



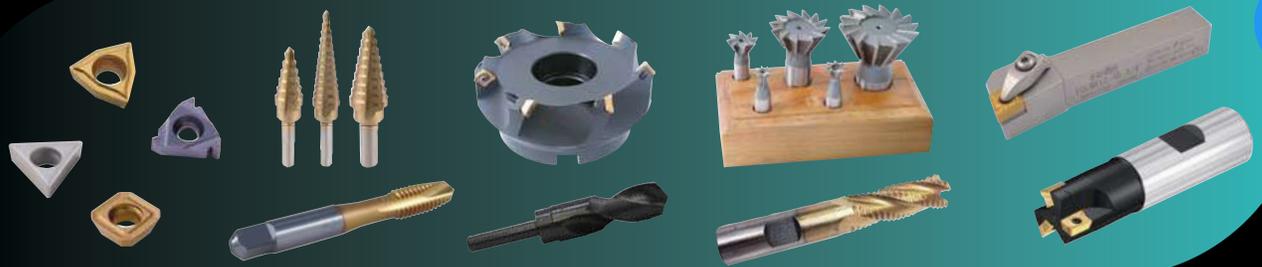
Vinculo

INDUSTRIAL TOOLS SUPPLY

PRECISION MEASURING TOOLS



CUTTING & CARBIDE TOOLS



MACHINE TOOL ACCESSORIES



SHOP SUPPLIES



CAT. No. 30N

Effective 2022

DRILLS & SETS

29PC JOBBER DRILL SETS

- Production grade
- Straight shank **1/16~1/2" by 64ths**
- Right hand
- Supplied in metal drill index
- **COBALT** used for drilling in tough high tensile strength materials like stainless steel, titanium and inconel
- **TiN Coated** will improve the tool life and is used where elevated speeds & feeds are the objective. TiN provides high lubricity and facilitates chip flow which reduces heat and edge build-up.

M35 (5%) Cobalt
5000-0011

Bright Finish, HSS
5001-0029

TiN Coated, HSS
5000-0001

Black Oxide, HSS
5000-0002

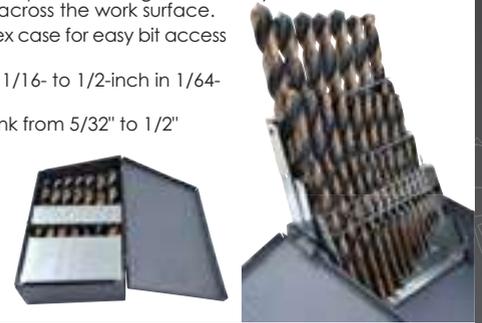


29PC HSS BLACK & GOLD JOBBER DRILL SET

- Premium high-speed steel withstands extended drilling in tough materials.
- Black and gold oxide finish provide maximum corrosion resistance.
- 135-degree split-point tip starts drilling immediately with less force and eliminates "walking" across the work surface.
- Metal USA made index case for easy bit access and identification.
- Includes drill bit sizes 1/16- to 1/2-inch in 1/64-inch increments.
- Reduced Tri-Flat shank from 5/32" to 1/2"

1/16~1/2" by 64ths

5000-0006



115PC HSS JOBBER DRILL SETS

SET INCLUDES: 1/16~1/2" By 64ths, #1~60, A~Z

- Supplied in metal drill index
- Production grade
- High speed steel
- **TiN Coated** will improve the tool life and is used where elevated speeds & feeds are the objective. TiN provides high lubricity and facilitates chip flow which reduces heat and edge build-up.
- Right hand
- Straight shank

Bright Finish
5001-0115

TiN Coated
5000-0003



HSS WIRE GAGE DRILL SETS

- Supplied in metal index case
- High speed steel
- Right hand

61 PC SET
#1~60
5001-1060

20 PC SET
#61~80
5001-1020



5001-1020 Shown

25PC METRIC 118° DRILL SET

- Production grade
- High speed steel
- Black surface treated

MM DRILL SETS IN METAL INDEX

Item#	Set	Range
5000-0007	25	1~13mm x 0.5mm



NC SPOTTING DRILLS - M35 5% COBALT RIGHT HAND • 90° SPLIT POINT

- Ground from solid.
- Designed for quick starting and a constant web to allow for re-sharpening without the need for web thinning.

MADE FOR CNC DRILLING!

Limited Supply!



Dia. A	Flute Length B	OAL C	Item#
.197"(5mm)	1"	2-3/8"	5000-1004
.236"(6mm)	1"	2-3/4"	5000-1006
.315"	1-1/8"	3-1/8"	5000-1010
3/8"	1-1/8"	3-1/2"	5000-1012
1/2"	1-1/2"	4"	5000-1018
3/4"	1-3/4"	5-1/8"	5000-1024

19PC COBALT METRIC DRILL SET-135°

- Cobalt is used for drilling in tough high tensile strength materials like stainless steel, titanium and inconel.
- 135° split point provides self-centering properties and secure positioning on work surface face treatment increases abrasion resistance.
- With index steel case.
- Ground from solid blank.

1~10MM X 0.5MM
5000-0005

Set Includes
1.0, 1.5, 2.0, 2.5, 3.0,
3.5, 4.0, 4.5, 5.0, 5.5,
6.0, 6.5, 7.0, 7.5, 8.0,
8.5, 9.0, 9.5, 10MM



18PC HSS TAP & DRILL COMBO SETS

- High speed steel made taps and drills.
- Steel case.
- Drills are matched with taps to make jobs much easier.

National Course Pitch Set Includes

1 each HSS Hand Tap
6-32 NC, 8-32 NC, 10-24 NC, 10-32 NF,
1/4"-20 NC, 5/16"-18 NC, 3/8"-16 NC,
7/16"-14 NC, 1/2"-13 NC
1 each HSS Jobbers Drill
#36, #29, #25, #21, #7, F, 5/16" U, 27/64"

**National Course
Pitch Set
1011-0018**

**National Fine
Pitch Set
1011-0019**

National Fine Pitch Set Includes

1 each HSS Hand Tap
6-40 NF, 8-36 NF, 10-24 NF, 10-32 NF,
1/4"-28 NF, 5/16"-24 NF, 3/8"-24 NF,
7/16"-20 NF, 1/2"-20 NF
1 each HSS Jobbers Drill
#33, #29, #25, #21, #3, I, Q, 25/34", 29/64"



18PC HSS METRIC TAP & DRILL COMBO SET

- High speed steel made taps and drills.
- Plug taps are fully ground.
- With index steel case.
- Drills are matched with taps to make jobs much easier.



**M2.5 ~ M12
1011-0020**



Set Includes

1 each HSS Hand Tap
M2.5x0.45, M3.0x0.50, M3.5x0.60,
M4.0x0.70, M5.0x0.80, M6.0x1.00,
M8.0x1.25, M10.0x1.50 & M12.0x1.75
1 each HSS Jobbers Drill
2.05, 2.50, 2.90, 3.30, 4.20, 5.00, 6.70, 8.50
& 10.20mm

14 PC H.S.S. 3-IN-1 COMBINED DRILL/TAP/COUNTERSINK & SCREWDRIVER BIT SETS

- Complete hole drilling, tapping, deburring and countersinking in one operation with power drill saves labor and time.
- For use to tap steel, copper, brass, aluminum and plastic up to 10-gauge (metal).
- Back tapered design helps prevent thread damage from over-drilling.
- One-piece drill/tap assures proper drill for tap size.
- Made of high speed steel for longer life.
- 14pc Includes: 6pc of combination drill & tap countersink.
1pc of high torque tested quick-change adapter
6pc of quick change CRV steel bit.
1pc of carry case.



1011-0141 Shown



**INCH SET
#6-1/4"
1011-0140**



1011-0140
Shown

Item#	Thread Range	CRV Bit
1011-0140	6-32, 8-32, 10-24 10-32, 12-24, 1/4-20	Slot3, Slot4, PZ1 PZ2, PH1, PH2
1011-0141	M3X0.5, M4x0.7, M5x0.8, M6x1.0, M8x1.25 & M10x1.5	Slot3, Slot4, PZ1 PZ2, PH1, PH2

M35 5% COBALT DRILLS 135° SPLIT POINT

- **COBALT** used for drilling in tough high tensile strength materials like stainless steel, titanium and inconel
- **135° SPLIT POINT** provides self-centering properties and secure positioning on work surface face treatment increases abrasion resistance

GROUND FROM SOLID



Size	OAL	Item#	Size	OAL	Item#
1/16	1-7/8	5002-4004*	19/64	4-3/8	5002-4019*
5/64	2	5002-4005*	5/16	4-1/2	5002-4020
3/32	2-1/4	5002-4006	21/64	4-5/8	5002-4021*
7/64	2-5/8	5002-4007*	11/32	4-3/4	5002-4022*
1/8	2-3/4	5002-4008	23/64	4-7/8	5002-4023*
5/32	3-1/8	5002-4010	3/8	5	5002-4024
11/64	3-1/4	5002-4011*	25/64	5-1/8	5002-4025*
3/16	3-1/2	5002-4012	13/32	5-1/4	5002-4026*
13/64	3-5/8	5002-4013*	27/64	5-3/8	5002-4027*
7/32	3-3/4	5002-4014	7/16	5-1/2	5002-4028*
15/64	3-7/8	5002-4015*	29/64	5-5/8	5002-4029*
1/4	4	5002-4016	15/32	5-3/4	5002-4030*
17/64	4-1/8	5002-4017*	31/64	5-7/8	5002-4031*
9/32	4-1/4	5002-4018	1/2	6	5002-4032

* Limited Supply

SOLID CARBIDE DRILLS STANDARD LENGTH, 118° SPLIT POINT

- **SOLID CARBIDE** used for low tensile strength materials such as zinc, brass, plastics and other abrasive material



Size	OAL	Item#	Size	OAL	Item#
1/16	1-1/2	5003-4004	21/64	4	5003-4021*
5/64	1-3/4	5003-4005*	11/32	4	5003-4022
3/32	2	5003-4006	23/64	4-1/4	5003-4023*
7/64	2-1/4	5003-4007*	3/8	4-1/4	5003-4024
1/8	2-1/4	5003-4008	25/64	4-1/4	5003-4025*
9/64	2-1/2	5003-4009*	13/32	4-1/4	5003-4026
5/32	2-1/2	5003-4010	27/64	4-1/4	5003-4027*
3/16	2-3/4	5003-4012	7/16	4-1/4	5003-4028
7/32	3	5003-4014	29/64	4-3/4	5003-4029*
1/4	3-1/4	5003-4016	15/32	4-3/4	5003-4030
9/32	3-1/2	5003-4018	31/64	4-3/4	5003-4031*
19/64	3-3/4	5003-4019*	1/2	4-3/4	5003-4032
5/16	3-3/4	5003-4020			

* Limited Supply

DRILLS & SETS

SILVER & DEMMING DRILLS & SET 118° DRILL POINT • 1/2" STRAIGHT SHANK

- High Speed Steel.
- 6" overall length.
- Black oxide.
- Set supplied with case.



**8PC SET,
9/16~1" x16ths
5000-0010**



INDIVIDUALS

Item#	Size
5000-0050	17/32"
5000-0052	9/16"
5000-0056	5/8"
5000-0060	11/16"
5000-0064	3/4"
5000-0068	13/16"
5000-0072	7/8"
5000-0076	15/16"
5000-0078*	31/32"
5000-0080	1"
5000-0088	1-1/8"
5000-0094	1-1/4"
5000-0097	1-3/8"
5000-0099	1-1/2"

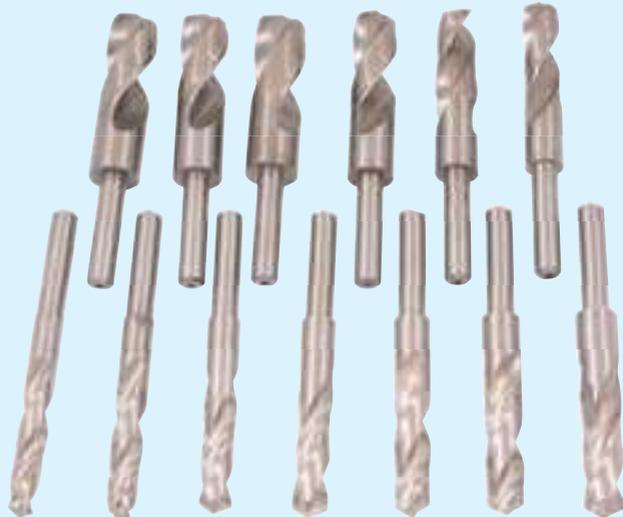
* Limited Supply

13PC M35 COBALT SILVER & DEMMING DRILL SET 118° DRILL POINT • 1/2" STRAIGHT SHANK

- M35 (5%) cobalt used for drilling in tough high tensile strength materials like stainless steel, titanium and inconel.
- 6" overall length.
- Supplied with case.

13 PC SET INCLUDES:
17/32, 9/16, 19/32, 5/8, 21/32,
11/16, 23/32, 3/4, 13/16, 7/8,
15/16, 31/32 & 1"

**13 PC SET
5000-0012**



METRIC SILVER & DEMMING DRILLS 118° DRILL POINT • 1/2" STRAIGHT SHANK

NEW

- High Speed Steel.
- 6" overall length.
- Black oxide.



Item#	Size
5000-0140	14mm
5000-0145	14.5mm
5000-0150	15mm
5000-0155	15.5mm
5000-0160	16mm
5000-0165	16.5mm
5000-0170	17mm
5000-0175	17.5mm
5000-0180	18mm
5000-0185	18.5mm
5000-0190	19mm
5000-0195	19.5mm
5000-0200	20mm
5000-0205	20.5mm
5000-0210	21mm
5000-0220	22mm
5000-0230	23mm

HSS TAPER SHANK DRILLS 118° SPLIT POINT

- Designed for drilling in many different materials and a wide range of applications. These drills feature a surface treatment to improve chip flow and a taper shank made to American National Standard (Morse) dimensions. Black oxide finish for increased wear resistance and improved lubricity, reducing chip welding and galling.



Item#	Dia. d1	Flute Length l2	Shank Taper	OAL l1
5302-1020	5/16	3-1/8	1MT	6-3/8
5302-2024	3/8	3-1/2	2MT	7-3/8
5302-2028	7/16	3-7/8	2MT	7-3/4
5302-2036	9/16	4-7/8	2MT	8-3/4
5302-2040	5/8	4-7/8	2MT	8-3/4
5302-2044	11/16	5-3/8	2MT	9-1/4
5302-2048	3/4	5-7/8	2MT	9-3/4
5302-2052	13/16	6-1/8	2MT	10
5302-3044	11/16	5-3/8	3MT	10
5302-3052	13/16	6-1/8	3MT	10-3/4
5302-3056	7/8	6-1/8	3MT	10-3/4
5302-3060	15/16	6-1/8	3MT	10-3/4
5302-3100	1	6-3/8	3MT	11
5302-3104	1-1/16	6-5/8	3MT	11-1/4
5302-3108	1-1/8	7-1/8	3MT	11-3/4
5302-3116	1-1/4	7-7/8	3MT	12-1/2
5302-4112	1-3/16	7-3/8	4MT	13
5302-4116	1-1/4	7-7/8	4MT	13-1/2
5302-4120	1-5/16	8-5/8	4MT	14-1/2
5302-4124	1-3/8	8-7/8	4MT	14-1/2
5302-4132	1-1/2	9-3/8	4MT	15
5302-4136	1-9/16	9-5/8	4MT	15-1/4
5302-4140	1-5/8	10	4MT	15-5/8
5302-4148	1-3/4	10-3/8	4MT	16-1/4
5302-4200	2	10-5/8	4MT	16-5/8

HSS & M35 COBALT ANNULAR CUTTERS, 3/4" SHANK

- HSS Production grade.
- Pilot holes.
- For general purpose hole making.
- Made of **high speed steel**, heat treated and tempered for maximum strength.
- Hardened and ground.
- **M35 Cobalt (5%)** is designed to cut difficult and abrasive materials, ranging from medium to high hardness, such as castings and forgings. They have high heat and abrasion resistant properties and are best used when making heavy cuts, at high speeds and feeds, or where high heat is a factor.
- Pilot holes.
- Produces a slug of material.



3/4" SHANK

* Limited Supply

Size	HSS (High Speed Steel)		M35 (5% Cobalt)	
	1" Depth of Cut Item#	2" Depth of Cut Item#	1" Depth of Cut Item#	2" Depth of Cut Item#
7/16"	5020-0437	5021-0437	-----	-----
1/2	5020-0500	5021-0500	5022-0500	5023-0500
9/16	5020-0562	5021-0562	5022-0562	-----
5/8	5020-0625	5021-0625	5022-0625	5023-0625
11/16	5020-0687	5021-0687	5022-0687	-----
3/4	5020-0750	5021-0750	5022-0750	5023-0750
13/16	5020-0812	5021-0812	5022-0812	-----
7/8	5020-0875	5021-0875	5022-0875	5023-0875
15/16	5020-0937	5021-0937	5022-0937	-----
1	5020-1000	5021-1000	5022-1000	5023-1000
1-1/16	5020-1062	5021-1062	5022-1062	5023-1062*
1-1/8	5020-1125	5021-1125	5022-1125	5023-1125
1-3/16	5020-1187	5021-1187	5022-1187	-----
1-1/4	5020-1250	5021-1250	5022-1250	5023-1250
1-5/16	5020-1312	5021-1312	5022-1312*	-----
1-3/8	5020-1375	5021-1375	5022-1375	5023-1375
1-7/16	5020-1437	5021-1437	-----	-----
1-1/2	5020-1500	5021-1500	5022-1500	5023-1500
1-9/16	5020-1562	5021-1562	5022-1562*	-----
1-5/8	5020-1625	5021-1625	5022-1625	5023-1625
1-11/16	5020-1687	5021-1687	5022-1687	-----
1-3/4	5020-1750	5021-1750	5022-1750	5023-1750
1-13/16	5020-1812	5021-1812	5022-1812	-----
1-7/8	5020-1875	5021-1875	5022-1875*	-----
1-15/16	-----	5021-1937	5022-1937	-----
2	5020-2000	5021-2000	5022-2000	-----

9PC 1/2 INCH CUTTING DEPTH HSS ANNULAR CUTTER SET

- Material Application: Hardened Steel; Mild Steel; Stainless Steel
- Bright Finish, High Speed Steel
- Thread Mount Shank
- 1/2 Inch Cutting Depth
- 7/8 to 1-1/2 Inch Cutter Diameter
- 1/2-20 Thread Hole.

9PC SET
5020-5001

Set Includes:

- 6 - Annular Cutters 7/8, 1, 1-1/8, 1-1/4, 1-3/8 & 1-1/2"
- 1 - Arbor Assembly
- 1 - Center Punch
- 1 - Pilot
- Fitted Case



PIN FOR ANNULAR CUTTER



- Fits annular cutters.
- Hardened and ground.

For 1" Depth Cutter
5020-0003

6.34/5.30 x 77mm

For 2" Depth Cutter
5020-0006

6.34/5.30 x 102mm

OPTICAL PUNCH SET & 4PC CENTER DRILL SET COMBO KIT

NEW

- This optical punch set is indispensable when doing critical layout work. Just look down the magnifying lens and align the cross hairs with the mark on your workpiece. Replace the magnifier with the supplied punch and give it a tap.
- Punch set includes 3 components: a bulls eye and cross hair lens, a 120 degree made of tempered steel, precisely manufactured of aluminum main body and fitted case.
- 4pc HSS combined drill & countersink set: #1-#4
- Made of high speed steel and ground.
- Plain style.
- Used for centering work ends. Where the workpiece is to be revolved on machine centers, 80° countersink angle fits all standard centers.



Lens Magnifier Power: 9x
Punch Size: 3/8"
Pin Length: 1.85"

Combo Kit
8600-4122

Size	Body Dia.	(Inch) Drill Dia.	OAL
1	1/8	3/64	1-1/4
2	3/16	5/64	1-7/8
3	1/4	7/64	2
4	5/16	1/8	2-1/8

CUTTING & CARBIDE TOOLS

COMBINED DRILLS & COUNTERSINKS

HSS COMBINED DRILLS & COUNTERSINKS

- Made of high speed steel and ground.
- Plain style.
- Used for centering work ends, where the workpiece is to be revolved on machine centers, 60° countersink angle fits all standard centers.

GROUND FROM SOLID



Item#	Size	Body Dia.	(Inch) Drill Dia.	OAL
5000-2020	000	1/8	.020	1-1/4
5000-2025	00	1/8	.025	1-1/4
5000-2031	0	1/8	1/32	1-1/4
5000-2047	1	1/8	3/64	1-1/4
5000-2078	2	3/16	5/64	1-7/8
5000-2109	3	1/4	7/64	2
5000-2125	4	5/16	1/8	2-1/8
5000-2187	5	7/16	3/16	2-3/4
5000-2218	6	1/2	7/32	3

Pro-Series 8PC HSS CENTER DRILL SET

- Made of high speed steel and precision ground to accuracy.
- Plain style.
- Used for centering work ends, where the workpiece is to be revolved on machine centers, 60° countersink angle fits all standard centers.



Dimensions

Size	Body Dia.	(Inch) Drill Dia.	OAL
1	1/8	3/64	1-1/4
2	3/16	5/64	1-7/8
3	1/4	7/64	2
4	5/16	1/8	2-1/8
5	7/16	3/16	2-3/4
6	1/2	7/32	3
7	5/8	1/4	3-1/4
8	3/4	5/16	3-1/4

**#1~#8
5000-3003**

HSS COMBINED DRILL & COUNTERSINK SETS

- Made of high speed steel and ground.
- Plain style.
- Used for centering work ends, where the workpiece is to be revolved on machine centers, 60° countersink angle fits all standard centers.

**4PC SET
SIZE: #1~ #4
5000-0019**

GROUND FROM SOLID



Dimensions

Size	Body Dia.	(Inch) Drill Dia.	OAL
1	1/8	3/64	1-1/4
2	3/16	5/64	1-7/8
3	1/4	7/64	2
4	5/16	1/8	2-1/8
5	7/16	3/16	2-3/4

**5PC SET
SIZE: #1~ #5
5000-0020**

M42 8% COBALT CENTER DRILLS

- **COBALT** used for drilling in tough high tensile strength materials like stainless steel, titanium and inconel
- Plain style.
- Used for centering work ends, where the workpiece is to be revolved on machine centers, 60° countersink angle fits all standard centers.



GROUND FROM SOLID

Item#	Size	Body Dia.	(Inch) Drill Dia.	OAL
5000-3020	000	1/8	.020	1-1/4
5000-3025	00	1/8	.025	1-1/4
5000-3031	0	1/8	1/32	1-1/4
5000-3047	1	1/8	3/64	1-1/4
5000-3078	2	3/16	5/64	1-7/8
5000-3109	3	1/4	7/64	2
5000-3125	4	5/16	1/8	2-1/8
5000-3187	5	7/16	3/16	2-3/4
5000-3218	6	1/2	7/32	3

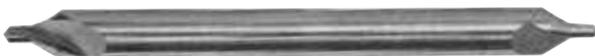
COBALT

M42 Cobalt (8%) is designed to cut difficult and abrasive materials, ranging from medium to high hardness. Roughing end mills are made of cobalt to withstand elevated temperatures and assure high-edge hardness during rapid stock removal. Choose cobalt end mills on hardwork materials or when there is a problem with wear or short tool life.

HSS LONG SERIES CENTER DRILLS

- Made of high speed steel and ground.
- Combined drills and countersinks (60°).

GROUND FROM SOLID



Item#	Size	OAL	(Inch) Body Dia.	Drill Dia.
5000-0025	1	4	1/8	3/64
5000-0027	1	6	1/8	3/64
5000-0029	2	4	3/16	5/64
5000-0031	2	6	3/16	5/64
5000-0032	3	4	1/4	7/64
5000-0034	3	6	1/4	7/64
5000-0035	4	4	5/16	1/8
5000-0036	4	5	5/16	1/8
5000-0038	5	4	7/16	3/16
5000-0040	5	6	7/16	3/16
5000-0041	6	4	1/2	7/32
5000-0043	6	6	1/2	7/32

5PC M42 8% COBALT 60° CENTER DRILL SET

- **COBALT** used for drilling in tough high tensile strength materials like stainless steel, titanium and inconel
- Plain style.
- Used for producing center holes on parts that require matching between centers right hand cut.
- Creates 60° countersink.
- Double end provides two cutting ends.
- Right hand cut.

**5PC SET
SIZE: #1~ #5
5000-3011**

GROUND FROM SOLID



Dimensions

Size	Body Dia.	(Inch) Drill Dia.	OAL
1	1/8	3/64	1-1/4
2	3/16	5/64	1-7/8
3	1/4	7/64	2
4	5/16	1/8	2-1/8
5	7/16	3/16	2-3/4

SINGLE FLUTE COUNTERSINKS & SETS

- For portable and machine work when operated at comparatively high speeds
- Single flutes will countersink holes much smaller than multi-flute tools



5 PC. SETS: 1/4, 3/8, 1/2, 3/4 & 1"

Degree	Item#
60°	2000-0030
82°	2000-0031
90°	2000-0032

HIGH SPEED STEEL

INDIVIDUAL(Inch), 82°

Diameter Body	End	Dia. of Shank	OAL Approx.	82°, HSS Item#
1/4	1/32	1/4	2	2001-0250
3/8	1/32	1/4	2	2001-0375
1/2	1/32	1/4	2	2001-0500
5/8	1/32	3/8	2-1/4	2001-0625
3/4	1/8	1/2	2-3/4	2001-0750
1	1/8	1/2	2-3/4	2001-1000

HSS 82° 3-FLUTE COUNTERSINKS & SET

- Utilized in countersinking screw and rivet heads and for centering lathe work.
- 3-Flute eliminates chatter in most applications, while providing better accuracy than a single flute countersink.
- Set complete with wooden case.



HIGH SPEED STEEL

INDIVIDUALS

Diameter(Inch) Cutter	Shank	OAL Approx.	82° Item#
1/4	3/16	1-1/2	2001-1250
3/8	1/4	1-3/4	2001-1375
1/2	3/8	2	2001-1500
5/8	3/8	2-1/4	2001-1625
3/4	1/2	2-5/8	2001-1750
1	1/2	2-3/4	2001-2000

5 PC SET
1/4, 3/8, 1/2, 3/4 & 1"
2001-2005

5PC ZERO-FLUTE COUNTERSINK & DEBURRING TOOL SETS

- Cam relieved for totally chatter free cuts
- Through hole design that is easy to re-sharpen using a small grinding wheel in cross-hole
- Excels in aluminum, plastics and other nonmetallics

82°, 5 PC SET
2001-0006



HIGH SPEED STEEL

5 PC INCLUDES

Size	Dia. Cut Range	Shank Diameter
0 double end	1/16-15/64"	1/4"
1 single end	5/32-13/32"	1/4"
2 single end	3/16-17/32"	1/4"
3 single end	5/16-25/32"	1/2"
4 single end	9/16-1-3/32"	1/2"

Item#	Degree
2001-0006	82°
2001-0007	90°

82° 6 FLUTE CHATTERLESS COUNTERSINKS & SET For Producing Machined Countersinks In Holes

- Right Hand.
- High speed steel.
- 6 fluted cutters with relatively short length for maximum rigidity.

8 PC SET
1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 7/8 & 1"
2001-3001



INDIVIDUALS

Item#	Size	(Inch) Shank Dia.	Overall Length
2001-3187	3/16	3/16	1-1/2
2001-3250	1/4	1/4	1-1/2
2001-3312	5/16	1/4	1-3/4
2001-3375	3/8	1/4	1-3/4
2001-3500	1/2	1/4	2-1/8
2001-3625	5/8	1/2	2-3/8
2001-3750	3/4	1/2	2-11/16
2001-3875	7/8	1/2	2-13/16
2001-4000	1	1/2	2-13/16
2001-4250	1-1/4	3/4	3-3/8
2001-4500	1-1/2	3/4	3-1/2
2001-4750	1-3/4	1	4-1/4
2001-4999*	2	1	4-3/8

* Limited Supply

3 FLUTE METRIC SOLID PILOT COUNTERBORES - STRAIGHT SHANK

- Continuous pilot counterbores cut rapidly, smoothly and accurately, producing long spiraling chips rather than small metal particles.
- The pilot extends the full length of the flute portion of the tool.
- As cutter flutes are ground back due to wear, a new section of pilot becomes exposed.
- The pilot head may be cut off to any desired length when repeated sharpening make it too long for practical use.
- Continuous pilot counterbores have a life many times that of the conventional type counterbore.

HIGH SPEED STEEL



Cap Screw	Cutter Dia.	(mm) Pilot Dia.	Shank Dia.	OAL	Item#
M3	6.0	3.4	5.0	71	2007-0051
M3.5	6.5	3.7	5.0	71	2007-0053
M4	8.0	4.5	5.0	71	2007-0055
M5	10.0	5.5	8.0	80	2007-0057
M6	11.0	6.6	8.0	80	2007-0060
M8	15.0	9.0	12.5	100	2007-0062
M10	18.0	11.0	12.5	100	2007-0064
M12	20.0	13.5	12.5	100	2007-0066
M14	24.0	16.0	12.5	100	2007-0068

COUNTERBORES & SETS

40PC HSS COUNTERBORE SET Straight Shank • Interchangeable Pilot

- High speed steel.
- 3 Flutes.
- Straight shank



SET INCLUDES:

26 Pilots

- 3/32" Shank: 1/8, 5/32, 3/16 & 1/4"
- 5/32" Shank: 3/16, 7/32, 1/4, 9/32 & 5/16"
- 3/16" Shank: 1/4, 5/16, 3/8, 7/16 & 1/2"
- 1/4" Shank: 5/16, 3/8, 7/16, 1/2, 9/16 & 5/8"
- 5/16" Shank: 3/8, 7/16, 1/2, 9/16, 5/8 & 3/4"

13 Counterbores

- 1/4" thru 1" by 16ths.
- Supplied in fitted case.

**40 PC SET
2007-0041**

21PC INTERCHANGEABLE PILOT COUNTERBORE SET High Speed Steel • Straight Shank

SET INCLUDES:

14 Pilots (5/32" Shank):

- 0.187, 0.204, 0.213, 0.229, 1/4, 17/64, 9/32, 5/16, 21/64, 11/32, 3/8, 25/64, 13/32 & 7/16"

6 Counterbores (7/16" shank):

- 5/16, 3/8, 7/16, 1/2, 9/16 & 5/8"

1 Holder:

3/8" Straight Shank

1 Wood Case

- High speed steel.
- Straight shank
- 3 Flute.



**21 PC SET
2007-0023**

2 FLUTE SOLID CAP SCREW COUNTERBORES



- High speed steel.
- Straight shank

FOR SOCKET HEAD CAP SCREWS

(Inch) Size	Pilot Size	Cutting Dia.	Shank Dia.	OAL	Item#
1/4	1/4	13/32	3/8	3-5/8	2007-0105
5/16	5/16	15/32	7/16	4	2007-0106
3/8	3/8	19/32	1/2	4-3/8	2007-0107
7/16	7/16	21/32	1/2	4-3/4	2007-0108
1/2	1/2	25/32	3/4	5-1/8	2007-0109

2MT SHANK - For 21PC Counterbore Set

- Morse taper #2 shank.
- Overall length: 135mm.
- Hole Diameter: 14mm.

2007-0022



For use with our 21pc counterbore set, accepts 14mm shank counterbores.

3-FLUTE SOLID PILOT COUNTERBORES & SETS FOR SOCKET HEAD CAP SCREWS

- 3-Flute, straight shank
- Continuous pilot counterbores cut rapidly, smoothly and accurately, producing long spiraling chips rather than small metal particles
- The pilot extends the full length of the flute portion of the tool
- As cutter flutes are ground back due to wear, a new section of pilot becomes exposed
- The pilot head may be cut off to any desired length when repeated sharpening make it too long for practical use
- Continuous pilot counterbores have a life many times that of the conventional type counterbore.
- Set supplied with fitted wooden case.



HIGH SPEED STEEL



**6 PC SET (1/4~3/4")
2007-0003**

1/4, 5/16, 3/8, 1/2, 5/8, 3/4"



**7 PC SET (#6~1/2")
2007-0002**

#6, 8, 10, 1/4, 5/16, 3/8, 1/2"

INDIVIDUALS

Cap Screw	Cutter Dia.	(Inch) Pilot Dia.	Shank Dia.	OAL	Item#
#6	.242	.150	7/32	3	2007-0006
#8	19/64	11/64	1/4	3	2007-0008
#10	21/64	13/64	5/16	3-1/2	2007-0010
1/4	13/32	9/32	3/8	3	2007-0016
5/16	1/2	11/32	7/16	5	2007-0020
3/8	19/32	13/32	1/2	6	2007-0024
1/2	25/32	17/32	3/4	7-1/2	2007-0032
5/8	31/32	21/32	3/4	7-1/2	2007-0033
3/4	1-3/16	13/16	1	8	2007-0034

STRAIGHT SHANK HSS CHUCKING REAMERS

- ANSI standard.
- Suitable for production reaming of most materials.
- Used in general purpose though-hole applications.

Item#	Size	Flute Length	OAL
2006-3004	1/16	3/8	1-1/2
2006-3008	1/8	7/8	3-1/2
2006-3009	9/64	1	4
2006-3010	5/32	1	4
2006-3012	3/16	1-1/8	4-1/2
2006-3014	7/32	1-1/4	5
2006-3015	15/64	1-1/2	6
2006-3016	1/4	1-1/2	6
2006-3020	5/16	1-1/2	6
2006-3023	23/64	1-3/4	7
2006-3024	3/8	1-3/4	7
2006-3027	27/64	1-3/4	7
2006-3028	7/16	1-3/4	7
2006-3031	31/64	2	8
2006-3032	1/2	2	8
2006-3036	9/16	2	8
2006-3040	5/8	2-1/4	9
2006-3044	11/16	2-1/4	9
2006-3048	3/4	2-1/2	9-1/2
2006-3056	7/8	2-5/8	10
2006-3100	1	2-3/4	10-1/2

- Used for reaming holes without interrupted cuts.
- High speed steel
- Straight flute.
- 45 degree lead chamfer allows gradual starting load.
- Designed for use in drill presses, turret lathes, and screw machines.



Over-Under Reamers

Item #	Size	Flute Length	OAL
2006-3510	.1240	7/8	3-1/2
2006-3520	.1260	7/8	3-1/2
2006-3530	.1865	1-1/8	4-1/2
2006-3540	.1885	1-1/8	4-1/2
2006-3550	.2490	1-1/2	6
2006-3560	.2510	1-1/2	6
2006-3590	.3740	1-3/4	7
2006-3600	.3760	1-3/4	7
2006-3630	.4990	2	8
2006-3640	.5010	2	8

HSS CHUCKING REAMER SETS

- HIGH SPEED STEEL • STRAIGHT SHANK • STRAIGHT FLUTES

- Used in general purpose though-hole applications.
- Used for reaming holes without interrupted cuts.
- High speed steel.
- Straight shank.
- Straight flutes.

14 PC SET INCLUDES:

.1240, .1260, .1865, .1885, .2490, .2510, .3115, .3135, .3740, .3760, .4365, .4385, .4995 & .5010"



14 PC SET
2006-0001
.1240 ~ .5010"

29 PC SET
2006-0011
1/16 ~ 1/2" x 64ths

HSS SPIRAL FLUTE TAPER PIPE REAMERS

- Right hand cut tapered 3/4" per foot.
- Designed for reaming holes to be tapped with American Standard Taper Pipe Taps (NPT).



HIGH SPEED STEEL • SPIRAL FLUTE

Item#	Size	Large End Dia.	(Inch) Small End Dia.	Flute Length	Overall Length
2006-2014	1/16	.291	.245	3/4	2
2006-2018	1/8	.362	.316	3/4	2-1/8
2006-2026	1/4	.472	.406	1-1/16	2-7/16
2006-2034	3/8	.606	.540	1-1/16	2-9/16
2006-2042	1/2	.751	.665	1-3/8	3-1/8
2006-2058	3/4	.962	.876	1-3/8	3-1/4
2006-2074	1	1.212	1.103	1-3/4	3-3/4

SELF STARTING STEP DRILLS & SETS

- Made of **high speed steel**, heat treated and tempered for maximum strength.
- Requires no center punch to start drilling.
- Automatically deburrs drilled hole.



3 PC SET
5000-0889
INCLUDES: 1/8-1/2x1/32", 3/16-1/2x1/16", 1/4-3/4x1/16"

3 PC SET, TiN Coated
5000-0890
INCLUDES: 1/8-1/2x1/32", 3/16-1/2x1/16", 1/4-3/4x1/16"

5000-0890 Shown

INDIVIDUALS

Hole Range	Step	Step Depth	Shank	Uncoated Item#	TiN Coated Item#
1/8~1/2x1/32"	13	1/8"	1/4"	5000-0013	5000-0500
3/16~1/2x1/16"	6	3/8"	1/4"	5000-0014	5000-0501
1/4~3/4x1/16"	9	1/8"	3/8"	5000-0015	5000-0750
3/16~7/8x1/16"	12	1/8"	3/8"	5000-0016	5000-0875
1/4~1-3/8x1/8"	10	1/8"	1/2"	5000-0017	5000-0876

REAMERS & SETS

VALUE HSS ADJUSTABLE BLADE REAMERS & SETS

- Adjustable blade lets you handle multiple hole sizes with a single tool and multiple tools in each set let you handle even more hole sizes, making these sets virtually indispensable. Reamers are hardened, precision-ground high speed steel with a black oxide finish and include a wooden storage box.
- Ends are center drilled so blades can be sharpened in place.
- Blades are adjusted by loosening one nut and tightening the other.
- Each reamer expands to the next size.
- Adjustable blades give the operator the ability to handle multiple hole sizes with a single tool, making them a good choice for users with low volume reaming needs.
- Square end allows the user to turn the reamer by hand with an adjustable wrench or straight handle tap wrench.

HIGH SPEED STEEL



2006-9120 Shown



2006-9123 Shown



2006-9125 Shown

SETS

Range	No. of Pieces	Capacity Range	Item#
#4/A - 2/A	3	3/8~15/32"	2006-9120
#8/A - 2/A	7	1/4~15/32"	2006-9123
A - F	6	15/32~27/32	2006-9125

STRAIGHT FLUTE REAMERS SHOULD BE USED IN THRU-HOLE APPLICATIONS ONLY



INDIVIDUALS

Item#	Size	Range	OAL
2006-9170	#8/A	1/4 to 9/32	3-1/4
2006-9172	#7/A	9/32 to 5/16	3-1/2
2006-9173	#6/A	5/16 to 11/32	4-1/8
2006-9174	#5/A	11/32 to 3/8	4-3/8
2006-9175	#4/A	3/8 to 13/32	4-3/4
2006-9176	#3/A	13/32 to 7/16	5
2006-9177	#2/A	7/16 to 15/32	5-1/4
2006-9178	A	15/32 to 17/32	5-1/2
2006-9179	B	17/32 to 19/32	5-3/4
2006-9180	C	19/32 to 21/32	6-1/2
2006-9181	D	21/32 to 23/32	6-3/4
2006-9182	E	23/32 to 25/32	7
2006-9183	F	25/32 to 27/32	7-3/8
2006-9184	G	27/32 to 15/16	8
2006-9185	H	15/16 to 1-1/16	9
2006-9186	I	1-1/16 to 1-3/16	10
2006-9187	J	1-3/16 to 1-11/32	11
2006-9188	K	1-11/32 to 1-1/2	12
2006-9189	L	1-1/2 to 1-13/16	14
2006-9190	M	1-13/16 to 2-7/32	16

HIP HSS ADJUSTABLE BLADE REAMERS & SETS

- Adjustable blade lets you handle multiple hole sizes with a single tool and multiple tools in each set let you handle even more hole sizes, making these sets virtually indispensable. Reamers are hardened, precision-ground high speed steel with a black oxide finish and include a wooden storage box.
- Ends are center drilled so blades can be sharpened in place.
- Blades are adjusted by loosening one nut and tightening the other.
- Each reamer expands to the next size.
- Adjustable blades give the operator the ability to handle multiple hole sizes with a single tool, making them a good choice for users with low volume reaming needs.
- Square end allows the user to turn the reamer by hand with an adjustable wrench or straight handle tap wrench.

HIGH SPEED STEEL



2006-0024 Shown

2006-0026 Shown

2006-0028 Shown

Size	Set	Capacity Range	Item#
#8/A - 5/A	4	1/4~3/8"	2006-0024
A-H(15/32~1-1/16")	8	15/32~1-1/16"	2006-0026
A-K(15/32~1-1/2")	11	15/32~1-1/2"	2006-0028

STRAIGHT FLUTE REAMERS SHOULD BE USED IN THRU-HOLE APPLICATIONS ONLY



INDIVIDUALS

Item#	Size	Range	OAL
2006-0070	#8/A	1/4 to 9/32	3-1/4
2006-0072	#7/A	9/32 to 5/16	3-1/2
2006-0073	#6/A	5/16 to 11/32	4-1/8
2006-0074	#5/A	11/32 to 3/8	4-3/8
2006-0075	#4/A	3/8 to 13/32	4-3/4
2006-0076	#3/A	13/32 to 7/16	5
2006-0077	#2/A	7/16 to 15/32	5-1/4
2006-0078	A	15/32 to 17/32	5-1/2
2006-0079	B	17/32 to 19/32	5-3/4
2006-0080	C	19/32 to 21/32	6-1/2
2006-0081	D	21/32 to 23/32	6-3/4
2006-0082	E	23/32 to 25/32	7
2006-0083	F	25/32 to 27/32	7-3/8
2006-0084	G	27/32 to 15/16	8
2006-0085	H	15/16 to 1-1/16	9
2006-0086	I	1-1/16 to 1-3/16	10
2006-0087	J	1-3/16 to 1-11/32	11
2006-0088	K	1-11/32 to 1-1/2	12
2006-0089	L	1-1/2 to 1-13/16	14
2006-0090	M	1-13/16 to 2-7/32	16

REPAIRMAN'S TAPER REAMER



RANGE(SMALL END~LARGE END): 1/8~5/8"

- Removes burrs from small holes, tubing, etc.
- Enlarges holes in soft metals, plastics and similar materials.
- Number of Flutes: 7
- Sliding T-Handle length: 3.5"
- Overall Length: 5"

2006-9001

SPIRAL POINT TAPS-Plug Type

**GROUND FROM SOLID
FOR THROUGH HOLES**



GROUND THREAD, HIGH SPEED STEEL

Item#	Size	H Limit/Flute	Item#	Size	H Limit/Flute	Item#	Size	H Limit/Flute
1011-6004	0~80NF	H-2/2	1011-6044	8~32NC	H-3/2	1011-6122	1/2"~13NC	H-3/3
1011-6006	1~64NC	H-1/2	1011-6048	8~36NF	H-2/2	1011-6126	1/2"~20NF	H-3/3
1011-6012	1~72NF	H-2/2	1011-6050	10~24NC	H-2/2	1011-6130	9/16"~12NC	H-3/3
1011-6014	2~56NC	H-2/2	1011-6058	10~32NF	H-3/2	1011-6136	9/16"~18NF	H-3/3
1011-6016	2~64NF	H-2/2	1011-6062	12~24NC	H-3/2	1011-6138	5/8"~11NC	H-3/3
1011-6018	3~48NC	H-2/2	1011-6064*	12~28NF	H-3/2	1011-6142	5/8"~18NF	H-3/3
1011-6020	3~56NF	H-2/2	1011-6074	1/4"~20NC	H-3/3	1011-6146	11/16"~11NS	H-3/3
1011-6022	4~40NC	H-2/2	1011-6078	1/4"~28NF	H-3/3	1011-6148	11/16"~16NS	H-3/3
1011-6026	4~48NF	H-2/2	1011-6094	5/16"~18NC	H-3/3	1011-6150	3/4"~10NC	H-3/3
1011-6028	5~40NC	H-2/2	1011-6102	5/16"~24NF	H-3/3	1011-6154	3/4"~16NF	H-3/3
1011-6032	5~44NF	H-2/2	1011-6106	3/8"~16NC	H-3/3	1011-6160	7/8"~9NC	H-4/4
1011-6036	6~32NC	H-3/2	1011-6112	3/8"~24NF	H-3/3	1011-6164	7/8"~14NF	H-4/4
1011-6040	6~40NF	H-2/2	1011-6114	7/16"~14NC	H-3/3	1011-6168	1"~8NC	H-4/4
1011-6042	8~32NC	H-2/2	1011-6120	7/16"~20NF	H-3/3	1011-6170	1"~12NF	H-4/4

* Limited Supply

SPIRAL FLUTE TAPS - Bottom Type

GROUND THREAD, HIGH SPEED STEEL



**FOR BLIND HOLES
GROUND FROM SOLID**

Item#	Size	H Limit/Flute
1011-8505	4-40NC	H-2/2
1011-8513	6-32NC	H-3/2
1011-8517	8-24NC	H-3/2
1011-8518	8-32NC	H-3/2
1011-8609	10-24NC	H-3/2
1011-8610	10-32NF	H-3/2
1011-8613	1/4"-20NC	H-3/3
1011-8614	1/4"-28NF	H-3/3
1011-8615	5/16"-18NC	H-3/3
1011-8616	5/16"-24NF	H-3/3
1011-8617	3/8"-16NC	H-3/3
1011-8618	3/8"-24NF	H-3/3
1011-8621	1/2"-13NC	H-3/3
1011-8622	1/2"-20NF	H-3/3
1011-8626	5/8"-11NC	H-3/3
1011-8627*	5/8"-18NF	H-3/3
1011-8628	3/4"-10NC	H-3/3
1011-8629	3/4"-16NF	H-3/3

* Limited Supply

METRIC SPIRAL POINT TIN COATED TAPS-Plug

GROUND FROM SOLID

- Spiral point.
- Metric DIN 371.
- High speed steel.
- Titanium coated.
- Thread ground.



FOR THROUGH HOLES

Item#	Size	Limit
1011-7700	M2-0.4	D3
1011-7699	M2.5-0.45	D3
1011-7701	M3-0.5	D3
1011-7702	M4-0.7	D4
1011-7703	M5-0.8	D4
1011-7704	M6-1.0	D5
1011-7705	M8-1.25	D5
1011-7706	M10-1.25	D5
1011-7707	M10-1.50	D6
1011-7708	M12-1.75	D6

METRIC 35° SPIRAL FLUTE TIN COATED TAPS-Bottom

GROUND FROM SOLID

- 35° Spiral flute.
- Metric DIN 371.
- High speed steel.
- Titanium coated.
- Thread ground.



FOR BLIND HOLES

Item#	Size	Limit
1011-7752	M2-0.4	D3
1011-7750	M2.5-0.45	D3
1011-7753	M3-0.5	D3
1011-7754	M4-0.7	D4
1011-7755	M5-0.8	D4
1011-7756	M6-1.0	D5
1011-7758	M8-1.25	D5
1011-7759	M10-1.25	D5
1011-7760	M10-1.50	D6
1011-7762	M12-1.75	D6

STANDARD HAND TAPS

**HIGH SPEED STEEL
GROUND THREAD
GROUND FROM THREAD**



Limited Supply

TAPER: 7-10 THREAD CHAMFER
PLUG: 3-5 THREAD CHAMFER
BOTTOM: 1-2 THREAD CHAMFER

Size	No. of Flutes	Thread Limit	Taper Item#	Bottom Item#	Plug Item#
4-40NC	3	H2	1012-0440	1014-0440	-----
6-32NC	3	H3	-----	-----	1013-0632
8-32NC	3	H3	1012-0832	1014-0832	1013-0832
10-24NC	4	H3	-----	1014-1024	1013-1024
10-32NF	4	H3	1012-1032	1014-1032	1013-1032
1/4-20NC	4	H3	1012-2520	-----	1013-2520
1/4-28NF	4	H3	1012-2528	1014-2528	-----
5/16-18NC	4	H3	1012-3118	-----	-----
3/8-16NC	4	H3	1012-3716	1014-3716	-----
3/8-24NF	4	H3	-----	1014-3717	-----
7/16-20NF	4	H3	1012-4320	1014-4320	1013-4320
1/2-13NC	4	H3	1012-5013	1014-5013	1013-5013
1/2-20NF	4	H3	1012-5020	1014-5020	1013-5020

TAPER PIPE (NPT) TAPS

- Cuts internal threads in pipes.
- Ideal for pipe fitting
- Tapered at a rate of 3/4" per foot.



THREAD GROUND • HIGH SPEED STEEL

Size	No. of Flutes	Thread Length	Overall Length	HSS Item#	TiN Coated Item#
1/16~27	4	11/16	2-1/8	-----	1011-3305
1/8~27	4	3/4	2-1/8	1011-3211	1011-3310
1/4~18	4	1-1/16	2-1/8	1011-3215	1011-3315
3/8~18	4	1-1/16	2-7/16	1011-3220	1011-3320
1/2~14	4	1-3/8	2-9/16	1011-3225	1011-3325
3/4~14	5	1-3/8	3-1/8	1011-3230	1011-3330
1~11-1/2	5	1-3/4	3-1/4	1011-3235	1011-3335
1-1/4~11-1/2	5	1-3/4	3-1/4	1011-3240*	-----
1-1/2~11-1/2	7	1-3/4	4	1011-3245*	-----

* Limited Supply

TAPER PIPE (NPT) TAP SETS



- Cuts internal threads in pipes.
- Ideal for pipe fitting
- Tapered at a rate of 3/4" per foot.

THREAD GROUND • HIGH SPEED STEEL

3 PC SET
1011-3303
1-1/4~11-1/2, 1-1/2~11-1/2, 2~11-1/2

6 PC SET
1011-3306
1/4~18, 3/8~18, 1/2~14, 3/4~14, 1~11-1/2, 1-1/4~11-1/2

HEXAGON PIPE (NPT) DIES

- Ideal for cutting right-hand external pipe threads.
- Hex head shape die is designed for use in die stocks or adjustable wrenches.
- Each NPT tap & die is etched with the size for easy reference.
- Supplied with solid wooden case.
- Includes one of each of the following NPT tap & dies: 1/8~27, 1/4~18, 3/8~18, 1/2~14, 3/4~14 & 1~11-1/2

THREAD GROUND • HIGH SPEED STEEL

12 PC Set
Range 1/8 ~ 1"
1011-3312



HEXAGON PIPE (NPT) DIES

- Ideal for cutting right-hand external pipe threads.
- Hex head shape die is designed for use in die stocks or adjustable wrenches.
- Each NPT die is etched with the size for easy reference.

CARBON STEEL, RIGHT HAND

Size	Item#
1/8~27	1017-1800
1/4~18	1017-1802
3/8~18	1017-1804
1/2~14	1017-1806
3/4~14	1017-1808
1~11-1/2	1017-1810



6PC TAPER PIPE (NPT) TAP & DIE SET

- Right hand NPT pipe thread.
- For use in hand operations.
- Made of carbon steel.
- Tap Chamfer: 2-3 threads.
- Die Chamfer: 1.5 threads.
- Supplied with fitted case.

6 PC SET
1011-3313



6PC set includes one of each tap & die: 1/4~18, 3/8~18, 1/2~14

7PC HEXAGON RETHREADING DIE SET Metric

- Right hand.
- Supplied with fitted metal case.

7pc Includes:

M6x1.00, M8x1.25, M10x1.50, M12x1.75, M14x2.00, M16x2.00 & M20x2.50

CARBON STEEL

Range M6 ~ M20
1017-0007



HEX RETHREADING DIES

CARBON STEEL, RIGHT HAND



Size	Item#
1/4~20	1017-1717
1/4~28	1017-1718
5/16~18	1017-1719
5/16~24	1017-1720
3/8~16	1017-1721
3/8~24	1017-1722
7/16~14	1017-1723

Size	Item#
7/16~20	1017-1724
1/2~13	1017-1725
1/2~20	1017-1726
9/16~12	1017-1727
9/16~18	1017-1728
5/8~11	1017-1729
5/8~18	1017-1730
3/4~10	1017-1733
3/4~16	1017-1734
1~8	1017-1737
1~14	1017-1739

16PC HEXAGON RETHREADING DIE SET

- Right hand.
- Supplied with fitted metal case.

16pc Includes:

1/4~20, 1/4~28, 5/16~18, 5/16~24, 3/8~16, 3/8~24, 7/16~14, 7/16~20, 1/2~13, 1/2~20, 9/16~12, 9/16~18, 5/8~11, 5/8~18, 3/4~10 & 3/4~16.

CARBON STEEL

Range 1/4 ~ 3/4"
NC&NF
1017-0016



20PC HEXAGON RETHREADING DIE SET

- Right hand.
- Supplied with fitted metal case.

CARBON STEEL

20pc Includes:

1/4~20, 1/4~28, 5/16~18, 5/16~24, 3/8~16, 3/8~24, 7/16~14, 7/16~20, 1/2~13, 1/2~20, 9/16~12, 9/16~18, 5/8~11, 5/8~18, 3/4~10, 3/4~16, 7/8~9, 7/8~14, 1~8 & 1~14.

Range 1/4 ~ 1"
NC&NF
1017-0020



ADJUSTABLE HSS ROUND SPLIT DIES

HIGH SPEED STEEL, RIGHT HAND

- Adjustable with screw

13/16" O.D.

Size	Item#
4~40	1016-1014
5~40	1016-1018
6~32	1016-1022
6~40	1016-1024
8~32	1016-1026
8~36	1016-1027
10~24	1016-1030
10~32	1016-1032
1/4~20	1016-1040
1/4~28	1016-1042
5/16~18	1016-1044*
5/16~24	1016-1045*

1" O.D.

Size	Item#
6~32	1016-1122
6~40	1016-1124
8~32	1016-1126*
8~36	1016-1128*
10~24	1016-1130
10~32	1016-1132
1/4~20	1016-1140
1/4~28	1016-1142
5/16~18	1016-1144
5/16~24	1016-1146
3/8~16	1016-1148
3/8~24	1016-1150
7/16~14	1016-1152
7/16~20	1016-1154
1/2~13	1016-1156
1/2~20	1016-1158

1-1/2" O.D.

Size	Item#
1/4~20	1016-1240*
1/4~28	1016-1242*
5/16~18	1016-1244*
5/16~24	1016-1246*
3/8~16	1016-1248*
3/8~24	1016-1250*
7/16~14	1016-1252*
7/16~20	1016-1254*
1/2~13	1016-1258*
1/2~20	1016-1260*
9/16~12	1016-1262*
9/16~18	1016-1264*
5/8~11	1016-1266*
5/8~18	1016-1268*
3/4~10	1016-1270*
3/4~16	1016-1272*



* Limited Supply

2" O.D.

Size	Item#
3/8~16	1016-1348*
1/2~13	1016-1356*
5/8~11	1016-1364*
3/4~10	1016-1368*
7/8~9	1016-1372*
1~8	1016-1378*

TAP & DIE SETS

24PC TUNGSTEN STEEL TAP & DIE SET WITH RATCHETING WRENCH



- SAE, NC threads
- Ratcheting tap & die wrench
- 1" O.D. die adapter
- Locking tap adapter (for big taps)
- T-handle tap wrench (for small taps) fits in ratcheting wrench
- Fitted metal case.

24 PC SET
#6~1/2"
1011-0124

TUNGSTEN STEEL

Limited Supply!

Set	Range	Taps	Dies	Ratchet Wrench	T-handle Wrench	Tap Adapter	Die Adapter	Screw Driver
	#6 ~ 1/2"							
24pc	6-32, 8-32, 10-24, 12-24, 1/4-20, 5/16-18, 3/8-16, 7/16-14, 1/2-13	9	9	1	1	1	1	1

41PC TUNGSTEN STEEL TAP & DIE SETS

- Hexagon shape dies
- Packed in fitted durable & attractive plastic case with index marked.
- **Tungsten steel.**

TUNGSTEN STEEL



Range: #4-1/2" Size and Threads per inch	Screw Pitch	Taps	Dies	Die Stock	"T" Holder	Tap & Reamer Wrench	Screw Driver
NC 4~40, 6~32, 8~32, 10~24, 12~24, 1/4~20, 5/16~18, 3/8~16, 7/16~14, 1/2~13							
NF 10~32, 1/4~28, 5/16~24, 3/8~24, 7/16~20, 1/2~20	1	17	17	1	2	1	1
NPT 1/8"-27R							
Range: 3mm-12mm							
3 x 0.50 6 x 0.75 10 x 1.25							
3 x 0.60 6 x 1.00 10 x 1.50							
4 x 0.70 7 x 0.75 12 x 1.50	1	17	17	1	2	1	1
4 x 0.75 7 x 1.00 12 x 1.75							
5 x 0.80 8 x 1.00							
5 x 0.90 8 x 1.25 NPT-1/8"-27							

Range 3~12mm
1011-0005

Range #4~1/2"
1011-0004

45PC TUNGSTEN STEEL TAP & DIE SETS

- Ideal set for any situation.
- Packed in fitted durable & attractive plastic case with index marked.
- **Tungsten steel.**

TUNGSTEN STEEL

Range 1/4~1"
1011-0001

Range 6~24mm
1011-0002

TiN COATED
Range 1/4~1"
1011-0003



Range: 1/4" - 1" Size and Threads per inch	Taps	Dies	Die Stock	"T" Holder	Screw Driver
NC 1/4~20, 5/16~18, 3/8~16, 7/16~14, 1/2~13, 1~1/2" O.D. 9/16~12, 5/8~11, 3/4~10, 7/8~9, 1~8	20	20	2	2	1
NF 1/4~28, 5/16~24, 3/8~24, 7/16~20, 1/2~20					
2" O.D. 9/16~18, 5/8~18, 3/4~16, 7/8~14, 1~14					
Range: 6mm-24mm					
6 x 0.75 12 x 1.75 20 x 1.50					
6 x 1.00 14 x 1.50 20 x 2.50					
8 x 1.00 14 x 2.00 22 x 1.50					
8 x 1.25 16 x 1.50 22 x 2.50	20	20	2	2	1
10 x 1.25 16 x 2.00 24 x 1.50					
10 x 1.50 18 x 1.50 24 x 3.00					
12 x 1.50 18 x 2.50					

110PC CARBON STEEL TAP & DIE COMBO SET

- SAE, NC, NF, NS threads
- Metric, International, Special
- American National Pipe, NPT, NPS
- 1" O.D. die stock
- 1-1/2" O.D. die stock
- No. 4 adjustable tap wrench
- No. 6 adjustable tap wrench
- T-handle tap wrench
- **Material: Carbon Steel**

Range #4~3/4" & 6~18mm
1011-0111

CARBON STEEL

INCLUDES:

1 taper tap, 1 bottoming tap and die in each of the following sizes:
4-40, 6-32, 8-32, 10-24, 12-24, 10-32, 1/4-20, 1/4-24, 1/4-28, 1/4-40, 5/16-18, 5/16-24, 3/8-16, 3/8-24, 7/16-14, 7/16-20, 1/2-13, 1/2-20, 9/16-12, 9/16-18, 5/8-11, 5/8-18, 3/4-10, 3/4-16, 1/8-27NPT, 1/4-18NPT, M6x1.0, M8x1.25, M10x1.0, M10x1.5, M11x1.5, M12x1.25, M12x1.75, M14x1.25 & M18x1.5



22PC HSS Tap & Die Set -Inch

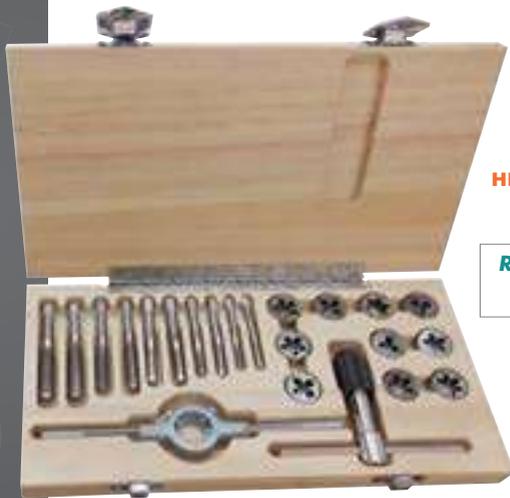
- Made of High Speed Steel.
- Wooden case included.

INCLUDES:

1/4-20, 1/4-28, 5/16-18, 5/16-24, 3/8-16, 3/8-24, 7/16-14, 7/16-20, 1/2-13, 1/2-20 Plug Tap and Die each, 1" OD Adjustable Die Stock, T-Handle Tap Wrench.

HIGH SPEED STEEL

Range 1/4 ~ 1/2"
1011-0007



44PC HSS Tap & Die Set -Metric

- Made of High Speed Steel.
- Wooden case included.

HIGH SPEED STEEL

INCLUDES:

20 Sizes Tap & Die Each: M2x0.4, M2.5x0.45, M3x0.50, M4x0.70, M5x0.80, M6x1.0, M7x1.0, M8x1.0, M8x1.25, M10x1.0, M10x1.25, M10x1.5, M12x1.0, M12x1.25, M12x1.50, M12x1.75, M14x1.5, M14x2.0, M16x2.0, M18x1.5, 1" & 1-1/2" OD (M14-M18) Adjustable Die Stock, 2 Tap Wrench.

Range M2 ~ M18
1011-0009



110PC HSS TAP & DIE COMBO SET

- SAE, NC, NF, NS threads
- Metric, International, Special
- American National Pipe, NPT, NPS
- 1" O.D. die stock
- 1-1/2" O.D. die stock
- No. 4 adjustable tap wrench
- No. 6 adjustable tap wrench
- T-handle tap wrench

Range #4~3/4" & 6~18mm
1011-0110

HIGH SPEED STEEL

INCLUDES:

1 taper tap, 1 bottoming tap and die in each of the following sizes:
4-40, 6-32, 8-32, 10-24, 12-24, 10-32, 1/4-20, 1/4-24, 1/4-28, 1/4-32, 5/16-18, 5/16-24, 3/8-16, 3/8-24, 7/16-14, 7/16-20, 1/2-13, 1/2-20, 9/16-12, 9/16-18, 5/8-11, 5/8-18, 3/4-10, 3/4-16, 1/8-27NPT, 1/4-18NPT, M6x1.0, M8x1.25, M10x1.0, M10x1.5, M11x1.5, M12x1.25, M12x1.75, M14x1.25 & M18x1.5



TAPPING ACCESSORIES

TAP GUIDE TOOL-SPRING CENTERED

- Spring centered tap guide tool to align tap for threading, lathe, mill or jig bore.
- Point hardened upto 50-55 HRC
- Shank Diameter: 1/2"
- For use with drill chucks to stroke the hardened point for accurate hand topped thread.

NEW



TIPS:

The center's body should be gripped in a drill chuck or collet, while the hardened point is inserted into the middle of the tapping handle. The stroke of the center will follow the tap, assuring straight and accurate hand tapped threads. One universal size for all tapping applications.

3906-0220

60PC HSS METRIC/INCH TAP & DIE SET

- NC, NF and NPT threads
- 1" O,D, dies
- Adjustable die stock
- Adjustable handle tap wrench
- T-handle tap wrench
- Screwdriver
- Two screw pitch gages

NEW



CARBON STEEL

**60PC SET
1011-0106**

INCLUDES:

27 tap & die sizes: 1/4-20NC, 5/16-18NC, 3/8-16NC, 7/16-14NC, 1/2-13NC, 4-40NC, 6-32NC, 8-32NC, 10-24NC, 12-24NC, 1/4-28NF, 5/16-24NF, 3/8-24NF, 7/16-20NF, 1/2-20NF, 10-32NF, 1/8-27NPT, 3mmx0.5, 4mmx0.7, 5mmx0.8, 6mmx1.0, 7mmx1.0, 8mmx1.25, 9mmx1.25, 10mmx1.5, 10mmx1.0, and 12mmx1.75.

COMPACT HAND TAPPER ON MAG BASE

- Compact and portable.
- Suitable for large workpieces like machine cases & thin plate tapping jobs.
- Max. stroke 2.36".
- Drill chuck enables the tap to be easily loaded and taken off.
- Powerful permanent magnet (175 lbs.) seat with On/Off switch.
- Mag. base dimensions: 2.36x2.36x2"

MADE IN TAIWAN

Tap & Round Iron Piece Not Included



**Tap Capacity
M3-M12
3900-0255**

RATCHET T-HANDLE TAP HOLDERS & SET



- Ratcheting type.
- This tap holder is made of tool steel, hardened and ground.
- Can be used for holding taps, reamers.

**3 PC SET
#0-1/2"
3900-0240**

Item#	Body Length	Capacity for Tap	
		Size	Square Shank
3900-0241	2-1/8"	1/16~3/16"	1/16~5/32"
3900-0245	2-5/8"	7/32~7/16"	5/32~1/4"
3900-0248	3-1/2"	1/4~1/2"	3/16~5/16"

TAP WRENCH EXTENTIONS

- High-quality precision tap extensions.
- Two-jaw chuck.



