 21.51	MTS-255	T-7
920-000-189	920-000-190	E08J SDUCR/L2	0.500	4.500	0.437	0.720	93.0	DCMT 21.51	MTS-255	T-7
920-000-226	920-000-227	E08R SDUCR/L2	0.500	8.000	0.437	0.720	93.0	DCMT 21.51	MTS-255	T-7
920-000-259	920-000-260	E10Q SDUCR/L2	0.625	7.000	0.500	0.850	93.0	DCMT 21.51	MTS-255	T-7
920-000-284	920-000-285	E10S SDUCR/L2	0.625	10.000	0.500	0.850	93.0	DCMT 21.51	MTS-255	T-7
920-000-310	920-000-311	E12Q SDUCR/L3	0.750	7.000	0.625	1.050	93.0	DCMT 32.51	MTS-35	T-15
920-000-337	920-000-338	E12S SDUCR/L3	0.750	10.000	0.625	1.050	93.0	DCMT 32.51	MTS-35	T-15
920-000-366	920-000-367	E16R SDUCR/L3	1.000	8.000	0.750	1.310	93.0	DCMT 32.51	MTS-35	T-15
920-000-396	920-000-397	E16T SDUCR/L3	1.000	12.000	0.750	1.310	93.0	DCMT 32.51	MTS-35	T-15
920-000-312	920-000-313	E12Q SDUPR/L3	0.750	7.000	0.625	1.050	93.0	DPMT 32.51	MTS-35	T-15
920-000-339	920-000-340	E12S SDUPR/L3	0.750	10.000	0.625	1.050	93.0	DPMT 32.51	MTS-35	T-15
920-000-368	920-000-369	E16R SDUPR/L3	1.000	8.000	0.750	1.310	93.0	DPMT 32.51	MTS-35	T-15
920-000-398	920-000-399	E16T SDUPR/L3	1.000	12.000	0.750	1.310	93.0	DPMT 32.51	MTS-35	T-15



POSITIVE 55° DIAMOND (KAPR: 62.5°) PROFILING

8:1 Ratio
COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-258	E10Q SDNCR2	0.625	6.86	.562	0.920	62.5	DCMT 21.51	MTS-255	T-7
920-000-336	E12S SDNCR3	0.750	9.80	0.765	1.190	62.5	DCMT 32.51	MTS-35	T-15

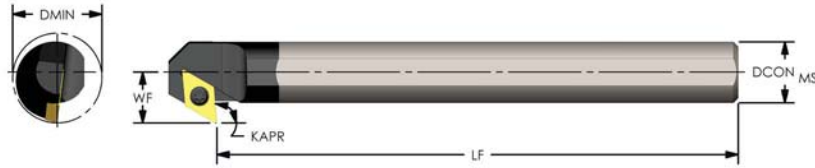


POSITIVE 55° DIAMOND (KAPR: 107.5°) PROFILING

8:1 Ratio
COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-155	E06M SDQCR2	0.375	6.000	0.281	0.490	107.5	DCMT 21.51	MTS-255	T-7
920-000-225	E08R SDQCR2	0.500	8.000	0.341	0.620	107.5	DCMT 21.51	MTS-255	T-7
920-000-283	E10S SDQCR2	0.625	10.000	0.406	0.760	107.5	DCMT 21.51	MTS-255	T-7

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT



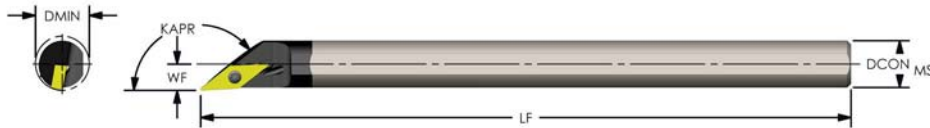
POSITIVE 55° DIAMOND (KAPR: 95°) BACK FACING

8:1 Ratio
NO COOLANT

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-038	920-000-039	C06M SDXCR/L2	0.375	6.000	0.375	0.585	95.0	DCMT 21.51	MTS-255	T-7
920-000-070	920-000-071	C08J SDXCR/L2	0.500	4.500	0.437	0.720	95.0	DCMT 21.51	MTS-255	T-7
920-000-102	920-000-103	C08R SDXCR/L2	0.500	8.000	0.437	0.720	95.0	DCMT 21.51	MTS-255	T-7

COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
920-000-158	920-000-159	E06M SDXCR/L2	0.375	6.000	0.375	0.585	95.0	DCMT 21.51	MTS-255	T-7
920-000-191	920-000-192	E08J SDXCR/L2	0.500	4.500	0.437	0.720	95.0	DCMT 21.51	MTS-255	T-7
920-000-228	920-000-229	E08R SDXCR/L2	0.500	8.000	0.437	0.720	95.0	DCMT 21.51	MTS-255	T-7
920-000-261	920-000-262	E10Q SDXCR/L2	0.625	7.000	0.500	0.850	95.0	DCMT 21.51	MTS-255	T-7
920-000-286	920-000-287	E10S SDXCR/L2	0.625	10.000	0.500	0.850	95.0	DCMT 21.51	MTS-255	T-7
920-000-314	920-000-315	E12Q SDXCR/L3	0.750	7.000	0.625	1.050	95.0	DCMT 32.51	MTS-35	T-15
920-000-341	920-000-342	E12S SDXCR/L3	0.750	10.000	0.625	1.050	95.0	DCMT 32.51	MTS-35	T-15
920-000-370	920-000-371	E16R SDXCR/L3	1.000	8.000	0.750	1.310	95.0	DCMT 32.51	MTS-35	T-15
920-000-400	920-000-401	E16T SDXCR/L3	1.000	12.000	0.750	1.310	95.0	DCMT 32.51	MTS-35	T-15



POSITIVE 35° DIAMOND (KAPR: 142°) PROFILING

8:1 Ratio
COOLANT THRU

PRODUCT #	DESIGNATION	DCON MS	LF	WF	DMIN	KAPR	Insert	Insert Screw	Key
920-000-172	E06M SVJBR2	0.375	6.000	0.223	0.445	142.0	VBMT 21.51	MTS-2.5L	T-7
920-000-243	E08R SVJBR2	0.500	8.000	0.285	0.570	142.0	VBMT 21.51	MTS-2.5L	T-7
920-000-295	E10S SVJBR2	0.625	10.000	0.348	0.700	142.0	VBMT 21.51	MTS-2.5L	T-7
920-000-349	E12S SVJBR3	0.750	10.000	0.421	0.840	142.0	VBMT 331	MTS-3.5L	T-15

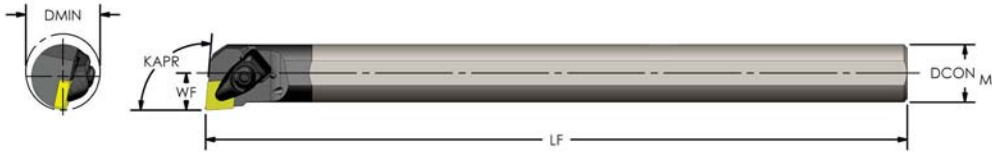
PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

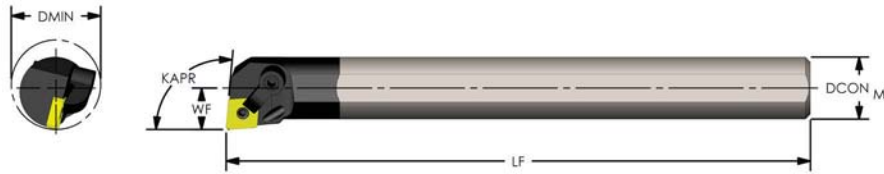
CARBIDE



NEGATIVE 80° DIAMOND (KAPR: 95°) SHANK

8:1 Ratio
COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim	Shim Screw	Clamp Assy.
920-000-380	E16T DCLNR4	1.000	12.000	0.640	1.200	95.0	CNMG 432	N/A	N/A	PB4-CA
920-000-410	E20U DCLNR4	1.250	14.000	0.765	1.470	95.0	CNMG 432	ICSN 433	PB4-SS	PB4-CA



NEGATIVE 80° DIAMOND (KAPR: 95°)

8:1 Ratio
COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
920-000-302	920-000-303	E12Q MCLNR/L3	0.750	7.000	0.500	0.920	95.0	CNMG 322	N/A	CL-7	XNS-36	NL-33
920-000-326	920-000-327	E12S MCLNR/L3	0.750	10.000	0.500	0.920	95.0	CNMG 322	N/A	CL-7	XNS-36	NL-33
920-000-354	920-000-356	E16R MCLNR/L3	1.000	8.000	0.640	1.200	95.0	CNMG 322	N/A	CL-7	XNS-36	NL-33
920-000-383	920-000-385	E16T MCLNR/L3	1.000	12.000	0.640	1.200	95.0	CNMG 322	N/A	CL-7	XNS-36	NL-33
920-000-355	920-000-357	E16R MCLNR/L4	1.000	8.000	0.640	1.200	95.0	CNMG 432	N/A	CL-20	XNS-47	NL-44
920-000-384	920-000-386	E16T MCLNR/L4	1.000	12.000	0.640	1.200	95.0	CNMG 432	N/A	CL-20	XNS-47	NL-44
920-000-412	920-000-413	E20U MCLNR/L4	1.250	14.000	0.765	1.470	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
920-000-421	920-000-422	E24U MCLNR/L4	1.500	14.000	0.890	1.730	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

PRODUCT #	Clamp
968-000-016	CL-6
968-000-017	CL-7
968-000-020	CL-9
968-000-010	CL-12
968-000-011	CL-19
968-000-012	CL-20

PRODUCT #	Clamp
968-000-013	CL-21
968-000-014	CL-22
968-000-015	CL-30
968-000-018	CL-84
968-000-019	CL-85

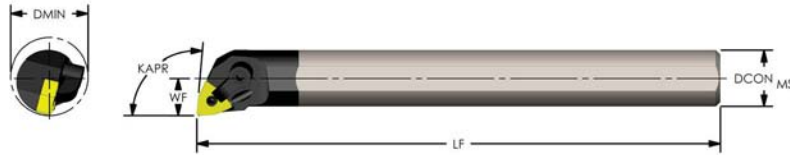
PRODUCT #	Clamp Screw
968-000-176	XNS-36
968-000-177	XNS-47
968-000-178	XNS-48
968-000-179	XNS-510
968-000-180	XNS-58
968-000-181	XNS-59

PRODUCT #	Shim Screw
968-000-109	PB3-SS
968-000-111	PB4-SS

PACKAGE SIZE OF 5

PRODUCT #	Clamp Assy.
968-000-107	PB3-CA
968-000-110	PB4-CA

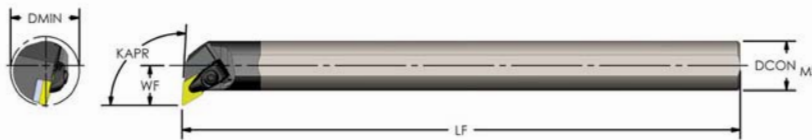
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NEGATIVE TRIGON (KAPR: 95°)

8:1 Ratio
COOLANT THRU

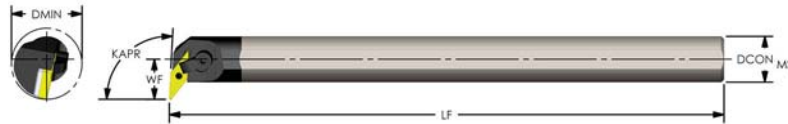
PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
920-000-304	920-000-305	E12Q MWLNR/L3	0.750	7.000	0.500	0.920	95.0	WNMG 332	N/A	CL-7	XNS-36	NL-33L
920-000-328	920-000-329	E12S MWLNR/L3	0.750	10.000	0.500	0.920	95.0	WNMG 332	N/A	CL-7	XNS-36	NL-33L
920-000-358	920-000-360	E16R MWLNR/L3	1.000	8.000	0.640	1.200	95.0	WNMG 332	N/A	CL-7	XNS-36	NL-33L
920-000-388	920-000-390	E16T MWLNR/L3	1.000	12.000	0.640	1.200	95.0	WNMG 332	N/A	CL-7	XNS-36	NL-33L
920-000-359	920-000-361	E16R MWLNR/L4	1.000	8.000	0.640	1.200	95.0	WNMG 432	N/A	CL-20	XNS-47	NL-44
920-000-389	920-000-391	E16T MWLNR/L4	1.000	12.000	0.640	1.200	95.0	WNMG 432	N/A	CL-20	XNS-47	NL-44
920-000-415	920-000-416	E20U MWLNR/L4	1.250	14.000	0.765	1.470	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
920-000-424	920-000-425	E24U MWLNR/L4	1.500	14.000	0.890	1.730	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46



NEGATIVE 55° DIAMOND (KAPR: 93°) SHANK

8:1 Ratio
COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim	Shim Screw	Clamp Assy.
920-000-411	E20U DDUNR4	1.250	14.000	1.000	1.700	93.0	DNMG 432	IDSN 433	PB4-SS	PB4-CA



NEGATIVE 35° DIAMOND (KAPR: 93°) PROFILING

8:1 Ratio
NO COOLANT

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Clamp	Clamp Screw	Lock Pin
920-000-387	E16T MVUNR3	1.000	12.000	0.875	1.435	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
920-000-414	E20U MVUNR3	1.250	14.000	1.000	1.705	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
920-000-423	E24U MVUNR3	1.500	14.000	1.120	1.960	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L

PRODUCT #	Shim Seat
968-000-053	ICSN-433
968-000-054	ICSN-533
968-000-055	ICSN-633
968-000-063	ISSN-432
968-000-064	ISSN-433
968-000-065	ISSN-533
968-000-066	ISSN-633
968-000-056	IDSN-322
968-000-057	IDSN-433
968-000-058	IDSN-533
968-000-067	ITSN-323
968-000-068	ITSN-433

PRODUCT #	Shim Seat
968-000-069	ITSN-533
968-000-070	ITSN-636
968-000-071	IVSN-322
968-000-072	IVSN-432
968-000-073	IVSN-433
968-000-074	IWSN-322
968-000-075	IWSN-433
968-000-059	IRSN-32
968-000-060	IRSN-43
968-000-061	IRSN-53
968-000-062	IRSN-63

PACKAGE SIZE OF 10

PRODUCT #	Lock Pin
968-000-097	NL-33
968-000-098	NL-33L
968-000-099	NL-34
968-000-100	NL-34L
968-000-101	NL-44
968-000-102	NL-46
968-000-103	NL-56
968-000-104	NL-58
968-000-105	NL-68
968-000-106	NL-68L

PACKAGE SIZE OF 5

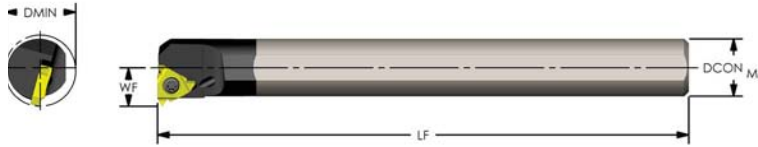
PRODUCT #	Shim Screw
968-000-109	PB3-SS
968-000-111	PB4-SS

PACKAGE SIZE OF 5

PRODUCT #	Clamp Assy.
968-000-107	PB3-CA
968-000-110	PB4-CA

PACKAGE SIZE OF 1

CARBIDE

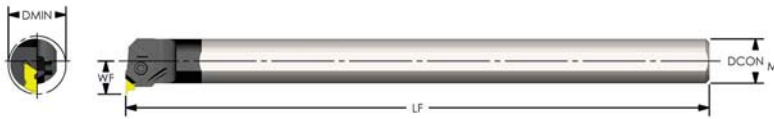


THREADING/GROOVING LAYDOWN

8:1 Ratio
COOLANT THRU

PRODUCT #	DESIGNATION RIGHT HAND	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Insert Screw	Anvil Screw	Anvil
920-000-210	E08R LSER2	0.500	8.000	0.308	0.588	2IR	SR34505L	N/A	N/A
920-000-249	E10Q LSER2	0.625	7.000	0.371	0.721	2IR	SR34505L	N/A	N/A
920-000-301	E12Q LSER3	0.750	7.000	0.510	0.935	3IR	MTS-35	N/A	N/A
920-000-325	E12S LSER3	0.750	10.000	0.510	0.935	3IR	MTS-35	N/A	N/A
920-000-353	E16R LSER3	1.000	8.000	0.650	1.210	3IR	SA3T	SY3T	YI3
920-000-381	E16T LSER3	1.000	12.000	0.650	1.210	3IR	SA3T	SY3T	YI3

PRODUCT #	DESIGNATION LEFT HAND	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Insert Screw	Anvil Screw	Anvil
920-000-209	E08R LSEL2	0.500	8.000	0.308	0.588	2IL	SR34505L	N/A	N/A
920-000-248	E10Q LSEL2	0.625	7.000	0.371	0.721	2IL	SR34505L	N/A	N/A
920-000-300	E12Q LSEL3	0.750	7.000	0.510	0.935	3IL	MTS-35	N/A	N/A
920-000-324	E12S LSEL3	0.750	10.000	0.510	0.935	3IL	MTS-35	N/A	N/A
920-000-352	E16R LSEL3	1.000	8.000	0.650	1.210	3IL	SA3T	SY3T	YE3
920-000-382	E16T LSEL3	1.000	12.000	0.650	1.210	3IL	SA3T	SY3T	YE3



THREADING/GROOVING TOP NOTCH

8:1 Ratio
COOLANT THRU

PRODUCT #	DESIGNATION RIGHT HAND	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Clamp	Clamp Screw
920-000-212	E08R NER2	0.500	8.000	0.437	0.730	NG 2L	CM-147	6-32
920-000-274	E10S NER2	0.625	10.000	0.500	1.000	NG 2L	CM-75	6-32
920-000-331	E12S NER2	0.750	10.000	0.562	1.120	NG 2L	CM-75	6-32

PRODUCT #	DESIGNATION LEFT HAND	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Clamp	Clamp Screw
920-000-211	E08R NEL2	0.500	8.000	0.437	0.730	NG 2R	CM-146	6-32
920-000-273	E10S NEL2	0.625	10.000	0.500	1.000	NG 2R	CM-74	6-32
920-000-330	E12S NEL2	0.750	10.000	0.562	1.120	NG 2R	CM-74	6-32

PRODUCT #	Clamp
968-000-016	CL-6
968-000-017	CL-7
968-000-020	CL-9
968-000-010	CL-12
968-000-011	CL-19
968-000-012	CL-20

PRODUCT #	Clamp
968-000-013	CL-21
968-000-014	CL-22
968-000-015	CL-30
968-000-018	CL-84
968-000-019	CL-85

PACKAGE SIZE OF 1

PRODUCT #	Anvil
968-000-185	YI3
968-000-182	YE3
968-000-187	YI4
968-000-186	YI3M-1.5N
968-000-183	YE4
968-000-188	YI5
968-000-184	YE5

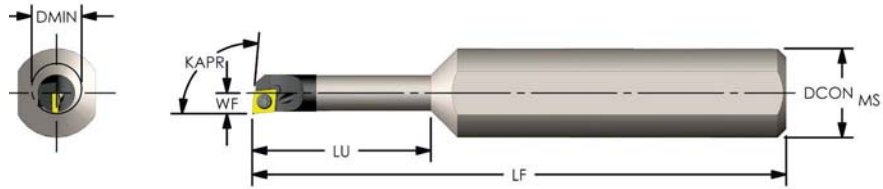
PACKAGE SIZE OF 1

PRODUCT #	Anvil Screw
968-000-146	SY3T
968-000-147	SY4T
968-000-148	SY5T

PACKAGE SIZE OF 5

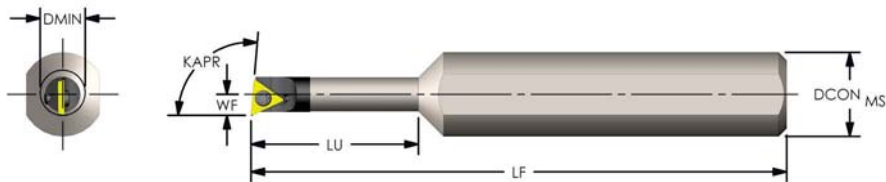
PRODUCT #	Insert Screw
968-000-124	SA3T
968-000-125	SA4T
968-000-126	SA5T

PACKAGE SIZE OF 5



POSITIVE 80° DIAMOND (KAPR: 95°) REDUCED NECK SERIES "C" COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	LU [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
915-000-004	CCUD-180/500-7/8-5R	0.500	2.380	0.875	0.104	0.208	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-008	CCUD-203/500-1-5R	0.500	2.500	1.000	0.119	0.230	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-005	CCUD-180/625-7/8-5R	0.625	3.000	0.875	0.104	0.208	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-009	CCUD-203/625-1-5R	0.625	3.500	1.000	0.119	0.230	95.0	CDHB 1.20.60.5	MTS-183	T-6
915-000-010	CCUD-250/625-1 1/4-5R	0.625	3.000	1.250	0.145	0.285	95.0	CDHB 1.20.60.5	MTS-184	T-6



POSITIVE TRIANGLE (KAPR: 95°) REDUCED NECK SERIES "F" COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	LU [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
915-000-032	FCUD-250/500-1 1/4-5R	0.500	2.750	1.250	0.156	0.300	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-036	FCUD-312/500-3 1/8-5R	0.500	4.630	3.125	0.187	0.360	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-033	FCUD-250/625-1 1/4-5R	0.625	4.000	1.250	0.156	0.300	95.0	TDHB 1.280.750.5	MTS-224	T-7
915-000-037	FCUD-312/625-1 1/2-5R	0.625	4.000	1.500	0.187	0.360	95.0	TDHB 1.280.750.5	MTS-224	T-7

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

USE THE RIGHT SET SCREW FLAT POINT, NOT CUP POINT

CARBIDE



Coated & Uncoated

POSITIVE 80° DIAMOND

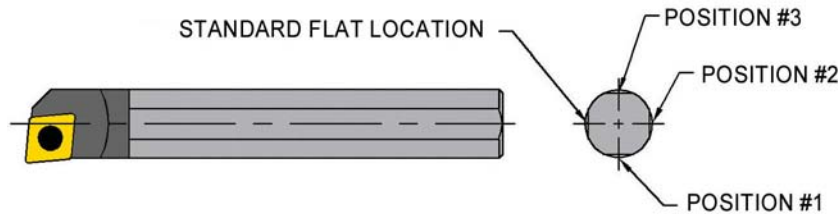
8:1 Ratio
NO COOLANT

PRODUCT #	DESIGNATION	DMIN [in.]	LU [in.]	DCONMS [in.]	LF [in.]	GRADE
951-000-037	UD125-020-75R	0.020	0.075	0.125	1.500	UD5
951-000-038		0.020	0.075	0.125	1.500	UD51
951-000-039		0.020	0.075	0.125	1.500	UD52
951-000-040	UD125-030-100R	0.030	0.100	0.125	1.500	UD5
951-000-041		0.030	0.100	0.125	1.500	UD51
951-000-042		0.030	0.100	0.125	1.500	UD52
951-000-043	UD125-040-150R	0.040	0.150	0.125	1.500	UD5
951-000-044		0.040	0.150	0.125	1.500	UD51
951-000-045		0.040	0.150	0.125	1.500	UD52
951-000-046	UD125-050-150R	0.050	0.150	0.125	1.500	UD5
951-000-047		0.050	0.150	0.125	1.500	UD51
951-000-048		0.050	0.150	0.125	1.500	UD52
951-000-001	UD125-060-188R	0.060	0.188	0.125	1.500	UD5
951-000-002		0.060	0.188	0.125	1.500	UD51
951-000-003		0.060	0.188	0.125	1.500	UD52
951-000-004	UD125-080-375R	0.080	0.375	0.125	1.500	UD5
951-000-005		0.080	0.375	0.125	1.500	UD51
951-000-006		0.080	0.375	0.125	1.500	UD52
951-000-007	UD125-090-500R	0.090	0.500	0.125	1.500	UD5
951-000-008		0.090	0.500	0.125	1.500	UD51
951-000-009		0.090	0.500	0.125	1.500	UD52
951-000-010	UD125-120-625R	0.120	0.625	0.125	1.500	UD5
951-000-011		0.120	0.625	0.125	1.500	UD51
951-000-012		0.120	0.625	0.125	1.500	UD52
951-000-013	UD188-150-750R	0.150	0.750	0.188	2.000	UD5
951-000-014		0.150	0.750	0.188	2.000	UD51
951-000-015		0.150	0.750	0.188	2.000	UD52
951-000-016	UD188-180-1.00R	0.180	1.000	0.188	2.000	UD5
951-000-017		0.180	1.000	0.188	2.000	UD51
951-000-018		0.180	1.000	0.188	2.000	UD52
951-000-019	UD250-210-1.25R	0.210	1.250	0.250	2.500	UD5
951-000-020		0.210	1.250	0.250	2.500	UD51
951-000-021		0.210	1.250	0.250	2.500	UD52
951-000-022	UD250-240-1.25R	0.240	1.250	0.250	2.500	UD5
951-000-023		0.240	1.250	0.250	2.500	UD51
951-000-024		0.240	1.250	0.250	2.500	UD52
951-000-025	UD312-270-1.25R	0.270	1.250	0.312	2.500	UD5
951-000-026		0.270	1.250	0.312	2.500	UD51
951-000-027		0.270	1.250	0.312	2.500	UD52
951-000-028	UD312-300-1.25R	0.300	1.250	0.312	2.500	UD5
951-000-029		0.300	1.250	0.312	2.500	UD51
951-000-030		0.300	1.250	0.312	2.500	UD52
951-000-031	UD375-330-1.50R	0.330	1.500	0.375	2.500	UD5
951-000-032		0.330	1.500	0.375	2.500	UD51
951-000-033		0.330	1.500	0.375	2.500	UD52
951-000-034	UD375-360-1.50R	0.360	1.500	0.375	2.500	UD5
951-000-035		0.360	1.500	0.375	2.500	UD51
951-000-036		0.360	1.500	0.375	2.500	UD52

The following services are for **Carbide** bars only:



Cut-Off Service	Extra-Flat Service
up to 3/8" diameter	up to 5/16" diameter
1/2" diameter	3/8" - 1/2" diameter
5/8" diameter	5/8" - 3/4" diameter
3/4" diameter	1" - 2" diameter
1" diameter	
1 1/4" diameter	
1 1/2" diameter	
1 3/4" diameter	
2" diameter	



Ordering is easy, Use part # "Cut-Off" and specify the length in the item description
Use part # "Extra-Flat" and specify the location in the item description

Have us braze on a steel coolant adapter to any **Carbide** Boring Bar 1/2" or larger!