Item#	Tap Capacity	Length	Shank
3900-0218	#0 ~ 12	7"	3/8"
3900-0219	#12 ~ 1/2"	10-3/4"	1/2"

MACHINE TAPPING GUIDE

- Provide sensitive feel for hand tapping small holes on mills and drill presses
- Starts every hole straight and prevents tap breakage
- Shank dia. 3/8"
- Handle dia. 1"
- Tap capacity #0-12

3900-0220

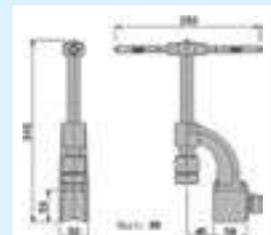


HAND TAPPER ON MAG BASE



- Compact and portable design, easy to operate.
- Guide bar helps the tap positioning precisely.
- Evenly force delivering during operation prevent tap from breaking.
- Quick chuck enables the tap to be easily loaded and took off.
- Powerful permanent magnet seat with On/Off switch.

**Tap Capacity 0~1/2"
3900-0254**



MADE IN TAIWAN

ADJUSTABLE TAP & REAMER WRENCHES & SET

- Knurled steel handles.
- Jaws surface hardened.
- Zinc die casting.



4 PC SET
#0, 1-1/2, 3, 4
3900-0236



Item#	Size	Range For Hand Taps	Range For Pipe Taps	OAL
3900-0209	#0	0~1/4"	None	5"
3900-0210	#1-1/2	1/16~1/2"	None	7"
3900-0232	#2	1/64~15/32"	1/8"	11"
3900-0211	#3	3/16~3/4"	1/8~3/8"	15"
3900-0235	#4	1/4~1-1/8"	1/8~3/4"	19"
3900-0237	#5	1/2~1-1/4"	1/4~1"	30"

4PC HEAVY DUTY ADJUSTABLE TAP & REAMER WRENCH SET



- Heavy duty tap wrenches.
- Rugged drop forged construction
- Hardened jaws for increased resistance to wear.

4 PC SET
1/4~3/4"
3906-0240

4PC Capacity Includes (range for hand taps):
1/16~1/4"(M2~M6), 1/16~3/8"(M2~M10)
5/32~1/2"(M6~M12) & 5/32~3/4"(M6~M22)

SELF-ALIGNING TAP & REAMER HOLDERS



- Base of guide has two 120° Vees, which accepts round parts.
- New 4 jaw design provides firm grip and 90° alignment, eliminates tap breakage while producing perfectly aligned threads.

Tap Range: 0~#8
3900-0291



NEW DESIGN

Tap Range 0~1/2"
(2 Collets-0~#8 & #10~1/2")
3900-0293

DIE STOCKS

- For adjustable round split dies
- Designed to accommodate round screw adjustable dies



INDIVIDUALS

Item#	Size No.	Die O.D.	Length
3900-0225	2	13/16"	6-1/2"
3900-0226	3	1"	8-1/2"
3900-0227	5	1-1/2"	12"
3900-0228	6	2"	15"
3900-0229	7	2-1/2"	19"

4 PC SET
3900-0233

No.2, 3, 5 & 6

3PC FLOATING DIE HOLDER SET

- One piece construction
- Total length 3"

Die Dia.	Body D x Length	Shank
13/16	1-1/2"x1	1/2
1	1-1/2"x1	1/2
1-1/2	2"x 1-1/4	3/4

3900-0223

IDEAL FOR SHORT OR MEDIUM-RUN THREADING OF SHAFTS !



MORSE TAPER TAILSTOCK DIE HOLDER SETS

- The set includes tapered Shank, Pin Punch & 4 sizes of Die Holders.
- Completely interchangeable to fit tapered shank with the help of a pin which allows about 1-1/2" travel.
- Easy knock out pin with a pin punch.
- Tang end.



Item#	Taper	Die Holder Size
3906-4910	MT 2	13/16, 1, 1-5/16 & 1-1/2"
3906-4911	MT 3	13/16, 1, 1-5/16 & 1-1/2"

SPRING-LOADED TAP GUIDES

- Adjustable tension spring
- Reversible tension pin for male and female hole centering or tapping
- 1/2" dia. hardened shank, knurled for easy handling
- 3/16" dia. hardened tension pin

VALUE
3906-0215

FOR DRILL PRESSES & MILLS

HHIP
3900-0215



SELF REVERSING TAPPING HEAD SETS

- Adjustable torque prevents damage and tap breakage.
- High reverse ratio increases productivity.
- Jacobs mount can be adapted to most spindles with the help of an arbor.
- Thread mount are designed to adapt to tapping machines or fixed, threaded mount spindles.
- Includes: 2 rubber flex collets and 2 shanks.**



For Drill Presses, Drill Units & Manually Operated Machines With Rotating Spindles !

* Limited Supply

Capacity in Steel	Item#	Mount	Included Shanks
#0-1/4" (M1.4-M7)	3900-1250*	JT6	2 & 3 MT
	3900-1251	JT33	2&3 MT
#6-1/2" (M3-M12)	3900-1500	JT6	3 & 4 MT
	3900-1501	JT33	3 & 4 MT
#10-3/4" (M3-M20)	3900-1750	JT3	3 & 4 MT

TC TYPE MULTI-FUNCTION TAPPING HEADS

- Can be used on tapping, drilling, high speed machine and CNC with taper mounting.
- High precision and good stability.
- Adjustable clamping range.
- Quick and easy loading and unloading.
- Includes hook wrench and Allen wrench.



* Limited Supply

Item#	Taper Mount	Capacity	D (mm)	L (mm)
3900-1255*	JT6	1/8~1/2"	48	73
3900-1256	JT33	1/8~1/2"	48	73
3900-1259	JT3	1/8~5/8"	54	85

RUBBER FLEX TAP CHUCK COLLETS

- For tapping heads
- Multi range
- Accurate gripping force

Item#	Outside Diameter (Inch)	Capacity Range (Inch/mm)		Contact Length (Inch)	Cone Angle (Degree)
		Minimum	Maximum		
3900-1781	0.591	0.098/2.50	0.165/4.20	0.433	26
3900-1782	0.591	0.165/4.20	0.256/6.50	0.433	26
3900-1783	0.827	0.138/3.50	0.276/7.00	0.512	40
3900-1784	0.827	0.276/7.00	0.394/10.00	0.512	40
3900-1785	1.043	0.236/6.00	0.354/9.00	0.591	40
3900-1786	1.043	0.354/9.00	0.551/14.00	0.591	40



MINI E-Z HAND TAPPER

- Assures straight perpendicular tapped holes up to #10 diameter.



3900-0252

SPECIFICATIONS

Table size.....8-1/2x6"
 Height.....9"
 Clearance height.....3-3/4"
 Depth of throat.....4-1/2"
 Approx. weight.....12 lbs.

Complete with tap guide, precision ground work table, tap spindle wrench, and 7 steel tap adapters (#0-5/16")

7PC REPLACEMENT ADAPTER SET Range #0-5/16" 3900-0253



PRECISION HAND TAPPER

- Precision ground work table and spindle to high accuracy.
- 9 tap adapters included: #6, #8, #10, 1/4, 5/16, 3/8, 7/16, 1/2 & 5/8" .**
- Assures straight perpendicular tapped holes.
- Rigid structure made of high grade tool steel.
- Equipped with tap guide.
- Working Area: 6-1/2" x 10"
- Clearance Height: 7"
- Depth of Throat: 7-1/2"
- Overall Height: 13"
- Weight: 37 lbs.

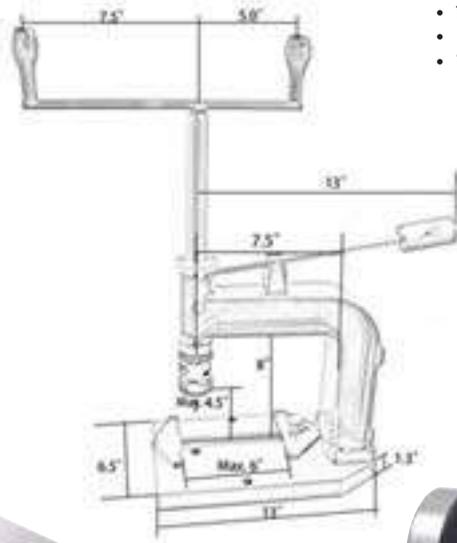


3900-0250

9PC REPLACEMENT ADAPTER SET Range #6-5/8" 3900-0289



ULTRA PRECISION HAND TAPPER WITH TORQUE DRIVE HEAD



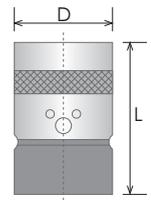
TAPPING RANGE: 1/8~1/2"/M2~M13

- Precision ground work table and spindle for high accuracy.
- Assures straight perpendicular tapped holes.
- Rigid structure.
- High torque tapping head with improved stability
- Adjustable clamping range.
- Tapping Range: 1/8~1/2"/M2~M13
- Includes hook wrench and Allen wrench.
- Weight: 40 lbs.

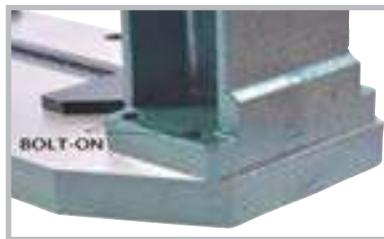
3900-0257



D=48mm
L=73mm



Tap Not Included



ULTRA PRECISION TORQUE DRIVE TAPPING HEAD RETROFIT KIT FOR CONVENTIONAL HAND TAPPER

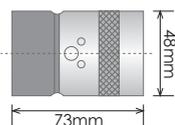
UPGRADE YOUR TAPPING, ACCURACY AND STABILITY



- This precision rigidity is designed to improve the rigidity of a conventional hand tapper spindle with tapping adapters
- It works for the same type hand tapper with 25mm diameter spindle.
- High torque tapping head with improved stability
- Adjustable clamping range.
- Tapping Range: 1/8~1/2"/M2~M13
- Kit Includes: Handle, Spindle, Tapping Head, Hook Wrench and Allen Wrench.



3903-0257



THREAD REPAIR TOOLS

HELICAL S.T.I. THREAD REPAIR KITS - SAE & METRIC

- Simple and easy to use kit.
- For repairing tapped holes.
- Cost effective system creates stronger than original threads.
- Creates a stronger internal thread in soft metals.
- Professional kit includes drills, STI taps and lug breaking tool.

- **132pc set Includes:**
- 110pc- Stainless Steel Inserts
- 5pc- STI HSS Taps
- 5pc- HSS Twist Drills
- 5pc- Coil Drivers
- 5pc- Tang Removers
- 1pc- L Hex Wrench
- 1pc- Metal Case



132PC SETS

Item#	Description	Insert Thread	STI Tap	HSS Drill
1011-0055	Coarse Thread Repair Kit	25ea-1/4-20	1/4-20	17/64
		25ea-5/16-18	5/16-18	21/64
		25ea-3/8-16	3/8-16	25/64
		25ea-7/16-14	7/16-14	29/64
1011-0056	Fine Thread Repair Kit	10ea-1/2-13	1/2-13	17/32
		25ea-1/4-28	1/4-28	17/64
		25ea-5/16-24	5/16-24	21/64
		25ea-3/8-24	3/8-24	25/64
1011-0051	5-12mm	25ea-7/16-20	7/16-20	29/64
		10ea-1/2-20	1/2-20	17/32
		25ea-M5 x 0.80	M5 x 0.80	5.2
		25ea-M6 x 1.00	M6 x 1.00	6.3
		25ea-M8 x 1.25	M8 x 1.25	8.3
		25ea-M10 x 1.50	M10 x 1.50	10.4
		10ea-M12 x 1.75	M12 x 1.75	12.4

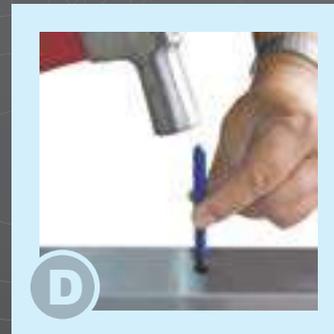
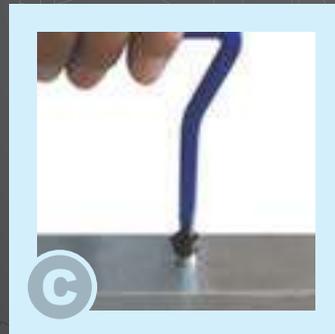
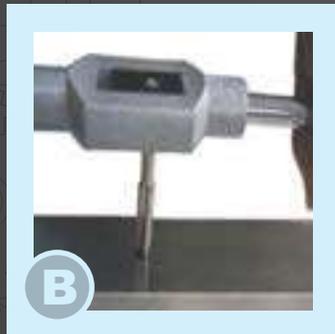
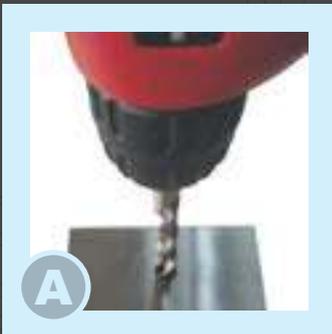
STAINLESS STEEL INSERTS LENGTH -1.5 X Diameter



- **16pc & 31pc Kit Includes:**
- 10pc or 25pc- Stainless Steel Inserts
- 1pc- STI HSS Tap
- 1pc- HSS Twist Drills
- 1pc- Coil Driver
- 1pc- Tang Breaker
- 1pc- L Hex Wrench
- 1pc- Metal Case

16PC & 31PC KITS

Item#	Insert-Thread	No of Insert In Set	STI Tap	HSS Drill
1011-0081	1/4-20	25	1/4-20	17/64
1011-0084	5/16-18	25	5/16-18	21/64
1011-0087	3/8-16	25	3/8-16	25/64
1011-0094	1/2-13	10	1/2-13	17/32
1011-0065	M5 x 0.80	25	M5 x 0.80	5.2
1011-0066	M6 x 1.00	25	M6 x 1.00	6.3
1011-0068	M8 x 1.25	25	M8 x 1.25	8.3
1011-0070	M10 x 1.50	25	M10 x 1.50	10.4
1011-0072	M12 x 1.75	10	M12 x 1.75	12.4



HELICAL THREAD REPAIR INSERTS - Stainless Steel - SAE & METRIC

- Thread repair inserts are used to fix a stripped bolt or screw thread or to install a strong, permanent threaded hole in metals, composites, wood or other materials. Helical inserts have a wired coil design. When inserted into a tapped hole with an installation tool, the coil expands to anchor the insert in place.
- Made of stainless steel
- Insert Length=1.5D(Diameter)



25PC/PACK Shown

Item#	Insert-Thread	PCS/Pack
1011-0240	M5 x 0.80	25
1011-0242	M6 x 1.00	25
1011-0244	M8 x 1.25	25
1011-0246	M10 x 1.50	25
1011-0248	M12 x 1.75	10
1011-0251	1/4-20	25
1011-0252	1/4-28	25
1011-0253	5/16-18	25
1011-0254	5/16-24	25
1011-0255	3/8-16	25
1011-0256	3/8-24	25
1011-0257	7/16-14	25
1011-0258	7/16-20	25
1011-0259	1/2-13	10
1011-0260	1/2-20	10

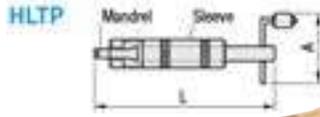
APPLICATION: Renews worn threads.

THREADING WIRE INSERT INSTALLATION TOOLS-SAE & METRIC

FOR HELICAL INSERTS

- These special tools make installing Threading Wire Inserts fast and easy.
- For use with wire thread inserts.

APPLICATION: Installation of Free Running & Screw Locking Helical Inserts.



Item#	Insert-Thread	A	L
1011-0211	1/4-20	3	5-1/2
1011-0212	1/4-28	2-3/4	5-1/4
1011-0216	5/16-18	3	6-1/4
1011-0217	5/16-24	3	6-1/4
1011-0221	3/8-16	2-3/4	6-1/4
1011-0222	3/8-24	3	6-1/2
1011-0226	7/16-14	3-1/2	6-1/2
1011-0227	7/16-20	2-3/4	6-1/2
1011-0231	1/2-13	3-1/4	6-1/2
1011-0232	1/2-20	3-1/4	7
1011-0261	M5 x 0.80	3	5
1011-0266	M6 x 1.00	3	5.1/2
1011-0271	M8 x 1.25	3	6-1/4
1011-0276	M10 x 1.50	3	6-1/2
1011-0281	M12 x 1.75	2-3/4	6-1/2

SELF TAPPING THREAD REPAIR KITS-METRIC

- Self tapping, no pre-tapping required.
- Very high pull-out resistance.
- Unlimited thread re-usability.
- Protects expensive components from damage.
- Fits almost every application.
- Produces high quality, permanent, wear-resistant threads.
- Highly resistant to vibration, can withstand vibration without loosening.



Kit Includes:

- 10pc- Stainless Steel Inserts
- 1pc- Installation Tool
- 1pc- HSS Twist Drills
- 1pc- Metal Case

Item#	Insert-Thread
1011-0205	M5 x 0.80
1011-0207	M6 x 1.00
1011-0209	M8 x 1.25
1011-0210	M10 x 1.5
1011-0213	M12 x 1.75

18PC HSS TAP & DRILL COMBO SETS

- High speed steel made taps and drills.
- Steel case.
- Drills are matched with taps to make jobs much easier.

National Course Pitch Set Includes

- 1 each HSS Hand Tap
- 6-32 NC, 8-32 NC, 10-24 NC, 10-32 NF, 1/4"-20 NC, 5/16"-18 NC, 3/8"-16 NC, 7/16"-14 NC, 1/2"-13 NC
- 1 each HSS Jobbers Drill
- #36, #29, #25, #21, #7, F, 5/16", .U, 27/64"

National Course Pitch Set
1011-0018

National Fine Pitch Set
1011-0019

National Fine Pitch Set Includes

- 1 each HSS Hand Tap
- 6-40 NF, 8-36 NF, 10-24 NF, 10-32 NF, 1/4"-28 NF, 5/16"-24 NF, 3/8"-24 NF, 7/16"-20 NF, 1/2"-20 NF
- 1 each HSS Jobbers Drill
- #33, #29, #25, #21, #3, I. Q, 25/34", 29/64"



18PC HSS METRIC TAP & DRILL COMBO SET

- High speed steel made taps and drills.
- Plug taps are fully ground.
- With index steel case.
- Drills are matched with taps to make jobs much easier.



M2.5 ~ M12
1011-0020



Set Includes

- 1 each HSS Hand Tap
- M2.5x0.45, M3.0x0.50, M3.5x0.60, M4.0x0.70, M5.0x0.80, M6.0x1.00, M8.0x1.25, M10.0x1.50 & M12.0x1.75
- 1 each HSS Jobbers Drill
- 2.05, 2.50, 2.90, 3.30, 4.20, 5.00, 6.70, 8.50 & 10.20mm

14 PC H.S.S. 3-IN-1 COMBINED DRILL/TAP/COUNTERSINK & SCREWDRIVER BIT SETS

- Complete hole drilling, tapping, deburring and countersinking in one operation with power drill saves labor and time.
- For use to tap steel, copper, brass, aluminum and plastic up to 10-gauge (metal).
- Back tapered design helps prevent thread damage from over-drilling.
- One-piece drill/tap assures proper drill for tap size.
- Made of high speed steel for longer life.
- 14pc Includes: 6pc of combination drill & tap countersink.
1pc of high torque tested quick-change adapter
6pc of quick change CRV steel bit.
1pc of carry case.

INCH SET
#6~1/4"
1011-0140



1011-0141 Shown

Item#	Thread Range	CRV Bit
1011-0140	6-32, 8-32, 10-24	Slot3, Slot4, PZ1
	10-32, 12-24, 1/4-20	PZ2, PH1, PH2
1011-0141	M3X0.5, M4x0.7, M5x0.8,	Slot3, Slot4, PZ1
	M6x1.0, M8x1.25 & M10x1.5	PZ2, PH1, PH2

DEBURRING TOOLS

DEBURRING TOOL SETS



Item#	Style	Set Includes
2001-0220	B	4pc set -plastic handle, telescoping holder and blades B10 & B20
2001-0222	E	5pc set -plastic handle, telescoping holder and blades E100, E200 & E300

UNIVERSAL DEBURRING SET

- SET INCLUDES:**
 4 - Handles
 4 - Blades:
 B10 (for Aluminum)
 B20 (for Brass & Cast iron)
 E100 (for Steel)
 E102 (for Plastic)



8 PC SET
2001-0223

ROYAL STYLE DEBURRING TOOL SET

- Pressing locking button to change blades.
- Blades can be stored in the handle.
- Accepts all "E" blades on the market.

- SET INCLUDES:**
 HANDLE BLADES:
 E100, E101, E102,
 E200 & E350



6 PC SET
2001-0226

5PC BLADES
 (One each of E100,E101,E102,E200 & E350).....Item **2001-2261**

MINI DEBURRING & SCRAPING TOOL KIT

- Easy to reach the most inaccessible areas.
- Finishes workpiece perfectly.
- In fitted case



6 PC SET
2001-0228

- KIT INCLUDES:**
 Flat diamond coated file,
 triangular scraper,
 round scraper,
 swivel blade tool,
 rotating deburring tool,
 flat scraper.

EDGE OFF STYLE DEBURRING TOOL

- Hexagonal aluminum handle with pocket clip.
- E100 blade mounted (not replaceable).



2001-0232

RAPID PUSH BUTTON DEBURRING TOOL

- Push button to change blade.
- Accepts E100 blade (included).



2001-0233

DEBURRING BLADES

SOLD IN PACKAGE QUANTITY !
Price Per Package of 10

10 PC PER PACKAGE

Blade Style	Item#	Description	Used with Set	Blade	APPLICATIONS				MATERIALS								
					Straight Edge	Hole Edge	Cross-Hole Both-Edges	Hole Black-Edge	Hole Inner Surface	Flat Surface	Sheet Steel	Aluminum	Copper	Brass	Cast Iron	Stainless Steel	Hardened
B10	2001-2201	HSS. Deburs materials with spiral chips	B		X	X					X	X	X				X
B20	2001-2202	HSS. Rotates clockwise & counterclockwise	B		X	X								X	X		X
B30	2001-2203	Simultaneously deburs the inside and outside of holes up to 0.16" (4mm) thick	B				X				X	X	X				X
E100	2001-2251	Heavy-duty HSS. Deburs material with spiral chips	E								X	X	X				X
E200	2001-2252	HSS for materials with powdery chips. Rotates clockwise & counterclockwise	E		X	X								X	X		X
E300	2001-2253	HSS for materials with spiral chips. Simultaneously deburs the inside and outside of holes up to 0.24" (6mm) thick	E				X				X	X	X				X
E350	2001-2258	HSS for materials with powdery chips. Rotates clockwise & counterclockwise	E		X	X								X	X		X

SCRAPER SET

- Triangular blades with 3 cutting edges and a telescopic blade holder that lets you reach hard to access areas.
- Provides maximum grip comfort when used with UNI handle.

SET INCLUDES:

UNI Handle with hex inner thread holder, Scraper D20, C25, D30, D40 & Wrench

Limited Supply!

6 PC SET
2001-0224



10PC DIAMOND NEEDLE FILE SET MEDIUM-D126

- Can be used on carbide, hardened steel, glass and ceramics. Made with a hard chrome bond that gives a long life and wears extremely well.
- Overall length 5-1/2" .
- Diamond impregnated length: 1-9/16" .
- In fitted pouch.

INCLUDES SHAPES:

2 of round,
2 of hand,
1 of square,
Three - square,
half round,
barrette, flat, knife.

3000-0062



6PC COUNTERSINK SET

- For chamfering and countersinking.
- Complete with fitted case.

INCLUDES:

UNI handle
M7 holder
Countersink: C12, C20 & C30
Wrench

Limited Supply!

2001-0234



20PC DIAMOND PIN SET

- Various shapes and grit sizes for grinding carbide, ceramics, etc.
- Overall length 1-3/4" .
- Suitable for grinding in tight or precision areas, on jigs, dies and fixtures.

Limited Supply!

1/8" SHANK
3000-0049



12PC NEEDLE FILE SETS

- Industrial grade.
- Complete with durable pouch.
- Shapes: Barrette, Crossing, Equalling, Half Round, Round Edge Joint, Knife, Marking, Round, Slitting, Square, Three Square and Warding

5-1/2" OAL

#0 Cut
3000-0080



5PC STEEL FILE SET

- Shapes: Flat File, Round File, Square File, Three Square File & Half Round File
- For general purpose.
- Complete with durable handles.

3000-0055

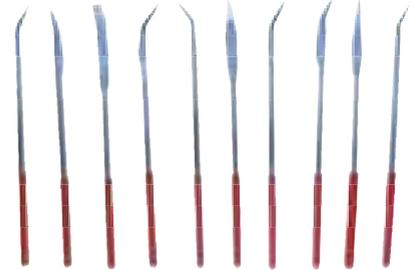


Overall Length: 12"

10PC DIAMOND RIFFLER FILE SET MEDIUM-D126

- Can be used for cleaning odd and difficult places.
- Diamond impregnated length: 1-9/16" .
- Overall length 5-1/2" .
- With fitted pouch.

3000-0072



TRIANGULAR HOLLOW SCRAPER

- An extremely useful accessory for scraping, trimming and deburring metals, tubing and other materials.
- Hollow ground cutting edge stays sharper longer and resharpens easily.

NEW

2001-0210



THREAD RESTORING FILES

- Restores Damaged or Rusted External Threads on Bolts, Threaded Shafts, Pipe and Pipe Fittings.
- Profile Shape: Square
- File Length: 8-1/2"
- Sizes clearly marked.

SAE Thread
10T1-0040

For Pitches: 12, 13, 14, 16, 18,
20, 24 & 28 Per Inch

METRIC Thread
10T1-0044

For Pitches: 0.75, 1.00, 1.25,
1.50, 1.75, 2.00, 2.50 & 3.00mm



BURRS & SCREW EXTRACTORS

CARBIDE ROTARY BURRS

- All rotary burs have hardened steel shanks.



SA Carbide Cylindrical Shape

Industrial No.	Cut Dia (In)	Cut Length (In)	Shank Dia. (In)	Item#
SA-1	1/4	5/8	1/4	3000-0101*
SA-3	3/8	3/4	1/4	3000-0103
SA-5	1/2	1	1/4	3000-0105
SA-6	5/8	1	1/4	3000-0106
SA-7	3/4	1	1/4	3000-0107



SC Carbide Cylindrical Ball Nose Shape

Industrial No.	Cut Dia (In)	Cut Length (In)	Shank Dia. (In)	Item#
SC-1	1/4	5/8	1/4	3000-0111
SC-3	3/8	3/4	1/4	3000-0113
SC-5	1/2	1	1/4	3000-0115
SC-6	5/8	1	1/4	3000-0116*
SC-7	3/4	1	1/4	3000-0117*



SD Carbide Ball Shape

Industrial No.	Cut Dia (In)	Cut Length (In)	Shank Dia. (In)	Item#
SD-1	1/4	1/4	1/4	3000-0121
SD-3	3/8	3/8	1/4	3000-0123
SD-5	1/2	1/2	1/4	3000-0125
SD-6	5/8	5/8	1/4	3000-0126
SD-7	3/4	3/4	1/4	3000-0127



SE Carbide Egg Shape

Industrial No.	Cut Dia (In)	Cut Length (In)	Shank Dia. (In)	Item#
SE-3	3/8	5/8	1/4	3000-0133*
SE-5	1/2	7/8	1/4	3000-0135*
SE-6	5/8	1	1/4	3000-0136*
SE-7	3/4	1	1/4	3000-0137*



SF Carbide Round Nose Tree Shape

Industrial No.	Cut Dia (In)	Cut Length (In)	Shank Dia. (In)	Item#
SF-1	1/4	5/8	1/4	3000-0141*
SF-5	1/2	1	1/4	3000-0145
SF-6	5/8	1	1/4	3000-0146
SF-7	3/4	1	1/4	3000-0147

*Limited Supply

INDIVIDUAL SCREW EXTRACTORS

- Quick & easy removal of broken screws, pipes, bolts, & studs without damaging the threads in the hole.



Item#	Size	For Remove Screw/Bolt	Drill to Use
1011-0021	#1	3/32~5/32"	5/64"
1011-0022	#2	5-32~7/32"	7/64"
1011-0023	#3	7/32~9/32"	5/32"
1011-0024	#4	9/32~3/8"	1/4"
1011-0025	#5	3/8~5/8"	17/64"

1/4" SHANK CARBIDE BURR SETS-Double Cut



5 PC SET
3000-0005

SA-3, SC-3, SF-3, SG-3 & SD-3

12 PC SET
3000-0012

SA-14, SA-1, SC-14, SC-1, SD-14, SD-1, SE-1, SF-1, SG-1, SM1, SM2 & SN-1

Overall Length: 2"



Type	Cutting Dia.	Cutting Length	Shape
SA-1	1/4	5/8	Cylindrical
SA-3	3/8	3/4	Cylindrical
SA-5	1/2	1	Cylindrical
SA-14	3/16	5/8	Cylindrical
SC-1	1/4	5/8	Cylindrical Radius End
SC-3	3/8	3/4	Cylindrical Radius End
SC-5	1/2	1	Cylindrical Radius End
SD-14	3/16	--	Ball
SD-1	1/4	--	Ball
SD-3	3/8	--	Ball
SE-1	1/4	3/8	Oval
SF-1	1/4	5/8	Oval
SF-3	3/8	3/4	Oval
SF-5	1/2	1	Oval
SG-1	1/4	5/8	Tree Point End
SG-3	3/8	3/4	Tree Point End
SM-1	1/4	1/2	Cone 22 Degree
SM-2	1/4	3/4	Cone 14 Degree
SN-1	1/4	5/16	Inverted Cone 10 Degree

SCREW EXTRACTOR & LEFT HAND DRILL SET

- Quick & easy removal of broken screws, pipes, bolts, & studs without damaging the threads in the hole.
- Supplied in plastic pouch.
- High speed steel



1011-0011

10 PC SET

Extractors: No. 1, 2, 3, 4 & 5
Left Hand Drill Bits: 1/8, 3/16, 1/4, 5/16 & 3/8"

8PC SCREW EXTRACTOR SETS

- Quick & easy removal of broken screws, pipes, bolts, & studs w/o damaging the threads in the hole.

Includes

#1, 2, 3, 4, 5, 6, 7 & 8 For Removing 3/32 ~ 1-3/8" of studs, bolts & screws



1011-0016



5PC SCREW EXTRACTOR SETS

- Quick & easy removal of broken screws, pipes, bolts, & studs w/o damaging the threads in the hole.
- Screw extractors made of chrome-molly steel.
- Supplied in plastic case.

Includes

#1, 2, 3, 4 & 5 For Removing 1/4-5/8" of studs, bolts & screws



1011-0015

6PC HSS END MILL SETS Center Cut • 3/8" Shank

- Single end.
- High speed steel.
- Center cut.
- With stand.

6 PC INCLUDES:
1/8, 3/16, 1/4, 5/16, 3/8 & 1/2"

2 FLUTE SET
8000-0001

4 FLUTE SET
8000-0002



TITANIUM COATED END MILL SETS

- Titanium coated for longer life.
- High speed steel, single end.
- Complete with wooden case.

20 PC SET
8000-0020

2 & 4 FLUTE
10 PC OF EACH: 3/16-3/4" by 16ths

GROUND FROM SOLID CENTER CUT

10 PC SET
5800-0010*

4 FLUTE
3/16-3/4" by 16ths

*Limited Supply



6PC COBALT 4 FLUTE END MILL SETS-SINGLE END

- Center cut.
- M42 (8%) cobalt, used for cut in tough high tensile strength materials like stainless steel, titanium and inconel.
- Uniform cutting load per tooth assures minimum chatter deflections.
- Preferred for light to medium removal rates and obtaining better surface finishes on soft, tough and long chip materials.
- With wooden stand.

M42 8% COBALT



8000-0004

Set Includes

Size	Shank Dia.	Flute Length	OAL
1/8	3/8	1/2	2-11/32
3/16	3/8	9/16	2-3/8
1/4	3/8	11/16	2-1/2
5/16	3/8	3/4	2-17/32
3/8	3/8	3/4	2-1/2
1/2	1/2	1-1/4	3-9/32

3/16" SHANK DOUBLE-END 10PC END MILL SET

2&4 FLUTE
8000-0025

1pc each: 1/16, 3/32, 1/8, 5/32 & 3/16"

- High speed steel.
- Center-cut.
- Double end.
- Supplied with wooden stand.



CORNER ROUNDING END MILLS & SET

**HIGH SPEED STEEL
FORMED RADIUS
CUTTERS-RH CUT**



8 PC SET
5800-4195

1/16, 3/32, 1/8, 5/32, 3/16, 1/4, 5/16, 3/8"

- Intended for use in milling rounded corners, etc.
- Form-relieved type; can be sharpened many times without changing the form

6PC COBALT 4 FLUTE END MILL SET-DOUBLE END

- Center cut.
- M42 (8%) cobalt, used for cut in tough high tensile strength materials like stainless steel, titanium and inconel.
- Uniform cutting load per tooth assures minimum chatter deflections.
- Preferred for light to medium removal rates and obtaining better surface finishes on soft, tough and long chip materials.
- With wooden stand.

Set Includes

Size	Shank Dia.	Flute Length	OAL
1/8	3/8	3/8	3-1/16
3/16	3/8	1/2	3-1/4
1/4	3/8	5/8	3-3/8
5/16	3/8	3/4	3-1/2
3/8	3/8	3/4	3-1/2
1/2	1/2	1	4-1/8

M42 8% COBALT

8000-0005



Item#	Radius	Diameter (Inch)		OAL
		Mill	Shank	
5800-4020	1/16	7/16	3/8	2-1/2
5800-4030	3/32	1/2	3/8	2-1/2
5800-4040	1/8	5/8	1/2	3
5800-4050	5/32	3/4	1/2	3
5800-4060	3/16	7/8	1/2	3
5800-4080	1/4	1	1/2	3
5800-4090	5/16	1-1/8	1/2	3-1/4
5800-4110	3/8	1-1/4	1/2	3-1/2
5800-4115	7/16	1-3/8	1	4
5800-4160	1/2	1-1/2	3/4	3-7/8

DOUBLE-END END MILLS

DOUBLE-END MINIATURE 3/16" SHANK END MILLS

- Used for general-purpose machining of both ferrous and nonferrous materials.
- Popular for small slotting, engraving, pocketing and similar applications.
- The medium-high helix angle produces an ideal shearing cut for outstanding performance.
- 3/16" shank.

HIGH SPEED STEEL



Diameter Mill (In)	Flute (In) Length	OAL (In)	2-Flute Item#	4-Flute Item#
1/32	3/32	2-1/4	5830-0002	-----
3/64	9/64	2-1/4	5830-0003*	-----
1/16	3/16	2-1/4	5830-0004*	5831-0018
5/64	15/64	2-1/4	5830-0005*	5831-0020*
3/32	9/32	2-1/4	5830-0006	5831-0022
7/64	21/64	2-1/4	5830-0007*	5831-0024
1/8	3/8	2-1/4	5830-0008*	5831-0026
9/64	13/32	2-1/4	5830-0009*	5831-0028*
5/32	7/16	2-1/4	5830-0011	5831-0030*
11/64	1/2	2-1/4	5830-0010*	5831-0031*
3/16	1/2	2-1/4	5830-0012	5831-0034

* Limited Supply

2-FLUTE DOUBLE-END END MILLS

GROUND FROM SOLID • CENTER CUTTING

- 2-Flute used for slotting, ramping, pocketing and plunging operations. Preferred for small and medium removal rates on soft, tough and long chip materials such as aluminum, copper & brass.

Limited Supply!



Diameter Mill (In)	Shank	Flute (In) Length	OAL (In)	HSS Item#	TiN Coated Item#	M42 Cobalt Item#
1/8	3/8	3/8	3-1/16	5803-0125	-----	5825-0125
5/32	3/8	7/16	3-1/8	5803-0156	-----	-----
3/16	3/8	7/16	3-1/8	5803-0187	5827-0187	5825-0187
1/4	3/8	1/2	3-1/8	5803-0250	-----	5825-0250
5/16	3/8	9/16	3-1/8	5803-0312	-----	5825-0312
3/8	3/8	9/16	3-1/8	5803-0375	5827-0375	5825-0375
1/2	1/2	13/16	4	5803-0500	5827-0500	5825-0500
9/16	5/8	1-1/8	4-1/2	5803-0562		
5/8	5/8	1-1/8	4-1/2	5803-0625		
3/4	3/4	1-5/8	5	5803-0750		
1	1	1-5/8	5-7/8	5803-1000		

HSS 4-FLUTE DOUBLE-END END MILLS

GROUND FROM SOLID • CENTER CUTTING



Diameter Mill (In)	Shank	Flute (In) Length	OAL (In)	HSS Item#	TiN Coated Item#	M42 Cobalt Item#
1/8	3/8	3/8	3-1/16	5804-0125	5829-0125	5836-0125*
3/16	3/8	1/2	3-1/4	5804-0187	5829-0187	5836-0187*
1/4	3/8	5/8	3-3/8	5804-0250	5829-0250	-----
5/16	3/8	3/4	3-1/2	5804-0312	5829-0312	5836-0312
3/8	3/8	3/4	3-1/2	5804-0375	5829-0375	-----
1/2	1/2	1	4-1/8	5804-0500	5829-0500	-----
5/8	5/8	1-3/8	5	5804-0625	5829-0625*	-----
3/4	3/4	1-5/8	5-5/8	5804-0750	-----	5836-0750*

* Limited Supply

2-FLUTE SINGLE-END CENTER CUT END MILLS

GROUND FROM SOLID • CENTER CUTTING

- 2-Flute used for slotting, ramping, pocketing and plunging operations. Preferred for small and medium removal rates on soft, tough and long chip materials such as aluminum, copper & brass.



* Limited Supply

Diameter (In) Mill	Shank	Flute (In) Length	OAL (In)	HSS Item#	TiN Coated Item#	M42 (8%) Item#
1/8	3/8	3/8	2-5/16	5801-0125	5826-0125	5824-0125
3/16	3/8	7/16	2-5/16	5801-0187	5826-0187	5824-0187
1/4	3/8	1/2	2-5/16	5801-0250	5826-0250	5824-0250
5/16	3/8	9/16	2-5/16	5801-0312	5826-0312	5824-0312
3/8	3/8	9/16	2-5/16	5801-0375	5826-0375	5824-0375
7/16	3/8	13/16	2-1/2	5801-0437	-----	5824-0437
1/2	3/8	1	3	5801-0500	-----	5824-0500
1/2	1/2	1	3	5801-0501	5826-0501	-----
9/16	1/2	1-1/8	3-1/8	5801-0562	-----	5824-0562
5/8	1/2	1-1/8	3-1/8	5801-0625	-----	5824-0625
5/8	5/8	1-5/16	3-7/16	5801-0626	5826-0626	5824-0626
3/4	1/2	1-5/16	3-5/16	5801-0750	-----	5824-0751
3/4	3/4	1-5/16	3-9/16	5801-0753	-----	-----
7/8	3/4	1-1/2	3-5/8	-----	-----	5824-1001
1	1/2	1-1/2	3-5/8	5801-1000	-----	5824-1002*
1	3/4	1-1/2	3-3/4	5801-1001	-----	5824-1125*
1	1	1-5/8	4-1/8	5801-1002	-----	5824-1250*
1-1/2	3/4	1-5/8	4-1/8	5801-1500*	-----	-----
2	3/4	1-5/8	4-1/8	5801-2000*	-----	-----

HSS 4-FLUTE SINGLE-END CENTER CUT END MILLS

GROUND FROM SOLID • CENTER CUTTING



Diameter (In) Mill	Shank	Flute (In) Length	OAL (In)	HSS Item#	TiN Coated Item#	M42 Cobalt Item#
1/8	3/8	3/8	2-5/16	5802-0125	5828-0125	5835-0125
3/16	3/8	1/2	2-3/8	5802-0187	5828-0187	5835-0187
1/4	3/8	5/8	2-1/2	5802-0250	5828-0250	5835-0250
5/16	3/8	3/4	2-1/2	5802-0312	5828-0312	5835-0312
3/8	3/8	3/4	2-1/2	5802-0375	5828-0375	5835-0375
7/16	3/8	13/16	2-1/2	5802-0437	5828-0437	5835-0437
1/2	3/8	13/16	2-1/2	5802-0500	5828-0500	5835-0500
1/2	1/2	1-1/4	3-1/4	5802-0501	5828-0501	5835-0501
9/16	1/2	1-3/8	3-3/8	5802-0562	5828-0562	5835-0562
5/8	1/2	1-5/16	3-7/16	5802-0625	-----	5835-0625
5/8	5/8	1-5/8	3-3/4	5802-0626	5828-0626	5835-0626
3/4	1/2	1-5/8	3-5/8	5802-0750	-----	5835-0750
3/4	5/8	1-5/8	3-3/4	5802-0751	-----	-----
3/4	3/4	1-5/8	3-7/8	5802-0753	5828-0751	5835-0753
7/8	3/4	1-7/8	4-1/8	-----	-----	5835-0875
1	1/2	1-7/8	4-1/8	5802-1000	-----	5835-1000
1	3/4	1-7/8	4-1/8	5802-1001	-----	5835-1001
1	1	2	4-1/2	5802-1002	-----	5835-1002

6-FLUTE SINGLE-END CENTER CUT END MILLS



Limited Supply!

GROUND FROM SOLID • CENTER CUTTING

Diameter (In) Mill	Shank	Flute (In) Length	OAL (In)	HSS Item#	M42 Cobalt Item#
1-1/4	1	2	4-1/2	-----	5835-1250
1-1/4	1-1/4	2	4-1/2	5802-1256	-----
1-1/2	1-1/4	2	4-1/2	5802-1506	-----

SINGLE-END END MILLS & ROUGHERS

2 & 4 FLUTE SOLID CARBIDE SINGLE END MILLS

Cutting diameter tolerance + .0001/002



- Regular length
- Submicron grain carbide

CENTER CUTTING

APPLICATION

- **2 Flute** - For milling lower strength materials. Offers the maximum flute volume for chip removal
- **4 Flute** - For milling tougher metals where their thicker webs offer maximum rigidity and greater feed rates

- AlTiN coating is beneficial in wet, semi-dry to dry cutting of most steels and highly abrasive materials. Provides good thermal stability for increased speeds and feeds that offers excellent heat resistance, good lubricity, better finishes and prolongs tool life.

* Limited Supply

Diameter (In)				2-Flute		4-Flute	
Mill	Shank	Flute (In) Length	OAL (In)	Uncoated Item#	AlTiN Coated Item#	Uncoated Item#	AlTiN Coated Item#
1/32	1/8	3/32	1-1/2	8003-0005*	5806-0313*	8003-1243*	5807-0313*
1/16	1/8	1/4	1-1/2	8003-0007	5806-0625*	8003-1245	-----
3/32	1/8	3/8	1-1/2	8003-0009*	5806-0937*	-----	5807-0937*
1/8	1/8	1/2	1-1/2	8003-0012	5806-1250	8003-1250	5807-1250
3/16	3/16	5/8	2	8003-0018	5806-1875	8003-1875	5807-1875
1/4	1/4	3/4	2-1/2	8003-0025	5806-2500	8003-2500	5807-2500
5/16	5/16	13/16	2-1/2	8003-0029*	-----	8003-3125	5807-3125
3/8	3/8	1	2-1/2	8003-0037	5806-3750	8003-3750	5807-3750
1/2	1/2	1	3	8003-0050	5806-5000	8003-5000	5807-5000

M42 COBALT ROUGHING END MILLS-FINE PITCH

GROUND FROM SOLID M42 BLANK • 8% COBALT • CENTER CUTTING

- Recommended for high production milling in difficult-to-machine materials such as inconel, hasteloy, titanium alloys and other materials up to RC 40
- The pressure of the cut is distributed over many teeth.
- Low co-efficient friction.



* Limited Supply

Size (In)	Shank Dia.	Flute Length	OAL	Flute	Item#
3/16	3/8"	1/2	2-3/8	4	5823-0187
1/4	3/8	5/8	2-7/16	4	5823-0250
1/4	3/8	1-1/4	3-1/16	4	5823-0251
5/16	3/8	3/4	2-1/2	4	5823-0312
3/8	3/8	3/4	2-1/2"	4	5823-0375
3/8	3/8	1-1/2	3-1/4	4	5823-0376
7/16	3/8	1	2-11/16	4	5823-0437
1/2	1/2	1-1/4	3-1/4	4	5823-0500
1/2	1/2	2	4	4	5823-0501
1/2	1/2	3	5	4	5823-0502
9/16	1/2	1-3/8	3-3/8	4	5823-0562
5/8	5/8	2-1/2	4-5/8	4	5823-0626

Size (In)	Shank Dia.	Flute Length	OAL	Flute	Item#
3/4	3/4	3/4	2/7/8	4	5823-0750
3/4	3/4	3	5-1/4	4	5823-0752
7/8	3/4	1-7/8	4-1/8	5	5823-0875
1	1	2	4-1/2	5	5823-1000
1	1	4	6-1/2	5	5823-1002
1-1/4	1-1/4	2	4-1/2	6	5823-1250
1-1/2	1-1/4	2	4-1/2	6	5823-1500
1-1/2	1-1/4	3	5-1/2	6	5823-1501*
2	1-1/4	2	4-1/2	8	5823-2000
2	1-1/4	4	6-1/2	8	5823-2001*
2	2	2	5-3/4	8	5823-2002*
2	2	4	7-3/4	8	5823-2003*

M42 COBALT ROUGHING END MILLS

- Their uniform cutting load per tooth assures minimum chatter deflection.
- Fast stock removal.
- Ideal for N/C machines.

- **GROUND FROM SOLID M42 BLANK**
- **8% COBALT**
- **CENTER CUTTING**



Size (In)	Shank Dia.	Flute Length	OAL	Flute	Uncoated Item#	Tin Coated Item#
1/4	3/8	5/8	2-7/16	3	8002-5708	8002-6708
1/4	3/8	5/8	2-7/16	4	8002-5710	-----
5/16	3/8	3/4	2-1/2	4	8002-5716	-----
3/8	3/8	3/4	2-1/2	4	8002-5721	8002-6721
3/8	3/8	1-1/2	3-1/4	4	8002-5727	-----
1/2	1/2	1-1/4	3-1/4	4	8002-5733	8002-6733
1/2	1/2	2	4	4	8002-5736	-----
5/8	5/8	1-5/8	3-3/4	4	8002-5748	8002-6748
3/4	3/4	1-5/8	3-3/4	4	8002-5766	-----
3/4	3/4	1-5/8	3-7/8	4	8002-5770	8002-6770
3/4	3/4	3	5-1/4	4	8002-5775	-----
1	3/4	1-1/2	3-3/8	5	8002-5794	-----
1	1	2	4-1/2	5	8002-5802	8002-6802
1	1	3	5-1/2	5	8002-5805	-----

BALL NOSE END MILLS & MILLING CUTTERS

HSS BALL NOSE END MILL SETS

- Single end.
- Full radius cutting edge.
- Designed for milling radius bottom slots, fillets and special contours.
- Wooden stand included.



8001-0009 Shown

DIMENSIONS (Mill x Shank x Flute Length x OAL)

1/8 x 3/8 x 3/8 x 2-5/16"
 3/16 x 3/8 x 1/2 x 2-3/8"
 1/4 x 3/8 x 5/8 x 2-7/16"
 5/16 x 3/8 x 3/4 x 2-1/2"
 3/8 x 3/8 x 3/4 x 2-1/2"
 7/16 x 1/2 x 1 x 3"
 1/2 x 1/2 x 1 x 3"
 5/8 x 1/2 x 1-1/8 x 3-1/8"
 3/4 x 1/2 x 1-5/8 x 3-5/8"



CENTER CUT • HIGH SPEED STEEL

Item#	Set	Flute	Size Includes
8001-0006	6PC	2	1/8,3/16,1/4,5/16,3/8 & 1/2"
8001-0007	6PC	4	1/8,3/16,1/4,5/16,3/8 & 1/2"
8001-0009	9PC	2	1/8,3/16,1/4,5/16,3/8,7/16,1/2,5/8 & 3/4"

2-FLUTE HSS BALL NOSE END MILLS

- Used for general-purpose machining of both ferrous and nonferrous materials.

HIGH SPEED STEEL



Diameter (In) Mill	Shank	Flute (In) Length	OAL (In)	Item#
1/8	3/8	3/8	2-5/16	5841-0125
3/16	3/8	7/16	2-5/16	5841-0187
1/4	3/8	5/8	2-7/16	5841-0250
5/16	3/8	3/4	2-1/2	5841-0312
3/8	3/8	3/4	2-1/2	5841-0375
7/16	1/2	1	3	5841-0437*
1/2	1/2	1	3	5841-0500
9/16	1/2	1	3	5841-0562
5/8	5/8	1-3/8	3-3/8	5841-0625

*Limited Supply

2-FLUTE M42 COBALT BALL NOSE END MILLS

- M42 Cobalt (8%) is designed to cut difficult and abrasive materials, ranging from medium to high hardness. Roughing end mills are made of cobalt to withstand elevated temperatures and assure high-edge hardness during rapid stock removal. Choose cobalt end mills on hardwork materials or when there is a problem with wear or short tool life.

M42 (8%) COBALT

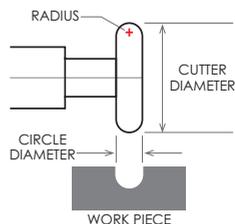


Diameter (In) Mill	Shank	Flute (In) Length	OAL (In)	M42 COBALT Item#
1/8	3/8	3/8	2-5/16	5842-0125
3/16	3/8	1/2	2-3/8	5842-0187
1/4	3/8	5/8	2-7/16	5842-0250
3/8	3/8	3/4	2-1/2	5842-0375
1/2	1/2	1	3	5842-0500
1	1	2-1/4	4-3/4	5842-1000*

*Limited Supply

CONVEX RADIUS HSS MILLING CUTTERS

- Precision ground
- Performance at lower cost
- Better finish possible in many materials with profile ground.
- Used for milling female half circle.



HIGH SPEED STEEL



Item#	No. of Teeth	Radius (Inch)	Cutter Dia(In)	Shank Dia(In)	OAL (Inch)
2006-0401	6	1/32	3/4	1/2	3
2006-0406	6	1/16	3/4	1/2	3
2006-0416	6	1/8	1-1/4	3/4	3-1/2

CONVEX MILLING CUTTERS

- Teeth are relieved and straight gashed.
- Cutting surfaces may be resharpened on face without changing contour.

HIGH SPEED STEEL

Use For Milling Female Half Circle

NEW



Item#	Circle Dia.	Cutter Dia.	Hole Size
2006-0421	1/8"	2-1/4"	1
2006-0424	3/16"	2-1/4"	1
2006-0427	1/4"	2-1/2"	1

CUTTERS & SETS

60° ANGLE DOVETAIL CUTTERS & SET

5PC SET INCLUDES:

- Cutter Diameters: 3/8, 1/2, 3/4, 1-3/8 & 1-7/8"
- Supplied with wooden stand

**5 PC SET
2006-0205**

Individual HIGH SPEED STEEL • RIGHT HAND CUT • 60° ANGLE

Item#	Cutter Dia. (Inch)	Shank Dia. (Inch)	Face OAL (Inch)	Length of Cut (Inch)
2006-0210	3/8	3/8	2-1/8	3/16
2006-0212	1/2	3/8	2-1/8	1/4
2006-0214	3/4	3/8	2-1/8	5/16
2006-0216	1-3/8	5/8	2-7/8	9/16
2006-0218	1-7/8	7/8	3-1/4	13/16
2006-0220	2-1/4	1	3-3/4	1-1/16



SINGLE ANGLE 45° HSS CHAMFERING CUTTERS

- Use for chamfering and other angular milling operations.
- Made from high speed steel.

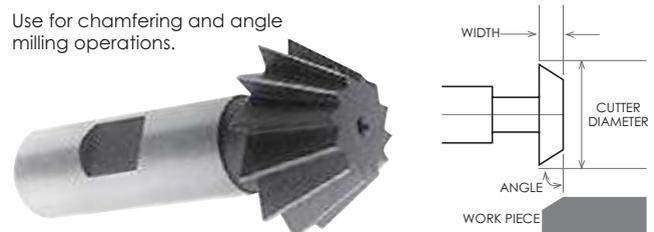


Cutter Dia.	Cutter Width	Shank Dia.	Overall Length	Item#
1/2	1/8	3/8	2-1/8	2006-0381
3/4	3/16	3/8	2-1/8	2006-0383
1	5/16	1/2	2-1/2	2006-0385
1-1/2	1/2	3/4	2-3/4	2006-0387

SINGLE ANGLE 45° COBALT CHAMFERING CUTTERS

M42 (8%) COBALT • RIGHT HAND CUT • 45° CHAMFER ANGLE

- Use for chamfering and angle milling operations.



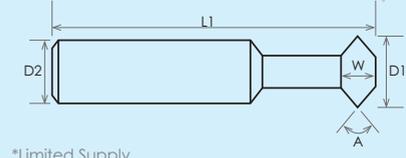
Cutter Dia.	Cutter Width	Shank Dia.	Overall Length	Item#
1/2	1/8	3/8	2-1/8	2006-0351
3/4	3/16	3/8	2-1/8	2006-0353
1	5/16	1/2	2-1/2	2006-0356
1-1/2	1/2	3/4	2-3/4	2006-0360

DOUBLE ANGLE COBALT SHANK CUTTERS

- Double angle cutters are available with either a 60° or 90° included angle for milling a double angle cut in one pass.

M42 (8%) COBALT

Cutter Angle A	Cutter Dia. D1	Shank Dia. D2	Cutter Width W	Overall Length L1	Item #
60°	3/4	3/8	3/16	2-3/8	2006-0301
	1	1/2	5/16	2-27/32	2006-0303
	1-1/2	5/8	1/2	3-3/8	2006-0306
	2-1/4	7/8	3/4	4-5/32	2006-0310
90°	3/4	3/8	1/4	2-7/16	2006-0331*
	1	1/2	3/8	2-29/32	2006-0333*
	1-1/2	5/8	9/16	3-7/16	2006-0336*
	2-1/4	7/8	3/4	4-5/32	2006-0340*



*Limited Supply

HSS T-SLOT CUTTERS

- High speed steel.
- Rugged design with free cutting features.
- Cutters have positive radial rake, right and left hand spiral with alternate side cutting teeth for maximum chip clearance.

HIGH SPEED STEEL



*Limited Supply

Bolt Size	Cutter Dia.	Cutter Width	Neck Dia.	Shank Dia.	Undercut Length	OAL	Tooth	Item#
1/4	9/16	15/64	17/64	1/2	35/64	2-19/32	8	2006-0161
5/16	21/32	17/64	21/64	1/2	39/64	2-11/16	8	2006-0163
3/8	25/32	21/64	13/32	3/4	3/4	3-1/4	8	2006-0165
1/2	31/32	25/64	17/32	3/4	3/4	3-7/16	8	2006-0167
5/8	1-1/4	31/64	21/32	1	1-9/64	3-15/16	10	2006-0169*
3/4	1-15/32	5/8	25/32	1	1-1/2	4-7/16	10	2006-0171*
1	1-27/32	53/64	1-1/32	1-1/4	1-43/64	4-13/16	10	2006-0173*
1-1/4	2-7/32	1-3/32	1-9/32	1-1/4	1-31/32	5-3/8	12	2006-0175*
1-1/2	2-21/32	1-11/32	1-17/32	1-1/4	2-1/8	5-29/32	12	2006-0177*

PLAIN METAL SLITTING SAWS

- For general-purpose slotting and cut-off operations. Sides concave for smooth cuts.
- With keyway (except 3").



HIGH SPEED STEEL

*Limited Supply

Dia. (Inch)	No. of Teeth	Face (Inch)	Hole (Inch)	Item #
3	30	1/64	1	5071-4201
3	30	1/32	1	5071-4202
3	30	3/64	1	5071-4203
3	30	1/16	1	5071-4204
3	30	3/32	1	5071-4206
3	30	1/8	1	5071-4208
3	30	5/32	1	5071-4210
4	36	1/32	1	5071-4402
4	36	1/16	1	5071-4404
4	36	3/32	1	5071-4406
4	36	1/8	1	5071-4408
4	36	5/32	1	5071-4410*
5	40	1/16	1	5071-4604
5	40	3/32	1	5071-4606*
5	40	1/16	1-1/4	5071-4704*
5	40	3/32	1-1/4	5071-4706*
5	40	1/8	1-1/4	5071-4708*
5	40	5/32	1-1/4	5071-4710*
5	40	3/16	1-1/4	5071-4712*
6	42	3/32	1	5071-4806*
6	42	1/8	1	5071-4808*
6	42	5/32	1	5071-4810*

5PC METAL SLITTING SAW KIT

- For general-purpose slotting and cut-off operations. Sides concave for smooth cuts.
- Mandrel: 1/8"



KIT INCLUDES

Dia. (Inch)	Thickness (Inch)	Hole (Inch)
7/8	0.016	1/4
1	0.020	1/4
1-1/4	0.024	1/4
1-1/2	0.028	1/4
1-3/4	0.031	1/4

HIGH SPEED STEEL

**5PC KIT
7/8-1-3/4"
5071-5000**

SLOTING SAW ARBORS

- For saw blades upto 3/16" thick



Item#	Shank	OAL	For Saw Hole Size
3900-0144	R8	5-3/32"	1/2, 5/8, 3/4, 7/8 & 1"
3900-0145	1/2"	2-9/16"	1/2, 5/8, 3/4, 7/8 & 1"

14.5° & 20° PRESSURE ANGLE INVOLUTE GEAR CUTTERS

- Involute gear cutters make it possible to machine gears on your mill -either CNC mills or manual mills. The gear cutter is made into the involute profile, which transfers its shape to your gear blank, allowing it to run with other gears. The gear cutter needs to be matched to your gear specifications: diametral pitch or module, pressure angle, and even the number of teeth it will cut.
- The profile of all involute spur gears changes slightly as the tooth count changes, and so the profile of the gear cutter changes as well. Cutters are numbered from #1-#8 depending on how many teeth it will cut.
- For spur gears with 14.5° & 20°.
- Made from high speed steel
- Ground from solid.
- Straight teeth on periphery of cutters.
- Bright finish.



2041-1012 Shown



2040-0825 Shown

NEW

HIGH SPEED STEEL

Cutter Number	Range of Teeth Cut
#1	135 to rack
#2	55-134
#3	35-54
#4	26-34
#5	21-25
#6	17-20
#7	14-16
#8	12-13

14.5° Pressure Angle

Pitch	Cutter Diameter	Arbor Hole	#1 Item#	#3 Item#	#4 Item#	#5 Item#	#6 Item#	#7 Item#	#8 Item#
10	2-3/4	1	2041-1012	2041-1038	-----	-----	2041-1061	-----	-----
12	2-5/8	1	2041-1210	-----	-----	-----	-----	2041-1277	2041-1285
16	2-1/2	1	-----	-----	-----	-----	-----	-----	2041-1688
20	2-3/8	1	-----	-----	-----	2041-2051	-----	-----	-----
48	1-3/4	7/8	-----	-----	2041-4842	-----	-----	2041-4875	2041-4883

20° Pressure Angle

Pitch	Cutter Diameter	Arbor Hole	#2 Item#	#3 Item#	#4 Item#	#7 Item#	#8 Item#
8	2-7/8	1	2040-0825	-----	-----	-----	-----
10	2-3/4	1	-----	-----	2040-1047	-----	-----
12	2-5/8	1	2040-1229	-----	2040-1045	2040-1278	2040-1286
16	2-1/2	1	-----	2040-1633	-----	2040-1674	2040-1682
20	2-3/8	1	-----	2040-2137	-----	-----	-----

KEYWAY BROACHES & SETS

HSS KEYWAY BROACH SETS-HEAVY DUTY • HIGH SPEED STEEL

- Heavy duty.
- High speed steel.
- Provides great versatility.
- Specialty tools designed for cutting keyways in machined holes.
- Typically used manually with an arbor press or hydraulic press to produce the keyways.
- Well suited for use in a variety of ferrous and non-ferrous materials.
- Includes shims & wooden case.

**30 PC SET
2006-0056**

INCLUDES: 5 Broaches,
18 Collared Bushings, 7 Shims



2006-0056 Shown

**17 PC SET
2006-0054**

4 Broaches, 9 Collared Bushings, 4 Shims



2006-0054 Shown



**9 PC SET
2006-0051**

INCLUDES: 3 Broaches,
5 Collared Bushings, 1 Shim

2006-0051 Shown

Item#	Set	Keyway Size	Broach Style	Collared Bushing	Keyway Combination
2006-0051	9PC	1/16, 3/32, 1/8"	A	1/4, 5/16", 3/8, 7/16", 1/2"	15
2006-0054	17PC	1/8, 3/16" 1/4, 3/8"	B C	1/2, 5/8, 3/4, 7/8", 1, 1-1/8, 1-1/4, 1-3/8, 1-1/2"	18
2006-0056	30PC	1/8, 3/16" 1/4, 5/16, 3/8"	B C	1/2, 9/16, 5/8, 11/16, 3/4, 13/16, 7/8, 15/16, 1, 1-1/16, 1-1/8, 1-3/16, 1-1/4, 1-5/16, 1-3/8, 1-7/16, 1-1/2, 1-9/16"	47

SHIMS - FOR KEYWAY BROACHES



Item#	Style-Size	Item#	Style-Size
2006-1552	A-1/8"	2006-1574	C-5/16"
2006-1556	B-1/8"	2006-1578	D-5/16"
2006-1558	B-5/32"	2006-1582	D-3/8 & 1/2"
2006-1562	B-3/16"	2006-1586	D-7/16"
2006-1566	C-3/16"	2006-1590	E-5/8 & 3/4"
2006-1570	C-1/4 & 3/8"	2006-1594	F-7/8 & 1"

KEYWAY BROACHES HEAVY DUTY • HIGH SPEED STEEL

- Broach is tapered and ground with bright finishing.
- Shim included.
- One-pass keyway broaches require appropriate guide bushing.



Item#	Broach Size	Type	Broach Dimensions	Shims Required	Length of Cut(Min.)	Length of Cut(Max)	Tolerances
2006-1008	1/8"	A	1/8 x 5	1	13/64	1-1/8	.1252~.1262
2006-1018	1/8"	B	3/16 x 6-3/4	1	19/64	1-11/16	.1252~.1262
2006-1022	3/16	B	3/16 x 6-3/4	1	19/64	1-11/16	.1877~.1887
2006-1024	3/16	C	3/8 x 11-3/4	1	25/64	2-1/2	.1877~.1887
2006-1026	1/4	C	3/8 x 11-3/4	1	25/64	2-1/2	.2502~.2512
2006-1030	5/16	C	3/8 x 11-3/4	2	25/64	2-1/2	.3127~.3137
2006-1034	3/8	C	3/8 x 11-3/4	2	25/64	2-1/2	.3755~.3765
2006-1046	1/2	D	9/16 x 13-7/8	3	1	6	.5006~.5016
2006-1050	5/8	E	3/4 x 15-1/2	4	1	6	.6260~.6270

KEYWAY BUSHINGS

- Different size bushings enable the individual keyway broach to be used in a variety of sizes.