Comes with 1/16-27 NPT (or) 1/8-27 NPT
Plastic loc-line NOT included

Item Designations:
Coolant Adapter - 1/16
Coolant Adapter - 1/8

Designation Depends on the Diameter of the Bar:
Coolant Adapter-1/16 for 1/2" Diameter Bars
Coolant Adapter-1/8 for 5/8" Diameter Bars and Larger

HEAVY METAL BORING BARS

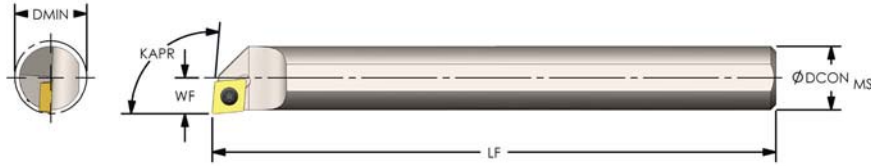
Vibration dampening
to help reduce chatter
in your application

- Machine deeper bores
- Achieve better precision and finish

Up to 6:1 Ratio

.187”-.750” Diameters

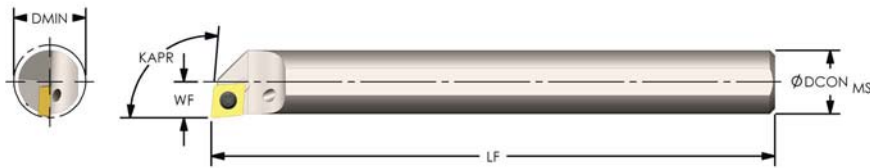




POSITIVE 80° DIAMOND (KAPR: 95°)

6:1 Ratio
NO COOLANT

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
940-000-097	940-000-098	J03F SCLDR/L1.2 *	0.187	3.000	0.102	0.205	95.0	CDHB 1.20.60	MTS-183	T-6
940-000-100	940-000-101	J04F SCLDR/L1.5-138 *	0.250	3.000	0.138	0.275	95.0	CDGW 1.510	MTS-184	T-6
940-000-105	940-000-106	J05H SCLPR/L1.8-167 *	0.312	4.000	0.167	0.340	95.0	CPMT 1.81.20.5	MTS-224	T-7



POSITIVE 80° DIAMOND (KAPR: 95°)

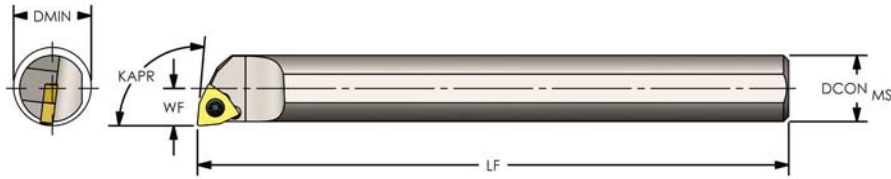
COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
940-000-003	940-000-004	HM06J SCLPR/L2-203 ■	0.375	4.500	0.203	0.410	95.0	CPMT 21.51	MTS-255	T-7
940-000-015	940-000-016	HM06Q SCLPR/L2-203 ■	0.375	7.000	0.203	0.410	95.0	CPMT 21.51	MTS-255	T-7
940-000-027	940-000-028	HM08J SCLPR/L2-281 ■	0.500	4.500	0.281	0.560	95.0	CPMT 21.51	MTS-255	T-7
940-000-037	940-000-038	HM08Q SCLPR/L2-281 ■	0.500	7.000	0.281	0.560	95.0	CPMT 21.51	MTS-255	T-7
940-000-049	940-000-051	HM10J SCLPR/L2	0.625	4.500	0.406	0.760	95.0	CPMT 21.51	MTS-255	T-7
940-000-065	940-000-067	HM10Q SCLPR/L2	0.625	7.000	0.406	0.760	95.0	CPMT 21.51	MTS-255	T-7
940-000-050	940-000-052	HM10J SCLPR/L3	0.625	4.500	0.406	0.760	95.0	CPMT 32.51	MTS-35	T-15
940-000-066	940-000-067	HM10Q SCLPR/L3	0.625	7.000	0.406	0.760	95.0	CPMT 32.51	MTS-35	T-15
940-000-079	940-000-080	HM12J SCLPR/L3	0.750	4.500	0.500	0.920	95.0	CPMT 32.51	MTS-35	T-15
940-000-089	940-000-090	HM12Q SCLPR/L3	0.750	7.000	0.500	0.920	95.0	CPMT 32.51	MTS-35	T-15
940-000-001	940-000-002	HM06J SCLCR/L2-203 ■	0.375	4.500	0.203	0.410	95.0	CCMT 21.51	MTS-255	T-7
940-000-013	940-000-014	HM06Q SCLCR/L2-203 ■	0.375	7.000	0.203	0.410	95.0	CCMT 21.51	MTS-255	T-7
940-000-025	940-000-026	HM08J SCLCR/L2-281 ■	0.500	4.500	0.281	0.560	95.0	CCMT 21.51	MTS-255	T-7
940-000-035	940-000-036	HM08Q SCLCR/L2-281 ■	0.500	7.000	0.281	0.560	95.0	CCMT 21.51	MTS-255	T-7
940-000-045	940-000-047	HM10J SCLCR/L2	0.625	4.500	0.406	0.760	95.0	CCMT 21.51	MTS-255	T-7
940-000-061	940-000-063	HM10Q SCLCR/L2	0.625	7.000	0.406	0.760	95.0	CCMT 21.51	MTS-255	T-7
940-000-046	940-000-048	HM10J SCLCR/L3	0.625	4.500	0.406	0.760	95.0	CCMT 32.51	MTS-35	T-15
940-000-062	940-000-064	HM10Q SCLCR/L3	0.625	7.000	0.406	0.760	95.0	CCMT 32.51	MTS-35	T-15
940-000-077	940-000-078	HM12J SCLCR/L3	0.750	4.500	0.500	0.920	95.0	CCMT 32.51	MTS-35	T-15
940-000-087	940-000-088	HM12Q SCLCR/L3	0.750	7.000	0.500	0.920	95.0	CCMT 32.51	MTS-35	T-15

■ Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"

*bars .312 and smaller do not have flats

HEAVY METAL

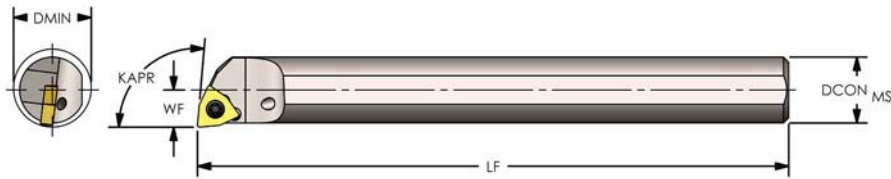


POSITIVE TRIGON (KAPR: 95°)

**6:1 Ratio
NO COOLANT**

PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
940-000-099	J03F SWLCR1.2 *	0.187	3.000	0.102	0.205	95.0	WCMT 1.210.5	MTS-183	T-6
940-000-104	J04F SWLCR1.2-138 * ■	0.250	3.000	0.138	0.275	95.0	WCMT 1.210.5	MTS-184	T-6
940-000-109	J05H SWLCR1.5-167 * ■	0.312	4.000	0.167	0.342	95.0	WCMT 1.51.50.5	MTS-2	T-6

HEAVY METAL



POSITIVE TRIGON (KAPR: 95°)

COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
940-000-011	940-000-012	HM06J SWLCR/L2-203 ■	0.375	4.500	0.203	0.410	95.0	WCMT 21.51	MTS-255	T-7
940-000-023	940-000-024	HM06Q SWLCR/L2-203 ■	0.375	7.000	0.203	0.410	95.0	WCMT 21.51	MTS-255	T-7
940-000-033	940-000-034	HM08J SWLCR/L2-281 ■	0.500	4.500	0.281	0.560	95.0	WCMT 21.51	MTS-255	T-7
940-000-043	940-000-044	HM08Q SWLCR/L2-281 ■	0.500	7.000	0.281	0.560	95.0	WCMT 21.51	MTS-255	T-7
940-000-057	940-000-059	HM10J SWLCR/L2	0.625	4.500	0.406	0.760	95.0	WCMT 21.51	MTS-255	T-7
940-000-073	940-000-075	HM10Q SWLCR/L2	0.625	7.000	0.406	0.760	95.0	WCMT 21.51	MTS-255	T-7
940-000-058	940-000-060	HM10J SWLCR/L3	0.625	4.500	0.406	0.760	95.0	WCMT 32.51	MTS-35	T-15
940-000-074	940-000-076	HM10Q SWLCR/L3	0.625	7.000	0.406	0.760	95.0	WCMT 32.51	MTS-35	T-15
940-000-085	940-000-086	HM12J SWLCR/L3	0.750	4.500	0.500	0.920	95.0	WCMT 32.51	MTS-35	T-15
940-000-095	940-000-096	HM12Q SWLCR/L3	0.750	7.000	0.500	0.920	95.0	WCMT 32.51	MTS-35	T-15

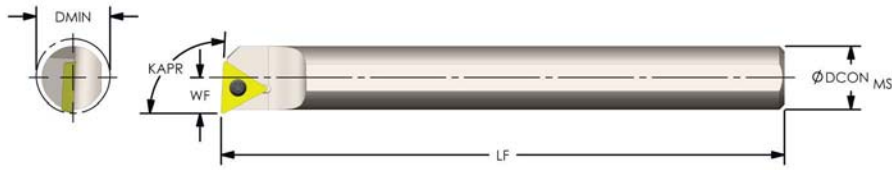
■ Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

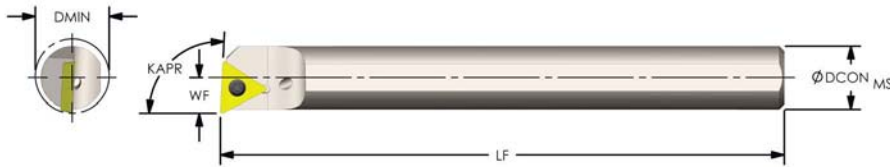
PACKAGE SIZE OF 5



POSITIVE TRIANGLE (KAPR: 93°)

6:1 Ratio
NO COOLANT

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
940-000-102	940-000-103	J04F STUCR/L1.2-138 * ■	0.250	3.000	0.138	0.275	93.0	TCMT 1.21.20.5	MTS-184	T-6
940-000-107	940-000-108	J05H STUCR/L1.2-167 * ■	0.312	4.000	0.167	0.340	93.0	TCMT 1.21.20.5	MTS-184	T-6



POSITIVE TRIANGLE (KAPR: 93°)

COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
940-000-005	940-000-007	HM06J STUCR/L1.2-203 ■	0.375	4.500	0.203	0.410	93.0	TCMT 1.21.20.5	MTS-184	T-6
940-000-017	940-000-019	HM06Q STUCR/L1.2-203 ■	0.375	7.000	0.203	0.410	93.0	TCMT 1.21.20.5	MTS-184	T-6
940-000-009	940-000-010	HM06J STUPR/L2-203 ■	0.375	4.500	0.203	0.410	93.0	TPMT 21.51	MTS-255	T-7
940-000-021	940-000-022	HM06Q STUPR/L2-203 ■	0.375	7.000	0.203	0.410	93.0	TPMT 21.51	MTS-255	T-7
940-000-031	940-000-032	HM08J STUPR/L2-281 ■	0.500	4.500	0.281	0.560	93.0	TPMT 21.51	MTS-255	T-7
940-000-041	940-000-042	HM08Q STUPR/L2-281 ■	0.500	7.000	0.281	0.560	93.0	TPMT 21.51	MTS-255	T-7
940-000-055	940-000-056	HM10J STUPR/L2	0.625	4.500	0.406	0.760	93.0	TPMT 21.51	MTS-255	T-7
940-000-071	940-000-072	HM10Q STUPR/L2	0.625	7.000	0.406	0.760	93.0	TPMT 21.51	MTS-255	T-7
940-000-083	940-000-084	HM12J STUPR/L3	0.750	4.500	0.500	0.920	93.0	TPMT 32.51	MTS-35	T-15
940-000-093	940-000-094	HM12Q STUPR/L3	0.750	7.000	0.500	0.920	93.0	TPMT 32.51	MTS-35	T-15
940-000-006	940-000-008	HM06J STUCR/L2-203 ■	0.375	4.500	0.203	0.410	93.0	TCMT 21.51	MTS-255	T-7
940-000-018	940-000-020	HM06Q STUCR/L2-203 ■	0.375	7.000	0.203	0.410	93.0	TCMT 21.51	MTS-255	T-7
940-000-029	940-000-030	HM08J STUCR/L2-281 ■	0.500	4.500	0.281	0.560	93.0	TCMT 21.51	MTS-255	T-7
940-000-039	940-000-040	HM08Q STUCR/L2-281 ■	0.500	7.000	0.281	0.560	93.0	TCMT 21.51	MTS-255	T-7
940-000-053	940-000-054	HM10J STUCR/L2	0.625	4.500	0.406	0.760	93.0	TCMT 21.51	MTS-255	T-7
940-000-069	940-000-070	HM10Q STUCR/L2	0.625	7.000	0.406	0.760	93.0	TCMT 21.51	MTS-255	T-7
940-000-081	940-000-082	HM12J STUCR/L3	0.750	4.500	0.500	0.920	93.0	TCMT 32.51	MTS-35	T-15
940-000-091	940-000-092	HM12Q STUCR/L3	0.750	7.000	0.500	0.920	93.0	TCMT 32.51	MTS-35	T-15

■ Minimum Clearance Bars are intended for light machining with minimum bore clearance. Max depth of cut .015" - .020"
*bars .312 and smaller do not have flats

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

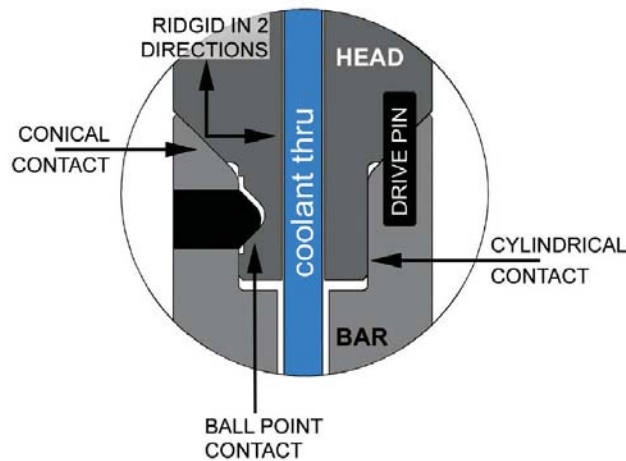
PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

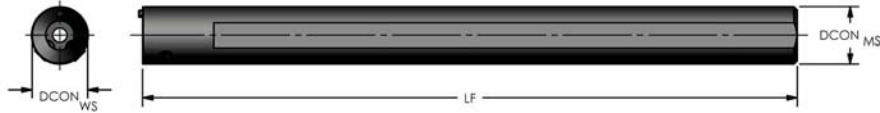
HEAVY METAL

MODULAR BORING BARS

Endless possibilities and the convenience of one bar with 28 different insert style configurations



ULTRA-DEX[®]



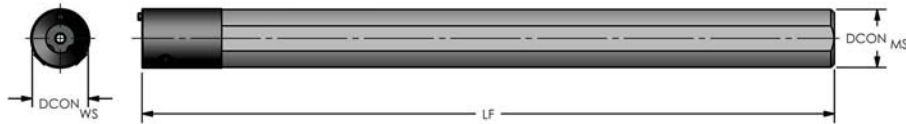
4:1 Ratio

STEEL SHANK

COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	DCONWS [in.]	Insert
944-000-019	MBS 1295	0.750	9.500	0.750	MH12S
944-000-020	MBS 1612	1.000	11.500	1.000	MH16S
944-000-021	MBS 2014	1.250	14.000	1.250	MH20S
944-000-022	MBS 2414	1.500	14.000	1.500	MH24S
944-000-023	MBS 2816	1.750	16.000	1.750	MH28S
944-000-024	MBS 3210	2.000	10.000	2.000	MH32S
944-000-025	MBS 3220	2.000	20.000	2.000	MH32S
944-000-026	MBS 4012*	2.500	12.000	2.000	MH32S
944-000-027	MBS 4024*	2.500	24.000	2.000	MH32S
944-000-028	MBS 4828*	3.000	28.000	2.000	MH32S

*2.5" and 3" bars take 2" heads



8:1 Ratio

CARBIDE SHANK

COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	DCONWS [in.]	Insert
944-000-002	MB 1295	0.750	9.500	0.750	MH12S
944-000-001	MB 1220M	20.00(mm)	241.00(mm)	19.05(mm)	MH12S
944-000-003	MB 1612	1.000	11.500	1.000	MH16S
944-000-004	MB 2014	1.250	14.000	1.250	MH20S
944-000-005	MB 2414	1.500	14.000	1.500	MH24S
944-000-006	MB 2816	1.750	16.000	1.750	MH28S
944-000-007	MB 3220	2.000	20.000	2.000	MH32S
944-000-026	MBS 4012*	2.500	12.000	2.000	MH32S
944-000-027	MBS 4024*	2.500	24.000	2.000	MH32S
944-000-028	MBS 4828*	3.000	28.000	2.000	MH32S

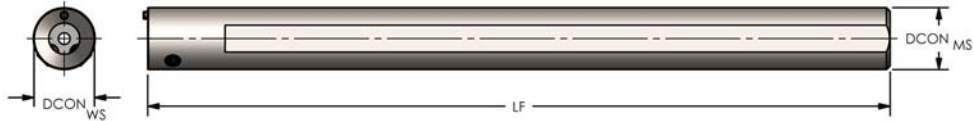
PRODUCT #	Set Screws
968-000-076	MH12S
968-000-077	MH16S
968-000-078	MH20S
968-000-079	MH24S
968-000-080	MH28S
968-000-081	MH32S

PACKAGE SIZE OF 2

MODULAR

ULTRA-DEX[®]

MODULAR



HEAVY METAL SHANK

6:1 Ratio
COOLANT THRU

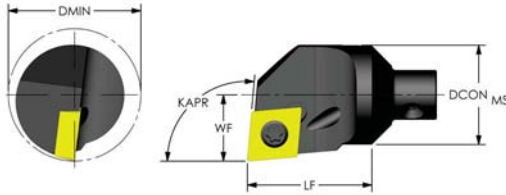
PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	DCONWS [in.]	Insert
944-000-008	MBH 1212	0.750	12.000	0.750	MH12S
944-000-009	MBH 1612	1.000	12.000	1.000	MH16S
944-000-010	MBH 2012	1.250	12.000	1.250	MH20S
944-000-011	MBH 2412	1.500	12.000	1.500	MH24S
944-000-012	MBH 2414	1.500	14.000	1.500	MH24S
944-000-013	MBH 2812	1.750	12.000	1.750	MH28S
944-000-014	MBH 2816 *	1.750	16.000	1.750	MH28S
944-000-015	MBH 3212	2.000	12.000	2.000	MH32S
944-000-016	MBH 3218 *	2.000	18.000	2.000	MH32S
944-000-017	MBH 4024 **	2.500	24.000	2.000	MH32S
944-000-018	MBH 4828 **	3.000	28.000	2.000	MH32S

**non-stock item; call for delivery *2.5" and 3" bars take 2" heads*

PRODUCT #	Set Screws
968-000-076	MH12S
968-000-077	MH16S
968-000-078	MH20S
968-000-079	MH24S
968-000-080	MH28S
968-000-081	MH32S

PACKAGE SIZE OF 2

ULTRA-DEX[®]



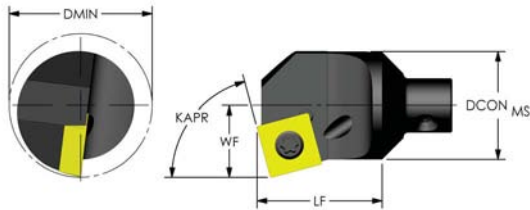
POSITIVE 80° DIAMOND (KAPR: 95°)



COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
945-000-017	945-000-018	MH12 SCLCR/L3	0.750	0.940	0.500	0.920	95.0	CCMT 32.51	MTS-35	T-15
945-000-065	945-000-066	MH16 SCLCR/L3	1.000	1.000	0.625	1.185	95.0	CCMT 32.51	MTS-35	T-15
945-000-019	945-000-020	MH12 SCLPR/L3	0.750	0.940	0.500	0.920	95.0	CPMT 32.51	MTS-35	T-15
945-000-067	945-000-068	MH16 SCLPR/L3	1.000	1.000	0.625	1.185	95.0	CPMT 32.51	MTS-35	T-15
N/A	945-000-120	MH20 SCLCR4	1.250	1.300	0.765	1.465	95.0	CCMT 432	MTS-4	T-20
N/A	945-000-156	MH24 SCLCR4	1.500	1.520	0.890	1.730	95.0	CCMT 432	MTS-4	T-20
N/A	945-000-190	MH28 SCLCR4	1.750	1.770	1.015	2.000	95.0	CCMT 432	MTS-4	T-20
N/A	912-000-157	MH32 SCLCR4	2.000	2.030	1.281	2.400	95.0	CCMT 432	MTS-4	T-20

MODULAR



POSITIVE SQUARE (KAPR: 75°)



COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
945-000-028	MH12 SSKCR3	0.750	0.875	0.500	0.920	75.0	SCMT 32.51	MTS-35	T-15
945-000-078	MH16 SSKCR4	1.000	0.935	0.625	1.185	75.0	SCMT 432	MTS-4	T-20

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

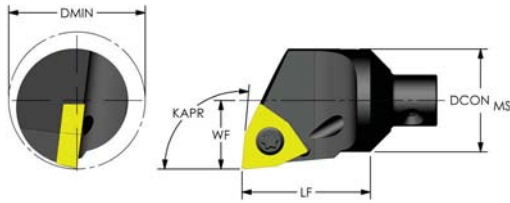
PACKAGE SIZE OF 5

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

ULTRA-DEX[®]

MODULAR

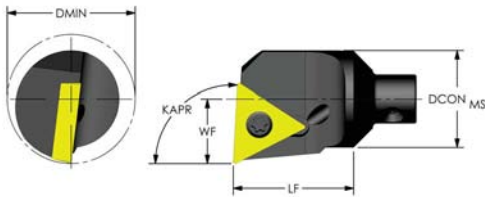


POSITIVE TRIGON (KAPR: 95°)

COOLANT THRU



PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
945-000-037	945-000-038	MH12 SWLCR/L3	0.750	0.940	0.500	0.920	95.0	WCMT 32.51	MTS-35	T-15
945-000-087	945-000-088	MH16 SWLCR/L3	1.000	1.000	0.625	1.185	95.0	WCMT 32.51	MTS-35	T-15

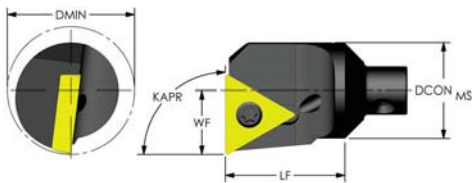


POSITIVE TRIANGLE (KAPR: 93°)

COOLANT THRU



PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
945-000-031	945-000-032	MH12 STUCR/L3	0.750	0.940	0.500	0.920	95.0	TCMT 32.51	MTS-35	T-15
945-000-081	945-000-082	MH16 STUCR/L3	1.000	1.000	0.625	1.185	95.0	TCMT 32.51	MTS-35	T-15



POSITIVE TRIANGLE (KAPR: 90°)

COOLANT THRU



PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
945-000-029	945-000-030	MH12 STFCL/L3	0.750	0.940	0.500	0.920	90.0	TCMT 32.51	MTS-35	T-15
945-000-079	945-000-080	MH16 STFCL/L3	1.000	1.000	.625	1.185	90.0	TCMT 32.51	MTS-35	T-15

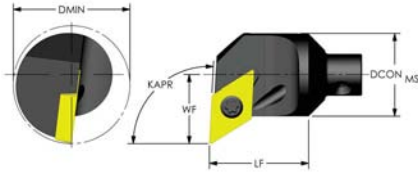
PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

ULTRA-DEX[®]



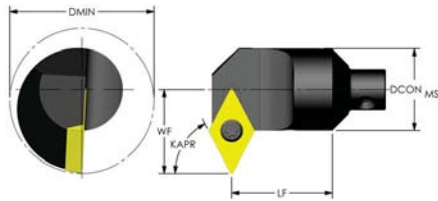
POSITIVE 55° DIAMOND (KAPR: 95°) PROFILING



COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
945-000-024	945-000-025	MH12 SDUCR/L3	0.750	0.940	0.625	1.050	95.0	DCMT 32.51	MTS-35	T-15
945-000-072	945-000-073	MH16 SDUCR/L3	1.000	1.000	0.750	1.310	95.0	DCMT 32.51	MTS-35	T-15
N/A	945-000-123	MH20 SDUCR3-8	1.250	1.300	0.800	1.500	95.0	DCMT 32.51	MTS-35	T-15
945-000-121	945-000-122	MH20 SDUCR/L3	1.250	1.300	1.000	1.700	95.0	DCMT 32.51	MTS-35	T-15
945-000-157	945-000-158	MH24 SDUCR/L3	1.500	1.520	1.120	1.960	95.0	DCMT 32.51	MTS-35	T-15
945-000-191	945-000-192	MH28 SDUCR/L3	1.750	1.770	1.250	2.230	95.0	DCMT 32.51	MTS-35	T-15
945-000-226	945-000-227	MH32 SDUCR/L3	2.000	2.030	1.375	2.500	95.0	DCMT 32.51	MTS-35	T-15

MODULAR

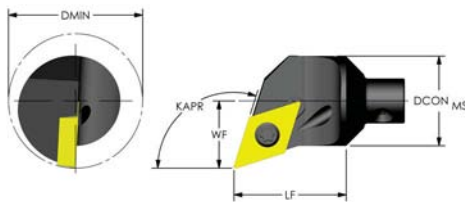


POSITIVE 55° DIAMOND (KAPR: 62.5°) PROFILING



COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
945-000-021	MH12 SDNCR3	0.750	0.940	0.765	1.190	62.5	DCMT 32.51	MTS-35	T-15
945-000-069	MH16 SDNCR3	1.000	1.000	0.890	1.450	62.5	DCMT 32.51	MTS-35	T-15



POSITIVE 55° DIAMOND (KAPR: 107.5°) PROFILING



COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
945-000-022	945-000-023	MH12 SDQCR/L3	0.750	0.940	0.562	1.000	107.5	DCMT 32.51	MTS-35	T-15
945-000-070	945-000-071	MH16 SDQCR/L3	1.000	1.000	0.625	1.185	107.5	DCMT 32.51	MTS-35	T-15

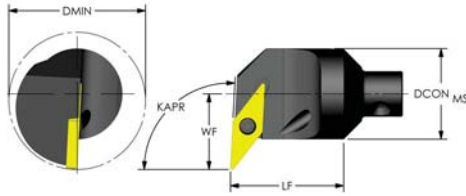
PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

PACKAGE SIZE OF 5

ULTRA-DEX[®]

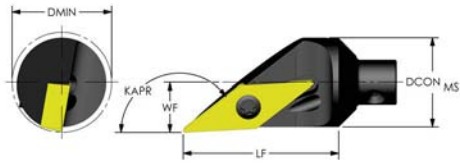


POSITIVE 35° DIAMOND (KAPR: 93°) PROFILING



COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
945-000-035	945-000-036	MH12 SVUBR/L2	0.750	0.940	0.625	1.045	93.0	VBMT 21.51	MTS-2.5L	T-7
945-000-085	945-000-086	MH16 SVUBR/L3	1.000	1.000	0.875	1.435	93.0	VBMT 331	MTS-3.5L	T-15

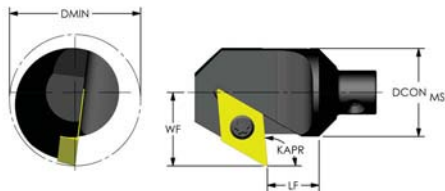


POSITIVE 35° DIAMOND (KAPR: 142°) PROFILING



COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
945-000-033	945-000-034	MH12 SVJBR/L3	0.750	1.315	0.421	0.840	142.0	VBMT 331	MTS-3.5L	T-15
945-000-083	945-000-084	MH16 SVJBR/L3	1.000	1.375	0.546	1.110	142.0	VBMT 331	MTS-3.5L	T-15
945-000-124	945-000-125	MH20 SVJBR/L3	1.250	1.675	0.671	1.700	142.0	VBMT 331	MTS-3.5L	T-15
945-000-161	945-000-162	MH24 SVJBR/L3	1.500	1.895	0.796	1.960	142.0	VBMT 331	MTS-3.5L	T-15
945-000-193	945-000-194	MH28 SVJBR/L3	1.750	2.145	0.921	2.230	142.0	VBMT 331	MTS-3.5L	T-15
945-000-228	945-000-229	MH32 SVJBR/L3	2.000	2.405	1.046	2.500	142.0	VBMT 331	MTS-3.5L	T-15



POSITIVE 55° DIAMOND (KAPR: 95°) BACK FACING



COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
945-000-026	945-000-027	MH12 SDXCR/L3	0.750	0.440	0.625	1.050	95.0	DCMT 32.51	MTS-35	T-15
945-000-074	945-000-075	MH16 SDXCR/L3	1.000	0.525	0.750	1.310	95.0	DCMT 32.51	MTS-35	T-15

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

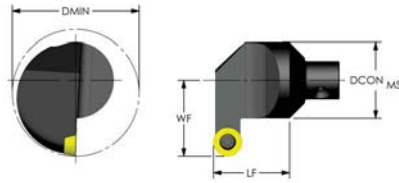
PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

PRODUCT #	Insert Screws
968-000-093	MTS-3.5L
968-000-095	MTS-4
968-000-096	MTS-526

PACKAGE SIZE OF 1

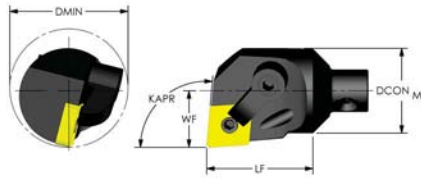
MODULAR



POSITIVE ROUND

COOLANT THRU

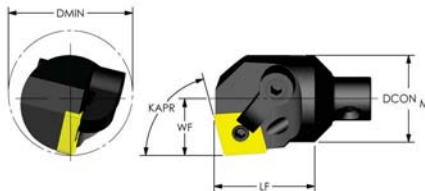
PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Screw
945-000-076	945-000-077	MH16 SRNCR/L3	1.000	1.000	1.000	1.560	RCMT 32.5	MTS-35
945-000-159	945-000-160	MH24 SRNCR/L4	1.500	1.520	1.250	2.090	RCMT 43	MTS-4



NEGATIVE 80° DIAMOND (KAPR: 95°)

COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim	Clamp	Clamp Screw	Lock Pin
945-000-005	945-000-006	MH12 MCLNR/L3	0.750	0.940	0.500	0.920	95.0	CNMG 322	N/A	CL-7	XNS-36	NL-33
945-000-044	945-000-046	MH16 MCLNR/L3	1.000	1.000	0.640	1.200	95.0	CNMG 322	N/A	CL-7	XNS-36	NL-33
945-000-045	945-000-047	MH16 MCLNR/L4	1.000	1.000	0.640	1.200	95.0	CNMG 432	N/A	CL-20	XNS-47	NL-44
945-000-096	945-000-097	MH20 MCLNR/L4	1.250	1.300	0.765	1.470	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
945-000-133	945-000-134	MH24 MCLNR/L4	1.500	1.520	.890	1.730	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
945-000-170	945-000-171	MH28 MCLNR/L4	1.750	1.770	1.015	1.995	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
945-000-200	945-000-202	MH32 MCLNR/L4	2.000	2.030	1.281	2.400	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
945-000-203	945-000-205	MH32 MCLNR/L5	2.000	2.030	1.281	2.400	95.0	CNMG 543	ICSN-533	CL-12	XNS-510	NL-58



NEGATIVE 80° DIAMOND (KAPR: 75°)

COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim	Clamp	Clamp Screw	Lock Pin
945-000-003	945-000-004	MH12 MCKNR/L3	0.750	0.875	0.490	0.910	80.0	CNMG 322	N/A	CL-7	XNS-36	NL-33
945-000-042	945-000-043	MH16 MCKNR/L3	1.000	0.935	0.630	1.190	80.0	CNMG 322	N/A	CL-7	XNS-36	NL-33
945-000-094	945-000-096	MH20 MCKNR/L4	1.250	1.210	0.755	1.455	80.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
945-000-131	945-000-132	MH24 MCKNR/L4	1.500	1.430	0.880	1.720	80.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
945-000-168	945-000-169	MH28 MCKNR/L4	1.750	1.680	1.005	1.985	80.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
945-000-200	945-000-201	MH32 MCKNR/L4	2.000	1.940	1.271	2.390	80.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46

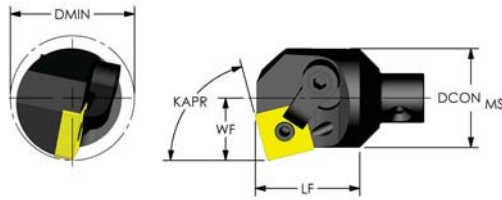
PRODUCT #	Clamp Screw
968-000-176	XNS-36
968-000-177	XNS-47
968-000-178	XNS-48
968-000-179	XNS-510
968-000-180	XNS-58
968-000-181	XNS-59

PACKAGE SIZE OF 5

PRODUCT #	Lock Pin
968-000-097	NL-33
968-000-098	NL-33L
968-000-099	NL-34
968-000-100	NL-34L
968-000-101	NL-44
968-000-102	NL-46
968-000-103	NL-56
968-000-104	NL-58
968-000-105	NL-68
968-000-106	NL-68L

PACKAGE SIZE OF 5

ULTRA-DEX[®]

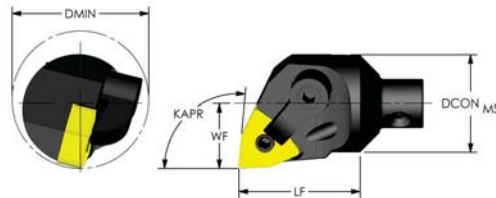


NEGATIVE SQUARE (KAPR: 75°)

COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim	Clamp	Clamp Screw	Lock Pin
945-000-050	MH16 MSKNR4	1.000	1.060	0.630	1.190	75.0	SNMG 432	N/A	CL-20	XNS-47	NL-44
945-000-105	MH20 MSKNR4	1.250	1.210	0.755	1.455	75.0	SNMG 432	ISSN-432	CL-20	XNS-47	NL-46
945-000-141	MH24 MSKNR4	1.500	1.430	0.880	1.720	75.0	SNMG 432	ISSN-432	CL-20	XNS-47	NL-46
945-000-212	MH32 MSKNR4	2.000	1.680	1.271	2.390	75.0	SNMG 432	ISSN-432	CL-20	XNS-47	NL-46

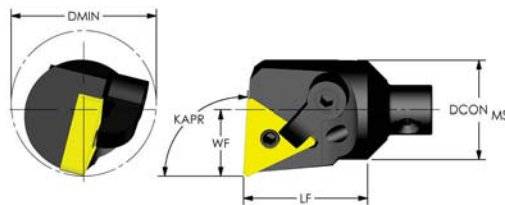
MODULAR



NEGATIVE TRIGON (KAPR: 95°)

COOLANT THRU

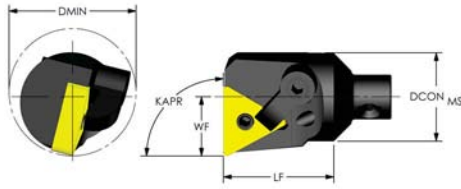
PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim	Clamp	Clamp Screw	Lock Pin
945-000-013	945-000-014	MH12 MWLNR/L3	0.750	0.940	0.500	0.920	95.0	WNMG 332	N/A	CL-7	XNS-36	NL-33L
945-000-057	945-000-058	MH16 MWLNR/L3	1.000	1.000	0.640	1.200	95.0	WNMG 332	N/A	CL-7	XNS-36	NL-33L
945-000-058	945-000-060	MH16 MWLNR/L4	1.000	1.000	0.640	1.240	95.0	WNMG 432	N/A	CL-20	XNS-47	NL-44
945-000-116	945-000-117	MH20 MWLNR/L4	1.250	1.300	0.765	1.470	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
945-000-152	945-000-153	MH24 MWLNR/L4	1.500	1.520	.890	1.730	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
945-000-186	945-000-187	MH28 MWLNR/L4	1.750	1.770	1.015	1.995	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
945-000-221	945-000-222	MH32 MWLNR/L4	2.000	2.030	1.281	2.400	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46



NEGATIVE TRIANGLE (KAPR: 93°)

COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim	Clamp	Clamp Screw	Lock Pin
945-000-011	945-000-012	MH12 MTUNR/L3	0.750	0.940	0.500	0.920	93.0	TNMG 332	N/A	CL-7	XNS-36	NL-33L
945-000-053	945-000-054	MH16 MTUNR/L3	1.000	1.000	0.640	1.200	93.0	TNMG 332	N/A	CL-7	XNS-36	NL-33L
945-000-110	945-000-112	MH20 MTUNR/L3	1.250	1.300	0.765	1.470	93.0	TNMG 332	ITSN-323	CL-7	XNS-36	NL-34L
945-000-146	945-000-148	MH24 MTUNR/L3	1.500	1.520	0.890	1.470	93.0	TNMG 332	ITSN-323	CL-7	XNS-36	NL-34L
945-000-111	945-000-113	MH20 MTUNR/L4	1.250	1.300	0.765	1.730	93.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46
945-000-147	945-000-149	MH24 MTUNR/L4	1.500	1.520	0.890	1.730	93.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46
945-000-180	945-000-181	MH28 MTUNR/L4	1.750	1.770	1.015	1.995	93.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46
945-000-215	945-000-216	MH32 MTUNR/L4	2.000	2.030	1.281	2.400	93.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46

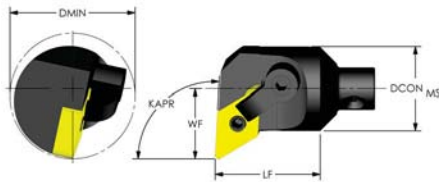


NEGATIVE TRIANGLE (KAPR: 90°)



COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim	Clamp	Clamp Screw	Lock Pin
945-000-009	945-000-010	MH12 MTFNR/L3	0.750	0.940	0.500	0.920	90.0	TNMG 332	N/A	CL-7	XNS-36	NL-33L
945-000-051	945-000-052	MH16 MTFNR/L3	1.000	1.000	0.640	1.200	90.0	TNMG 332	N/A	CL-7	XNS-36	NL-33L
945-000-106	945-000-108	MH20 MTFNR/L3	1.250	1.300	0.765	1.470	90.0	TNMG 332	ITSN-323	CL-7	XNS-36	NL-34L
945-000-142	945-000-144	MH24 MTFNR/L3	1.500	1.520	0.890	1.730	90.0	TNMG 332	ITSN-323	CL-7	XNS-36	NL-34L
945-000-107	945-000-109	MH20 MTFNR/L4	1.250	1.300	0.765	1.470	90.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46
945-000-143	945-000-145	MH24 MTFNR/L4	1.500	1.520	0.890	1.730	90.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46
945-000-178	945-000-179	MH28 MTFNR/L4	1.750	1.770	1.015	1.995	90.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46
945-000-213	945-000-214	MH32 MTFNR/L4	2.000	2.030	1.281	2.400	90.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46

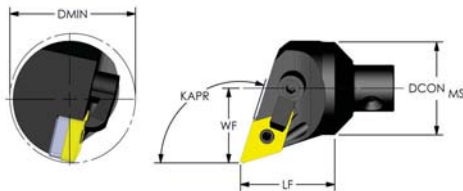


NEGATIVE 55° DIAMOND (KAPR: 93°) PROFILING



COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim	Clamp	Clamp Screw	Lock Pin
945-000-007	945-000-008	MH12 MDUNR/L3	0.750	0.940	0.625	1.050	93.0	DNMG 332	N/A	CL-7	XNS-36	NL-33L
945-000-048	945-000-049	MH16 MDUNR/L3	1.000	1.000	0.750	1.310	93.0	DNMG 332	N/A	CL-7	XNS-36	NL-33L
N/A	945-000-102	MH20 MDUNR4-7	1.250	1.300	0.775	1.475	93.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
945-000-100	945-000-101	MH20 MDUNR/L4	1.250	1.300	1.000	1.700	93.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
945-000-137	945-000-138	MH24 MDUNR/L4	1.500	1.520	1.120	1.960	93.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
945-000-174	945-000-175	MH28 MDUNR/L4	1.750	1.770	1.250	2.250	93.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
945-000-208	945-000-209	MH32 MDUNR/L4	2.000	2.030	1.375	2.500	93.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46



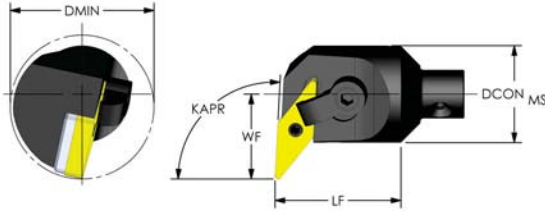
Negative 55° Diamond (KAPR: 107.5°) Profiling



COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim	Clamp	Clamp Screw	Lock Pin
945-000-098	945-000-099	MH20 MDQNR/L4	1.250	1.300	1.000	1.700	107.5	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
945-000-135	945-000-136	MH24 MDQNR/L4	1.500	1.520	1.120	1.960	107.5	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
945-000-172	945-000-173	MH28 MDQNR/L4	1.750	1.770	1.250	2.250	107.5	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
945-000-206	945-000-207	MH32 MDQNR/L4	2.000	2.030	1.281	2.400	107.5	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46

ULTRA-DEX[®]

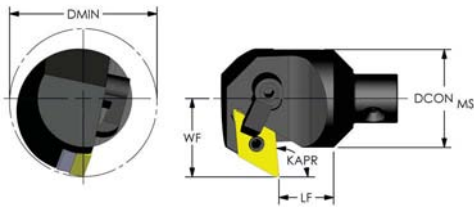


NEGATIVE 35° DIAMOND (KAPR: 93°) PROFILING



COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim	Clamp	Clamp Screw	Lock Pin
945-000-055	945-000-056	MH16 MVUNR/L3	1.000	1.300	0.875	1.435	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
945-000-114	945-000-115	MH20 MVUNR/L3	1.250	1.300	1.000	1.700	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
945-000-150	945-000-151	MH24 MVUNR/L3	1.500	1.520	1.120	2.000	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
945-000-182	945-000-181	MH28 MVUNR/L3	1.750	1.770	1.250	2.250	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
945-000-217	945-000-216	MH32 MVUNR/L3	2.000	2.030	1.375	2.500	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
945-000-183	945-000-185	MH28 MVUNR/L4	1.750	1.770	1.250	2.250	93.0	VNMG 432	IVSN-432	CL-22	XNS-48	NL-46
945-000-218	945-000-220	MH32 MVUNR/L4	2.000	2.030	1.375	2.500	93.0	VNMG 432	IVSN-432	CL-22	XNS-48	NL-46



NEGATIVE 55° DIAMOND (KAPR: 95°) BACK FACING



COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim	Clamp	Clamp Screw	Lock Pin
945-000-103	945-000-104	MH20 MDXNR/L4	1.250	0.700	1.000	1.700	95.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
945-000-139	945-000-140	MH24 MDXNR/L4	1.500	0.650	1.120	1.960	95.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
945-000-176	945-000-177	MH28 MDXNR/L4	1.750	0.780	1.250	2.250	95.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
945-000-210	945-000-211	MH32 MDXNR/L4	2.000	0.780	1.500	2.620	95.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46

PRODUCT #	Clamp
968-000-016	CL-6
968-000-017	CL-7
968-000-020	CL-9
968-000-010	CL-12
968-000-011	CL-19
968-000-012	CL-20

PACKAGE SIZE OF 1

PRODUCT #	Clamp
968-000-013	CL-21
968-000-014	CL-22
968-000-015	CL-30
968-000-018	CL-84
968-000-019	CL-85

PACKAGE SIZE OF 1

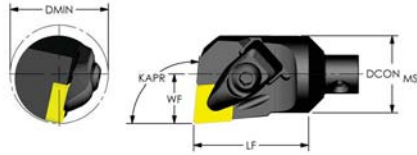
PRODUCT #	Clamp Screw
968-000-176	XNS-36
968-000-177	XNS-47
968-000-178	XNS-48
968-000-179	XNS-510
968-000-180	XNS-58
968-000-181	XNS-59

PACKAGE SIZE OF 5

PRODUCT #	Lock Pin
968-000-097	NL-33
968-000-098	NL-33L
968-000-099	NL-34
968-000-100	NL-34L
968-000-101	NL-44
968-000-102	NL-46
968-000-103	NL-56
968-000-104	NL-58
968-000-105	NL-68
968-000-106	NL-68L

PACKAGE SIZE OF 5

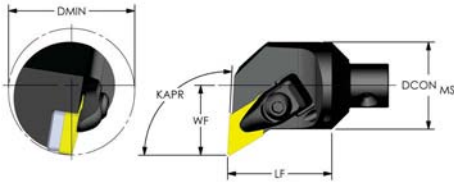
MODULAR



PULLBACK CLAMP NEGATIVE 80° DIAMOND (KAPR: 95°)

COOLANT THRU

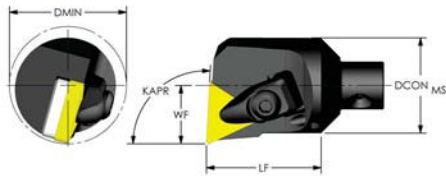
PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim	Shim Screw	Clamp Assy.
945-000-039	MH16 DCLNR4	1.000	1.500	0.640	1.200	95.0	CNMG 432	N/A	N/A	PB4-CA
945-000-089	MH20 DCLNR4	1.250	1.500	0.765	1.470	95.0	CNMG 432	ICSN-433	PB4-SS	PB4-CA
945-000-126	MH24 DCLNR4	1.500	1.520	.890	1.730	95.0	CNMG 432	ICSN-433	PB4-SS	PB4-CA
945-000-163	MH28 DCLNR4	1.750	1.770	1.015	1.995	95.0	CNMG 432	ICSN-433	PB4-SS	PB4-CA
945-000-195	MH32 DCLNR4	2.000	2.030	1.281	2.400	95.0	CNMG 432	ICSN-433	PB4-SS	PB4-CA



PULLBACK CLAMP NEGATIVE 55° DIAMOND (KAPR: 93°)

COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim	Shim Screw	Clamp Assy.
945-000-090	MH20 DDUNR4	1.250	1.500	1.000	1.700	93.0	DNMG 432	IDSN-433	PB4-SS	PB4-CA
945-000-127	MH24 DDUNR4	1.500	1.520	1.120	1.960	93.0	DNMG 432	IDSN-433	PB4-SS	PB4-CA
945-000-164	MH28 DDUNR4	1.750	1.770	1.250	2.250	93.0	DNMG 432	IDSN-433	PB4-SS	PB4-CA
945-000-196	MH32 DDUNR4	2.000	2.030	1.375	2.500	93.0	DNMG 432	IDSN-433	PB4-SS	PB4-CA



PULLBACK CLAMP NEGATIVE TRIANGLE (KAPR: 93°)

COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim	Shim Screw	Clamp Assy.
945-000-091	MH20 DTUNR4	1.250	1.500	0.765	1.470	93.0	TNMG 432	ITSN-433	PB4-SS	PB4-CA
945-000-128	MH24 DTUNR4	1.500	1.520	.890	1.730	93.0	TNMG 432	ITSN-433	PB4-SS	PB4-CA
945-000-165	MH28 DTUNR4	1.750	1.770	1.015	1.995	93.0	TNMG 432	ITSN-433	PB4-SS	PB4-CA
945-000-197	MH32 DTUNR4	2.000	2.030	1.281	2.400	93.0	TNMG 432	ITSN-433	PB4-SS	PB4-CA

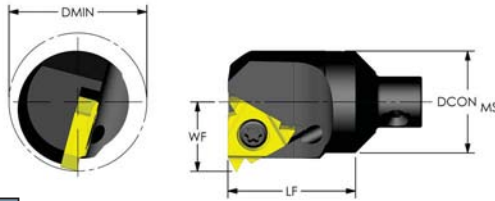
PRODUCT #	Shim Screw
968-000-109	PB3-SS
968-000-111	PB4-SS

PACKAGE SIZE OF 5

PRODUCT #	Clamp Assy.
968-000-107	PB3-CA
968-000-110	PB4-CA

PACKAGE SIZE OF 1

ULTRA-DEX[®]



THREADING / GROOVING LAYDOWN



COOLANT THRU

PRODUCT #	DESIGNATION RIGHT HAND	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Insert Screw	Anvil Screw	Anvil
945-000-002	MH12 LSER3	0.750	0.940	0.510	0.930	3IR	MTS-35	N/A	N/A
945-000-041	MH16 LSER3	1.000	1.000	0.650	1.210	3IR	SA3T	SY3T	YI3
945-000-093	MH20 LSER3	1.250	1.300	0.770	1.470	3IR	SA3T	SY3T	YI3
945-000-130	MH24 LSER3	1.500	1.520	0.900	1.740	3IR	SA3T	SY3T	YI3
945-000-167	MH28 LSER3	1.750	1.770	1.090	2.070	3IR	SA3T	SY3T	YI3
945-000-199	MH32 LSER3	2.000	2.030	1.281	2.400	3IR	SA3T	SY3T	YI3

PRODUCT #	DESIGNATION LEFT HAND	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Insert Screw	Anvil Screw	Anvil
945-000-001	MH12 LSEL3	0.750	0.940	0.510	0.930	3IL	MTS-35	N/A	N/A
945-000-040	MH16 LSEL3	1.000	1.000	0.650	1.210	3IL	SA3T	SY3T	YE3
945-000-092	MH20 LSEL3	1.250	1.300	0.770	1.470	3IL	SA3T	SY3T	YE3
945-000-129	MH24 LSEL3	1.500	1.520	0.900	1.740	3IL	SA3T	SY3T	YE3
945-000-166	MH28 LSEL3	1.750	1.770	1.090	2.070	3IL	SA3T	SY3T	YE3
945-000-198	MH32 LSEL3	2.000	2.030	1.281	2.400	3IL	SA3T	SY3T	YE3

PRODUCT #	Clamp
968-000-016	CL-6
968-000-017	CL-7
968-000-020	CL-9
968-000-010	CL-12
968-000-011	CL-19
968-000-012	CL-20

PACKAGE SIZE OF 1

PRODUCT #	Clamp
968-000-013	CL-21
968-000-014	CL-22
968-000-015	CL-30
968-000-018	CL-84
968-000-019	CL-85

PACKAGE SIZE OF 1

PRODUCT #	Anvil
968-000-185	YI3
968-000-182	YE3
968-000-187	YI4
968-000-186	YI3M-1.5N
968-000-183	YE4
968-000-188	YI5
968-000-184	YE5

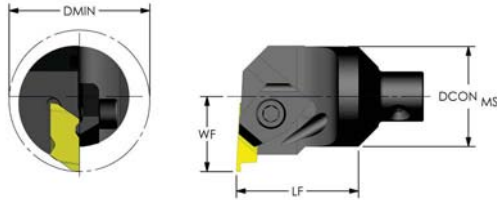
PACKAGE SIZE OF 1

PRODUCT #	Anvil Screw
968-000-146	SY3T
968-000-147	SY4T
968-000-148	SY5T

PACKAGE SIZE OF 5

PRODUCT #	Insert Screw
968-000-124	SA3T
968-000-125	SA4T
968-000-126	SA5T

PACKAGE SIZE OF 5



THREADING / GROOVING TOP NOTCH



COOLANT THRU

PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Clamp	Clamp Screw
945-000-016	MH12 NER2	0.750	0.920	0.562	1.120	NG 2L	CM-75	6-32
945-000-063	MH16 NER2	1.000	1.180	0.688	1.380	NG 2L	CM-75	6-32
945-000-064	MH16 NER3	1.000	1.180	0.688	1.380	NG 3L	CM-73	10-32
945-000-119	MH20 NER3	1.250	1.300	0.875	1.750	NG 3L	CM-73	10-32
945-000-155	MH24 NER3	1.500	1.520	1.000	2.000	NG 3L	CM-73	10-32
945-000-189	MH28 NER3	1.750	1.770	1.125	2.250	NG 3L	CM-73	10-32
945-000-224	MH32 NER3	2.000	2.030	1.250	2.500	NG 3L	CM-73	10-32

PRODUCT # LEFT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Clamp	Clamp Screw
945-000-015	MH12 NEL2	0.750	0.920	0.562	1.120	NG 2R	CM-74	6-32
945-000-061	MH16 NEL2	1.000	1.180	0.688	1.380	NG 2R	CM-74	6-32
945-000-062	MH16 NEL3	1.000	1.180	0.688	1.380	NG 3R	CM-72	10-32
945-000-118	MH20 NEL3	1.250	1.300	0.875	1.750	NG 3R	CM-72	10-32
945-000-154	MH24 NEL3	1.500	1.520	1.000	2.000	NG 3R	CM-72	10-32
945-000-188	MH28 NEL3	1.750	1.770	1.125	2.250	NG 3R	CM-72	10-32
945-000-223	MH32 NEL3	2.000	2.030	1.250	2.500	NG 3R	CM-72	10-32

PRODUCT #	Clamp
968-000-025	CM-72
968-000-026	CM-73
968-000-027	CM-74
968-000-028	CM-75
968-000-021	CM-120
968-000-022	CM-121
968-000-023	CM-146
968-000-024	CM-147

PACKAGE SIZE OF 1

PRODUCT #	Clamp Screw
968-000-005	6-32
968-000-003	10-32
968-000-096	MTS-526

PACKAGE SIZE OF 5

STEALTH[®] BORING BARS

Tunable Internal Damping Technology



5:1 Up To
14:1 Ratio

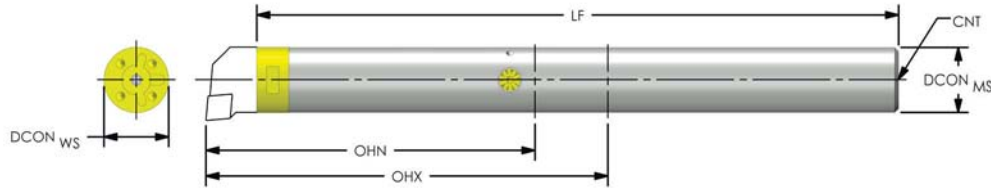
0.500" - 4.00" Diameters



Product Highlights:

Tunable Internal Damping Technology provides optimal dynamic stability yielding significant increases in machining performance. Most importantly, the bars pay for themselves quickly by increasing speed and precision. Additionally, you can leave Stealth Tooling "CFT" in the machine and use it for deep or shallow bore applications, thus reducing changeover and setup time.

- Fully tunable boring bar (arrives pre-tuned)
- Labeled dial for ease of tuning
- Quick setup flat located on connection end of bar
- Solves difficult deep boring applications
- Improved surface finish
- Increase output by more aggressive cutting
- Increase tool life from reduced vibration
- Multiple head configurations



5:1 Ratio

MODULAR STEALTH® BARS

COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	DCONWS [in.]	LF [in.]	OHN [in.]	OHX [in.]	Head Bolts	CNT
910-000-013	CFT B1500-9	1.500	1.500	9.000	7.000	7.500	10-24 HB	1/8-27 NPT
910-000-018	CFT B2000-12	2.000	2.000	12.000	7.500	10.000	1/4-20 HB	1/8-27 NPT
910-000-023	CFT B2500-16	2.500	2.500	16.000	8.000	12.500	5/16-18 HB	1/8-27 NPT

7:1 Ratio

910-000-001	CFT B1000-10	1.000	1.000	10.000	5.000	7.000	8-32 HB	1/8-27 NPT
910-000-005	CFT B1250-12	1.250	1.250	12.000	6.250	8.750	10-24 HB	1/8-27 NPT
910-000-009	CFT B1500-15	1.500	1.500	15.000	7.500	10.500	10-24 HB	1/8-27 NPT
910-000-014	CFT B1750-18	1.750	1.750	18.000	8.7500	12.250	1/4-20 HB	1/8-27 NPT
910-000-019	CFT B2000-20	2.000	2.000	20.000	10.000	14.000	1/4-20 HB	1/8-27 NPT
910-000-024	CFT B2500-27	2.500	2.500	27.000	12.500	17.500	5/16-18 HB	1/4-18 NPT
910-000-028	CFT B3000-31	3.000	2.500	31.000	15.000	21.000	5/16-18 HB	1/4-18 NPT

10:1 Ratio

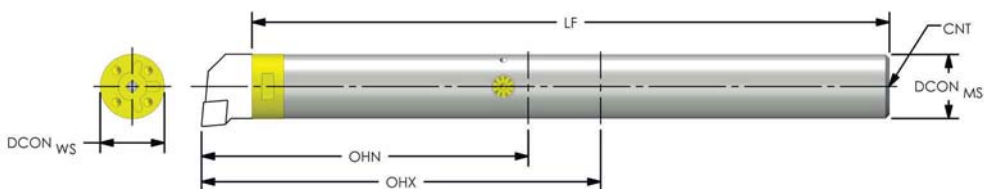
910-000-002	CFT B1000-14	1.000	1.000	14.000	7.000	10.000	8-32 HB	1/8-27 NPT
910-000-006	CFT B1250-16	1.250	1.250	16.000	8.750	12.500	10-24 HB	1/8-27 NPT
910-000-010	CFT B1500-19	1.500	1.500	19.000	10.500	15.000	10-24 HB	1/8-27 NPT
910-000-015	CFT B1750-23	1.750	1.750	23.000	12.250	17.500	1/4-20 HB	1/8-27 NPT
910-000-020	CFT B2000-26	2.000	2.000	26.000	14.000	20.000	1/4-20 HB	1/8-27 NPT
910-000-025	CFT B2500-33	2.500	2.500	33.000	17.500	25.000	5/16-18 HB	1/4-18 NPT
910-000-029	CFT B3000-40	3.000	2.500	40.000	21.000	30.000	5/16-18 HB	1/4-18 NPT
910-000-034	CFT B4000-50	4.000	2.500	50.000	28.000	40.000	5/16-18 HB	1/4-18 NPT

12:1 Ratio

910-000-003	CFT B1000-16	1.000	1.000	16.000	10.875	12.000	8-32 HB	N/A
910-000-058	CFT B1250-18	1.250	1.250	18.000	13.785	15.000	10-24 HB	N/A
910-000-011	CFT B1500-22	1.500	1.500	22.000	16.375	18.000	10-24 HB	N/A
910-000-016	CFT B1750-25	1.750	1.750	25.000	18.060	21.000	1/4-20 HB	N/A
910-000-021	CFT B2000-29	2.000	2.000	29.000	19.375	24.000	1/4-20 HB	N/A

14:1 Ratio

910-000-004	CFT B1000-18	1.000	1.000	18.000	10.875	12.000	8-32 HB	N/A
910-000-008	CFT B1250-21	1.250	1.250	21.000	13.875	15.000	10-24 HB	N/A
910-000-012	CFT B1500-25	1.500	1.500	25.000	16.375	18.000	10-24 HB	N/A
910-000-017	CFT B1750-29	1.750	1.750	29.000	18.060	21.000	1/4-20 HB	N/A
910-000-022	CFT B2000-33	2.000	2.000	33.000	19.375	24.000	1/4-20 HB	N/A



7:1 Ratio **MODULAR STEALTH® BARS** **COOLANT THRU**

PRODUCT #	DESIGNATION	DCONMS [mm]	DCONWS [mm]	LF [mm]	OHN [mm]	OHX [mm]	Head Bolts	CNT
910-000-026	CFT B25MM-250	25.00	25.00	250.00	127.00	175.00	8-32 HB	1/8-27 NPT
910-000-030	CFT B32MM-320	32.00	32.00	320.00	159.00	224.00	10-24 HB	1/8-27 NPT
910-000-035	CFT B40MM-400	40.00	40.00	400.00	190.00	280.00	10-24 HB	1/8-27 NPT
910-000-039	CFT B50MM-500	50.00	40.00	500.00	254.00	350.00	1/4-20 HB	1/8-27 NPT
910-000-043	CFT B60MM-600	60.00	2.000	600.00	320.00	420.00	1/4-20 HB	1/8-27 NPT

10:1 Ratio

910-000-027	CFT B25MM-325	25.00	25.00	325.00	178.00	250.00	8-32 HB	1/8-27 NPT
910-000-031	CFT B32MM-416	32.00	32.00	416.00	223.00	320.00	10-24 HB	1/8-27 NPT
910-000-036	CFT B40MM-520	40.00	40.00	520.00	266.00	400.00	10-24 HB	1/8-27 NPT
910-000-040	CFT B50MM-650	50.00	40.00	650.00	356.00	500.00	1/4-20 HB	1/8-27 NPT
910-000-044	CFT B60MM-780	60.00	40.00	780.00	445.00	600.00	1/4-20 HB	1/8-27 NPT

12:1 Ratio

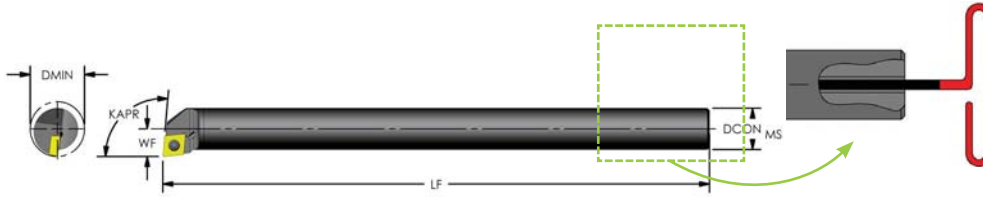
910-000-032	CFT B32MM-480	32.00	32.00	480.00	352.00	384.00	10-24 HB	N/A
910-000-037	CFT B40MM-600	40.00	40.00	600.00	416.00	480.00	10-24 HB	N/A
910-000-041	CFT B50MM-750	50.00	40.00	750.00	492.00	600.00	1/4-20 HB	N/A

14:1 Ratio

910-000-033	CFT B32MM-544	32.00	32.00	544.00	352.00	448.00	10-24 HB	N/A
910-000-038	CFT B40MM-680	40.00	40.00	680.00	416.00	560.00	10-24 HB	N/A
910-000-042	CFT B50MM-850	50.00	40.00	850.00	492.00	788.00	1/4-20 HB	N/A

PRODUCT #	Head Bolts
968-000-006	8-32 HB
968-000-002	10-24 HB
968-000-001	1/4-20 HB
968-000-004	5/16-18 HB

PACKAGE SIZE OF 1

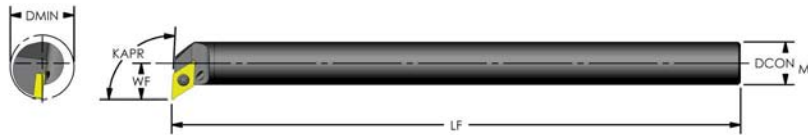


Tuneable from the end with supplied T-Handle Hex Wrench.