STYLE "A", 1/8" SLOT-COLLARED

Bushing	Diameter	Item#
A	1/4	2006-1102
A	5/16	2006-1104
A	3/8	2006-1106
A	7/16	2006-1108
A	1/2	2006-1110

STYLE "E", 3/4" SLOT-PLAIN TYPE

Bushing	Diameter	Item#
E	2-5/16	2006-1502
E	2-3/8	2006-1504
E	2-7/16	2006-1506
E	2-1/2	2006-1508
E	2-9/16	2006-1510
E	2-5/8	2006-1512
E	2-11/16	2006-1514
E	2-3/4	2006-1516
E	2-13/16	2006-1518
E	2-7/8	2006-1520
E	2-15/16	2006-1522
E	3	2006-1524

D,E STYLE: Plain A,B,C STYLE: Collared

The letter designation signifies the body width of the keyway broach



STYLE "B", 3/16" SLOT-COLLARED

Bushing	Diameter	Item#
B	1/2	2006-1202
B	9/16	2006-1204
B	5/8	2006-1206
B	11/16	2006-1208
B	3/4	2006-1210
B	13/16	2006-1212
B	7/8	2006-1214

STYLE "C", 3/8" SLOT-COLLARED

Bushing	Diameter	Item#
C	3/4	2006-1302
C	13/16	2006-1304
C	7/8	2006-1306
C	15/16	2006-1308
C	1	2006-1310
C	1-1/16	2006-1312
C	1-1/8	2006-1314
C	1-3/16	2006-1316
C	1-1/4	2006-1318
C	1-5/16	2006-1320
C	1-3/8	2006-1322
C	1-7/16	2006-1324
C	1-1/2	2006-1326
C	1-9/16	2006-1328

STYLE "D", 9/16" PLAIN TYPE

Bushing	Diameter	Item#
D	1-7/16	2006-1402
D	1-1/2	2006-1404
D	1-9/16	2006-1406
D	1-5/8	2006-1408
D	1-11/16	2006-1410
D	1-3/4	2006-1412
D	1-13/16	2006-1414
D	1-7/8	2006-1416
D	2	2006-1420
D	2-1/16	2006-1422
D	2-1/8	2006-1424
D	2-3/16	2006-1426
D	2-1/4	2006-1428
D	2-5/16	2006-1430
D	2-3/8	2006-1432
D	2-7/16	2006-1434
D	2-1/2	2006-1436
D	2-9/16	2006-1438
D	2-5/8	2006-1440
D	2-11/16	2006-1442
D	2-3/4	2006-1444
D	2-13/16	2006-1446
D	2-7/8	2006-1448
D	2-15/16	2006-1450
D	3	2006-1452

SQUARE PUSH BROACHES HEAVY DUTY • HIGH SPEED STEEL

- Broach is tapered and ground with bright finishing.
- Used for cutting square shaped hole in round pilot holes.
- Well suited for ferrous and non-ferrous materials.



Item#	Broach Size	Broach Length	Pilot Dia.	(Inch) Drill Size	Length of Cut		Tolerance
					Min.	Max.	
2006-0114	1/4	6-1/2	17/64	17/64	1/4	3/4	.2505~.2515
2006-0122	3/8	9-3/8	25/64	25/64	3/8	1-1/4	.3755~.3765
2006-0124	7/16	10-7/8	29/64	9/64	1/2	1-3/8	.4385~.4395
2006-0126	1/2	12	17/32	17/32	1/2	1-3/8	.5005~.5015
2006-0138	3/4	17-3/4	13/16	13/16	5/8	1-5/8	.7510~.7520

1/2" SHANK 10PC WOODRUFF KEYSEAT CUTTER SET

- Straight tooth.
- Designed for using together with normal end mills for milling standard woodruff keyseat, slots.

HIGH SPEED STEEL

10PC SET
2006-0452

Includes: 204, 305, 403, 404,
406, 505, 606, 608, 806 & 808



Dimensions

American Standard	Cutter Diameter	Face Width	Overall Length
204	1/2	1/16	2-1/16
305	5/8	3/32	2-3/32
403	3/8	1/8	2-1/8
404	1/2	1/8	2-1/8
406	3/4	1/8	2-1/8
505	5/8	5/32	2-5/32
606	3/4	3/16	2-3/16
608	1	3/16	2-3/16
806	3/4	1/4	2-1/4
808	1	1/4	2-1/4

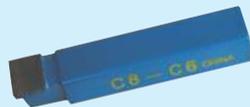
NEW

TOOL BITS & HOLDERS

CARBIDE-TIPPED SINGLE-POINT BRAZED TOOL BITS

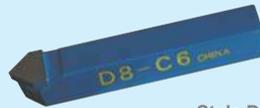
**RIGHT HAND CUTS FROM RIGHT TO LEFT
LEFT HAND CUTS FROM LEFT TO RIGHT**

**GRADE C-2 for cast iron and non-ferrous materials
GRADE C-6 for steel and steel alloys.**



(Inch) Size	OAL	Style C Tool Style	C-6 Item#
1/4	2	C-4	2008-1104
5/16	2-1/4	C-5	2008-1105
3/8	2-1/2	C-6	2008-1106
1/2	3-1/2	C-8	2008-1108

Style C



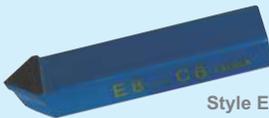
(Inch) Size	OAL	Style D Tool Style	C-6 Item#
1/4	2	D-4	2008-1204
3/8	2-1/2	D-6	2008-1206
1/2	3-1/2	D-8	2008-1208

Style D



(Inch) Size	OAL	Style E Tool Style	C-6 Item#
1/4	2	E-4	2008-1304
5/16	2-1/4	E-5	2008-1305
3/8	2-1/2	E-6	2008-1306
1/2	3-1/2	E-8	2008-1308
5/8	4	E-10	2008-1310

Style A



(Inch) Size	OAL	Style E Tool Style	C-6 Item#
1/4	2	E-4	2008-1304
5/16	2-1/4	E-5	2008-1305
3/8	2-1/2	E-6	2008-1306
1/2	3-1/2	E-8	2008-1308
5/8	4	E-10	2008-1310

Style E

Size	Style A (Inch) OAL	Right Hand			Left hand		
		Tool Style	C-2 Item#	C-6 Item#	Tool Style	C-2 Item#	C-6 Item#
1/4	2	AR-4	2008-0014	2008-0004	AL-4	2008-1014	2008-1004
5/16	2-1/4	AR-5	2008-0015	2008-0005	AL-5	2008-1015	2008-1005
3/8	2-1/2	AR-6	2008-0016	2008-0006	AL-6	2008-1016	2008-1006
1/2	3-1/2	AR-8	2008-0018	2008-0008	AL-8	2008-1018	2008-1008
5/8	4	AR-10	2008-0020	2008-0010	AL-10	2008-1020	2008-1010
3/4	4-1/2	AR-12	-----	2008-0012			

8PC HSS LATHE TURNING TOOL SETS

- Square shank sizes.
- Manufactured from HSS (M-2) material.
- Shanks are heat treated and ground.

Set Includes:

- No.1 Left-Hand Turning Tool (80°),
 - No.2 Right-Hand Turning Tool(80°),
 - No.3 Straight Finishing Tool, No.4 Corner (45°) Tool,
 - No.5 Parting Tool, No.6 Boring Tool,
 - No.7 Threading (60°) Tool, No.8 Corner (60°) Tool.
- Fitted Case.

Item #	Shank	Shank Length
2006-9022	1/4	2-1/2
2006-9024	5/16	3-1/8
2006-9026	3/8	4
2006-9028	1/2	4



TURNING TOOL HOLDERS-For Use With Rocker Style Turning Tool Holders

- Accurately machined and carefully heat-treated, these tool holders feature a relieved cutter bit hole to assure proper seating of tool bits, thereby reducing breakage. These holders are for use with high speed steel tool bits.



RIGHT HAND

Limited Supply!

Tool Bit NOT Included

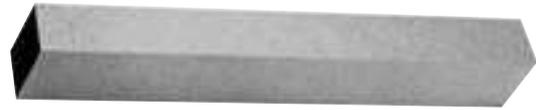
Holder Size	Tool Bit Size	RH Offset Item#
3/8 x 7/8 x 5"	1/4"	2206-0375
1/2 x 1-1/8 x 6"	5/16"	2206-0500
5/8 x 1-3/8 x 7"	3/8"	2206-0625
3/4 x 1-5/8 x 8"	7/16"	2206-0750

SQUARE TOOL BITS - HSS & COBALT GROUND

- **M2 HIGH SPEED STEEL** A fine general purpose ground tool bits show exceptional result on mild steel, alloys and tool steels. This tool bit makes a superior finishing tool.
- **COBALT** Superior types of high speed steel which will work better where high heat is present. Used for heavy cuts in hard materials.

REGULAR LENGTH

Size (Inch) SQ x OAL	HSS Item#	M42 8% Cobalt Item#
1/8 x 2-1/2	2000-0001	2000-0041
3/16 x 2-1/2	2000-0002	2000-0042
1/4 x 2-1/2	2000-0003	2000-0043
5/16 x 2-1/2	2000-0004	2000-0044
3/8 x 3	2000-0005	2000-0045
7/16 x 3-1/2	2000-0006	2000-0046
1/2 x 4	2000-0007	2000-0047
5/8 x 4-1/2	2000-0008	2000-0048
3/4 x 5	2000-0009	2000-0049
1 x 7	2000-0011	2000-0051



EXTRA LONG

Size (Inch) SQ x OAL	HSS Item#	M35 5% Cobalt Item#
1/4 x 4	2000-0071	2000-0020
1/4 x 6	2000-0072	2000-0021
1/4 x 8	2000-0073	2000-0022
5/16 x 6	2000-0075	2000-0025
3/8 x 4	2000-0077	2000-0027
3/8 x 6	2000-0078	2000-0028
3/8 x 8	2000-0079	2000-0029
1/2 x 6	2000-0083	2000-0060

RECTANGULAR TOOL BITS - HSS



HIGH SPEED STEEL

*Limited Supply

Size (Inch)	Item#
1/4 x 3/8 x 3	2000-0203
1/4 x 1/2 x 4	2000-0220
1/4 x 3/4 x 5	2000-0235
3/8 x 3/4 x 5	2000-0248
3/8 x 1-1/4 x 6	2000-0252
1/2 x 3/4 x 5	2000-0257*

ROUND TOOL BITS - HSS



HIGH SPEED STEEL

Size (Inch)	Item#	Size (Inch)	Item#
1/8x2-3/4	2000-0331	3/8x5	2000-0385
3/16x3-1/2	2000-0353	1/2x6	2000-0389
1/4x4	2000-0377		

FLY CUTTERS - Morse Taper & R8

- A fly cutter usually has two cutting heads and it is able to cut with a constant depth to face any surface to obtain a uniform surface.
- Utilizes standard tool bits.
- Counter balanced.
- Made of durable hardened steel.



Morse Taper
4006-0022 Shown



R8 4002-0018 Shown

INDIVIDUALS

Item#	Shank	Diameter of Head (In)	Fit Tool Bit (In)	Drawbar Thread
4006-0022	MT2	1.5	3/16	3/8~16
4006-0023	MT3	1.5	1/4	1/2~13
4002-0018	R8	2.5	5/16	-

3PC FLY CUTTER SETS - Straight Shank

- Utilizes standard tool bits.
- Counter balanced.
- Made of durable hardened steel.
- Cuts flat and smooth surface with a single cut.

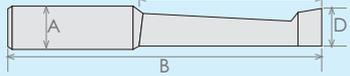


Item#	Set	Diameter Tool Bit Head (In)	Shank (In)	Fit (In)
4002-0001	3	3/4	1/2	3/16
		1-1/8		1/4
		1-1/2		5/16
4002-0002	3	1-1/2	3/4	5/16
		2		5/16
		2-1/2		5/16
4002-0003	3	1-1/2	3/4	3/8
		2		3/8
		2-1/2		1/2

BORING BARS & SETS

COBALT (M42) BORING BAR SETS

- One piece cobalt structure to give more boring accuracy and longer life.
- All purpose.
- All shanks are held 0.000-0.005" from the nominal size.
- **COBALT** used for boring in tough high tensile strength materials like stainless steel, titanium and inconel.



Item#	B (In) Length	C (In) Bore Depth	D (In) Min.bore
1001-0033 (8pc/set)	2	3/4	1/4
	2-3/8	1-1/8	1/4
	2-3/4	1-1/2	5/16
	2-3/16	15/16	3/8
	2-21/32	1-13/32	3/8
	3-1/8	1-7/8	3/8
1001-0035 (10pc/set)	2-1/8	5/8	5/16
	2-1/4	3/4	5/16
	2-5/8	1-1/8	5/16
	3	1-1/2	5/16
	2-5/8	1-1/8	7/16
	3-3/16	1-11/16	7/16
	3-3/4	2-1/4	7/16
	3	1-1/2	9/16
	3-3/4	2-1/4	9/16
	4-1/2	3	9/16

**8 PC SET
3/8" SHANK
1001-0033**

**M42 8% COBALT
MADE OF SOLID COBALT**

**10 PC SET
1/2" SHANK
1001-0036**

DOUBLE-END BORING BARS & SETS

- Machined from selected steel for greater strength and rigidity.
- Broached holes accept standard tool bits.
- Black oxide finish.
- Bars have one 45° end and one 90° end.



Tool Bits Not Included

ONE 90° END AND ONE 45° END

INDIVIDUALS

Item#	Bar Dia.	Bar OAL	Bit Size	Bit Type
1015-0250	1/4"	5	5/32	Round
1015-0312	5/16"	5	3/16	Round
1015-0375	3/8"	6	3/16	Round
1015-0500	1/2"	6	3/16	Square
1015-0502	1/2"	9	3/16	Square
1015-0561	9/16"	6-3/4	3/16	Square
1015-0562	9/16"	9	3/16	Square
1015-0564	9/16"	6-3/4	1/4	Square
1015-0625	5/8"	10	1/4	Square
1015-0748	3/4"	8	1/4	Square
1015-0750	3/4"	12	1/4	Square
1015-0938	15/16"	9	5/16	Square
1015-1000	1"	12	5/16	Square
1015-1001	1"	12	1/4	Square
1015-1002	1"	12	3/8	Square
1015-1004	1-1/8"	14	7/16	Square
1015-1250	1-1/4"	16	1/2	Square
1015-1500	1-1/2"	18	1/2	Square

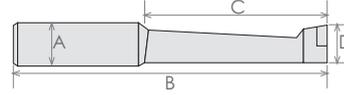


SETS

Item#	No. of Pieces	Includes
1001-0007	4	1015-0250, 1015-0312, 1015-0375 & 1015-0500
1001-0008	5	1015-0250, 1015-0375, 1015-0500, 1015-0625 & 1015-0750
1001-0010	5	1015-0375, 1015-0500, 1015-0625, 1015-0750 & 1015-1000

CARBIDE-TIPPED BORING BAR SETS

- Quality tool designed to be used as a boring tool bit.
- All shanks are held to 0.000 - 0.0005" from the nominal size.
- Shanks are made of special heat treated alloy steel.
- Three lengths for each minimum bore size.



**GRADE C-6
FOR ALL STEEL AND ALL PURPOSE**

C-6 Item#	A Shank Dia. (In)	Set PC.	B (In) Length	C (In) Bore Depth	D (In) Min.bore
1001-0001	3/8	9	2	3/4	5/16
			2-3/8	1-1/8	5/16
			2-3/4	1-1/2	5/16
			2-3/16	15/16	3/8
			2-21/32	1-13/32	3/8
			3-1/8	1-7/8	3/8
			2-3/8	1-1/8	7/16
			3-15/16	1-11/16	7/16
			2-1/4	3/4	5/16
			2-5/8	1-1/8	5/16
1001-0002	1/2	9	3	1-1/2	5/16
			2-5/8	1-1/8	7/16
			3-3/16	1-11/16	7/16
			3-3/4	2-1/4	7/16
			3	1-1/2	9/16
			3-3/4	2-1/4	9/16
			4-1/2	3	9/16
			2-1/4	3/4	5/16
			2-5/8	1-1/8	5/16
			3	1-1/2	5/16
1001-0003	5/8	12	2-1/4	3/4	5/16
			2-5/8	1-1/8	5/16
			3	1-1/2	5/16
			2-5/8	1-1/8	7/16
			3-3/16	1-11/16	7/16
			3-3/4	2-1/4	7/16
			3	1-1/2	9/16
			3-3/4	2-1/4	9/16
			4-1/2	3	9/16
			3-3/8	1-7/8	11/16
4-5/16	2-13/16	11/16			
1001-0004	3/4	12	5-1/4	3-3/4	11/16
			3-1/8	1-1/8	7/16
			3-11/16	1-11/16	7/16
			4-1/4	2-1/4	7/16
			3-1/2	1-1/2	9/16
			4-1/4	2-1/4	9/16
			5	3	9/16
			3-7/8	1-7/8	11/16
			4-13/16	2-13/16	11/16
			5-3/4	3-3/4	11/16
1001-0005	1	7	4-1/4	2-1/4	13/16
			5-3/8	3-3/8	13/16
			6-1/2	4-1/2	13/16
			5	3	9/16
			5-3/4	3-3/4	11/16
			6-1/2	4-1/2	7/8
			6-1/2	4-1/2	1-1/16
			7-3/4	5-3/4	1-1/4
			8-1/4	6-1/2	1-1/2
			9-1/2	7-1/2	1-5/8

82° INDEXABLE COUNTERSINK & CHAMFER TOOLS



- Deburr and countersink large diameter holes.
- Positive rake for smooth cutting without chatter.
- Carbide indexable tool, so re-sharpening tool needed.
- 7° relief.



Item#	Max. Cutting Dia.	Min. Cutting Dia.	Shank Dia.	No. of Inserts	Insert Used	Screw	Torx Wrench
2001-0036	3/4"	1/4"	1/2"	1	TC_32.5_	M4x8	T15
2001-0038	1-3/4"	1/2"	1/2"	1	SC_43_	M5x10	T20
2001-0040	2-1/2"	1-1/4"	3/4"	1	SC_43_	M5x10	T20

INSERTS - Replacement

Item #	Size
6004-9031	TCMT32.51
6004-4432	SCMT432

SCREWS - Replacement

Item #	Size
2100-0069	M4x8
2100-0075	M5x10

TORX WRENCHES - Replacement

Item #	Size
2100-0095	T15
2100-0096	T20

3PC INDEXABLE COUNTERSINK & CHAMFERING TOOL SETS

- Use for deburring and countersinking large diameter holes.
- Positive rake for smooth cutting without chatter.
- Carbide indexable tool so no tool resharping is needed.
- 7° relief.

Set Includes 1 of Each: 1/4x3/4x1/2" shank, 1/2x1-3/4x1/2" shank, 1-1/4x2-1/2x3/4" shank, C-6 inserts & wrenches (T15,T20)



Item#	Degree	Max. Cutting Dia.	Min. Cutting Dia.	Shank Dia.	No. of Inserts	Insert Used	Screw	Torx Wrench
2001-0010	60°	3/4"	1/4"	1/2"	1	TC_32.5_	M4x8	T15
2001-0011	82°	1-3/4"	1/2"	1/2"	1	SC_43_	M5x10	T20
2001-0012	90°	2-1/2"	1-1/4"	3/4"	1	SC_43_	M5x10	T20

INSERTS - Replacement

Item #	Size
6004-9031	TCMT32.51
6004-4432	SCMT432

SCREWS - Replacement

Item #	Size
2100-0069	M4x8
2100-0075	M5x10

TORX WRENCHES - Replacement

Item #	Size
2100-0095	T15
2100-0096	T20

45° INDEXABLE CHAMFERING END MILLS -Accepts SPMT Carbide Insert

- Straight shank.
- Inserts are not included.



Item#	Max. Cutting Dia.	Min. Cutting Dia.	Shank Dia.	OAL	No. of Inserts	Use Insert	Screw	Torx Wrench
2076-0001	1"	0.528"	3/4"	3-3/8"	2	SP_32.5_	M4x10	T15
2076-0003	1-1/8"	0.652"	3/4"	3-3/8"	2	SP_32.5_	M4x8	T15
2076-0006	1-1/4"	0.776"	3/4"	3-3/8"	2	SP_32.5_	M4x10	T15
2076-0010	1-1/2"	1.025"	1"	3-1/2"	3	SP_32.5_	M4x10	T15
2076-0013	1-3/4"	1.274"	1-1/4"	3-1/2"	3	SP_32.5_	M4x10	T15
2076-0016	2"	1.522"	1-1/2"	4"	4	SP_32.5_	M4x10	T15

INSERTS - Optional

Item #	Size
6018-3251	SPMT32.51
6018-3252	SPMT32.52

SCREWS - Replacement

Item #	Size
2100-0069	M4x8
2100-0074	M4x10

TORX WRENCH - Replacement

Item #	Size
2100-0095	T15

INDEXABLE CUTTERS

INDEXABLE T-SLOT CUTTERS

Accepts CCMT Carbide Inserts

- 7° relief.
- Setting rake 90°.
- For milling, "T" slotting, bottom shouldering & side slotting.
- Weldon shank.



INSERTS NOT INCLUDED

Item#	Cutting Dia. D	Cutter Thickness b	Shank Dia. d	OAL L	Neck Dia. d1	No. of Inserts	Insert Used	Screw	Torx Wrench
2077-0500	31/32"	25/64"	3/4"	3-3/4"	17/32"	4	CC_ _21.5_	M2.5x6	T8
2077-0502	5/8"	17/32"	1"	4-3/8"	41/64"	4	CC_ _32.5_	M4x8	T15
2077-0504	1-15/32"	5/8"	1"	4-3/4"	25/32"	4	CC_ _32.5_	M4x10	T15
2077-0506	1-27/32"	53/64"	1-1/4"	5-1/8"	1-1/32"	4	CC_ _43_	M5x12	T20

INSERTS - Optional

Item #	Size
6053-0111	CCMT21.51
6053-0112	CCMT21.51
6053-0221	CCMT32.51
6053-0222	CCMT32.52
6053-0432	CCMT432

SCREWS - Replacement

Item #	Size
2100-0070	M2.5x6
2100-0069	M4x8
2100-0074	M4x10
2100-0075	M5x10

TORX WRENCHES - Replacement

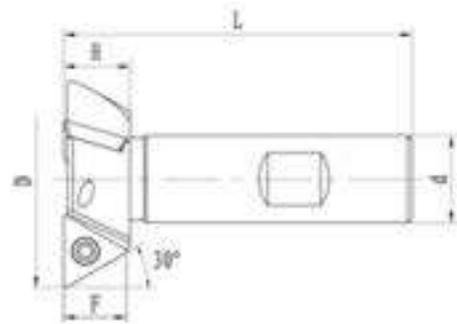
Item #	Size
2100-0092	T8
2100-0095	T15
2100-0096	T20

60° INDEXABLE DOVETAIL CUTTERS - Accepts TDEX Carbide Inserts

- Right hand cut.
- 60° angle, 15° clearance.
- For milling, roughing & finishing at high speeds & feeds.
- Inserts are not included.



INSERTS NOT INCLUDED



Item#	Cutting Dia. D	Shank Dia. d	OAL L	Cutting Depth F	Height H	No. of Insert	Insert Used	Screw	Torx Wrench
2075-0500	1/2"	3/8"	2.390"	0.32"	0.375"	1	TDEX21.5	M2.5x5	T8
2075-0502	3/4"	3/8"	2.390"	0.32"	0.375"	2	TDEX21.5	M2.5x6	T8
2075-0504	1"	1/2"	2.375"	0.32"	0.375"	3	TDEX21.5	M2.5x6	T8
2075-0506	1-3/8"	5/8"	2.862"	0.51"	0.550"	3	TDEX32	M4x10	T15
2075-0508	1-7/8"	3/4"	3"	0.51"	0.550"	3	TDEX32	M4x10	T15
2075-0510	2-1/4"	1"	3.5"	0.70"	0.750"	3	TDEX43	M5x11	T20
2075-0512	2-1/2"	1"	3.5"	0.70"	0.750"	3	TDEX43	M5x11	T20

INSERTS - Optional

Item #	Size
6062-0215	TDEX21.5
6062-0320	TDEX32
6062-0430	TDEX43

SCREWS - Replacement

Item #	Size
2100-0067	M2.5x5
2100-0070	M2.5x6
2100-0074	M4x10
2100-0079	M5x11

TORX WRENCHES - Replacement

Item #	Size
2100-0092	T8
2100-0095	T15
2100-0096	T20

MINI INDEXABLE END MILLS & SET

- Made of high grade tool steel hardened.
- Carbide triangle inserts included TPG222.

3 PC SET
8005-0020

1/2, 9/16 & 5/8"



TPG carbide inserts shown below.

Item#	Cutting Dia.	Shank Dia.	Body Length	OAL	No. of Insert	Inserts	Locking Screw
5820-0500	1/2"	1/2"	1"	3"	1	TP_22_	PM5x5
5820-0562	9/16"	1/2"	1"	3"	1	TP_22_	PM5x5
5820-0625	5/8"	1/2"	1"	3"	1	TP_22_	PM5x5

SCREW - Replacement

Item #	Size
2100-0105	PM5x5

90° SQUARE SHOULDER INDEXABLE END MILLS -Straight Shank

- For use in heavy duty milling application.
- Higher metal removal rates.
- Cutting rake angle 0°.
- Axial rake angle 0°.
- Setting angle 90°.
- Positive rake 90°.
- Right hand cut.
- Unique clamping mechanism. One clamp fits all sizes.
- Inserts included.

STRAIGHT SHANK



TPG carbide inserts shown below.

Item#	Cutting Dia. D	Shank Dia. d	OAL L	No. of Inserts	Inserts Used	Screw	Torx Wrench
5820-0750	3/4"	3/4"	3-1/4"	2	TP_22_	PM5x8	S3
5820-1000	1"	3/4"	3-1/4"	2	TP_22_	PM5x8	S3
5820-1250	1-1/4"	3/4"	3-3/8"	2	TP_32_	PM6x12	S4
5820-1500	1-1/2"	3/4"	3-1/2"	3	TP_32_	PM6x12	S4
5820-1750	1-3/4"	3/4"	3-1/2"	3	TP_32_	PM6x12	S4
5820-2000	2"	3/4"	3-3/4"	3	TP_43_	PM8x16	S5
5820-4000	2"	1"	4"	3	TP_43_	PM8x12	S5

SCREWS - Replacement

Item #	Size
2100-0105	PM5x8
2100-0106	PM6x12
2100-0108	PM8x12

R8 INDEXABLE END MILLS & SET

- For use in heavy duty milling application.
- Higher metal removal rates.
- Unique clamping mechanism. One clamp fits all sizes.
- Inserts included.

R8 SHANK

TPG carbide inserts shown below.



Individuals

Item#	Cutting Dia.	Shank Dia.	OAL	No. of Inserts	Insert Used	Locking Screw	Torx Wrench
1006-0005	1"	R8	5-9/16"	2	TP_22_	PM5x8	S3
1006-0006	1-1/4"	R8	5-9/16"	2	TP_32_	PM6x12	S4
1006-0011	1-1/2"	R8	5-9/16"	3	TP_32_	PM6x12	S4
1006-0012	2"	R8	6"	3	TP_32_	PM6x12	S4

SCREWS - Replacement

Item #	Size
2100-0105	PM5x8
2100-0106	PM6x12

3 PC SET
5820-0001

1, 1-1/4 & 1-1/2"

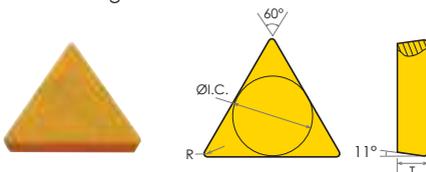
TPG - POSITIVE RAKE CARBIDE INSERTS



GRADE C-2 FOR CAST IRON AND GENERAL PURPOSE

GRADE C-6 FOR ALL STEEL AND GENERAL PURPOSE

- Single sided without chipbreaker.
- Suitable for difficult to cut materials.
- 11° relief angle.



*Limited Supply

Insert No.	I.C.	(Inch) T	R	Uncoated C-2 Item#	Uncoated C-6 Item#	TIN Coated (C-6) Item#
TPG-21.51	1/4	.094	1/64	-----	-----	6020-1121
TPG-221	1/4	1/8	1/64	6020-2221	6020-0221	6020-1221
TPG-222	1/4	1/8	1/32	6020-2222	6020-0222	6020-1222
TPG-223	1/4	1/8	3/64	6020-2223	6020-0223	6020-1223
TPG-32.51	3/8	5/32	1/64	-----	-----	6020-1122*
TPG-321	3/8	1/8	1/64	6020-2321	6020-0321	6020-1321
TPG-322	3/8	1/8	1/32	6020-2322	6020-0322	6020-1322
TPG-323	3/8	1/8	3/64	6020-2323	6020-0323	6020-1323
TPG-324	3/8	1/8	1/16	6020-2324	6020-0324	6020-1324
TPG-431	1/2	3/16	1/64	6020-2431	6020-0431*	6020-1431*
TPG-432	1/2	3/16	1/32	6020-2432	6020-0432*	6020-1432*
TPG-433	1/2	3/16	3/64	-----	6020-0433*	6020-1433*
TPG-434	1/2	3/16	1/16	6020-2434*	6020-0434*	6020-1434*

INDEXABLE END MILLS

SQUARE SHOULDER INDEXABLE END MILLS - Accepts APKT(10mm) Carbide Insert

- 90° square shoulder milling
- Used for slotting and peripheral milling
- Uses standard APKT-1003 inserts (not included)
- Excellent alternative to HSS, cobalt and carbide end mills for heavy material removal rates

SQUARE SHOULDER

Item#	Cutter Dia.	Shank Dia.	(Inch) OAL	No of Inserts	Use Insert	Screw	Torx Wrench
5822-0375	3/8	1/2	3"	1	APKT1003	M2.5x6	T8
5822-0500	1/2	5/8	3-1/4"	1	APKT1003	M2.5x6	T8
5822-0625	5/8	5/8	3-1/4"	2	APKT1003	M2.5x6	T8
5822-0750	3/4	3/4	3-1/4"	3	APKT1003	M2.5x6	T8
5822-1000	1	1	3-3/2"	4	APKT1003	M2.5x6	T8
5822-1250	1-1/4	1-1/4	3-3/4"	5	APKT1003	M2.5x6	T8
5822-1500	1-1/2	1-1/2	4-1/4"	6	APKT1003	M2.5x6	T8



INSERTS NOT INCLUDED

INSERT - Optional

Item #	Size
6010-4203	APKT1003

SCREWS - Replacement

Item #	Size
2100-0070	M2.5x6

TORX WRENCH - Replacement

Item #	Size
2100-0092	T8



3PC SQUARE SHOULDER INDEXABLE END MILL SET

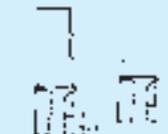
- 90° square shoulder milling
- Used for slotting and peripheral milling
- Excellent alternative to HSS, cobalt and carbide end mills for heavy material removal rates
- Used standard APKT-1003 inserts (not included) with M2.5x6mm screw.

SQUARE SHOULDER

3 PC SET
5822-0360

INSERTS NOT INCLUDED

Cutting Dia.	Shank Dia.	OAL	No. of Inserts	Insert Used	Screw	Torx Wrench
3/8"	1/2"	3"	1	APKT1003	M2.5x5mm	T8
1/2"	1/2"	3"	1	APKT1003	M2.5x5mm	T8
5/8"	1/2"	3"	2	APKT1003	M2.5x6mm	T8



INSERT - Optional

Item #	Size
6010-4203	APKT1003

TORX WRENCH - Replacement

Item #	Size
2100-0092	T8



SCREWS - Replacement

Item #	Size
2100-0067	M2.5x5
2100-0070	M2.5x6

SQUARE SHOULDER COOLANT-THRU INDEXABLE END MILLS - Accepts APKT(10mm) Carbide Insert

- Coolant thru.
- 90° square shoulder milling
- Used for slotting and peripheral milling
- Excellent alternative to HSS, cobalt and carbide end mills for heavy material removal rates
- Uses standard APKT-1003 inserts (not included).

SQUARE SHOULDER

INSERTS NOT INCLUDED

Item#	Cutting Dia. D	Shank Dia. d	OAL L	No. of Inserts	Use Insert	Screw	Torx Wrench
5822-1601	3/8"	1/2"	3"	1	APKT1003	M2.5x6	T8
5822-1603	1/2"	1/2"	3-1/4"	1	APKT1003	M2.5x6	T8
5822-1605	5/8"	1/2"	3-1/4"	2	APKT1003	M2.5x6	T8
5822-1606	3/4"	3/4"	3-1/2"	3	APKT1003	M2.5x6	T8
5822-1608	1"	3/4"	3-1/2"	4	APKT1003	M2.5x6	T8
5822-1700	1-1/4"	3/4"	3-3/4"	5	APKT1003	M2.5x6	T8



5822-1700 Shown



INSERT - Optional

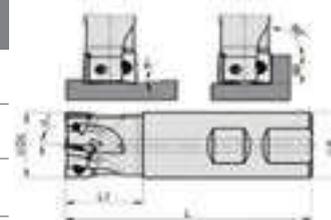
Item #	Size
6010-4203	APKT1003

SCREW - Replacement

Item #	Size
2100-0070	M2.5x6

TORX WRENCH - Replacement

Item #	Size
2100-0092	T8



3PC SQUARE SHOULDER COOLANT-THRU INDEXABLE END MILL SET - Accepts APKT(10mm) Carbide Inserts

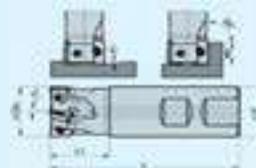
- Coolant thru.
- 90° square shoulder milling
- Used for slotting and peripheral milling
- Excellent alternative to HSS, cobalt and carbide end mills for heavy material removal rates
- Uses standard APKT-1003 inserts (not included) with M2.5x6mm screw.

SQUARE SHOULDER

3 PC SET
5822-1710

INSERTS NOT INCLUDED

Cutting Dia. D	Shank Dia. d	OAL L	No. of Inserts	Insert Used	Screw	Torx Wrench
3/8"	1/2"	3"	1	APKT1003	M2.5x5mm	T8
1/2"	1/2"	3"	1	APKT1003	M2.5x5mm	T8
5/8"	1/2"	3"	2	APKT1003	M2.5x6mm	T8

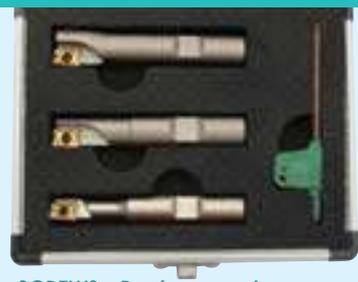


INSERT - Optional

Item #	Size
6010-4203	APKT1003

TORX WRENCH - Replacement

Item #	Size
2100-0092	T8



SCREWS - Replacement

Item #	Size
2100-0057	M2.5x5
2100-0070	M2.5x6

Helical COOLANT THRU INDEXABLE FACE MILLS - Accepts APKT (16mm) Carbide Inserts

- This 90° major cutting edge angle square shoulder milling cutter with helical have longer tool life and less cutting resistance.
- Insert(16mm) is NOT included.



INSERTS NOT INCLUDED

Item#	Cutting Dia. D	Arbor Hole d	Height H	No. of Flutes	No. of Inserts	Insert Used	Screw	Torx Wrench
2066-7000	2"	1"	2-3/8"	3	6	APKT1604	M4x10	T15
2066-7500	2-1/2"	1-1/4"	2-3/8"	4	8	APKT1604	M4x10	T15
2066-8000	3"	1-1/4"	2-3/8"	5	15	APKT1604	M4x10	T15

INSERT - Optional

Item #	Size
6010-4003	APKT1604

SCREW - Replacement

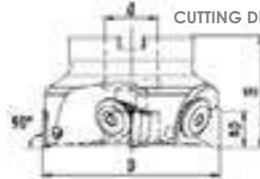
Item #	Size
2100-0074	M4x10

TORX WRENCH - Replacement

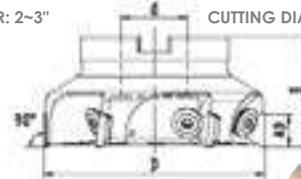
Item #	Size
2100-0095	T15

90° SQUARE SHOULDER INDEXABLE FACE MILLS - Clamp Style, Accepts TPG Carbide Inserts

- Setting angle 90°.
- Nickel coating.
- 11° positive triangular inserts allowing high depth of cut and feed per tooth.
- Radial rake angle +1°
- Axial rake +7°.
- The clamping system (screw) makes quick and easy insert mounting (indexing) and removal.



CUTTING DIAMETER: 2-3"



CUTTING DIAMETER: >3"

INSERTS NOT INCLUDED

SQUARE SHOULDER

Item#	Cutting Dia. D	Arbor Hole d	Height H	No. of Flutes	No. of Inserts	Shim	Shim Screw	Insert Screw	Hex Key Wrench
2061-3003	3"	1"	1.97"	5	TP__32__	TP16D	M3x6.5-D5	SM815.18	S2, S4
2061-4004	4"	1-1/2"	1.97"	5	TP__43__	TP22D	M3x6.5-D5	SM1018.22	S2, S4
2061-5005	5"	1-1/2"	2.48"	6	TP__43__	TP22D	M3x6.5-D5	SM1018.22	S2, S5



SHIM SCREWS - Replacement

Item #	Size
2100-0089	M3x6.5-D5

SCREWS - Replacement

Item #	Size
2100-0051	SM815.18
2100-0052	SM1018.22

HEX KEY WRENCHES - Replacement

Item #	Size
2100-1087	S2
2100-1089	S4
2100-1090	S5

SHIMS - Replacement

Item #	Size
2100-1100	TP16D
2100-1101	TP22D

See page 189 for carbide inserts

R8 SHELL END MILL HOLDERS

- Hardened and ground.

for **Bridgeport®** type mills

DRAWBAR END THREAD: 7/16" -20



5 PC SET
3900-1710

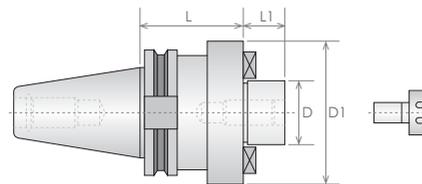
1/2, 3/4, 1, 1-1/4, 1-1/2"

INDIVIDUALS

Item#	d	W (mm)	L (mm)	Dia. Range of Std. End Mill
3900-1711	1/2"	6.35	150	1-1/4 to 1-1/2"
3900-1712	3/4"	7.94	154	1-1/4 to 2-1/2"
3900-1713	1"	9.53	155	2-1/4 to 2-3/4"
3900-1714	1-1/4"	12.70	156	3 to 3-1/2"
3900-1715	1-1/2"	15.88	163	4 to 5"

CAT 40 "V" FLANGE SHELL END MILL HOLDERS

- CAT 40 Shell End Mill Holder.
- For CNC machines having CAT 40 taper spindles.
- Hardened and precision ground.



RETENTION KNOB THREAD: 5/8" -11

Item#	Dia. for Bore in Shell End Mill D	D1	Gage Length L	L1	Bore Thread
3900-4255	3/4"	1.5"	1.50"	0.69"	3/8"-24
3900-4257	1"	2.0"	2.00"	0.69"	1/2"-20
3900-4259	1-1/4"	2.5"	2.19"	0.69"	5/8"-18
3900-4261	1-1/2"	3.0"	2.19"	0.94"	3/4"-16

INDEXABLE FACE MILLS

90° SQUARE SHOULDER R8 SHANK INDEXABLE END MILLS - Accepts APKT(16mm) Carbide Insert

- R8 shank.
- 90° cutting angle.
- Screwdown insert.
- Used for slotting and peripheral milling.
- **Insert is NOT included.**



SQUARE SHOULDER



INSERTS NOT INCLUDED

Item#	Cutting Dia. D	Shank Dia. d	OAL L	No. of Inserts	Use Insert	Screw	Torx Wr.
5822-3000	1"	R8	5-27/32"	2	APKT1 604	M4x8	T15
5822-3250	1-1/4"	R8	5-27/32"	3	APKT1 604	M4x8	T15
5822-3500	1-1/2"	R8	6-1/8"	4	APKT1 604	M4x10	T15
5822-4000	2"	R8	6-1/8"	5	APKT1 604	M4x10	T15
5822-4500	2-1/2"	R8	6-1/8"	6	APKT1 604	M4x10	T15
5822-5000	3"	R8	6-1/4"	6	APKT1 604	M4x10	T15

INSERT - Optional

Item #	Size
6010-4003	APKT1 604

SCREWS - Replacement

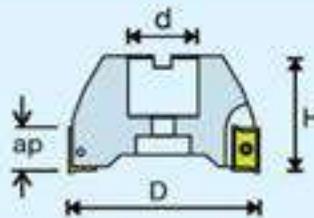
Item #	Size
2100-0069	M4x8
2100-0074	M4x10

TORX WRENCH - Replacement

Item #	Size
2100-0095	T15

90° SQUARE SHOULDER INDEXABLE FACE MILLS - Accepts APKT Carbide Inserts

- This 90° major cutting edge angle square shoulder milling cutter is fitted with strong 11° positive rectangular inserts allowing high depth of cut and feed per tooth.
- Inserts not included



INSERTS NOT INCLUDED



Item#	Cutting Dia. D	Arbor Hole d	Height H	No. of Inserts	Insert Used	Screw	Torx Wrench
2063-2000	2"	3/4"	1.75"	5	APKT1003	M2.5x6	T8
2063-2500	2-1/2"	3/4"	2.00"	6	APKT1003	M2.5x6	T8
2063-3000	3"	1"	2.00"	7	APKT1003	M2.5x6	T8
2063-4000	4"	1-1/2"	2.00"	8	APKT1003	M2.5x6	T8
2063-5000	5"	1-1/2"	2.00"	8	APKT1003	M2.5x6	T8
2066-2000	2"	3/4"	1.75"	5	APKT1 604	M4x10	T15
2066-2500	2-1/2"	3/4"	2.00"	6	APKT1 604	M4x10	T15
2066-3000	3"	1"	2.00"	7	APKT1 604	M4x10	T15
2066-4000	4"	1-1/2"	2.00"	8	APKT1 604	M4x10	T15
2066-5000	5"	1-1/2"	2.00"	8	APKT1 604	M4x10	T15

INSERTS - Optional

Item #	Size
6010-4203	APKT1 003
6010-4003	APKT1 604

SCREWS - Replacement

Item #	Size
2100-0070	M2.5x6
2100-0074	M4x10

TORX WRENCHES - Replacement

Item #	Size
2100-0092	T8
2100-0095	T15

INDEXABLE END MILLS & FACE MILLS

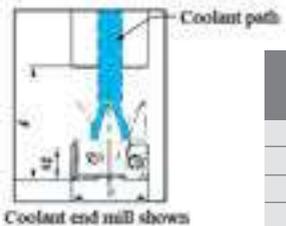
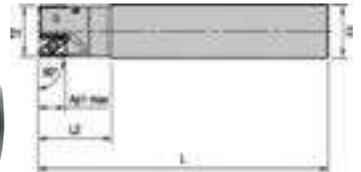
90° SQUARE SHOULDER INDEXABLE END MILLS- Coolant -Thru - Accepts ANGX Carbide Inserts

- ANGX double-sided insert provides 4-cutting edges, has a bigger depth of cut(ap) value and economy.
- ANGX inserts with high precision cutting edge are more aggressive, have more cutting edges than APKT and are designed to improve shoulder milling surface finish.
- Double negative rake angle of the cutter body in combination with extra thick insert achieves double positive tool angle, reduces cutting resistance and improves impact resistance.
- Coolant-thru allows the cutting edge to cool and removes chips.

- This 90° major cutting edge angle square shoulder milling cutter is fitted with strong 11° positive rectangular inserts allowing high depth of cut and feed per tooth.
- **Insert is NOT included**



INSERTS NOT INCLUDED



Item#	Cutting Diameter D1	Shank Size D	Head Length L2	OAL L	No. of Inserts	Ap1	Use Insert	Screw	Torx Wrench
5822-7750	3/4"	3/4"	1-1/4"	4"	1	0.441"	ANGX110508	M3x8	T10
5822-8000	1"	1"	1-1/2"	4.5"	2	0.441"	ANGX110508	M3x8	T10
5822-8250	1-1/4"	1-1/4"	1-21/32"	5"	3	0.441"	ANGX110508	M3x8	T10
5822-8500	1-1/2"	1-1/2"	1-21/32"	5"	4	0.441"	ANGX110508	M3x8	T10

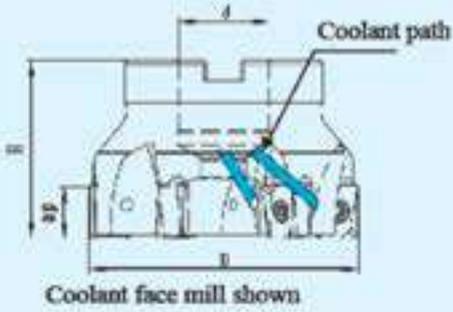
Carbide inserts shown on page 171. Screws are shown on page 165.

90° SQUARE SHOULDER INDEXABLE FACE MILLS - Coolant -Thru - Accepts ANGX Carbide Inserts

- ANGX double-sided insert provides 4-cutting edges, has a bigger depth of cut(ap) value and economy.
- ANGX inserts with high precision cutting edge and are more aggressive, have more cutting edges than APKT and are designed to improve shoulder milling surface finish.
- Double negative rake angle of the cutter body in combination with extra thick insert achieves double positive tool angle, reduces cutting resistance and improves impact resistance.
- Coolant-thru allows the cutting edge to cool and removes chips.
- This 90° major cutting edge angle square shoulder milling cutter is fitted with strong 11° positive rectangular inserts allowing high depth of cut and feed per tooth.
- **Insert is NOT included.**



INSERTS NOT INCLUDED



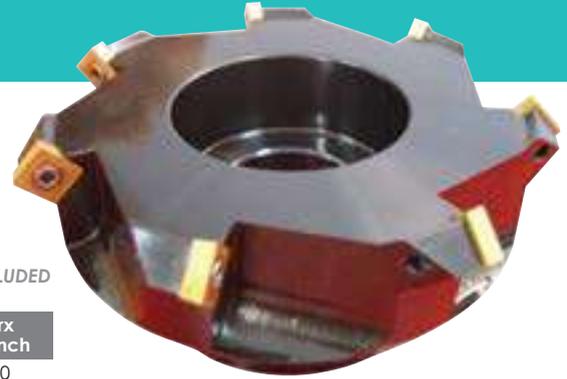
Item#	Cutting Diameter D	Arbor Size d	Height H	ap	Teeth	Uses Insert	Screw	Torx Wrench
2069-2000	2"	3/4"	1-3/4"	0.571"	4	ANGX150608PNR-GM	M4x11	T15
2069-3000	3"	1"	2"	0.571"	6	ANGX150608PNR-GM	M4x11	T15
2069-4000	4"	1-1/2"	2-1/2"	0.571"	8	ANGX150608PNR-GM	M4x11	T15
2069-5000	5"	1-1/2"	2-1/2"	0.571"	10	ANGX150608PNR-GM	M4x11	T15

Carbide inserts are shown on page 171. Screws are shown on page 165.

INDEXABLE FACE MILLS

45° INDEXABLE FACE MILLS - Accepts SCMT Carbide Inserts

- This positive cutter, 45° major cutting edge angle, is fitted with strong 7° positive square inserts.



INSERTS NOT INCLUDED

Item#	Cutting Dia.	Arbor Hole	Height	No. of Inserts	Use Insert	Screw	Torx Wrench
2062-2000	2"	3/4"	1.57"	4	SC_432	M5x10	T20
2062-3000	3"	1"	1.97"	6	SC_432	M5x10	T20
2062-3500	3-1/2"	1"	1.97"	6	SC_432	M5x10	T20
2062-4000	4"	1-1/2"	1.97"	6	SC_432	M5x10	T20

INSERT - Optional

Item #	Size
6056-0432	SCMT432

SCREW - Replacement

Item #	Size
2100-0075	M5x10

TORX WRENCH - Replacement

Item #	Size
2100-0096	T20

45° INDEXABLE FACE MILLS - Accepts OCTAGON Carbide Inserts

- Octagonal double side insert with 16 cutting edges is the most economical insert on the market for face machining application.
- Negative radial rake angle and axial rake angle structure combined with thick ONHU insert body improves cutter overall resistance to impact and toughness.
- Insert is NOT included.



INSERTS NOT INCLUDED



Item#	Cutting Dia. D	Arbor Hole d	Height H	No. of Inserts	Use Insert	Screw	Torx Wrench
2068-2500	2-1/2"	3/4"	1-3/4"	5	ONHU08	M5x14	T20
2068-3000	3"	1"	2"	6	ONHU08	M5x14	T20
2068-4000	4"	1-1/4"	2-1/2"	7	ONHU08	M5x14	T20
2068-4001	4"	1-1/2"	2-1/2"	7	ONHU08	M5x14	T20
2068-5000	5"	1-1/2"	2-1/2"	8	ONHU08	M5x14	T20

INSERT - Optional

Item #	Size
6063-0008	ONHU08

SCREW - Replacement

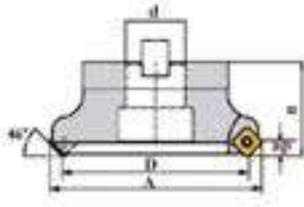
Item #	Size
2100-0077	M5x14

TORX WRENCH - Replacement

Item #	Size
2100-0096	T20

45° INDEXABLE FACE MILLS - Accepts SQUARE Carbide Inserts

- The close pitch, super positive, 45° major cutting edge angle milling cutter reduces cutting forces and permits high cutting speeds with limited power machines.



INSERTS INCLUDED



Item#	Cutting Diameter D	Arbor Hole d	Height H	No. of Inserts	Insert Used	Screw	Torx Wrench
2065-2000	2"	3/4"	1.57"	4	SE_43_AFTN	M5x10	T20
2065-2500	2-1/2"	3/4"	1.57"	5	SE_43_AFTN	M5x10	T20
2065-3000	3"	1"	1.97"	6	SE_43_AFTN	M5x10	T20
2065-4000	4"	1-1/2"	1.97"	6	SE_43_AFTN	M5x11	T20

INSERT - Optional

Item #	Size
6017-0432	SEHT-432

SCREWS - Replacement

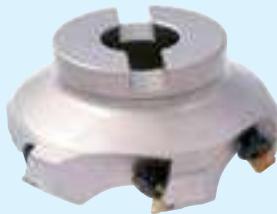
Item #	Size
2100-0075	M5x10
2100-0079	M5x11

TORX WRENCH - Replacement

Item #	Size
2100-0096	T20

45° INDEXABLE FACE MILLS - Accepts SE Carbide Insert

- 45° lead angle allows an increase of feed rate by 50% over 90 degree face mill and also allows this face mill to be used on smaller horse power mills. It accepts industry standard SEAN / SEKN / SEKR 42 insert which has a positive 20° clearance angle.
- The insert pockets are designed to be 19° positive inclined to minimize vibration and allowing fast cutting and lowering cutting noise.
- Insert is NOT included.



INSERTS NOT INCLUDED

2067-4000
2067-5000 Shown

2067-2000
2067-2500 Shown
2067-3000

Item#	Cutting Dia. D	Arbor Hole d	Height H	No. of Inserts	Insert Used	Insert Screw	Shim	Shim Screw	Insert Hex Key	Shim Torx Wrench
2067-2000	2"	3/4"	1-57/64"	3	SE_42AFTN	SM815.18L	SE1203X	I86M4x7	S4	T15
2067-2500*	2-1/2"	3/4"	1-57/64"	4	SE_42AFTN	SM815.18L	SE1203X	I86M4x7	S4	T15
2067-3000	3"	1"	1-31/32"	5	SE_42AFTN	SM815.18L	SE1203X	I86M4x7	S4	T15
2067-4000*	4"	1-1/4"	1-31/32"	5	SE_42AFTN	SM815.18L	SE1203X	I86M4x9	S4	T15
2067-5000	5"	1-1/2"	2-31/64"	6	SE_42AFTN	SM815.18L	SE1203X	I86M4x9	S4	T15

*Limited Supply

INSERTS - Optional

Item #	Size
6016-1123	SEET/DM42
6016-0123	SEET/DR43

SCREWS - Replacement

Item #	Size
2100-0069	I86M4x7
2100-0071	I86M4x9

TORX WRENCH - Replacement

Item #	Size
2100-0095	T15

INSERT SCREW - Replacement

Item #	Size
2100-0051	SM815.18L

SCREW - Replacement

Item #	Size
2100-4200	SE1203X

INSERT HEX KEY - Replacement

Item #	Size
2100-1089	S4

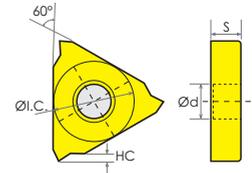
THREADING INSERTS

INTERNAL THREADING & GROOVING CARBIDE INSERTS-Metric Thread

Item#	Insert No.	I.C.	Screw Pitch	S	d	Grade
6006-1006*	RT16.01N-1.25GM	3/8"	1.25	5/32"	0.173"	XAF799
6006-1007	RT16.01N-1.50GM	3/8"	1.50	5/32"	0.173"	XAF799
6006-1008	RT16.01N-1.75GM	3/8"	1.75	5/32"	0.173"	XAF799
6006-1009	RT16.01N-2.00GM	3/8"	2.00	5/32"	0.173"	XAF799
6006-1010	RT16.01N-2.50GM	3/8"	2.50	5/32"	0.173"	XAF799
6006-1011	RT16.01N-3.00GM	3/8"	3.00	5/32"	0.173"	XAF799

*Limited Supply

RIGHT HAND



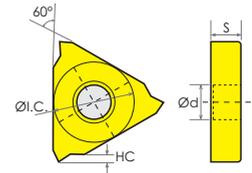
10 PC PER PACKAGE

EXTERNAL THREADING & GROOVING CARBIDE INSERTS-Metric Thread

Item#	Insert No.	I.C.	Screw Pitch	S	d	Grade
6006-3006*	RT16.0W-1.25GM	3/8"	1.25	5/32"	0.173"	XAF799
6006-3007	RT16.0W-1.50GM	3/8"	1.50	5/32"	0.173"	XAF799
6006-3008	RT16.0W-1.75GM	3/8"	1.75	5/32"	0.173"	XAF799
6006-3009	RT16.0W-2.00GM	3/8"	2.00	5/32"	0.173"	XAF799
6006-3010	RT16.0W-2.50GM	3/8"	2.50	5/32"	0.173"	XAF799
6006-3011	RT16.0W-3.00GM	3/8"	3.00	5/32"	0.173"	XAF799

*Limited Supply

RIGHT HAND

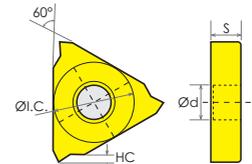


10 PC PER PACKAGE

INTERNAL THREADING & GROOVING CARBIDE INSERTS-Inch Thread

Item#	Insert No.	I.C.	Screw Pitch	S	d	Grade
6006-4008	RT16.01N-8UN	3/8"	8 TPI	5/32"	0.173"	XAF799
6006-4010	RT16.01N-10UN	3/8"	10TPI	5/32"	0.173"	XAF799
6006-4012	RT16.01N-12UN	3/8"	12 TPI	5/32"	0.173"	XAF799
6006-4014	RT16.01N-14UN	3/8"	14 TPI	5/32"	0.173"	XAF799
6006-4016	RT16.01N-16UN	3/8"	16 TPI	5/32"	0.173"	XAF799
6006-4018	RT16.01N-18UN	3/8"	18 TPI	5/32"	0.173"	XAF799
6006-4020	RT16.01N-20UN	3/8"	20 TPI	5/32"	0.173"	XAF799

RIGHT HAND

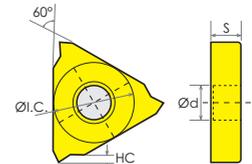


10 PC PER PACKAGE

EXTERNAL THREADING & GROOVING CARBIDE INSERTS-Inch Thread

Item#	Insert No.	I.C.	Screw Pitch	S	d	Grade
6006-4108	RT16.01N-8UN	3/8"	8 TPI	5/32"	0.173"	XAF799
6006-4110	RT16.01N-10UN	3/8"	10TPI	5/32"	0.173"	XAF799
6006-4112	RT16.01N-12UN	3/8"	12 TPI	5/32"	0.173"	XAF799
6006-4114	RT16.01N-14UN	3/8"	14 TPI	5/32"	0.173"	XAF799
6006-4116	RT16.01N-16UN	3/8"	16 TPI	5/32"	0.173"	XAF799
6006-4118	RT16.01N-18UN	3/8"	18 TPI	5/32"	0.173"	XAF799
6006-4120	RT16.01N-20UN	3/8"	20 TPI	5/32"	0.173"	XAF799

RIGHT HAND

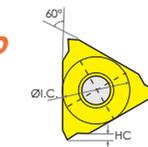


10 PC PER PACKAGE

INTERNAL (NPT) THREADING CARBIDE INSERTS-Pipe Thread

Item#	Insert No.	I.C.	Screw Pitch	S	d	Grade
6006-6008	RT16.001N-8NPT	.375"	8 TPI	.156"	0.173"	XAF799
6006-6011	RT16.001N-11.5NPT	.375"	11.5 TPI	.156"	0.173"	XAF799
6006-6014	RT16.001N-14NPT	.375"	14 TPI	.156"	0.173"	XAF799
6006-6018	RT16.001N-18NPT	.375"	18 TPI	.156"	0.173"	XAF799
6006-6027	RT16.001N-27NPT	.375"	27 TPI	.156"	0.173"	XAF799

RIGHT HAND

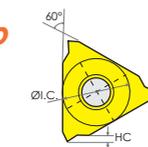


10 PC PER PACKAGE

EXTERNAL (NPT) THREAD CARBIDE INSERTS-Pipe Thread

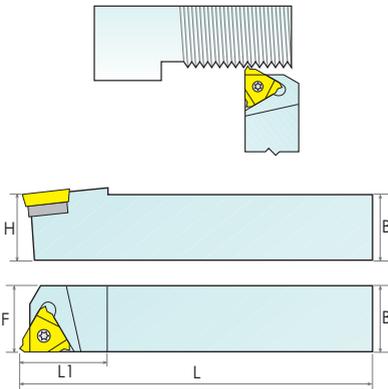
Item#	Insert No.	I.C.	Screw Pitch	S	d	Grade
6006-6108	RT16.001W-8NPT	.375"	8 TPI	.156"	0.173"	XAF799
6006-6111	RT16.001W-11.5NPT	.375"	11.5 TPI	.156"	0.173"	XAF799
6006-6114	RT16.001W-14NPT	.375"	14 TPI	.156"	0.173"	XAF799
6006-6118	RT16.001W-18NPT	.375"	18 TPI	.156"	0.173"	XAF799
6006-6127	RT16.001W-27NPT	.375"	27 TPI	.156"	0.173"	XAF799

RIGHT HAND



10 PC PER PACKAGE

INDEXABLE EXTERNAL THREADING TOOL HOLDERS



*Limited Supply

See page 165 & 166 for spare parts

RH Item#	Style	Shank BXB	(Inch) L	Insert I.C.	Insert	Insert Screw	Shim	Shim Screw	Wrench
2301-0375*	SER0375D16	3/8 x 3/8	2-1/2	3/8	16ER..	M3.5x12	LT16R-3.0	SDN535	T15+S3.5
2301-0500	SER0500F16	1/2 x 1/2	3-1/4	3/8	16ER..	M3.5x12	LT16R-3.0	SDN535	T15+S3.5
2301-0625	SER0625K16	5/8 x 5/8	5	3/8	16ER..	M3.5x12	LT16R-3.0	SDN535	T15+S3.5
2301-0750	SER0750K16	3/4 x 3/4	5	3/8	16ER..	M3.5x12	LT16R-3.0	SDN535	T15+S3.5
2301-1000	SER1000M16	1 x 1	6	3/8	16ER..	M3.5x12	LT16R-3.0	SDN535	T15+S3.5

INDEXABLE EXTERNAL THREADING TOOL HOLDER KITS

- Right hand external threads cut.
- AG60 inserts range 0.5~3.00mm/8~48 TPI
- A60 inserts range 0.5~1.5mm/16~48 TPI
- Complete with aluminium case.

- Kit includes:**
- 1-Tool Holder
 - 10-TiN Coated Carbide Insert
 - 1-Torx Wrench
 - Fitted Case

*Limited Supply

Item#	Style	Shank	(Inch) OAL	Insert I.C.	Insert	Insert Screw	Wrench
2301-1375*	SER0312D08	5/16	2.5	.197"	08ERA60	M2.5x6	T8
2301-1500	SER0375E11	3/8	3	1/4"	11ERA60	M2.5x7	T8
2301-1625	SER0500H11	1/2	4	1/4"	11ERA60	M2.5x7	T8
2301-1750	SER0625H16	5/8	4	3/8"	16ERAG60	M3.5x12	T15
2301-2000	SER0750K16	3/4	5	3/8"	16ERAG60	M3.5x12	T15



INDEXABLE INTERNAL & EXTERNAL THREADING TOOL HOLDER KITS

- Kit includes:**
- 1-Internal Tool Holder
 - 1-External Tool Holder
 - 3-IR (Internal) TiN Coated Carbide Insert
 - 4-ER (External) TiN Coated Carbide Insert
 - 1-Torx Wrench
 - Fitted Case



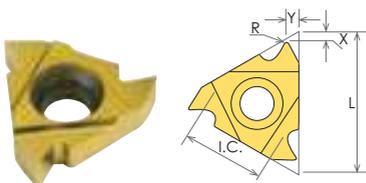
See page 165 & 166 for spare parts

RH Item#	Style (INT & EXT)	Shank	Insert	Insert Screw	Shim Screw	Shim	Wrench
2301-2250*	SIR0250H06 & SER0250D06	1/4	06IR/06ER..	M2x5	-	-	T6
2301-2312*	SIR0312H08 & SER0312D08	5/16	06IR/08ER..	M2.5x6	-	-	T8
2301-2375*	SIR0375H11 & SER0375E11	3/8	11IR/11ER..	M2.5x6	-	-	T8
2301-2500	SIR0500K11 & SER0500F11	1/2	11IR/11ER..	M2.5x6	-	-	T8
2301-2625	SIR0625M16 & SER0625H16	5/8	16IR/16ER..	M3.5x8/M3.5x12	SDN535(EXT)	LT16R-3.0(EXT)	T15+S3.5
2301-2750	SIR0750P16 & SER0750K16	3/4	16IR/16ER..	M3.5x8/M3.5x12	SDN535 (EXT)	LT16R-3.0(EXT)	T15+S3.5

*Limited Supply

THREADING CARBIDE INSERTS/PARTIAL PROFILE 60°

- 60° V partial profile threading insert.
- Right hand cut.



TIN COATED

10 PC PER PACKAGE

	Item#	Insert	I.C.	Pitch Range mm	TPI	L (in)	R (in)	X (in)	Y (in)
INTERNAL	6061-0156	06IRA60	.156"	0.5-1.25	48-20	.236	.002	.020	.024
	6061-0187	08IRA60	.188"	0.5-1.5	48-16	.315	.002	.024	.028
	6007-0008	11IRA60	1/4"	0.5~1.5	48~16	.435	.003	.031	.035
	6007-0015	16IRAG60	3/8"	0.5~3.0	48~8	.630	.003	.047	.035
	6007-0018	22IRN60	1/2"	3.5~5.0	5~7	.866	.010	.067	.098
EXTERNAL	6007-0002	06ERA60	.156"	0.5~1.25	48~20	.236	.002	.020	.024
	6007-0001	08ERA60	.197"	0.5~1.5	48~16	.315	.002	.024	.028
	6007-0004	11ERA60	1/4"	0.5~1.5	48~16	.435	.003	.031	.035
	6007-0012	16ERAG60	3/8"	0.5~3.0	48~8	.630	.003	.047	.035
	6007-0020	22ERN60	1/2"	3.5~5.0	5~7	.866	.016	.067	.098

CUTTING & CARBIDE TOOLS

INDEXABLE THREADING TOOLS

MINI INDEXABLE THREADING TOOL HOLDER KIT

- Right hand.
- Super for running at low speeds
- Threads all the way down in a blind hole
- 3 cutting edge on insert provides 3x tool life
- 06IR A60 insert range 48-20 TPI/ 0.5~1.25mm.
- 08IR A60 insert range 48-16 TPI/ 0.5~1.50mm.

Set Includes:

- 1-mini tool holder
- 10 -60° partial profile internal insert, TiN coated
- 1 - Torx wrench
- 1 -Aluminium fitted case

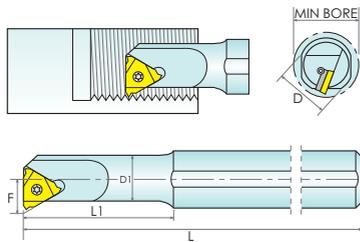


Limited Supply!