SOLID POSITIVE 80° DIAMOND (KAPR: 95°)

8:1 Ratio
COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
910-000-045	D08R SCLCR2	0.500	8.000	0.281	0.580	95.0	CCMT 21.51	MTS-255	T-7
910-000-047	D10X SCLCR3	0.625	9.000	0.406	0.770	95.0	CCMT 32.51	MTS-35	T-15
910-000-050	D12S SCLCR3	0.750	10.000	0.500	0.930	95.0	CCMT 32.51	MTS-35	T-15

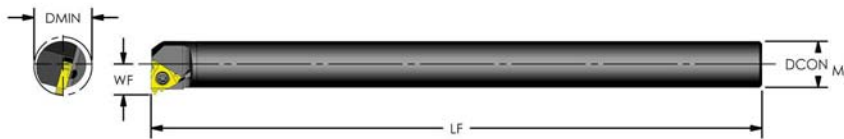


Tuneable from the end with supplied T-Handle Hex Wrench.

SOLID POSITIVE 55° DIAMOND (KAPR: 93°)

8:1 Ratio
COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
910-000-046	D08R SDUCR2	0.500	8.000	0.437	0.730	93.0	DCMT 21.51	MTS-255	T-7
910-000-048	D10X SDUCR2	0.625	9.000	0.500	0.850	93.0	DCMT 21.51	MTS-255	T-7
910-000-051	D12S SDUCR3	0.750	10.000	0.625	1.050	93.0	DCMT 32.51	MTS-35	T-15



Tuneable from the end with supplied T-Handle Hex Wrench.

SOLID THREADING/GROOVING LAYDOWN

8:1 Ratio
COOLANT THRU

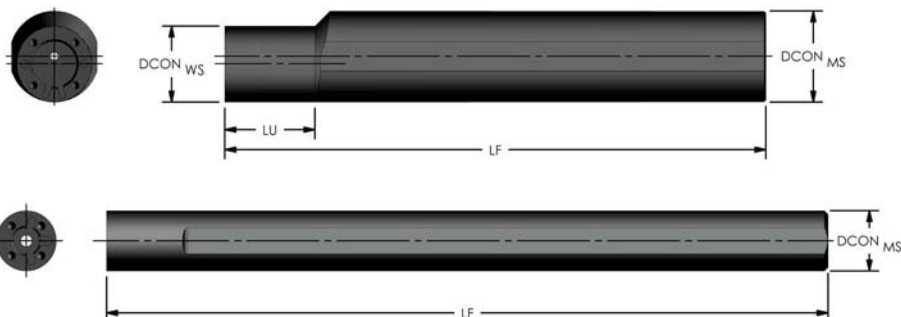
PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Insert Screw
910-000-049	D12S LSER3	0.750	10.000	0.510	0.935	3IR	MTS-35

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5



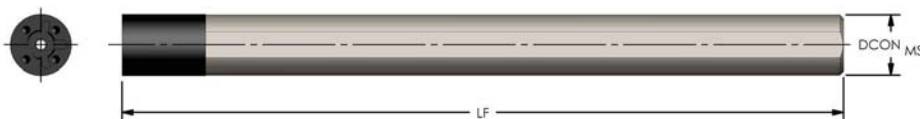
4:1 Ratio

STEEL SHANK

COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	DCONWS [in.]	LU [in.]	LF [in.]	Head Bolts
911-000-001	A1000-12	1.000	N/A	N/A	12.000	8-32
911-000-002	A1250-14	1.250	N/A	N/A	14.000	10-24
911-000-003	A1500-14	1.500	N/A	N/A	14.000	10-24
911-000-004	A1750-16	1.750	N/A	N/A	16.000	1/4-20
911-000-026	A2000-10	2.000	N/A	N/A	10.000	1/4-20
911-000-005	A2000-20	2.000	N/A	N/A	20.000	1/4-20
911-000-006	A2500-12	2.500	N/A	N/A	12.000	5/16-18
911-000-007	A2500-24	2.500	N/A	N/A	24.000	5/16-18
911-000-008	A3000-18 *	3.000	2.000	3.000	18.000	5/16-18

* 3" bar takes 2.5" head



8:1 Ratio

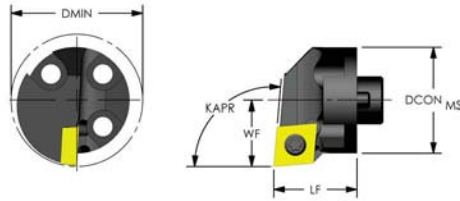
CARBIDE SHANK

COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	Head Bolts
911-000-016	E1000-12	1.000	12.000	8-32
911-000-017	E1250-14	1.250	14.000	10-24
911-000-018	E1500-14	1.500	14.000	10-24
911-000-019	E1750-16	1.750	16.000	1/4-20
911-000-020	E2000-20	2.000	20.000	1/4-20

PRODUCT #	Head Bolts
968-000-006	8-32 HB
968-000-002	10-24 HB
968-000-001	1/4-20 HB
968-000-004	5/16-18 HB

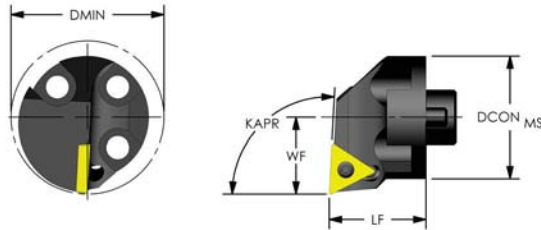
PACKAGE SIZE OF 1



POSITIVE 80° DIAMOND (KAPR: 93°)

COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
912-000-014	912-000-015	MH16 SCLCR/L3-CFT	1.000	0.790	0.625	1.200	93.0	CCMT 32.51	MTS-35	T-15
912-000-041	912-000-042	MH20 SCLCR/L3-CFT	1.250	1.250	0.765	1.470	93.0	CCMT 32.51	MTS-35	T-15
912-000-074	912-000-075	MH24 SCLCR/L3-CFT	1.500	1.250	0.890	1.760	93.0	CCMT 32.51	MTS-35	T-15
912-000-110	912-000-111	MH28 SCLCR/L3-CFT	1.750	1.250	1.015	2.030	93.0	CCMT 32.51	MTS-35	T-15
N/A	912-000-076	MH24 SCLCR4-CFT	1.500	1.250	0.890	1.760	93.0	CCMT 432	MTS-4	T-20
N/A	912-000-112	MH28 SCLCR4-CFT	1.750	1.250	1.015	2.030	93.0	CCMT 432	MTS-4	T-20
912-000-156	912-000-157	MH32 SCLCR/L4-CFT	2.000	1.625	1.281	2.400	93.0	CCMT 432	MTS-4	T-20
912-000-195	912-000-196	MH40 SCLCR/L4-CFT	2.500	1.625	1.500	2.800	93.0	CCMT 432	MTS-4	T-20



POSITIVE TRIANGLE (KAPR: 93°)

COOLANT THRU

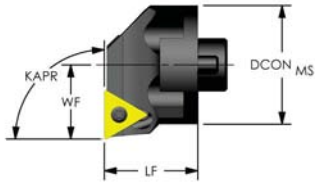
PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
912-000-020	912-000-021	MH16 STUCR/L2-CFT	1.000	0.790	0.625	1.200	93.0	TCMT 21.51	MTS-255	T-7
912-000-047	912-000-048	MH20 STUCR/L3-CFT	1.250	1.250	0.765	1.470	93.0	TCMT 32.51	MTS-35	T-15
912-000-081	912-000-082	MH24 STUCR/L3-CFT	1.500	1.250	0.890	1.760	93.0	TCMT 32.51	MTS-35	T-15
912-000-117	912-000-118	MH28 STUCR/L3-CFT	1.750	1.250	1.015	2.030	93.0	TCMT 32.51	MTS-35	T-15
912-000-162	912-000-163	MH32 STUCR/L3-CFT	2.000	1.625	1.281	2.400	93.0	TCMT 32.51	MTS-35	T-15
912-000-201	912-000-202	MH40 STUCR/L3-CFT	2.500	1.625	1.500	2.800	93.0	TCMT 32.51	MTS-35	T-15

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

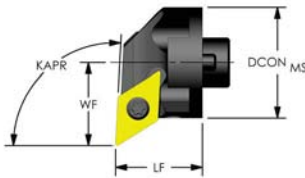
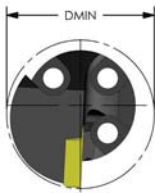


POSITIVE TRIANGLE (KAPR: 90°)

COOLANT THRU



PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
912-000-018	912-000-019	MH16 STFCLR/L2-CFT	1.000	0.790	0.625	1.200	90.0	TCMT 21.51	MTS-255	T-7
912-000-045	912-000-046	MH20 STFCLR/L3-CFT	1.250	1.250	0.765	1.470	90.0	TCMT 32.51	MTS-35	T-15
912-000-079	912-000-080	MH24 STFCLR/L3-CFT	1.500	1.250	0.890	1.760	90.0	TCMT 32.51	MTS-35	T-15
912-000-115	912-000-116	MH28 STFCLR/L3-CFT	1.750	1.250	1.015	2.030	90.0	TCMT 32.51	MTS-35	T-15
912-000-160	912-000-161	MH32 STFCLR/L3-CFT	2.000	1.625	1.281	2.400	90.0	TCMT 32.51	MTS-35	T-15
912-000-199	912-000-200	MH40 STFCLR/L3-CFT	2.500	1.625	1.500	2.800	90.0	TCMT 32.51	MTS-35	T-15



POSITIVE 55° DIAMOND (KAPR: 93°) PROFILING

COOLANT THRU



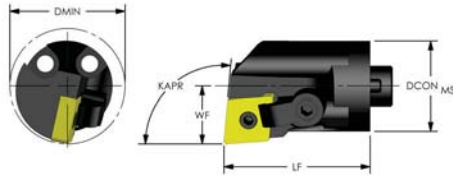
PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
912-000-016	912-000-017	MH16 SDUCR/L3-CFT	1.000	0.790	0.750	1.300	93.0	DCMT 32.51	MTS-35	T-15
912-000-043	912-000-044	MH20 SDUCR/L3-CFT	1.250	1.250	1.000	1.675	93.0	DCMT 32.51	MTS-35	T-15
912-000-077	912-000-078	MH24 SDUCR/L3-CFT	1.500	1.250	1.120	1.920	93.0	DCMT 32.51	MTS-35	T-15
912-000-113	912-000-114	MH28 SDUCR/L3-CFT	1.750	1.250	1.250	2.175	93.0	DCMT 32.51	MTS-35	T-15
912-000-158	912-000-159	MH32 SDUCR/L3-CFT	2.000	1.625	1.375	2.425	93.0	DCMT 32.51	MTS-35	T-15
912-000-197	912-000-198	MH40 SDUCR/L3-CFT	2.500	1.625	1.500	2.800	93.0	DCMT 32.51	MTS-35	T-15

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

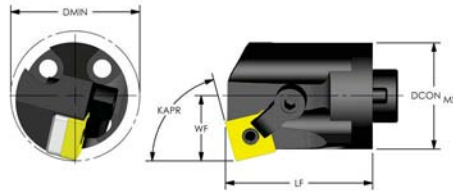


NEGATIVE 80° DIAMOND (KAPR: 95°)



COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim	Clamp	Clamp Screw	Lock Pin
912-000-003	912-000-004	MH16 MCLNR/L4-CFT	1.000	1.625	0.640	1.200	95.0	CNMG 432	N/A	CL-20	XNS-47	NL-44
912-000-024	912-000-025	MH20 MCLNR/L4-CFT	1.250	1.625	0.765	1.470	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
912-000-053	912-000-055	MH24 MCLNR/L4-CFT	1.500	1.625	0.890	1.760	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
912-000-087	912-000-088	MH28 MCLNR/L4-CFT	1.750	1.625	1.015	2.010	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
912-000-125	912-000-128	MH32 MCLNR/L4-CFT	2.000	1.625	1.281	2.400	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
912-000-166	912-000-169	MH40 MCLNR/L4-CFT	2.500	1.625	1.531	2.980	95.0	CNMG 432	ICSN-433	CL-20	XNS-47	NL-46
912-000-054	912-000-056	MH24 MCLNR/L5-CFT	1.250	1.625	0.890	1.760	95.0	CNMG 543	N/A	CL-20	XNS-47	NL-56
912-000-126	912-000-129	MH32 MCLNR/L5-CFT	2.000	1.625	1.281	2.400	95.0	CNMG 543	ICSN-533	CL-12	XNS-510	NL-58
912-000-167	912-000-170	MH40 MCLNR/L5-CFT	2.500	1.625	1.531	2.980	95.0	CNMG 543	ICSN-533	CL-12	XNS-510	NL-58
912-000-127	912-000-130	MH32 MCLNR/L6-CFT	2.000	1.625	1.281	2.400	95.0	CNMG 643	ICSN-633	CL-12	XNS-59	NL-68
912-000-168	912-000-171	MH40 MCLNR/L6-CFT	2.500	1.625	1.531	3.030	95.0	CNMG 643	ICSN-633	CL-12	XNS-59	NL-68



NEGATIVE SQUARE (KAPR: 75°)



COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim	Clamp	Clamp Screw	Lock Pin
912-000-030	912-000-031	MH20 MSKNR/L4-CFT	1.250	1.744	0.765	1.470	75.0	SNMG 432	ISSN-433	CL-20	XNS-47	NL-46
912-000-061	912-000-062	MH24 MSKNR/L4-CFT	1.500	1.744	0.890	1.760	75.0	SNMG 432	ISSN-433	CL-20	XNS-47	NL-46
912-000-093	912-000-094	MH28 MSKNR/L4-CFT	1.750	1.744	1.015	2.010	75.0	SNMG 432	ISSN-433	CL-20	XNS-47	NL-46
912-000-135	912-000-138	MH32 MSKNR/L4-CFT	2.000	1.744	1.281	2.400	75.0	SNMG 432	ISSN-433	CL-20	XNS-47	NL-46
912-000-176	912-000-179	MH40 MSKNR/L4-CFT	2.500	1.804	1.531	3.030	75.0	SNMG 432	ISSN-433	CL-20	XNS-47	NL-46
912-000-136	912-000-139	MH32 MSKNR/L5-CFT	2.000	1.744	1.281	2.400	75.0	SNMG 543	ISSN-533	CL-12	XNS-510	NL-58
912-000-177	912-000-180	MH40 MSKNR/L5-CFT	2.500	1.804	1.531	3.030	75.0	SNMG 543	ISSN-533	CL-12	XNS-510	NL-58
912-000-137	912-000-138	MH32 MSKNR/L6-CFT	2.000	1.744	1.281	2.400	75.0	SNMG 643	ISSN-633	CL-12	XNS-510	NL-68
912-000-178	912-000-181	MH40 MSKNR/L6-CFT	2.500	1.804	1.531	3.030	75.0	SNMG 643	ISSN-633	CL-12	XNS-510	NL-68

PRODUCT #	Clamp
968-000-016	CL-6
968-000-017	CL-7
968-000-020	CL-9
968-000-010	CL-12
968-000-011	CL-19
968-000-012	CL-20

PACKAGE SIZE OF 1

PRODUCT #	Clamp
968-000-013	CL-21
968-000-014	CL-22
968-000-015	CL-30
968-000-018	CL-84
968-000-019	CL-85

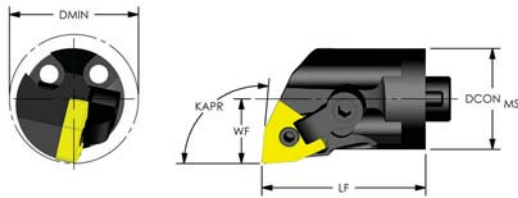
PACKAGE SIZE OF 1

PRODUCT #	Clamp Screw
968-000-176	XNS-36
968-000-177	XNS-47
968-000-178	XNS-48
968-000-179	XNS-510
968-000-180	XNS-58
968-000-181	XNS-59

PACKAGE SIZE OF 5

PRODUCT #	Lock Pin
968-000-097	NL-33
968-000-098	NL-33L
968-000-099	NL-34
968-000-100	NL-34L
968-000-101	NL-44
968-000-102	NL-46
968-000-103	NL-56
968-000-104	NL-58
968-000-105	NL-68
968-000-106	NL-68L

PACKAGE SIZE OF 5

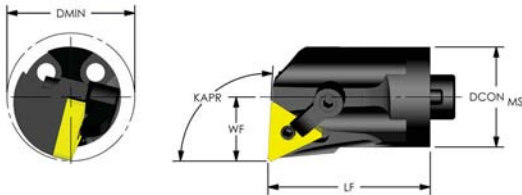


NEGATIVE TRIGON (KAPR: 95°)

COOLANT THRU



PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim	Clamp	Clamp Screw	Lock Pin
912-000-012	912-000-013	MH16 MWLNR/L4-CFT	1.000	1.625	0.640	1.200	95.0	WNMG 432	N/A	CL-20	XNS-47	NL-44
912-000-037	912-000-038	MH20 MWLNR/L4-CFT	1.250	1.625	0.765	1.470	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
912-000-070	912-000-071	MH24 MWLNR/L4-CFT	1.500	1.625	0.890	1.760	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
912-000-102	912-000-103	MH28 MWLNR/L4-CFT	1.750	1.625	1.015	2.010	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
912-000-148	912-000-149	MH32 MWLNR/L4-CFT	2.000	1.625	1.281	2.400	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46
912-000-189	912-000-190	MH40 MWLNR/L4-CFT	2.500	1.625	1.500	2.980	95.0	WNMG 432	IWSN-433	CL-20	XNS-47	NL-46



NEGATIVE TRIANGLE (KAPR: 93°)

COOLANT THRU



PRODUCT #	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim	Clamp	Clamp Screw	Lock Pin
912-000-007	MH16 MTUNR3-CFT	1.000	1.625	0.640	1.200	93.0	TNMG 332	N/A	CL-7	XNS-36	NL-33L
912-000-032	MH20 MTUNR3-CFT	1.250	1.625	0.765	1.470	93.0	TNMG 332	ITSN-323	CL-7	XNS-36	NL-34L
912-000-065	MH24 MTUNR4-CFT	1.500	1.625	0.890	1.760	93.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46
912-000-097	MH28 MTUNR4-CFT	1.750	1.625	1.015	2.010	93.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46
912-000-143	MH32 MTUNR4-CFT	2.000	1.625	1.281	2.400	93.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46
912-000-182	MH40 MTUNR4-CFT	2.500	1.625	1.531	2.900	93.0	TNMG 432	ITSN-433	CL-20	XNS-47	NL-46

PRODUCT #	Clamp
968-000-016	CL-6
968-000-017	CL-7
968-000-020	CL-9
968-000-010	CL-12
968-000-011	CL-19
968-000-012	CL-20

PACKAGE SIZE OF 1

PRODUCT #	Clamp
968-000-013	CL-21
968-000-014	CL-22
968-000-015	CL-30
968-000-018	CL-84
968-000-019	CL-85

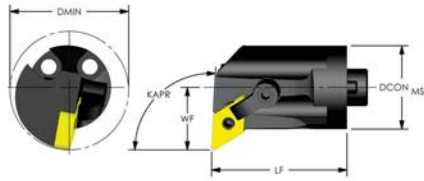
PACKAGE SIZE OF 1

PRODUCT #	Clamp Screw
968-000-176	XNS-36
968-000-177	XNS-47
968-000-178	XNS-48
968-000-179	XNS-510
968-000-180	XNS-58
968-000-181	XNS-59

PACKAGE SIZE OF 5

PRODUCT #	Lock Pin
968-000-097	NL-33
968-000-098	NL-33L
968-000-099	NL-34
968-000-100	NL-34L
968-000-101	NL-44
968-000-102	NL-46
968-000-103	NL-56
968-000-104	NL-58
968-000-105	NL-68
968-000-106	NL-68L

PACKAGE SIZE OF 5

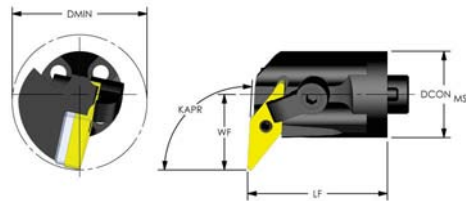


NEGATIVE 55° DIAMOND (KAPR: 93°)



COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim	Clamp	Clamp Screw	Lock Pin
912-000-005	912-000-006	MH16 MDUNR/L3-CFT	1.000	1.625	0.750	1.300	93.0	DNMG 332	N/A	CL-7	XNS-36	NL-33L
912-000-026	912-000-027	MH20 MDUNR/L3-CFT	1.250	1.625	1.000	1.705	93.0	DNMG 332	IDSN-322	CL-7	XNS-36	NL-34L
912-000-057	912-000-059	MH24 MDUNR/L3-CFT	1.500	1.625	1.125	2.000	93.0	DNMG 332	IDSN-322	CL-7	XNS-36	NL-34L
912-000-089	912-000-091	MH28 MDUNR/L3-CFT	1.750	1.625	1.250	2.250	93.0	DNMG 332	IDSN-322	CL-7	XNS-36	NL-34L
912-000-131	912-000-133	MH32 MDUNR/L3-CFT	2.000	1.625	1.375	2.500	93.0	DNMG 332	IDSN-322	CL-7	XNS-36	NL-34L
912-000-172	912-000-174	MH40 MDUNR/L3-CFT	2.500	1.625	1.500	2.950	93.0	DNMG 332	IDSN-322	CL-7	XNS-36	NL-34L
912-000-027	912-000-029	MH20 MDUNR/L4-CFT	1.250	1.625	1.000	1.705	93.0	DNMG 432	IDSN-433	CL-20	XNS-48	NL-46
912-000-058	912-000-060	MH24 MDUNR/L4-CFT	1.500	1.625	1.125	2.000	93.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
912-000-090	912-000-092	MH28 MDUNR/L4-CFT	1.750	1.625	1.250	2.250	93.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
912-000-132	912-000-134	MH32 MDUNR/L4-CFT	2.000	1.625	1.375	2.500	93.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46
912-000-173	912-000-175	MH40 MDUNR/L4-CFT	2.500	1.625	1.500	2.950	93.0	DNMG 432	IDSN-433	CL-22	XNS-48	NL-46



NEGATIVE 35° DIAMOND (KAPR: 93°)



COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim	Clamp	Clamp Screw	Lock Pin
912-000-008	912-000-009	MH16 MVUNR/L3-CFT	1.000	1.625	0.875	1.435	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
912-000-033	912-000-034	MH20 MVUNR/L3-CFT	1.250	1.625	1.000	1.705	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
912-000-066	912-000-067	MH24 MVUNR/L3-CFT	1.500	1.625	1.125	2.000	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
912-000-098	912-000-099	MH28 MVUNR/L3-CFT	1.750	1.625	1.250	2.250	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
912-000-144	912-000-145	MH32 MVUNR/L3-CFT	2.000	1.625	1.375	2.500	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
912-000-183	912-000-185	MH40 MVUNR/L3-CFT	2.500	1.625	1.750	3.250	93.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
912-000-184	912-000-186	MH40 MVUNR/L4-CFT	2.500	1.625	1.750	3.250	93.0	VNMG 432	IVSN-432	CL-22	XNS-48	NL-46

PRODUCT #	Clamp
968-000-016	CL-6
968-000-017	CL-7
968-000-020	CL-9
968-000-010	CL-12
968-000-011	CL-19
968-000-012	CL-20

PACKAGE SIZE OF 1

PRODUCT #	Clamp
968-000-013	CL-21
968-000-014	CL-22
968-000-015	CL-30
968-000-018	CL-84
968-000-019	CL-85

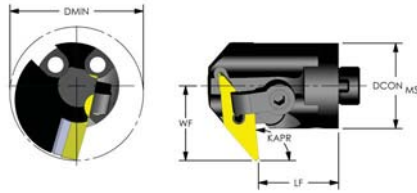
PACKAGE SIZE OF 1

PRODUCT #	Clamp Screw
968-000-176	XNS-36
968-000-177	XNS-47
968-000-178	XNS-48
968-000-179	XNS-510
968-000-180	XNS-58
968-000-181	XNS-59

PACKAGE SIZE OF 5

PRODUCT #	Lock Pin
968-000-097	NL-33
968-000-098	NL-33L
968-000-099	NL-34
968-000-100	NL-34L
968-000-101	NL-44
968-000-102	NL-46
968-000-103	NL-56
968-000-104	NL-58
968-000-105	NL-68
968-000-106	NL-68L

PACKAGE SIZE OF 5



NEGATIVE 35° DIAMOND (KAPR: 95°)
BACK FACING



COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim	Clamp	Clamp Screw	Lock Pin
912-000-010	912-000-011	MH16 MVXNR/L3-CFT	1.000	0.940	0.875	1.435	95.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
912-000-035	912-000-036	MH20 MVXNR/L3-CFT	1.250	1.000	1.000	1.705	95.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
912-000-068	912-000-069	MH24 MVXNR/L3-CFT	1.500	1.120	1.125	2.000	95.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
912-000-100	912-000-101	MH28 MVXNR/L3-CFT	1.750	1.120	1.250	2.250	95.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
912-000-146	912-000-147	MH32 MVXNR/L3-CFT	2.000	1.120	1.375	2.500	95.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L
912-000-187	912-000-188	MH40 MVXNR/L3-CFT	2.500	1.120	1.750	3.250	95.0	VNMG 332	IVSN-322	CL-20	XNS-47	NL-34L



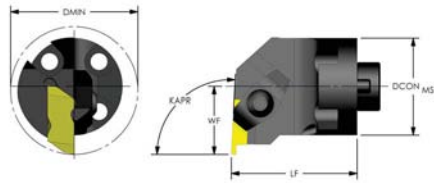
THREADING / GROOVING LAYDOWN



COOLANT THRU

PRODUCT #	DESIGNATION RIGHT HAND	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Insert Screw	Anvil Screw	Anvil
912-000-002	MH16 LSER3-CFT	1.000	1.625	0.650	1.200	3IR	SA3T	SY3T	YI3
912-000-023	MH20 LSER3-CFT	1.250	1.625	0.770	1.450	3IR	SA3T	SY3T	YI3
912-000-051	MH24 LSER3-CFT	1.500	1.625	0.900	1.650	3IR	SA3T	SY3T	YI3
912-000-085	MH28 LSER3-CFT	1.750	1.625	1.090	2.020	3IR	SA3T	SY3T	YI3
912-000-122	MH32 LSER3-CFT	2.000	1.625	1.281	2.400	3IR	SA3T	SY3T	YI3
912-000-052	MH24 LSER4-CFT	1.500	1.625	0.978	1.782	4IR	SA4T	SY4T	YI4
912-000-084	MH28 LSER4-CFT	1.750	1.625	1.090	2.020	4IR	SA4T	SY4T	YI4
912-000-123	MH32 LSER4-CFT	2.000	1.625	1.281	2.400	4IR	SA4T	SY4T	YI4
912-000-124	MH32 LSER5-CFT	2.000	1.625	1.281	2.400	5IR	SA5T	SY5T	YI5
912-000-165	MH40 LSER5-CFT	2.500	1.625	1.530	2.800	5IR	SA5T	SY5T	YI5

PRODUCT #	DESIGNATION LEFT HAND	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Insert Screw	Anvil Screw	Anvil
912-000-001	MH16 LSEL3-CFT	1.000	1.625	0.650	1.200	3IL	SA3T	SY3T	YE3
912-000-022	MH20 LSEL3-CFT	1.250	1.625	0.770	1.450	3IL	SA3T	SY3T	YE3
912-000-049	MH24 LSEL3-CFT	1.500	1.625	0.900	1.650	3IL	SA3T	SY3T	YE3
912-000-083	MH28 LSEL3-CFT	1.750	1.625	1.090	2.020	3IL	SA3T	SY3T	YE3
912-000-119	MH32 LSEL3-CFT	2.000	1.625	1.281	2.400	3IL	SA3T	SY3T	YE3
912-000-051	MH24 LSEL4-CFT	1.500	1.625	0.978	1.782	4IL	SA4T	SY4T	YE4
912-000-086	MH28 LSEL4-CFT	1.750	1.625	1.090	2.020	4IL	SA4T	SY4T	YE4
912-000-120	MH32 LSEL4-CFT	2.000	1.625	1.281	2.400	4IL	SA4T	SY4T	YE4
912-000-121	MH32 LSEL5-CFT	2.000	1.625	1.281	2.400	5IL	SA5T	SY5T	YE5
912-000-164	MH40 LSEL5-CFT	2.500	1.625	1.530	2.800	5IL	SA5T	SY5T	YE5



THREADING / GROOVING TOP NOTCH



COOLANT THRU

PRODUCT #	DESIGNATION RIGHT HAND	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Clamp	Screw
912-000-040	MH20 NER3-CFT	1.250	1.625	0.875	1.750	NG 3L	CM-73	10-32
912-000-073	MH24 NER3-CFT	1.500	1.625	1.000	2.000	NG 3L	CM-73	10-32
912-000-107	MH28 NER3-CFT	1.750	1.625	1.125	2.250	NG 3L	CM-73	10-32
912-000-153	MH32 NER3-CFT	2.000	1.625	1.250	2.410	NG 3L	CM-73	10-32
912-000-108	MH28 NER4-CFT	1.750	1.625	1.250	2.500	NG 4L	CM-73	10-32
912-000-154	MH32 NER4-CFT	2.000	1.625	1.375	2.750	NG 4L	CM-73	10-32
912-000-193	MH40 NER4-CFT	2.500	1.625	1.625	3.250	NG 4L	CM-73	10-32
912-000-109	MH28 NER6-CFT	1.750	1.625	1.250	2.500	NG 6L	CM-121	10-32
912-000-155	MH32 NER6-CFT	2.000	1.625	1.375	2.750	NG 6L	CM-121	10-32
912-000-194	MH40 NER6-CFT	2.500	1.625	1.625	3.250	NG 6L	CM-121	10-32

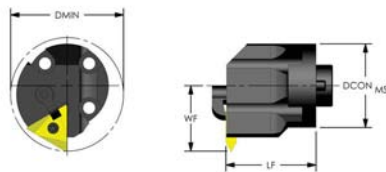
PRODUCT #	Clamp
968-000-025	CM-72
968-000-026	CM-73
968-000-027	CM-74
968-000-028	CM-75
968-000-021	CM-120
968-000-022	CM-121
968-000-023	CM-146
968-000-024	CM-147

PACKAGE SIZE OF 1

PRODUCT #	Clamp Screw
968-000-005	6-32
968-000-003	10-32
968-000-096	MTS-526

PACKAGE SIZE OF 5

PRODUCT #	DESIGNATION LEFT HAND	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Clamp	Screw
912-000-039	MH20 NEL3-CFT	1.250	1.625	.875	1.750	NG 3R	CM-72	10-32
912-000-072	MH24 NEL3-CFT	1.500	1.625	1.000	2.000	NG 3R	CM-72	10-32
912-000-104	MH28 NEL3-CFT	1.750	1.625	1.125	2.250	NG 3R	CM-72	10-32
912-000-150	MH32 NEL3-CFT	2.000	1.625	1.250	2.410	NG 3R	CM-72	10-32
912-000-105	MH28 NEL4-CFT	1.750	1.625	1.250	2.500	NG 4R	CM-72	10-32
912-000-151	MH32 NEL4-CFT	2.000	1.625	1.375	2.750	NG 4R	CM-72	10-32
912-000-191	MH40 NEL4-CFT	2.500	1.625	1.625	3.250	NG 4R	CM-72	10-32
912-000-106	MH28 NEL6-CFT	1.750	1.625	1.250	2.500	NG 6R	CM-120	10-32
912-000-152	MH32 NEL6-CFT	2.000	1.625	1.375	2.750	NG 6R	CM-120	10-32
912-000-192	MH40 NEL6-CFT	2.500	1.625	1.625	3.250	NG 6R	CM-120	10-32



THREADING / GROOVING ON EDGE



COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	Designation	DCONMS [in.]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Clamp	Screw	Lock Pin
912-000-063	912-000-064	MH24 MTHOR/L4-CFT	1.500	1.625	1.173	2.625	TNMA 43	CL-7	XNS-36	NL-44
912-000-095	912-000-096	MH28 MTHOR/L4-CFT	1.750	1.625	1.298	2.750	TNMA 43	CL-7	XNS-36	NL-44
912-000-141	912-000-142	MH32 MTHOR/L4-CFT	2.000	1.625	1.423	2.875	TNMA 43	CL-7	XNS-36	NL-44

PRODUCT #	Clamp Screw
968-000-176	XNS-36
968-000-177	XNS-47
968-000-178	XNS-48
968-000-179	XNS-510
968-000-180	XNS-58
968-000-181	XNS-59

PACKAGE SIZE OF 5

PRODUCT #	Lock Pin
968-000-097	NL-33
968-000-098	NL-33L
968-000-099	NL-34
968-000-100	NL-34L
968-000-101	NL-44
968-000-102	NL-46
968-000-103	NL-56
968-000-104	NL-58
968-000-105	NL-68
968-000-106	NL-68L

PACKAGE SIZE OF 5

PRODUCT #	Clamp
968-000-016	CL-6
968-000-017	CL-7
968-000-020	CL-9
968-000-010	CL-12
968-000-011	CL-19
968-000-012	CL-20

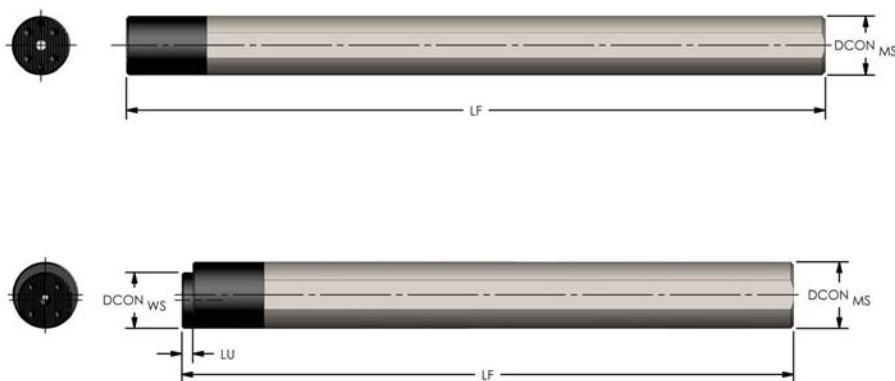
PACKAGE SIZE OF 1



STEEL SHANK

4:1 Ratio
COOLANT THRU

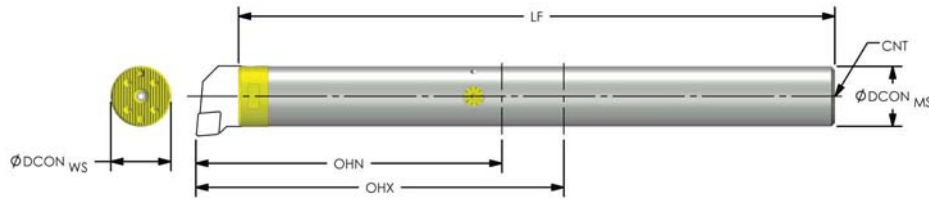
PRODUCT #	DESIGNATION	DCONMS [in.]	DCONWS [mm]	LU [in.]	LF [in.]	Head Bolts
911-000-009	AS1000-12	1.000	25.00	N/A	12.000	8-32
911-000-010	AS1250-14	1.250	32.00	N/A	14.000	10-24
911-000-011	AS1500-14	1.500	32.00	0.250	14.000	10-24
911-000-012	AS1750-16	1.750	40.00	0.250	16.000	1/4-20
911-000-013	AS2000-20	2.000	40.00	0.250	20.000	1/4-20
911-000-014	AS2500-12	2.500	40.00	0.250	12.000	1/4-20
911-000-015	AS2500-24	2.500	40.00	0.250	24.000	1/4-20



CARBIDE SHANK

8:1 Ratio
COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	DCONWS [mm]	LU [in.]	LF [in.]	Head Bolts
911-000-021	ES1000-12	1.000	25.00	N/A	12.000	8-32
911-000-022	ES1250-14	1.250	32.00	N/A	14.000	10-24
911-000-023	ES1500-14	1.500	32.00	0.250	14.000	10-24
911-000-024	ES1750-16	1.750	40.00	0.250	16.000	1/4-20
911-000-025	ES2000-20	2.000	40.00	0.250	20.000	1/4-20



5:1 Ratio

MODULAR STEALTH® BARS

COOLANT THRU

PRODUCT #	DESIGNATION	DCONMS [in.]	DCONWS [mm]	LF [in.]	OHN [in.]	OHX [in.]	Head Bolts	CNT
910-000-064	SCFT B1500-9	1.500	32.00	9.000	7.000	7.500	10-24 HB	1/8-27 NPT
910-000-069	SCFT B2000-12	2.000	40.00	12.000	7.500	10.000	1/4-20 HB	1/8-27 NPT
910-000-074	SCFT B2500-16	2.500	40.00	16.000	8.000	12.500	1/4-20 HB	1/8-27 NPT

7:1 Ratio

910-000-052	SCFT B1000-10	1.000	25.00	10.000	5.000	7.000	8-32 HB	1/8-27 NPT
910-000-056	SCFT B1250-12	1.250	32.00	12.000	6.250	8.750	10-24 HB	1/8-27 NPT
910-000-060	SCFT B1500-15	1.500	32.00	15.000	7.500	10.500	10-24 HB	1/8-27 NPT
910-000-065	SCFT B1750-18	1.750	40.00	18.000	8.7500	12.250	1/4-20 HB	1/8-27 NPT
910-000-070	SCFT B2000-20	2.000	40.00	20.000	10.000	14.000	1/4-20 HB	1/8-27 NPT
910-000-075	SCFT B2500-27	2.500	40.00	27.000	12.500	17.500	1/4-20 HB	1/4-18 NPT

10:1 Ratio

910-000-053	SCFT B1000-14	1.000	25.00	14.000	7.000	10.000	8-32 HB	1/8-27 NPT
910-000-057	SCFT B1250-16	1.250	32.00	16.000	8.750	12.500	10-24 HB	1/8-27 NPT
910-000-061	SCFT B1500-19	1.500	32.00	19.000	10.500	15.000	10-24 HB	1/8-27 NPT
910-000-066	SCFT B1750-23	1.750	40.00	23.000	12.250	17.500	1/4-20 HB	1/8-27 NPT
910-000-071	SCFT B2000-26	2.000	40.00	26.000	14.000	20.000	1/4-20 HB	1/8-27 NPT
910-000-076	SCFT B2500-33	2.500	40.00	33.000	17.500	25.000	1/4-20 HB	1/4-18 NPT

12:1 Ratio

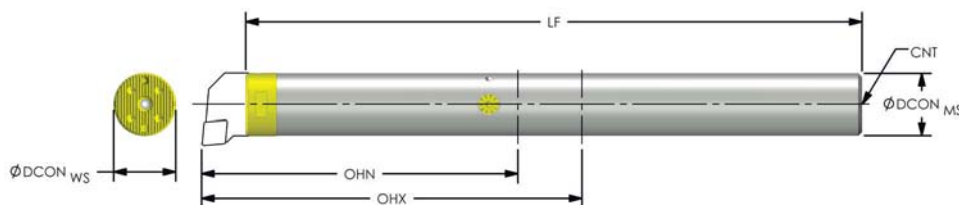
910-000-054	SCFT B1000-16	1.000	25.00	16.000	10.875	12.000	8-32 HB	N/A
910-000-058	SCFT B1250-18	1.250	32.00	18.000	13.785	15.000	10-24 HB	N/A
910-000-062	SCFT B1500-22	1.500	32.00	22.000	16.375	18.000	10-24 HB	N/A
910-000-067	SCFT B1750-25	1.750	40.00	25.000	18.060	21.000	1/4-20 HB	N/A
910-000-072	SCFT B2000-29	2.000	40.00	29.000	19.375	24.000	1/4-20 HB	N/A

14:1 Ratio

910-000-055	SCFT B1000-18	1.000	25.00	18.000	10.875	12.000	8-32 HB	N/A
910-000-059	SCFT B1250-21	1.250	32.00	21.000	13.875	15.000	10-24 HB	N/A
910-000-063	SCFT B1500-25	1.500	32.00	25.000	16.375	18.000	10-24 HB	N/A
910-000-068	SCFT B1750-29	1.750	40.00	29.000	18.060	21.000	1/4-20 HB	N/A
910-000-073	SCFT B2000-33	2.000	40.00	33.000	19.375	24.000	1/4-20 HB	N/A

PRODUCT #	Head Bolts
968-000-006	8-32 HB
968-000-002	10-24 HB
968-000-001	1/4-20 HB
968-000-004	5/16-18 HB

PACKAGE SIZE OF 1



7:1 Ratio

MODULAR STEALTH® BARS

COOLANT THRU

PRODUCT #	Designation	DCONMS [mm]	DCONWS [mm]	LF [mm]	OHN [mm]	OHX [mm]	Head Bolts	CNT
910-000-077	SCFT B25MM-250	25.00	25.00	250.00	127.00	175.00	8-32 HB	1/8-27 NPT
910-000-079	SCFT B32MM-320	32.00	32.00	320.00	159.00	224.00	10-24 HB	1/8-27 NPT
910-000-083	SCFT B40MM-400	40.00	40.00	400.00	190.00	280.00	1/4-20 HB	1/8-27 NPT
910-000-087	SCFT B50MM-500	50.00	40.00	500.00	254.00	350.00	1/4-20 HB	1/8-27 NPT
910-000-091	SCFT B60MM-600	60.00	40.00	600.00	320.00	420.00	1/4-20 HB	1/8-27 NPT

10:1 Ratio

910-000-078	SCFT B25MM-325	25.00	25.00	325.00	178.00	250.00	8-32 HB	1/8-27 NPT
910-000-080	SCFT B32MM-416	32.00	32.00	416.00	223.00	320.00	10-24 HB	1/8-27 NPT
910-000-084	SCFT B40MM-520	40.00	40.00	520.00	266.00	400.00	1/4-20 HB	1/8-27 NPT
910-000-088	SCFT B50MM-650	50.00	40.00	650.00	356.00	500.00	1/4-20 HB	1/8-27 NPT
910-000-092	SCFT B60MM-780	60.00	40.00	780.00	445.00	600.00	1/4-20 HB	1/8-27 NPT

12:1 Ratio

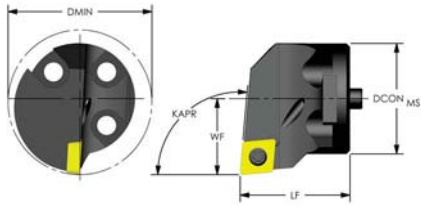
910-000-081	SCFT B32MM-480	32.00	32.00	480.00	352.00	384.00	10-24 HB	N/A
910-000-085	SCFT B40MM-600	40.00	40.00	600.00	416.00	480.00	1/4-20 HB	N/A
910-000-089	SCFT B50MM-750	50.00	40.00	750.00	492.00	600.00	1/4-20 HB	N/A

14:1 Ratio

910-000-082	SCFT B32MM-544	32.00	32.00	544.00	352.00	448.00	10-24 HB	N/A
910-000-086	SCFT B40MM-680	40.00	40.00	680.00	416.00	560.00	1/4-20 HB	N/A
910-000-090	SCFT B50MM-850	50.00	40.00	850.00	492.00	788.00	1/4-20 HB	N/A

PRODUCT #	Head Bolts
968-000-006	8-32 HB
968-000-002	10-24 HB
968-000-001	1/4-20 HB
968-000-004	5/16-18 HB

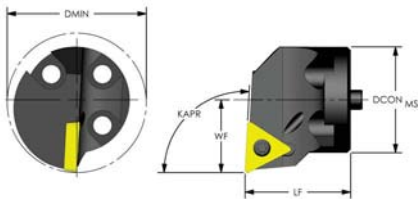
PACKAGE SIZE OF 1



POSITIVE 80° DIAMOND (KAPR:95°)

COOLANT THRU

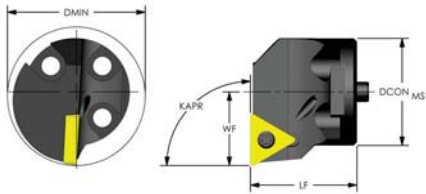
PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
912-000-205	912-000-206	SH16 SCLCR/L3	0.984	25.00	0.787	0.669	1.260	95.0	CCMT 32.52	MTS-35	T-15
912-000-233	912-000-234	SH20 SCLCR/L3	1.260	32.00	1.260	0.866	1.575	95.0	CCMT 32.52	MTS-35	T-15
912-000-263	912-000-264	SH24 SCLCR/L4	1.575	40.00	1.496	1.063	1.968	95.0	CCMT 432	MTS-4	T-20



POSITIVE TRIANGLE (KAPR:93°)

COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
912-000-215	912-000-216	SH16 STUCR/L2	0.984	25.00	0.787	0.669	1.260	93.0	TCMT 21.51	MTS-255	T-7
912-000-243	912-000-244	SH20 STUCR/L3	1.260	32.00	1.260	0.866	1.575	93.0	TCMT 32.52	MTS-35	T-15
912-000-273	912-000-274	SH24 STUCR/L3	1.575	40.00	1.496	1.063	1.968	93.0	TCMT 32.52	MTS-35	T-15



POSITIVE TRIANGLE (KAPR:90°)

COOLANT THRU

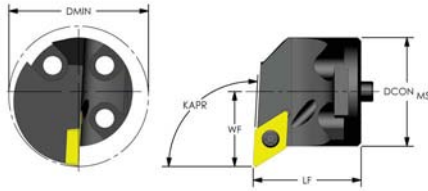
PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
912-000-213	912-000-214	SH16 STFCR/L2	0.984	25mm	0.787	0.669	1.260	90.0	TCMT 21.51	MTS-255	T-7
912-000-241	912-000-242	SH20 STFCR/L3	1.260	32mm	1.260	0.866	1.575	90.0	TCMT 32.52	MTS-35	T-15
912-000-271	912-000-272	SH24 STFCR/L3	1.575	40mm	1.496	1.063	1.968	90.0	TCMT 32.52	MTS-35	T-15

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

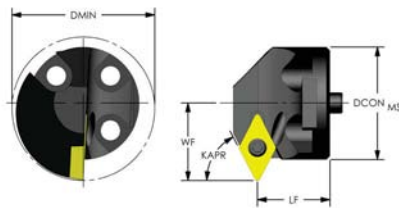


POSITIVE 55° DIAMOND (KAPR: 93°) PROFILING

COOLANT THRU



PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
912-000-209	912-000-210	SH16 SDUCR/L3	0.984	25.00	0.787	0.669	1.260	93.0	DCMT 32.52	MTS-35	T-15
912-000-237	912-000-238	SH20 SDUCR/L3	1.260	32.00	1.260	0.866	1.575	93.0	DCMT 32.52	MTS-35	T-15
912-000-267	912-000-268	SH24 SDUCR/L3	1.575	40.00	1.260	1.063	1.968	93.0	DCMT 32.52	MTS-35	T-15

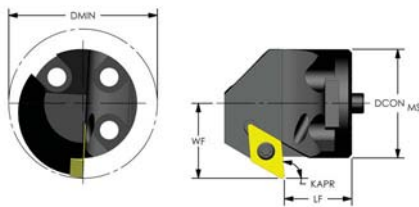


POSITIVE 55° DIAMOND (KAPR: 62.5°) PROFILING

COOLANT THRU



PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
912-000-207	912-000-208	SH16 SDNCR/L2	0.984	25.00	0.591	0.709	1.299	62.5	DCMT 21.51	MTS-255	T-7
912-000-235	912-000-236	SH20 SDNCR/L3	1.260	32.00	0.787	0.866	1.575	62.5	DCMT 32.52	MTS-35	T-15
912-000-265	912-000-266	SH24 SDNCR/L3	1.575	40.00	0.787	1.063	1.968	62.5	DCMT 32.52	MTS-35	T-15



POSITIVE 55° DIAMOND (KAPR: 95°) BACK FACING

COOLANT THRU



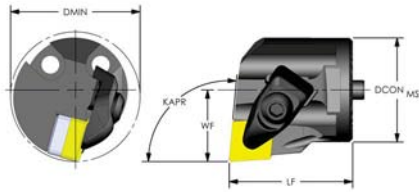
PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Insert Screw	Key
912-000-211	912-000-212	SH16 SDXCR/L2	0.984	25.00	0.591	0.709	1.299	95.0	DCMT 21.51	MTS-255	T-7
912-000-239	912-000-240	SH20 SDXCR/L3	1.260	32.00	0.787	0.866	1.575	95.0	DCMT 32.52	MTS-35	T-15
912-000-269	912-000-270	SH24 SDXCR/L3	1.575	40.00	0.787	1.063	1.968	95.0	DCMT 32.52	MTS-35	T-15

PRODUCT #	Insert Screws
968-000-086	MTS-183
968-000-087	MTS-184
968-000-088	MTS-2
968-000-091	MTS-224
968-000-092	MTS-255
968-000-094	MTS-35
968-000-090	MTS-2.5L
968-000-052	ETS 4-40

PACKAGE SIZE OF 5

PRODUCT #	Key
968-000-156	T-6
968-000-158	T-7
968-000-149	T-10
968-000-151	T-15
968-000-153	T-20

PACKAGE SIZE OF 5

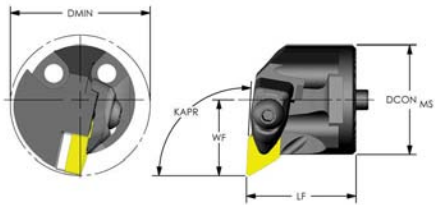


PULLBACK CLAMP NEGATIVE 80° DIAMOND (KAPR 95° LEAD)



COOLANT THRU

PRODUCT # Left Hand	PRODUCT # Right Hand	DESIGNATION	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Shim Screw	Clamp Assy.
912-000-217	912-000-218	SH20 DCLNR/L4	1.260	32.00	1.496	0.866	1.575	95.0	CNMG 432	ICSN-433	PB4-SS	PB4-CA
912-000-245	912-000-246	SH24 DCLNR/L4	1.575	40.00	1.496	1.063	1.968	95.0	CNMG 432	ICSN-433	PB4-SS	PB4-CA

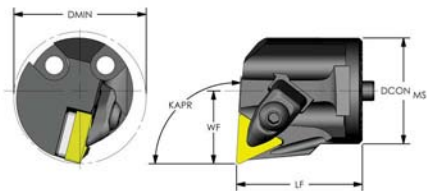


PULLBACK CLAMP NEGATIVE 55° DIAMOND (KAPR: 93°)



COOLANT THRU

PRODUCT # Left Hand	PRODUCT # Right Hand	DESIGNATION	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Shim Screw	Clamp Assy.
912-000-219	912-000-220	SH20 DDUNR/L3	1.260	32.00	1.260	0.866	1.575	93.0	DNMG 332	IDSN-322	PB3-SS	PB3-CA
912-000-247	912-000-248	SH24 DDUNR/L4	1.575	40.00	1.260	1.063	1.968	93.0	DNMG 432	IDSN-433	PB4-SS	PB4-CA



PULLBACK CLAMP NEGATIVE TRIANGLE (KAPR: 93°)



COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Shim Seat	Shim Screw	Clamp Assy.
912-000-223	912-000-224	SH20 DTUNR/L3	1.260	32.00	1.496	0.866	1.575	TNMG 332	ITSN-323	PB3-SS	PB3-CA
912-000-251	912-000-252	SH24 DTUNR/L3	1.575	40.00	1.496	1.063	1.968	TNMG 332	ITSN-323	PB3-SS	PB3-CA

PRODUCT #	Shim Seat
968-000-053	ICSN-433
968-000-054	ICSN-533
968-000-055	ICSN-633
968-000-063	ISSN-432
968-000-064	ISSN-433
968-000-065	ISSN-533
968-000-066	ISSN-633
968-000-056	IDSN-322
968-000-057	IDSN-433
968-000-058	IDSN-533
968-000-067	ITSN-323
968-000-068	ITSN-433

PACKAGE SIZE OF 10

PRODUCT #	Shim Seat
968-000-069	ITSN-533
968-000-070	ITSN-636
968-000-071	IVSN-322
968-000-072	IVSN-432
968-000-073	IVSN-433
968-000-074	IWSN-322
968-000-075	IWSN-433
968-000-059	IRSN-32
968-000-060	IRSN-43
968-000-061	IRSN-53
968-000-062	IRSN-63

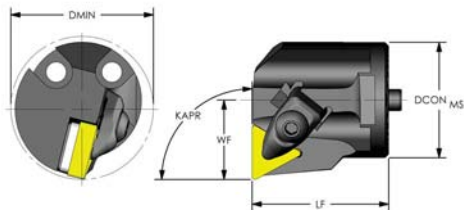
PACKAGE SIZE OF 10

PRODUCT #	Shim Screw
968-000-109	PB3-SS
968-000-111	PB4-SS

PACKAGE SIZE OF 5

PRODUCT #	Clamp Assy.
968-000-107	PB3-CA
968-000-110	PB4-CA

PACKAGE SIZE OF 1

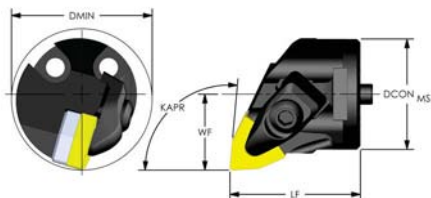


PULLBACK CLAMP NEGATIVE TRIANGLE (KAPR: 90°)



COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Shim Screw	Clamp Assy.
912-000-221	912-000-222	SH20 DTFNR/L3	1.260	32.00	1.496	0.866	1.575	90.0	TNMG 332	ITSN-323	PB3-SS	PB3-CA
912-000-249	912-000-250	SH24 DTFNR/L3	1.575	40.00	1.496	1.063	1.968	90.0	TNMG 332	ITSN-323	PB3-SS	PB3-CA



PULLBACK CLAMP NEGATIVE TRIGON (KAPR: 95°)



COOLANT THRU

PRODUCT # LEFT HAND	PRODUCT # RIGHT HAND	DESIGNATION	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	KAPR [°]	Insert	Shim Seat	Shim Screw	Clamp Assy.
912-000-225	912-000-226	SH20 DWLNR/L4	1.260	32.00	1.496	0.866	1.575	95.0	WNMG 432	IWSN-433	PB4-SS	PB4-CA
912-000-253	912-000-254	SH24 DWLNR/L4	1.575	40.00	1.496	1.063	1.968	95.0	WNMG 432	IWSN-433	PB4-SS	PB4-CA

PRODUCT #	Shim Seat
968-000-053	ICSN-433
968-000-054	ICSN-533
968-000-055	ICSN-633
968-000-063	ISSN-432
968-000-064	ISSN-433
968-000-065	ISSN-533
968-000-066	ISSN-633
968-000-056	IDSN-322
968-000-057	IDSN-433
968-000-058	IDSN-533
968-000-067	ITSN-323
968-000-068	ITSN-433

PACKAGE SIZE OF 10

PRODUCT #	Shim Seat
968-000-069	ITSN-533
968-000-070	ITSN-636
968-000-071	IVSN-322
968-000-072	IVSN-432
968-000-073	IVSN-433
968-000-074	IWSN-322
968-000-075	IWSN-433
968-000-059	IRSN-32
968-000-060	IRSN-43
968-000-061	IRSN-53
968-000-062	IRSN-63

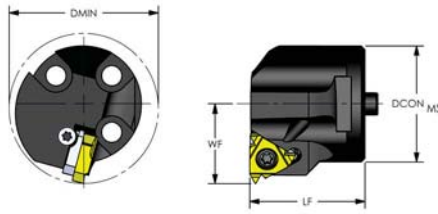
PACKAGE SIZE OF 10

PRODUCT #	Shim Screw
968-000-109	PB3-SS
968-000-111	PB4-SS

PACKAGE SIZE OF 5

PRODUCT #	Clamp Assy.
968-000-107	PB3-CA
968-000-110	PB4-CA

PACKAGE SIZE OF 1



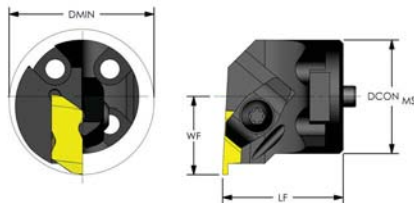
THREADING / GROOVING LAYDOWN



COOLANT THRU

PRODUCT #	DESIGNATION RIGHT HAND	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Insert Screw	Anvil Screw	Anvil
912-000-204	SH16 LSER3	0.984	25.00	0.984	0.669	1.260	3IR	SA3T	SY3T	YI3
912-000-229	SH20 LSER3	1.260	32.00	1.260	0.866	1.575	3IR	SA3T	SY3T	YI3
912-000-257	SH24 LSER3	1.575	40.00	1.496	1.063	1.968	3IR	SA3T	SY3T	YI3
912-000-230	SH20 LSER4	1.260	32.00	1.260	0.866	1.575	4IR	SA4T	SY4T	YI4
912-000-258	SH24 LSER4	1.575	40.00	1.496	1.063	1.968	4IR	SA4T	SY4T	YI4

PRODUCT #	DESIGNATION LEFT HAND	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Insert Screw	Anvil Screw	Anvil
912-000-203	SH16 LSEL3	0.984	25.00	0.984	0.669	1.260	3IL	SA3T	SY3T	YE3
912-000-227	SH20 LSEL3	1.260	32.00	1.260	0.866	1.575	3IL	SA3T	SY3T	YE3
912-000-255	SH24 LSEL3	1.575	40.00	1.496	1.063	1.968	3IL	SA3T	SY3T	YE3
912-000-228	SH20 LSEL4	1.260	32.00	1.260	0.866	1.575	4IL	SA4T	SY4T	YE4
912-000-256	SH24 LSEL4	1.575	40.00	1.496	1.063	1.968	4IL	SA4T	SY4T	YE4



THREADING / GROOVING TOP NOTCH



COOLANT THRU

PRODUCT #	DESIGNATION RIGHT HAND	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Clamp	Screw
912-000-232	SH20 NER3	1.260	32.00	1.575	0.866	1.730	NG 3L	CM-73	10-32
912-000-261	SH24 NER3	1.575	40.00	1.575	1.102	2.210	NG 3L	CM-73	10-32
912-000-262	SH24 NER4	1.575	40.00	1.575	1.102	2.210	NG 4L	CM-73	10-32

PRODUCT #	DESIGNATION LEFT HAND	DCONMS [in.]	COUPLING SIZE [mm]	LF [in.]	WF [in.]	DMIN [in.]	Insert	Clamp	Screw
912-000-231	SH20 NEL3	1.260	32.00	1.575	0.866	1.730	NG 3R	CM-72	10-32
912-000-259	SH24 NEL3	1.575	40.00	1.575	1.102	2.210	NG 3R	CM-72	10-32
912-000-260	SH24 NEL4	1.575	40.00	1.575	1.102	2.210	NG 4R	CM-72	10-32

PRODUCT #	Clamp
968-000-016	CL-6
968-000-017	CL-7
968-000-020	CL-9
968-000-010	CL-12
968-000-011	CL-19
968-000-012	CL-20

PACKAGE SIZE OF 1

PRODUCT #	Clamp
968-000-013	CL-21
968-000-014	CL-22
968-000-015	CL-30
968-000-018	CL-84
968-000-019	CL-85

PACKAGE SIZE OF 1

PRODUCT #	Anvil
968-000-185	YI3
968-000-182	YE3
968-000-187	YI4
968-000-186	YI3M-1.5N
968-000-183	YE4
968-000-188	YI5
968-000-184	YE5

PACKAGE SIZE OF 1

PRODUCT #	Anvil Screw
968-000-146	SY3T
968-000-147	SY4T
968-000-148	SY5T

PACKAGE SIZE OF 5

PRODUCT #	Insert Screw
968-000-124	SA3T
968-000-125	SA4T
968-000-126	SA5T

PACKAGE SIZE OF 5

Choosing the largest possible bar size with the shortest overhang will provide rigidity to minimize vibrations.

Make sure to allow clearance for chips.

5:1 Stealth bars are recommended for grooving and threading where forces are higher than in turning.