Item#	Shank Dia. D	D1	(Inch) L	L1	Min. Bore	Use Insert	Screw	Wrench
2305-0312	5/16	0.205	4	0.500	0.240	06IRA60	M2x3.5mm	T6
2305-0375	3/8	0.265	5	0.710	0.310	08IRA60	M2.5x5mm	T8
2305-0500	1/2	0.205	4	0.500	0.240	06IRA60	M2x3.5mm	T6
2305-0626	5/8	0.265	5	0.710	0.307	08IRA60	M2.5x5mm	T8

INDEXABLE INTERNAL THREADING TOOL HOLDERS



RH Item#	Style	Shank D	(Inch) L	Min. Bore	F	Insert I.C.	Insert	Insert Screw	Wrench	Anvil Screw	Shim
2302-0375	SIR0375H11	3/8	4	.47	0.29	1/4	11IR..	M2.5x6	T8	----	----
2302-0500	SIR0500K16	1/2	5	.64	0.39	3/8	16IR..	M3.5x8	T15	----	----
2302-0625	SIR0625P16	5/8	7	.75	0.45	3/8	16IR..	M3.5x8	T15	----	----
2302-0750	SIR0750P16	3/4	7	1.00	0.51	3/8	16IR..	M3.5x8	T15	----	----
2302-0751	SIR0750P22	3/4	7	1.00	0.51	1/2	22IR..	M4x12-Ø6.8	T15	----	----
2302-1000	SIR1000R16	1	8	1.20	0.65	3/8	16IR..	M3.5x12	T15+S3.5	SDN535	LT16L-3.0

INDEXABLE INTERNAL THREADING TOOL HOLDER KITS

- Right hand internal threads cut.
- AG60 inserts range 0.5~3.00mm/8~48 TPI
- A60 inserts range 0.5~1.5mm/16~48 TPI
- Complete with aluminium case.

- **Kit includes:** 1-Tool Holder, 10-TiN Coated Carbide Insert, 1-Torx Wrench

Item#	Style	Shank	OAL	Insert I.C.	Insert	Insert Screw	Wrench
2302-1250	SIR0375H11	3/8	4	1/4	11IRA60	M2.5x6	T8
2302-1500	SIR0500K11	1/2	5	1/4	11IRA60	M2.5x6	T8
2302-1625	SIR0625M16	5/8	6	3/8	16IRAG60	M3.5x8	T15
2302-1787	SIR0750P16	3/4	7	3/8	16IRAG60	M3.5x8	T15



5PC INDEXABLE INTERNAL THREADING TOOL HOLDER SET

- Suitable for varied pitch internal threading.
- Supplied with fitted aluminium case.
- Carbide inserts are included for semi-finishing/roughing.

Specifications

Size in Set	Insert	OAL	Screw	Wrench
5/16	08IR A60	4"	M2.5x5mm	T6
3/8	11IRA A60	5"	M2.5x5mm	T6
1/2	11IRA A60	6"	M2.5x5mm	T6
5/8	16IR AG60	7"	M3.5x10mm	T15+S3.5
3/4	16IR AG60	10"	M3.5x10mm	T15+S3.5

5 PC SET
2305-1005



NEW

MTVO STYLE EXTERNAL THREADING & GROOVING HOLDERS

- For OD threading and grooving
- Neutral rake.
- Right hand.
- Torx & Allen wrench included.



ALSO USES INSERTS: TNMA-NV, TNMC-NC, TPMC-NV

INSERT NOT INCLUDED

RH Item#	Holder Style	Shank	(Inch) OAL	Insert I.C.	Use Insert	Insert Screw	Clamp	Spring	Locking Screw	Torx Wr.	Allen Wr.
2304-1500	MTVOR08-3B	1/2x1/2	4-1/2	3/8	TNMA-32NV	M3.5x8	MTH0820	MTH0610	GB/T70.2 M6x20	T15	S4
2304-1750	MTVOR12-3B	3/4x3/4	4-1/2	3/8	TNMA-32NV	M3.5x8	MTH0820	MTH0610	GB/T70.2 M6x20	T15	S4
2304-1751	MTVOR12-4B	3/4x3/4	4-1/2	1/2	TNMA-43NV	M5X12	MTH0820	MTH0610	DLS5 M6x26	T20	S4
2304-2000*	MTVOR16-3D	1x1	6	3/8	TNMA-32NV	M3.5X8	MTH0820	MTH0610	DLS5 M6x26	T15	S4
2304-2001	MTVOR16-4D	1x1	6	1/2	TNMA-43NV	M5X12	MTH0820	MTH0610	DLS5 M6x26	T20	S4

*Limited Supply



Replacement Parts

Item#	Insert Screw	Item#	Locking Clamp	Item#	Locking Screw	Item#	Spring
2100-0073	M3.5x8	2100-0015	MTH0820	2100-0026	GB/T70.2 M6X20	2100-0100	MTH0610
2100-0076	M5X12			2100-0027	DLS5 M6X26		

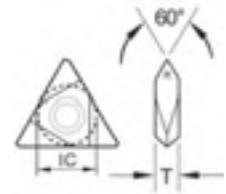
TNMA THREADING CARBIDE INSERTS 0-Degree Rake, Precision Ground

- 60° "V"-threading.
- 0° Rake angle.
- Cylindrical thru hole.



Item#	Insert No.	I.C.	Pitch	Radius R	Thread Degree	Thick T	Hole d	Grade C6
6043-0375	TNMA-32NV	3/8	8 TPI Max.	.003~.005	60	.125"	.150"	TiN
6043-0500	TNMA-43NV	1/2	6 TPI Max.	.005~.008	60	.187"	.202"	TiN
6043-0005	TNMA-43NV	1/2	6 TPI Max.	.005~.008	60	.187"	.202"	Uncoated

10 PC PER PACKAGE



TPMC THREADING INSERTS 10-Degree Rake, Precision Ground

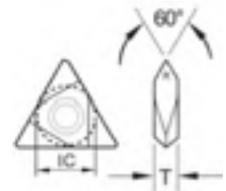
- 60° "V"-threading.
- 10° Rake angle.
- Double countersink thru hole.
- TiN coated.



*Limited Supply

Item#	Insert No.	I.C.	Pitch	Radius R	Thread Degree	Groove Width
6043-1375	TPMC-32NV	3/8	8 TPI Max.	.003~.005	60	.125"
6043-1500	TPMC-43NV	1/2	6 TPI Max.	.005~.008	60	.187"
6043-1625*	TPMC-54NV	5/8	4 TPI Max.	.005~.008	60	.250"

10 PC PER PACKAGE



TNMC GROOVING CARBIDE INSERTS

- Right hand on two sides.
- Neutral rake angle.
- Double countersink thru hole.
- TiN coated.

TiN Coated



*Limited Supply

Item#	Insert No.	I.C. (In)	Pitch	Groove Width (In)	Groove Depth (In)
6043-0632	TNMC-32NGR031	0.375	8 TPI Max.	.031	.075
6043-0633	TNMC-32NGR062	0.375	8 TPI Max.	.062	.150
6043-0634	TNMC-32NGR094	0.375	8 TPI Max.	.094	.150
6043-0635	TNMC-32NGR125	0.375	8 TPI Max.	.125	.150
6043-0643	TNMC-43NGR062	0.500	6 TPI Max.	.062	.125
6043-0644	TNMC-43NGR094	0.500	6 TPI Max.	.094	.150
6043-0645	TNMC-43NGR125	0.500	6 TPI Max.	.125	.210
6043-0646*	TNMC-43NGR156	0.500	6 TPI Max.	.156	.210
6043-0647*	TNMC-43NGR187	0.500	6 TPI Max.	.187	.210
6043-0654*	TNMC-54NGR250	0.625	4 TPI Max.	.250	.210

INDEXABLE TOOL SETS

TOP NOTCH STYLE INTERNAL THREADING & GROOVING TOOLHOLDERS

- Right hand.
- Excellent all-purpose system for threading and grooving.
- Very strong insert design and wide insert selection and range.
- Clamping system draws the insert consistently back into the pocket for superior repeatability.
- Fully interchangeable with other similar "notch" type tools and inserts.
- Insert not included.

Right Hand Holder Use Left Hand Inserts

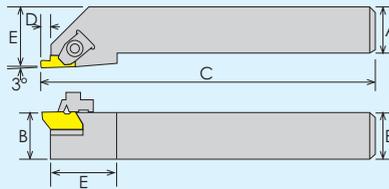
Insert Not Included

Item#	Holder #	D min.	L1	(Inch) D	F	(mm) D2	(mm) L2	CLAMP	Screw	Gage Insert Size
2301-3010	S10S-TNER2	1.000	10	0.625	.500	14.88	34	TNSN02B	M4X12	2
2301-3016	S16T-TNER3	1.375	12	1.000	.688	23.4	47.8	TNSN-3B	M5X16	3
2301-3020	S20U-TNER3	1.750	14	1.250	.875	29.75	50.6	TNSN-3B	M5X18	3
2301-3024	S24U-TNER3	2.000	14	1.500	1.000	35.1	50.6	TNSN-3B	M5X18	3



TOP NOTCH STYLE EXTERNAL THREADING & GROOVING TOOLHOLDERS

- Right hand.
- Excellent all-purpose system for threading and grooving.
- Very strong insert design and wide insert selection and range.
- Clamping system draws the insert consistently back into the pocket for superior repeatability.
- Fully interchangeable with other similar "notch" type tools and inserts.



Right Hand Holder Use Right Hand Inserts

Item#	Holder #	A	B	C	(Inch) D	F	E	Clamp	Screw	Gage Insert Size	Shim	Shim Screw	Keys
2301-3108	TNSR08-2V	.50	.500	3.5	.138	.75	.75	TNSB-2B	M4x14	2	---	---	S2.5
2301-3112	TNSR12-2B	.75	.750	4.5	.138	1.00	.75	TNSB-2B	M4x14	2	TNSN-2Z	M2x4	S2.5 & T6
2301-3113	TNSR12-3B	.75	.750	4.5	.210	1.00	1.25	TNSB-3B	M5x18	3	TNSN-3A-3	M2.5x8	S3 & T8
2301-3116	TNSR16-3D	1	1.000	6.0	.210	1.25	1.25	TNSB-3B	M5x18	3	TNSN-3A	M2.5x8	S3 & T8
2301-3117	TNSR16-4D	1	1.000	6.0	.294	1.25	1.38	TNSB-3B	M5x18	4	TNSN-3A	M2.5x8	S3 & T8



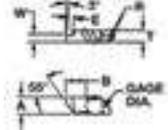
NOTCH THREADING & GROOVING CARBIDE INSERTS

- Completely interchangeable with the *Kennametal TopNotch and the Teledyne Firth Notch systems.
- 60° Negative rake, natural.
- NT-600 parting profile general purpose threading inserts.
- NG-Grooving & Turning inserts.
- Grade: C5/TIC-65 coated, which is same as KENNAMETAL KC810, KC850, KC950, KC730
- Trademark of Kennametal.

GROOVING INSERTS

Grade C5/TIC 65

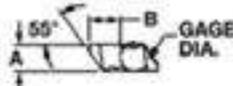
R=Right Hand
L=Left Hand



Item#	Insert #	R	Groove Width W	B	(Inch) T	Depth of Cut E	A	Gage Dia.
6062-2030	T/NG-2031R	.002	.031	.2700	.150	.050	.219	.1875
6062-2031	T/NG-2031L	.005	.031	.2700	.150	.050	.219	.1875
6062-2046	T/NG-2047R	.002	.047	.2700	.150	.050	.219	.1875
6062-2047	T/NG-2047L	.005	.047	.2700	.150	.050	.219	.1875
6062-2061	T/NG-2062R	.005	.062	.2700	.150	.050	.219	.1875
6062-2062	T/NG-2062L	.010	.062	.2700	.150	.050	.219	.1875
6062-2093	T/NG-2094R	.005	.094	.2700	.150	.050	.219	.1875
6062-2094	T/NG-2094L	.010	.094	.2700	.150	.050	.219	.1875
6062-2124	T/NG-2125R	.005	.125	.2700	.150	.050	.219	.1875
6062-2125	T/NG-2125L	.010	.125	.2700	.150	.050	.219	.1875
6062-3046	T/NG-3047R	.005	.047	.4050	.195	.075	.344	.3750
6062-3047	T/NG-3047L	.010	.047	.4050	.195	.075	.344	.3750
6062-3061	T/NG-3062R	.005	.062	.4050	.195	.075	.344	.3750
6062-3062	T/NG-3062L	.010	.062	.4050	.195	.075	.344	.3750
6062-3077	T/NG-3078R	.005	.078	.4050	.195	.075	.344	.3750
6062-3078	T/NG-3078L	.010	.078	.4050	.195	.075	.344	.3750
6062-3087	T/NG-3088R	.005	.088	.4050	.195	.075	.344	.3750
6062-3088	T/NG-3088L	.010	.088	.4050	.195	.075	.344	.3750
6062-3093	T/NG-3094R	.005	.094	.4050	.195	.075	.344	.3750
6062-3094	T/NG-3094L	.010	.094	.4050	.195	.075	.344	.3750
6062-3124	T/NG-3125R	.005	.125	.4050	.195	.075	.344	.3750
6062-3125	T/NG-3125L	.010	.125	.4050	.195	.075	.344	.3750
6062-3155	T/NG-3156R	.005	.156	.4050	.195	.075	.344	.3750
6062-3156	T/NG-3156L	.010	.156	.4050	.195	.075	.344	.3750
6062-3188	T/NG-3189R	.005	.189	.4050	.195	.075	.344	.3750
6062-3189	T/NG-3189L	.010	.189	.4050	.195	.075	.344	.3750
6062-4124	T/NG-4125R	.005	.125	.6360	.255	.250	.453	.3750
6062-4125	T/NG-4125L	.010	.125	.6360	.255	.250	.453	.3750
6062-4188	T/NG-4189R	.020	.189	.6360	.255	.250	.453	.3750
6062-4189	T/NG-4189L	.025	.189	.6360	.255	.250	.453	.3750
6062-4249	T/NG-4250R	0.20	.250	.6360	.255	.250	.453	.3750
6062-4250	T/NG-4250L	.025	.250	.6360	.255	.250	.453	.3750

SPECIFICATIONS

Insert #	External TPI	Internal TPI
T/NT-2R/2L	8-36	7-20
T/NT-3R/3L	6-20	5-12
T/NT-4R/4L	4-20	4-12



THREADING INSERTS Grade C5/TIC 65

Item#	Insert #	R	B	(Inch) T	E	A	Gage Dia.
6062-5001	T/NT-2R	.003	.2661	.150	.075	.219	.1875
6062-5002	T/NT-2L	.005	.2661	.150	.075	.219	.1875
6062-5003	T/NT-3R	.005	.3999	.195	.098	.344	.3750
6062-5004	T/NT-3L	.008	.3999	.195	.098	.344	.3750
6062-5005	T/NT-4R	.005	.6293	.255	.128	.453	.3750
6062-5006	T/NT-4L	.008	.6293	.255	.128	.453	.3750

CLAMP

Item #	Style
2100-0011	TNSB-2B
2100-0010	TNSB-3B

INDEXABLE GROOVING & CUT-OFF TOOLS



MINI-SYSTEM EXTERNAL GROOVING & CUT-OFF HOLDERS

INSERTS NOT INCLUDED

- Right hand shank external holder.
- Insert not included.
- Set Includes: 1pc- External Holder, 1pc-T10 Wrench, 1pc-Aluminum Case.
- Accepts NIKCOLE style inserts.
- For use with .019 to .125" thin inserts.
- Ideal for external grooving, threading, cut-off, turning & copying under .125" width.

RIGHT HAND HOLDER ONLY ACCEPT RIGHT HAND INSERTS



2306-0375 Shown

Limited Supply!



2306-0500 Shown



2306-0625 Shown

Item#	Toolholder Designation	Shank Dia (In)	OAL (In)	Use Insert	Screw	Tox Wrench
2306-0375	THE-7-3/8-R	3/8	4.5	GIE-7-SG-	M3x8mm	T10
2306-0500	THE-7-1/2-R	1/2	4.5	GIE-7-SG-	M3x8mm	T10
2306-0625	THE-75/8-R	5/8	5.0	GIE-7-SG-	M3x8mm	T10



2306-2000 Shown INSERTS NOT INCLUDED

MINI-SYSTEM INTERNAL GROOVING & CUT-OFF HOLDERS

- Right hand shank.
- Insert not included.
- Set Includes: 1pc- Internal Holder, 1pc-T10 Wrench, 1pc-Aluminum Case.
- Accepts NIKCOLE style inserts.
- For use with .019 to .125" thin inserts.
- Ideal for internal grooving, threading, cut-off, turning & copying under .125" width.

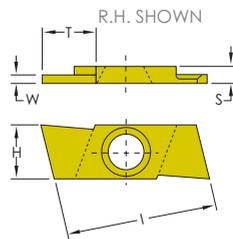
RIGHT HAND HOLDER ONLY ACCEPT RIGHT HAND INSERTS

*Limited Supply

Item#	Toolholder Designation	Shank Dia (In)	OAL (In)	Use Insert	Screw	Tox Wrench
2306-1750	THI-7-3/4-R	3/4	5.6	GIE-7-SG-	M3x8mm	T10
2306-2000*	THI-7-1-R	1	6.0	GIE-7-SG-	M3x8mm	T10

MINI-SYSTEM STANDARD CARBIDE GROOVING, CUT-OFF INSERTS- GRADE C6-PV

- Grade C6-PV-Coated grade recommended for machining steels, cutting off and grooving at higher speeds.
- Tolerance: Width: +.0009"/-.0000"
- Fits NIKCOLE style mini groove RH tool holders.

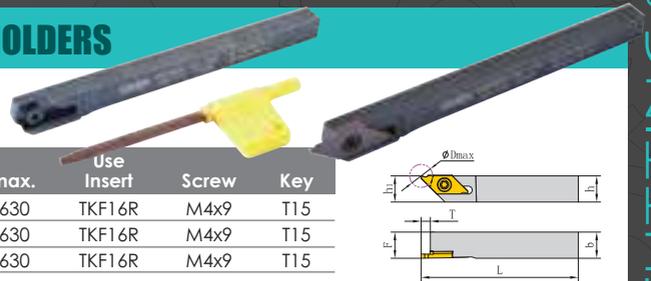


Item#	Insert #	Hand	Depth of Cut	Width of Cut
6061-0300	GIE-7-SG-05	R	.100" (2.54mm)	.019" (0.5mm)
6061-0301	GIE-7-SG-07	R	.100" (2.54mm)	.027" (0.7mm)
6061-0302	GIE-7-SG-08	R	.100" (2.54mm)	.031" (0.8mm)
6061-0303	GIE-7-SG-09	R	.100" (2.54mm)	.035" (0.9mm)
6061-0304	GIE-7-SG-1.1	R	.235" (6.0mm)	.043" (1.1mm)
6061-0305	GIE-7-SG-1.3	R	.235" (6.0mm)	.051" (1.3mm)
6061-0306	GIE-7-SG-1.6	R	.235" (6.0mm)	.063" (1.6mm)
6061-0307	GIE-7-SG-1.85	R	.235" (6.0mm)	.073" (1.85mm)
6061-0311	GIE-7-SG-07	L	.100" (2.54mm)	.027" (0.7mm)
6061-0312	GIE-7-SG-08	L	.100" (2.54mm)	.031" (0.8mm)
6061-0313	GIE-7-SG-09	L	.100" (2.54mm)	.035" (0.9mm)
6061-0314	GIE-7-SG-1.1	L	.235" (6.0mm)	.043" (1.1mm)
6061-0315	GIE-7-SG-1.3	L	.235" (6.0mm)	.051" (1.3mm)
6061-0316	GIE-7-SG-1.6	L	.235" (6.0mm)	.063" (1.6mm)
6061-0317	GIE-7-SG-1.85	L	.235" (6.0mm)	.073" (1.85mm)

TKEH EXTERNAL PARTING, GROOVING & TURNING TOOLHOLDERS

- Right hand.
- Tool holder design provides precision clamping & insert indexing accuracy.
- Ideal for external grooving, turning, part-off, relieving & profile machining.

Item#	Toolholder Designation	h=h1	b	F	L	L1	T	Dmax.	Use Insert	Screw	Key
2306-2375	TKEHR06-16C	3/8	3/8	3/8	5"	0.79	0.32	0.630	TKF16R	M4x9	T15
2306-2500	TKEHR08-16D	1/2	1/2	1/2	6"	-	0.32	0.630	TKF16R	M4x9	T15
2306-2625	TKEHR10-16D	5/8	5/8	5/8	6"	-	0.32	0.630	TKF16R	M4x9	T15



TKEH INSERTS: Grade WM125-Right Hand-AITiN Coated

Item#	Insert	H	T	d	(mm) W	R	Ø	DMax
6061-1016	TKF16R100-S	9.5	4	5	1.0	0.05	0°	16
6061-1020	TKF16R150-S	9.5	4	5	1.5	0.05	0°	16
6061-1024	TKF16R200-S	9.5	4	5	2.0	0.05	0°	16

Limited Supply!

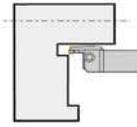


CUTTING & CARBIDE TOOLS

INDEXABLE PARTING & GROOVING TOOLS

MGEHR EXTERNAL PARTING GROOVING & TURNING TOOLHOLDERS

- Right hand.
- Tool holder design provides precision clamping & insert indexing accuracy.
- Ideal for external grooving, turning, part-off, relieving & profile machining.



Item#	Toolholder Designation	Insert Width	Max. Cutting Depth	Shank Height	Shank Width	OAL	Use Insert	Screw	Hex Key
2207-0375	MGEHR06-2	0.079"	1/2"	3/8"	3/8"	3"	MGMN200	GB70-85-M4X12	S3
2207-0500	MGEHR08-2A	0.079"	1/2"	1/2"	1/2"	4"	MGMN200	GB70-85-M4X12	S3
2207-0625	MGEHR10-2B	0.079"	1/2"	5/8"	5/8"	4.5"	MGMN200	GB70-85-M5X14	S4
2207-0750	MGEHR12-2C	0.079"	1/2"	3/4"	3/4"	5"	MGMN200	GB70-85-M5X14	S4
2207-1000	MGEHR16-2D	0.079"	1/2"	1"	1"	6"	MGMN200	GB70-85-M6X20	S5

MGIV INTERNAL PARTING GROOVING & TURNING TOOLHOLDERS

- Right hand.
- Tool holder design provides precision clamping & insert indexing accuracy.
- Ideal for internal grooving, turning & profile machining.



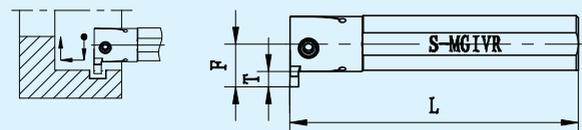
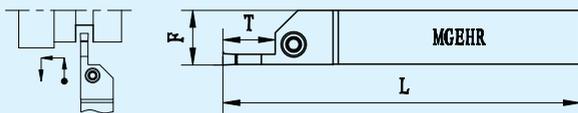
Item#	Toolholder Designation	Insert Width W	Max. Cutting Depth T	Shank Dia. d	F	OAL L	Use Insert	Screw	Hex Key
2208-0625	S10K-MGIVR/L2	0.079"	0.197"	5/8"	1/2"	5"	MGMN200	GB70-85-M4X12	S3
2208-0750	S12M-MGIVR/L2	0.079"	0.197"	3/4"	5/8"	6"	MGMN200	GB70-85-M5X14	S4
2208-1000	S16R-MGIVR/L2	0.079"	0.197"	1"	3/4"	8"	MGMN200	GB70-85-M5X14	S4

EXTERNAL & INTERNAL GROOVING TOOL SETS

- Right hand.
- Suitable for varied external & internal grooving.
- Carbide inserts are included for semi-finishing/roughing machining.

Set Includes:

- 1-External tool holder (MGEHR)
- 1-Internal tool holder (S-MGIVR)
- 10 - TiN coated inserts
- 2 - Hex key
- 1 - Aluminium fitted case



Dimensions

Item#	Shank Size	Holder Style	F	T	L	Screw	Hex Key	Insert Used
2208-0003	5/8"	MGEHR10-2B	0.64"	0.57"	4"	GB70-85-M4X10	S3	MGMN200
		S10K-MGIVR2	0.488"	0.2"	5"			
2208-0006	3/4"	MGEHR12-3C	0.803"	0.71"	5"	GB70-85-M4X12	S3	MGMN300
		S12M-MGIVR-3	0.614"	0.236"	6"			
2208-0009	1"	MGEHR16-4D	1"	0.71"	6"	GB70-85-M5X16	S4	MGMN400
		S16R-MGIVR4	0.744"	0.236"	8"			

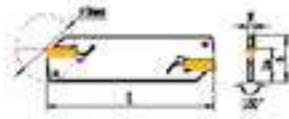
MGMN INDEXABLE CUT-OFF AND GROOVING BLADES

- Right hand cutting.
- Double end.
- Use MGMN Inserts.

Limited Supply!



INSERT IS NOT INCLUDED



Item#	Width W	Dmax.	(Inch)		OAL L	Use Insert	Key
			h	h1			
2209-0020	0.079	1.10	1.06	0.79	4.33	MGMN200	KD4
2209-0025	0.098	1.26	1.06	0.79	4.33	MGMN250	KD4
2209-0030	0.118	1.42	1.06	0.79	4.33	MGMN300	KD4
2209-0040	0.157	1.42	1.06	0.79	4.33	MGMN400	KD4
2209-0060	0.079	1.10	1.26	0.94	5.91	MGMN200	KD5
2209-0065	0.098	1.26	1.26	0.94	5.91	MGMN250	KD5
2209-0070	0.118	1.42	1.26	0.94	5.91	MGMN300	KD5
2209-0080	0.157	1.42	1.26	0.94	5.91	MGMN400	KD5

MGMN-G GROOVING CARBIDE INSERTS

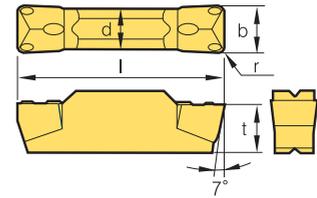
MGMN-G

- Specially designed chip breaker allows narrower chips to promote better chip flow.
- Specifically designed for grooving applications.



10 PC PER PACKAGE

Item#	Insert No.	Cutting Width b	OAL L	(Inch) d	Cutting Edge Height t	r	Grade
6024-3021	MGMN-150-G	.059	.63	.047	.138	.006	BPS253-CVD
6024-3022	MGMN-200-G	.079	.63	.063	.138	1/128	BPS253-CVD
6024-3051	MGMN-200-G	.079	.63	.063	.138	1/128	BPG20B-PVD



MGMN-M GROOVING CARBIDE INSERTS

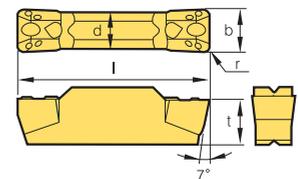
MGMN-M

- Specially designed chip breaker allows as smoother chip flow versus conventional flat top geometries through the use of a central chip breaker.
- Specially placed convex dots assists with chip control in external machining, for a smoother chip flow.
- Chip breaker designed for turning, grooving & parting applications.



10 PC PER PACKAGE

Item#	Insert No.	Cutting Width	OAL L	(Inch) d	Cutting Edge Height t	r	Grade
6024-3002	MGMN-250-M	.098	.73	.079	.152	1/128	BPS253-CVD
6024-3003	MGMN-300-M	.118	.83	.093	.189	1/64	BPS253-CVD
6024-3004	MGMN-400-M	.157	.83	.130	.189	1/64	BPS253-CVD
6024-3052	MGMN-250-M	.098	.73	.079	.152	1/128	BPG20B-PVD
6024-3053	MGMN-300-M	.118	.83	.093	.189	1/64	BPG20B-PVD



MRMN-M GROOVING CARBIDE INSERTS

MRMN-M

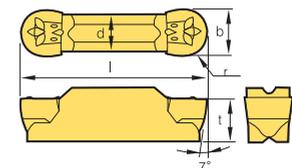
- Full radius geometry for applications that require profiling
- Available for relief machining

*Limited Supply

Item#	Insert No.	Cutting Width b	OAL L	(Inch) d	Cutting Edge Height t	r	PVD Grade
6024-3031	MRMN-200-M	.079	.630	.059	.079	3/64	BPS253
6024-3032	MRMN-300-M	.118	.827	.093	.118	1/16	BPS253
6024-3033	MRMN-400-M	.157	.827	.130	.157	5/64	BPS253
6024-3034*	MRMN-500-M	.197	1.024	.161	.197	3/32	BPS253
6024-3035	MRMN-600-M	.236	1.024	.197	.236	1/8	BPS253



10 PC PER PACKAGE



GRADE COMPARISON

BPG253-CVD

CVD coated universal grade is suitable for steel and cast steel continuous cutting and interrupted cutting, finishing to roughing. With a wide range of application, Stainless steel continuous cutting and interrupted cutting.

BPG20B-PVD

PVD coated micro-grain carbide to use for a variety of stainless steel finishing at medium to low cutting speed. Excellent edge strength and high surface quality, provide the perfect ride cutting. High thermal shock resistance. Suitable for light interrupted cuts.

INDEXABLE CUT-OFF TOOLS

INDEXABLE CUT-OFF & GROOVING TOOLS & KITS - For Larger Tool Posts

All Tools Are Interchangeable With ISCAR & Other Fine Brands !

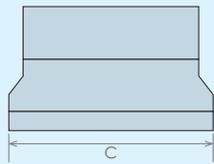
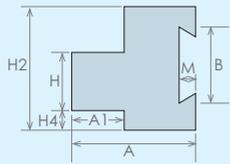
ISCAR TYPE CUT-OFF TOOLS

Kit includes:
Tool block, blade(s), C6 carbide inserts, insert holder, Allen wrench and case.



16 PC 3/4" SHANK KIT
Item#3900-5361 Shown

Tool Block



Cut-off Blade



Item#	No. of Pieces	Tool Block Dimension (Inch)									Cut-off Blade Dimension (Inch)			Blade Fil	Insert
		H	A1	A	B	H2	H4	M	C	C	B				
3900-5359	15	SLTBN16-5	5/8"	0.750	1.50	1.02	1.71	.52	.21	3.47 (1 pc)	NCIH26-3	4-5/16	1-1/32 (1 pc)	26-3	GTN-3 (10 pcs)
3900-5361	16	SLTBN19-5	3/4"	0.750	1.45	1.02	1.70	.39	.21	3.47 (1 pc)	NCIH26-3	4-5/16	1-1/32 (1 pc)	26-3	GTN-3 (5 pcs)
											NCIH26-4	4-5/16	1-1/32 (1 pc)	26-4	GTN-4 (5 pcs)
3900-5364	22	SLTBN25-6	1"	0.750	1.50	1.26	1.97	.30	.21	4.33 (1 pc)	NCIH32-3	5-7/8	1-1/4 (2 pcs)	32-3	GTN-3 (4 pcs)
											NCIH32-4	5-7/8	1-1/4 (2 pcs)	32-4	GTN-4 (4 pcs)
											NCIH32-5	5-7/8	1-1/4 (2 pcs)	32-5	GTN-5 (4 pcs)

INDEXABLE CUT-OFF & GROOVING TOOL KITS - For Smaller Tool Posts

All Tools Are Interchangeable With ISCAR & Other Fine Brands !

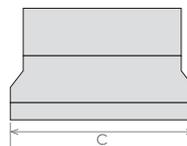
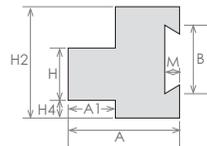
ISCAR TYPE CUT-OFF TOOLS

15 PC KIT INCLUDES:

- 1 - Tool Block (SLTBN)
- 1 - Cut-off Blade (NCIH)
- 10 - C-6 GTN Inserts (TiN Coated)
- 2 - Allen Wrench
- 1 - Fitted case



Tool Block



Cut-off Blade

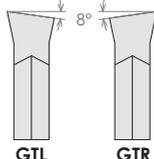
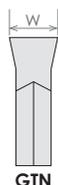


Item#		Tool Block Dimension (Inch)									Cut-off Blade Dimension (Inch)			Blade Fil	Insert (10pc)
		H	A1	A	B	H2	H4	M	C	C	B				
3900-5366	SLTBN0250-2	1/4	0.472	0.984	0.787	1.161	0.498	0.118	2.2	NCIH19-2	3.38	3/4	19-2	GTN-2	
3900-5367	SLTBN0312-2	5/16	0.472	0.984	0.787	1.161	0.435	0.118	2.2	NCIH19-2	3.38	3/4	19-2	GTN-2	
3900-5368	SLTBN0375-2	3/8	0.472	0.984	0.787	1.161	0.373	0.118	2.2	NCIH19-2	3.38	3/4	19-2	GTN-2	
3900-5369	SLTBN0500-2	1/2	0.472	0.984	0.787	1.161	0.248	0.118	2.2	NCIH19-2	3.38	3/4	19-2	GTN-2	

CARBIDE CUT-OFF INSERTS

GRADE

C-2 FOR CAST IRON AND GENERAL PURPOSE
C-6 FOR ALL STEEL AND GENERAL PURPOSE
TIN (C-6) FOR INCREASED PRODUCTIVITY



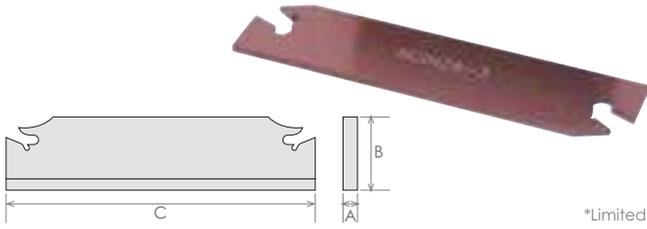
*Limited Supply

Insert Style	Insert Size (W) (In)	C-2 Item#	C-6 Item#	TiN Coated(C-6) Item#
GTN-2	.087	3900-5802	3900-5309	6024-2002
GTN-2.4	.094	6024-0002*	-----	-----
GTN-3	.120	-----	6024-1003	6024-2003
GTN-4	.160	6024-0004	6024-1004	6024-2004
GTN-4.8	.187	6024-0008*	6024-1008*	6024-2008*
GTN-5	.200	6024-0005	6024-1005	6024-2005
GTR-4.8	.187	6024-1014*	6024-1015*	-----
GTL-4.8	.187	6024-1024*	-----	6024-2034*



INDEXABLE CUT-OFF BLADES

All Tools Are Interchangeable With ISCAR & Other Fine Brands !
ISCAR TYPE CUT-OFF TOOLS



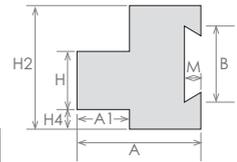
*Limited Supply

Item#	Insert Width A	Blade Style	C	B
3900-5313	.087&.094"	19-2	3.38	3/4
3900-5311	.087&.094"	26-2	4-5/16"	1-1/32
3900-5312	.120"	26-3	4-5/16"	1-1/32
3900-5314	.160"	26-4	4-5/16"	1-1/32
3900-5316	.187&.200"	26-5	4-5/16"	1-1/32
3900-5315*	.250"	26-6	4-5/16"	1.1/32
3900-5317	.120"	32-3	5-7/8"	1-1/4
3900-5318	.160"	32-4	5-7/8"	1-1/4
3900-5319	.187&.200"	32-5	5-7/8"	1-1/4
3900-5325	.250"	32-6	5-7/8"	1-1/4

INDEXABLE CUT-OFF TOOL BLOCKS

All Tools Are Interchangeable With ISCAR & Other Fine Brands !

ISCAR TYPE CUT-OFF TOOLS



Clamping Height H (in)	Blade Height B (in)	Clamping Depth A1 (in)	Block Width A (in)	Block Height H2 (in)	Shoulder Depth H4 (in)	Blade Pocket M (in)	Block Length C (in)	Blade Fit	Item#
0.625	0.75	0.625	1.19	1.30	.16	.12	3.00	19-2	3900-5353
0.625	1.02	0.750	1.50	1.71	.52	.21	3.47	26-2, 26-3, 26-4, 26-5, 26-6	3900-5354
0.750	1.02	0.750	1.50	1.71	.39	.21	3.47	26-2, 26-3, 26-4, 26-5, 26-6	3900-5351
0.750	1.25	0.750	1.50	1.97	.55	.21	3.97	32-3, 32-4, 32-5, 32-6	3900-5352
1.000	1.25	0.750	1.50	1.97	.30	.21	4.33	32-3, 32-4, 32-5, 32-6	3900-5355
1.250	1.25	0.750	1.81	1.92	--	.21	4.33	32-3, 32-4, 32-5, 32-6	3900-5356



SGTH STYLE CUT-OFF TOOL HOLDERS

Accepts GTN Carbide Inserts



INSERT IS NOT INCLUDED

*Limited Supply

Holder Style	Shank Size	Insert Width	Use Insert	Max. Work Diameter	RH Item#
9.5-2	3/8 x 3/8"	.087 & .094"	GTN-2	1.10"	2203-0952
12.7-2	1/2 x 3/8"	.087 & .094"	GTN-2	1.18"	2203-1272
12.7-3	1/2 x 3/8"	.120"	GTN-3	1.26"	2203-1273*
16-4	5/8 x 1/2"	.160"	GTN-4	1.34"	2203-1640*
19-4	3/4 x 1/2"	.160"	GTN-4	1.38"	2203-1940
19-5	3/4 x 1/2"	.187 & .200"	GTN-5	1.38"	2203-1950

SLTH STYLE CUT-OFF TOOL HOLDERS

Accepts GTN Carbide Inserts



*Limited Supply

Holder Style	Shank Size	Insert Width	Use Insert	Max. Work Diameter	RH Item#
9.5-2	3/8 x 3/8"	.087 & .094"	GTN-2	1-7/64"	2201-0952
12.7-2	1/2 x 25/64"	.087 & .094"	GTN-2	1-11/64"	2201-1272
12.7-3	1/2 x 25/64"	.120"	GTN-3	1-17/64"	2201-1273*
16-3	5/8 x 15/32"	.120"	GTN-3	1-17/64"	2201-1630*
16-4	5/8 x 15/32"	.160"	GTN-4	1-21/64"	2201-1640*
19-4	3/4 x 15/32"	.160"	GTN-4	1-17/32"	2201-1940*

GROOVING INTEGRAL SHANK TOOL HOLDERS

Accepts GTN Carbide Inserts



INSERT IS NOT INCLUDED

Holder Style	Shank Size	Use Insert	Max. Depth	RH Item#
08R-25	1/2 x 1/2"	GTN-3	.79"	2204-0825
10R-25	5/8 x 5/8"	GTN-3	.79"	2204-1025
12R-30	3/4 x 3/4"	GTN-3	.79"	2204-1230
12R-40	3/4 x 3/4"	GTN-4	.79"	2204-1240
16R-30	1 x 1"	GTN-4	.98"	2204-1630

CUT-OFF TOOLS

RETROFIT GTN CUT-OFF AND GROOVING BLADES



INSERT IS NOT INCLUDED
See page 139 for inserts

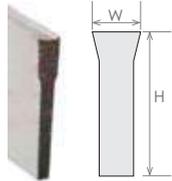
*Limited Supply

- Used on Aloris and DORAIN Type Quick-Change Tool Holders
- High performance rates. No more re-grinding. Insert indexability.
- Also can use GTL, GTR inserts.

Item#	Fits Holder	HSS Blade Reference	Blade Height	Cutting Width	Overall Length	Use Insert
3900-5971	AXA-7	P2	1/2	.087 & .093"	4-11/32	GTN/R/L 2
3900-5973	BXA-7	P3N	11/16	.087 & .093"	4-11/32	GTN/R/L 2
3900-5975	BXA-7	P3, T3	11/16	.120"	4-11/32	GTN/R/L 3
3900-5977	CXA-7	P3W	3/4	.120"	4-11/32	GTN/R/L 3
3900-5979	CA-7	P5X	7/8	.120"	5-29/32	GTN/R/L 3
3900-5981*	CA-7	P5N	7/8	.160"	5-29/32	GTN/R/L 4

P-TYPE CUT-OFF BLADES

- Parallel style blades have continuous width of cutting edge throughout length of blade.
- Used with Aloris, DORIAN & KDK type quick-change tool holders.



- **M2 HIGH SPEED STEEL** A fine general purpose ground tool bits show exceptional result on mild steel, alloys and tool steels. This tool bit makes a superior finishing tool.
- **COBALT M42 (8%)** Superior types of high speed steel which will work better where high heat is present. Used for heavy cuts in hard materials.

Parallel Style	Width W (In)	Height H (In)	Length (In)	HSS Item#	8% Cobalt Item#
P1N	.04	1/2	3-1/2	2000-6008	2000-7008
P1	1/16	1/2	4-1/2	2000-6010	2000-7010
P2	3/32	1/2	4-1/2	2000-6020	2000-7020
P2N	5/64	1/2	4-1/2	2000-6022	-----
P3S	1/8	1/2	4-1/2	2000-6025	2000-7025
P3N	3/32	11/16	5	2000-6030	2000-7030
P3	1/8	11/16	5	2000-6035	2000-7035
P3W	1/8	3/4	5	2000-6050	2000-7050
P4	5/32	11/16	5	2000-6055	2000-7055
P5	3/16	7/8	6	2000-6064	-----
P5X	1/8	7/8	6	2000-6065	2000-7065
P5N	5/32	7/8	6	2000-6066*	2000-7066
P6	1/4	7/8	6	2000-6070	-----

*Limited Supply

CUT-OFF BLADES, BEVELED

- **M2 HIGH SPEED STEEL** A fine general purpose ground tool bits show exceptional result on mild steel, alloys and tool steels. This tool bit makes a superior finishing tool.
- **COBALT M35 (5%)** Superior types of high speed steel which will work better where high heat is present. Used for heavy cuts in hard materials.

- Used with Aloris, DORIAN & KDK type quick-change tool holders.
- 10° double beveled.



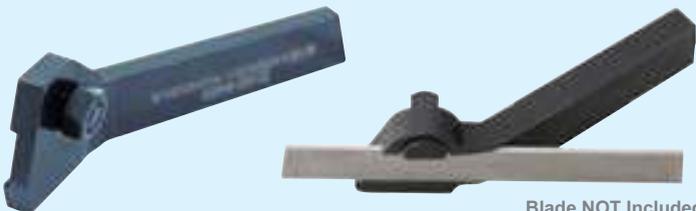
(Inch) Size (TxWxL)	HSS Item#	5% COBALT Item#
3/32 x 1/2 x 4-1/2	2000-1002	2000-1102
3/32 x 5/8 x 5	2000-1003	2000-1106
1/8 x 1/2 x 4-1/2	2000-1000	2000-1110
1/8 x 3/4 x 5	2000-1004	2000-1114
1/8 x 7/8 x 6	2000-1005	2000-1118



CUT-OFF TOOL HOLDERS For Use With Cut-Off Blades

- Machined to precise tolerances and carefully heat-treated, these cut-off tool holders support the blade over a wide area, reducing the chance of blade breakage. Blade can be adjusted to any desired clearance for greater versatility, and it is beveled on both sides and held at an angle, providing necessary side clearance and top rake for a clean smooth cut. These holders DO NOT hold parallel type cut-off blades.

*Limited Supply



Blade NOT Included

Holder Size	Cut-Off Blade Size	Item#
5/16 x 3/4 x 4-1/2"	3/32 x 1/2"	2205-0312*
3/8 x 7/8 x 5"	3/32 x 5/8"	2205-0375
1/2 x 1-1/8 x 6"	1/8 x 3/4"	2205-0500
5/8 x 1-3/8 x 7"	1/8 x 7/8"	2205-0625
3/4 x 1-5/8 x 8"	3/16 x 1"	2205-0750*

7PC MINI TOOL HOLDER SET-Accept CCMT Inserts

- Use CCMT inserts
- Complete with fitted case.

*Limited Supply

Item#	Turn Shank	Bore Shank	Insert	Screw
2003-0250*	1/4"	5/16"	CCMT21.5	M2.5x6
2003-0375	3/8"	3/8"	CCMT21.5	M2.5x6
2003-0500	1/2"	1/2"	CCMT21.5	M2.5x6
2003-0625*	5/8"	5/8"	CCMT32.5	M4x10

- **Set includes:**
 - 6-Turning Holder (SCMCN, SCDCN, SCLCR, SCLCL, SCKCR & SCBCR)
 - 1-Boring Holder (SCLCR)
 - 1-T8 Torx Wrench

Inserts see page 172



5PC INDEXABLE CARBIDE TURNING TOOL SETS

5PC SETS

Item#	Square Shank	Insert I.C.	Set No.	Torx Wr.
2003-0001	1/4"	7/32"	ST-4	T6
2003-0002	3/8"	1/4"	ST-6	T8
2003-0003	1/2"	3/8"	ST-8	T15
2003-0004	5/8"	3/8"	ST-10	T15
2003-0005	3/4"	3/8"	ST-12	T15
2003-0006	1"	1/2"	ST-16	T20

5pc set includes:

- One of each - AR, AL, BR, BL & E Holder
- C-5 Inserts, TCMT style
- 5pc spare screws
- 2 Torx wrench
- Fitted case.



INDIVIDUAL (Insert & Torx Wrench Included)

Type	1/4 Shank 7/32 IC Insert Item#	3/8 Shank, 1/4 IC Insert Item#	1/2 Shank, 3/8 IC Insert Item#	5/8 Shank, 3/8 IC Insert Item#	3/4 Shank, 3/8 IC Insert Item#	1 Shank, 1/2 IC Insert Item#
AR	2003-0101	2003-0111	2003-0121	2003-0131	2003-0141	2003-0151
AL	2003-0102	2003-0112	2003-0122	2003-0132	2003-0142	2003-0152
BR	2003-0103	2003-0113	2003-0123	2003-0133	2003-0143	2003-0153
BL	2003-0104	2003-0114	2003-0124	2003-0134	2003-0144	2003-0154
E	2003-0105	2003-0115	2003-0125	2003-0135	2003-0145	2003-0155

REPLACEMENT INSERTS

Fit Shank	Insert I.C.	Insert No.	TiN (C-6) Item#
1/4"	7/32	TCMT090204	6004-9020
3/8"	1/4	TCMT110204	6004-9021
1/2, 5/8 & 3/4"	3/8	TCMT16T304	6004-9031
1"	1/2	TCMT220408	6004-6142



10 PER PACKAGE

REPLACEMENT SCREWS

Screw	For Set	Item#
M2.5	1/4, 3/8"	2003-0012
M4	1/2, 5/8 & 3/4"	2100-0074
M5	1"	2100-0076



See page 185 for more inserts

5PC INDEXABLE TURNING & BORING TOOL SETS-Accepts TCMT Inserts

- Use TCMT inserts
- Set comes with 4 turning tools, 1 boring tool, inserts & torx wrenches
- Complete with fitted aluminium case.



Inserts see page 185

*Limited Supply

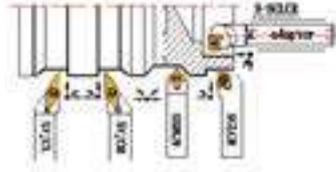
Item #	Shank	Style in Set	Insert	Screw
2003-0031	5/16	STACR05-1.8	TCMT090204	M2.2x6
		STDCR05-1.8	TCMT090204	M2.2x6
		STNCR05-1.8	TCMT090204	M2.2x6
		STECN05-1.8	TCMT090204	M2.2x6
		S05H-STFCR1.8	TCMT090204	M2.2x6
2003-0032	3/8	STACR06-2	TCMT110204	M2.5x6
		STDCR06-2	TCMT110204	M2.5x6
		STNCR06-2	TCMT110204	M2.5x6
		STECN06-2	TCMT110204	M2.5x6
		S06M-STFCR2	TCMT110204	M2.5x6
2003-0033	1/2	STACR08-2	TCMT110204	M2.5x6
		STDCR08-2	TCMT110204	M2.5x6
		STNCR08-2	TCMT110204	M2.5x6
		STECN08-2	TCMT110204	M2.5x6
		S08Q-STFCR2	TCMT110204	M2.5x6
2003-0034*	5/8	STACR10-3	TCMT16T304	M4x10
		STDCR10-3	TCMT16T304	M4x10
		STNCR10-3	TCMT16T304	M4x10
		STECN10-3	TCMT16T304	M4x10
		S10R-STFCR3	TCMT16T304	M4x8
2003-0035*	3/4	STACR12-3	TCMT16T304	M4x10
		STDCR12-3	TCMT16T304	M4x10
		STNCR12-3	TCMT16T304	M4x10
		STECN12-3	TCMT16T304	M4x10
		S12S-STFCR3	TCMT16T304	M4x10

INDEXABLE TURNING & BORING TOOLS

6PC 1/2" SHANK INDEXABLE TURNING TOOL SETS

- Made of 40Cr alloy steel.
- Screw down style.
- Tin coated inserts included.
- Complete with fitted aluminium case.

**6 PC SET
3/8" SHANK
2003-0701**



**6 PC SET
1/2" SHANK
2003-0705**

Holder Style	Shank	Holder	OAL	Use Insert	Use Torx Wr.	Use Screw	Shank No.	Center Height	Shank Dia.	OAL	Insert	Screw	Torx Wr.
SVJCR06-2	3/8"	Turning	3	VCMT21.51	T-8	M2.5x7	SVJCR08-2A	1/2"	-	4"	VCMT21.51	M2.5x7	T8
SVJCL06-2	3/8"	Turning	3	VCMT21.51	T-8	M2.5x7	SVJCL08-2A	1/2"	-	4"	VCMT21.51	M2.5x7	T8
SCLCR06-2	3/8"	Boring	3	CCMT21.51	T-8	M2.5x7	SCLCR08-2A	1/2"	-	4"	CCMT21.51	M2.5x7	T8
SSDCN06-2J	3/8"	Turning	3	SCMT21.51	T-8	M2.5x7	SSDCN08-2A	1/2"	-	4"	SCMT21.51	M2.5x7	T8
S06H-SCLCR2	3/8"	Boring	4	CCMT21.51	T-8	M2.5x6	S06K-SCLCR2	-	1/2"	5"	CCMT21.51	M2.5x6	T8
(1/2x1/2 with 3/8"Hole)	3/8"	Adapter	2.75	--	--	---	ADAPTER 1/2" I.D.	-	-	-	-	-	-

INSERTS - Replacement

Item #	Size
6053-0111	CCMT21.51
6004-3030	SCMT21.51
6005-3403	VCMT21.51

SCREWS - Replacement

Item #	Size
2100-0070	M2.5x6
2100-0066	M2.5x7

TORX WRENCH - Replacement

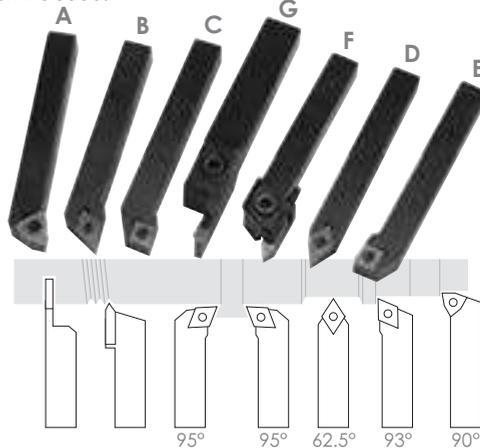
Item #	Size
2100-0092	T8

INDEXABLE CUT OFF AND TURNING TOOL SETS

- Carbide inserts and Allen wrench included.
- Multi-purpose Indexable tools
- Complete with fitted case.

7PC SET INCLUDES:

- (A) Right Hand 90°
- (B) Right Hand 93°
- (C) Right Hand 95°
- (D) Right Hand 62.5°
- (E) Left Hand 95°
- (F) External Threading
- (G) Cut-off tool



7PC SETS

Item#	Shank
2002-0010	1/4"
2002-0012	3/8"
2002-0013	1/2"
2002-0014	5/8"
2002-0015	3/4"

C-6 REPLACEMENT INSERTS

Item#	Style	For Shank	Insert No.
6003-2021	C, E	1/4, 3/8 & 1/2"	CCMT060204
2002-0104	B, D	1/4, 3/8 & 1/2"	DCMT070202
2002-0105	F	1/4, 3/8 & 1/2"	JCL-15-120
2002-0106	G	All	JCQ3
2002-0107	A	1/4, 3/8 & 1/2"	WCMT050308
6003-5031	C, E	5/8 & 3/4"	CCMT09T304
6004-0031	B, D	5/8 & 3/4"	DCMT11T304
2002-0127	F	5/8 & 3/4"	JCL20-120A
2002-0128	A	5/8 & 3/4"	WCMT06T308
2002-0126	A	5/8 & 3/4"	WCMT06T304
2002-0130	A	1/4, 3/8 & 1/2"	WCMT050308

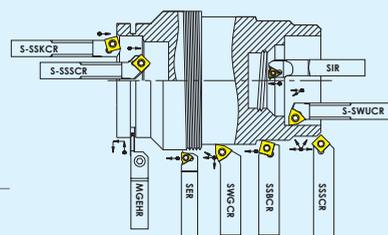
REPLACEMENT SCREWS (7pc Set)

Item#	For Shank
2002-0122	1/4, 3/8 & 1/2"
2002-0142	5/8, & 3/4"

9PC INDEXABLE TURNING & BORING TOOL SETS

- Complete with fitted aluminium case.
- Set includes: Turning Holders, Boring Tools Holders, Inserts & Torx Wrenches

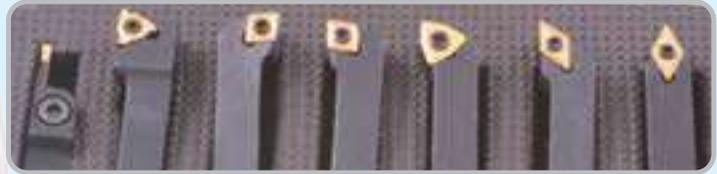
Item #	Shank	Style in Set	Insert	Screw
2002-0212	3/8	SSSCR3/8-3	SCMT09T3	M4x10
		SSBCR3/8-3	SCMT09T3	M4x10
		SWGCR3/8"-3	WCMT06T3	M4x10
		S-SSSCR5/16H3	SCMT060204	M2.5x6
		S-SSKCR5/16H3	SCMT060204	M2.5x6
		S-SWUCR5/16"H3	WCMT06T3	M4x8
		SER0375F11	11ERA60	M2.5x6
		S3/8H-SIR11	11IRA60	M2.5x6
2002-0213	1/2	MGEHR3/8-02	MGMN200	GB70-85/M4x12
		SSSCR1/2-3	SCMT09T3	M4x10
		SSBCR1/2-3	SCMT09T3	M4x10
		SWGCR1/2-3	WCMT06T3	M4x10
		S-SSSCR3/8J3	SCMT09T3	M4x10
		S-SSKCR3/8J3	SCMT09T3	M4x10
		S-SWUCR3/8J3	WCMT06T3	M4x10
		SER0500H11	11ERA60	M2.5x6
S1/2J-STR11	11IRA60	M2.5x6		
		MGEHR1/2-02	MGMN200	GB70-85/M4x12



INSERTS - Replacement

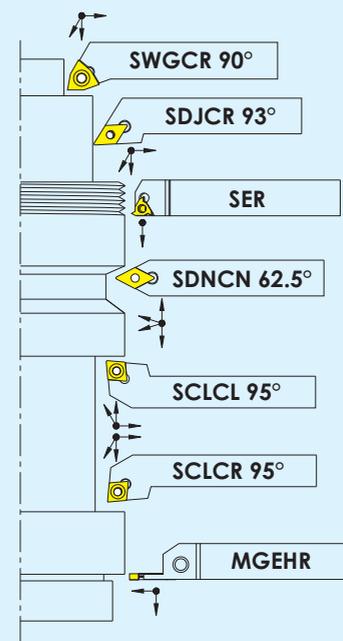
Item#	Insert No.	Coated Grade
6004-3031	SCMT09T304	XAB749
2002-0128	WCMT06T308	TiN
6004-3030	SCMT060204	TiN

Pro-Series 7PC INDEXABLE TURNING TOOL SETS



- Complete with fitted aluminium case.
- **Set includes:** Turning Holders, Inserts & Torx Wrenches

Item #	Shank	Style in Set	Insert	Screw
2002-0112	3/8	MGEHR3/8-02 (CUT OFF BLADE)	MGMN200	GB70-85/M4x12
		SER3/8-11	11ERA60	M2.5x6
		SWGCR3/8-05	WCMT050308	M3x8
		SCLCR3/8-2	CCMT060204	M2.5x6
		SCLCL3/8-2	CCMT060204	M2.5x6
		SDNCN3/8-2	DCMT070204	M2.5x6
2002-0113	1/2	MGEHR1/2-02 (CUT OFF BLADE)	MGMN200	GB70-85/M4x12
		SER1/2-11	11ERA60	M2.5x6
		SWGCR1/2-05	WCMT050308	M3x8
		SCLCR1/2-2	CCMT060204	M2.5x6
		SCLCL1/2-2	CCMT060204	M2.5x6
		SDNCN1/2-2	DCMT070204	M2.5x6
2002-0114	5/8	MGEHR5/8-03 (CUT OFF BLADE)	MGMN300	GB70-85/M5x14
		SER5/8-16	16ERA60	M3.5x11
		SWGCR5/8-06	WCMT06T308	M4x8
		SCLCR5/8-3	CCMT09T304	M4x10
		SCLCL5/8-3	CCMT09T304	M4x10
		SDNCN5/8-3	DCMT11T304	M4x10
2002-0115	3/4	MGEHR3/4-03 (CUT OFF BLADE)	MGMN300	GB70-85/M5x14
		SER3/4-16	16ERA60	M3.5x11
		SWGCR3/4-06	WCMT06T308	M4x10
		SCLCR3/4-3	CCMT09T304	M4x10
		SCLCL3/4-3	CCMT09T304	M4x10
		SDNCN3/4-3	DCMT11T304	M4x10
		SDJCR3/4-3	DCMT11T304	M4x10



REPLACEMENT CARBIDE INSERTS

- For 7pc Indexable Tools Sets.
- Coated.



Item#	Insert No.	Coated Grade
6024-3022	MGMN-200-G	BPS253CVD
6007-0004	11ERA60	TiN
6015-0005	WCMT050308	XAF799
6003-2021	CCMT060204	TiN
6004-0021	DCMT070204	XAB749
6024-3003	MGMN300-M	BPS-253CVD
6007-0012	16ERA60	TiN
6015-0008	WCMT06T304	XAF799
6003-2032	CCMT09T304	TiN
6004-0032	DCMT11T304	XAB749

REPLACEMENT CARBIDE INSERTS-TCMT

- For 5pc Indexable Tools Sets.
- Tin Coated.

Item#	Insert No.	Grade
6004-9020	TCMT090204	TiN
6004-9021	TCMT110204	TiN
6004-9031	TCMT16T304	TiN



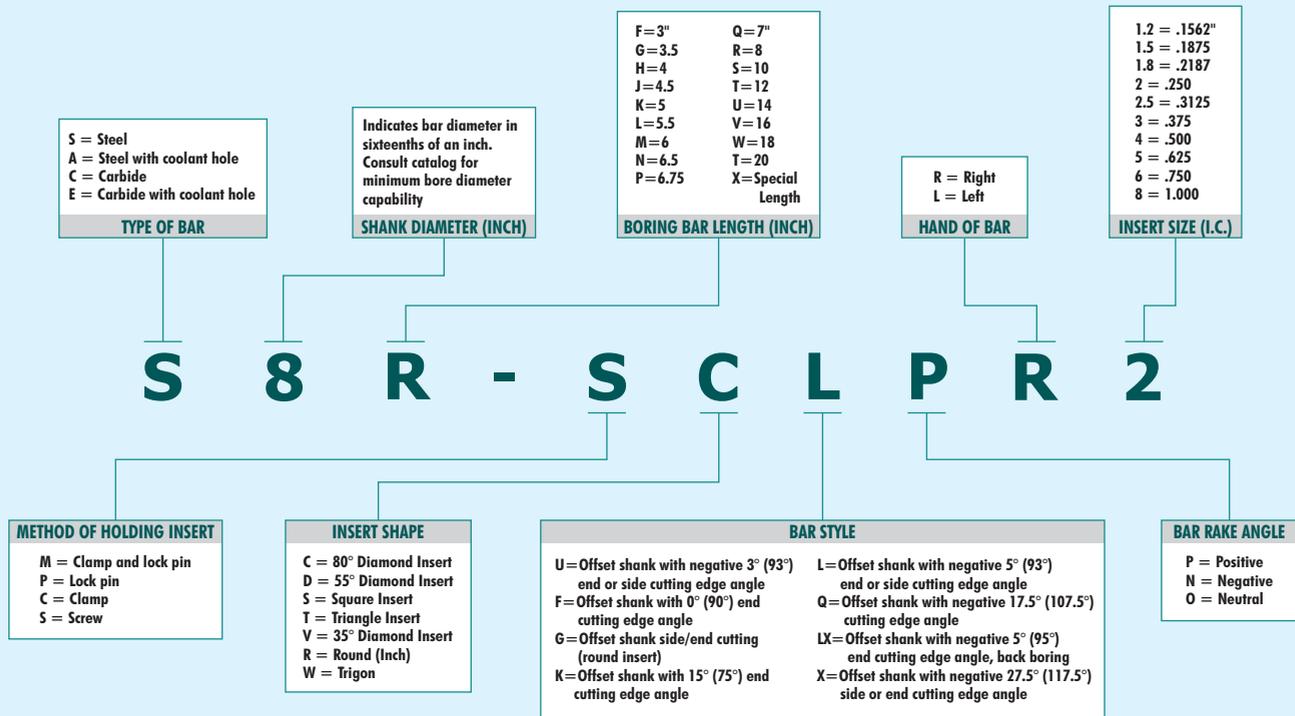
SCREWS



Item#	Style
2100-0065	M2.2x6
2100-0070	M2.5x6
2100-0003	M3x8
2100-0083	M3.5x11
2100-0069	M4x8
2100-0074	M4x10
2100-0082	GB70-85 M4x12
2100-0087	GB70-85 M5x14

INDEXABLE BORING BARS

INDEXABLE BORING BAR IDENTIFICATION SYSTEM



SCLCR INDEXABLE BORING BARS & SETS

SCLCR

- Utilize CCMT 80° diamond inserts.
- 7° Relief angle.
- Negative 5° Lead angle for boring.
- 3° Side & end cutting edge angle.
- Torx wrench included.
- CCMT insert included.

Application:

- Profiling bars for semi-finishing and finishing operations



3 PC SET
 Style A, B, C
1001-0020

5/16, 3/8 & 1/2

3 PC SET
 Style C, E, F
1001-0021

1/2, 5/8 & 3/4"

4 PC SET
 Style B, D, E, F
1001-0054

3/8, 1/2, 5/8 & 3/4"

5 PC SET
 Style A, B, C, E, F
1001-0023

5/16, 3/8, 1/2, 5/8 & 3/4"

INDIVIDUALS

Item#	SET/Style	Dia. x OAL	Min. Bore	Insert	Screw	Torx Wrench
1001-0025	A	5/16 x 4"	.415"	CCMT-21.5	M2.5x5	T-8
1001-0026	B	3/8 x 6"	.480"	CCMT-21.5	M2.5x6	T-8
1001-0024	C	1/2 x 8"	.600"	CCMT-21.5	M2.5x6	T-8
1001-0027	D	1/2 x 7"	.600"	CCMT-32.5	M4x8	T-15
1001-0028	E	5/8 x 8"	.770"	CCMT-32.5	M4x8	T-15
1001-0029	F	3/4 x 10"	.945"	CCMT-32.5	M4x10	T-15
1001-0030	G	1 x 12"	1.250"	CCMT-32.5	M4x10	T-15
1001-0031	H	1 x 12"	1.250"	CCMT-432	M5x12	T-20

See page 172 for carbide inserts. Spare parts shown on pages 165-166.

INSERTS - Replacement

Item #	Size
6053-0111	CCMT21.51
6053-0112	CCMT21.52
6053-0222	CCMT32.52
6053-0432	CCMT432

SCREWS - Replacement

Item #	Size
2100-0070	M2.5x6
2100-0069	M4x8
2100-0074	M4x10
2100-0076	M5x12

TORX WRENCHES - Replacement

Item #	Size
2100-0092	T8
2100-0095	T15
2100-0096	T20

SCLCR COOLANT-THRU INDEXABLE BORING BARS & SETS

SCLCR

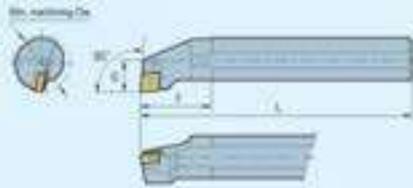
- Utilizes CCMT 80° diamond inserts.
- 7° Relief angle.
- Negative 5° Lead angle for boring.
- Torx wrench included.
- CCMT insert included.

4pc Set Includes:

- (4) Indexable Boring Bars.
- (2) Torx wrenches.
- (14) CCMT inserts

**COOLANT-THRU
4PC SET
1001-0699**

5/16, 3/8, 1/2 & 5/8"



Application:

- Profiling bars for semi-finishing and finishing operations
- The coolant hole allows the cutting edge to cool and removes chips.

See pages 171-172 for carbide inserts.
Spare parts shown on pages 165-166.