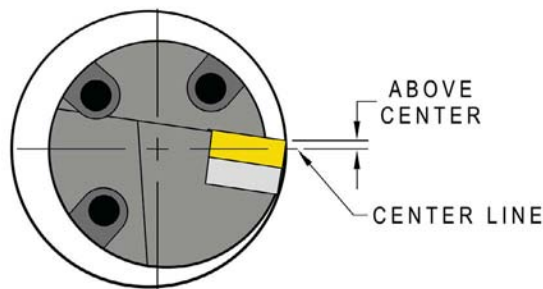
Proper clamping of the bar is crucial to performance.
(set screws should not come in contact with the bar)



Stealth bars Ø1.0," and larger have a flat located on the gold ring to indicate the insert on the centerline.

Overhang is measured from cutting edge to face of boring bar holder.
Bars should not be extended past the specified diameter to length ratio.
The Bars can be modified to reduce overall length .

To compensate for bar deflection due to extended overhangs, rotating the insert above center line will help.



Split Collar System

To assure the best rigidity of the boring bar, the Split Collar System is the best holder. This process is achieved by locking the bar 360° on the diameter.



Split Bushing System

If set screws are to be used, a split bushing must be placed on the bar before placing in the machine. Set screws will contact the bushing and tighten around the bar.

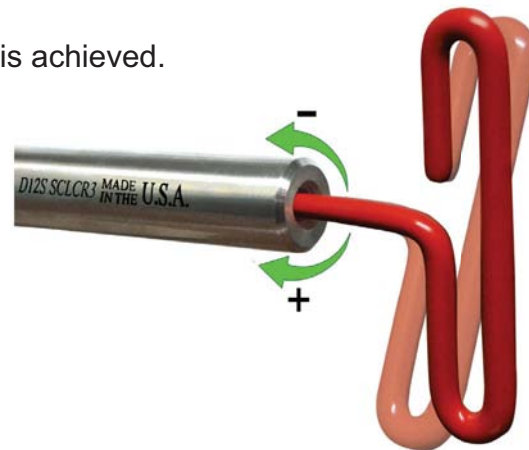


Set Screw Lock System

Do not lock in the boring bar with set screws. This creates very poor rigidity when there is one point of contact.

For Bars $\varnothing.75''$ and Smaller

1. Make a test cut with the bar.
2. Insert supplied T-handle wrench into the end of the bar.
3. If the pitch of the chatter was high, tighten the adjust screw 1/16 turn.(+)
4. If the pitch of the chatter was low, loosen the adjust screw 1/16turn.(-)
5. Make a test cut with the bar.
6. Repeat step 3 until the desired performance is achieved.

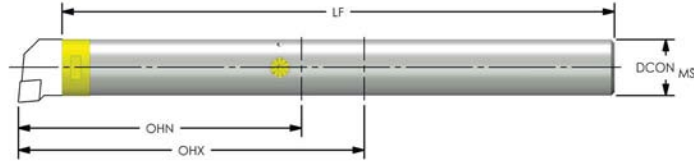


For Bars $\varnothing1.0''$ and Above

1. Make a test cut with the bar.
2. Loosen lock screw two complete turns in the negative direction.
3. If the pitch of the chatter was high,tighten the adjust screw 1/2 digit.(+)
4. If the pitch of the chatter was low,loosen the adjust screw 1/2 digit.(-)
5. Make a test cut with the bar.
6. Repeat step 3 until the desired performance is achieved.
7. Tighten lock screw.DO NOT over tighten lock screw.



HANGOUT SPECS



5:1 Ratio

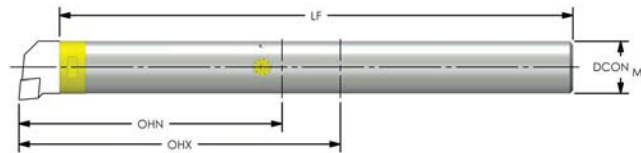
DCONms	OHN	OHX	LF	Weight (LBS)
1.000	5.750	7.50	9.00	4.5
2.000	6.375	10.00	12.00	10.7
2.500	6.750	12.50	16.00	22.8
1.000	5.000	7.00	10.00	2.2
1.250	5.000	8.75	12.00	4.1
1.500	5.750	10.50	15.00	7.5
1.750	6.000	12.25	18.00	11.3
2.000	6.375	14.00	20.00	18.0
2.500	6.750	17.50	27.00	42.0
3.000	12.500	21.00	31.00	63.0
1.000	6.000	10.00	14.00	3.1
1.250	6.750	12.50	16.00	5.7
1.500	9.000	15.00	19.00	11.0
1.750	10.625	17.50	23.00	17.0
2.000	12.375	20.00	26.00	25.0
2.500	15.875	25.00	33.00	42.0
3.000	19.375	30.00	40.00	88.0
4.000	26.375	40.00	50.00	182.0

7:1 Ratio

10:1 Ratio

HANGOUT SPECS

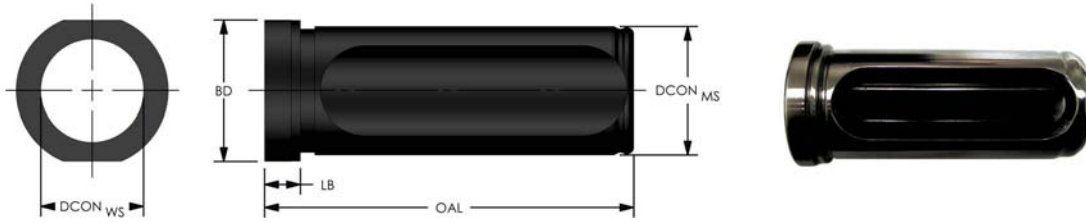
CARBIDE REINFORCED



12:1 Ratio

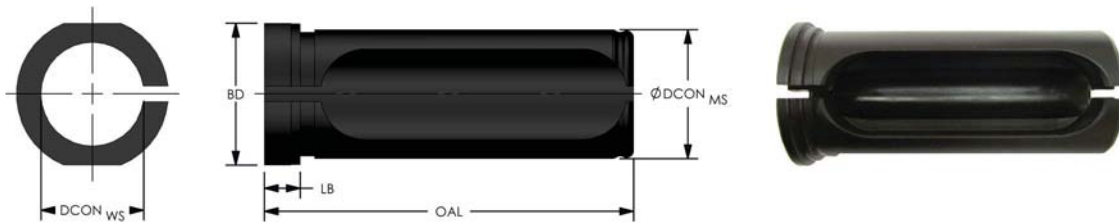
DCONms	OHN	OHX	LF	Weight (LBS)
1.000	9.250	12.00	16.00	5.9
1.250	12.160	15.00	18.00	9.0
1.500	14.750	18.00	22.00	16.4
1.750	16.435	21.00	25.00	25.4
2.000	17.750	24.00	29.00	37.7
1.000	9.250	14.00	18.00	6.9
1.250	12.160	17.50	22.00	10.9
1.500	14.750	21.00	25.00	18.6
1.750	16.435	24.50	29.00	31.0
2.000	17.750	28.00	33.00	44.2

ULTRA-DEX[®]



C STYLE

PRODUCT #	DESIGNATION	DCONMS [in.]	DCONWS [in.]	LB [in.]	OAL [in.]
901-000-001	UT-12C-037	1.250	0.375	0.270	3.500
901-000-002	UT-12C-050	1.250	0.500	0.270	3.500
901-000-003	UT-12C-062	1.250	0.625	0.270	3.500
901-000-004	UT-12C-075	1.250	0.750	0.270	3.500
901-000-005	UT-12C-100	1.250	1.000	0.270	3.500
901-000-011	UT-13C-037	1.500	0.375	0.270	3.600
901-000-012	UT-13C-050	1.500	0.500	0.270	3.600
901-000-013	UT-13C-062	1.500	0.625	0.270	3.600
901-000-014	UT-13C-075	1.500	0.750	0.270	3.600
901-000-015	UT-13C-100	1.500	1.000	0.270	3.600
901-000-016	UT-13C-125	1.500	1.250	0.270	3.600



CX STYLE

PRODUCT #	DESIGNATION	DCONMS [in.]	DCONWS [in.]	LB [in.]	OAL [in.]
901-000-006	UT-12CX-037	1.250	0.375	0.270	3.500
901-000-007	UT-12CX-050	1.250	0.500	0.270	3.500
901-000-008	UT-12CX-062	1.250	0.625	0.270	3.500
901-000-009	UT-12CX-075	1.250	0.750	0.270	3.500
901-000-010	UT-12CX-100	1.250	1.000	0.270	3.500
901-000-017	UT-13CX-037	1.500	0.375	0.270	3.600
901-000-018	UT-13CX-050	1.500	0.500	0.270	3.600
901-000-019	UT-13CX-062	1.500	0.625	0.270	3.600
901-000-020	UT-13CX-075	1.500	0.750	0.270	3.600
901-000-021	UT-13CX-100	1.500	1.000	0.270	3.600
901-000-022	UT-13CX-125	1.500	1.250	0.270	3.600

PRODUCT #	DESIGNATION	DCONMS [in.]	DCONWS [in.]	LB [in.]	OAL [in.]
901-000-023	UT-73CX-10MM	1.500	0.3937	0.270	3.600
901-000-024	UT-73CX-12MM	1.500	0.4720	0.270	3.600
901-000-025	UT-73CX-16MM	1.500	0.6290	0.270	3.600
901-000-026	UT-73CX-20MM	1.500	0.7874	0.270	3.600
901-000-027	UT-73CX-25MM	1.500	0.9840	0.270	3.600
901-000-028	UT-93CX-10MM	40.00(mm)	10.00(mm)	0.270	3.600
901-000-029	UT-93CX-12MM	40.00(mm)	12.00(mm)	0.270	3.600
901-000-030	UT-93CX-16MM	40.00(mm)	16.00(mm)	0.270	3.600
901-000-031	UT-93CX-20MM	40.00(mm)	20.00(mm)	0.270	3.600
901-000-032	UT-93CX-25MM	40.00(mm)	25.00(mm)	0.270	3.600

TECHNICAL INFORMATION

ARCH[®]
Cutting Tools

Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

COATINGS GUIDE

TIN

(TITANIUM NITRIDE)

- General Purpose coating for machining ferrous materials.
- Thickness: 2 - 5 microns
- Hardness HV .05: 2,300

TICN

(TITANIUM CARBON NITRIDE)

- Coating with hard, smooth finish. Offers improved wear and built up edge resistance.
- Durability for interrupted cuts
 - Low to medium cutting speeds
 - Thickness: 2 - 4 microns
 - Hardness HV .05: 3,000

TiAlN

(TITANIUM ALUMINUM NITRIDE)

- High performance coating in ferrous materials.
- Heat resistance and medium hardness
- Good results in dry milling applications
- Medium to high cutting speeds
- Thickness: 2 - 4 microns
- Hardness HV .05: 2,800

AlTiN

(ALUMINUM TITANIUM NITRIDE)

- High performance coating for ferrous materials.
- High heat resistance and hardness
- Best results in dry milling applications
- Excellent at high speeds and feeds
- Thickness: 2 – 4 microns
- Hardness HV .05: 4,500

TiAlN NANO

(TITANIUM ALUMINUM NITRIDE NANO)

- Extended tool life in difficult to machine steels and super alloys.
- Dry or MQL machining
- Improved chip flow due to lubricity factor.
- Reduced built up edge (BUE)
- Hardness HV .05: 3,300

HARD MILL

(HARDMILL)

- Proprietary coating blend designed specifically for extended life machining hardened materials
- Hardness HV .05: 3,300

AMORPHOUS DIAMOND

AD(AMORPHOUS DIAMOND)

- Amorphous Diamond is a smooth, hard, flexible, thin film coating
- Maintains sharper edge than CVD
- Excellent for machining graphite, carbon fiber and non-ferrous materials where machining forms a grit rather than a chip.
- Thickness: .5 - 2 microns
- Hardness HV .05: 5,000

CVD

(CRYSTALLINE DIAMOND)

- Crystalline Diamond grown directly on the cutting tool
- Excellent for machining graphite, carbon fiber, green ceramics and non-ferrous materials where machining forms a grit rather than a chip.
- Up to 50x the tool life as AD
- Thickness: 6 - 10 microns
- Hardness HV .05: 10,000

DLC

(DIAMOND LIKE COATING)

- Thin carbon based amorphous coating, best for non-ferrous materials.
- Increases tool life and ensures a more controlled wear process, while being resistant to edge build-up (BUE).
- Hardness HV .05: 2,800

PCD

PCD (POLYCRYSTALLINE DIAMOND)

- Non-ferrous applications
- Resists abrasion wear and dramatically extends the cutters tool life.
- PCD end mills run faster than conventional carbide end mills and provide better surface finish and longer tool life.
- Hardness HV .05: 10,000



Chipbreaker:

HCX : Medium to roughing applications in steel and cast iron

SCX : Medium to finishing application in steels, stainless steels, hardened steels, and super alloys

ISO	MATERIAL	HARDNESS	CHIPBREAKER	GRADE	Vc (SFM)*	Fz (INCH PER TOOTH)*
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HCX	HP470	300-800	.005 - .020
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC			220-720	.003 - .018
M	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	SCX	HM470	230-650	.003 - .015
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC			260-700	.003 - .015
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	HCX	HK430	400 - 1100	.005 - .022
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC			350 - 850	.005 - .016
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	SCX	HS470	80-280	.004 - .011
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	SCX	HS470	60 - 250	.003 - .009
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC			90 - 300	.004 - .012
*LOWER Vc AND Fz = MED.- HEAVY Ap / Ae			*HIGHER Vc AND Fz = LIGHT-MED. Ap / Ae			

Recommendations:

- Keep the cutter constantly engaged, when possible, to reduce enter and exit onto the machined component
- Utilize roll technique around all corners to avoid harsh directional changes
- The width of cut, a_e , should be 30% or 70% of DC to ensure maximum efficiency and process security
- Program tool paths around interruptions and holes when possible

Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



Chipbreaker:

HCX : Medium to roughing applications in steels and cast irons

SCX : Medium to finishing application in steels, stainless steels, hardened steels, and super alloys

LCX : Sharp cutting edge. Light finishing to medium roughing applications in non ferrous materials

ISO	MATERIAL	HARDNESS	CHIPBREAKER	GRADE	Vc (SFM)*	Fz (INCH PER TOOTH)*
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HCX	HP470	300-800	.005 - .018
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC			220-720	.005 - .016
M	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	SCX	HM470	230-650	.003 - .012
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC			260-700	.003 - .014
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	HCX	HK430	400 - 950	.005 - .020
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC			350 - 800	.005 - .016
N	NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	LCX	HK430	400 - 1100	.007 - .020
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	SCX	HS470	80-250	.004 - .011
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	SCX	HS470	60 - 200	.003 - .008
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC			90 - 350	.003 - .010
*LOWER Vc AND Fz = MED.- HEAVY Ap / Ae			*HIGHER Vc AND Fz = LIGHT-MED. Ap / Ae			

Recommendations:

- Keep the cutter constantly engaged, when possible, to reduce enter and exit onto the machined component
- Utilize roll technique around all corners to avoid harsh directional changes
- The width of cut, a_p , should be 30% or 70% of DC to ensure maximum efficiency and process security
- Program tool paths around interruptions and holes when possible

Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



Chipbreaker:

HCX : Strong cutting edge. Medium to roughing applications in steels and cast irons

SCX : Sharp cutting edge. Medium to finishing application in steels, stainless steels, hardened steels, and super alloys

CCX : Strong cutting edge for cast iron applications

LCX : Positive up sharp cutting edge. Light finishing to medium roughing applications in non ferrous materials

ISO	MATERIAL	HARDNESS	CHIPBREAKER	GRADE	Vc (SFM)*	Fz (INCH PER TOOTH)*
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HCX	HP470	230-800	.003 - .010
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC			230-700	.003 - .008
M	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	SCX	HM470	200-600	.003 - .009
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC			200-600	.003 - .009
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	CCX / HCX	HK430	400 - 950	.004 - .015
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC			300 - 700	.003 - .011
N	NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	LCX	HK430	400 - 1000	.006 - .018
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	SCX / HCX	HS470	80-250	.003 - .009
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	SCX	HS470	60 - 200	.0025 - .007
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC			90 - 350	.003 - .010
*LOWER Vc AND Fz = MED.- HEAVY Ap / Ae			*HIGHER Vc AND Fz = LIGHT-MED. Ap / Ae			

Recommendations:

- Keep the cutter constantly engaged, when possible, to reduce enter and exit onto the machined component
- Utilize roll technique around all corners to avoid harsh directional changes
- The width of cut, a_p , should be 30% or 70% of DC to ensure maximum efficiency and process security
- Program tool paths around interruptions and holes when possible

Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



Chipbreaker:

HCX : Strong cutting edge for general steels, cast irons, and hard conditions in milling application

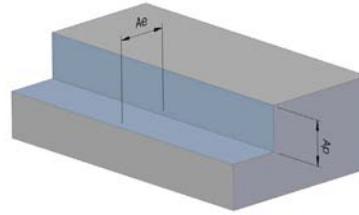
SCX : Sharp cutting edge for general stainless steels and super alloy applications

ISO	MATERIAL	HARDNESS	CHIPBREAKER	GRADE	Vc (SFM)*	Fz (INCH PER TOOTH)*
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HCX	HP470	220 - 820	.009 - .075
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC			220-720	.009 - .065
M	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	SCX	HM470	230-650	.009 - .045
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC			260-700	.009 - .045
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	HCX	HK430	400 - 900	.009 - .063
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC			300 - 850	.009 - .055
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	SCX	HS470	100-350	.009 - .040
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	SCX	HS470	60 - 220	.007 - .035
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC			90 - 400	.008 - .050

Recommendations:

- Keep the cutter constantly engaged, when possible, to reduce enter and exit onto the machined component
- Utilize roll technique around all corners to avoid harsh directional changes
- The width of cut, a_p , should be 30% or 70% of DC to ensure maximum efficiency and process security
- Program tool paths around interruptions and holes when possible

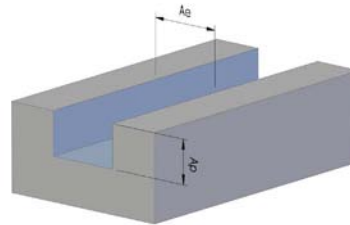
*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



				SQUARE SHOULDER MILLING			
				Fz (INCH PER TOOTH)*		APMX	
ISO	MATERIAL	HARDNESS	Vc (SFM)*	-PF /-AL	-PM /-PR	APKT11T3	APKT1604
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	550-900	0.003 - 0.009	0.003 - 0.012	0.315	0.472
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	450-850	0.003 - 0.0075	0.003 - 0.010	0.315	0.472
M	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	350 - 875	0.003 - 0.009	0.003 - 0.012	0.315	0.472
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	250 - 800	0.003 - 0.0075	0.003 - 0.010	0.315	0.472
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	400 - 1000	0.004 - 0.010	0.004 - 0.012	0.315	0.472
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	300 - 800	0.004 - 0.012	0.004 - 0.012	0.315	0.472
N	NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	600-1200	0.004 - 0.014	0.004 - 0.016	0.315	0.472
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 555 BHN or ≤ 55 HRC	190 - 500	0.003 - 0.007	0.003 - 0.009	0.315	0.472
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	70-220	0.002 - 0.006	0.002 - 0.007	0.315	0.472
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC	230-450	0.003 - 0.0085	0.003 - 0.010	0.315	0.472

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

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				SQUARE SLOT MILLING			
				Fz (INCH PER TOOTH)*		APMX	
ISO	MATERIAL	HARDNESS	Vc (SFM)*	-PF /-AL	-PM /-PR	APKT11T3	APKT1604
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	550-900	0.003 - 0.006	0.003 - 0.010	0.315	0.472
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	450-850	0.003 - 0.006	0.003 - 0.0085	0.315	0.472
M	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	350 - 875	0.003 - 0.007	0.003 - 0.010	0.315	0.472
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	250 - 800	0.003 - 0.006	0.003 - 0.010	0.315	0.472
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	400 - 1000	0.004 - 0.008	0.004 - 0.010	0.315	0.472
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	300 - 800	0.004 - 0.008	0.004 - 0.010	0.315	0.472
N	NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	600-1200	0.004 - 0.011	0.004 - 0.014	0.315	0.472
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 555 BHN or ≤ 55 HRC	190 - 500	0.003 - 0.006	0.003 - 0.007	0.315	0.472
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	70-220	0.002 - 0.006	0.002 - 0.007	0.315	0.472
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC	230-450	0.003 - 0.006	0.003 - 0.008	0.315	0.472

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



ISO	MATERIAL	HARDNESS	GRADE	Vc (SFM)*	Fz (INCH PER TOOTH)* at 50% insert I.C. APMX**
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	UD51 UD52 UD404 UD602	300-850	.006 - .018
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC		200-700	.005 - .015
M	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	UD32	200-650	.003 - .010
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC		260-700	.003 - .012
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	UD21	250-900	.005 - .020
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC		200-700	.005 - .015
N	NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	UD1 UD2	400-975	.006 - .020
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	UD32 UD404	80-400	.004 - .012
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	UD32 UD52 UD404	40-250	.003 - .008
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC		100-550	.003 - .010

Recommendations:

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

It is recommended to use precision holders i.e. hydraulic, shrink fit

**Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.*

**** If the axial depth of cut (Ap) is less than 50% of the full radius Insert I.C., increase the feed rate (Fz) to compensate for the thinning (Hex) of the actual chip thickness.**



ISO	MATERIAL	HARDNESS	Vc (SFM)*	END MILL DIAMETER									
				1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	1"
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	320-750	.0009 - .0017	.0011 - .0019	.0020 - .0028	.0024 - .0033	.0025 - .0038	.0025 - .0041	.0027 - .0046	.0035 - .0052	.0040 - .0066	.0042 - .0090
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	230-670	.0006 - .0013	.0011 - .0017	.0014 - .0022	.0017 - .0024	.0019 - .0028	.0020 - .0035	.0023 - .0040	.0030 - .0050	.0038 - .0057	.0040 - .0085
M	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	250-600	.0004 - .0013	.0008 - .0017	.0013 - .0020	.0016 - .0023	.0020 - .0026	.0022 - .0030	.0026 -0.0034	.0032 - .0039	.0035 - .0047	.0035 - .0068
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	180-520	.0005 - .0017	.0010 - .0020	.0013 - .0023	.0017 - .0027	.0021 - .0030	.0025 - .0035	.0028 - .0040	.0030 - .0048	.0033 - .0060	.0033 - .0078
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	320-830	.0007 - .0020	.0011 - .0032	.0014 - .0041	.0019 - .0052	.0022 - .0061	.0025 - .0070	.0028 - .0080	.0031 - .0086	.0032 - .0095	.0036 - .0110
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	220-670	.0005 - .0014	.0009 - .0023	.0012 - .0032	.0016 - .0038	.0018 - .0041	.0020 - .0047	.0022 - .0053	.0024 - .0062	.0028 - .0070	.0030 - .0090
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 555 BHN or ≤ 55 HRC	115-270	.0004 - .0017	.0008 - .0017	.0013 - .0020	.0016 - .0024	.0020 - .0030	.0022 - .0035	.0028 - .0045	.0032 - .0053	.0036 - .0062	.0040 - .0078
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	70-180	.0005 - -.0018	.0008 - .0022	.0010 - .0028	.0012 - .0032	.0015 - .0036	.0017 - .0042	.0018 - .0047	.0019 - .0050	.0022 - .0055	.0025 - .0065
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC	140-400	.0007 - -.0013	.0011 - .0016	.0013 - .0018	.0015 - .0021	.0019 - .0026	.0022 - .0031	.0024 - .0035	.0025 - .0044	.0030 - .0053	.0031 - .0075
*LOWER Vc AND Fz APPLY TO HEAVY/ROUGHING ENGAGEMENT				*HIGHER Vc AND Fz APPLY TO LIGHT/PROFILING ENGAGEMENT									

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

h_{ex}	(Ae) Radial Depth of cut to % of (Dc) Cutter Diameter	Increase Feed Multiplier
	≥ 40%	1.00
	30%	1.10
	25%	1.18
	20%	1.20
	15%	1.40
	10%	1.75
	7%	2.00
	5%	2.30
	1%	5.00



ISO	MATERIAL	HARDNESS	Vc (SFM)*		EFFECTIVE CUTTER DIAMETER (INCH)						
					≤ 1/16"	1/16"- 1/8"	1/8"- 1/4"	1/4"- 3/8"	3/8"- 1/2"	1/2"- 3/4"	3/4"- 1"
					Fz (INCH PER TOOTH)*						
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	80-200	220-650	.0004 - .0009	.0006 - .0015	.0010 - .0028	.0020 - .0030	.0023 - .0040	.0028 - .0060	.0032 - .0080
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	60-120	180-500	.0006 - .0012	.0008 - .0019	.0009 - .0022	.0010 - .0027	.0020 - .0038	.0026 - .0050	.0030 - .0065
M	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	50-100	200-450	.0004 - .0019	.0008 - .0025	.0012 - .0030	.0016 - .0035	.0019 - .0040	.0023 - .0050	.0026 - .0065
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	30-75	120-350	.0005 - .0013	.0009 - .0017	.0013 - .0021	.0015 - .0040	.0017 - .0048	.0021 - .0060	.0025 - .0075
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	60-150	250-700	.0005 - .0014	.0009 - .0023	.0012 - .0032	.0016 - .0041	.0022 - .0053	.0028 - .0090	.0030 - .0100
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	50-90	150-450	.0003 - .0010	.0006 - .0019	.0010 - .0028	.0014 - .0038	.0020 - .0048	.0025 - .0080	.0030 - .0092
N	NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	100-400	250-950	.0003 - .0010	.0006 - .0021	.0010 - .0028	.0025 - .0040	.0028 - .0065	.0030 - .0080	.0050 - .0130
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 555 BHN or ≤ 55 HRC	40-65	80-250	.0003 - .0010	.0006 - .0015	.0012 - .0021	.0015 - .0030	.0023 - .0045	.0028 - .0050	.0030 - .0065
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	30-50	50-160	.0003 - .0007	.0005 - .0012	.0008 - .0018	.0012 - .0022	.0018 - .0035	.0020 - .0045	.0025 - .0060
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC	40-65	90-250	.0006 - .0014	.0008 - .0017	.0013 - .0018	.0015 - .0026	.0020 - .0035	.0025 - .0060	.0025 - .0075
* LOWER Vc AND Fz APPLY TO HEAVY/ROUGHING ENGAGEMENT					* HIGHER Vc AND Fz APPLY TO LIGHT/PROFILING ENGAGEMENT						

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.

h_{ex}	(Ae) Radial Depth of cut to % of (Dc) Cutter Diameter	Increase Feed Multiplier
	≥ 40%	1.00
	30%	1.10
	25%	1.18
	20%	1.20
	15%	1.40
	10%	1.75
	7%	2.00
	5%	2.30
	1%	5.00



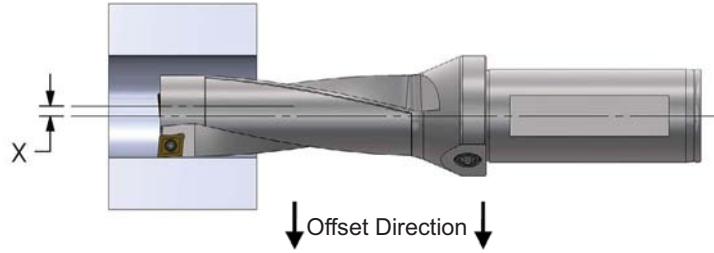
ISO	MATERIAL	HARDNESS	GRADE	Vc (SFM)*	INDEXABLE DRILL DIAMETER (INCH)		
					0.5620"-0.7499"	0.7500" - 1.4999"	1.5000" - 2.2500"
					Fz = IPR (INCH PER REVOLUTION)*		
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HP 600	350-900	.0015-.0060	.0020-.0075	.0030-.0120
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC		260-750	.0020-.0070	.0020-.0085	.0030-.0095
M	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	HP 600	230-700	.0018-.0040	.0030-.0065	.0030-.0085
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC		260-750	.0018-.0040	.0030-.0065	.0030-.0085
K	GRAY IRONS Class 20, 30, 40 ,50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	HK 356	285-1000	.0025-.0055	.0035-.0070	.0040-.0085
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC		230-740	.0020-.0050	.0028-.0065	.0030-.0070
N	NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	HN 300	600-1150	.0020-.0075	.0030-.0090	.0045-.0115
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2"	≤ 375 BHN or ≤ 55 HRC	HP 600	80-275	.0018-.0065	.0020-.0075	.0030-.0080
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	HP 600	55-270	.0016-.0032	.0020-.0055	.0025-.0060
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC		95-460	.0019-.0055	.0020-.0065	.0025-.008

Recommendations

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

- It is recommended to use precision holders i.e. hydraulic, shrink fit
- It is recommended to use internal coolant – minimum recommended pressure 145 psi

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



Our Drills offer the ability to offset in turning applications to help with tolerance optimization and creation of holes larger than the drill diameter.

PATRIOT HIGH PERFORMANCE

Designation	Offset (Max)
PD1-0562-3D-075	.007
PD1-0594-3D-075	.005
PD1-0609-3D-075	.005
PD1-0625-3D-075	.015
PD1-0669-3D-075	.011
PD1-0687-3D-075	.009
PD1-0709-3D-075	.007
PD1-0734-3D-100	.019
PD1-0750-3D-100	.017
PD1-0787-3D-100	.011
PD1-0812-3D-100	.009
PD1-0844-3D-100	.005
PD1-0875-3D-100	.004
PD1-0937-3D-125	.023
PD1-0984-3D-125	.019
PD1-1000-3D-125	.017
PD1-1062-3D-125	.009
PD1-1125-3D-125	.004
PD1-1181-3D-125	.035
PD1-1250-3D-125	.027
PD1-1312-3D-125	.021
PD1-1375-3D-125	.013
PD1-1437-3D-125	.008
PD1-1500-3D-150	.039
PD1-1625-3D-150	.027
PD1-1750-3D-150	.015
PD1-1875-3D-150	.051
PD1-2000-3D-150	.039
PD1-2125-3D-150	.023

REVERE*

Designation	Offset (Max)
UD-0437-2D-063	.018
UD-0468-2D-063	.016
UD-0500-2D-063	.014
UD-0531-2D-063	.023
UD-0562-2D-063	.021
UD-0593-2D-063	.019
UD-0625-2D-063	.023
UD-0656-2D-063	.021
UD-0687-2D-063	.019
UD-0719-2D-063	.017
UD-0750-2D-075	.024
UD-0781-2D-075	.022
UD-0812-2D-075	.021
UD-0844-2D-075	.019
UD-0875-2D-075	.017
UD-0906-2D-075	.015
UD-0937-2D-075	.013
UD-0968-2D-075	.011
UD-1000-2D-100	.029
UD-1031-2D-100	.027
UD-1062-2D-100	.025
UD-1094-2D-100	.023

REVERE*

Designation	Offset (Max)
UD-1125-2D-100	.021
UD-1156-2D-100	.020
UD-1187-2D-100	.018
UD-1219-2D-100	.016
UD-1250-2D-125	.035
UD-1312-2D-125	.031
UD-1343-2D-125	.029
UD-1375-2D-125	.027
UD-1437-2D-125	.023
UD-1500-2D-125	.019
UD-1562-2D-125	.015
UD-1625-2D-125	.011
UD-1687-2D-125	.008
UD-1750-2D-150	.040
UD-1812-2D-150	.036
UD-1875-2D-150	.032
UD-1937-2D-150	.028
UD-2000-2D-150	.024
UD-2125-2D-150	.017
UD-2250-2D-150	.009
UD-2375-2D-150	.001

*2XD Only



ISO	MATERIAL	HARDNESS	GRADE	Vc (SFM)*	INDEXABLE DRILL DIAMETER (INCH)		
					0.5620"-0.7499"	0.7500" - 1.4999"	1.5000" - 2.3750"
					Fz = IPR (INCH PER REVOLUTION)*		
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	UD51 /UD52	300-800	.0015-.0060	.0025-.0080	.0030-.009
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC		250-700	.0020-.0070	.0025-.0070	.0030-.0080
M	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	UD32	230-650	.0018-.0040	.0025-.0065	.0030-.0070
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC		260-700	.0018-.0040	.0023-.0055	.0030-.0065
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	UD21	285-900	.0025-.0055	.0035-.0070	.0040-.0080
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC		230-700	.0020-.0050	.0028-.0055	.0030-.0060
N	NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	UD2	400-975	.0020-.0075	.0030-.0070	.0045-.0100
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2"	≤ 375 BHN or ≤ 55 HRC	UD32	75-200	.0018-.0065	.0020-.0065	.0030-.0070
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	UD32 /UD52	40-200	.0016-.0032	.0020-.0050	.0020-.0050
	TITANIUM 6AL-4V, ASTM 1, 2, 3,6AL-2S	≤ 275 BHN or ≤ 28 HRC		90-350	.0019-.0055	.0020-.0050	.0020-.0065

Recommendations

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

- It is recommended to use precision holders i.e. hydraulic, shrink fit
- It is recommended to use internal coolant – minimum recommended pressure 145 psi

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



ISO	MATERIAL	HARDNESS	Vc (SFM)*	DRILL DIAMETER (INCH)						
				≤ 1/16"	1/16"- 1/8"	1/8"- 1/4"	1/4"- 3/8"	3/8"- 1/2"	1/2"- 3/4"	3/4"- 1"
Fz = IPR(INCH PER REVOLUTION)*										
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	210-510	.0008- .0030	.0030- .0055	.0040- .0085	.0050- .012	.0070- .015	.0090- .0175	.0100- .0200
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	170-390	.0006- .0025	.0020- .0045	.0030- .0060	.0045- .0080	.0060- .0120	.0070- .0145	.0080- .0175
M	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	95-165	.0005- .0025	.0020- .0045	.0035- .0060	.0040- .0085	.0055- .0125	.0070- .0150	.0080- .0170
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	80-140	.0004- .0018	.0018- .0035	.0022- .0045	.0033- .0060	.0055- .0090	.0060- .0140	.0070- .0150
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	190-475	.0008- .0040	.0030- .0060	.0045- .0080	.0060- .0135	.0070- .0140	.0010- .0160	.0120- .0200
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	"≤ 260 BHN or ≤ 26 HRC"	160-310	.0006- .0030	.0028- .0035	.0040- .0070	.0055- .010	.0070- .0120	.0090- .0140	.0110- .0170
N	NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	"≤ 271 BHN or ≤ 28 HRC"	350-950	.0010- .0040	.0030- .0060	.0040- .0070	.0060- .0115	.0075- .0135	.0090- .0150	.0100- .0210
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	"≤ 375 BHN or ≤ 55 HRC"	55-145	.0008- .0030	.0010- .0040	.0017- .0055	.0030- .0073	.0055- .0095	.0060- .0100	.0070- .0115
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	"≤ 275 BHN or ≤ 28 HRC"	95-215	.0007- .0020	.00012- .0025	.0018- .0040	.0027- .0075	.0030- .0075	.0050- .0090	.0060- .0110
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	"≤ 275 BHN or ≤ 28 HRC"	70-160	.0009- .0030	.0015- .0035	.0020- .00550	.0045- .0100	.0075- .0120	.0080- .0150	.0095- .0160

Recommendations

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

- It is recommended to use precision holders i.e. hydraulic, shrink fit
- It is recommended to use internal coolant – minimum recommended pressure 145 psi

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



ISO	MATERIAL	HARDNESS	Vc (SFM)*		DRILL DIAMETER (INCH)						
					≤ 1/16"	1/16"- 1/8"	1/8"- 1/4"	1/4"- 3/8"	3/8" - 1/2"	1/2" - 3/4"	3/4" - 1"
					Fz = IPR (INCH PER REVOLUTION)*						
			HSS/ Cobalt	Carbide							
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	70-200	150-350	.0005 - .0030	.0010 - .0050	.0020 - .0075	.0030 - .0100	.0060 - .0120	.0080 - .0140	.0100 - .0170
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	60-150	100-280	.0007 - .0030	.0012 - .0040	.0020 - .0060	.0040 - .0080	.0060 - .0110	.0070 - .0135	.0070 - .0155
M	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	60-120	110-190	.0006 - .0025	.0008 - .0030	.0012 - .0060	.0025 - .0085	.0040 - .0110	.0060 - .0140	.0080 - .0170
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	40-110	90-140	.0004 - .0018	.0006 - .0020	.0009 - .0040	.0010 - .0060	.0030 - .0080	.0040 - .0110	.0050 - .0140
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	60-180	140-400	.0006 - .0025	.0008 - .0030	.0012 - .0060	.0025 - .0085	.0040 - .0110	.0060 - .0140	.0080 - .0190
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	50-90	110-280	.0006 - .0025	.0008 - .0030	.0012 - .0060	.0025 - .0085	.0040 - .0110	.0060 - .0140	.0080 - .0170
N	NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	90-300	180-500	.0003 - .0010	.0006 - .0021	.0010 - .0030	.0025 - .0040	.0028 - .0065	.0030 - .0090	.0050 - .0150
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 555 BHN or ≤ 55 HRC	40-80	70-160	.0005 - .0030	.0010 - .0040	.0020 - .0055	.0040 - .0080	.0060 - .0100	.0080 - .0120	.0100 - .0140
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	15-55	50-110	.0007 - .0020	.00012 - .0025	.0018 - .0040	.0025 - .0060	.0030 - .0075	.0040 - .0085	.0050 - .0100
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC	30-75	70-160	.0006 - .0025	.0008 - .0035	.0012 - .0060	.0025 - .0085	.0040 - .0100	.0060 - .0120	.0080 - .0140

Factors affecting optimized drill speeds and feeds:

- Depth of Hole
- Machinability of Material
- Coolant delivery method

Drill depths > 4X diameter require 15%-30% reduction in suggested drill feed rates.

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



ISO	MATERIAL	HARDNESS	GRADE	Vc (SFM)*	DIAMETER INCH (METRIC)	
					5/16" (8mm) - 1/2" (12mm)	1/2" (12mm) - 3/4" (20mm)
					Fz (INCH PER TOOTH)*	
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	HP600	250-675	.0015-.0040	.0020-.0060
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC				
M	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	HP600	150-450	.0018-.0025	.0025-.0060
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC				
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	HK365	200-700	.0025-.0045	.0035-.0070
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC				
N	NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	HN300	300-750	.0020-.0060	.0030-.0090
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	HP600	60-275	.0018-.0055	.0020-.0060
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	HP600	45-200	.0015-.0030	.0017-.0050
	TITANIUM 6AL-4V, ASTM 1, 2, 3,6AL-2S	≤ 275 BHN or ≤ 28 HRC				

Recommendations:

Productivity and tooling performance is not only influenced by grade and geometry, but also by clamping the tool securely and accurately as possible.

- It is recommended to use precision holders i.e. hydraulic, shrink fit
- It is recommended to use internal coolant – minimum recommended pressure 145 psi

**Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.*



ISO	MATERIAL	HARDNESS	Vc (SFM)*	Fz (INCH PER TOOTH)*
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	220-650	.0032 - .0080
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	180-500	.0030 - .0065
M	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	200-450	.0026 - .0065
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	120-350	.0025 - .0075
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	250-700	.0030 - .0100
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	150-450	.0030 - .0092
N	NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	250-950	.0050 - .0130
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	80-250	.0030 - .0065
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	50-160	.0025 - .0060
	TITANIUM 6AL-4V, ASTM 1, 2, 3,6AL-2S	≤ 275 BHN or ≤ 28 HRC	90-250	.0025 - .0075
* HIGHER Vc AND Fz APPLY TO LIGHT/FINISHING ENGAGEMENT				
* LOWER Vc AND Fz APPLY TO HEAVY/ROUGHING ENGAGEMENT				

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



ISO	MATERIAL	HARDNESS	Vc (SFM)*		EFFECTIVE CUTTER DIAMETER (INCH)						
					≤ 1/16"	1/16"- 1/8"	1/8"- 1/4"	1/4"- 3/8"	3/8" - 1/2"	1/2" - 3/4"	3/4" - 1"
					Fz (INCH PER TOOTH)*						
			HSS/ Cobalt	Carbide							
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	80-200	250-600	.0003 - .0009	.0003 - .0009	.0004 - .0011	.0005 - .0012	.0006 - .0013	.0009 - .0015	.0010 - .0030
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH"	≤ 375 BHN or ≤ 40 HRC	60-150	150-400	.0003 - .0009	.0003 - .0009	.0004 - .0011	.0005 - .0012	.0006 - .0013	.0009 - .0015	.0010 - .0030
M	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	50-100	130-400	.0002 - .0009	.0003 - .0009	.0004 - .0012	.0005 - .0014	.0006 - .0016	.0009 - .0018	.0010 - .0022
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	30-75	100-300	.0003 - .0008	.0003 - .0009	.0004 - .0012	.0005 - .0014	.0006 - .0016	.0009 - .0018	.0010 - .0020
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	60-180	200-650	.0002 - .0009	.0003 - .0010	.0004 - .0012	.0005 - .0014	.0007 - .0016	.0009 - .0018	.0010 - .0025
	DUCTILE IRONS D&M series, 250 , 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	50-120	150-450	.0003 - .0009	.0003 - .0009	.0004 - .0011	.0005 - .0012	.0006 - .0013	.0009 - .0015	.0010 - .0030
N	NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	70-300	200-700	.0003 - .0009	.0003 - .0011	.0004 - .0013	.0005 - .0015	.0006 - .0017	.0009 - .0020	.0010 - .0035
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	30-65	80-250	.0002 - .0009	.0003 - .0009	.0004 - .0012	.0005 - .0014	.0007 - .0016	.0009 - .0018	.0010 - .0025
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	20-50	50-90	.0002 - .0005	.0003 - .0007	.0004 - .0010	.0005 - .0011	.0006 - .0011	.0007 - .0011	.0007 - .0013
	TITANIUM 6AL-4V, ASTM 1, 2, 3,6AL-2S	≤ 275 BHN or ≤ 28 HRC	30-65	70-160	.0002 - .0007	.0003 - .0009	.0004 - .0010	.0005 - .0011	.0006 - .0012	.0007 - .0012	.0007 - .0016

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



ISO	MATERIAL	HARDNESS	Vc (SFM)*		EFFECTIVE CUTTER DIAMETER (INCH)						
					≤ 1/16"	1/16"- 1/8"	1/8"- 1/4"	1/4"- 3/8"	3/8"- 1/2"	1/2"- 3/4"	3/4"- 1"
					HSS/ Cobalt		Carbide		Fz (INCH PER TOOTH)*		
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	80-200	200-500	.0003 - .0009	.0003 - .0009	.0004 - .0011	.0005 - .0012	.0006 - .0013	.0009 - .0015	.0010 - .0030
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	60-150	150-400	.0003 - .0009	.0003 - .0009	.0004 - .0011	.0005 - .0012	.0006 - .0013	.0009 - .0015	.0010 - .0030
M	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	50-100	130-400	.0002 - .0009	.0003 - .0009	.0004 - .0012	.0005 - .0014	.0006 - .0016	.0009 - .0018	.0010 - .0022
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	30-75	100-300	.0003 - .0008	.0003 - .0009	.0004 - .0012	.0005 - .0014	.0006 - .0016	.0009 - .0018	.0010 - .0020
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	60-180	200-650	.0002 - .0009	.0003 - .0010	.0004 - .0012	.0005 - .0014	.0007 - .0016	.0009 - .0018	.0010 - .0025
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	50-120	150-450	.0003 - .0009	.0003 - .0009	.0004 - .0011	.0005 - .0012	.0006 - .0013	.0009 - .0015	.0010 - .0030
N	NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	70-300	200-700	.0003 - .0009	.0003 - .0011	.0004 - .0013	.0005 - .0015	.0006 - .0017	.0009 - .0020	.0010 - .0035
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	30-65	80-250	.0002 - .0009	.0003 - .0009	.0004 - .0012	.0005 - .0014	.0007 - .0016	.0009 - .0018	.0010 - .0025
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	20-50	50-90	.0002 - .0005	.0003 - .0007	.0004 - .0010	.0005 - .0011	.0006 - .0011	.0007 - .0011	.0007 - .0013
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC	30-65	70-160	.0002 - .0007	.0003 - .0009	.0004 - .0010	.0005 - .0011	.0006 - .0012	.0007 - .0012	.0007 - .0016

Keyseat Cutter Considerations:

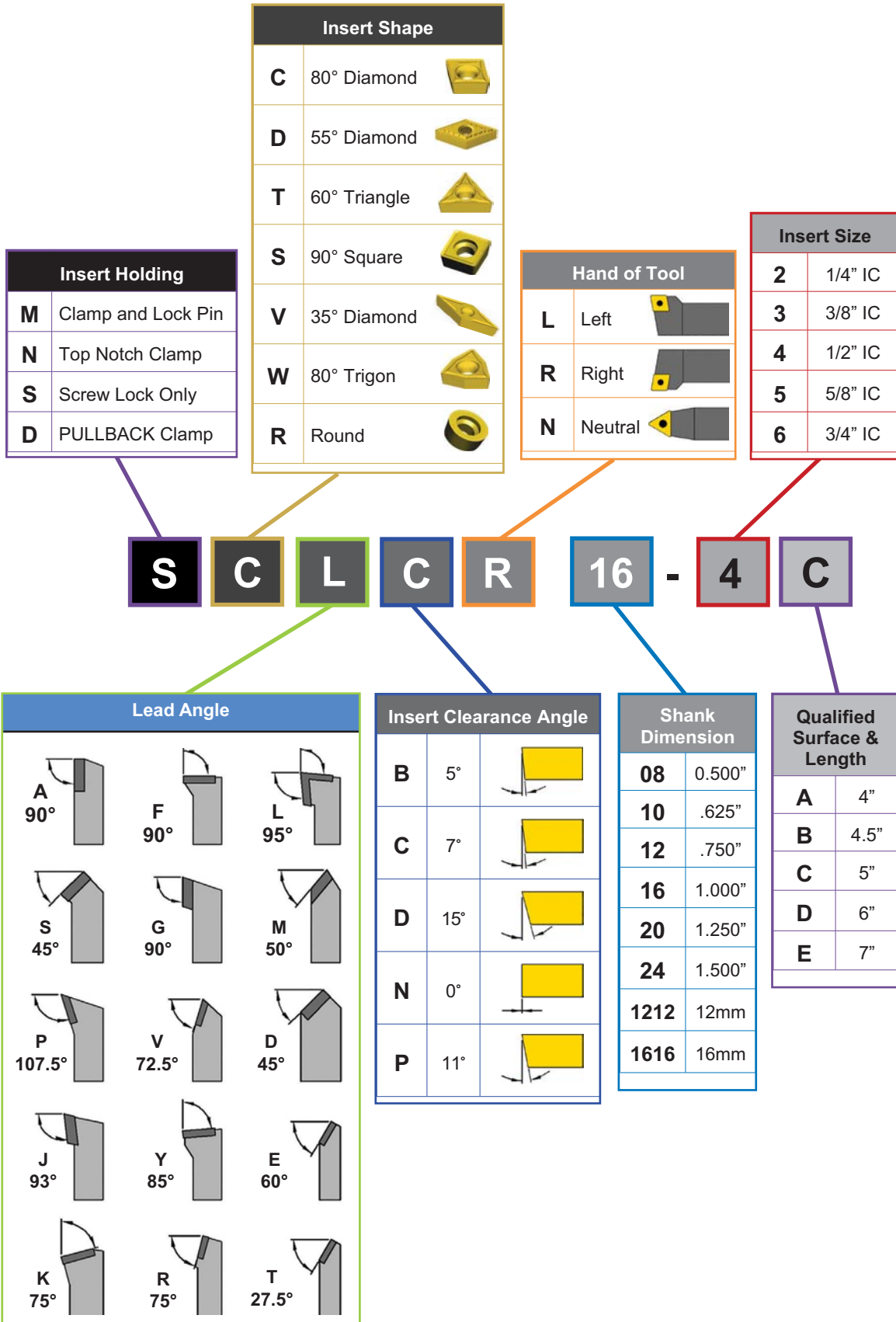
- Select a tool with the shortest allowable overall length to ensure the strongest tool setup possible.
- The keyseat cutter's neck diameter greatly affects its performance.
- Choose thickest neck allowable for the most optimized performance.

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



ISO	MATERIAL	HARDNESS	Vc (SFM)*		SAW DIAMETER (INCH)				
			HSS/ Cobalt	Carbide	1.00" - 3.00"	3.01" - 5.00"	5.01" - 8.00"	8.01" - 10.00"	10.01" - 12.00"
					Fz (INCH PER TOOTH)*				
P	CARBON STEELS 1018, 1040, 1080, 1090, 10L50, 1140, 1212, 12L15, 1525, 1536	≤ 275 BHN or ≤ 28 HRC	40-95	90-200	.0003 - .0009	.0003 - .0009	.0004 - .0011	.0005 - .0012	.0010 - .0020
	ALLOY STEELS 4140, 4150, 4320, 5120, 5150, 8630, 86L20, 17-4 PH	≤ 375 BHN or ≤ 40 HRC	30-70	60-150	.0003 - .0009	.0003 - .0009	.0004 - .0011	.0005 - .0012	.0007 - .0015
M	STAINLESS STEELS (FREE MACHINING) 303, 416, 420F, 430F, 440F	≤ 275 BHN or ≤ 28 HRC	60-110	80-190	.0002 - .0008	.0003 - .0008	.0004 - .0010	.0005 - .0012	.0010 - .0022
	STAINLESS STEELS (DIFFICULT) 304, 304L, 316, 316L	≤ 275 BHN or ≤ 28 HRC	30-75	40-130	.0003 - .0008	.0003 - .0008	.0004 - .0010	.0005 - .0012	.0010 - .0018
K	GRAY IRONS Class 20, 30, 40, 50, 60, G3000, G3500	≤ 220 BHN or ≤ 19 HRC	45-100	80-150	.0003 - .0009	.0003 - .0010	.0004 - .0012	.0005 - .0014	.0010 - .0020
	DUCTILE IRONS D&M series, 250, 300, 350, 400, 60-40-18, 65-45-12	≤ 260 BHN or ≤ 26 HRC	20-75	30-90	.0003 - .0009	.0003 - .0009	.0004 - .0011	.0005 - .0012	.0008 - .0016
N	NON-FERROUS Aluminum, Aluminum cast, Brass, Copper, Bronze, Non Metallic	≤ 271 BHN or ≤ 28 HRC	180-900	450-1200	.0005 - .0009	.0006 - .0011	.0006 - .0013	.0007 - .0015	.0010 - .0030
H	TOOL STEELS A2, D2, H13, L2, M2, P20, S7, T15, W2	≤ 375 BHN or ≤ 55 HRC	10-25	30-130	.0002 - .0008	.0003 - .0009	.0004 - .0010	.0005 - .0013	.0007 - .0020
S	HR SUPER ALLOYS Inconel 718, Waspaloy, Hastelloy, Inconel 625, Stellite 31, Haynes 25, Rene 41	≤ 275 BHN or ≤ 28 HRC	05-20	30-80	.0002 - .0005	.0003 - .0006	.0004 - .0010	.0005 - .0011	.0006 - .0012
	TITANIUM 6AL-4V, ASTM 1, 2, 3, 6AL-2S	≤ 275 BHN or ≤ 28 HRC	10-30	40-180	.0002 - .0007	.0003 - .0010	.0004 - .0012	.0005 - .0016	.0007 - .0020

*Speeds & feeds are starting recommendations only. Factors such as machine type, fixture, tooling rigidity, available horsepower, coolant delivery method and others will affect the performance significantly.



Bar Type	
A	Solid Steel Bar with Coolant
C	Carbide Bar
D	Parriot Stealth Bar with Coolant
E	Carbide Bar with Coolant
HM	Solid Heavy Metal with Coolant
J	Solid Heavy Metal
R	Carbide Reinforced Steel Bar
S	Solid Steel Bar

Bar Length	
F	3"
G	3.5"
H	4"
J	4.5"
K	5"
M	6"
Q	7"
R	8"
X	9"
S	10"
T	12"
U	14"
V	16"
W	20"

Insert Clearance Angle		
B	5°	
C	7°	
D	15°	
N	0°	
P	11°	

Alternate (WF) Dim.	
138	0.138"
167	0.167"
203	0.203"
281	0.281"

E 10 Q S C L C R 2 -281

Bar Diameter	
02.5	0.156" (5/32")
03	0.187" (3/16")
03.5	0.218" (7/32")
04	0.250" (1/4")
05	0.312" (5/16")
06	0.375" (3/8")
08	0.500" (1/2")
10	0.625" (5/8")
12	0.750" (3/4")
16	1.000" (1")
20	1.250" (1 1/4")
24	1.500" (1 1/2")
28	1.750" (1 3/4")
32	2.000" (2")

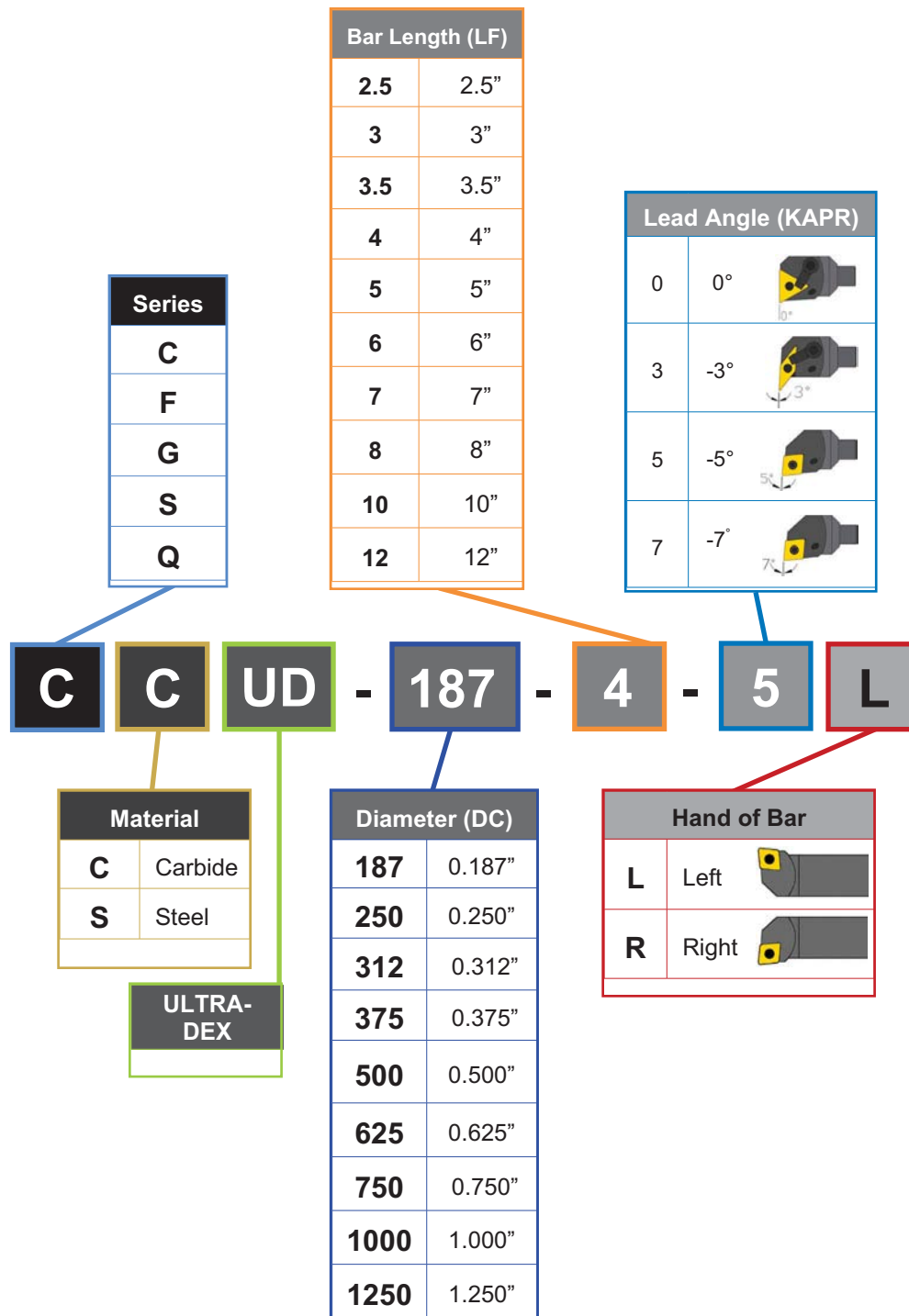
Insert Holding	
M	Clamp and Lock Pin
N	Top Notch Clamp
S	Screw Lock Only
D	PULLBACK Clamp

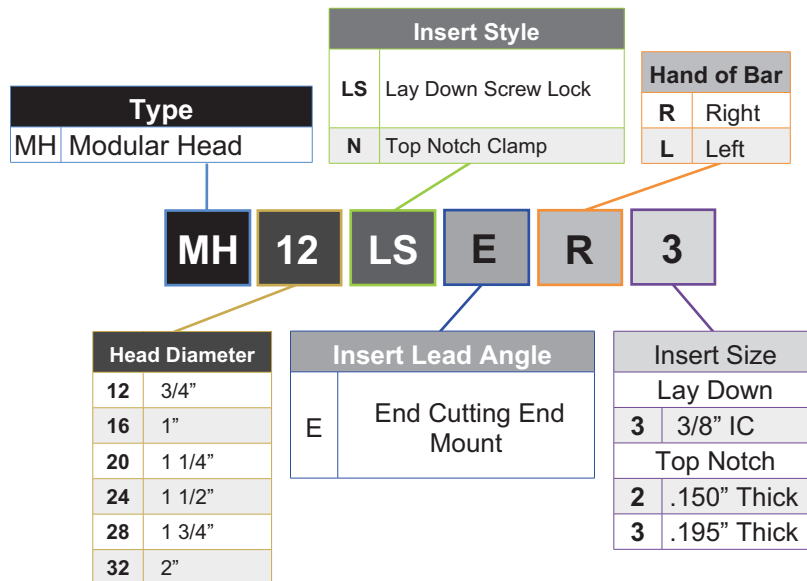
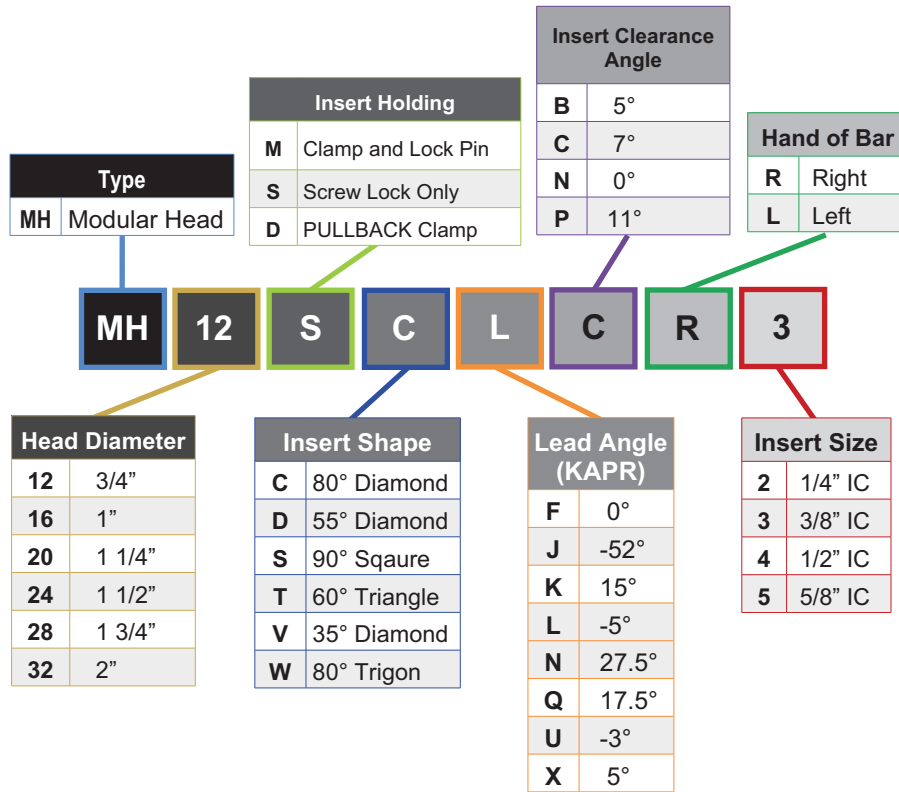
Insert Shape	
C	80° Diamond
D	55° Diamond
T	60° Triangle
S	90° Square
V	35° Diamond
W	80° Trigon
R	Round