INDIVIDUAL

Dimension Style	(Inch) Dia. x OAL	Min. Bore	Insert	Screw	Torx Wrench	Item#
A05H-SCLCR2	5/16 x 4	0.415"	CCMT-21.5	M2.5x5	T-8	1001-0312
A06J-SCLCR2	3/8 x 4-1/2	0.48"	CCMT-21.5	M2.5x6	T-8	1001-0375
A08K-SCLCR2	1/2 x 5	0.6"	CCMT-21.5	M2.5x6	T-8	1001-0500
A10M-SCLCR2	5/8 x 6	0.77"	CCMT-21.5	M2.5x6	T-8	1001-0625

SCLPR INDEXABLE BORING BARS-SCREW ON STYLE

Negative 5-Degree Lead Angle for Boring and Profiling, 11° Relief

SCLPR

- Use for boring & facing

Boring Bar Style	Shank	(Inch) Min. Bore	OAL	Insert Style	Screw	Torx Wrench	Item#
6M-2	0.375	0.480	6	CPMT-21.51	M2.5x6	T-8	1009-0375
8R-2	0.500	0.600	8	CPMT-21.51	M2.5x6	T-8	1009-0500
10S-3	0.625	0.770	10	CPMT-32.52	M4x8	T-15	1009-0625
12S-3	0.750	.0945	10	CPMT-32.52	M4x10	T-15	1009-0750
16T-4	1.000	1.250	12	CPMT-432	M5x12	T-20	1009-1000
18S-09	18mm	22mm	250mm	CPMT09T304	M4x9	T15	1009-1018*

See page 175 for carbide inserts. Spare parts shown on pages 165-166.



INSERT NOT INCLUDED

*Limited Supply

SDJCR INDEXABLE BORING BARS - SCREW ON

Negative 3-Degree Lead Angle, 7° Relief

SDJCR-RH

- Use DCMT 55° rhombic positive inserts

Application: Profiling and copying boring bar for semi finishing

Boring Bar Style	Shank	(Inch) Min. Bore	OAL	Use Insert	Screw	Torx Wrench	Item#
8-2	1/2	.780	8	DCMT-21.52	M2.5x6	T-8	1010-0500
10-2	5/8	.840	10	DCMT-21.52	M2.5x6	T-8	1010-0625
12-3	3/4	1.125	10	DCMT-32.52	M4x10	T-15	1010-0750
16-3	1	1.500	12	DCMT-32.52	M4x10	T-15	1010-1000

See pages 175-176 for carbide inserts. Spare parts shown on pages 165-166.



INSERT NOT INCLUDED

SDUCR INDEXABLE BORING BARS - SCREW ON STYLE

Negative 3-Degree Lead Angle for Boring and Profiling, 7° Relief
Offset shank with negative 3° (93°) end or side cutting edge

SDUCR

- Use DCMT 55° rhombic positive inserts

Application: Profiling and copying boring bar for semi finishing

Boring Bar Style	Shank	(Inch) Min. Bore	OAL	Use Insert	Screw	Torx Wrench	Item#
6-2	0.375	0.520	6	DCMT-21.51	M2.5x6	T-8	1003-2375
8-2	0.500	0.640	6	DCMT-21.51	M2.5x6	T-8	1003-2500
10-2	0.625	0.770	8	DCMT-21.51	M2.5x6	T-8	1003-2625
12-3	0.750	0.945	10	DCMT-32.52	M4x10	T-15	1003-2750

See pages 175-176 for carbide inserts. Spare parts shown on pages 165-166.



INSERT NOT INCLUDED

INDEXABLE BORING BARS

STFCR INDEXABLE BORING BARS-SCREW ON STYLE 0-Degree Lead Angle for Boring and Profiling, 7° Relief

STFCR

- Use TCGT or TCMT inserts

Boring Bar Style	Shank	Min. Bore	OAL	Use Insert	Screw	Torx Wrench	Item#
6-2	0.375"	0.480"	6"	TCMT-21.51	M2.5x6	T-8	1004-2375
8-2	0.500"	0.600"	8"	TCMT-21.51	M2.5x6	T-8	1004-2500
10-2	0.625"	0.770"	10"	TCMT-21.51	M2.5x6	T-8	1004-2625
12-3	0.750"	0.945"	10"	TCMT-32.52	M4x10	T-15	1004-2750
18S-16	18mm	22mm	250mm	TCMT16T304	M4x8	T-15	1004-3018*

See page 185 for carbide inserts. Spare parts shown on pages 165-166.

*Limited Supply



INSERT NOT INCLUDED

MTFNR3 INDEXABLE BORING BARS - CLAMP ON - COOLANT-THRU 0-Degree Lead Angle

MTFNR3

Uses TNMG, TNMM, TNMA Inserts

Limited Supply!

INSERT NOT INCLUDED



Boring Bar Style	Shank	(Inch) Min. Bore	OAL	Use Insert	Shim	Lock Pin	Clamp	Hex Wrench	Clamp Screw	Item#
A20T	1-1/4"	1.57	14	TN..-33.	T1603B	NL-0414	CL-6	2.5mm	XNS-0520	1007-1250
A24T	1-1/2"	2.00	14	TN..-33.	T1603B	NL-0414	CL-6	2.5mm	XNS-0520	1007-1500

See pages 186-188 for carbide inserts. Spare parts shown on pages 165-166.

STFPR INDEXABLE BORING BARS - SCREW ON 0-Degree Lead Angle For Boring and Facing, 11° Relief

STFPR

- Use TPMT inserts

Boring Bar Style	Shank	Min. Bore	OAL	Use Insert	Screw	Torx Wrench	Item#
6M-2	3/8"	0.480"	6"	TPMT-21.51	M2.5x6	T-8	1021-0375
8R-2	1/2"	0.600"	8"	TPMT-21.51	M2.5x6	T-8	1021-0500
10S-2	5/8"	0.770"	10"	TPMT-21.51	M2.5x6	T-8	1021-0625
12S-3	3/4"	0.945"	10"	TPMT-32.52	M4x10	T-15	1021-0750
16T-3	1"	1.250"	12"	TPMT-32.52	M4x10	T-15	1021-1000
18S-16	18mm	22	250mm	TPMT16T304	M4x8	T-15	1021-1018*

See page 189 for carbide inserts. Spare parts shown on pages 165-166.

*Limited Supply



INSERT NOT INCLUDED

CTFPR INDEXABLE BORING BARS - CLAMP ON 0-Degree Lead Angle For Boring and Facing

MCTFPR

- Use TPG inserts

Boring Bar Style	Shank	Min. Bore	OAL	Use Insert	Clamp	Clamp Screw	Hex Wrench	Item#
12S-3	3/4"	0.945"	10"	TPG-32.	CTFPN-5	CTFP-M5	3.0mm	1023-0750
16T-3	1"	1.250"	12"	TPG-32.	CTFPN-5	CTFP-M5	3.0mm	1023-1000
20U-3	1-1/4"	1.570"	14"	TPG-32.	CL-20	XNS-620	3.0mm	1023-1250
24U-4	1-1/2"	2.000"	14"	TPG-43.	CL-20	XNS-620	3.0mm	1023-1500

See page 189 for carbide inserts. Spare parts shown on pages 165-166.

Limited Supply!

INSERT NOT INCLUDED



MCLNR INDEXABLE BORING BARS - CLAMP ON Negative 5-Degree Lead Angle

MCLNR

- Use CNMG inserts

INSERT NOT INCLUDED

Boring Bar Style	Shank	Min. Bore	OAL	Use Insert	Lock Pin	Shim	Clamp	Clamp Screw	Hex Wrench	Item#
20T-4	1-1/4"	1.57"	12"	CNMG-432	NL-0617	C1203B	CL-6	XNS0520	2.5mm	1024-1250
24U-4	1-1/2"	2.00"	14"	CNMG-432	NL-0617	C1203B	CL-6	XNS0520	2.5mm	1024-1500
28U-4	1-3/4"	2.03"	14"	CNMG-432	NL-0617	C1203B	CL-6	XNS0520	2.5mm	1024-1750*

See pages 173-175 for carbide inserts. Spare parts shown on pages 165-166.

*Limited Supply



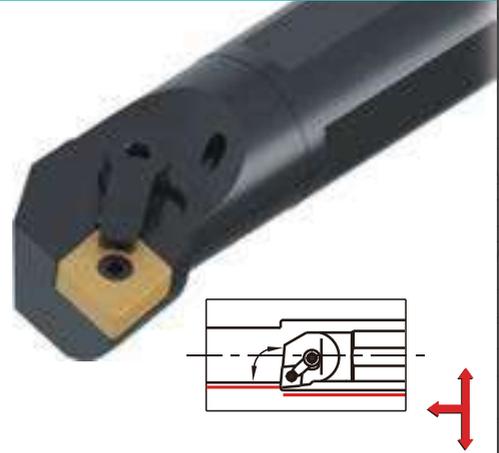
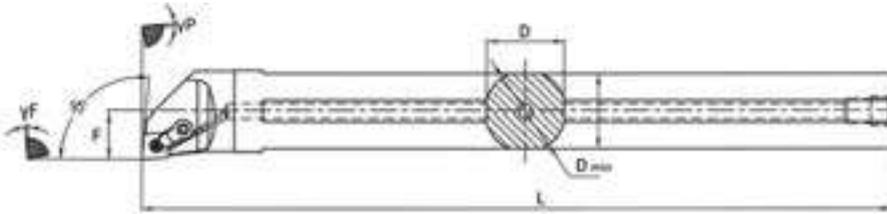
HARLINGEN® MCLNR INDEXABLE BORING BARS -CLAMP ON - COOLANT THRU

MCLNR

- 5-degree lead angle for turning, profiling or facing.
- Uses CNMG432 insert.
- Coolant through.

INSERT NOT INCLUDED

Up to 30% Higher Productivity & Profitability!



Item#	Tool Holder Style	Dimensions						Shim	Lock Pin	Clamp	Clamp Screw	Hex Wrench
		F	P	D	D min	L	F					
9710-0008	A24-4	-12°	-5°	1.453"	1.5"	14"	89/100"	ICSN-433	NL-46	CK-20	SCT-20	S3/S2,S1/8

See pages 173-175 for carbide inserts. Spare parts shown on pages 165-166.

MTFNR INDEXABLE BORING BARS - CLAMP ON 0-Degree Lead Angle

MTFNR

Uses TNMG, TNMM, TNMA Inserts

Limited Supply!

INSERT NOT INCLUDED



Boring Bar Style	Shank	(Inch) Min. Bore	OAL	Lock Pin	Hex Wrench	Shim	Use Insert	Hex Wrench	Clamp	Clamp Screw	Item#
12-3	3/4	0.945	10	NL-0410	2mm	---	TN...33.	2.5mm	CL-6	XNS0520	1025-0750
20-3	1-1/4	1.570	14	NL-0410	2mm	T-1603B	TN...33.	2.5mm	CL-6	XNS0520	1025-1250
24-3	1-1/2	2.00	14	NL-0410	2mm	T-1603B	TN...33.	2.5mm	CL-6	XNS0520	1025-1501
24-4	1-1/2	2.00	14	NL-0617	2.5mm	T-2203B	TN...43.	4mm	CL-12	XNS0829	1025-1500

See pages 186-188 for carbide inserts. Spare parts shown on pages 165-166.

MVUR INDEXABLE BORING BARS - CLAMP ON Negative 3-Degree Lead Angle

MVUR

Uses VNMG, VNMM, VNMA, VBMT Inserts

INSERT NOT INCLUDED

Boring Bar Style	Shank	Min. Bore	OAL	Use Insert	Clamp	Lock Pin	Clamp Screw	Hex Wrench	Item#
16T-3	1"	1.30"	12"	VBMT-332	CL-20	NL-0410	XNS0620	2mmx3mm	1026-1000

See page 191 for carbide inserts. Spare parts shown on pages 165-166.



MWLNLR INDEXABLE BORING BARS - CLAMP ON Negative 5-Degree Lead Angle, 0° Relief

MWLNLR

Uses WNMG, WNMA Inserts

INSERT NOT INCLUDED

Boring Bar Style	Shank	Min. Bore	OAL	Hex Wrench	Use Insert	Lock Pin	Shim	Clamp	Clamp Screw	Hex Wrench	Item#
12S-3	3/4"	0.945"	10"	2mm	WNMG-332	NL-0410	---	CL-6	XNS0520	2.5mm	1028-0750
16T-4	1"	1.250"	12"	2mm	WNMG-432	NL-0611	---	CL-20	XNS0620	2.5mm	1028-1001
20U-3	1-1/4"	1.540"	14"	2mm	WNMG-332	NL-0414	W0603B	CL-6	XNS0520	2.5mm	1028-1250
20U-4	1-1/4"	1.57"	14"	2mm	WNMG-432	NL-0617	W0803B	CL-20	XNS0620	2.5mm	1028-1251

See pages 194-195 for carbide inserts. Spare parts shown on pages 165-166.



INDEXABLE BORING BARS

TBB INDEXABLE BORING BARS

Use TPGH, TPMM, TPGW Inserts, 11° Relief



Limited Supply!

INSERT NOT INCLUDED

See page 191 for carbide inserts. Spare parts shown on pages 165-166.

Boring Bar Style	Shank	(Inch) Min. Bore	OAL	Use Insert	Angle Enter	Screw	Torx Wrench	Item#
S6-2	1/2	.430	5	TPG.-22.	91°	M2.5x6	T-8	1029-0500
S8	1/2	.700	6	TPG.-32.	91°	M4x8	T-15	1029-0503
L8	1/2	.700	6	TPG.-32.	85°	M4x8	T-15	1029-0504
N8	1/2	.700	6	TPG.-32.	95°	M4x8	T-15	1029-0505
L10	5/8	.710	7	TPG.-32.	85°	M4x8	T-15	1029-0626
N10	5/8	.710	7	TPG.-32.	95°	M4x8	T-15	1029-0627
S12-3	3/4	.845	10	TPG.-32.	91°	M4x10	T-15	1029-0750

TPBN INDEXABLE BORING BAR SETS

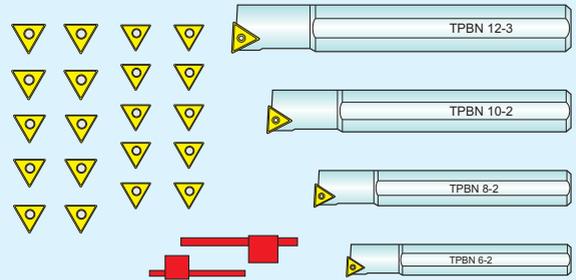
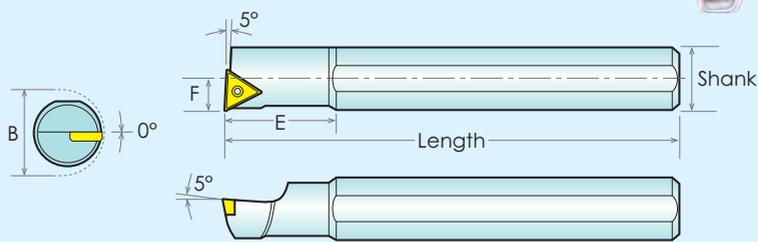
Use TPGW Inserts

Features:

- Small hole capacity to a minimum of .430"
- Insert pocket has been scientifically designed to eliminate vibration and maximize the depth of cut.
- Bars made of heat treated, precision ground alloy steel.
- Clearance angle of the insert, in relation to cutting edge, gives best micro finish.
- The positive insert with advanced chip breaker design allows for heavier cuts.



1001-0727 Shown



27 PC SET
1001-0727
Includes: 8pc of each Boring Bars, Carbide Inserts, & Torx Screws, 3pc Torx Keys, Fitted Case

31 PC SET
1001-0731
Includes: 4 pc Boring Bars, 20 pc Carbide Inserts, & 4 pc Torx Screws, 2 pc Torx Keys, Fitted Case

27pc Set Includes:

Boring Bar Style	Shank	(Inch) Min. Bore	OAL	Screw	Torx Wr.	Use Insert
6-2	1/2	.430	5	M2.5x6	T8	TPGW-21.5
8-2	1/2	.590	6	M2.5x6	T8	TPGW-21.5
10-2	5/8	.682	8	M2.5x6	T8	TPGW-21.5
12-3	3/4	.845	10	M4x8	T15	TPGW-32.
16-3	1	1.115	12	M4x10	T15	TPGW-32.
20-3	1-1/4	1.370	12	M4x10	T15	TPGW-32.
20-4	1-1/4	1.370	12	M5x12	T20	TPGW-43.
24-4	1-1/2	1.680	12	M5x12	T20	TPGW-43.

31pc Set Includes:

Boring Bar Style	Shank	Min. Bore	OAL	Screw	Torx Wr.	Use Insert
6-2	1/2"	.430"	5"	M2.5x6	T8	TPGW-21.5
8-2	1/2"	.590"	6"	M2.5x6	T8	TPGW-21.5
10-2	5/8"	.682"	8"	M2.5x6	T8	TPGW-21.5
12-3	3/4"	.845"	10"	M4x8	T15	TPGW-32.

See page 190 for carbide inserts. Spare parts shown on pages 165-166.

BBN/BBS INDEXABLE BORING BARS

Use TPGH, TPMM, TPGW Inserts • Positive Rake • 11° Relief



Boring Bar Style	Shank	Min. Bore	OAL	Use Insert	Lead Angle	Screw	Torx Wrench	Item#
S8	1/2"	.700"	6"	TP..-32.	-1	M4x10	T-15	1030-0500
N8	1/2"	.700"	6"	TP..-32.	-5	M4x10	T-15	1030-0502*
S10	5/8"	.710"	7"	TP..-32.	-1	M4x10	T-15	1030-0625*
N10	5/8"	.710"	7"	TP..-32.	-5	M4x10	T-15	1030-0627
N12-3	3/4"	.845"	10"	TP..-32.	-5	M4x10	T-15	1030-0750
S12-3	3/4"	.845"	10"	TP..-32.	-1	M4x10	T-15	1030-0751*

See page 191 for carbide inserts. Spare parts shown on pages 165-166.

*Limited Supply

MINI INDEXABLE BORING BARS

Use CCMT Inserts, 7° Relief



- Screw down style

See page 171 for carbide inserts. Spare parts shown on pages 165-166

Boring Bar Style	Shank	Min. Bore	OAL	Neck Dia.	Neck Length	Use Insert	Screw	Torx	Item#
S05 SCLCR06	5/16"	.415"	4.00"	.236"	.985"	CCMT-21.5	M2.5x5	T-8	1031-0312
S06 SCLCR06	3/8"	.472"	4.33"	.315"	1.26"	CCMT-21.5	M2.5x6	T-8	1031-0375
S08 SCLCR06	1/2"	.552"	5.00"	.393"	1.50"	CCMT-21.5	M2.5x6	T-8	1031-0500
S10 SCLCR06	5/8"	.708"	5.90"	.472"	1.97"	CCMT-21.5	M2.5x6	T-8	1031-0625

INDIVIDUAL ROUND SHANK INDEXABLE BORING BARS

Use TCMT Inserts • Positive Rake 90° Lead, 7° Relief

- Negative 3° lead angle.
- Uses TCMT insert.
- Screw down style.
- Includes TiN coated insert.



Item#	Shank Dia.	Length	Bore Depth	Min. Bore	Insert	Screw	Torx Wr.
1001-0741	1/2	2-3/4	1-1/4	7/16	TCMT21.51	M2.5x5	T-8
1001-0743	1/2	3-5/8	2-1/8	7/16	TCMT21.51	M2.5x5	
1001-0745	1/2	3	1-1/2	1/2	TCMT21.51	M2.5x6	
1001-0747	1/2	4	2-1/2	1/2	TCMT21.51	M2.5x6	
1001-0751	5/8	3	1-1/4	7/16	TCMT21.51	M2.5x5	
1001-0753*	5/8	3-7/8	2-1/8	7/16	TCMT21.51	M2.5x5	
1001-0755*	5/8	3-1/4	1-1/2	1/2	TCMT21.51	M2.5x6	
1001-0757	5/8	4-1/4	2-1/2	1/2	TCMT21.51	M2.5x6	
1001-0759	5/8	3-1/2	1-3/4	9/16	TCMT221	M2.5x6	
1001-0761*	5/8	4-5/8	2-7/8	9/16	TCMT221	M2.5x6	
1001-0771	3/4	3-3/8	1-3/8	7/16	TCMT21.51	M2.5x5	
1001-0773	3/4	4-1/4	2-1/4	7/16	TCMT21.51	M2.5x5	
1001-0775	3/4	3-5/8	1-5/8	1/2	TCMT21.51	M2.5x6	
1001-0777	3/4	4-5/8	2-5/8	1/2	TCMT21.51	M2.5x6	
1001-0779	3/4	3-7/8	1-7/8	9/16	TCMT221	M2.5x6	
1001-0781	3/4	5	3	9/16	TCMT221	M2.5x6	
1001-0783*	3/4	4-1/4	2-1/4	11/16	TCMT221	M2.5x7	
1001-0785	3/4	5-1/2	3-1/2	11/16	TCMT221	M2.5x7	

See page 185 for carbide inserts. Spare parts shown on pages 165-166.

*Limited Supply

7PC 18MM ROUND SHANK INDEXABLE BORING BAR SET

Use TCMT Inserts • Positive Rake 90° Lead, 7° Relief

- Negative 3° lead angle.
- TCMT21-5. insert fits all bars.
- Made of 40Cr alloy steel.
- Screw down style.
- Includes C-6 inserts.
- Furnished with fitted aluminium case.

Shank No.	Dc Min.	Shank dm	L	Lc	Insert	Screw	Torx Wr.
SBJ1810-40TC06	10	18	88	40	TCMT06T104L	M2x5	T6
SBJ1812-53TC09	12	18	100	53	TCMT090204L	M2.5x6	T8
SBJ1816-68TC09	16	18	113	68	TCMT090204L	M2.5x6	T8
SBJ1820-83TC11	20	18	123	83	TCMT110304L	M3x7	T10
SBJ1825-90TC11	25	18	130	90	TCMT110304L	M3x7	T10
SBJ1830-90TC11	30	18	130	90	TCMT110304L	M3x7	T10
SBJ18F-108TC11	110	18	108	-	TCMT110340L	M3x7	T10

See page 185 for carbide inserts. Spare parts shown on pages 165-166.

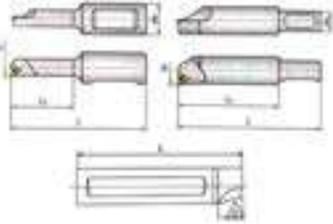


INDEXABLE BORING BARS

7PC 1/2" ROUND SHANK INDEXABLE BORING BAR SET Uses TCMT Inserts, 7° Relief

- Made of 40Cr steel.
- Use TCMT Style inserts.
- Screw down style.
- Includes inserts.
- Complete with fitted aluminum case.

7PC SET
1001-0705



Shank dm	Min. Bore Dc.	Bore Depth Lc	OAL L	Use Insert	Use Torx Wr.	Use Screw	Bar Style Code
1/2"	5/16	1.25	2.75	TCMT06T-104L	T-6	M2x4	SBJ0805-1.25TC52
	3/8	1.57	3.00	TCMT06T-104L	T-6	M2x5	SBJ0806-1.57TC52
	1/2	2.09	3.42	TCMT090204L	T-8	M2.5x6	SBJ0808-2.09TC73
	5/8	2.68	3.94	TCMT090204L	T-8	M2.5x6	SBJ0810-2.68TC73
	3/4	3.25	4.53	TCMT110304L	T-10	M3x8	SBJ0812-3.25TC22
	1	3.54	4.80	TCMT110304L	T-10	M3x8	SBJ0816-3.54TC22
	3	-	2.75	TCMT110304L	T-10	M3x7	SBJ08F-2.75TC22

See page 185 for carbide inserts. Spare parts shown on pages 165-166.

4PC 1/2" ROUND SHANK INDEXABLE BORING BAR SET Use TCMT Inserts • Positive Rake 90° Lead, 7° Relief

- Negative 3° lead angle.
- TCMT21-5. insert fits all bars.
- Screw down style.
- Includes inserts.

4PC SET
1/2" SHANK
1001-0704



Set	Shank	Min. Bore	(Inch) OAL	Bore Depth	Use Insert	Use Torx Wr.	Use Screw
4	1/2	7/16	2-3/4	1-1/4	TCMT21-51	T-8	M2.5x5
	1/2	7/16	3-5/8	2-1/8			M2.5x5
	1/2	1/2	3	1-1/2			M2.5x6
	1/2	1/2	4	2-1/2			M2.5x6

See page 185 for carbide inserts. Spare parts shown on pages 165-166.

6PC 5/8" ROUND SHANK INDEXABLE BORING BAR SET Use TCMT Inserts • Positive Rake 90° Lead, 7° Relief

- Negative 3° lead angle.
- TCMT21-5. insert fits all bars.
- Screw down style.
- Includes inserts.
- Includes fitted case.

6PC SET
5/8" SHANK
1001-0711



Set	Shank	Min. Bore	(Inch) OAL	Bore Depth	Use Insert	Use Torx Wr.	Use Screw
6	5/8	7/16	3	1-1/4	TCMT21-51	T-8	M2.5x5
		7/16	3-7/8	2-1/8			M2.5x5
		1/2	3-1/4	1-1/2			M2.5x6
		1/2	4-1/4	2-1/2	M2.5x6		
		9/16	3-1/2	1-3/4	TCMT221		M2.5x6
		9/16	4-5/8	2-7/8	M2.5x6		

See page 185 for carbide inserts. Spare parts shown on pages 165-166.

8PC 3/4" ROUND SHANK INDEXABLE BORING BAR SET Use TCMT Inserts • Positive Rake 90° Lead, 7° Relief

- Negative 3° lead angle.
- TCMT21-5. insert fits all bars.
- Screw down style.
- Includes inserts.
- Includes fitted case.

8PC SET
3/4" SHANK
1001-0708



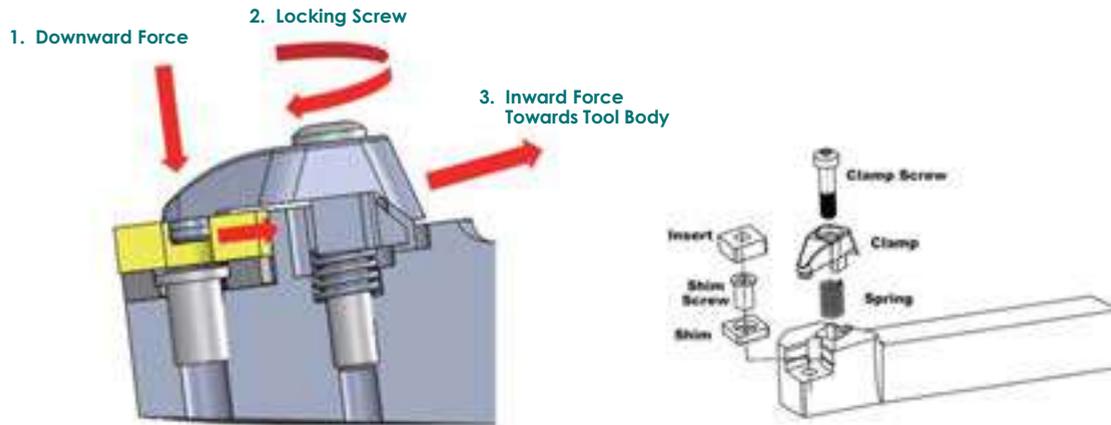
Set	Shank	Min. Bore	(Inch) OAL	Bore Depth	Use Insert	Use Torx Wr.	Use Screw
8	3/4	7/16	3-3/8	1-3/8	TCMT21-51	T-8	M2.5x5
		7/16	4-1/4	2-1/4			M2.5x5
		1/2	3-5/8	1-5/8			M2.5x6
		1/2	4-5/8	2-5/8			M2.5x6
		9/16	3-7/8	1-7/8	TCMT221		M2.5x6
		9/16	5	3			M2.5x6
		11/16	4-1/4	2-1/4			M2.5x7
		11/16	5-1/2	3-1/2			M2.5x7



See page 185 for carbide inserts. Spare parts shown on pages 165-166.

ADVANTAGES OF T-STYLE TOOL HOLDERS - RIGID CLAMP DESIGN

- New clamping mechanism allows clamping force to be applied not only downward but also pulling inward towards the tool body.
- Unique feature improves clamping rigidity and position accuracy which in turn will extend insert tooling life.
- Locating pin on the front of the clamp makes an arc contact with the inner wall of insert hole, resulting in an evenly distributed clamping force that is more secure and rigid.
- Locating lug on the back of the clamp matches with the slot on the tool body to guide the clamp to be seated repetitively which will improve the clamping accuracy.



HARLINGEN® HIGH QUALITY INDEXABLE TURNING TOOL HOLDERS - ADVANTAGES

- Superior edge toughness.
- Excellent wear and depth-of-cut notch resistance.
- For use in all finishing, medium, and roughing applications.

Up to 30% Higher Productivity & Profitability!

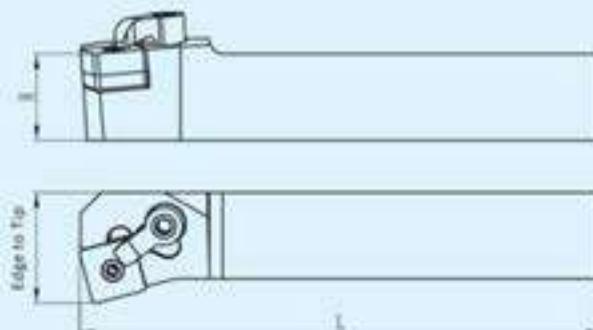
- **SURFACE FINISHING**
Each tool holder is black oxidized. The ultra smooth surface is rust proof and extremely durable.
- **100% INSERT SEATING CONTROL**
Using a .02mm feeler gage, each tool is qualified to assure the gap between the insert and pocket base is <0.02mm. We guarantee the Gap is <.02mm

- **TOOL HOLDER HARDNESS HRC 45**
High grade alloy steel provides outstanding strength and rigidity delivering higher productivity, stability, and longer tool life.

- **CHAMFERS**
All the chamfers are processed by CNC machines to ensure uniformity.

INSERT BASE, NOSE HEIGHT, EDGE TO TIP, LENGTH OF TOOL HOLDER.

Each dimension is 100% inspected by testing with specific inspection insert according to ISO standard.

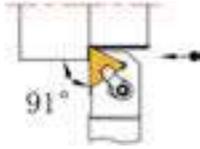


INDEXABLE TURNING TOOL HOLDERS

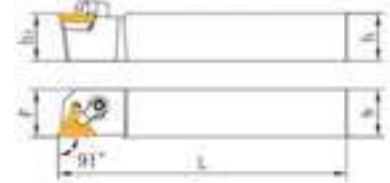
CTAPR TOP CLAMP STYLE TOOL HOLDERS 0° LEAD ANGLE • RIGHT HAND

CTAPR

- 11° Relief
- For turning and facing.



Limited Supply!



See pages 165-166 for spare parts. Replacement inserts shown on page 189.

INSERTS NOT INCLUDED

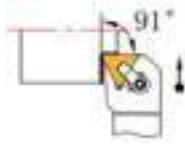
Item#	Industry Ref. No.	Dimensions				Insert	Shim	Shim Screw	Clamp	Clamp Screw	Key
		h=h1	Shank Dia. b	Offset F	OAL L						
2016-2102	CTAPR10-2B	5/8"	5/8"	.63"	4-1/2"	TP...22	T11D	M2.5x6	CL-6	XNS-0520	T8 S2.5
2016-2163	CTAPR16-3D	1"	1"	1.00"	6"	TP...32	T16D	M3x8-D5	CL-6	XNS-0520	S2 S2.5

CTFPR TOP CLAMP STYLE TOOL HOLDERS 0° LEAD ANGLE • RIGHT HAND

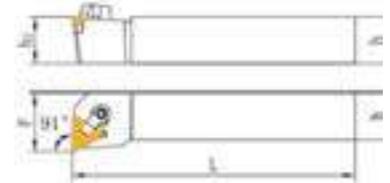
CTFPR

- 11° Relief

90° RIGHT HAND



Limited Supply!



INSERTS NOT INCLUDED

See pages 165-166 for spare parts. Replacement inserts shown on page 189.

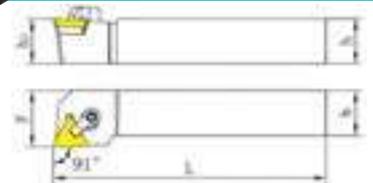
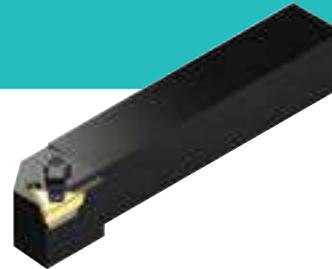
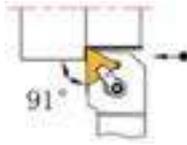
Item#	Industry Ref. No.	Dimensions				Insert	Shim	Shim Screw	Clamp	Clamp Screw	Key
		h=h1	Shank Dia. b	Offset F	OAL L						
2031-0124	CTFPR12-3B	3/4"	3/4"	1.00"	4-1/2"	TP...32	T16D	M3x8-D5	CL-6	XNS-0520	S2 S2.5
2031-0164	CTFPR16-4D	1"	1"	1.25"	6"	TP...43	T22D	M3x8-D5	CL-12	XNS-0829	S2 S4
2031-0204	CTFPR20-4D	1-1/4"	1-1/4"	1.50"	6"	TP...43	T22D	M3x8-D5	CL-12	XNS-0829	S2 S4

CTGPR TOP CLAMP STYLE TOOL HOLDERS 0° LEAD ANGLE • RIGHT HAND

CTGPR

- 11° Relief

90° RIGHT HAND



INSERTS NOT INCLUDED

See pages 165-166 for spare parts. Replacement inserts shown on page 189.

Item#	Industry Ref. No.	Dimensions				Insert	Shim	Shim Screw	Clamp	Clamp Screw	Key
		h=h1	Shank Dia. b	Offset F	OAL L						
2015-1103	CTGPR12-3B	5/8"	5/8"	.75"	4-1/2"	TP...32	T16D	M3x8-D5	CL-6	XNS-0520	S2 S2.5
2015-1123	CTGPR16-4D	3/4"	3/4"	1.00"	4-1/2"	TP...43	T22D	M3x8-D5	CL-12	XNS-0229	S2 S2.5
2015-1163	CTGPR20-4D	1"	1"	1.25"	6"	TP...43	T22D	M3x8-D5	CL-12	XNS-0229	S2 S2.5

DCLNR TOP & HOLE CLAMP STYLE TOOL HOLDERS -5° LEAD ANGLE • RIGHT HAND

DCLNR

- 0° Relief

Limited Supply!

RIGHT HAND



INSERTS NOT INCLUDED

See pages 165-166 for spare parts. Replacement inserts shown on pages 173-174.

Tool Holder Style	(Inch)			Insert Style	Shim	Lock Pin	Clamp	Clamp Screw	Item#
	Shank	OAL	Offset						
20-4E	1-1/4	7	1-1/2	CN...43	C1203B	THT0706	DLM4	LE06	2017-0204
20-5E	1-1/4	7	1-1/2	CN...54	C1604B	THT0907	DLM4	LE06	2017-0205

INDEXABLE TURNING TOOL HOLDERS

DDJNR TOP & HOLE CLAMP STYLE TOOL HOLDERS -3° LEAD ANGLE • RIGHT HAND

DDJNR

- 0° Relief

INSERTS NOT INCLUDED

RIGHT HAND

Limited Supply!



See pages 165-166 for spare parts. Replacement inserts shown on pages 176-178.

Tool Holder Style	(Inch)			Insert Style	Shim	Lock Pin	Clamp	Clamp Screw	Item#
	Shank	OAL	Offset						
20-4E	1-1/4	7	1-1/2	DNM.-43.	D1504B	THT0706	DLM4	LE06	2018-0204

DTGNR TOP & HOLE CLAMP STYLE TOOL HOLDERS 0° LEAD ANGLE • RIGHT HAND

DTGNR

- 0° Relief

INSERTS NOT INCLUDED

Limited Supply!

RIGHT HAND



See pages 165-166 for spare parts. Replacement inserts shown on pages 186-188.

Tool Holder Style	(Inch)			Insert Style	Shim	Lock Pin	Clamp	Clamp Screw	Item#
	Shank	OAL	Offset						
12-3C	3/4	4-1/2	1	TNM.-32.	T1603B	THT0505	DLM3	LE05	2019-0123
16-3D	1	6	1-1/4	TNM.-32.	T1603B	THT0505	DLM3	LE05	2019-0163
16-4D	1	6	1-1/4	TNM.-43.	T2203B	THT0706	DLM4	LE06	2019-0164
20-4E	1-1/4	7	1-1/2	TNM.-43.	T2203B	THT0706	DLM4	LE06	2019-0204

DTJNR TOP & HOLE CLAMP STYLE TOOL HOLDERS -3° LEAD ANGLE • RIGHT HAND

DTJNR

- 0° Relief

INSERTS NOT INCLUDED

Limited Supply!

RIGHT HAND



See pages 165-166 for spare parts. Replacement inserts shown on pages 186-188.

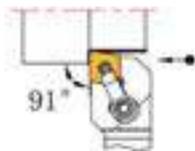
Tool Holder Style	(Inch)			Insert Style	Shim	Lock Pin	Clamp	Clamp Screw	Item#
	Shank	OAL	Offset						
12-3C	3/4	5	1	TNM.-32.	T1603B	THT0505	DLM3	LE05	2020-0123
16-3D	1	6	1-1/4	TNM.-32.	T1603B	THT0505	DLM3	LE05	2020-0163
16-4D	1	6	1-1/4	TNM.-43.	T2203B	THT0706	DLM4	LE06	2020-0164
20-4E	1-1/4	7	1-1/2	TNM.-43.	T2203B	THT0706	DLM4	LE06	2020-0204

MCGNR PIN & CLAMP STYLE TOOL HOLDERS 90° Lead Angle • RIGHT HAND

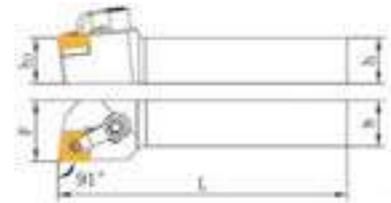
MCGNR

- -5° Negative Rake

INSERTS NOT INCLUDED



Limited Supply!



Item#	Industry Ref. No.	Dimensions				Insert	Shim	Lock Pin	Clamp	Clamp Screw	Key
		h=h1	Shank Dia. b	Offset F	OAL L						
2010-1124	MCGNR12-4C	3/4"	3/4"	1"	5"	CN.-43.	C1203B	NL-0617	CL-12	XNS-0829	S2.5 S4
2010-1165	MCGNR16-5D	1"	1"	1-1/4"	6"	CN.-54.	C1604B	NL-0822	CL-12	XNS-0829	S3 S4
2010-1204	MCGNR20-4D	1-1/4"	1-1/4"	1-1/2"	6"	CN.-54.	C1604B	NL-0617	CL-20	XNS-0829	S3 S4
2010-1206	MCGNR20-5E	1-1/4"	1-1/4"	1-1/2"	7"	CN.-54.	C1604B	NL-0822	CL-12	XNS-0829	S3 S4

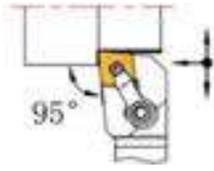
See pages 165-166 for spare parts. Replacement inserts shown on pages 173-174.

INDEXABLE TURNING TOOL HOLDERS

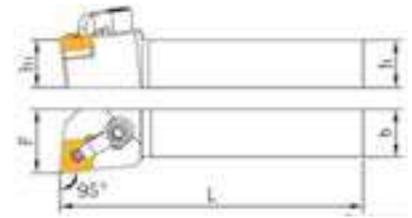
MCLNR PIN & CLAMP STYLE TOOL HOLDERS -5° LEAD ANGLE • RIGHT HAND

MCLNR

- 0° Relief
- For turning and facing.



Limited Supply!



INSERTS NOT INCLUDED

See pages 165-166 for spare parts.

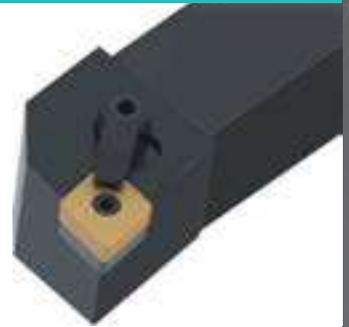
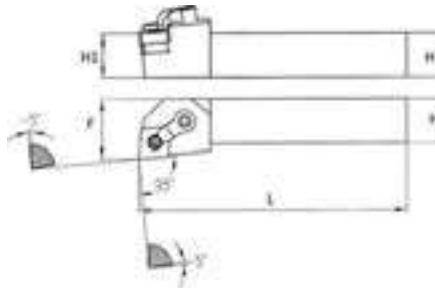
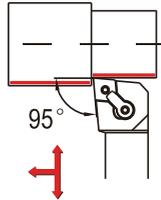
Item#	Industry Ref. No.	Dimensions				Insert	Shim	Lock Pin	Clamp	Clamp Screw	Key
		h=h1	Shank Dia. b	Offset F	OAL L						
2011-1204	MCLNR20-4D	1-1/4"	1-1/2"	1.50"	6"	CH...43..	C1203B	NL-0617	CL-12	XNS-0829	S2.5 S4
2011-1205	MCLNR20-5E	1-1/4"	1-1/4"	1.50"	7"	CH...54..	C1604B	NL-0822	CL-12	XNS-0829	S4

HARLINGEN® MCLNR PIN & CLAMP STYLE TOOL HOLDERS -5° LEAD ANGLE • RIGHT HAND

MCLNR

- 0° Relief
- For turning and facing.

Up to 30% Higher Productivity & Profitability!



See pages 165-166 for spare parts. Replacement inserts shown on pages 173-174.

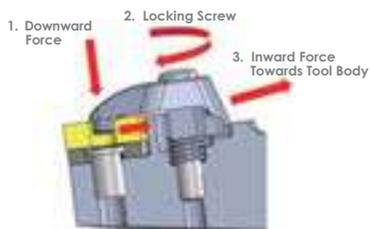
INSERTS NOT INCLUDED

Item#	Industry Ref. No.	Dimensions				Insert	Shim	Lock Pin	Clamp	Clamp Screw	Torx Wrench
		h=h1	Shank Dia. b	Offset F	OAL L						
9710-0109	MCLNR12-4B	3/4"	3/4"	1"	4-1/2"	CNMG4..	ICSN-433	NL-46	CK-20	STC-20	S3/32 S1/8
9710-0104	MCLNR16-4D	1"	1"	1-1/4"	6"	CNMG4..	ICSN-433	NL-46	CK-20	STC-20	S3/32 S1/8

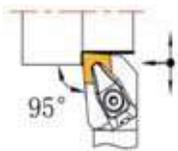
MCLNR TOOL HOLDERS - RIGID CLAMP DESIGN -5° LEAD ANGLE • RIGHT HAND

TMCLNR

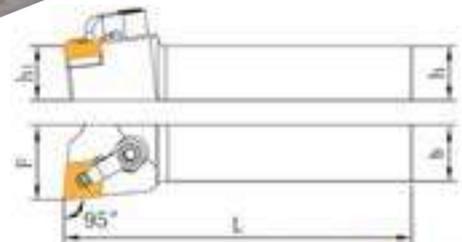
- 0° Relief



New Design!



INSERTS NOT INCLUDED



See page 152 for advantages.

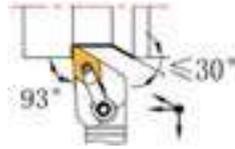
See pages 165-166 for spare parts. Replacement inserts shown on pages 173-174.

Item #	Industry Ref. No.	Dimensions				Insert	Shim	Shim Screw	Clamp	Clamp Screw	Spring	Key
		h=h1	Shank Dia. b	Offset F	OAL L							
2011-1122	TMCLNR12-4B	3/4"	3/4"	1.00"	4.5"	CN...43..	C0903B	LYM0610	TP-2	MS0523	YB6512	S3
2011-1162	TMCLNR16-4D	1"	1"	1.25"	6"	CN...43..	C0903B	LYM0610	TP-2	MS0523	YB6512	S3
2011-1167	TMCLNR16-5D	1"	1"	1.25"	6"	CN...54..	C1604B	LYM0810	TP-4	MS0523	YB6512	S3
2011-1202	TMCLNR20-5E	1-1/4"	1-1/4"	1.50"	7"	CN...54..	C1604B	LYM0810	TP-4	MS0523	YB6512	S4

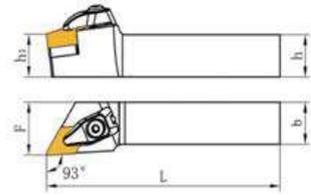
MDJNR PIN & CLAMP STYLE TOOL HOLDERS 3° LEAD ANGLE • RIGHT HAND

MDJNR

- 0° Relief
- For profiling and facing.



Limited Supply!



INSERTS NOT INCLUDED

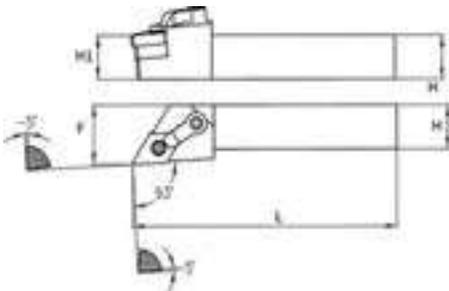
See pages 165-166 for spare parts. Replacement inserts shown on pages 176-178.

Item#	Industry Ref. No.	Dimensions				Insert	Shim	Lock Pin	Clamp	Clamp Screw	Key
		h=h1	Shank Dia. b	Offset F	OAL L						
2012-1204	MDJNR20-4E	1-1/4"	1-1/4"	1.50"	7"	DN..43.	D1504B	NL-0617	CL-30	XNS-0829	S2.5 S4

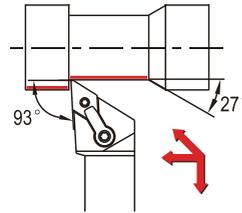
HARLINGEN® MDJNR PIN & CLAMP STYLE TOOL HOLDERS 3° LEAD ANGLE • RIGHT HAND

MDJNR

- 0° Relief
- For turning and profiling.



Up to 30% Higher Productivity & Profitability!



INSERTS NOT INCLUDED

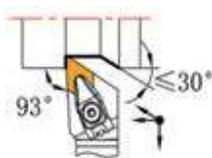
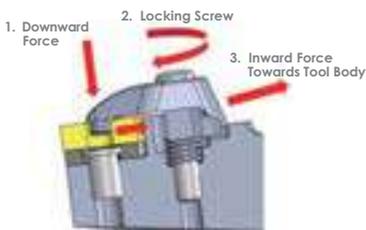
See pages 165-166 for spare parts. Replacement inserts shown on pages 176-178.

Item#	Industry Ref. No.	Dimensions				Insert	Shim	Lock Pin	Clamp	Clamp Screw	Torx Wrench
		h=h1	Shank Dia. b	Offset F	OAL L						
9710-0110	MDJNR12-4B	3/4"	3/4"	1"	4-1/2"	DN..43.	ISDN-443	NL-46L	CK-23	STC-20	S3/32 S1/8

MDJN TOOL HOLDERS - RIGID CLAMP DESIGN 3° LEAD ANGLE • RIGHT HAND

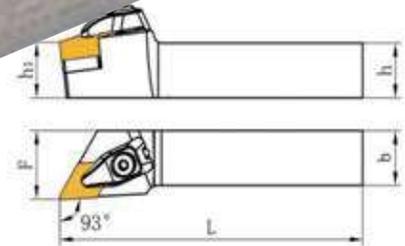
TMDJNR

- 0° Relief
- For profiling and facing.



New Design!

INSERTS NOT INCLUDED



See page 152 for advantages.

See pages 165-166 for spare parts. Replacement inserts shown on pages 176-178.

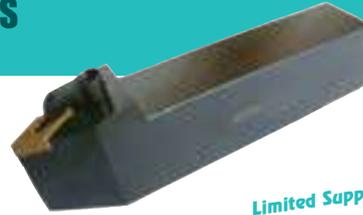
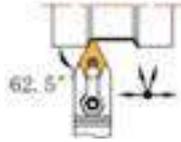
Item#	Industry Ref. No.	Dimensions				Insert	Shim	Shim Screw	Clamp	Clamp Screw	Spring	Key
		h=h1	Shank Dia. b	Offset F	OAL L							
2012-1122	TMDJNR12-4B	3/4"	3/4"	1"	4-1/2"	DN..43.	D1504B	LYM0610	TP-2	MS0523	YB6512	S3
2012-1162	TMDJNR16-4D	1"	1"	1-1/4"	6"	DN..43.	D1504B	LYM0610	TP-2	MS0523	YB6512	S3

INDEXABLE TURNING TOOL HOLDERS

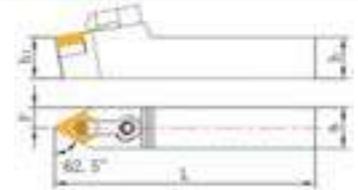
MDPNN PIN & CLAMP STYLE TOOL HOLDERS 27.5° LEAD ANGLE • NEUTRAL

MDPNN

- 0° Relief
- For turning and profiling.



Limited Supply!



INSERTS NOT INCLUDED

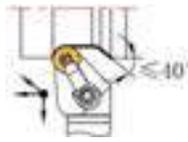
See pages 165-166 for spare parts. Replacement inserts shown on pages 176-178.

Item#	Industry Ref. No.	Dimensions				Insert	Shim	Lock Pin	Clamp	Clamp Screw	Key
		h=h1	Shank Dia. b	Offset F	OAL L						
2024-0165	MDPNN16-5D	1"	1"	.50"	6"	DN...53..	D1904B	NL-0822	CL-30	XNS-0829	S2.5 S5
2024-0204	MDPNN20-4D	1-1/4"	1-1/4"	.63"	6"	DN...43..	D1504B	NL-0617	CL-30	XNS-0829	S2.5 S4

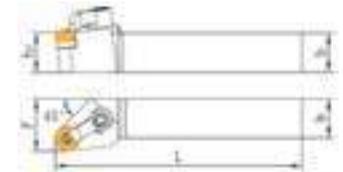
MRGNR PIN & CLAMP STYLE TOOL HOLDERS 0° LEAD ANGLE • RIGHT HAND

MRGNR

- 0° Relief
- For turning and profiling.



Limited Supply!



INSERTS NOT INCLUDED

See pages 165-166 for spare parts. Replacement inserts shown on page 179.

Item#	Industry Ref. No.	Dimensions				Insert	Shim	Lock Pin	Clamp	Clamp Screw	Key
		h=h1	Shank Dia. b	Offset F	OAL L						
2026-0123	MRGNR12-10B	3/4"	3/4"	1"	4-1/2"	RN...10T3MO	R1003B	NL-0413	CL-12	XNS-0829	S2 S4
2026-0163	MRGNR16-12D	1"	1"	1-1/4"	6"	RN...32..	R1203B	NL-0617	CL-12	XNS-0829	S2.5 S4

MRGNR PIN & CLAMP STYLE TOOL HOLDERS - RIGID CLAMP DESIGN 0° LEAD ANGLE • RIGHT HAND

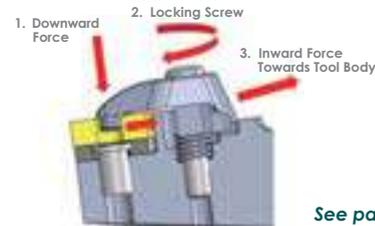
TMRGNR

- 0° Relief

New Design!



INSERTS NOT INCLUDED



NEW

See pages 165-166 for spare parts. Replacement inserts shown on page 179.

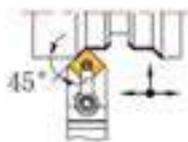
See page 152 for advantages.

Item#	Industry Ref. No.	Dimensions				Insert	Shim	Shim Screw	Clamp	Clamp Screw	Spring	Key
		h=h1	Shank Dia. b	Offset F	OAL L							
2026-0120	TMRGNR12-10B	3/4"	3/4"	1"	4-1/2"	RN...10T3MO	R1003B	LYM0508	TP-1	MS0422	YB5512	S3
2026-0122	TMRGNR12-12B	3/4"	3/4"	1"	4-1/2"	RN...1204MO	R1203B	LYM0610	TP-2	MS0523	YB6512	S3
2026-0161	TMRGNR16-12D	1"	1"	1-1/4"	6"	RN...1204MO	R1203B	LYM0610	TP-2	MS0523	YB6512	S3

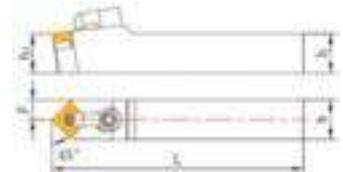
MSDNN PIN & CLAMP STYLE TOOL HOLDERS 45° LEAD ANGLE • NEUTRAL

MSDNN

- 0° Relief



INSERTS NOT INCLUDED



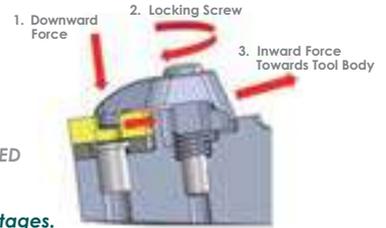
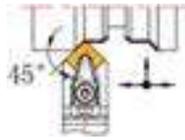
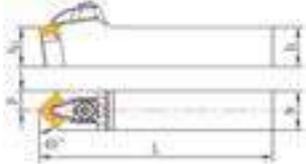
See pages 165-166 for spare parts. Replacement inserts shown on pages 181-183.

Item#	Industry Ref. No.	Dimensions				Insert	Shim	Lock Pin	Clamp	Clamp Screw	Key
		h=h1	Shank Dia. b	Offset F	OAL L						
2027-0083	MSDNN08-3A	1/2"	1/2"	.25"	4"	SN...32..	S0903B	NL-0412	CL-6	XNS-0520	S2, S2.5

MSDNN TOOL HOLDERS - RIGID CLAMP DESIGN 45° LEAD ANGLE • NEUTRAL HAND

TMSDNN

- 0° Relief



New Design!
INSERTS NOT INCLUDED

See pages 165-166 for spare parts. Replacement inserts shown on pages 181-183.

See page 152 for advantages.

Item#	Industry Ref. No.	Dimensions				Insert	Shim	Shim Screw	Clamp	Clamp Screw	Spring	Key
		h=h1	Shank Dia. b	Offset F	OAL L							
2027-0101	TMSDNN10-3B	5/8"	5/8"	0.31"	4-1/2"	SN...32	S0903B	LYM0508	TP-1	MS0422	YB5512	S3
2027-0121	TMSDNN12-4B	3/4"	3/4"	0.38"	4-1/2"	SN...43	S1203B	LYM0610	TP-2	MS0523	YB6512	S3
2027-0161	TMSDNN16-4D	1"	1"	0.5"	6"	SN...43	S1203B	LYM0610	TP-2	MS0523	YB6512	S3

MSKNR INDEXABLE TOOL HOLDERS- CLAMP ON 15° LEAD ANGLE • RIGHT HAND

MSKNR

- 0° Relief

Limited Supply!



INSERTS NOT INCLUDED

See pages 165-166 for spare parts. Replacement inserts shown on pages 181-183.

Tool Holder Style	Shank	OAL (Inch)	Offset	Insert Style	Shim	Lock Pin	Clamp	Clamp Screw	Item#
12-4C	3/4	5	1	SN...43	S1203B	NL-0617	CL-12	XNS-0829	2021-0124
16-4D	1	6	1-1/4	SN...43	S1203B	NL-0617	CL-12	XNS-0829	2021-0164
16-5D	1	6	1-1/4	SN...54	S1504B	NL-0822	CL-12	XNS-0829	2021-0165

MSRNR INDEXABLE TOOL HOLDERS- CLAMP ON 15° LEAD ANGLE • RIGHT HAND

MSRNR

- 0° Relief

Limited Supply!



INSERTS NOT INCLUDED

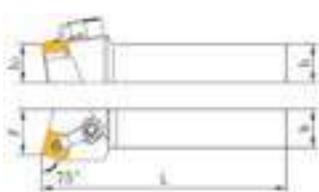
See pages 165-166 for spare parts. Replacement inserts shown on pages 181-183.

Tool Holder Style	Shank (Inch)	OAL	Offset	Insert Style	Shim	Lock Pin	Clamp	Clamp Screw	Item#
12-4B	3/4	4-1/2	.880	SN...43	S1203B	NL-0617	CL-12	XNS-0829	2028-0124
16-4D	1	6	1.130	SN...43	S1203B	NL-0617	CL-12	XNS-0829	2028-0164
16-5D	1	6	1.103	SN...54	S1504B	NL-0822	CL-12	XNS-0829	2028-0165
20-4D	1-1/4	6	1.353	SN...54	S1203B	NL-0617	CL-12	XNS-0829	2028-0204

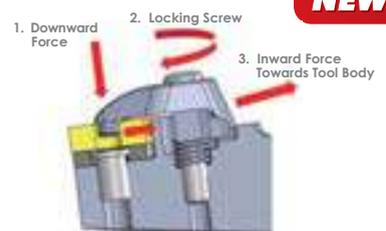
MSRNR TOOL HOLDERS - RIGID CLAMP DESIGN 15° LEAD ANGLE • RIGHT HAND

TMSRNR

- 0° Relief



New Design!
INSERTS NOT INCLUDED



See pages 165-166 for spare parts. Replacement inserts shown on pages 181-183.

See page 152 for advantages.

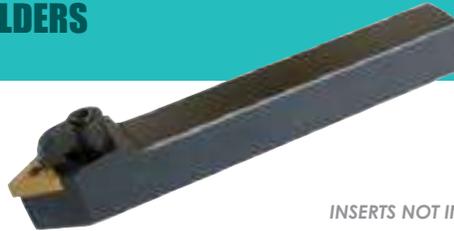
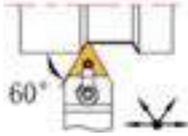
Item#	Industry Ref. No.	Dimensions				Insert	Shim	Shim Screw	Clamp	Clamp Screw	Spring	Key
		h=h1	Shank Dia. b	Offset F	OAL L							
2028-0121	TMSRNR12-3B	3/4"	3/4"	0.88"	4-1/2"	SN...32	S0903B	LYM0508	TP-1	MS0422	YB5512	S3

INDEXABLE TURNING TOOL HOLDERS

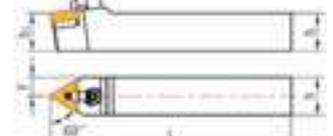
MTENN PIN & CLAMP STYLE TOOL HOLDERS 60° LEAD ANGLE • NEUTRAL

MTENN

- 0° Relief



INSERTS NOT INCLUDED



Item#	Industry Ref. No.	Dimensions				Insert	Shim	Lock Pin	Clamp	Clamp Screw	Key
		h=h1	Shank Dia. b	Offset F	OAL L						
2029-0082	MTENN08-2A	1/2"	1/2"	0.25"	4"	TN...22	---	M-ZX0410	CL-6	XNS-0520	S2 S2.5
2029-0123*	MTENN12-3B	3/4"	3/4"	0.38"	4-1/2"	TN...33	T1603B	NL-0414	CL-6	XNS-0520	S2 S2.5
2029-0124	MTENN12-4B	3/4"	3/4"	0.38"	4-1/2"	TN...43	T2203B	NL-0617	CL-12	XNS-0829	S2.5 S4
2029-0205*	MTENN20-5E	1-1/4"	1-1/4"	0.63"	7"	TN...54	T2704B	NL-0822	CL-12	XNS-0829	S3 S4

See pages 165-166 for spare parts. Replacement inserts shown on pages 186-188.

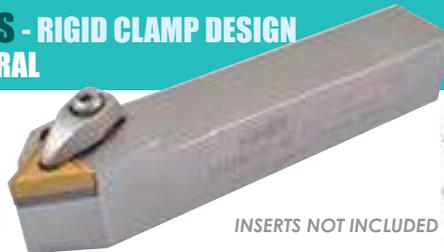
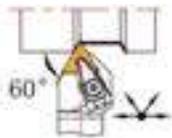
*Limited Supply

MTENN TOOL HOLDERS - RIGID CLAMP DESIGN 60° LEAD ANGLE • NEUTRAL

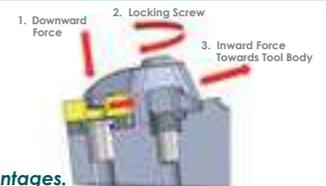
TMTENN

- 0° Relief

New Design!



INSERTS NOT INCLUDED



See pages 165-166 for spare parts. Replacement inserts shown on pages 186-188.

See page 152 for advantages.

Item#	Industry Ref. No.	Dimensions				Insert	Shim	Shim Screw	Clamp	Clamp Screw	Spring	Key
		h=h1	Shank Dia. b	Offset F	OAL L							
2029-0120	TTENN12E-3B	3/4"	3/4"	0.45"	4-1/2"	TN...33	T1603B	LYM0508	TP-1	MS0422	YB5512	S3
2029-0161	TTENN16E-4D	1"	1"	0.58"	6"	TN...43	T2203B	LYM0610	TP-2	MS0523	YB6512	S3

MTFNR PIN & CLAMP TOOL HOLDERS 0° LEAD ANGLE • RIGHT HAND

MTFNR

- 0° Relief

INSERTS NOT INCLUDED

See pages 165-166 for spare parts. Replacement inserts shown on pages 186-188.



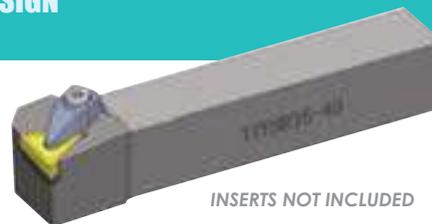
Limited Supply!

Tool Holder Style	(Inch)		Offset	Insert Style	Shim	Lock Pin	Clamp	Clamp Screw	RH Item#
	Shank	OAL							
8-2A	1/2	4	1/2	TN...22	---	NL-0409	CL-6	XNS-0520	2022-0082
10-2B	5/8	4-1/2	5/8	TN...22	---	NL-0409	CL-6	XNS-0520	2022-0102
10-3B	5/8	4-1/2	5/8	TN...33	T1603B	NL-0414	CL-6	XNS-0520	2022-0103
12-3C	3/4	5	3/4	TN...33	T1603B	NL-0414	CL-6	XNS-0520	2022-0123
16-3D	1	6	1-1/4	TN...33	T1603B	NL-0414	CL-6	XNS-0520	2022-0163
16-4D	1	6	1-1/4	TN...43	T2203B	NL-0617	CL-12	XNS-0829	2022-0164
20-4E	1-1/4	7	1-1/2	TN...43	T2203B	NL-0617	CL-12	XNS-0829	2022-0204

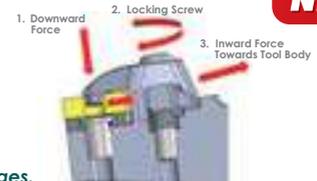
MTFNR TOOL HOLDERS - RIGID CLAMP DESIGN 0° LEAD ANGLE • RIGHT HAND

TMTFNR

- 0° Relief



INSERTS NOT INCLUDED



NEW

See pages 165-166 for spare parts. Replacement inserts shown on pages 186-188.

See page 152 for advantages.

Item#	Industry Ref. No.	Dimensions				Insert	Shim	Shim Screw	Clamp	Clamp Screw	Spring	Key
		h=h1	Shank Dia. b	Offset F	OAL L							
2022-0100	TMTFNR 10-3B	5/8"	5/8"	0.75"	4-1/2"	TN...33	T1603B	LYM0508	TP-1	MS0422	YB5512	S3

INDEXABLE TURNING TOOL HOLDERS

MTGNR PIN & CLAMP STYLE TURNING TOOL HOLDERS 0° LEAD ANGLE • RIGHT HAND

MTGNR

- 0° Relief
- For turning to square shoulders.



Limited Supply!