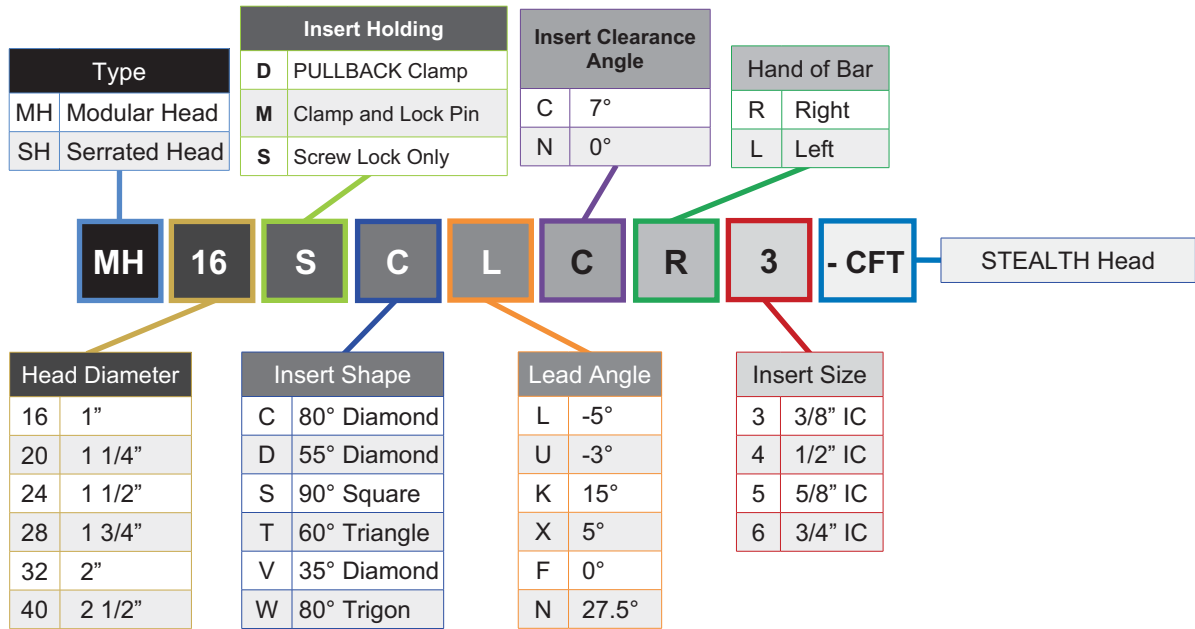
Lead Angle (KAPR)	
F	0°
J	-52°
K	15°
L	-5°
N	27.5°
Q	-17.5°
U	-3°
X	5°

Insert Size	
1.2	5/32" IC
1.5	3/16" IC
1.8	7/32" IC
2	1/4" IC
2.5	5/16" IC
3	3/8" IC
4	1/2" IC

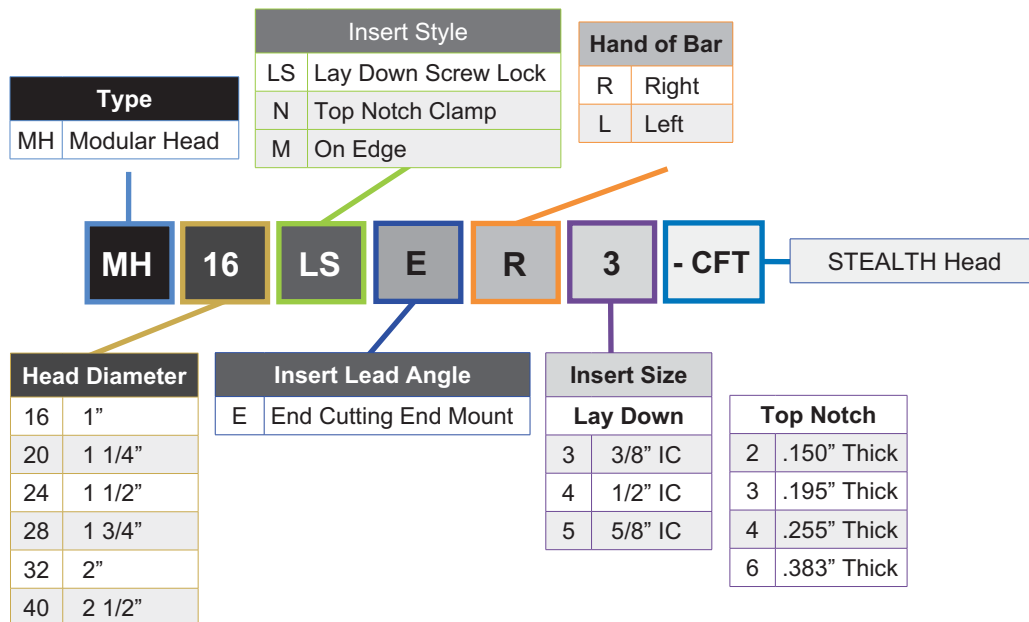
Hand of Bar	
L	Left
R	Right





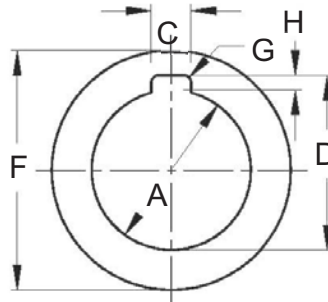


Threading / Grooving



Cutting Diameter Tolerances

ARBOR TYPE CUTTERS					
Cutter Type	Specifications	Tolerance			
		Diameter	Width	Angle	Radius
Plain Milling	Up to 1" Width Over 1" – 2" Incl. Over 2"	+0.015" -0.000" +0.015" -0.000" +0.015" -0.000"	±.001" +0.010" -0.000" +0.020" -0.000"		
Side Mills	Straight Tooth Staggered Tooth Straight Tooth Saw	+0.015" -0.000" +0.015" -0.000" +0.015" -0.000"	+0.002" -0.000" ±.001" ±.001"		
Single Angle Double Angle		+0.015" -0.000" +0.015" -0.000"	+0.015" -0.000" +0.015" -0.000"	±0°10" ±0°10" on half angle	
Keyseat (1/32" oversize on diameters)	3/16" Face 1/4" Face 5/16" Face 3/8" Face and Over	±.002" ±.002" ±.002" ±.002"	-.0002" -0.0007" -.0003" -0.0008" -.0004" -0.0009" -.0005" -0.0010"		
Convex Concave Corner Rounding		+0.030" -0.000" +0.030" -0.000" +0.030" -0.000"	±.001" ±.005" ±.005"		±.001" +.002" -0.001" +.002" -0.001"



Cutter Bore "A" Inches	Nominal Size Key (Square) Inches	Dimensions - Inches						
		C		D		H Nominal	G Corner Radius	F Collar
		Max.	Min.	Max.	Min.			
1/2	3/32	.106	.099	.5678	.5578	3/64	.020	7/8
5/8	1/8	.137	.130	.7085	.6985	1/16	1/32	1
3/4	1/8	.137	.130	.8325	.8225	1/16	1/32	1-1/8
7/8	1/8	.137	.130	.9575	.9475	1/16	1/32	1-1/4
1	1/4	.262	.255	1.1140	1.1040	3/32	3/64	1-1/2
1-1/4	5/16	.325	.318	1.3950	1.3850	1/8	1/16	1-7/8
1-1/2	3/8	.410	.385	1.6760	1.6660	5/32	1/16	2-1/4
1-3/4	7/16	.473	.448	1.9580	1.9480	3/16	1/16	2-1/2
2	1/2	.535	.510	2.2080	2.1980	3/16	1/16	2-3/4
2-1/2	5/8	.660	.635	2.7430	2.7330	7/32	1/16	3-1/2
3	3/4	.785	.760	3.2750	3.2650	1/4	3/32	4
3-1/2	7/8	.910	.885	3.9000	3.8900	3/8	3/32	5
4	1	1.035	1.011	4.4000	4.3900	3/8	3/32	5-1/2
4-1/2	1-1/8	1.160	1.135	4.9630	4.9530	7/16	1/8	6
5	1-1/4	1.285	1.260	5.5250	5.5150	1/2	1/8	6-1/2

Terminology and Ordering Data

KEO® “S” Style Staggered Interlocking Cutter’s consist of two pieces, each piece being a Staggered Side Milling Cutter. Unless otherwise specified, diameters of each piece held relative to each other within .001”. Refer to Figures 1, 2 and 3

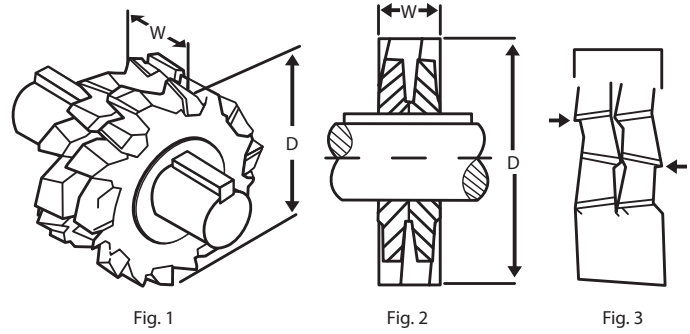
Total Interlocking Width (W).

The total interlocking width (W) is equal to the overall width of an interlocking cutter. The total interlock width (W) is normally equal to the width of the slot to be machined. This width is measured over the two pieces within the interlocking cutter as shown in Figure 1 and Figure 2.

Unless otherwise specified, tolerance on W Dimension is ±.001”. Specify the following information when ordering:

1. Quantity of Interlocking Cutters required.
2. Diameter of Interlocking Cutters (D).
3. Interlock Width (W).
4. Hole size required.

Interlocking or overlap can be varied from as small as



.010” – 3/32” or more depending upon the widths selected. Hubs may be ground in customer’s plant, by a local grinding service shop or at the KEO® plants. When sharpening reduces the total interlock width, shims may be used between hubs to regain the original total interlock width.

“X” indicates Width Interlock Range that can be priced as standard in diameters listed. All Staggered Tooth Cutters having the same number of teeth interlock.

INTERLOCK WIDTH RANGE	CUTTER DIAMETER																	
	2-1/8"	2-1/2"	2-3/4"	3"	3-1/4"	3-1/2"	3-3/4"	4"	4-1/4"	4-1/2"	5"	5-1/2"	6"	7"	8"	9"	10"	12"
.345 – .370	X			X		X		X			X		X	X	X			X
.370 – .401	X			X		X		X			X		X	X	X			X
.401 – .432	X			X		X		X		X			X	X	X			X
.432 – .464	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
.464 – .495	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
.495 – .526	X	X	X	X		X		X		X	X		X	X	X	X	X	X
.526 – .557	X	X	X	X		X		X		X	X		X	X	X	X	X	X
.557 – .588	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
.588 – .620	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
.620 – .651	X	X	X	X		X		X		X	X		X	X	X	X	X	X
.651 – .682	X	X	X	X		X		X		X	X		X	X	X	X	X	X
.682 – .713	X	X	X	X		X		X		X	X		X	X	X	X	X	X
.700 – .745	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
.731 – .776	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
.763 – .807		X	X	X		X		X		X	X		X	X	X	X	X	X
.794 – .838		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
.825 – .870		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
.856 – .901		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
.888 – .932		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
.930 – .995		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
.993 – 1.058				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1.055 – 1.120				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1.118 – 1.182				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1.180 – 1.245				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1.242 – 1.307				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1.305 – 1.370				X		X		X		X	X		X	X	X	X	X	X
1.368 – 1.432				X	X	X		X		X	X		X	X	X	X	X	X
1.430 – 1.495				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1.492 – 1.557				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
1.555 – 1.620				X		X		X		X	X		X	X	X	X	X	X
1.618 – 1.682				X		X		X		X	X		X	X	X	X	X	X
1.680 – 1.745				X		X		X		X	X		X	X	X	X	X	X
1.743 – 1.807				X		X		X		X	X		X	X	X	X	X	X
1.805 – 1.870				X		X		X		X	X		X	X	X	X	X	X
1.868 – 1.932				X		X		X		X	X		X	X	X	X	X	X
1.930 – 1.995 1.990 – 2.055				X		X		X		X	X		X	X	X	X	X	X
2.050 – 2.120				X		X		X		X	X		X	X	X	X	X	X
2.115 – 2.180				X		X		X		X	X		X	X	X	X	X	X
2.175 – 2.245				X		X		X		X	X		X	X	X	X	X	X
2.240 – 2.305								X					X					
2.300 – 2.370								X					X					
2.365 – 2.430				X				X					X					
2.425 – 2.495				X				X					X					

MILIMETERS TO INCHES CONVERSION CHART							
MM	INCHES	MM	INCHES	MM	INCHES	MM	INCHES
0.1	0.0039	20	0.7872	48	1.8898	76	2.9921
0.2	0.0079	21	0.8268	49	1.9291	77	3.0315
0.3	0.0118	22	0.8661	50	1.9685	78	3.0709
0.4	0.0157	23	0.9055	51	2.0079	79	3.1102
0.5	0.0197	24	0.9449	52	2.0472	80	3.1496
0.6	0.0236	25	0.9843	53	2.0866	81	3.189
0.7	0.0276	26	1.0236	54	2.126	82	3.2284
0.8	0.0315	27	1.063	55	2.1654	83	3.2677
0.9	0.0354	28	1.1024	56	2.2047	84	3.3071
1	0.0394	29	1.1417	57	2.2441	85	3.3465
2	0.0787	30	1.1811	58	2.2835	86	3.3858
3	0.1181	31	1.2205	59	2.3228	87	3.4252
4	0.1575	32	1.2598	60	2.3622	88	3.4646
5	0.1969	33	1.2992	61	2.4016	89	3.5039
6	0.2362	34	1.3386	62	2.441	90	3.5433
7	0.2756	35	1.378	63	2.4803	91	3.5827
8	0.315	36	1.4173	64	2.5197	92	3.6221
9	0.3543	37	1.4567	65	2.5591	93	3.6614
10	0.3937	38	1.4961	66	2.5984	94	3.7008
11	0.4331	39	1.5354	67	2.6378	95	3.7402
12	0.4724	40	1.5748	68	2.6772	96	3.7795
13	0.5118	41	1.6142	69	2.7165	97	3.8189
14	0.5512	42	1.6535	70	2.7559	98	3.8583
15	0.5906	43	1.6929	71	2.7953	99	3.8976
16	0.6299	44	1.7323	72	2.8347	100	3.937
17	0.6693	45	1.7717	73	2.874		
18	0.7087	46	1.811	74	2.9134		
19	0.748	47	1.8504	75	2.9528		

Surface Feet Per Minute

$$\text{SFM} = \text{RPM} \times D \times .262$$

Revolutions Per Minute

$$\text{RPM} = \frac{\text{SFM} \times 3.82}{D}$$

Inches Per Minute

$$\text{IPM} = \text{RPM} \times \text{IPT} \times Z$$

Inches Per Tooth

$$\text{IPT} = \frac{\text{IPR}}{Z}$$

Inches Per Revolution

$$\text{IPR} = \frac{\text{IPM}}{\text{RPM}}$$

Metal Removal Rate (cu. in./min.)

$$\text{MRR} = \text{RDOC} \times \text{ADOC} \times \text{IPM}$$

Inches Per Tooth
(Chip Thinning Adjustment)

$$\text{IPT}_{\text{adj}} = \frac{\text{CT} \times D}{2 \times \sqrt{(D \times \text{RDOC}) - \text{RDOC}}}$$

Feed Rate Adjustment - Inside Arc

$$F_i = \frac{\text{IPM} \times (r_i + R)}{r_i}$$

Feed Rate Adjustment - Outside Arc

$$F_o = \frac{\text{IPM} \times (r_o + R)}{r_o}$$

Chip Thickness

$$\text{CT} = \frac{2 \times \text{IPT} \times \sqrt{(D \times \text{RDOC}) - \text{RDOC}}}{D}$$

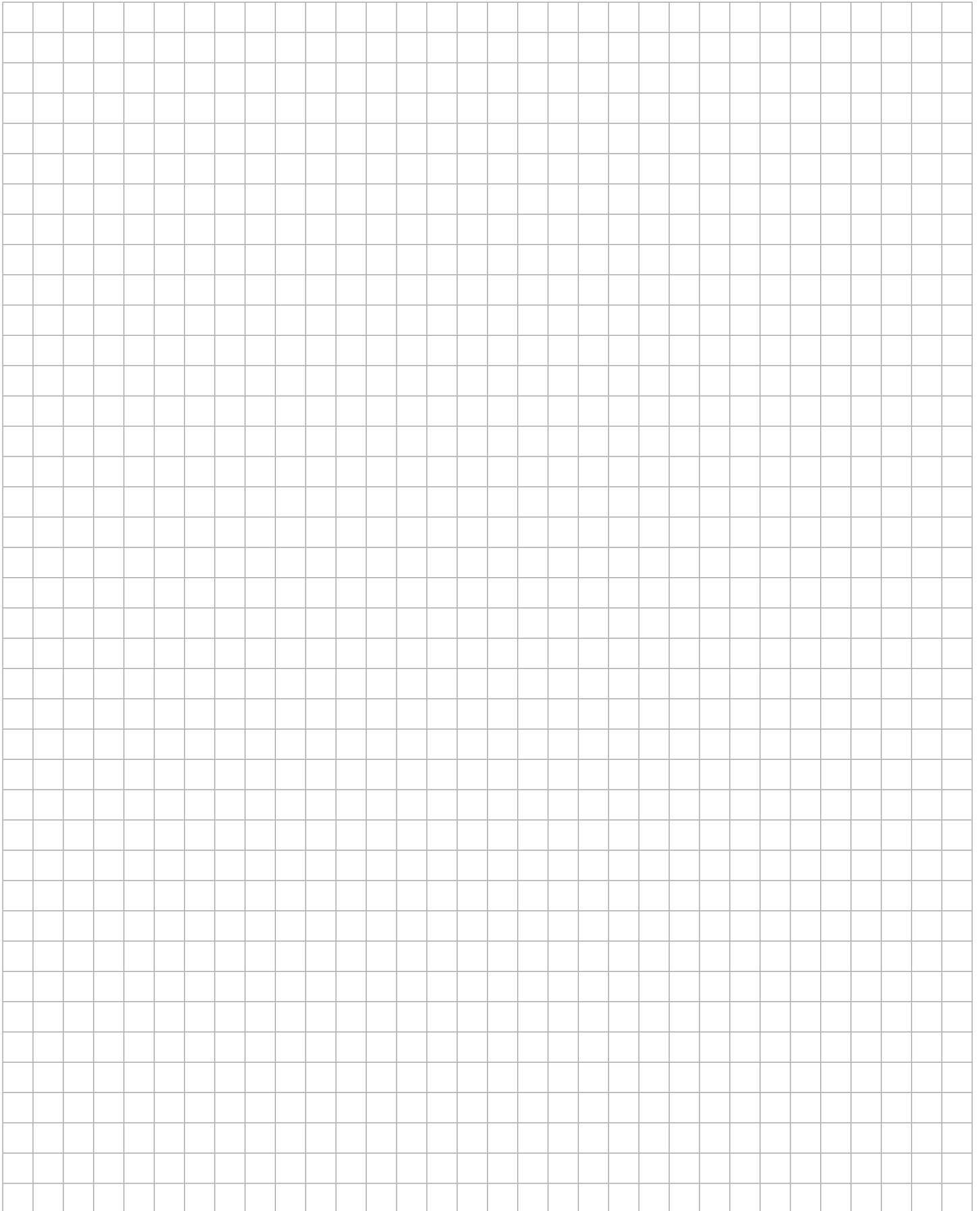
Ball Nose Velocity Adjustment

$$V_{\text{adj}} = \frac{\text{SFM} \times 3.82}{D_{\text{eff}}}$$

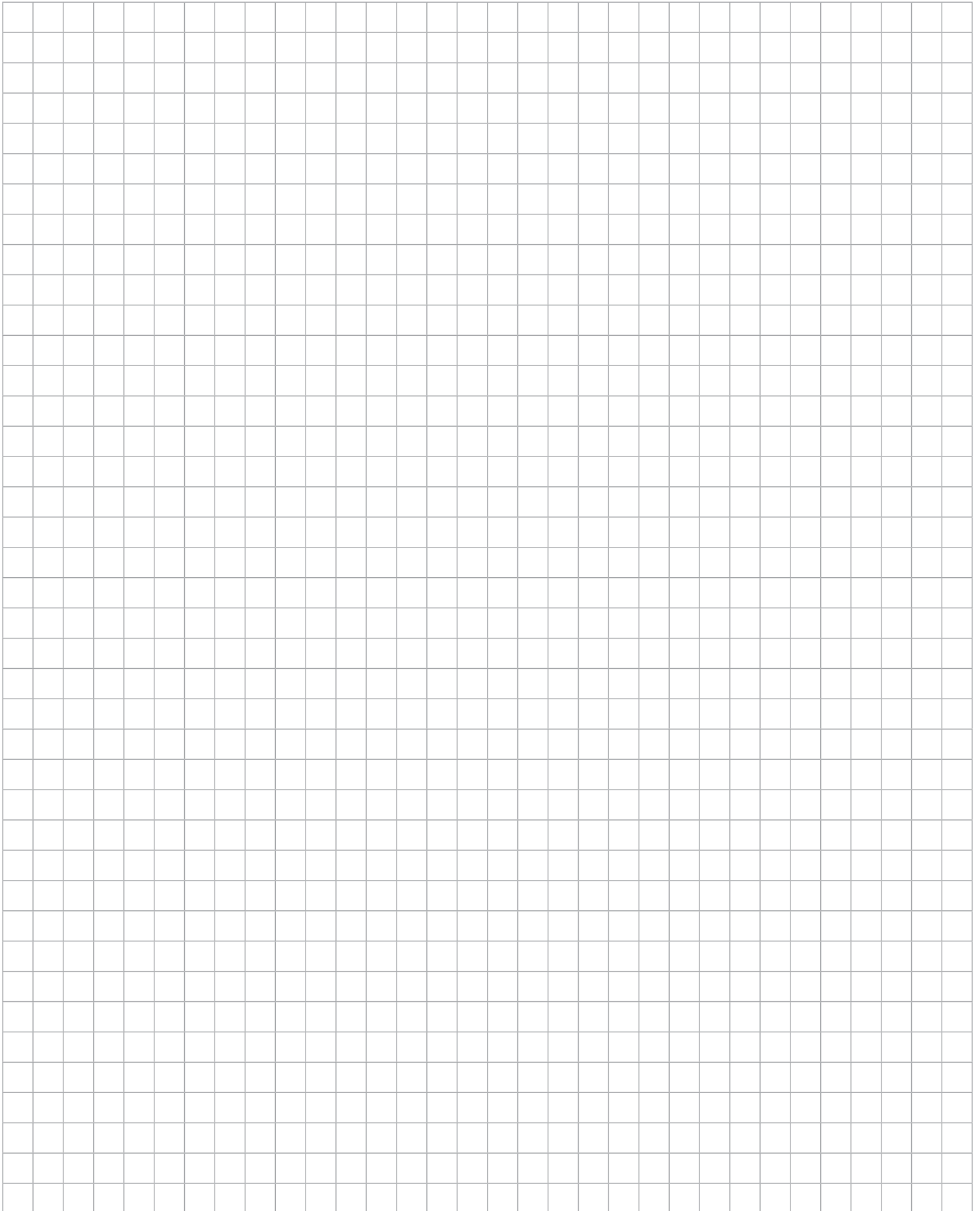
Ball Nose "Effective Diameter"

$$D_{\text{eff}} = 2 \times \sqrt{\text{ADOC} \times (D - \text{ADOC})}$$

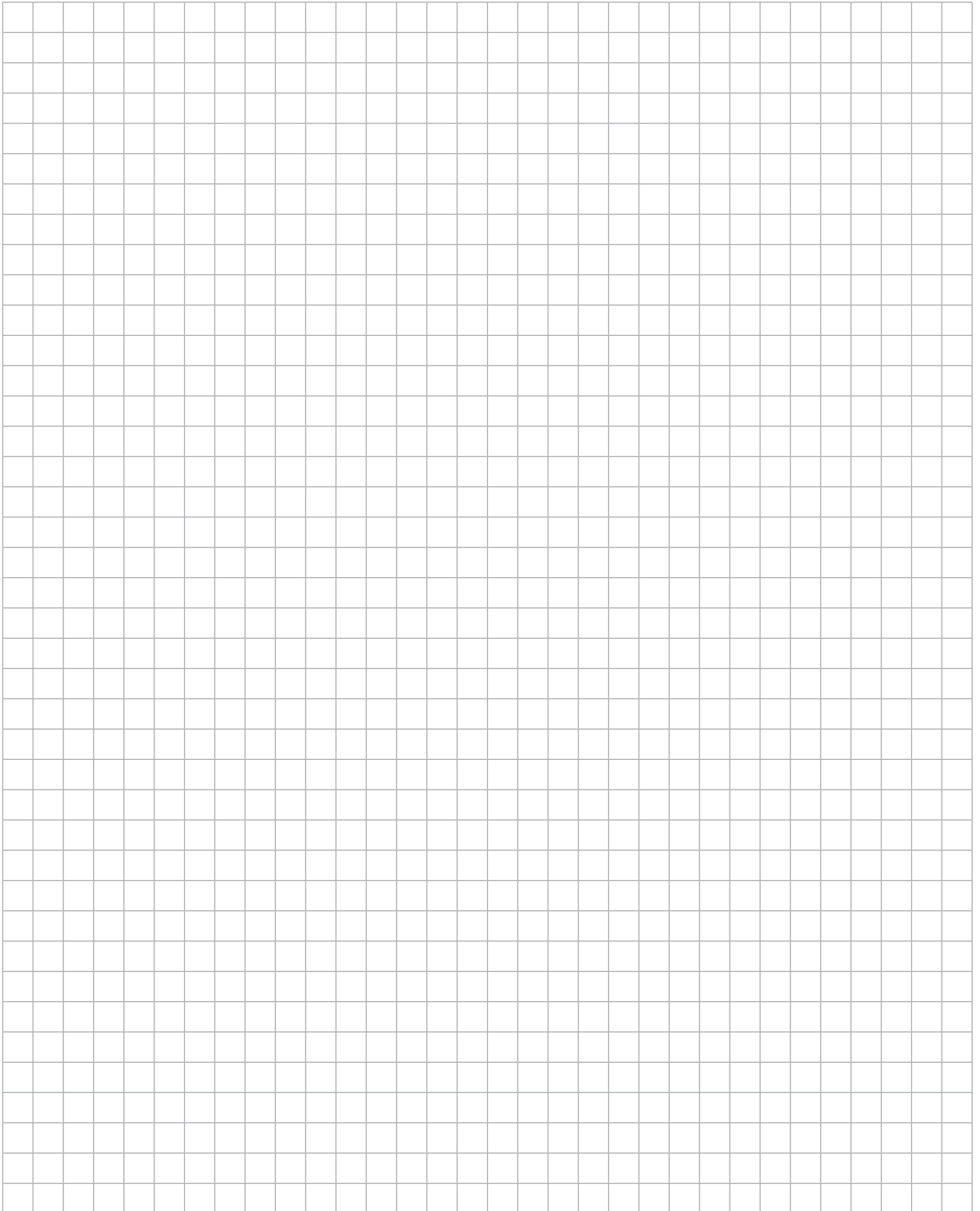
D	Tool Cutting Diameter	r_i	Part Radius (inside arc)	RDOC	Radial Depth of Cut
Z	Number of Flutes	r_o	Part Radius (outside arc)	ADOC	Axial Depth of Cut



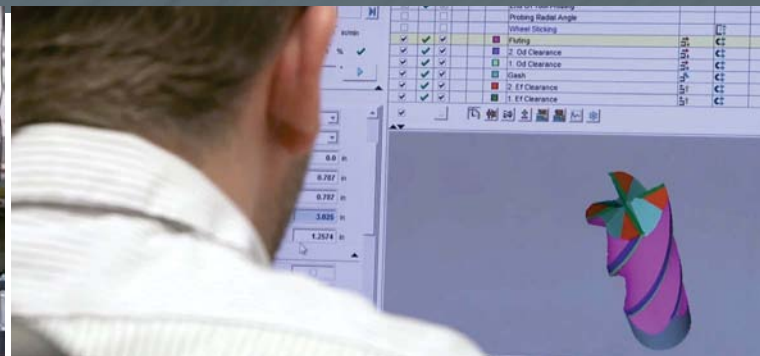
A large grid of graph paper for taking notes, consisting of 20 columns and 30 rows of small squares.



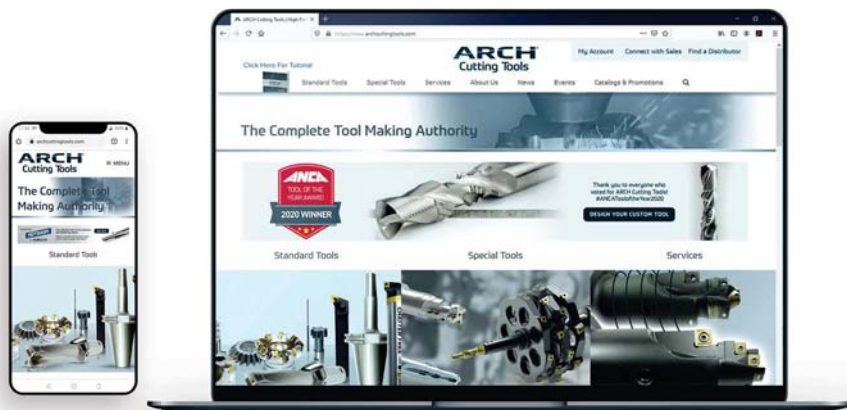






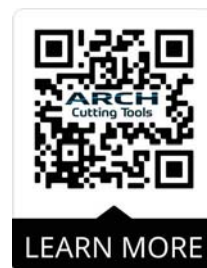


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