Tool Holder Style	Shank	(Inch) OAL	Offset	Insert Style	Shim	Lock Pin	Clamp	Clamp Screw	Item#
8-2A	1/2	4	0.630	TNMG-22.	-----	M-7X0418	CL-6	XNS-0520	2013-1082
10-2B	5/8	4-1/2	0.750	TNMG-22.	-----	M-7X0440	CL-6	XNS-0520	2013-1102
10-3B	5/8	4-1/2	0.750	TNMG-33.	T1603B	NL-0414	CL-6	XNS-0520	2013-1103
12-3B	3/4	4-1/2	1	TNMG-33.	T1603B	NL-0414	CL-6	XNS-0520	2013-1123
85-4E	1-1/4	7	1-1/4	TNMG-43.	T2203B	NL-0617	CL-12	XNS-0829	2013-1854
20-4E	1-1/4	7"	1-1/2	TNMG-43.	T2203B	NL-0617	CL-12	XNS-0829	2013-1204

INSERTS NOT INCLUDED

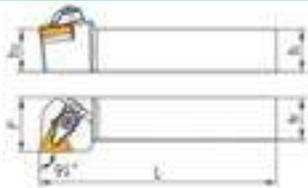
See pages 165-166 for spare parts. Replacement inserts shown on pages 186-188.

MTGNR TOOL HOLDERS - RIGID CLAMP DESIGN 0° LEAD ANGLE • RIGHT HAND

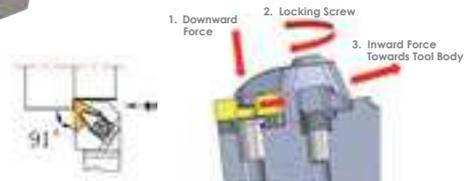
TMTGNR

- 0° Relief
- For turning to square shoulders.

New Design!



INSERTS NOT INCLUDED



See pages 165-166 for spare parts. Replacement inserts shown on pages 186-188.

See page 152 for advantages.

Item#	Industry Ref. No.	Dimensions				Insert	Shim	Shim Screw	Clamp	Clamp Screw	Spring	Key
		h=h1	Shank Dia. b	Offset F	OAL L							
2013-1101	TMTGNR10-3B	5/8"	5/8"	1"	4-1/2"	TN...33.	T1603B	LYM0508	TP-1	MS0422	YB5512	S3
2013-1121	TMTGNR12-3B	3/4"	3/4"	1"	4-1/2"	TN...33.	T1603B	LYM0508	TP-1	MS0422	YB5512	S3
2013-1160	TMTGNR16-3D	1"	1"	1-1/4"	6"	TN...33.	T1603B	LYM0508	TP-1	MS0422	YB5512	S3
2013-1161	TMTGNR16-4D	1"	1"	1-1/4"	6"	TN...43.	T2203B	LYM0610	TP-2	MS0523	YB6512	S3

MTJNR PIN & CLAMP TOOL HOLDERS 0° LEAD ANGLE • RIGHT HAND

MTJNR

- 0° Relief

Limited Supply!



INSERTS NOT INCLUDED

See pages 165-166 for spare parts. Replacement inserts shown on pages 186-188.

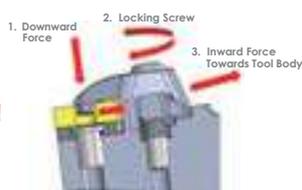
Tool Holder Style	Shank	(Inch) OAL	Offset	Insert Style	Shim	Lock Pin	Clamp	Clamp Screw	Item#
16-3D	1	6	1-1/4	TN...33.	T1603B	NL-0414	CL-6	XNS-0520	2023-0163
16-4D	1	6	1-1/4	TN...43.	T2203B	NL-0617	CL-12	XNS-0829	2023-0164
20-4E	1-1/4	7	1-1/2	TN...43.	T2203B	NL-0617	CL-12	XNS-0829	2023-0204

MTJNR TOOL HOLDERS - RIGID CLAMP DESIGN -3° LEAD ANGLE • RIGHT HAND

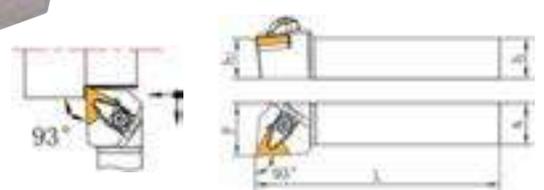
TMTJNR

- 0° Relief

New Design!



INSERTS NOT INCLUDED



See page 152 for advantages.

See pages 165-166 for spare parts. Replacement inserts shown on pages 186-188.

Item#	Industry Ref. No.	Dimensions				Insert	Shim	Shim Screw	Clamp	Clamp Screw	Spring	Key
		h=h1	Shank Dia. b	Offset F	OAL L							
2023-0120	TMTJNR12-3B	3/4"	3/4"	1"	4-1/2"	TN...33.	T1603B	LYM0508	TP-1	MS0422	YB5512	S3
2023-0160	TMTJNR16-3D	1"	1"	1-1/4"	6"	TN...33.	T1603B	LYM0508	TP-1	MS0422	YB5512	S3
2023-0161	TMTJNR16-4D	1"	1"	1-1/4"	6"	TN...43.	T2203B	LYM0610	TP-2	MS0523	YB6512	S3

INDEXABLE TURNING TOOL HOLDERS

MVJNR PIN & CLAMP TOOL HOLDERS -3° LEAD ANGLE • RIGHT HAND

MVJNR



INSERTS NOT INCLUDED

- 0° Relief
- For turning and profiling.

Tool Holder Style	(Inch) Shank	OAL	Offset	Insert Style	Shim	Lock Pin	Clamp	Clamp Screw	Item#
16-4D	1	6	1-1/4	VNMG-43.	V2203B	NL-0617	CL-30	XNS-0829	2014-1164
20-3E	1-1/4	7	1-1/2	VNMG-33.	V1603B	NL-0414	CL-30	XNS-0829	2014-1203*
20-4E	1-1/4	7	1-1/2	VNMG-43.	V2203B	NL-0617	CL-30	XNS-0829	2014-1204*

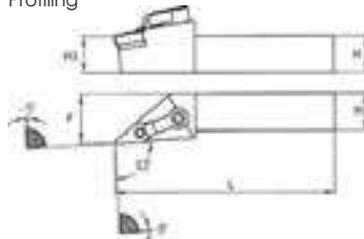
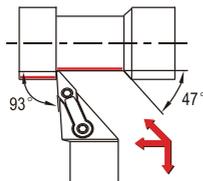
See pages 165-166 for spare parts. Replacement inserts shown on pages 192-193.

*Limited Supply

HARLINGEN® MVJNR PIN & CLAMP TOOL HOLDERS -3° LEAD ANGLE • RIGHT HAND

MVJNR

- 3-Degree Lead Angle for Turning or Profiling
- USE VNMG332 INSERT



Up to 30% Higher Productivity & Profitability!



INSERTS NOT INCLUDED

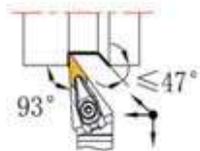
See pages 165-166 for spare parts. Replacement inserts shown on pages 192-193.

Item#	Industry Ref. No.	Dimensions				Insert	Shim	Lock Pin	Clamp	Clamp Screw	Torx Wrench
		h=h1	Shank Dia. b	Offset F	OAL L						
9710-0195	MVJNR12-3B	3/4"	3/4"	1"	4-1/2"	VN...33.	IVSN-322	NL-34L	CK-43	STC-4	S5/64 S5/32

MVJNR TOOL HOLDERS - RIGID CLAMP DESIGN -3° LEAD ANGLE • RIGHT HAND

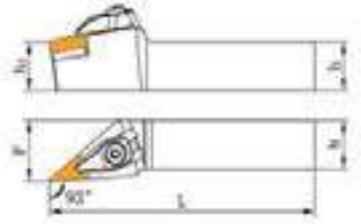
TMVJNR

- 0° Relief
1. Downward Force
 2. Locking Screw
 3. Inward Force Towards Tool Body



New Design!

INSERTS NOT INCLUDED



See page 152 for advantages.

See pages 165-166 for spare parts. Replacement inserts shown on pages 192-193.

Item #	Industry Ref. No.	Dimensions				Insert	Shim	Shim Screw	Clamp	Clamp Screw	Spring	Key
		h=h1	Shank Dia. b	Offset F	OAL L							
2014-1120	TMVJNR12-3B	3/4"	3/4"	1.00"	4-1/2"	VN...33.	V1603B	LYM0508	TP-3	MS0422	YB5512	S3
2014-1160	TMVJNR16-3D	1"	1"	1.25"	6"	VN...33.	V1603B	LYM0508	TP-3	MS0422	YB5512	S3

MVVNN PIN & CLAMP TOOL HOLDERS -17.5° LEAD ANGLE • NEUTRAL

MVVNN

- 0° Relief

Limited Supply!



INSERTS NOT INCLUDED

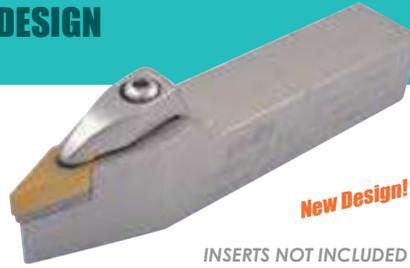
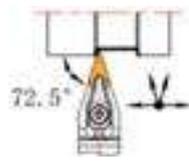
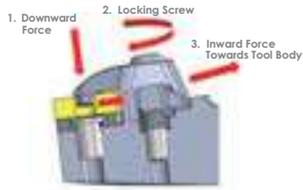
See pages 165-166 for spare parts. Replacement inserts shown on pages 192-193.

Tool Holder Style	(Inch) Shank	OAL	Insert Style	Shim	Lock Pin	Clamp	Clamp Screw	Item#
16-4D	1	6	VNMG-43.	V2203B	NL-0617	CL-30	XNS-0829	2030-0164

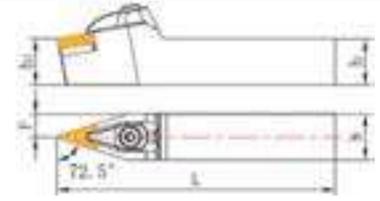
INDEXABLE TURNING TOOL HOLDERS

MVVNN TOOL HOLDERS - RIGID CLAMP DESIGN 17.5° LEAD ANGLE • NEUTRAL HAND

TMVVNN



INSERTS NOT INCLUDED



See page 152 for advantages.

See pages 165 for spare parts. Replacement inserts shown on pages 192-193.

Item#	Industry Ref. No.	Dimensions				Insert	Shim	Shim Screw	Clamp	Clamp Screw	Spring	Key
		h=h1	Shank Dia. b	Offset F	OAL L							
2030-0120	TMVVNN12-3B	3/4"	3/4"	0.38"	4-1/2"	VN...33..	V1603B	LYM0508	TP-3	MS0422	YB5512	S3
2030-0160	TMVVNN16-3D	1"	1"	0.50"	6"	VN...33..	V1603B	LYM0508	TP-3	MS0422	YB5512	S3

MWLNR INDEXABLE TOOL HOLDERS- CLAMP ON -5° LEAD ANGLE • RIGHT HAND

MWLNR

Limited Supply!

See pages 165-166 for spare parts. Replacement inserts shown on pages 194-195.

INSERTS NOT INCLUDED



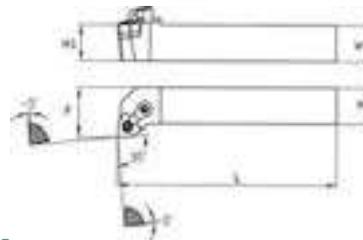
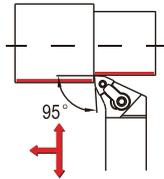
Tool Holder Style	Shank (Inch)	OAL	Insert Style	Shim	Lock Pin	Clamp	Clamp Screw	Item#
16-3C	1	5	WNM.-32.	W0603B	NL-0414	CL-6	XNS-0520	2025-0162
16-3D	1	6	WNM.-32.	W0603B	NL-0414	CL-6	XNS-0520	2025-0163
16-4D	1	6	WNM.-43.	W0803B	NL-0617	CL-12	XNS-0829	2025-0164

HARLINGEN® MWLNR PIN & CLAMP TOOL HOLDERS -5° LEAD ANGLE • RIGHT HAND

MWLNR

- 5-Degree Lead Angle for Turning or Profiling
- USE WNMG332 INSERT

Up to 30% Higher Productivity & Profitability!



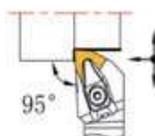
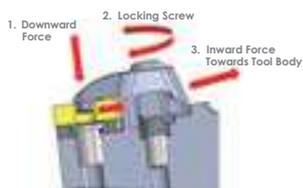
INSERTS NOT INCLUDED

See pages 165-166 for spare parts. Replacement inserts shown on pages 194-195.

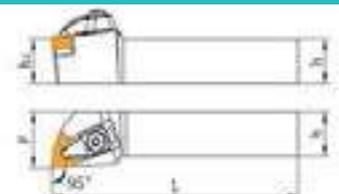
Item#	Industry Ref. No.	Dimensions				Insert	Shim	Lock Pin	Clamp	Clamp Screw	Torx Wrench
		h=h1	Shank Dia. b	Offset F	OAL L						
9710-0205	MWLNR12-3B	3/4"	3/4"	1"	4-1/2"	WN...33..	IWSN-322	NL-34L	CK-6	STC-5	S5/64 S5/32

MWLNR TOOL HOLDERS - RIGID CLAMP DESIGN -5° LEAD ANGLE • RIGHT HAND

TMWLNR



INSERTS NOT INCLUDED



See page 152 for advantages.

See pages 165-166 for spare parts. Replacement inserts shown on pages 194-195.

Item #	Industry Ref. No.	Dimensions				Insert	Shim	Shim Screw	Clamp	Clamp Screw	Spring	Key
		h=h1	Shank Dia. b	Offset F	OAL L							
2025-0100	TMWLNR10-3B	5/8"	5/8"	0.75"	4-1/2"	WN...33..	W0603B	LYM0508	TP-1	MS0422	YB5512	S3
2025-0121	TMWLNR12-4B	3/4"	3/4"	1"	4-1/2"	WN...43..	W0803B	LYM0610	TP-2	MS0523	YB6512	S3
2025-0166	TMWLNR16-4D	1"	1"	1-1/4"	6"	WN...43..	W0803B	LYM0610	TP-2	MS0523	YB6512	S3

INDEXABLE TURNING TOOL HOLDERS

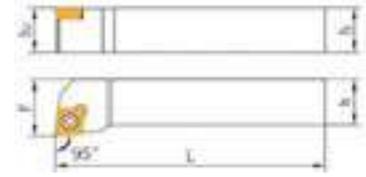
SCLCR SCREW TYPE TOOL HOLDERS -5° LEAD ANGLE • RIGHT HAND

SCLCR

- 7° Relief



INSERTS NOT INCLUDED



See pages 165-166 for spare parts. Replacement inserts shown on page 172.

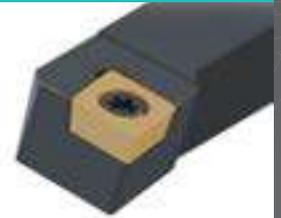
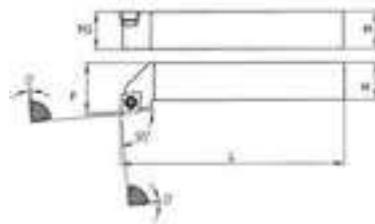
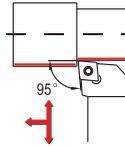
Item#	Industry Ref. No.	Dimensions				Insert	Clamp Screw	Key
		h=h1	Shank Dia. b	Offset F	OAL L			
2039-0083	SCLCR8-3A	1/2"	1/2"	0.63"	4"	CC...33.5.	M4 x 10	T15
2039-0103	SCLCR10-3B	5/8"	5/8"	0.75"	4-1/2"	CC...33.5.	M4 x 10	T15
2039-0123	SCLCR12-3B	3/4"	3/4"	1"	4-1/2"	CC...33.5.	M4 x 10	T15
2039-0164	SCLCR16-4D	1"	1"	1-1/4"	6"	CC...43.	M5 x 12	T20

HARLINGEN® SCLCR SCREW TYPE TOOL HOLDERS -5° LEAD ANGLE • RIGHT HAND

SCLCR

- 5-Degree Lead Angle for Turning, Profiling or facing
- USE CCMT32.52 INSERT

Up to 30% Higher Productivity & Profitability!



INSERTS NOT INCLUDED

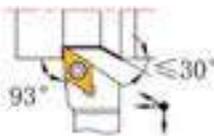
See pages 165-166 for spare parts. Replacement inserts shown on page 172.

Item#	Industry Ref. No.	Dimensions				Insert	Shim	Shim Screw	Insert Screw	Torx Wrench
		h=h1	Shank Dia. b	Offset F	OAL L					
9710-0018	SCLCR12-3B	3/4"	3/4"	1"	4-1/2"	CC...32...	SKCP-343	SRS-3	MS-1156	S3.5 T15

SDJCR SCREW TYPE TOOL HOLDERS -3° LEAD ANGLE • RIGHT HAND

SDJCR

- 7° Relief



INSERTS NOT INCLUDED



See pages 165-166 for spare parts. Replacement inserts shown on pages 175-176.

Item#	Industry Ref. No.	Dimensions				Insert	Clamp Screw	Key
		h=h1	Shank Dia. b	Offset F	OAL L			
2033-0062	SDJCR06-2J	3/8"	3/8"	0.50"	3-1/2"	DC...21.5.	M2.5 x 6	T8
2033-0083	SDJCR08-3A	1/2"	1/2"	0.63"	4"	DC...32.5.	M4 x 10	T15
2033-0103	SDJCR10-3B	5/8"	5/8"	0.75"	4-1/2"	DC...32.5.	M4 x 10	T15
2033-0123	SDJCR12-3B	3/4"	3/4"	1"	4-1/2"	DC...32.5.	M4 x 10	T15

SDNCR SCREW TYPE TOOL HOLDERS -27.5° LEAD ANGLE • RIGHT HAND

SDNCR

- 7° Relief

Limited Supply!



INSERTS NOT INCLUDED

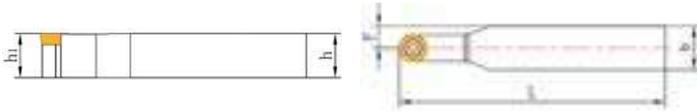
Tool Holder Style	Shank	(Inch) OAL	Offset	Insert Style	Screw	Item#
6-2J	3/8	3-1/2	3/16	DCMT-21.5	M2.5X6	2032-0062
10-3B	5/8	4-1/2	5/16	DCMT-32.5	M4X10	2032-0103
16-4D	1	6	1/2	DCMT-43.	M5X12	2032-0164

See pages 165-166 for spare parts. Replacement inserts shown on pages 175-176.

INDEXABLE TURNING TOOL HOLDERS

SRDCN SCREW TYPE TOOL HOLDERS 0° LEAD ANGLE • NEUTRAL

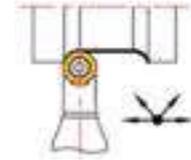
- 7° Relief



See pages 165-166 for spare parts. Replacement inserts shown on page 179.

Item#	Industry Ref. No.	Dimensions				Insert	Clamp Screw	Key
		h=h1	Shank Dia. b	Offset F	OAL L			
2037-0106	SRDCN06-6A	3/8"	3/8"	3/16"	4"	RC...0602	M2.5 x 6	T8
2037-1210	SRDCN08-08A	1/2"	1/2"	1/4"	4"	RC...0803MD	M3 x 8	T8
2037-1612	SRDCN10-10B	5/8"	5/8"	.31"	4-1/2"	RC...1013MD	M4 x 10	T15

INSERTS NOT INCLUDED



SRGCR SCREW TYPE TOOL HOLDERS 0° LEAD ANGLE • RIGHT HAND

- 7° Relief



Limited Supply!

INSERTS NOT INCLUDED

Tool Holder Style	Shank (Inch)	OAL	Offset	Insert Style	Screw	Item#
12-2B	3/4	4-1/2	1	RCMT-22.	M2.5x6	2038-0122
16-3D	1	6	1-1/4	RCMT-32.5	M4x10	2038-0163
20-2D	1-1/4	6	1-1/2	RCMT-22.	M2.5x6	2038-0202
20-3D	1-1/4	6	1-1/2	RCMT-32.5	M4x10	2038-0203

See pages 165-166 for spare parts. Replacement inserts shown on page 179.

STGCR SCREW TYPE TOOL HOLDERS 0° LEAD ANGLE • RIGHT HAND



INSERTS NOT INCLUDED

Item#	Industry Ref. No.	Dimensions				Insert	Clamp Screw	Key
		h=h1	Shank Dia. b	Offset F	OAL L			
2036-0062	STGCR06-2J	3/8"	3/8"	0.50"	2-1/2"	TC...21.5.	M2.5 x 6	T8
2036-0082	STGCR08-2J	1/2"	1/2"	0.63"	3-1/2"	TC...21.5.	M2.5 x 6	T8
2036-0103	STGCR10-3B	5/8"	5/8"	0.75"	4-1/2"	TC...32.5.	M4 x 10	T15
2036-0123*	STGCR12-3B	3/4"	3/4"	1"	4-1/2"	TC...32.5.	M4 x 10	T15

See pages 165-166 for spare parts. Replacement inserts shown on page 185.

*Limited Supply

SVJBR SCREW TYPE TOOL HOLDERS -3° LEAD ANGLE • RIGHT HAND

- 5° Relief

INSERTS NOT INCLUDED

Item#	Industry Ref. No.	Dimensions				Insert	Clamp Screw	Key
		h=h1	Shank Dia. b	Offset F	OAL L			
2034-0062	SVJBR06-2J	3/8"	3/8"	0.50"	3-1/2"	VB...21.5.	M2.5 x 6	T8
2034-0082	SVJBR08-2A	1/2"	1/2"	0.63"	4"	VB...21.5.	M2.5 x 6	T8
2034-0083	SVJBR08-3A	1/2"	1/2"	0.63"	4"	VB...33.	M4 x 10	T15
2034-0102	SVJBR10-2B	5/8"	5/8"	0.75"	4"	VB...21.5.	M4 x 10	T15
2034-0123	SVJBR12-3B	3/4"	3/4"	1"	4-1/2"	VB...33.	M4 x 10	T15
2034-0163	SVJBR16-3D	1"	1"	1-1/4"	6"	VB...33.	M4 x 10	T15



See pages 165-166 for spare parts. Replacement inserts shown on page 191.

SVVBN SCREW TYPE TOOL HOLDERS -17.5° LEAD ANGLE • NEUTRAL

- 5° Relief

Limited Supply!

INSERTS NOT INCLUDED



See pages 165-166 for spare parts. Replacement inserts shown on page 191.

Tool Holder Style	Shank (Inch)	OAL	Offset	Insert Style	Screw	Item#
6-2J	3/8	3-1/2	1/2	VBMT-22.	M2.5x6	2035-0062
8-3A	1/2	4	5/8	VBMT-33.	M4X10	2035-0083
10-2B	5/8	4-1/2	3/4	VBMT-22.	M2.5x6	2035-0102
12-3B	3/4	4-1/2	1	VBMT-33.	M4x10	2035-0123
16-3D	1	6	1-1/4	VBMT-33.	M4x10	2035-0163
16-4D	1	6	1-1/2	VBMT-43.	M5x12	2035-0164

SCREWS FOR INDEXABLE TOOLING METRIC THREAD

Item#	Style	Size	Wrench Used
2100-0060	M2 x 4	M2 x 4	T6
2100-0061	M2 x 5	M2 x 5	T6
2100-0065	M2.2 x 6	M2.2 x 6	T6
2100-1066	M2.5 x 3.5	M2.5 x 3.5	T8
2100-0067	M2.5 x 5	M2.5 x 5	T8
2100-0070	M2.5 x 6	M2.5 x 6	T8
2100-0066	M2.5 x 7	M2.5 x 7	T8
2100-0072	M2.5 x 8	M2.5 x 8	T8
2100-0063	M3 x 7	M3 x 7	T10
2100-0003	M3.0 x 8	M3.0 x 8	T10
2100-0073	M3.5 x 8	M3.5 x 8	T15
2100-1080	M3.5 x 10	M3.5 x 10	T16
2100-0083	M3.5 x 11	M3.5 x 11	T15
2100-0084	M3.5 x 12	M3.5 x 12	T15
2100-0069	M4.0 x 8	M4.0 x 8	T15
2100-0071	M4.0 x 9	M4.0 x 9	T15
2100-0074	M4.0 x 10	M4.0 x 10	T15
2100-0064	M4.0 x 11	M4.0 x 11	T15
2100-0075	M5.0 x 10	M5.0 x 10	T20
2100-0076	M5.0 x 12	M5.0 x 12	T20
2100-0077	M5.0 x 14	M5.0 x 14	T20
2100-1078	M5.0 x 16	M5.0 x 16	T20
2100-0088*	M5.0 x 18	M5.0 x 18	T20
2100-0026	M6.0 x 20	M6.0 x 20	S4
2100-0078	CTFP-M5	M5.0 x 13	S3
2100-0027	DLS5 M6 x 26	M6 x 26	S4
2100-0082	GB70-85 M4 x 12	M4 x 16	S3
2100-0087	GB70-85 M5 x 14	M5 x 19	S4
2100-0026	GB/T70.2 M6 x 20	M6 x 25	S5
2100-1070	I86M 4 x 7	M4X7	T15
2100-0071	I86M 4 x 9	M4X9	T15

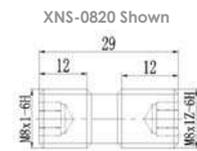
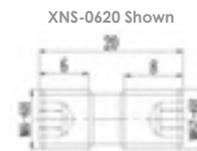


*Limited Supply

Item#	Style	Size	Wrench Used
2100-4301	LYM0308		
2100-4300	LYM0508		
2100-4303	LYM0610		
2100-4305	LYM0810		
2100-0005	LE05	M5 x 23	S3
2100-0007	LE06	M6 x 26	S4
2100-0089	M3x6.5-D5	M3 x 6.5	S2
2100-0070	MLD-M25	M2.5 x 6	T8
2100-0084	MLD-M35	M3.5 x 12	T15
2100-0074	MLD-M40	M4 x 10	T15
2100-0076	MLD-M50	M5 x 12	T20
2100-4350	MS0422		S3
2100-4353	MS0523		S3
5820-2001	PM4 x 8	M4.0 x 12	S3
2100-0105	PM5 x 8	M5.0 x 12	S3
2100-0106	PM6 x 12	M6.0 x 17	S4
2100-0107	PM8 x 12	M8.0 x 17	S5
2100-0108	PM8 x 16	M8.0 x 21	S5
2100-0008	SDN535	M5 (Ext.) M3.5 (Int.)	
2100-0009	SDN850	M8 (Ext.) M5 (Int.)	
2100-0051	SM815.18L	M8 x 1 x 18	S4
2100-0052	SM81018.22L	M8 X 1 X 22	S4
2109-0031	SRS-3		
2109-0158	STC-4		
2109-0154	STC-5		
2109-0150	STC-20		
2100-0001	XNS-0520	M5X20	
2100-0004	XNS-0620	M6X20	
2100-0002	XNS-0829	M8X20	
2100-0089	M3X6.5 D5	M3X6.5	S2



XNS STYLE SCREWS:



HEX KEY WRENCHES



Item#	Style	Size	Item#	Style	Size
2100-1085	S5/64	5/64	2100-0086	S2.5	2.5mm
2100-1092	S3/32	3/32	2100-1084	S3	3mm
2100-1094	S5/32	5/32	2100-1088	S3.5	3.5mm
2100-1095	S1/8	1/8	2100-1089	S4	4mm
2100-0085	S2	2mm	2100-1090	S5	5mm

TORX WRENCHES



Item#	Size	Item#	Size
2100-0091	T-6	2100-0095	T-15
2100-0092	T-8	2100-0096	T-20
2100-0093	T-9	2100-0097	T-25
2100-0094	T-10		

CLAMPS FOR INDEXABLE TOOLING METRIC THREAD

Item#	Style
2109-0100	CK-20
2109-0110	CK-23
2109-0108	CK-43
2100-0006	CL-6
2100-0012	CL-12
2100-0020	CL-20
2100-0030	CL-30
2100-0031	CTF-5/CTFPN-5
2100-0032	DLM2
2100-0033	DLM3/TP-1
2100-0034	DLM4/TP-3



Item#	Style
2100-0015	MTH0820
2100-0011	TNSB-2B
2100-0010	TNSB-3B
2100-2901	TP-1
2100-2902	TP-2
2100-2903	TP-3
2100-2904	TP-4



2100-2902 Shown

SHIMS FOR INDEXABLE TOOLING

Item#	Style
2100-0903	C0903B
2100-1203	C1203B
2100-1604	C1604B
2100-1904	C1904B
2100-1103	D1103B
2100-1504	D1504B
2100-1905*	D1904B
2109-0002	IDSN-443
2109-0001	ICSN-433
2100-1630	LT16R-30
2100-2204	LT22R-4B
2100-0904	R0903B
2100-1003	R1003B
2100-1204	R1203B
2100-0905	S0903B
2100-1205	S1203B
2100-1505	S1504B
2100-1906	S1904B



Item#	Style
2100-4200	SE1203X
2100-0903	SKCP-343
2100-1051	SM815.182
2100-1102	TP11D
2100-1100	TP16D
2100-1101	TP22D
2100-1603	T1603B
2100-2203	T2203B
2100-2703	T2703B
2100-2210	TNSN-2A
2100-2212	TNSN-3A-3
2100-2214	TNSN-3A
2109-1602	V1603B
2100-2202	V2203B
2109-0008	IVSN-322
2100-0603	W0603B
2100-0803	W0803
2109-0004	IWSN-322



*Limited Supply

SHIM PINS

Item#	Style
2100-0055	THT0505
2100-0056	THT0706
2100-0057	THT0907
2100-0058	THT1212



SPRINGS FOR INDEXABLE TOOLING

Item#	Style
2100-0100	MTH0610
2100-4380	YB5512
2100-4384	YB6512



LOCK PINS FOR INDEXABLE TOOLING METRIC THREAD

Item#	Style
2100-0800	M-ZX0410
2109-0014	NL-34L
2109-0010	NL-46L
2109-0016	NL-46L



Item#	Style
2100-0409	NL-0409
2100-0410	NL-0410
2100-0414*	NL-0414
2100-0611	NL-0611
2100-0412	NL-412
2100-0617*	NL-0617
2100-0822	NL-0822
2100-0823*	NL-0823

* Use a shim

TOOL HOLDER TECHNICAL INFORMATION

EXTERNAL TURNING TOOLHOLDERS IDENTIFICATION SYSTEM (INCH)

P	S	B	N	R	16		-	4	D
1	2	3	4	5	6	7		8	9

1	METHOD OF HOLDING
C	Top clamping
M	Top and hole clamping
P	Pin only
S	Screw clamping
T	Double clamping
W	Wedge clamping

2	INSERT SHAPE
C	
D	
K	
R	
S	
T	
V	
W	

3	TOOL STYLE OR LEAD ANGLE				
A		B		C	
D		E		F	
G		J		K	
L		M		O	
P		Q		R	
S		T		U	
V		W			

4	INSERT CLEARANCE ANGLE		
B		C	
D		E	
N		P	

5	CUTTING DIRECTION
R	
N	
L	

6	SHANK SIZE
	For square shank, the number represents the of sixteenths (1/16) of width and height. 6=3/8" Square 8=1/2" Square 10=5/8" Square 12=3/4" Square 16=1" Square 20=1-1/4" Square 24=1-1/2" Square
	For rectangular shanks, the first digit represents the number of eights (1/8) of width and the second digit represents the number of quarters of height. 64=3/4" x 1" 85=1" x 1-1/4" 86=1" x 1-1/2"

7	ADDITIONAL CODES
	D=Extended+1mm E=Extended+2mm F=Neutral, no offset

8	INSERT SIZE (I.C.)
	Number of eights (1/8) of I.C. (Inscribed Circle) Insert less than 1/4" I.C. 5=5/32" 6=3/16" 7=7/32"
	Insert 1/4" I.C. and over (in) 2=1/4" 2.5=5/16" 3=3/8" 4=1/2" 5=5/8" 6=3/4"

9	HOLDER LENGTH		
Q	2"	B	4.5"
P	2.5"	C	5"
N	2.75"	D	6"
M	3"	E	7"
K	3.15"	F	8"
J	3.5"	G	10"
A	4"	H	12"

INSERT DESIGNATION - ANSI

SHAPE

A = K = R =
 B = L = S =
 C = M = T =
 D = O = V =
 E = P = W =
 H =

CLEARANCE

N = D =
 A = E =
 B = F =
 C = G =
 P =

I.C.

Number of 1/16's on inserts less than 1/4" I.C. and over

Number of 1/8's on inserts 1/4" I.C. and over

Rectangle and parallelogram inserts require two digits:
 -1st, Number of 1/8's in width
 -2nd, Number of 1/4's in length

2 = 1/4" 5 = 5/8"
 3 = 3/8" 6 = 3/4"
 4 = 1/2" 8 = 1"

CORNER

0 = Sharp Corner 4 = 1/16" radius
 1 = 1/64" radius 6 = 3/32" radius
 2 = 1/32" radius 8 = 1/8" radius
 3 = 3/64" radius 12 = 3/16" radius

A = Square w/45° chamfer
 D = Square w/30° chamfer
 E = Square w/15° chamfer
 K = Square w/15° double chamfer
 N = Truncated triangle insert
 P = Flattened corner triangle

C N M G . 4 3 2

TOLERANCE

d	m	t
A = ± .0010	± .0002	± .001
F = ± .0005	± .0002	± .001
C = ± .0010	± .0005	± .001
H = ± .0005	± .0005	± .001
E = ± .0010	± .0010	± .001
G = ± .0010	± .0010	± .005
**J = ± .002 to ± .006	± .0002	± .001
**K = ± .002 to ± .006	± .0005	± .001
**L = ± .002 to ± .006	± .0010	± .001
**M = ± .002 to ± .006	± .003 to ± .008	± .005
**N = ± .002 to ± .006	± .003 to ± .008	± .001
**U = ± .003 to ± .010	± .005 to ± .015	± .005

GEOMETRY

A = H = Q =
 B = J = R =
 C = *K = T =
 *D = *L = U =
 *E = M = W =
 F = N = X = Special Design
 G =

THICKNESS

Number of 1/32's on inserts less than 1/4" IC

Number of 1/16's on inserts 1/4" IC and over

1 = 1/16" 4 = 1/4"
 2 = 1/8" 5 = 5/16"
 3 = 3/16" 6 = 3/8"

* Smaller than 1/4" I.C.
 ** Exact tolerance is determined by the size of the insert.

Geometry:
 B, C, H, J - countersink is between 70-90 degrees.
 Q, T, U, W - countersink is between 40-60 degrees.

INSERT DESIGNATION - ISO

SHAPE

A = K = R =
 B = L = S =
 C = M = T =
 D = O = V =
 E = P = W =
 H =

CLEARANCE

N = D =
 A = E =
 B = F =
 C = G =
 P =

LENGTH OF CUTTING EDGE

If less than 10 use 0 in first place.
 Example: 9.525 = 09

CORNER

00 = Round Insert 12 = 1.2mm
 00 = Sharp Corner 16 = 1.6mm
 02 = 0.2mm 24 = 2.4mm
 04 = 0.4mm 32 = 3.2mm
 08 = 0.8mm 40 = 4.0mm

A = Square w/45° chamfer
 D = Square w/30° chamfer
 E = Square w/15° chamfer
 K = Square w/15° double chamfer
 N = Truncated triangle insert
 P = Flattened corner triangle

C N M G . 12 04 08

TOLERANCE

d	m	t
A = ± 0.025	± 0.005	± 0.025
F = ± 0.013	± 0.005	± 0.025
C = ± 0.025	± 0.013	± 0.025
H = ± 0.013	± 0.013	± 0.025
E = ± 0.025	± 0.025	± 0.025
G = ± 0.025	± 0.025	± 0.130
*J = ± 0.05 to ± 0.15	± 0.005	± 0.025
*K = ± 0.05 to ± 0.15	± 0.013	± 0.025
*L = ± 0.05 to ± 0.15	± 0.025	± 0.025
*M = ± 0.05 to ± 0.15	± 0.08 to ± 0.20	± 0.130
*N = ± 0.05 to ± 0.15	± 0.08 to ± 0.20	± 0.025
*U = ± 0.08 to ± 0.25	± 0.13 to ± 0.38	± 0.130

GEOMETRY

A = H = R =
 B = J = T =
 C = M = U =
 F = N = W =
 G = Q = X = Special Design

THICKNESS

If less than 10 use 0 in first place.
 Example: 3.18 = 03

* Exact tolerance is determined by the size of the insert.

Geometry:
 B, C, H, J - countersink is between 70-90 degrees.
 Q, T, U, W - countersink is between 40-60 degrees.

GRADE COMPARISON

C-2	General purpose-for cast iron and non-ferrous materials.	XAB848	Comprised of thick TiCN and Al ₂ O ₃ coatings makes it suitable for finishing and semi-finishing at high speed. It upgrades abrasive resistance greatly on the premise of increasing toughness. The cutting speed can increase more than 25% and the life will be improved more than 30% at the same cutting speed.
C-5	For heavy roughing to semi finishing of all steels.	XAB849	Substrate with excellent wear-resistance, in combination with MT-TiCN, thick layer Al ₂ O ₃ TiN coating. It is an ideal grade for finishing steel, cast steel and stainless steel under high speed and dry machining.
C-6	Designed for heavy roughing to semi finishing of steels.	XAC849	CVD all round coated cemented carbide. Optimized for steel milling, but also a good solution for nodular cast iron. This grade provides good economy in medium to long series production.
BPG253-CVD	CVD coated universal grade is suitable for steel and cast steel continuous cutting and interrupted cutting, finishing to roughing.	XAC898	CVD coated grade, which is the combination of hard substrate and coating(thick Al ₂ O ₃ + thick TiCN), shows excellent wear resistance and impact resistance when machining nodular cast iron at high speed.
BPG20B-PVD	PVD coated micro-grain carbide to use for a variety of stainless steel finishing at medium to low cutting speed. Excellent edge strength and high surface quality, provides the perfect ride cutting. High thermal shock resistance. Suitable for light interrupted cuts.	XAF795	Unique grade material with near perfect wear resistance and high temperature resistance. The nc-TiAlN coating, ultrafine grain substrate, and unique surface treatment make this grade suitable for high precision cutting of "difficult to machine" materials, such as stainless steel, etc.
TiN Coated	For turning and milling carbon and alloy steels, tool steel and stainless steel. Provides longer life than uncoated grades. For high heat & wear resistance on alloys, stainless steel & ductile iron	XAF798	A combination of 2-4 um nc-TiAlN coating and ultrafine grain carbide substrate with high strength and toughness. Suitable for light to medium milling, and boring of all kinds of materials. Recommended for finish and semi-finish turning of stainless steel and roughing turning of high-temperature alloys of steel from finishing to roughing. Under the same cutting conditions, the cutting speed can be increased by more than 25%, while the tool life can be 30% longer under the same cutting speed.
XAB599	CVD all round coated cemented carbide. Optimized for medium to rough steel milling, but also a good solution for nodular cast iron.	XAF799	PVD TiN coated carbide grade with good toughness and wear resistance. It is good for threading and drilling (both peripheral and central inserts) low carbon steel, stainless steel and heat resistance for steel and cast irons.
XAB649	A secure all around CVD coated grade for high productive P30 applications. It is tough enough for the most difficult steel machining. Use in dry and wet machining and interruptions. A grade you can rely on when the going gets tough.	XAL649	Substrate with good toughness and strength, in combination with TiCN, thin layer Al ₂ O ₃ , TiN coating. It is a premium grade for semi-finishing to light roughing milling of stainless steel at continuous and intermittent milling conditions.
XAB698	Possesses an excellent thermal and chemical stability with an optimized combination of high performance Nano coating and a highly tough substrate of ultra fine grains aimed at materials hard to machine, such as stainless steel, heat resistant alloys, titanium alloys, high temperature alloys, etc. It is especially suitable for finishing and semi-finishing applications.	XAL749	A very all around CVD coated cemented carbide grade optimized for medium machining to roughing of stainless steel in both continuous and interrupted cuts. The grade has an excellent resistance to both thermal and mechanical shock.
XAB699	CVD all round coated cemented carbide. Optimized for steel milling, but also a good solution for nodular cast iron. This grade provides an economic solution in medium to long series production.	XC899	With fine size grain. Good for fine and semi-finishing machining of cast iron and nonferrous metal. Particularly for machining of aluminum.
XAB748	Comprising of thick TiCN and Al ₂ O ₃ coating has high anti-plastic yield and cutting edge strength and is the preferred universal grade from steel finishing to roughing. It behaves steady in wicked cutting conditions and can realize environmental dry-cutting. The cutting speed can increase more than 25% at the same cutting condition and the life will be improved more than 30% at the same cutting speed.	XMF849	TiCN based cermet, with fine resistant thermoplastic transmutation and resistant built-up. It is suitable for semi-finishing and finishing of steel, stainless steel and cast iron.
XAB749	The cutting edge has special strength and toughness, in an optimal combination with MT-TiCN, thick layer Al ₂ O ₃ TiN coating. It is a suitable grade for a wide variety of applications. It is good for finishing, semi-finishing and light roughing of steel, cast steel, stainless steel and cast iron.		

CARBIDE GRADE INFORMATION/COMPARISON

GRADE	MITSUBISHI	SANDVIK	SECO	KENNAMETAL	VALENITE	KORLOY	WALTER	TaeguTec
XAB849	UE6005/UE6010	GC4015	TX110	KC9110/KC935			WTL41/WTA33	
XAB848	F7010	GC4215	TX110	KC9010/KC910	SV305	NC310	WTA21	TT1500
XAB749	UC6010/EU6020	GC4020	TP200	KC725M/KC9125	SV410		WTA31/WXK15/WQM25/WTL82	TT3500
XAB748	UC6025/F620	GC4025	T250M/T25M	KC9040/KC625M	SV325	NC310	WAP20/WTN43	
XAB699	UP20M/AP20M	GC4030/GC4035	CP20TP200	KC850/CM4KC7025/KC7215	SV935	NC320/NC330	WXM15/WTA41	TT7200
XAB698								
XAB649	UE6035	GC4125	CP30	CD4/KC7020	SV330	NC320	WXP25/WTA61/WTL71/WTL14	
XAB599	UE6035	GC1120	TP40	CS3[KC7030]	SM245	NC330	WQM35/WTP30	TT8020
XAC849	UC6010/EU6020	GC3015/GC3115	TP100	KC625M/KC631M	SV305		WAK15	
XAF799	UP10H	GC1020/GC1120	TX150	KC992M/KC7215/KC9315/KC7225	SV415	NC315K	WAK20/WTA43/WTA33/WTA/41	
XAF798	AP20M	GC3040	F25M	KC9025/KC631M		NCM325	WXP20/WTP20	
XAF797								
XAF960	AP15TF	GC3040		CS3[KC7030]	SV515		WAP35	TT8020
XAL849		GC2015		KC510M			WAM10/WAP10	TT9030
XAL749	F620	GC2025	CP50	KC9225/KC7020	SV415	NC325S	WAM20/WTA43	TT5100
XAL748	F620	GC2025	CP50	KC9225/KC7020	SV415	NC325S	WAM20/WTA43	TT5100
XAL649	F730	GC2035	CP50	KC9040/KC7020		NCM335	WTP35/WTA51	TT8020
XB970R								
XMF849								

CHIP-BREAKER INFORMATION

Characteristics	Description
-DF	Recommended for finishing steel materials. With a satisfactory flow of chips and an excellent surface quality.
-DM	Recommended for semi-finishing steel materials. With a light cutting force and a wide range of chipping, it can achieve better results in machining alloyed steel with a high adhesiveness.
-DR	Recommended for quasi-roughing steel materials. It is the first option for roughing operations under general working conditions. It can achieve a high rate of metal removal and economy.
-EF	Recommended for finishing materials heat-resistant steel. A specially designed rake angle and an inclined edge angle aimed at machining highly adhesive and plastic material hard to machine, like stainless steel. The edges are sharp making the cutting light and smooth, getting a good control of the chips and obtaining an excellent surface quality, which makes it most suitable for ultra fine and fine machining of such materials.
-EM	Recommended for 300 series stainless steels. Impact resistance of the cutting edge is strengthened for interrupted cutting. The sharp cutting edges function to shear low machinability rated metals while resisting edge-build-up.
-HF	Recommended for finishing of universal applications. Suitable for finishing internal and peripheric operations in machining steel and cast iron. Fine finishing of surface can be achieved with a slow feed rate.
-HM	Recommended for semi-finishing of universal applications. With sharp wave cutting edges to reduce cutting force. Suitable for semi-finishing internal and peripheric operations of steel and cast iron. It is the first choice for semi-finishing of internal holes and allows chips to flow smoothly.
-HR	Recommended for roughing operations. With tough cutting edge. Suitable for internal and peripheric machining of steel, stainless steel and cast iron with irregular surface.
-LH	Recommended for aluminum alloy. Suitable machining aluminum alloy with larger cutting depth and higher feed rate.
-PF	Recommended for finishing steel materials. Suitable for finishing operations under unstable cutting conditions with a light cutting force.
-PM	Recommended for semi-finishing steel materials. With a stronger edge than -DM. Suitable for semi-finishing operations under unstable cutting conditions and for machining cast iron as well with a light cutting force.
-PR	Recommended for roughing of steel. With a high safety of cutting edges. It can achieve a high rate of metal removal with a low cutting force under working conditions of deep cuts and fast feed rates.

CARBIDE INSERTS

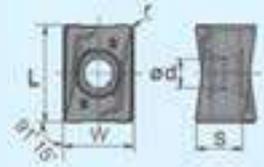
ANGX CARBIDE INSERTS

ANGX

- Double-sided insert provides 4-cutting edges, has a bigger depth of cut providing value and economy.
- High precision cutting edges are more aggressive & they have twice the cutting edges of APKT.
- Designed to improve shoulder milling surface finish.



10 PC PER PACKAGE



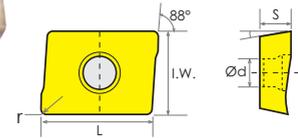
Item#	ANSI Insert No.	L	W	S	d	r	Grade
6064-0011	ANGX110508 PNR-GM	0.467"	0.331"	0.224"	0.138"	0.031"	XAF795
6064-0015	ANGX150608 PNR-GM	0.608"	0.433"	0.287"	0.173"	0.031"	XAF795

APKT-SQUARE SHOULDER MILLING CARBIDE INSERT (10MM) Positive Rake Angle

APKT



10 PC PER PACKAGE



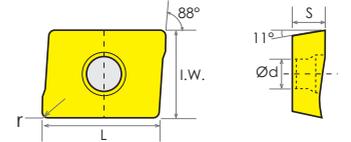
Item#	ANSI Insert No.	I.W.	L	S	d	r	Grade
6010-4203	APKT-1003PDER	.265"	.441"	.137"	.110"	1/64"	XAF798

APKT/PF CARBIDE SHOULDER MILLING INSERTS (11MM, 16MM) 11° Relief Clearance

APKT-PF

PF - Excellent Surface Finishing

10 PC PER PACKAGE



Item#	ANSI Insert No.	I.W.	(Inch) L	S	d	r	Grade
6010-3002	APKT-11T304-PF	.256	.482	.142	.110	.0157	XAB699
6010-3312*	APKT-11T312-PF	.256	.482	.142	.110	.0472	XAF798

*Limited Supply

APKT/PM CARBIDE SHOULDER MILLING INSERTS (11MM, 16MM) 11° Relief Clearance

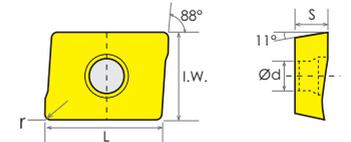
APKT-PM

PM - With stronger cutting edge, it is better for intermittent cutting than -DM, with wider cutting zone of steel materials.

PM - Suitable for Mixed Production



10 PC PER PACKAGE



Item#	ANSI Insert No.	I.W.	(Inch) L	S	d	r	Grade
6010-4002	APKT-11T304-PM	.256	.482	.142	.110	.0157	XAB699
6010-4308	APKT-11T308-PM	.256	.482	.142	.110	.0315	XAF798
6010-4608*	APKT-11T308-PM	.256	.482	.142	.110	.0315	XAL649
6010-4316*	APKT-11T316-PM	.256	.482	.142	.110	.0630	XAF798
6010-4003	APKT-160408-PM	.363	.704	.227	.173	.0315	XAB699

*Limited Supply

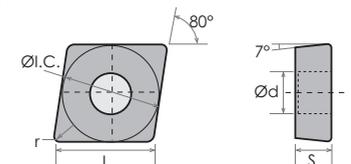
CCGX/LH CARBIDE INSERTS FOR ALUMINUM ALLOY

CCGX-LH

LH Chip-Breaker is more suitable for machining aluminum alloy with larger cutting depth and higher feed rate

Limited Supply!

10 PC PER PACKAGE



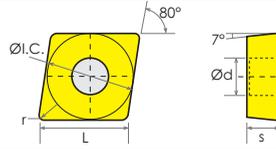
Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6054-0110	CCGX2(1.5)0-LH	CCGX060202-LH	1/4	.252	3/32	.110	.008	XC899
6054-0112	CCGX2(1.5)2-LH	CCGX060208-LH	1/4	.252	3/32	.110	.031	XC899
6054-0221	CCGX3(2.5)1-LH	CCGX09T304-LH	3/8	.382	5/32	.173	.016	XC899
6054-0222	CCGX3(2.5)2-LH	CCGX09T308-LH	3/8	.382	5/32	.173	.031	XC899
6054-0431	CCGX-431-LH	CCGX120404-LH	1/2	.508	3/16	.219	.016	XC899
6054-0432	CCGX-432-LH	CCGX120408-LH	1/2	.508	3/16	.219	.031	XC899

CCMT 80° DIAMOND - POSITIVE RAKE CARBIDE INSERTS

CCMT

- Use for turning.
- 7° relief angle.
- Single sided.
- Use for light cuts.

TiN(C-5) Coated



10 PC PER PACKAGE

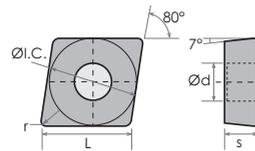
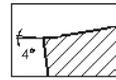
Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6003-2021	CCMT-21.51	CCMT060204	1/4	1/4	3/32	7/64	.0157	TiN(C5)
6003-2022	CCMT-21.52	CCMT060208	1/4	1/4	3/32	7/64	.0315	TiN(C5)
6003-2031	CCMT-32.50	CCMT09T302	3/8	3/8	5/32	0.17	.0157	TiN(C5)
6003-2032	CCMT-32.51	CCMT09T304	3/8	3/8	5/32	0.17	.0315	TiN(C5)

CCMT/EM 80° DIAMOND - POSITIVE RAKE CARBIDE INSERTS

CCMT-EM

EM - Semi-Finishing Geometry. Stainless Steel Material

EM - Single-side chipbreaker with M-class tolerance serves to reduce cutting force and workpiece adhesion when machining stainless steel. Possesses higher feed and depth of cut capability than EF chipbreaker.



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6053-0111	CCMT-21.51-EM	CCMT060204EM	1/4	1/4	3/32	7/64	.0157	XAF798
6053-0112	CCMT-21.52-EM	CCMT060208EM	1/4	1/4	3/32	7/64	.0315	XAF798
6053-0221	CCMT-32.51-EM	CCMT09T304EM	3/8	3/8	5/32	0.17	.0157	XAF798
6053-0222	CCMT-32.52-EM	CCMT09T308EM	3/8	3/8	5/32	0.17	.0315	XAF798
6053-0432*	CCMT-432-EM	CCMT120408EM	1/2	1/2	3/16	7/32	.0315	XAF798

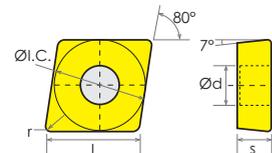
*Limited Supply

CCMT/HM 80° DIAMOND-POSITIVE RAKE CARBIDE INSERTS

CCMT-HM

HM - Medium Geometry. Periphery Ground Insert. Mixed Production

HM - With a sharp wave cutting edge to reduce cutting force, it is the first choice for semi-finishing of internal holes and allows chips to flow smoothly.



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6003-5021	CCMT-21.51-HM	CCMT060204HM	1/4	1/4	3/32	7/64	.0157	XAB749
6003-5022*	CCMT-21.52-HM	CCMT060208HM	1/4	1/4	3/32	7/64	.0315	XAB749
6003-5031	CCMT-32.51-HM	CCMT09T304HM	3/8	3/8	5/32	0.17	.0157	XAB749
6003-5032	CCMT-32.52-HM	CCMT09T308HM	3/8	3/8	5/32	0.17	.0315	XAB749
6003-5431*	CCMT-431-HM	CCMT120404HM	1/2	1/2	3/16	7/32	.0157	XAB749
6003-5432*	CCMT-432-HM	CCMT120408HM	1/2	1/2	3/16	7/32	.0315	XAB749
6003-5433*	CCMT-433-HM	CCMT120412HM	1/2	1/2	3/16	7/32	.0472	XAB749

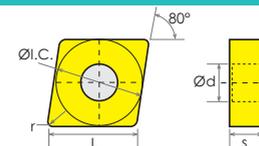
*Limited Supply

CNMA DIAMOND-NEGATIVE RAKE CARBIDE INSERTS

CNMA

- Use for turning & boring
- 0° relief angle.
- No chipbreaker.
- 80° diamond negative rake.

Limited Supply!



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6000-6431	CNMA-431	CNMA120404	1/2	1/2	3/16	13/64"	.0157	XAC849
6000-6432	CNMA-432	CNMA120408	1/2	1/2	3/16	13/64	.0315	XAC849
6000-6433	CNMA-433	CNMA120412	1/2	1/2	3/16	13/64	.0472	XAC849
6000-6543	CNMA-543	CNMA160612	5/8	5/8	1/4	1/4	.0472	XAC849
6000-6643	CNMA-643	CNMA190612	3/4	3/4	1/4	5/16	.0472	XAC849
6000-6644	CNMA-644	CNMA190616	3/4	3/4	1/4	5/16	.0630	XAC849

CARBIDE INSERTS

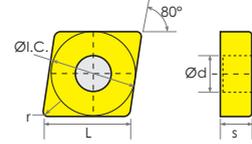
CNMG TiN (C5) DIAMOND-NEGATIVE RAKE CARBIDE INSERTS

CCMT

- Use for turning & boring
- 0° relief angle.
- Chipbreaker two sides.
- 80° diamond negative rake.

TiN(C-5) COATED

Limited Supply!



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6000-6831	CNMG-431	CNMG120404	1/2	1/2	3/16	13/64"	.0157	TiN(C5)
6000-6832	CNMG-432	CNMG120408	1/2	1/2	3/16	13/64	.0315	TiN(C5)
6000-6943	CNMG-643	CNMG190612	3/4	3/4	1/4	5/16	.0472	TiN(C5)

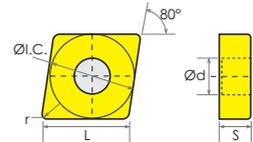
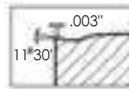
CNMG/DF DIAMOND-NEGATIVE RAKE CARBIDE INSERTS

CNMG-DF

DF-For Steel Finishing

DF-Chip-breaker with special angle design allows for easy cuttings, controls chip flow and provides good surface finish

Limited Supply!



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6000-1431	CNMG-431-DF	CNMG120404DF	1/2	1/2	3/16	13/64	.0157	XAB849
6000-1432	CNMG-432-DF	CNMG120408DF	1/2	1/2	3/16	13/64	.0315	XAB849
6000-1433	CNMG-433-DF	CNMG120412DF	1/2	1/2	3/16	13/64	.0472	XAB849

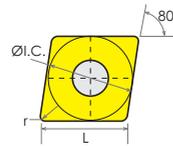
CNMG/DM DIAMOND-NEGATIVE RAKE CARBIDE INSERTS

CNMG-DM

DM - For Steel Medium Machining

DM - Widely used chipbreaker is used for semi-finishing and finishing of steel and stainless steel.

Limited Supply!



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6000-2431	CNMG-431-DM	CNMG120404DM	1/2	1/2	3/16	13/64	.0157	XAB749
6000-2432	CNMG-432-DM	CNMG120408DM	1/2	1/2	3/16	13/64	.0315	XAB749
6000-2433	CNMG-433-DM	CNMG120412DM	1/2	1/2	3/16	13/64	.0472	XAB749
6000-2542	CNMG-542-DM	CNMG160608DM	5/8	5/8	1/4	1/4	.0315	XAB749
6000-2543	CNMG-543-DM	CNMG160612DM	5/8	5/8	1/4	1/4	.0472	XAB749
6000-2643	CNMG-643-DM	CNMG190612DM	3/4	3/4	1/4	5/16	.0472	XAB749

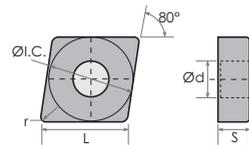
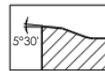
CNMG/DM DIAMOND-NEGATIVE RAKE CERMET INSERTS

CNMG-DM

DM - For Steel Medium Machining

DM - Widely used chipbreaker is used for semi-finishing and finishing of steel and stainless steel.

Limited Supply!



10 PC PER PACKAGE

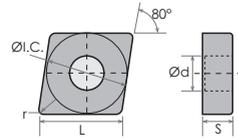
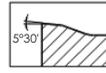
Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Cermet Grade
6000-5431	CNMG-431-DM	CNMG120404DM	1/2	1/2	3/16	13/64	.0157	XMF849
6000-5432	CNMG-432-DM	CNMG120408DM	1/2	1/2	3/16	13/64	.0315	XMF849

CNMG/DM -BLACK-DIAMOND COATED CARBIDE INSERTS

CNMG-DM

DM - For Steel Medium Machining

DM - Widely used chipbreaker is used for semi-finishing and finishing of steel and stainless steel.



10 PC PER PACKAGE

TICN& Al₂O₃ COATED

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6030-2431	CNMG-431-DM	CNMG120404DM	1/2	1/2	3/16	13/64	.0157	XAB748
6030-2432	CNMG-432-DM	CNMG120408DM	1/2	1/2	3/16	13/64	.0315	XAB748
6030-2433	CNMG-433-DM	CNMG120412DM	1/2	1/2	3/16	13/64	.0472	XAB748
6030-2542*	CNMG-542-DM	CNMG160608DM	5/8	5/8	1/4	1/4	.0315	XAB748
6030-2543*	CNMG-543-DM	CNMG160612DM	5/8	5/8	1/4	1/4	.0472	XAB748
6030-2643*	CNMG-643-DM	CNMG190612DM	3/4	3/4	1/4	5/16	.0472	XAB748

*Limited Supply

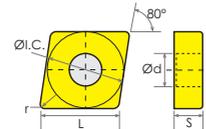
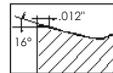
CNMG/DR DIAMOND - NEGATIVE RAKE CARBIDE INSERTS

CNMG-DR

DR- For Light Roughing of Steel, Stainless Steel Material

DR - Single-side chipbreaker with M-class tolerance has high security on cutting edge for higher removal rates and low cutting force at large cutting depth and high feed rates.

Limited Supply!



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6048-0433	CNMG-433-DR	CNMG120412DR	1/2	1/2	3/16	13/64	.0472	XAB748
6048-0543	CNMG-543-DR	CNMG160612DR	5/8	5/8	1/4	1/4	.0472	XAB748
6048-0544	CNMG-544-DR	CNMG160616DR	5/8	5/8	1/4	1/4	.0630	XAB748
6048-0643	CNMG-643-DR	CNMG190612DR	3/4	3/4	1/4	5/16	.0472	XAB748
6048-0644	CNMG-644-DR	CNMG190616DR	3/4	3/4	1/4	5/16	.0630	XAB748

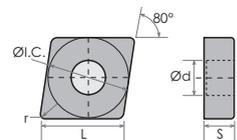
CNMG/EF-CARBIDE INSERTS

CNMG-EF

EF - For Stainless Steel, Highly Adhesive and Plastic Materials

EF Chip-Breaker specially designed rake angle and an inclined edge angle for machining stainless steel. The edges are sharp making the cutting light and smooth, getting a good control of the chips and obtaining a good surface quality, which makes it most suitable for ultra fine and fine machining of highly adhesive and plastic materials.

Limited Supply!



10 PC PER PACKAGE

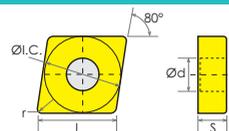
Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6030-5431	CNMG-431-EF	CNMG120404EF	1/2	1/2	3/16	13/64	.0157	XAF795
6030-5432	CNMG-432-EF	CNMG120408EF	1/2	1/2	3/16	13/64	.0315	XAF795
6030-5433	CNMG-433-EF	CNMG120412EF	1/2	1/2	3/16	13/64	.0472	XAF795

CNMG/PM DIAMOND-NEGATIVE RAKE CARBIDE INSERTS

CNMG-PM

PM - Suitable for Mixed Production

PM - With stronger cutting edge, it is better for intermittent cutting than -DM, with wider cutting zone of steel materials



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6000-3431	CNMG-431-PM	CNMG120404PM	1/2	1/2	3/16	13/64	.0157	XAB749
6000-3432	CNMG-432-PM	CNMG120408PM	1/2	1/2	3/16	13/64	.0315	XAB749
6000-3433*	CNMG-433-PM	CNMG120412PM	1/2	1/2	3/16	13/64	.0472	XAB749
6000-3542*	CNMG-542-PM	CNMG160608PM	5/8	5/8	1/4	1/4	.0315	XAB749
6000-3543*	CNMG-543-PM	CNMG160612PM	5/8	5/8	1/4	1/4	.0472	XAB749
6000-3642*	CNMG-642-PM	CNMG190608PM	3/4	3/4	1/4	5/16	.0315	XAB749
6000-3643*	CNMG-643-PM	CNMG190612PM	3/4	3/4	1/4	5/16	.0472	XAB749

*Limited Supply

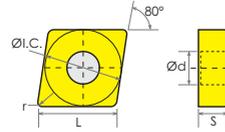
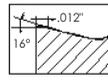
CNMM/DR DIAMOND-NEGATIVE RAKE CARBIDE INSERTS

CNMM-DR

DR - For Light Roughing of Steel

DR - Special chip-breaker with high toughness cutting edge can reduce cutting force

Limited Supply!



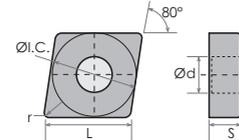
10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6001-2432	CNMM-432-DR	CNMM120408HDR	1/2	1/2	3/16	13/64	.0315	XAB749
6001-2433	CNMM-433-DR	CNMM120412DR	1/2	1/2	3/16	13/64	.0472	XAB749
6001-2543	CNMM-543-DR	CNMM160612DR	5/8	5/8	1/4	1/4	.0472	XAB749
6001-2544	CNMM-544-DR	CNMM160616DR	5/8	5/8	1/4	1/4	.0630	XAB749
6001-2643	CNMM-643-DR	CNMM190612DR	3/4	3/4	1/4	5/16	.0472	XAB749
6001-2644	CNMM-644-DR	CNMM190616DR	3/4	3/4	1/4	5/16	.0630	XAB749

CPMT 80° BLACK-DIAMOND COATED - POSITIVE RAKE CARBIDE INSERTS

CPMT

- Use for boring & facing.
- 11° relief angle.
- Single sided with chip control.



10 PC PER PACKAGE

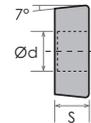
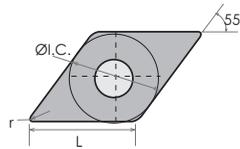
Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6060-0211	CPMT-21.51	CPMT060204	1/4	1/4	3/32	7/64	.0157	XAC898
6060-0322	CPMT-32.52	CPMT09T308	3/8	3/8	5/32	0.17	.0315	XAC898
6060-0431	CPMT-432	CPMT120408	1/2	1/2	3/16	0.217	.0315	XAC898

DCGX/LH CARBIDE INSERTS FOR ALUMINUM ALLOY

DCGX-LH

LH Chip-Breaker is more suitable for machining aluminum alloy with larger cutting depth and higher feed rate

Limited Supply!



10 PC PER PACKAGE

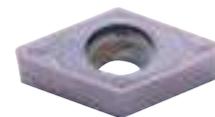
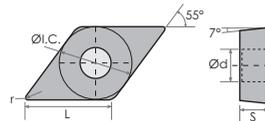
Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6055-0110	DCGX2(1.5)0-LH	DCGX070202-LH	1/4	.307	3/32	.110	.008	XC899
6055-0111	DCGX2(1.5)1-LH	DCGX070204-LH	1/4	.307	3/32	.110	.016	XC899
6055-0221	DCGX3(2.5)1-LH	DCGX11T304-LH	3/8	.457	5/32	.173	.016	XC899
6055-0222	DCGX3(2.5)2-LH	DCGX11T308-LH	3/8	.457	5/32	.173	.031	XC899

DCMT/EM 55° DIAMOND - POSITIVE RAKE CARBIDE INSERTS

DCMT-EM

EM - Semi-Finishing Geometry. Stainless Steel Material

EM - Single-side chipbreaker with M-class tolerance serves to reduce cutting force and workpiece adhesion when machining stainless steel. Possesses higher feed and depth of cut capability than EF chipbreaker.



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6004-1021	DCMT-21.51-EM	DCMT070204EM	1/4	0.307	3/32	7/64	.0157	XAF798
6004-1022*	DCMT-21.52-EM	DCMT070208EM	1/4	0.307	3/32	7/64	.0315	XAF798
6004-1031*	DCMT-32.51-EM	DCMT11T304EM	3/8	29/64	5/32	0.17	.0157	XAF798
6004-1032	DCMT-32.52-EM	DCMT11T308EM	3/8	29/64	5/32	0.17	.0315	XAF798

*Limited Supply

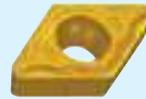
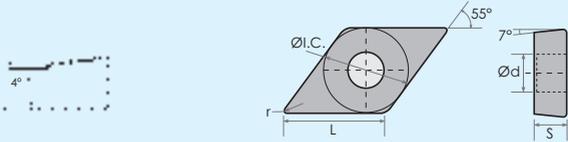
Carbide grades and insert classification shown on pages 167-170

DCMT/HF 55° DIAMOND-POSITIVE RAKE CERMET INSERTS

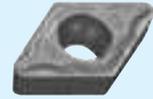
DCMT-HF

HF - With sharp cutting edge, used for finishing internal holes, fine finishing of surface can be achieved with a slow feed rate.

HF - Finishing Geometry. Mixed Production



Limited Supply!



10 P.C. PER PACKAGE

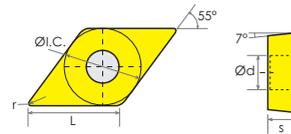
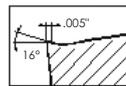
ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Item#	Cermet Grade
DCMT-32.50-HF	DCMT11T302HF	3/8	29/64	5/32	0.17	.0080	6003-8030	XMF849
DCMT-32.52-HF	DCMT11T308HF	3/8	29/64	5/32	0.17	.0315	6003-8032	XMF849

DCMT/HM 55° DIAMOND-POSITIVE RAKE CARBIDE INSERTS

DCMT-HM

HM - Medium Geometry. Periphery Ground Insert. Mixed Production

HM - With sharp wave cutting edge to reduce cutting force, it is the first choice for semi-finishing of internal holes and allows chips to flow smoothly.



10 P.C. PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6004-0021	DCMT-21.51-HM	DCMT070204HM	1/4	0.307	3/32	7/64	.0157	XAB749
6004-0031	DCMT-32.51-HM	DCMT11T304HM	3/8	29/64	5/32	0.17	.0157	XAB749
6004-0032*	DCMT-32.52-HM	DCMT11T308HM	3/8	29/64	5/32	0.17	.0315	XAB749
6004-0033*	DCMT-32.53-HM	DCMT11T312HM	3/8	29/64	5/32	0.17	.0472	XAB749

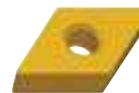
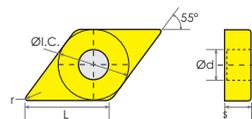
*Limited Supply

DNMA 55° DIAMOND-NEGATIVE RAKE CARBIDE INSERTS

DNMA

• 55° diamond for profiling.

Limited Supply!



10 P.C. PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6001-3442	DNMA-442	DNMA150608	1/2	39/64	1/4	13/64	.0315	XAC849
6001-3443	DNMA-443	DNMA150612	1/2	39/64	1/4	13/64	.0472	XAC849
6001-3444	DNMA-444	DNMA150616	1/2	39/64	1/4	13/64	.0630	XAC849

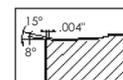
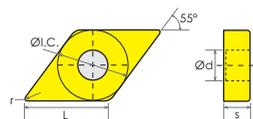
DNMG/DF 55° DIAMOND-NEGATIVE RAKE CARBIDE INSERTS

DNMG-DF

DF - For Steel Finishing

DF-Chip-breaker with special angle design allows for easy cuttings, controls chip flow and provides good surface finish

Limited Supply!



10 P.C. PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6000-7331	DNMG-331-DF	DNMG110404-DF	3/8	29/64	3/16	0.15	.0157	XAB749
6000-7332	DNMG-332-DF	DNMG110408DF	3/8	29/64	3/16	0.15	.0315	XAB749
6000-7333	DNMG-333-DF	DNMG110412DF	3/8	29/64	3/16	0.15	.0472	XAB749
6000-7431	DNMG-431-DF	DNMG150404DF	1/2	39/64	3/16	13/64	.0157	XAB749
6000-7432	DNMG-432-DF	DNMG150408DF	1/2	39/64	3/16	13/64	.0315	XAB749

CARBIDE INSERTS

DNMG/DF 55° -BLACK-DIAMOND COATED CARBIDE INSERTS

DNMG-DF

DF - For Steel Finishing

TiCN & Al₂O₃ COATED

Limited Supply!

DF-Chip-breaker with special angle design allows for easy cuttings, controls chip flow and provides good surface finish



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6033-0331	DNMG-331-DF	DNMG110404-DF	3/8	29/64	3/16	0.15	.0157	XAB848
6033-0332	DNMG-332-DF	DNMG110408DF	3/8	29/64	3/16	0.15	.0315	XAB848
6033-0432	DNMG-432-DF	DNMG150408DF	1/2	39/64	3/16	13/64	.0315	XAB848

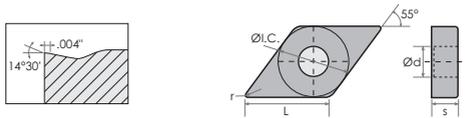
DNMG/DM 55° DIAMOND-NEGATIVE RAKE INSERTS

DNMG-DM

DM - Widely used chip-breaker is used for semi-finishing and finishing of steel and stainless steel

DM - For Steel Medium Machining

Black-Diamond:
TiCN & Al₂O₃ COATED



10 PC PER PACKAGE

ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Carbide		Cermet		Black-Diamond	
							Item#	Grade	Item#	Grade	Item#	Grade
DNMG-331-DM	DNMG110404DM	3/8	29/64	3/16	0.15	.0157	6000-8331*	XAB749	-----		6033-1331	XAB748
DNMG-332-DM	DNMG110408DM	3/8	29/64	3/16	0.15	.0315	6000-8332*	XAB749	-----		6033-1332	XAB748
DNMG-431-DM	DNMG150404DM	1/2	39/64	3/16	13/64	.0157	-----	-----	6001-1431*	XMF849	6033-1431*	XAB748
DNMG-432-DM	DNMG150408DM	1/2	39/64	3/16	13/64	.0315	6000-8432*	XAB749	6001-1432*	XMF849	6033-1432	XAB748
DNMG-433-DM	DNMG150412DM	1/2	39/64	3/16	13/64	.0472	6000-8433*	XAB749	-----		6033-1433*	XAB748

*Limited Supply

DNMG/DR 55° BLACK-DIAMOND - NEGATIVE RAKE CARBIDE INSERTS

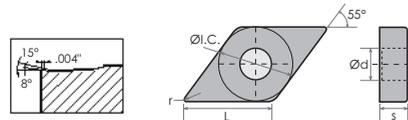
DNMG/DR

DR - For Light Roughing of Steel, Stainless Steel Material

Black-Diamond:
TiCN & Al₂O₃ COATED

DR - Single-side chipbreaker with M-class tolerance has high security on cutting edge for higher removal rates and low cutting force at large cutting depth and high feed rates.

Limited Supply!



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6046-0433	DNMG-433-DR	DNMG150412DR	1/2	39/64	3/16	13/64	.0472	XAB748
6046-0443	DNMG443-DR	DNMG150612DR	1/2	39/64	13/64	0.17	.0472	XAB748

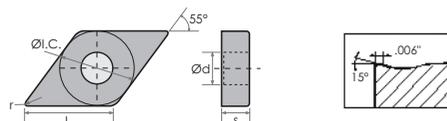
DNMG/EF 55° - CARBIDE INSERTS

DNMG-EF

EF - For Stainless Steel, Highly Adhesive and Plastic Materials

Limited Supply!

EF Chip-Breaker specially designed rake angle and an inclined edge angle for machining stainless steel. The edges are sharp making the cutting light and smooth, getting a good control of the chips and obtaining a good surface quality, which makes it most suitable for ultra fine and fine machining of highly adhesive and plastic materials.



10 PC PER PACKAGE

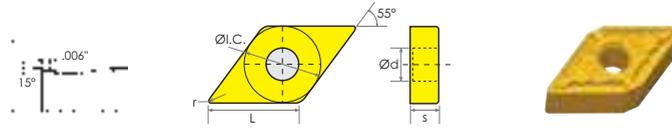
Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6033-5331	DNMG-331-EF	DNMG110404EF	3/8	29/64	3/16	0.15	.0157	XAF795
6033-5332	DNMG-332-EF	DNMG110408EF	3/8	29/64	3/16	0.15	.0315	XAF795
6033-5431	DNMG-431-EF	DNMG150404EF	1/2	39/64	3/16	13/64	.0157	XAF795
6033-5432	DNMG-432-EF	DNMG150408EF	1/2	39/64	3/16	13/64	.0315	XAF795

DNMG/PM 55° DIAMOND-NEGATIVE RAKE CARBIDE INSERTS

DNMG-PM

PM-Suitable for Mixed Production

PM - With stronger cutting edge, it is better for intermittent cutting than -DM, with wider cutting zone of steel materials



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6000-9331*	DNMG-331-PM	DNMG110404PM	3/8	29/64	3/16	0.15	.0157	XAB749
6000-9332	DNMG-332-PM	DNMG110408PM	3/8	29/64	3/16	0.15	.0315	XAB749
6000-9333*	DNMG-333-PM	DNMG110412PM	3/8	29/64	3/16	0.15	.0472	XAB749
6000-9432	DNMG-432-PM	DNMG150408PM	1/2	39/64	3/16	13/64	.0315	XAB749
6000-9433*	DNMG-433-PM	DNMG150412PM	1/2	39/64	3/16	13/64	.0472	XAB749
6000-9434*	DNMG-434-PM	DNMG150416PM	1/2	39/64	3/16	13/64	.0630	XAB749
6000-9443*	DNMG-443-PM	DNMG150612PM	1/2	39/64	3/16	0.17	.0472	XAB749

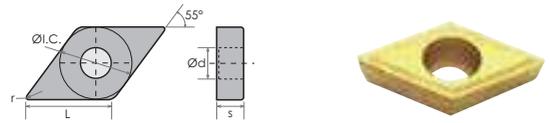
*Limited Supply

DPMT CARBIDE INSERTS, 11° Relief

DPMT

Item#	ANSI No.	I.C.	r
6027-2151*	DPMT-21.51	1/4"	.0157"
6027-3252	DPMT-32.52	3/8"	.0315"

*Limited Supply

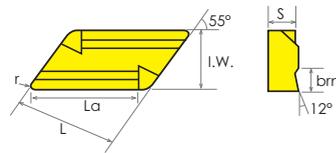


10 PC PER PACKAGE

KNUX PROFILE CARBIDE INSERTS

KNUX

- Turning insert.
- Parallelogram insert for profiling.
- Clamp on style.
- Negative along cutting edge and positive flank along the narrow edge.



Limited Supply!

10 PC PER PACKAGE

Item#	ANSI Insert No.	La	L	I.W.	(Inch) S	bm	r	Grade
6005-4005	KNUX-160405L11	5/8	5/8	3/8	3/16	.0087	0.02	XAB749
6005-4010	KNUX-160410L11	5/8	5/8	3/8	3/16	.0087	0.04	XAB749
6005-4105	KNUX-160405L12	5/8	5/8	3/8	3/16	.0126	0.02	XAB749
6005-4110	KNUX-160410L12	5/8	5/8	3/8	3/16	.0126	0.04	XAB749
6005-4205	KNUX-160405R11	5/8	5/8	3/8	3/16	.0087	0.02	XAB749
6005-4210	KNUX-160410R11	5/8	5/8	3/8	3/16	.0087	0.04	XAB749
6005-4305	KNUX-160405R12	5/8	5/8	3/8	3/16	.0126	0.02	XAB749
6005-4310	KNUX-160410R12	5/8	5/8	3/8	3/16	.0126	0.04	XAB749

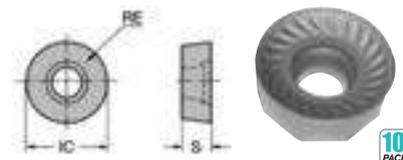
RCKT/DM CARBIDE FACE MILL INSERTS

RCKT-DM

7° Positive Relief Angle - For Turning & Facing

DM - Widely used chip-breaker is used for semi-finishing and finishing of steel and stainless steel

Item#	ANSI Insert No.	I.C.	Thickness	Hole	Grade
6034-1204	RCKT1204MO-DM	0.472"	3/16"	0.157"	XAF798



10 PC PER PACKAGE

RCKT/DR CARBIDE FACE MILL INSERTS

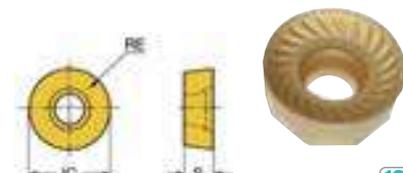
RCKT-DR

7° Positive Relief Angle - For Turning & Facing

DR - Used for roughing of material. It can achieve a high rate of metal removal & a low cutting force.

Item#	ANSI Insert No.	I.C.	Thickness	Hole	Grade
6034-2204	RCKT1204MO-DR	0.472"	3/16"	0.157"	XAL649
6034-2607*	RCKT2006MO-DR	0.787"	1/4"	0.258"	XAL649

*Limited Supply



10 PC PER PACKAGE

CARBIDE INSERTS

RCMT CARBIDE INSERTS

RCMT

7° Positive Relief Angle - For Turning & Facing

10 PC PER PACKAGE

ANSI Insert No.	I.C.	(Inch) Thickness	Hole	Grade C-2 Item#	TiN Coated (C-6) Item#
RCMT-0602	.236	.0940	.110	6034-3012	6034-3062
RCMT-0803	.315	.1250	.134	6034-3013*	6034-3083
RCMT-10T3	.393	.1563	.173	6034-3023	6034-3103
RCMT-32	3/8	1/8	.150	6034-3032*	6034-3132
RCMT-1204	.472	.1870	.157	-----	6034-3124
RCMT-43	.500	3/16	.217	6034-3043*	-----

*Limited Supply



RDKW CARBIDE INSERTS

RDKW

15° Relief Angle

10 PC PER PACKAGE

Item#	ANSI Insert No.	Nose Radius	I.C.	(Inch) Thickness	Hole	Grade
6045-0803*	RDKW0803MO	.157	.315	.125	0.134	XAF798
6045-1003*	RDKW10T3MO	.197	.394	.156	0.173	XAF798
6045-1204	RDKW1204MO	.236	.472	.186	0.173	XAF798

*Limited Supply



RNMG CARBIDE FACE MILL INSERTS

RNMG

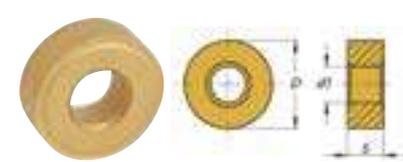
0° Relief Angle - For Turning, Plunging & Profiling

Limited Supply!

10 PC PER PACKAGE

ANSI Insert No.	ISO Insert No.	I.C.	(Inch) Thickness	Hole	Grade C-2 Item#	TiN Coated (C5) Item#
RNMG-32	RNMG0903	3/8	1/8	.150	6005-6030	-----
RNMG-43MO	RNMG-1204MO	0.472	3/16	.157	-----	6005-5204
RNMG-43	RNMG1204	0.500	3/16	.203	6005-6043	6005-6143
RNMG-64	RNMG1906	0.750	1/4	.312	-----	6005-6164

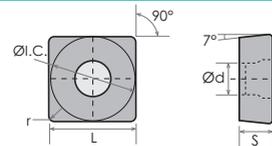
*Limited Supply



SCMT CARBIDE INSERTS

SCMT

7° Relief Angle-Single Sided



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6004-4431*	SCMT-431	SCMT120404	1/2	1/2	3/16	7/32	.0157	C-6
6004-4432	SCMT-432	SCMT120408	1/2	1/2	3/16	7/32	.0315	C-6

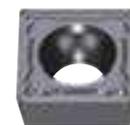
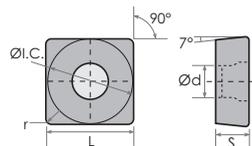
*Limited Supply

SCMT/EM SQUARE - POSITIVE RAKE CARBIDE INSERTS

SCMT-EM

EM - Semi-Finishing Geometry. Stainless Steel Material

EM - Double-side chipbreaker with M-class tolerance serves to reduce cutting force and workpiece adhesion when machining stainless steel. Possesses higher feed and depth of cut capability than EF chipbreaker.



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6056-0221*	SCMT32.51-EM	SCMT09T304EM	3/8	3/8	5/32	0.17	.0157	XAF798
6056-0431	SCMT-431-EM	SCMT120404EM	1/2	1/2	3/16	7/32	.0157	XAF798
6056-0432	SCMT-432-EM	SCMT120408EM	1/2	1/2	3/16	7/32	.0315	XAF798

*Limited Supply

SCMT/HM SQUARE - POSITIVE RAKE CARBIDE INSERTS

SCMT-HM

HM - Medium Geometry. Periphery Ground Insert. Mixed Production

HM - With a sharp wave cutting edge to reduce cutting force, it is the first choice for semi-finishing of internal holes and allows chips to flow smoothly.



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6004-3030*	SCMT-21.51	SCMT060204	1/4	1/4	3/32	2.8	.0157	TiN(C6)
6004-3031	SCMT-32.51-HM	SCMT09T304HM	3/8	3/8	5/32	0.17	.0157	XAB749
6004-3032	SCMT-32.52-HM	SCMT09T308HM	3/8	3/8	5/32	0.17	.0315	XAB749
6004-3432	SCMT-432-HM	SCMT120408HM	1/2	1/2	3/16	7/32	.0315	XAB749

*Limited Supply

SCMT/HR SQUARE - POSITIVE RAKE CARBIDE INSERTS

SCMT-HR

HR- General Chipbreaker for Roughing, Stainless Steel Material

HR - M-class tolerance; suitable for both boring and O.D. roughing materials as steel, stainless steel and cast iron etc.

Limited Supply!



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6056-1431	SCMT-431-HR	SCMT120404HR	1/2	1/2	3/16	7/32	.0157	XAB749

SD-POSITIVE RAKE CARBIDE INSERTS

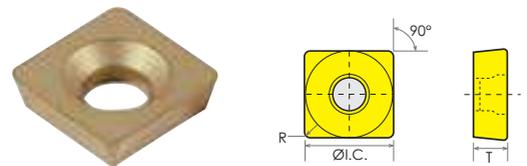
SD

11° Relief Angle-Positive Rake

TiN COATED(C-6)

10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	T	r
6029-2322	SD-322P	SD160308P	3/8"	1/8"	1/32"
6029-2422	SD-422P	SD220308P	1/2"	1/8"	1/32"



SEAN TiN (C5) CARBIDE INSERTS

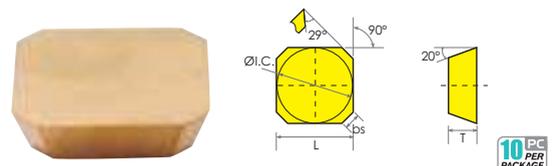
SEAN

- Square 20° positive milling insert
- Used for face mill

TiN COATED(C-5)

Item#	ANSI Insert No.	ISO Insert No.	bs	(Inch) I.C.	T
6016-0040*	SEAN-42AFN	SEAN1203AFN	.071	.500	1/8
6016-0042	SEAN-42AFN	SEAN1203AFN	.071	.500	1/8
6016-0043*	SEAN-43AFN	SEAN1204AFN	.071	.500	3/16

*Limited Supply



10 PC PER PACKAGE

SEET/DR CARBIDE INSERT

SEET-DR

DR - Used for roughing of material. It can achieve a high rate of metal removal & a low cutting force .

Item#	ANSI Insert No.	ISO Insert No.	I.C.	bs	S	Grade
6016-0123	SEET-42-AFER	SEET12T3-DR	.500"	.071"	.157"	XAB699



10 PC PER PACKAGE

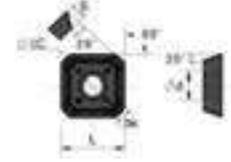
CARBIDE INSERTS

SEET/DM CARBIDE INSERT

SEET-DM

DM - Widely used chip-breaker is used for semi-finishing and finishing of steel and stainless steel

Limited Supply!



10 PC PER PACKAGE

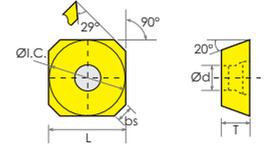
Item#	ANSI Insert No.	ISO Insert No.	I.C.	bs	S	Grade
6016-1123	SEET-42-AFEM	SEET12T3-DM	.500"	.071"	.157"	XAB698

SEHT CARBIDE FACE MILL INSERT

SEHT

- 20° positive single sided chip breaker
- 4 cutting edges
- Wiper flat parallel land.

TiN COATED(C-6)



10 PC PER PACKAGE

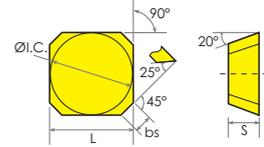
Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	bs	T	d
6017-0432	SEHT120408	SEHT-432	1/2"	1/2"	.071"	3/16"	13/64"

SEKN/AFTN CARBIDE FACE MILL INSERTS

SEKN

- Without chip breaker
- 20° relief angle
- Medium milling applications.

Limited Supply!



10 PC PER PACKAGE

Item#	ANSI Insert No.	I.C.	L	bs	S	Grade
6010-0002	SEKN-1203AFTN	1/2"	1/2"	.094"	1/8"	XAL749
6010-0012	SEKN-1204AFTN	1/2"	1/2"	.094"	3/16"	XAL649
6010-0006	SEKN-1504AFTN	5/8"	5/8"	.094"	3/16"	XAL749

SNKN CARBIDE FACE MILL INSERTS

SNKN

Item#	ANSI Insert No.	I.C.	F	a	S	Grade
6010-1003	SNKN-1204ENN	1/2"	0.059"	0.035"	3/16"	XAB699
6010-1006	SNKN-1504ENN	5/8"	0.059"	0.035"	3/16"	XAB699



Limited Supply!



10 PC PER PACKAGE

SNMA SQUARE - NEGATIVE RAKE CARBIDE INSERTS WITH HOLE

SNMA

- Square without chip breaker.
- 0° relief angle.
- Double sided.

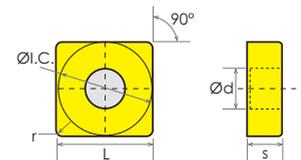


Limited Supply!



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6001-8432	SNMA-432	SNMA120408	1/2	1/2	3/16	13/64	.0315	XAC849
6001-8433	SNMA-433	SNMA120412	1/2	1/2	3/16	13/64	.0472	XAC849
6001-8542	SNMA-542	SNMA150608	5/8	5/8	1/4	1/4	.0315	XAC849
6001-8643	SNMA-643	SNMA190612	3/4	3/4	1/4	5/16	.0472	XAC849
6001-8644	SNMA-644	SNMA190616	3/4	3/4	1/4	5/16	.0630	XAC849



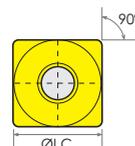
SNMG TiN (C5) CARBIDE FACE MILL INSERTS

SNMG

- Square with chip breaker
- 0° relief angle
- Double sided cutting edges.
- Used for a wide range of materials and applications.

TiN COATED(C-5)

Limited Supply!



10 PC PER PACKAGE

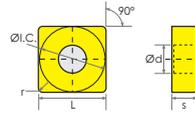
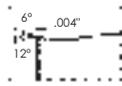
Item#	ANSI Insert No.	ISO Insert No.	(Inch) I.C.	T
6001-0322	SNMG-322	SNMG090308	3/8	1/8
6001-0432	SNMG-432	SNMG120408	1/2	3/16
6001-0433	SNMG-433	SNMG120412	1/2	3/16
6001-0643	SNMG-643	SNMG190612	3/4	1/4

SNMG/DF SQUARE-NEGATIVE RAKE CARBIDE INSERTS

SNMG-DF

DF - For Steel Finishing

Limited Supply!



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	S	d	r	Grade
6001-4432	SNMG-432-DF	SNMG120408DF	1/2"	1/2"	3/16"	13/64"	.0315"	XAB749
6001-4433	SNMG-433-DF	SNMG120412DF	1/2"	1/2"	3/16"	13/64"	.0472"	XAB749

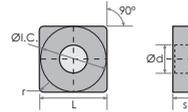
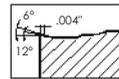
SNMG/DF BLACK DIAMOND COATED CARBIDE INSERTS

SNMG-DF

DF - For Steel Finishing

Limited Supply!

TICNAI COATED



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	S	d	r	Grade
6035-1432	SNMG-432-DF	SNMG120408DF	1/2"	1/2"	3/16"	13/64"	.0315"	XAB848
6035-1433	SNMG-433-DF	SNMG120412DF	1/2"	1/2"	3/16"	13/64"	.0472"	XAB848

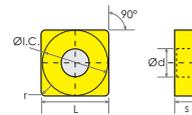
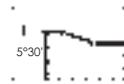
SNMG/DM SQUARE-NEGATIVE RAKE CARBIDE INSERTS

SNMG-DM

DM - For Steel Medium Machining

DM - Widely used chip-breaker is used for semi-finishing and finishing of steel and stainless steel

Limited Supply!



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6001-5433	SNMG-433-DM	SNMG120412DM	1/2	1/2	3/16	13/64	.0472	XAB749
6001-5543	SNMG-543-DM	SNMG150612DM	5/8	5/8	1/4	1/4	.0472	XAB749
6001-5643	SNMG-643-DM	SNMG190612DM	3/4	3/4	1/4	5/16	.0472	XAB749
6001-5644	SNMG-644-DM	SNMG190616DM	3/4	3/4	1/4	5/16	.0630	XAB749

SNMG/DM BLACK DIAMOND COATED CARBIDE INSERTS

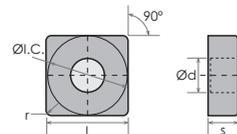
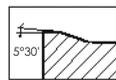
SNMG-DM

DM - For Steel Medium Machining

DM - Widely used chip-breaker is used for semi-finishing and finishing of steel and stainless steel

Limited Supply!

TICNAI COATED



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6035-0543	SNMG-543-DM	SNMG150612DM	5/8	5/8	1/4	1/4	.0472	XAB748
6035-0643	SNMG-643-DM	SNMG190612DM	3/4	3/4	1/4	5/16	.0472	XAB748
6035-0644	SNMG-644-DM	SNMG190616DM	3/4	3/4	1/4	5/16	.0630	XAB748

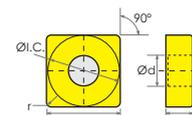
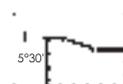
SNMG/DR SQUARE - NEGATIVE RAKE CARBIDE INSERTS

SNMG-DR

DR- For Light Roughing of Steel, Stainless Steel Material

DR - Single-side chipbreaker with M-class tolerance has high security on cutting edge for higher removal rates and low cutting force at large cutting depth and high feed rates.

Limited Supply!



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6049-1432	SNMG-432-DR	SNMG120408DR	1/2	1/2	3/16	13/64	.0315	XAB748
6049-1433	SNMG-433-DR	SNMG120412DR	1/2	1/2	3/16	13/64	.0472	XAB748
6049-1543	SNMG-543-DR	SNMG150612DR	5/8	5/8	1/4	1/4	.0472	XAB748
6049-1544	SNMG-544-DR	SNMG150616DR	5/8	5/8	1/4	1/4	.0630	XAB748
6049-1644	SNMG-644-DR	SNMG190616DR	3/4	3/4	1/4	5/16	.0630	XAB748

CARBIDE INSERTS

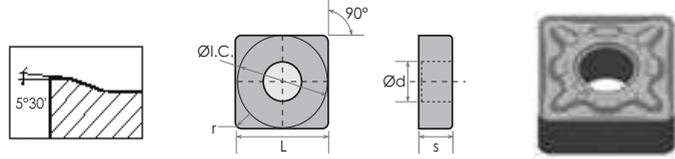
SNMG/EF CARBIDE INSERTS

SNMG-EF

EF - For Stainless Steel, Highly Adhesive and Plastic Materials

EF Chip-Breaker specially designed rake angle and an inclined edge angle for machining stainless steel. The edges are sharp making the cutting light and smooth, getting good control of the chips and obtaining a good surface quality, which makes it most suitable for ultra fine and fine machining of highly adhesive and plastic materials.

Limited Supply!



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6035-5322	SNMG-322-EF	SNMG090308EF	3/8	3/8	1/8	0.15	.0315	XAF798
6035-5432	SNMG-432-EF	SNMG120408EF	1/2	1/2	3/16	13/64	.0315	XAF798
6035-5543	SNMG-543-EF	SNMG150612EF	5/8	5/8	1/4	1/4	.0472	XAF798

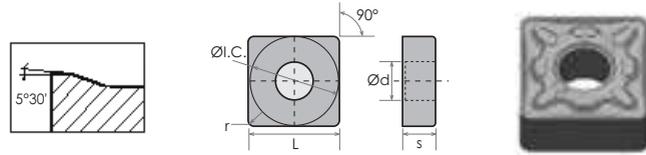
SNMG/EM SQUARE - NEGATIVE RAKE CARBIDE INSERTS

SNMG-EM

EM - Semi-Finishing Geometry. Stainless Steel Material

EM - Double-side chipbreaker with M-class tolerance serves to reduce cutting force and workpiece adhesion when machining stainless steel. Possesses higher feed and depth of cut capability than EF chipbreaker.

Limited Supply!



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6049-0432	SNMG-432-EM	SNMG120408EM	1/2	1/2	3/16	13/64	.0315	XAF798
6049-0433	SNMG-433-EM	SNMG120412EM	1/2	1/2	3/16	13/64	.0472	XAF798
6049-0543	SNMG-543-EM	SNMG150612EM	5/8	5/8	1/4	1/4	.0472	XAF798

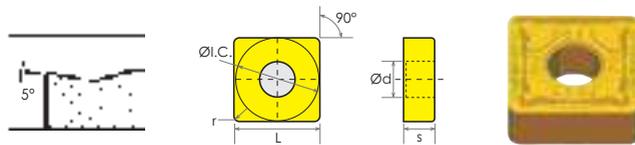
SNMG/PM SQUARE - NEGATIVE RAKE CARBIDE INSERTS

SNMG-PM

PM - Suitable for Mixed Production

PM - With stronger cutting edge, it is better for intermittent cutting than -DM, with wider cutting zone of steel materials

Limited Supply!



10 PC PER PACKAGE

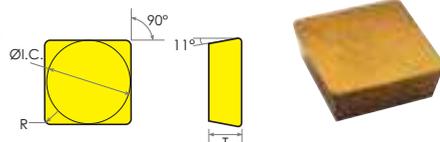
Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6001-6432	SNMG-432-PM	SNMG120408PM	1/2	1/2	3/16	13/64	.0315	XAB749
6001-6433	SNMG-433-PM	SNMG120412PM	1/2	1/2	3/16	13/64	.0472	XAB749
6001-6434	SNMG-434-PM	SNMG120416PM	1/2	1/2	3/16	13/64	.0630	XAB749
6001-6543	SNMG-543-PM	SNMG150612PM	5/8	5/8	1/4	1/4	.0472	XAB749
6001-6643	SNMG-643-PM	SNMG190612PM	3/4	3/4	1/4	5/16	.0472	XAB749

SPG CARBIDE INSERTS

SPG

C-6 for all steel and general purpose
TiN Coated for high heat & wear resistance on alloys, stainless steel & ductile iron

TiN Coated(C-6)



10 PC PER PACKAGE

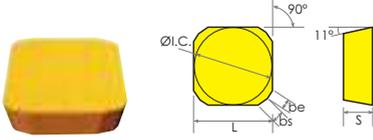
Item#	ANSI Insert No.	I.C.	(Inch) T	R
6021-2322*	SPG-322	3/8	1/8	1/32
6021-2422	SPG-422	1/2	1/8	1/32
6021-2432	SPG-432	1/2	3/16	1/32
6021-2533*	SPG-533	5/8	3/16	3/64
6021-2633	SPG-633	3/4	3/16	3/64

*Limited Supply

SPKN/ED CARBIDE FACE MILL INSERTS

SPKN

- Used for milling
- 11° relief angle



10 PC PER PACKAGE

Item#	ANSI Insert No.	Feeding Direction	I.C.	L	(Inch) bs	be	s	Grade
6010-2003*	SPKN-1203EDL	Left	1/2	1/2	0.055	0.039	1/8	XAB699
6010-2004	SPKN-1203EDR	Right	1/2	1/2	0.055	0.039	1/8	XAB699
6010-2009*	SPKN-1504EDL	Left	5/8	5/8	0.055	0.039	3/16	XAB699
6010-2010*	SPKN-1504EDR	Right	5/8	5/8	0.055	0.039	3/16	XAB699

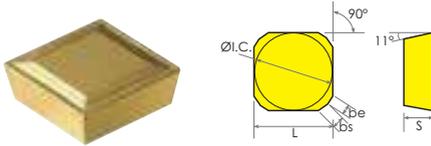
*Limited Supply

SPMR CARBIDE INSERT

SPMR

- Screw on style.
- Single sided with chip breaker.
- -11° relief.

Limited Supply!



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	r	Grade
6004-5321	SPMR-321	SPMR090304	3/8	3/8	1/8	.0156	XAB749
6004-5322	SPMR-322	SPMR090308	3/8	3/8	1/8	.031	XAB749
6004-5421	SPMR-421	SPMR120304	1/2	1/2	1/8	.0156	XAB749
6004-5422	SPMR-422	SPMR120308	1/2	1/2	1/8	.031	XAB749

SPMT CARBIDE INSERT

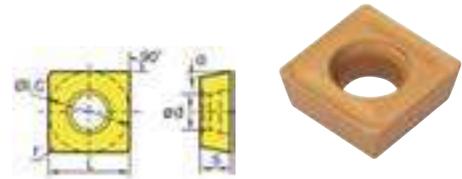
SPMT

- Screw on style.
- Single sided with chip breaker.
- -11° relief.

10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	(Inch) S	d	r	Grade
6018-3251	SPMT32.51	SPMT09T304	3/8	5/32	0.173	0.0156	TiN
6018-3252	SPMT32.52	SPMT09T308	3/8	5/32	0.173	0.031	TiN
6018-3432	SPMT432	SPMT120408	1/2	3/16	0.216	0.031	XAF698

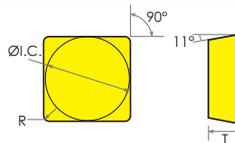
*Limited Supply



SPU CARBIDE INSERTS

SPU

- C-2** for cast iron and general purpose,
- C-6** for all steel and general purpose
- TiN Coated** for high heat & wear resistance on alloys, stainless steel & ductile iron



10 PC PER PACKAGE

ANSI Insert No.	I.C.	T	R	C-2 Item#	C-6 Item#	TiN Coated(C-6) Item#
SPU-322	3/8"	1/8"	1/32"	-----	-----	6022-2322*
SPU-422	1/2"	1/8"	1/32"	-----	6022-1422	6022-2422
SPU-633	3/4"	3/16"	3/64"	6022-0633*	6022-1633*	-----

*Limited Supply

TCGX/LH CARBIDE INSERTS FOR ALUMINUM ALLOY

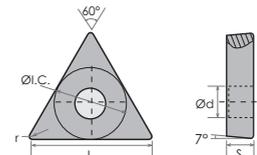
TCGX-LH

- LH Chip-Breaker** is more suitable for machining aluminum alloy with larger cutting depth and higher feed rate

Limited Supply!

10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6057-0100	TCGX1.8(1.5)0-LH	TCGX090202-LH	7/32	.378	3/32	.098	.008	XC899
6057-0101	TCGX1.8(1.5)1-LH	TCGX090204-LH	7/32	.378	3/32	.098	.016	XC899
6057-0110	TCGX2(1.5)0-LH	TCGX110202-LH	1/4	.433	3/32	.110	.008	XC899
6057-0111	TCGX2(1.5)1-LH	TCGX110204-LH	1/4	.433	3/32	.110	.016	XC899
6057-0112	TCGX2(1.5)2-LH	TCGX110208-LH	1/4	.433	3/32	.110	.031	XC899
6057-0221	TCGX3(2.5)1-LH	TCGX16T304-LH	3/8	.650	5/32	.173	.016	XC899
6057-0222	TCGX3(2.5)2-LH	TCGX16T308-LH	3/8	.650	5/32	.173	.031	XC899



CARBIDE INSERTS

TCMT TiN (C6) TRIANGLE - POSITIVE RAKE CARBIDE INSERTS

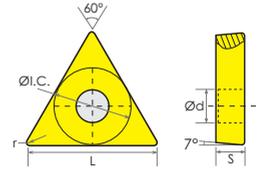
TCMT

- Single sided for semi-finishing.
- 7° relief angle
- Triangle with chipbreaker.

TiN COATED (C-6)

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r
6004-9020	TCMT-1.8(1.5)	TCMT090204	0.219	0.378	0.094	0.098	0.016
6004-9021	TCMT-21.51	TCMT110204	1/4	7/16	3/32	7/64	.0157
6004-9022	TCMT-21.52	TCMT110208	1/4	7/16	3/32	7/64	.0315
6004-9018*	TCMT1.2(1.2)1L	TCMT06T104L	0.156	0.272	0.078"	0.071"	0.016
6004-9024	TCMT221L	TCMT110304L	0.250	0.41	0.126"	0.125"	.0157
6004-9031	TCMT-32.51	TCMT16T304	3/8	5/8	5/32	0.17	.0157
6004-9032	TCMT-32.52	TCMT16T308	3/8	5/8	5/32	0.17	.0315
6004-6141	TCMT-431	TCMT220404	1/2	7/8	3/16	0.22	.0157
6004-6142	TCMT-432	TCMT220408	1/2	7/8	3/16	0.22	.0315

*Limited Supply



10 PC PER PACKAGE

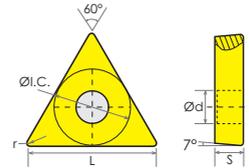
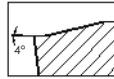
TCMT/HF TRIANGLE - POSITIVE RAKE CARBIDE INSERTS

TCMT-HF

HF - Finishing Geometry. Mixed Production

HF - With sharp cutting edge, used for finishing internal holes, fine finishing of surface can be achieved with a slow feed rate.

Limited Supply!



10 PC PER PACKAGE

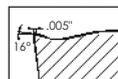
Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6004-6022	TCMT-21.52-HF	TCMT110208HF	1/4	7/16	3/32	7/64	.0315	XAB849
6004-6032	TCMT-32.52-HF	TCMT16T308HF	3/8	5/8	5/32	0.17	.0315	XAB849

TCMT/HM TRIANGLE - POSITIVE RAKE CARBIDE INSERTS

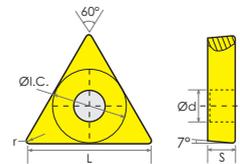
TCMT-HM

HM - Medium Geometry. Periphery Ground Insert. Mixed Production

HM - With sharp wave cutting edge to reduce cutting force, it is the first choice for semi-finishing of internal holes and allows chips to flow smoothly.



Limited Supply!



10 PC PER PACKAGE

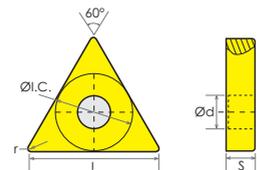
Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6004-7032	TCMT-32.52-HM	TCMT16T308HM	3/8	5/8	5/32	0.17	.0315	XAB749
6004-7033	TCMT-32.53-HM	TCMT16T312HM	3/8	5/8	5/32	0.17	.0472	XAB749

TDEX 60° TRIANGLE CARBIDE INSERTS

TDEX

- 60° indexable dovetail milling cutter
- Honed edge allows for a heavier cuts.
- For special applications
- 3 cutting edges.

TiN (C5) COATED



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	TiN Coated Grade
6062-0215	TDEX 21.5	TDEX110204	1/4	7/16	3/32	7/64	.0157	C-5
6062-0320	TDEX32	TDEX16T308	3/8	5/8	5/32	0.17	.0315	C-5
6062-0430	TDEX43	TDEX220408	1/2	7/8	3/16	0.22	.0315	C-5

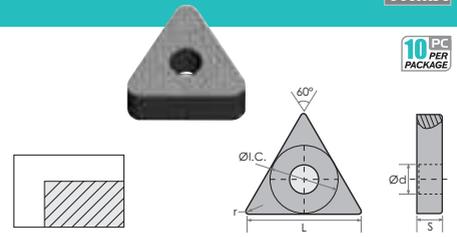
TNMA TRIANGLE - NEGATIVE RAKE CARBIDE INSERTS

TNMA

11° Relief Angle, Flat Top Insert

Limited Supply!

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6002-6332	TNMA-332	TNMA160408	3/8	5/8	3/16	0.15	.0315	XAC849
6002-6333	TNMA-333	TNMA160412	3/8	5/8	3/16	0.15	.0472	XAC849
6002-6432	TNMA-432	TNMA220408	1/2	7/8	3/16	13/64	.0315	XAC849



10 PC PER PACKAGE

TNMC GROOVING CARBIDE INSERTS

TNMC

- Right hand on two sides.
- Neutral rake angle.
- Double countersink thru hole.
- TiN coated.

TiN Coated



*Limited Supply

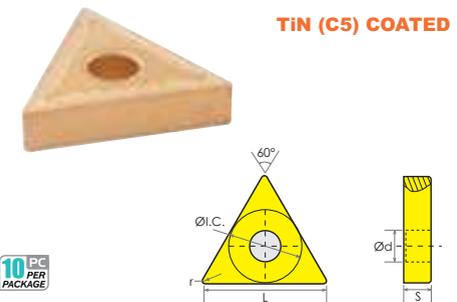
Item#	ANSI Insert No.	Pitch	I.C. (In)	Pitch	Groove Width (In)	Groove Depth (In)
6043-0632	TNMC-32NGR031	8 TPI Max.	0.375	8 TPI Max.	.031	.075
6043-0633	TNMC-32NGR062	8 TPI Max.	0.375	8 TPI Max.	.062	.150
6043-0634	TNMC-32NGR094	8 TPI Max.	0.375	8 TPI Max.	.094	.150
6043-0635	TNMC-32NGR125	8 TPI Max.	0.375	8 TPI Max.	.125	.150
6043-0643	TNMC-43NGR062	6 TPI Max.	0.500	6 TPI Max.	.062	.125
6043-0644	TNMC-43NGR094	6 TPI Max.	0.500	6 TPI Max.	.094	.150
6043-0645	TNMC-43NGR125	6 TPI Max.	0.500	6 TPI Max.	.125	.210
6043-0646*	TNMC-43NGR156	6 TPI Max.	0.500	6 TPI Max.	.156	.210
6043-0647*	TNMC-43NGR187	6 TPI Max.	0.500	6 TPI Max.	.187	.210
6043-0654*	TNMC-54NGR250	4 TPI Max.	0.625	4 TPI Max.	.250	.210

TNMG TRIANGLE - NEGATIVE RAKE CARBIDE INSERTS

TNMG

- Triangle with chipbreaker
- 0° relief angle

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r
6002-0001	TNMG-221	TNMG110304	1/4	7/16	1/8	.093	.0157
6002-0002	TNMG-222	TNMG110308	1/4	7/16	1/8	.093	.0315
6002-0011	TNMG-321	TNMG160404	3/8	5/8	1/8	0.15	.0157
6002-0012*	TNMG-322	TNMG160408	3/8	5/8	1/8	0.15	.0315
6002-0013	TNMG-323	TNMG160412	3/8	5/8	1/8	0.15	.0472
6002-0021	TNMG-431	TNMG220404	1/2	7/8	3/16	13/64	.0157
6002-0022	TNMG-432	TNMG220408	1/2	7/8	3/16	13/64	.0315
6002-0023*	TNMG-433	TNMG220412	1/2	7/8	3/16	13/64	.0472
6002-0024*	TNMG-434	TNMG220416	1/2	7/8	3/16	13/64	.0630



TiN (C5) COATED

10 PC PER PACKAGE

*Limited Supply

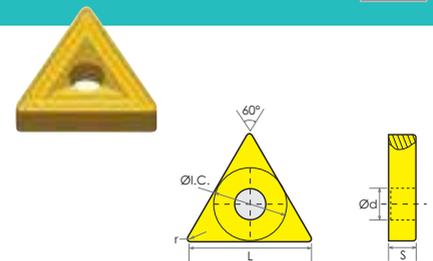
TNMG TRIANGLE - NEGATIVE RAKE CARBIDE INSERTS

TNMG

0° Relief Angle, Molded Chipbreaker

Limited Supply!

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6002-3433	TNMG-433	TNMG220412	1/2	7/8	3/16	13/64	.0472	XAB749
6002-3434	TNMG-434	TNMG220416	1/2	7/8	3/16	13/64	.0630	XAB749
6002-2543	TNMG-543	TNMG270612	5/8	1.08	1/4	1/4	.0472	XAB749
6002-2544	TNMG-544	TNMG270616	5/8	1.08	1/4	1/4	.0630	XAB749



10 PC PER PACKAGE

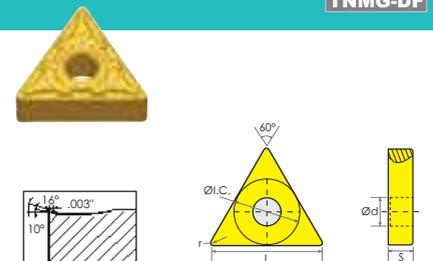
TNMG/DF TRIANGLE - NEGATIVE RAKE CARBIDE INSERTS

TNMG-DF

DF - For Steel Finishing

Limited Supply!

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6001-9332	TNMG-332-DF	TNMG160408DF	3/8	5/8	3/16	0.15	.0315	XAB849
6001-9333	TNMG-333-DF	TNMG160412DF	3/8	5/8	3/16	0.15	.0472	XAB849
6001-9433	TNMG-433-DF	TNMG220412DF	1/2	7/8	3/16	13/64	.0472	XAB849



10 PC PER PACKAGE

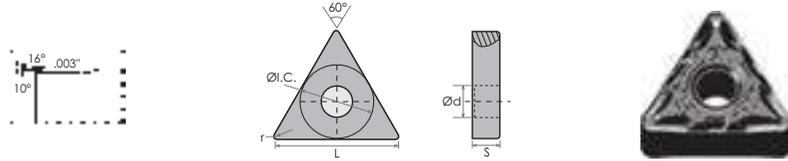
TNMG/DF BLACK DIAMOND CARBIDE INSERTS

TNMG-DF

DF - For Steel Finishing

TiCNAI COATED

Limited Supply!



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6036-0332	TNMG-332-DF	TNMG160408DF	3/8	5/8	3/16	0.15	.0315	XAB848
6036-0333	TNMG-333-DF	TNMG160412DF	3/8	5/8	3/16	0.15	.0472	XAB848
6036-0432	TNMG-432-DF	TNMG220408	1/2	7/8	3/16	13/64	.0315	XAB848
6036-0433	TNMG-433-DF	TNMG220412DF	1/2	7/8	3/16	13/64	.0472	XAB848

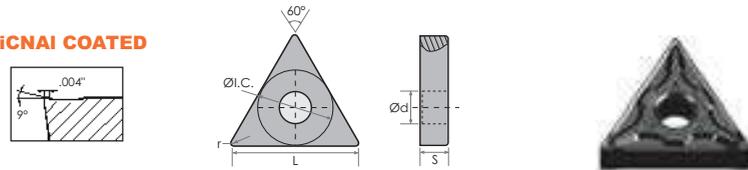
TNMG/DM BLACK DIAMOND CARBIDE INSERTS

TNMG-DM

DM - For Steel Medium Machining

TiCNAI COATED

DM - Widely used chipbreaker is used for semi-finishing and finishing of steel and stainless steel.



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6036-1222	TNMG-222-DM	TNMG110308DM	1/4	7/16	1/8	0.09	.0157	XAB748
6036-1331	TNMG-331-DM	TNMG160404DM	3/8	5/8	3/16	0.15	.0157	XAB748
6036-1332	TNMG-332-DM	TNMG160408DM	3/8	5/8	3/16	0.15	.0315	XAB748
6036-1333*	TNMG-333-DM	TNMG160412DM	3/8	5/8	3/16	0.15	.0472	XAB748
6036-1431*	TNMG-431-DM	TNMG220404DM	1/2	7/8	3/16	13/64	.0157	XAB748
6036-1432	TNMG-432-DM	TNMG220408DM	1/2	7/8	3/16	13/64	.0315	XAB748
6036-1433*	TNMG-433-DM	TNMG220412DM	1/2	7/8	3/16	13/64	.0472	XAB748
6036-1434*	TNMG-434-DM	TNMG220416DM	1/2	7/8	3/16	13/64	.0630	XAB748

*Limited Supply

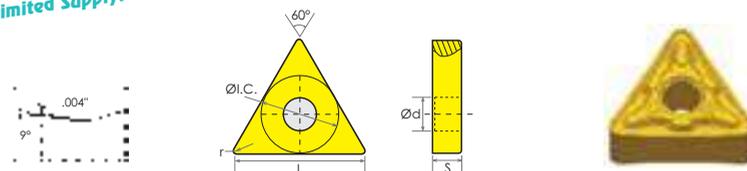
TNMG/DM TRIANGLE - NEGATIVE RAKE CARBIDE INSERTS

TNMG-DM

DM - For Steel Medium Machining

Limited Supply!

DM - Widely used chipbreaker is used for semi-finishing and finishing of steel and stainless steel.



10 PC PER PACKAGE

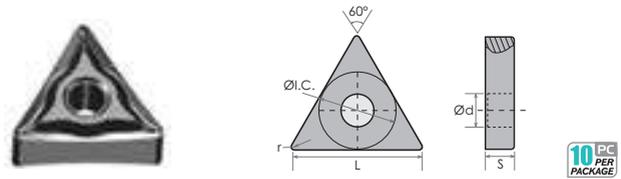
Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6002-0222	TNMG-222-DM	TNMG110308DM	1/4	7/16	1/8	0.09	.0157	XAB749
6002-0331	TNMG-331-DM	TNMG160404DM	3/8	5/8	3/16	0.15	.0157	XAB749
6002-0333	TNMG-333-DM	TNMG160412DM	3/8	5/8	3/16	0.15	.0472	XAB749
6002-0431	TNMG-431-DM	TNMG220404DM	1/2	7/8	3/16	13/64	.0157	XAB749
6002-0432	TNMG-432-DM	TNMG220408DM	1/2	7/8	3/16	13/64	.0315	XAB749
6002-0433	TNMG-433-DM	TNMG220412DM	1/2	7/8	3/16	13/64	.0472	XAB749
6002-0434	TNMG-434-DM	TNMG220416DM	1/2	7/8	3/16	13/64	.0630	XAB749

TNMG/EF - CARBIDE INSERTS

TNMG-EF

EF - For Stainless Steel, Highly Adhesive and Plastic Materials

EF Chip-Breaker specially designed rake angle and an inclined edge angle for machining stainless steel. The edges are sharp making the cutting light and smooth, getting a good control of the chips and obtaining a good surface quality, which makes it most suitable for ultra fine and fine machining of highly adhesive and plastic materials.



Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6036-5331	TNMG-331-EF	TNMG160404EF	3/8	5/8	3/16	0.15	.0157	XAF798
6036-5332	TNMG-332-EF	TNMG160408EF	3/8	5/8	3/16	0.15	.0315	XAF798
6036-5333*	TNMG-333-EF	TNMG160412EF	3/8	5/8	3/16	0.15	.0472	XAF798
6036-5432	TNMG-432-EF	TNMG220408EF	1/2	7/8	3/16	13/64	.0315	XAF798
6036-5433*	TNMG-433-EF	TNMG220412EF	1/2	7/8	3/16	13/64	.0472	XAF798

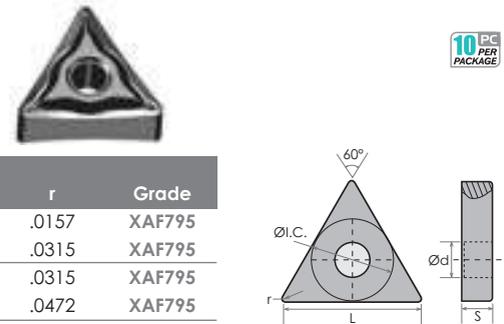
*Limited Supply

TNMG/EM TRIANGLE - NEGATIVE RAKE CARBIDE INSERTS

TNMG-EM

EM - Semi-Finishing Geometry, Stainless Steel Material

EM - Double-side chipbreaker with M-class tolerance serves to reduce cutting force and workpiece adhesion when machining stainless steel. Possesses higher feed and depth of cut capability than EF chipbreaker.



Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6050-0331*	TNMG-331-EM	TNMG160404EM	3/8	5/8	1/8	0.15	.0157	XAF795
6050-0332	TNMG-332-EM	TNMG160408EM	3/8	5/8	1/8	0.15	.0315	XAF795
6050-0432	TNMG-432-EM	TNMG220408EM	1/2	7/8	3/16	13/64	.0315	XAF795
6050-0433*	TNMG-433-EM	TNMG220412EM	1/2	7/8	3/16	13/64	.0472	XAF795

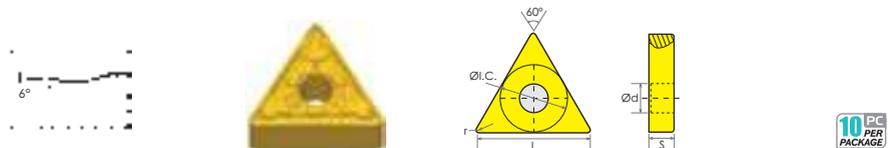
*Limited Supply

TNMG/PM TRIANGLE - NEGATIVE RAKE CARBIDE INSERTS

TNMG-PM

PM - Suitable for Mixed Production

PM - With stronger cutting edge, it is better for intermittent cutting than -DM, with wider cutting zone of steel materials



Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6002-1222	TNMG-222-PM	TNMG110308PM	1/4	7/16	1/8	0.09	.0157	XAB749
6002-1331*	TNMG-331-PM	TNMG160404PM	3/8	5/8	3/16	0.15	.0157	XAB749
6002-1332	TNMG-332-PM	TNMG160408PM	3/8	5/8	3/16	0.15	.0315	XAB749
6002-1333*	TNMG-333-PM	TNMG160412PM	3/8	5/8	3/16	0.15	.0472	XAB749
6002-1432*	TNMG-432-PM	TNMG220408PM	1/2	7/8	3/16	13/64	.0315	XAB749
6002-1433*	TNMG-433-PM	TNMG220412PM	1/2	7/8	3/16	13/64	.0472	XAB749
6002-1434*	TNMG-434-PM	TNMG220416PM	1/2	7/8	3/16	13/64	.0630	XAB749

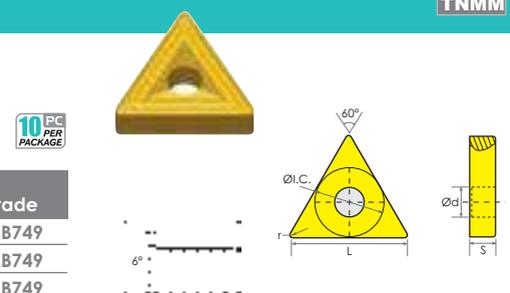
*Limited Supply

TNMM TRIANGLE - NEGATIVE RAKE CARBIDE INSERTS

TNMM

0° Relief Angle, Chipbreaker

Limited Supply!



Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6002-5332	TNMM-332	TNMM160408	3/8	5/8	1/8	0.15	.0315	XAB749
6002-5432	TNMM-432	TNMM220408	1/2	7/8	3/16	13/64	.0315	XAB749
6002-5433	TNMM-433	TNMM220412	1/2	7/8	3/16	13/64	.0472	XAB749

CARBIDE INSERTS

TPGB CARBIDE INSERTS 11° Positive Single Sided

TPGB

- TPGB for machining short chip materials without chipbreaker.
- With countersunk hole.
- Fits popular boring bar & turning tool holders.

10 PC PER PACKAGE



TiN COATED(C6)

Item#	ANSI Insert No.	I.C.	Thick (In)	Hole (In)
6025-0251	TPGB-21.51	1/4"	.094	.118
6025-0252*	TPGB-21.52	1/4"	.094	.118
6025-0321	TPGB-321	3/8"	.125	.125
6025-0322	TPGB-322	3/8"	.125	.125
6025-0431*	TPGB-431	1/2"	.188	.220
6025-0432	TPGB-432	1/2"	.188	.220

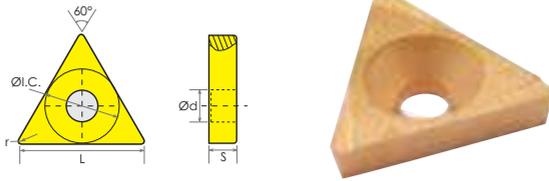
*Limited Supply

TPGC CARBIDE INSERTS, TRANGLE POSITIVE

TPGC

- Single sided with chipbreaker.
- 11° relief angle.
- Fully ground with countersink hole.
- Suitable for materials that create a short chip.

Limited Supply!



TiN (C5) COATED

10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	(Inch) T	R	Thru Hole
6025-0731	TPGC-321	TPGC160304	3/8	1/8	1/64	.125
6025-0732	TPGC-322	TPGC160308	3/8	1/8	1/32	.125

TPGH - POSITIVE RAKE CARBIDE INSERTS

TPGH

- Single sided with chipbreaker.
- 11° relief angle.
- Suitable for turning, facing and boring.

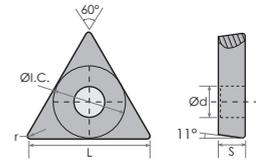
GRADE C-2 FOR CAST IRON AND GENERAL PURPOSE
GRADE C-6 FOR ALL STEEL AND GENERAL PURPOSE



10 PC PER PACKAGE

Insert No.	(Inch) S	r	Hole d	C-2 Item#	C-5 Item#	TiN-55 (C-6) Item#
TPGH-731	7/32	1/64	.098	6025-0010*	2003-0010	2003-0020
TPGH-21.51	1/4	1/64	.110	6025-0011	2003-0011	2003-0021
TPGH-32.51	5/32	1/64	.173	6025-0014	2003-0014	2003-0023
TPGH-321	3/8	1/64	.173	---	6025-1321	6025-2321
TPGH-322	3/8	1/32	.173	---	6025-1322	6025-2322

*Limited Supply



TPGN - POSITIVE RAKE CARBIDE INSERTS (TPG)

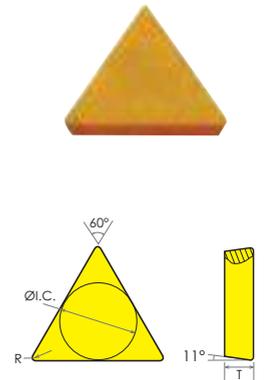
TPGN

- Single sided without chipbreaker.
- 11° relief angle.
- Suitable for difficult to cut materials.

GRADE C-2 FOR CAST IRON AND GENERAL PURPOSE
GRADE C-6 FOR ALL STEEL AND GENERAL PURPOSE

ANSI Insert No.	I.C.	(Inch) T	R	Uncoated C-2 Item#	Uncoated C-6 Item#	TiN Coated (C-6) Item#
TPG-21.51	1/4	.094	1/64	---	---	6020-1121
TPG-221	1/4	1/8	1/64	6020-2221	6020-0221	6020-1221
TPG-222	1/4	1/8	1/32	6020-2222	6020-0222	6020-1222
TPG-223	1/4	1/8	3/64	6020-2223	6020-0223	6020-1223
TPG-32.51	3/8	5/32	1/64	---	---	6020-1122
TPG-321	3/8	1/8	1/64	6020-2321	6020-0321	6020-1321
TPG-322	3/8	1/8	1/32	6020-2322	6020-0322	6020-1322
TPG-323	3/8	1/8	3/64	6020-2323	6020-0323	6020-1323
TPG-324	3/8	1/8	1/16	6020-2324	6020-0324	6020-1324
TPG-332	3/8	15/32	5/32	---	---	6004-9332
TPG-431	1/2	3/16	1/64	6020-2431	6020-0431*	6020-1431*
TPG-432	1/2	3/16	1/32	---	6020-0432*	6020-1432
TPG-433	1/2	3/16	3/64	---	6020-0433*	6020-1433*
TPG-434	1/2	3/16	1/16	6020-2434*	6020-0434*	6020-1434*

*Limited Supply



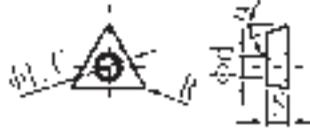
10 PC PER PACKAGE

TPGW CARBIDE INSERT 11° Positive Single Sided

TPGW

- 11° clearance angle.
- Positive insert shape.
- Screw on style.
- Fits many popular boring bar & turning tool holders.
- For machining short chip materials without a chipbreaker.

TiN (C6) coated



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	Thickness S	(Inch) Corner Radius R	Hole Size d	Grade
6025-2152*	TPGW-21.52	TPGW110208	0.250	.093	.0315	0.110	TiN(C6)
6025-0222*	TPGW-222	TPGW110308	0.250	.125	.0315	0.110	TiN(C6)
6025-3321	TPGW-321	TPGW160304	0.375"	.125	.0157	0.173	TiN(C6)
6025-3322*	TPGW-322	TPGW160308	0.375"	.125	.0315	0.173	TiN(C6)
6025-4432*	TPGW-432	TPGW220408	0.500"	.187	.0315	0.217	TiN(C6)

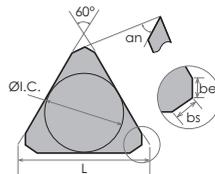
*Limited Supply

TPKN CARBIDE MILLING INSERTS

TPKN

- For 90° mills.
- Wedge held inserts.
- 3 Indexes.

11° Relief Angle



Limited Supply!



10 PC PER PACKAGE

Item#	ANSI Insert No.	I.C.	L	bs	be	an	S	Grade
6010-5003	TPKN-1603PDR	3/8"	5/8"	0.047"	0.039"	15°	1/8"	XB970R
6010-5010	TPKN-2204PDL	1/2"	7/8"	0.055"	0.028"	15°	3/16"	XB970R
6010-5011	TPKN-2204PDR	1/2"	7/8"	0.055"	0.028"	15°	3/16"	XB970R

TT/TPMM- POSITIVE RAKE CARBIDE INSERTS

TT/TPMM

- Single sided with chipbreaker.
- 11° relief angle.
- Suitable for turning, facing and boring.



10 PC PER PACKAGE

ANSI	ISO	I.C.	(Inch) S	R	d	C-2 Item#	C-5 Item#	TiN Coated(C-6) Item#
TPMM-321	TPMM160304	3/8	1/8	1/64	.150	6026-0321	6026-1321	6026-2321
TPMM-322	TPMM160308	3/8	1/8	1/32	.150	6026-0322	6026-1322	6026-2322
TPMM-431	TPMM220404	1/2	3/16	1/64	.203	6026-0431*	6026-1431*	6026-2431
TPMM-432	TPMM220408	1/2	3/16	1/32	.203	6026-0432*	6026-1432*	6026-2432

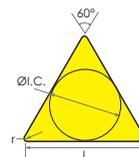
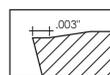
*Limited Supply

TPMR - POSITIVE RAKE CARBIDE INSERTS

TRMR

- Single sided with chipbreaker.
- 11° relief angle.
- Suitable for semi finish cuts where chip control is required.

Limited Supply!



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	r	Grade
6005-0221	TPMR-221	TPMR110304	1/4	7/16	1/8	.0157	XAB849
6005-0222	TPMR-222	TPMR110308	1/4	7/16	1/8	.0315	XAB849
6005-0321	TPMR-321	TPMR160304	3/8	5/8	1/8	.0157	XAB849
6005-0323	TPMR-323	TPMR160312	3/8	5/8	1/8	.0472	XAB849

CARBIDE INSERTS

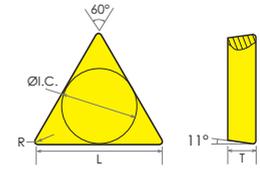
TPU CARBIDE INSERTS WITHOUT HOLE

TPU

C-6 for all steel and general purpose
TiN Coated for high heat & wear resistance on alloys, stainless steel & ductile iron



10 PC PER PACKAGE



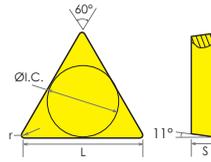
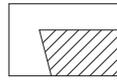
ANSI	Insert No.	ISO	I.C.	(Inch) T	R	TiN Coated(C-6) Item#
TPU-322		TPU160308	3/8	1/8	1/32	6023-1322
TPU-323		TPU160312	3/8	1/8	3/64	6023-1323*

*Limited Supply

TPUN - POSITIVE RAKE CARBIDE INSERTS WITHOUT HOLE

TPUN

Limited Supply!



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	r	Grade
6005-2321	TPUN-321	TPUN160304	3/8	5/8	1/8	.0157	XAC849
6005-2322*	TPUN-322	TPUN160308	3/8	5/8	1/8	.0315	XAC849
6005-2323*	TPUN-323	TPUN160312	3/8	5/8	1/8	.0472	XAC849
6005-2432	TPUN-432	TPUN220408	1/2	7/8	3/16	.0157	XAC849
6005-2433	TPUN-433	TPUN220412	1/2	7/8	3/16	.0315	XAC849
6005-2434*	TPUN-434	TPUN220416	1/2	7/8	3/16	.0472	XAC849

VBMT/EM 35° DIAMOND- POSITIVE RAKE CARBIDE INSERTS

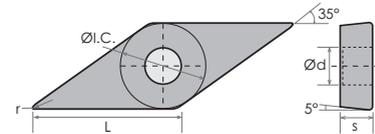
VBMT-EM

EM - Semi-Finishing Geometry. Stainless Steel Material

EM - Double-side chipbreaker with M-class tolerance serves to reduce cutting force and workpiece adhesion when machining stainless steel. Possesses higher feed and depth of cut capability than EF chipbreaker.



Limited Supply!



10 PC PER PACKAGE

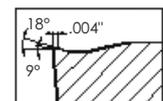
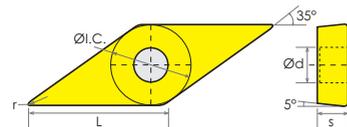
Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6059-0221	VBMT-0221-EM	VBMT110304EM	1/4	.017	1/8	0.11	.0157	XAF795
6059-0222	VBMT-0222-EM	VBMT110308EM	1/4	.017	1/8	0.11	.0315	XAF795

VBMT/HM 35° DIAMOND - POSITIVE RAKE CARBIDE INSERTS

VBMT-HM

HM - Medium Geometry. Periphery Ground Insert. Mixed Production

HM - With sharp wave cutting edge to reduce cutting force, it is the first choice for semi-finishing of internal holes and allows chips to flow smoothly.



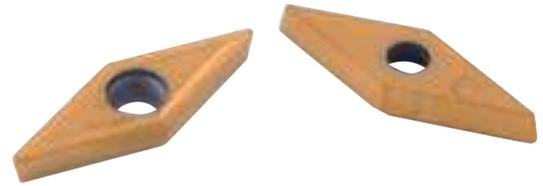
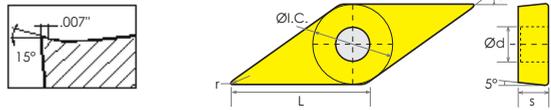
10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	(Inch) S	d	r	Grade
6005-2331	VBMT-331-HM	VBMT160404HM	3/8	3/16	.17	.0157	XAB749
6005-2332	VBMT-332-HM	VBMT160408HM	3/8	3/16	.17	.0315	XAB749

VCMT Tin 35° DIAMOND - POSITIVE RAKE CARBIDE INSERT

VCMT

- Tin coated, C-6 grade.



10 PC PER PACKAGE

Item#	ANSI Insert No.	I.C.	L	(Inch) S	d	r
6005-3403	VCMT21.51	0.250	0.41	0.10	0.106	.0157

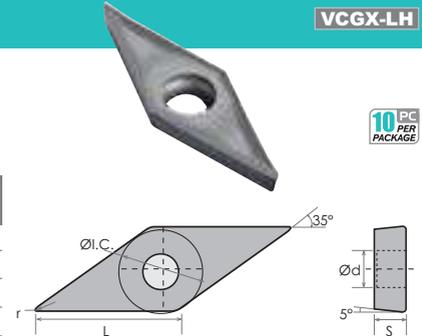
VCGX/LH CARBIDE INSERTS FOR ALUMINUM ALLOY

VCGX-LH

LH Chip-Breaker is more suitable for machining aluminum alloy with larger cutting depth and higher feed rate

Limited Supply!

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6058-0111	VCGX2[1.5]1-LH	VCGX110104-LH	1/4	.433	3/32	.110	.016	XC899
6058-0221	VCGX-221-LH	VCGX110204-LH	1/4	.433	1/8	.110	.016	XC899
6058-0222	VCGX-222-LH	VCGX110208-LH	1/4	.433	1/8	.110	.031	XC899
6058-0332	VCGX-332-LH	VCGX160408-LH	3/8	.650	3/16	.173	.031	XC899



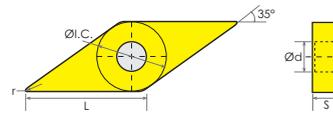
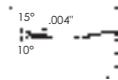
10 PC PER PACKAGE

VNMG/DF 35° DIAMOND - NEGATIVE RAKE CARBIDE INSERTS

VNMG-DF

DF - For Steel Finishing

Limited Supply!



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	S	d	r	Grade
6002-7331	VNMG-331-DF	VNMG160404DF	3/8	5/8	3/16	0.15"	.0157"	XAB849
6002-7332	VNMG-332-DF	VNMG160408DF	3/8	5/8	3/16	0.15"	.0315"	XAB849

VNMG/DM 35° BLACK-DIAMOND CARBIDE INSERTS

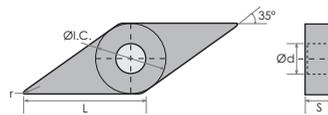
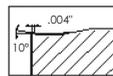
VNMG-DM

DM - For Steel Medium Machining

Limited Supply!

DM - Widely used chipbreaker is used for semi-finishing and finishing of steel and stainless steel.

TICNAI COATED



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	S	d	r	Grade
6038-1332	VNMG-332-DM	VNMG160408DM	3/8	5/8	3/16	0.15"	.0315"	XAB748
6038-1333	VNMG-333-DM	VNMG160412DM	3/8	5/8	3/16	0.15"	.0472"	XAB748

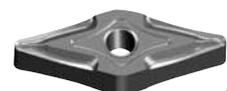
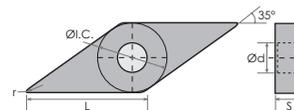
VNMG/EF 35° - CARBIDE INSERTS

VNMG-EF

EF - For Stainless Steel, Highly Adhesive and Plastic Materials

Limited Supply!

EF Chip - Breaker specially designed rake angle and an inclined edge angle for machining stainless steel. The edges are sharp making the cutting light and smooth, getting a good control of the chips and obtaining a good surface quality, which makes it most suitable for ultra fine and fine machining of highly adhesive and plastic materials.



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	S	d	r	Grade
6038-5332	VNMG-332-EF	VNMG160408EF	3/8	5/8	3/16	0.15"	.0315"	XAF798
6038-5333	VNMG-333-EF	VNMG160412EF	3/8	5/8	3/16	0.15"	.0472"	XAF798

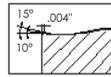
CARBIDE INSERTS

VNMG/EM 35° DIAMOND- NEGATIVE RAKE CARBIDE INSERTS

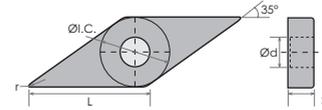
VNMG-EM

EM - Semi-Finishing Geometry. Stainless Steel Material

EM - Double-side chipbreaker with M-class tolerance serves to reduce cutting force and workpiece adhesion when machining stainless steel. Possesses higher feed and depth of cut capability than EF chipbreaker.



Limited Supply!



10 PC PER PACKAGE

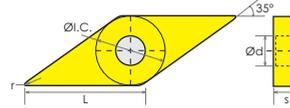
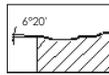
Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6051-0331	VNMG-331-EM	VNMG160404EM	3/8	5/8	3/16	0.15	.0157	XAF795
6051-0332	VNMG-332-EM	VNMG160408EM	3/8	5/8	3/16	0.15	.0315	XAF795

VNMG/PM 35° - CARBIDE INSERTS

VNMG-PM

PM - Suitable for Mixed Production

PM - With stronger cutting edge, it is better for intermittent cutting than -DM, with wider cutting zone of steel materials



10 PC PER PACKAGE

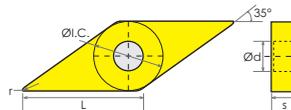
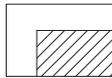
Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6002-9331	VNMG-331-PM	VNMG160404PM	3/8	5/8	3/16	0.15	.0157	XAB749
6002-9332	VNMG-332-PM	VNMG160408PM	3/8	5/8	3/16	0.15	.0315	XAB749
6002-9333	VNMG-333-PM	VNMG160412PM	3/8	5/8	3/16	0.15	.0472	XAB749

VNMS-TiN(C5) - CARBIDE INSERT

VNMS

- Double sided with chipbreaker
- 35° relief angle
- Used for turning and finishing on a wide range of materials.

Limited Supply!



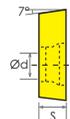
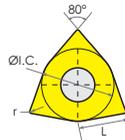
10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	S	d	r	Grade
6040-1332	VNMS-332	VNMS160408	3/8	5/8	3/16	0.15"	.0315"	TiN(C-5)

WCMT 80° TRIGON CARBIDE DRILLING INSERTS

WCMT

- Trigon 80° drilling insert.
- Positive rake.
- Chipbreaker.



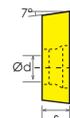
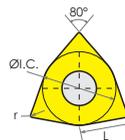
10 PC PER PACKAGE

Item#	ANSI Insert No.	I.C.	L	S	d	r	Grade
2002-0130	WCMT050308	5/16"	0.21"	1/8"	.126"	.0315"	TiN(C6)
2002-0126	WCMT06T304	3/8"	0.26"	5/32"	.173"	.0157"	TiN(C6)
2002-0128	WCMT06T308	3/8"	0.26"	5/32"	.173"	.0315"	TiN(C6)

WCMX 80° TRIGON CARBIDE DRILLING INSERTS

WCMX

- Trigon 80° drilling insert.
- Positive rake.
- Chipbreaker.



10 PC PER PACKAGE

Item#	ANSI Insert No.	I.C.	L	S	d	r	Grade
6015-0001*	WCMX030208-53	7/32"	0.15"	3/32"	7/64"	.0315"	XAF799
6015-0004*	WCMX040208R-53	1/4"	0.17"	3/32"	.122"	.0315"	XAF799
6015-0005	WCMX050308R-53	5/16"	0.21"	1/8"	1/8"	.0315"	XAF799
6015-0008	WCMX06T308R-53	3/8"	0.26"	5/32"	.146"	.0315"	XAF799

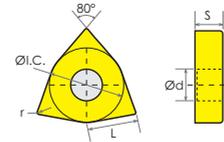
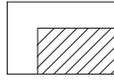
*Limited Supply

WNMA 80° TRIGON - NEGATIVE RAKE CARBIDE DRILLING INSERTS

WNMA

- Used for negative tool holders & boring bars.
- Trigon 80° drilling insert.
- No chipbreaker.
- 0° relief angle.

Limited Supply!



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	S	d	r	Grade
6003-1431	WNMA-431	WNMA080404	1/2"	0.343"	3/16"	13/64"	.0157"	XAC849
6003-1433	WNMA-433	WNMA080412	1/2"	0.343"	3/16"	13/64"	.0472"	XAC849

WNMG/DF 80° TRIGON BLACK DIAMOND COATED CARBIDE DRILLING INSERTS

WNMG-DF

DF - For Finishing Geometry. Steel Materials

DF - Double-side chipbreaker with M-class tolerance for finish machining carbon and alloy steels.

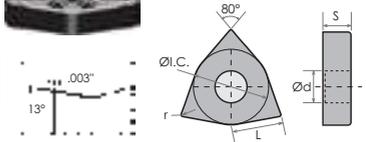
TiCNAI COATED

Limited Supply!



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6039-0333	WNMG-333-DF	WNMG060412DF	3/8	0.256	0.187	0.15	.0472	XAB848



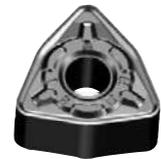
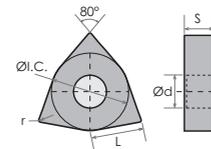
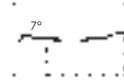
WNMG/DM 80° TRIGON BLACK DIAMOND COATED CARBIDE INSERTS

WNMG-DM

DM - For Steel Medium Machining

DM - Widely used chipbreaker is used for semi-finishing and finishing of steel and stainless steel.

TiCNAI COATED



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6039-1431	WNMG-431-DM	WNMG080404DM	1/2	0.343	3/16	13/64	.0157	XAB748
6039-1432	WNMG-432-DM	WNMG080408DM	1/2	0.343	3/16	13/64	.0315	XAB748

WNMG/DR 80° TRIGON BLACK DIAMOND COATED- CARBIDE INSERTS

WNMG-DR

DR - For Light Roughing of Steel

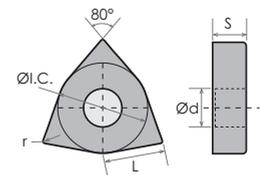
Limited Supply!

DR - Special chip-breaker with high toughness cutting edge can reduce cutting force



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6052-1332	WNMG-332-DR	WNMG060408DR	3/8	0.256	3/16	0.15	.0315	XAB748
6052-1432	WNMG-432-DR	WNMG080408DR	1/2	0.343	3/16	13/64	.0315	XAB748
6052-1433	WNMG-433-DR	WNMG080412DR	1/2	0.343	3/16	13/64	.0472	XAB748



WNMG/EF 80° TRIGON- CARBIDE INSERTS

WNMG-EF

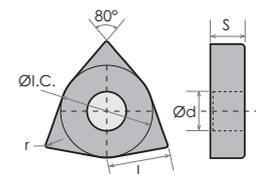
EF - For Stainless Steel, Highly Adhesive and Plastic Materials

EF Chip-Breaker specially designed rake angle and an inclined edge angle for machining stainless steel. The edges are sharp making the cutting light and smooth, getting a good control of the chips and obtaining a good surface quality, which makes it most suitable for ultra fine and fine machining of highly adhesive and plastic materials.



10 PC PER PACKAGE

Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6039-5431	WNMG-431-EF	WNMG080404EF	1/2	0.343	3/16	13/64	.0157	XAF798
6039-5432	WNMG-432-EF	WNMG080408EF	1/2	0.343	3/16	13/64	.0315	XAF798



CARBIDE INSERTS

WNMG/EM 80° TRIGON- NEGATIVE RAKE CARBIDE INSERTS

WNMG-EM

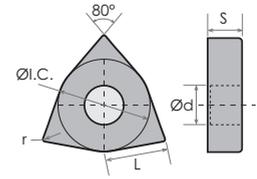
EM - Semi-Finishing Geometry. Stainless Steel Material

EM - Double-side chipbreaker with M-class tolerance serves to reduce cutting force and workpiece adhesion when machining stainless steel. Possesses higher feed and depth of cut capability than EF chipbreaker.

Limited Supply!



10 PC PER PACKAGE



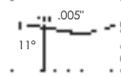
Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6052-0332	WNMG-332-EM	WNMG060408EM	3/8	0.256	0.187	0.15	.0315	XAF795
6052-0432	WNMG-432-EM	WNMG080408EM	1/2	0.343	3/16	13/64	.0315	XAF795
6052-0433	WNMG-433-EM	WNMG080412EM	1/2	0.343	3/16	13/64	.0472	XAF795

WNMG/PM 80° TRIGON - NEGATIVE RAKE CARBIDE INSERTS

WNMG-PM

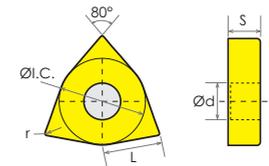
PM - Suitable for Mixed Production

PM - With stronger cutting edge, it is better for intermittent cutting than -DM, with wider cutting zone of steel materials



Limited Supply!

10 PC PER PACKAGE



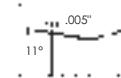
Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6003-0431	WNMG-431-PM	WNMG080404PM	1/2	3/16	13/64	.0157	XAL749	

WNMG 80° TRIGON - NEGATIVE RAKE CARBIDE INSERTS

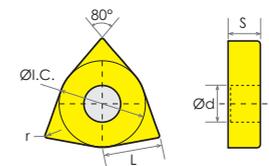
WNMG

0° Relief Angle

TiN (C-5) Coated



10 PC PER PACKAGE



Item#	ANSI Insert No.	ISO Insert No.	I.C.	L	(Inch) S	d	r	Grade
6052-2331	WNMG-331	WNMG060404	3/8	3/16	0.15	.0157	TiN(C5)	
6052-2332	WNMG-332	WNMG060408	3/8	3/16	0.15	.0315	TiN(C5)	
6052-2432*	WNMG-432	WNMG080408	1/2	3/16	13/64	.0315	TiN(C5)	
6052-2433*	WNMG-433	WNMG080412	1/2	3/16	13/64	.0472	TiN(C5)	

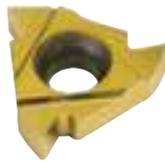
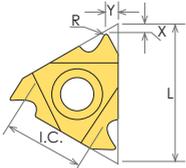
*Limited Supply

INTERNAL V PARTIAL PROFILE CARBIDE THREADING INSERTS

- 60° V partial profile threading insert.
- Right hand cut.

TiN COATED

RIGHT HAND



10 PC PER PACKAGE

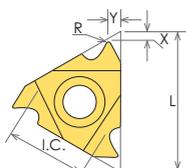
Item#	Insert	I.C.	Pitch Range mm	TPI	L (in)	R (in)	X (in)	Y (in)
6061-0156	06IRA60	.156"	0.5-1.25	48-20	.236	.002	.020	.024
6061-0187	08IRA60	.188"	0.5-1.5	48-16	.315	.002	.024	.028
6007-0008	11IRA60	1/4"	0.5-1.5	48-16	.435	.003	.031	.035
6007-0015	16IRAG60	3/8"	0.5-3.0	48-8	.630	.003	.047	.035
6007-0018	22IRN60	1/2"	3.5-5.0	5-7	.866	.010	.067	.098

EXTERNAL V PARTIAL PROFILE CARBIDE THREADING INSERTS

- 60° V partial profile threading insert.
- Right hand cut.

TiN COATED

RIGHT HAND



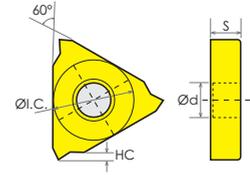
10 PC PER PACKAGE

Item#	Insert	I.C.	Pitch Range mm	TPI	L (in)	R (in)	X (in)	Y (in)
6007-0002	06ERA60	.156"	0.5-1.25	48-20	.236	.002	.020	.024
6007-0001	08ERA60	.197"	0.5-1.5	48-16	.315	.002	.024	.028
6007-0004	11ERA60	1/4"	0.5-1.5	48-16	.435	.003	.031	.035
6007-0012	16ERAG60	3/8"	0.5-3.0	48-8	.630	.003	.047	.035
6007-0020	22ERN60	1/2"	3.5-5.0	5-7	.866	.016	.067	.098

UN-60° INTERNAL THREADING & GROOVING CARBIDE INSERTS-Inch Thread

Item#	Insert No.	I.C.	Screw Pitch	S	d	Grade
6006-4008	RT16.01N-8UN	3/8"	8 TPI	5/32"	0.173"	XAF799
6006-4010	RT16.01N-10UN	3/8"	10TPI	5/32"	0.173"	XAF799
6006-4012	RT16.01N-12UN	3/8"	12 TPI	5/32"	0.173"	XAF799
6006-4014	RT16.01N-14UN	3/8"	14 TPI	5/32"	0.173"	XAF799
6006-4016	RT16.01N-16UN	3/8"	16 TPI	5/32"	0.173"	XAF799
6006-4018	RT16.01N-18UN	3/8"	18 TPI	5/32"	0.173"	XAF799
6006-4020	RT16.01N-20UN	3/8"	20 TPI	5/32"	0.173"	XAF799

RIGHT HAND



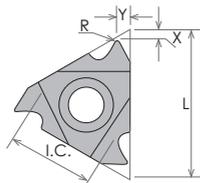
10 PC PER PACKAGE

UN-60° INTERNAL THREADING & GROOVING CARBIDE INSERTS -Inch Thread

- UN-60° full profile threading insert.
- Tolerance Class: 2A/2B
- TiAlN (TP04) coated .

TiAlN COATED

RIGHT HAND



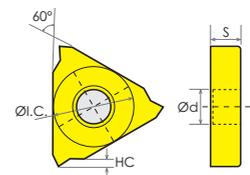
10 PC PER PACKAGE

Item#	Insert	I.C.	Screw Pitch TPI	L (in)	X (in)	Y (in)	Thick (in)
6006-4502	11NR-16UN	1/4	16	.433	.035	.043	.126
6006-4504	11NR-18UN	1/4	18	.433	.031	.039	.126
6006-4508	16NR-8UN	3/8	8	.630	.047	.079	.143
6006-4510	16NR-10UN	3/8	10	.630	.043	.059	.143
6006-4511	16NR-11UN	3/8	11	.630	.043	.059	.143
6006-4512	16NR-12UN	3/8	12	.630	.043	.055	.143
6006-4513	16NR-13UN	3/8	13	.630	.039	.051	.143
6006-4514	16NR-14UN	3/8	14	.630	.039	.047	.143
6006-4516	16NR-16UN	3/8	16	.630	.035	.043	.143
6006-4518	16NR-18UN	3/8	18	.630	.031	.039	.143
6006-4524	16NR-24UN	3/8	24	.630	.028	.031	.143
6006-4528	16NR-28UN	3/8	28	.630	.024	.024	.143

UN-60° EXTERNAL THREADING & GROOVING CARBIDE INSERTS-Inch Thread

Item#	Insert No.	I.C.	Screw Pitch	S	d	Grade
6006-4108	RT16.01N-8UN	3/8"	8 TPI	5/32"	0.173"	XAF799
6006-4110	RT16.01N-10UN	3/8"	10TPI	5/32"	0.173"	XAF799
6006-4112	RT16.01N-12UN	3/8"	12 TPI	5/32"	0.173"	XAF799
6006-4114	RT16.01N-14UN	3/8"	14 TPI	5/32"	0.173"	XAF799
6006-4116	RT16.01N-16UN	3/8"	16 TPI	5/32"	0.173"	XAF799
6006-4118	RT16.01N-18UN	3/8"	18 TPI	5/32"	0.173"	XAF799
6006-4120	RT16.01N-20UN	3/8"	20 TPI	5/32"	0.173"	XAF799

RIGHT HAND



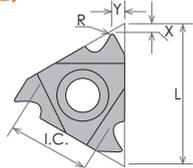
10 PC PER PACKAGE

UN-60° EXTERNAL THREADING & GROOVING CARBIDE INSERTS -Inch Thread

- UN-60° full profile threading insert.
- Tolerance Class: 2A/2B
- TiAlN (TP04) coated .

TiAlN COATED

RIGHT HAND



10 PC PER PACKAGE

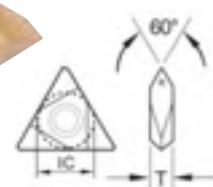
Item#	Insert	I.C.	Screw Pitch TPI	L (in)	X (in)	Y (in)	Thick (in)
6006-4609	16ER-9UN	3/8	9	.630	.047	.067	.143
6006-4610	16ER-10UN	3/8	10	.630	.043	.059	.143
6006-4611	16ER-11UN	3/8	11	.630	.043	.059	.143
6006-4612	16ER-12UN	3/8	12	.630	.043	.055	.143
6006-4613	16ER-13UN	3/8	13	.630	.043	.051	.143
6006-4614	16ER-14UN	3/8	14	.630	.039	.047	.143
6006-4618	16ER-18UN	3/8	18	.630	.031	.039	.143
6006-4620	16ER-20UN	3/8	20	.630	.031	.035	.143
6006-4624	16ER-24UN	3/8	24	.630	.028	.031	.143
6006-4628	16ER-28UN	3/8	28	.630	.024	.028	.143
6006-4632	16ER-32UN	3/8	32	.630	.024	.024	.143

TPMC THREADING INSERTS 10-Degree Rake, Precision Ground

- 60° "V"-threading.
- 10° Rake angle.
- Double countersink thru hole.
- TiN coated.

10 PC PER PACKAGE

Item#	ANSI Insert No.	I.C.	Pitch	Radius R	Thread Degree	Groove Width
6043-1375	TPMC-32NV	3/8	8 TPI Max.	.003~.005	60	.125"
6043-1500	TPMC-43NV	1/2	6 TPI Max.	.005~.008	60	.187"
6043-1625*	TPMC-54NV	5/8	4 TPI Max.	.005~.008	60	.250"



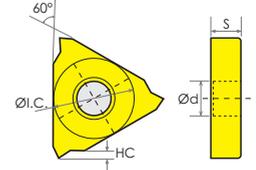
*Limited Supply

THREADING INSERTS

INTERNAL THREADING & GROOVING CARBIDE INSERTS - Metric Thread

Item#	ANSI Insert No.	I.C.	Screw Pitch	S	d	Grade
6006-1006	RT16.01N-1.25GM	3/8"	1.25	5/32"	0.173"	XAF799
6006-1007	RT16.01N-1.50GM	3/8"	1.50	5/32"	0.173"	XAF799
6006-1008	RT16.01N-1.75GM	3/8"	1.75	5/32"	0.173"	XAF799
6006-1009	RT16.01N-2.00GM	3/8"	2.00	5/32"	0.173"	XAF799
6006-1010	RT16.01N-2.50GM	3/8"	2.50	5/32"	0.173"	XAF799
6006-1011	RT16.01N-3.00GM	3/8"	3.00	5/32"	0.173"	XAF799

RIGHT HAND

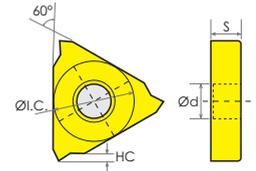


10 PC PER PACKAGE

EXTERNAL THREADING & GROOVING CARBIDE INSERTS - Metric Thread

Item#	ANSI Insert No.	I.C.	Screw Pitch	S	d	Grade
6006-3006	RT16.0W-1.25GM	3/8"	1.25	5/32"	0.173"	XAF799
6006-3007	RT16.0W-1.50GM	3/8"	1.50	5/32"	0.173"	XAF799
6006-3008	RT16.0W-1.75GM	3/8"	1.75	5/32"	0.173"	XAF799
6006-3009	RT16.0W-2.00GM	3/8"	2.00	5/32"	0.173"	XAF799
6006-3010	RT16.0W-2.50GM	3/8"	2.50	5/32"	0.173"	XAF799
6006-3011	RT16.0W-3.00GM	3/8"	3.00	5/32"	0.173"	XAF799

RIGHT HAND

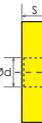
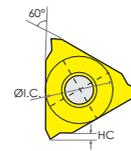


10 PC PER PACKAGE

INTERNAL (NPT) THREADING CARBIDE INSERTS - Pipe Thread

Item#	ANSI Insert No.	I.C.	Screw Pitch	S	d	Grade
6006-6008	RT16.001N-8NPT	.375"	8 TPI	.156"	0.173"	TiN(C6)
6006-6011	RT16.001N-11.5NPT	.375"	11.5 TPI	.156"	0.173"	XAF799
6006-6014	RT16.001N-14NPT	.375"	14 TPI	.156"	0.173"	XAF799
6006-6018	RT16.001N-18NPT	.375"	18 TPI	.156"	0.173"	XAF799
6006-6027	RT16.001N-27NPT	.375"	27 TPI	.156"	0.173"	XAF799

RIGHT HAND

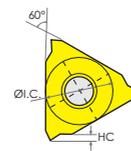


10 PC PER PACKAGE

EXTERNAL (NPT) THREAD CARBIDE INSERTS - Pipe Thread

Item#	ANSI Insert No.	I.C.	Screw Pitch	S	d	Grade
6006-6108	RT16.001W-8NPT	.375"	8 TPI	.156"	0.173"	TiN(C6)
6006-6111	RT16.001W-11.5NPT	.375"	11.5 TPI	.156"	0.173"	XAF799
6006-6114	RT16.001W-14NPT	.375"	14 TPI	.156"	0.173"	XAF799
6006-6118	RT16.001W-18NPT	.375"	18 TPI	.156"	0.173"	XAF799
6006-6127	RT16.001W-27NPT	.375"	27 TPI	.156"	0.173"	XAF799

RIGHT HAND



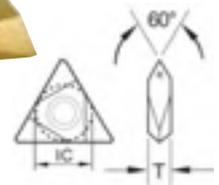
10 PC PER PACKAGE

TNMA THREADING CARBIDE INSERTS 0-Degree Rake, Precision Ground

TNMA

- 60° "V"-threading.
- 0° Rake angle.
- Cylindrical thru hole.

Item#	ANSI Insert No.	I.C.	Pitch	Radius R	Thread Degree	Thick T	Hole d	Grade C6
6043-0375	TNMA-32NV	3/8	8 TPI Max.	.003~.005	60	.125"	.150"	TiN
6043-0500	TNMA-43NV	1/2	6 TPI Max.	.005~.008	60	.187"	.202"	TiN
6043-0005	TNMA-43NV	1/2	6 TPI Max.	.005~.008	60	.187"	.202"	Uncoated



10 PC PER PACKAGE

TNMC GROOVING CARBIDE INSERTS

TNMC

- Right hand on two sides.
- Neutral rake angle.
- Double countersink thru hole.
- TiN coated.

TiN Coated



*Limited Supply

Item#	ANSI Insert No.	Pitch	I.C. (In)	Pitch	Groove Width (In)	Groove Depth (In)
6043-0632	TNMC-32NGR031	8 TPI Max.	0.375	8 TPI Max.	.031	.075
6043-0633	TNMC-32NGR062	8 TPI Max.	0.375	8 TPI Max.	.062	.150
6043-0634	TNMC-32NGR094	8 TPI Max.	0.375	8 TPI Max.	.094	.150
6043-0635	TNMC-32NGR125	8 TPI Max.	0.375	8 TPI Max.	.125	.150
6043-0643	TNMC-43NGR062	6 TPI Max.	0.500	6 TPI Max.	.062	.125
6043-0644	TNMC-43NGR094	6 TPI Max.	0.500	6 TPI Max.	.094	.150
6043-0645	TNMC-43NGR125	6 TPI Max.	0.500	6 TPI Max.	.125	.210
6043-0646*	TNMC-43NGR156	6 TPI Max.	0.500	6 TPI Max.	.156	.210
6043-0647*	TNMC-43NGR187	6 TPI Max.	0.500	6 TPI Max.	.187	.210
6043-0654*	TNMC-54NGR250	4 TPI Max.	0.625	4 TPI Max.	.250	.210

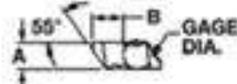
Carbide grades and insert classification shown on pages 167-170

NOTCH THREADING & GROOVING CARBIDE INSERTS

- Completely interchangeable with the *Kennametal TopNotch and the Teledyne Firth Notch systems.
- 60° Negative rake, natural.
- NT-600 parting profile general purpose threading inserts.
- NG-Grooving & Turning inserts.
- Grade: C5/TIC-65 coated, which is same as KENNAMETAL KC810, KC850, KC950, KC730
- Trademark of Kennametal.

SPECIFICATIONS

Insert #	External TPI	Internal TPI
T/NT-2R/2L	8-36	7-20
T/NT-3R/3L	6-20	5-12
T/NT-4R/4L	4-20	4-12



THREADING INSERTS Grade C5/TIC 65

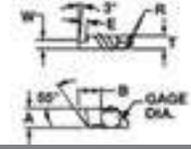
Item#	Insert #	R	B	(Inch) T	E	A	Gage Dia.
6062-5001	T/NT-2R	.003	.2661	.150	.075	.219	.1875
6062-5002	T/NT-2L	.005	.2661	.150	.075	.219	.1875
6062-5003	T/NT-3R	.005	.3999	.195	.098	.344	.3750
6062-5004	T/NT-3L	.008	.3999	.195	.098	.344	.3750
6062-5005	T/NT-4R	.005	.6293	.255	.128	.453	.3750
6062-5006	T/NT-4L	.008	.6293	.255	.128	.453	.3750

CLAMP

Item #	Style
2100-0011	TNSB-2B
2100-0010	TNSB-3B

GROOVING INSERTS Grade C5/TIC 65

R=Right Hand
L=Left Hand



Item#	Insert #	R	Groove Width		(Inch) T	Depth of Cut E	A	Gage Dia.
			W	B				
6062-2030	T/NG-2031R	.002	.031	.2700	.150	.050	.219	.1875
6062-2031	T/NG-2031L	.005	.031	.2700	.150	.050	.219	.1875
6062-2046	T/NG-2047R	.002	.047	.2700	.150	.050	.219	.1875
6062-2047	T/NG-2047L	.005	.047	.2700	.150	.050	.219	.1875
6062-2061	T/NG-2062R	.005	.062	.2700	.150	.050	.219	.1875
6062-2062	T/NG-2062L	.010	.062	.2700	.150	.050	.219	.1875
6062-2093	T/NG-2094R	.005	.094	.2700	.150	.050	.219	.1875
6062-2094	T/NG-2094L	.010	.094	.2700	.150	.050	.219	.1875
6062-2124	T/NG-2125R	.005	.125	.2700	.150	.050	.219	.1875
6062-2125	T/NG-2125L	.010	.125	.2700	.150	.050	.219	.1875
6062-3046	T/NG-3047R	.005	.047	.4050	.195	.075	.344	.3750
6062-3047	T/NG-3047L	.010	.047	.4050	.195	.075	.344	.3750
6062-3061	T/NG-3062R	.005	.062	.4050	.195	.075	.344	.3750
6062-3062	T/NG-3062L	.010	.062	.4050	.195	.075	.344	.3750
6062-3077	T/NG-3078R	.005	.078	.4050	.195	.075	.344	.3750
6062-3078	T/NG-3078L	.010	.078	.4050	.195	.075	.344	.3750
6062-3087	T/NG-3088R	.005	.088	.4050	.195	.075	.344	.3750
6062-3088	T/NG-3088L	.010	.088	.4050	.195	.075	.344	.3750
6062-3093	T/NG-3094R	.005	.094	.4050	.195	.075	.344	.3750
6062-3094	T/NG-3094L	.010	.094	.4050	.195	.075	.344	.3750
6062-3124	T/NG-3125R	.005	.125	.4050	.195	.075	.344	.3750
6062-3125	T/NG-3125L	.010	.125	.4050	.195	.075	.344	.3750
6062-3155	T/NG-3156R	.005	.156	.4050	.195	.075	.344	.3750
6062-3156	T/NG-3156L	.010	.156	.4050	.195	.075	.344	.3750
6062-3188	T/NG-3189R	.005	.189	.4050	.195	.075	.344	.3750
6062-3189	T/NG-3189L	.010	.189	.4050	.195	.075	.344	.3750
6062-4124	T/NG-4125R	.005	.125	.6360	.255	.250	.453	.3750
6062-4125	T/NG-4125L	.010	.125	.6360	.255	.250	.453	.3750
6062-4188	T/NG-4189R	.020	.189	.6360	.255	.250	.453	.3750
6062-4189	T/NG-4189L	.025	.189	.6360	.255	.250	.453	.3750
6062-4249	T/NG-4250R	0.20	.250	.6360	.255	.250	.453	.3750
6062-4250	T/NG-4250L	.025	.250	.6360	.255	.250	.453	.3750

TOP NOTCH STYLE INTERNAL THREADING & GROOVING TOOLHOLDERS

- Right hand.
- Excellent all-purpose system for threading and grooving.
- Very strong insert design and wide insert selection and range.
- Clamping system draws the insert consistently back into the pocket for superior repeatability.
- Fully interchangeable with other similar "notch" type tools and inserts.
- Insert not included.

Right Hand Holder Use Left Hand Inserts

Item#	Holder #	B	C	(Inch)		CLAMP	Screw	Gage Insert Size
				D	F			
2301-3010	S10S-TNER2	1.000	10	0.625	.500	TNSN02B	M4X12	2
2301-3016	S16T-TNER3	1.375	12	1.000	.688	TNSN-3B	M5X16	3
2301-3020	S20U-TNER3	1.750	14	1.250	.875	TNSN-3B	M5X18	3
2301-3024	S24U-TNER3	2.000	14	1.500	1.000	TNSN-3B	M5X18	3

Insert Not Included

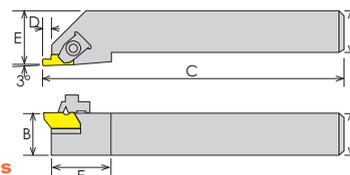


TOP NOTCH STYLE EXTERNAL THREADING & GROOVING TOOLHOLDERS

- Right hand.
- Excellent all-purpose system for threading and grooving.
- Very strong insert design and wide insert selection and range.
- Clamping system draws the insert consistently back into the pocket for superior repeatability.
- Fully interchangeable with other similar "notch" type tools and inserts.
- Fit notch carbide inserts above.

Right Hand Holder Use Right Hand Inserts

Item#	Holder #	A	B	C	(Inch)		CLAMP	Screw	Gage Insert Size
					D	F			
2301-3108	TNSR08-2V	.50	.500	3.5	.138	.75	TNSB-2B	M4x14	2
2301-3112	TNSR12-2B	.75	.750	4.5	.138	1.00	TNSB-2B	M4x14	2
2301-3113	TNSR12-3B	.75	.750	4.5	.210	1.00	TNSB-3B	M5x18	3
2301-3116	TNSR16-3D	1	1.000	6.0	.210	1.25	TNSB-3B	M5x18	3
2301-3117	TNSR16-4D	1	1.000	6.0	.294	1.38	TNSB-3B	M5x18	4



Insert Not Included

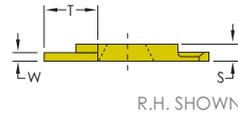
CUT-OFF GROOVING INSERTS & TOOL HOLDERS

MINI-SYSTEM STANDARD CARBIDE GROOVING & CUT-OFF INSERTS

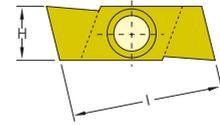
- Grade C6-PV-Coated grade recommended for machining steels, cutting off and grooving at higher speeds.
- Tolerances: Width: +.0009"/-.0000"
- Fits NIKCOLE style mini groove RH tool holders.



GRADE C6-PV



R.H. SHOWN



Item#	Insert #	Hand	Depth of Cut	Width of Cut
6061-0300	GIE-7-SG-05	R	.100" (2.54mm)	.019" (0.5mm)
6061-0301	GIE-7-SG-07	R	.100" (2.54mm)	.027" (0.7mm)
6061-0302	GIE-7-SG-08	R	.100" (2.54mm)	.031" (0.8mm)
6061-0303	GIE-7-SG-09	R	.100" (2.54mm)	.035" (0.9mm)
6061-0304	GIE-7-SG-1.1	R	.235" (6.0mm)	.043" (1.1mm)
6061-0305	GIE-7-SG-1.3	R	.235" (6.0mm)	.051" (1.3mm)
6061-0306	GIE-7-SG-1.6	R	.235" (6.0mm)	.063" (1.6mm)
6061-0307	GIE-7-SG-1.85	R	.235" (6.0mm)	.073" (1.85mm)

Item#	Insert #	Hand	Depth of Cut	Width of Cut
6061-0311	GIE-7-SG-07	L	.100" (2.54mm)	.027" (0.7mm)
6061-0312	GIE-7-SG-08	L	.100" (2.54mm)	.031" (0.8mm)
6061-0313	GIE-7-SG-09	L	.100" (2.54mm)	.035" (0.9mm)
6061-0314	GIE-7-SG-1.1	L	.235" (6.0mm)	.043" (1.1mm)
6061-0315	GIE-7-SG-1.3	L	.235" (6.0mm)	.051" (1.3mm)
6061-0316	GIE-7-SG-1.6	L	.235" (6.0mm)	.063" (1.6mm)
6061-0317	GIE-7-SG-1.85	L	.235" (6.0mm)	.073" (1.85mm)

MINI-SYSTEM EXTERNAL GROOVING & CUT-OFF HOLDERS

INSERTS NOT INCLUDED

- Right hand shank external holder.
- Insert not included.
- Set Includes: 1pc- External Holder, 1pc-T10 Wrench, 1pc-Aluminum Case.
- Accepts NIKCOLE style inserts.
- For use with .019 to .125" thin inserts.
- Ideal for external grooving, threading, cut-off, turning & copying under .125" width.

RIGHT HAND HOLDER ONLY ACCEPT RIGHT HAND INSERTS



2306-0375 Shown



2306-0500 Shown



2306-0625 Shown

Item#	Toolholder Designation	Shank Dia (In)	OAL (In)	Use Insert	Screw	Tox Wrench
2306-0375	THE-7-3/8-R	3/8	4.5	GIE-7-SG-	M3x8mm	T10
2306-0500	THE-7-1/2-R	1/2	4.5	GIE-7-SG-	M3x8mm	T10
2306-0625	THE-75/8-R	5/8	5.0	GIE-7-SG-	M3x8mm	T10

GTN-CARBIDE INSERTS

- Self locking inserts.
- Interchangeable with ISCAR & other popular brands.

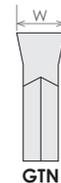
Insert Style	Insert Size (W) (In)	C-2 Item#	C-6 Item#	TiN Coated(C-6) Item#
GTN-2	.087	3900-5802	3900-5309	6024-2002
GTN-2.4	.094	6024-0002*	-----	-----
GTN-3	.120	-----	6024-1003	6024-2003
GTN-4	.160	6024-0004	6024-1004	6024-2004
GTN-4.8	.187	6024-0008*	6024-1008*	6024-2008*
GTN-5	.200	6024-0005	6024-1005	6024-2005
GTR-4.8	.187	6024-1014*	6024-1015*	-----
GTL-4.8	.187	6024-1024*	-----	6024-2034*

*Limited Supply

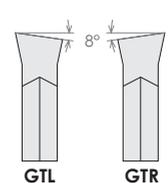
GRADE
C-2 FOR CAST IRON AND GENERAL PURPOSE
C-6 FOR ALL STEEL AND GENERAL PURPOSE
TiN (C-6) FOR INCREASED PRODUCTIVITY



10 PC PER PACKAGE



GTN



GTL

GTR

CUT-OFF & GROOVING INSERTS

DGN

- Used for applications in parting and grooving.
- Fits ISCAR Heliface, Do-Grip and Groove Turn holders.
- Double ended, two cutting edges.

Limited Supply!

Item#	ANSI Insert No.	(mm) Cutting Width	OAL	r	Grade
6024-5001	DGN2202J	2.2	19.8	0.2	BPG20B-PVD
6024-5004	DGN3102C	3.1	20.1	0.2	BPS253-CVD
6024-5014	GRIP4004Y	4.0	19.0	0.4	BPS253-CVD

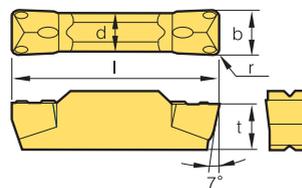
10 PC PER PACKAGE



MGMN-G GROOVING CARBIDE INSERTS

MGMN-G

- Specially designed chip breaker allows narrower chips to promote better chip flow.
- Specifically designed for grooving applications.



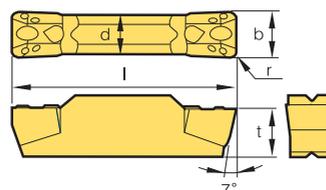
10 PC PER PACKAGE

Item#	ANSI Insert No.	Cutting Width b	OAL L	(Inch) d	Cutting Edge Height t	r	Grade
6024-3021	MGMN-150-G	.059	.138	.047	.138	.006	BPS253-CVD
6024-3022	MGMN-200-G	.079	.138	.063	.138	1/128	BPS253-CVD
6024-3051	MGMN-200-G	.079	.138	.063	.138	1/128	BPG20B-PVD

MGMN-M GROOVING CARBIDE INSERTS

MGMN-M

- Specially designed chip breaker allows as moother chip flow versus conventional flattop geometries through the use of a central chip breaker.
- Specially placed convex dots assists twith chip control in external machining, for a smoother chip flow.
- Chip breaker designed for turning , grooving & parting applications.



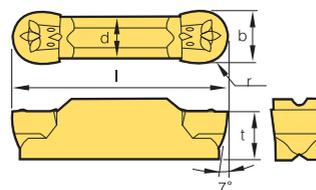
10 PC PER PACKAGE

Item#	ANSI Insert No.	Cutting Width	OAL L	(Inch) d	Cutting Edge Height t	r	Grade
6024-3002	MGMN-250-M	.098	.152	.079	.152	1/128	BPS253-CVD
6024-3003	MGMN-300-M	.118	.189	.093	.189	1/64	BPS253-CVD
6024-3004	MGMN-400-M	.157	.189	.130	.189	1/64	BPS253-CVD
6024-3052	MGMN-250-M	.098	.152	.079	.152	1/128	BPG20B-PVD
6024-3053	MGMN-300-M	.118	.189	.093	.189	1/64	BPG20B-PVD

MRMN-M GROOVING CARBIDE INSERTS

MRMN-M

- Full radius geometry for applications that require profiling
- Available for relief machining



10 PC PER PACKAGE

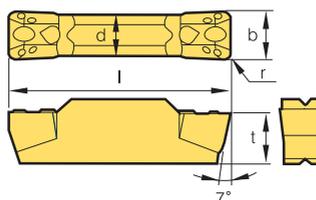
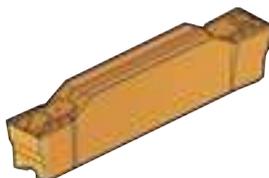
Item#	ANSI Insert No.	Cutting Width b	OAL L	(Inch) d	Cutting Edge Height t	r	PVD Grade
6024-3031	MRMN-200-M	.079	.630	.059	.079	3/64	BPS253
6024-3032	MRMN-300-M	.118	.827	.093	.118	1/16	BPS253
6024-3033	MRMN-400-M	.157	.827	.130	.157	5/64	BPS253
6024-3034	MRMN-500-M	.197	1.024	.161	.197	3/32	BPS253
6024-3035	MRMN-600-M	.236	1.024	.197	.236	1/8	BPS253

N123 GROOVING CARBIDE INSERTS

N123E2

- For internal & external grooving.
- For use with Sandvik style holders with V or Rail shape clamp.
- Two cutting edges.

Limited Supply!



10 PC PER PACKAGE

Item#	ANSI Insert No.	(mm) Cutting Width	OAL L	Cutting Edge Height t	r	Grade
6024-4001	N123E2-0200-0004-GF	2	20.05	4.3	0.4	BPS253-CVD
6024-4002	N123E2-0260-0008-GF	2.6	20.70	4.5	0.8	BPS253-CVD
6024-4003	N123G2-0318-0008-GF	3.18	20.70	4.5	0.8	BPS253-CVD

1-2-3 Blocks.....73-74, 216
 2-3-4 Blocks.....74
 2-4-6 Blocks.....74
 2-Jaw Chucks.....295
 3-Jaw Chucks.....285-287,
 290, 292-293, 295
 4-Jaw Chucks.....287-288, 294
 6-Jaw Chucks.....286, 290, 292
 40 Position Quick Change System...304

5C Tooling & Fixtures

Collets.....279-280
 Collet Bar Tool Holder.....299
 Collet Blocks.....237
 Collet Chucks.....234-236,
 279, 291
 Collet Rack.....279
 Emergency Collets.....280
 Fixtures.....276
 Indexer.....278
 Lathe Chucks & Mounts.....
 287-288, 290
 Spin Jig.....278
 Stops.....279
 Wrench.....279

A

A-Mount Back Plates.....294
 Acme Thread Gages.....31

Adapters and Arbors

Boring Head.....279-280
 BT.....225
 Circular Saw.....208
 Drill Chuck.....206, 222, 225
 End Mill.....126, 206, 208, 210,
 212, 213, 225, 226
 ER Holders.....207
 Expanding.....232, 282
 Grinding Wheel.....321-322
 Lathe Chuck.....289-292
 Milling Machine.....208
 Morse Taper.....208-211
 NMTB.....213-214
 R8.....207-208
 Revolving Tailstock.....306
 Slotting Saw.....208
 Stub.....208
 V-Flange.....221-223

Adjustable Blade Reamers...95
 Adjustable Dresser.....319
 Adjustable Link.....343
 Adjustable Parallels.....77
 Adjustable Round Split Dies..98
 Adjustable Tap & Reamer Wrenches..
 102
 Adjustable Tailstocks...269-270
 Adjuster, Magnetic Chuck Current...
 318

Air Accessories & Tools

Angle Grinders.....339-340
 Blow Guns & Kits.....338
 Connectors.....338, 341
 Collets.....340
 Drills.....340
 Filters & Regulators.....342
 Fittings.....341
 Grinders.....338-339

Guns.....338
 Impact Wrenches.....340
 Manifolds.....341
 Mufflers.....341
 Ratchet.....340
 Sander.....338
 Valves.....341
 Wrench.....340

Angle Blocks.....77, 81
 Angle Dressers.....316-317
 Angle End Mill Grinding Fixture...276
 Angle Gages.....29, 65
 Angle Grinders.....340-341
 Angle Plates.....77, 81-83, 268
 Angle Vises.....259, 265, 343
 Angle Vises, Welder's.....343
 Angle Lock Type Vises.....263
 Annular Cutters.....90
 Anvil Attachment Kits.....16
 Aprons.....342
 Arbor Presses.....354-356

Arbors

Drill Chuck.....168, 171,
 174, 181, 185, 198-199
 Expanding.....236
 Milling Machine.....170
 Revolving Tailstock (MT to JT)...242
 Slotting Saw.....116

Axial Support Bracket.....58

B

Backplates.....289-292, 306
 Ball Attachments, Micrometers...16
 Ball Nose End Mills.....114
 Ball Pein Hammers.....349
 Ball Plungers.....251
 Bars, Sine.....74
 Bases, Magnetic.....39-45
 Batteries.....10
 Bench Block.....345
 Bench Centers.....312
 Bench Grinders.....353
 Benders.....354
 Bevel Squares.....64
 Blade Micrometers.....23
 Blades, Cut-Off & Grooving...
 138-139, 141, 304
 Blind Hole Spotter Set.....348

Blocks

1-2-3, 2-3-4, 2-4-6.....27, 73-74
 Angle.....81
 Bench.....345
 Collet.....237
 Gages & Accessories...71-72
 Super Vee Block.....79
 Space.....74
 Test.....84
 V-Blocks.....79-80

Blow Guns.....336
 Bore Gages.....34
 Bore Gage Setting Master...34
 Boring Bars, Cobalt & Carbide
 Tipped.....121
 Boring Bars, Indexable...145-152
 Boring Bars, Double End...121

Boring Heads & Sets.....
 206, 244-248
 Boring Rings.....296
 Boring Shanks...202,245-246,248
 Boroscope, Video.....85
 Box & Pan Brake.....353
 Brake Dresser.....318
 Brass Hammers.....349
 Brazed Tool Bits & Sets.....119
 Broaches.....117-118
 Brown & Sharpe Collets.....212
 BT Tooling.....225-226, 234, 239
 Bull Nose Live Centers.....310
 Burrs, Carbide.....109

Bushings

Keyway.....118
 Tool Holder Sets.....281

C

Caliper Accessories.....10

Calipers

Batteries.....10
 Bluetooth.....4
 Caliper Cases.....10
 Dial.....7-9, 13
 Internal Dial Caliper Gage...48
 Depth Measuring Base...10
 Digital Electronic...1-6, 13-14
 Inside.....33
 Long Jaw.....5-6, 12
 Long Range.....4-6, 9, 12
 Outside.....33
 Plastic.....11
 Sets.....13-14
 Shock-Proof.....8
 Spring.....33
 Upper Jaws.....6
 Vernier.....11-13
 Waterproof.....3, 4, 6, 14
 Water Resistant.....2-4, 6

Cap Screw Counterbores...93
 Carbide Burrs.....109
 Carbide Drills.....88
 Carbide End Mills.....113

Carbide Inserts

A60.....195
 AG60.....195
 ANGX.....171
 APKT.....171
 CCGX.....171
 CCMT.....172
 CNMA.....172
 CNMG.....173-174
 CNMM.....175
 CPMT.....175
 Cut-Off.....136, 139, 199
 DCGX.....175
 DCMT.....175-176
 DNMA.....176
 DNMG.....176-178
 DPMT.....178
 Grooving...131, 134, 197-200
 GTN.....139, 199
 JCL.....143
 JCQ.....143
 KNUX.....178

Cases

Caliper.....10
 Gage Block.....71
 Micrometer.....16
 Pin Gage.....36

CAT ER Collet Chucks.....
 223, 234-236
 CAT End Mill Holders...221-222
 CAT Shell End Mill Holders...222
 CAT V-Flange Holders...221-222
 CBN Wheels.....320
 Center & Edge Finders...203-204
 Center Drills.....91
 Center Finder, Round Bar...63
 Center Keys.....243

MGMN.....138
 MRMN.....138, 200
 NOTCH.....135
 ONHU OCTAGON.....129
 RCKT.....178
 RCMT.....179
 RDKW.....179
 RNMG.....179
 SCMT.....179-180
 SD.....180
 SEAN.....180
 SEET.....180-181
 SEHT.....181
 SEKN.....181
 SNKN.....181
 SNMA.....181
 SNMG.....181-183
 SPG.....183
 SPKN.....184
 SPMR.....184
 SPMT.....184
 SPU.....184
 TCGX.....184
 TCMT.....185
 TDEX.....185
 TKEH.....136
 Threading.....
 131-132, 135, 195-198
 TNMA.....134, 186
 TNMC.....134, 186
 TNMG.....186-188
 TNMM.....188
 TPGB.....189
 TPGC.....189
 TPGH.....189
 TPGN.....189
 TPGW.....190
 TPKN.....190
 TPMC.....134
 TPMM.....190
 TPMR.....190
 TPU.....191
 TPUN.....191
 TT/TPMM.....190
 VBMT.....191
 VCMT.....192
 VCGX.....192
 VNMG.....192-193
 VNMS.....193
 WCMT.....193
 WCMX.....193
 WNMA.....194
 WNMG.....194-195

Centers

Bench.....312
 Dead.....306
 Live.....307-311

Chamfering Tools.....122
 Chuck Wrenches.....294
 Chucking Reamers & Sets...94

Center Line Gages.....10
 Center Gages.....30, 203
 Center Punch.....346
 Centered V-Magnet.....42
 Centering Indicators.....57

Centers

Bench.....312
 Dead.....306
 Live.....307-311

Chamfering Tools.....122
 Chuck Wrenches.....294
 Chucking Reamers & Sets...94

Chucks

CAT40.....223
 5C Collet...234, 236, 279, 291
 ER.....206-207, 223, 233-235
 Drill.....207, 225
 Lathe.....270, 275, 285-295
 Magnetic.....323-324
 Rotary Indexes.....271
 SK (Lyndex Style).....238

Circular Saw Arbors.....208
 Clamps, Dovetail.....59
 Clamping Kits.....249, 251-252
 Clamping Studs.....250
 Clamps for Indexable Tools..166
 Clamps, Hold Down.....252
 Clamps, Toggle.....254-258
 Claw Hammer.....349
 Clutch Collets.....278
 Collet Blocks.....237
 Collet Chucks.....
 210, 212, 214, 226, 233-235
 Collet Fixtures.....237, 278
 Collet Racks.....205-206, 279

Collets

5C.....278-280
 Air Tools.....340
 Brown & Sharpe.....212
 Chucks...206-207,210,233-237
 Clutch.....278
 Emergency (5C)280
 Expanding.....278
 ER.....227-230
 Flex, Tap.....103
 Hex (5C).....280
 Metric.....205, 227-228, 280
 Morse Taper.....209
 R8.....205
 Racks.....205-206, 232, 279
 Round.....278-280
 Rubber Flex.....103
 SK-10 & SK-16.....238
 Sleeves.....234
 Spring.....227-230
 Square.....280
 Step.....278

Collet Fixtures.....276
 Collet Indexer (5C).....278
 Collet Stops.....278-279
 Collet Wrenches.....231-232
 Combination Squares.....62
 Combination Wrenches...350
 Combined Drill & Countersinks...91

Comparators

Height Presetter.....	215-216
Optical.....	86
Compound Angle Plate.....	81
Compound Milling Tables.....	267
Compound Slide Tables.....	267
Concentricity Checker.....	313-314
Convex Radius Milling Cutters.....	114
Coolant Hose Kits.....	334-335, 337
Coolant Hose Wrenches.....	337
Coolant Pump Kit.....	335-336
Connectors, Coolant.....	337
Console, Digital.....	202
Controller, Magnetic Chuck.....	318
Counters.....	349
Counterbores.....	92, 93
Countersinks.....	91-93, 108, 122
Coupling Nuts.....	250-251
Couplers, Air.....	338
Cross Slide Vises.....	259
Cup Wheels.....	320
Current Adjuster, Magnetic Chuck.....	318
Cut-Off Blades.....	141, 304
Cut-Off Blades/Indexable.....	138-140
Cut-Off Inserts.....	138-140
Cut-Off Tool Holders.....	139-140, 304
Cut-Off Wheel Mandrel.....	339

Cutters & Saws

Annular.....	90
Chamfering.....	115
Disc.....	345
Double Angle Shank.....	115
Convex Milling.....	114
Convex Radius.....	114
Fly.....	120, 211
Gear.....	116
Plain Metal Slitting.....	116
Single Angle Chamfering.....	115
T-Slot.....	115
Woodruff Keyseat.....	118

Cylindrical Squares.....	64
--------------------------	----

D

D Mount Back Plates.....	291
D Mount Direct Mount Chucks.....	293-294
Dead Blow Hammers.....	349
Dead Centers.....	306
Deburring Tools.....	107-108
Deep Throat Micrometers.....	20
Demagnetizers.....	344
Depth Gages & Accessories.....	25-26
Depth Micrometers.....	25-26
Dial Bore Gages.....	34
Dial Calipers.....	7-9, 13
Dial Height Gages.....	67
Dial Indicators.....	13, 45, 47-51
Dial Protractor.....	60
Dial Test Indicators.....	13, 45, 54-56
Diamond Dressers.....	319
Diamond Needle Files.....	108
Diamond Pin Set.....	108
Diamond Wheels.....	320
Die Grinders.....	338-340

Die Holders.....	102
Die Sets.....	97-98
Die Stocks.....	102
Diemakers Square.....	64
Dies.....	97-98
Digital Electronic Calipers.....	1-6, 13-14
Digital Electronic Display.....	201-202
Digital Electronic Readout Scales.....	201
Digital Electronic Height Gages.....	68-69
Digital Electronic Indicators.....	45, 51-52
Digital Electronic Micrometers.....	21, 24, 26, 28
Digital Electronic Multimeters.....	353
Digital Electronic Protractor.....	61
Digital Electronic Thickness Gage.....	26
Disc Cutter Set.....	345
Dividers.....	33
Dividing Fixture, Wire EDM.....	330
Dividing Heads.....	274-275
Dividing Plates.....	268-270, 273
Double Angle Shank Cutters.....	115
Double End Boring Bars.....	121
Double Square.....	62
Dovetail Cutters.....	123
Drawbars.....	203
Drawbar Hammer.....	201

Dressers

Adjustable Diamond.....	319
Brake Truing.....	318
Diamond.....	319
Radius & Angle.....	316-317
Sine Dresser.....	317
Universal Wheel.....	316
Drift Keys.....	243
Drift Tool, Hand Dayton Style.....	209

Drill Chucks & Accessories

Arbors.....	206, 222, 225
Ball Bearing.....	241
Drill Chucks with Key.....	225, 241
Hand Drill Feed.....	240
Keyless Drill Chucks.....	207, 211, 221, 225, 239-240
Pin Chuck Set.....	242
Pin Vise Set.....	242
Replacement Keys.....	241
Wedge Sets.....	242
Wrenches.....	240
Drill Press Vises.....	259-260
Drilling Tables.....	267

Drills

Air.....	340
Annular.....	90
Carbide.....	88
Center.....	91
Cobalt.....	87-89
Jobber Length.....	87-89
Metric.....	87-89
NC Spotting.....	87
Sets.....	87
Silver & Demming.....	89

Solid Carbide.....	88
Spotting.....	87
Step.....	94
Tap & Drill Set.....	88
Taper Shank.....	89
Wire Gage.....	87

Drill Press Center Finder.....	203-204
Drive Pin Punch Sets.....	346
Dovetail Clamps.....	59
Dykem.....	343

E

Edge and Center Finders.....	204
Electrical Tape.....	342
Electronic Digital Caliper.....	1-6, 13-14
Electronic Digital Depth Gages.....	26
Electronic Digital Indicators.....	45, 51-52
Electronic Digital Height Gages.....	68-69
Electronic Digital Micrometers.....	21, 24, 26, 28
Emergency Collets (5C).....	280
End Mill Grinding Fixture.....	276
End Mill Holders.....	126, 206, 208, 210, 212-213, 225-226

End Mills

AlTiN Coated.....	110-113
Ball Nose.....	114
Carbide.....	113
Center Cutting.....	111-114
Chamfering.....	122
Cobalt.....	111-114
Corner Rounding.....	110
Double End.....	110-111
Fine Pitch.....	113
High Speed Steel.....	110-112, 114
Indexable.....	122, 124-128
Miniature.....	111
Roughing.....	113
Sets.....	110, 114
Single End.....	110, 112
Square Shoulder.....	128
Titanium (TiN) Coated.....	110-113

ER Tooling

BT.....	226, 233-236
CAT40.....	223, 234-236
Collets.....	221-230
Collet Blocks.....	237, 276
Collet Chucks.....	223, 233-235
Collet Fixtures.....	237, 291
Collet Racks.....	232
Fixtures.....	237
Morse Taper.....	210, 234-236
NMTB.....	213-214, 233, 235-236
Nuts.....	231
Punch Formers.....	315
R8.....	233, 235-236
Replacement Nuts.....	231
Straight Shanks.....	233, 235-236
Wrenches.....	231-232

Exhaust Mufflers.....	341
Expanding Arbors.....	232, 282
Expanding Collets.....	278
Expanding Mandrels.....	282
Extractors, Screw.....	109

F

Face Mill Holders.....	212
Face Mills.....	126-130
Face Mill Screws.....	165
Feeds, Power Table.....	202
Files, Riffler, Needle & Steel.....	108
Filter/Regulator/Lubricator Units.....	342

Finders

Center.....	203-204
Edge.....	204
Round Bar Center.....	63

Fittings

NPT Sintered Bronze Exhaust Mufflers.....	341
Push to Connect.....	341
Fixture, EDM Dividing.....	330
Fixtures, Tightening.....	215, 221, 224
Flanged Nuts.....	250-251
Flanges, Grinding Wheel.....	321-322
Flexible Arm Magnetic Bases.....	42
Floating Die Holders.....	102
Fly Cutters.....	120, 211
Frame Levels.....	66

G

Gage Block Set Repl. Cases.....	71
Gage Blocks & Accessories.....	71-72
Gage Handles.....	36

Gages

Angle.....	29, 65
Bore, Dial.....	34
Bore Gage Setting Master.....	34
Center.....	30, 203
Center Line.....	10
Convex & Concave.....	29
Depth.....	25-26
Dial Thickness.....	26
Electronic.....	26
Height.....	67-69
Internal Caliper.....	33
Monoblock Depth Vernier.....	25
Multipurpose, 7-in-1.....	30
Pin/Plug.....	35-38
Planer and Shaper.....	81
Radius.....	29
Screw Pitch.....	31
Screw Thread ACME.....	30
Small Hole.....	33
Surface.....	70
Surface Specimens.....	84
Surface Roughness.....	84
Telescoping.....	32-33
Thread & Ring Gages.....	31
Thickness.....	26
Wire Measuring.....	16, 30

Gears & Rings for Arbor Presses.....	355
Giant Slotted Angle Plates.....	83
Granite Checks.....	43
Granite Squares.....	64
Granite Surface Plate Stands.....	70
Granite Surface Plates.....	70

Grinders

Angle.....	339
Air.....	338-339

Bench.....	353
Punch.....	315
Stand.....	353

Grinding Driving Carriers.....	319
Grinding Fixture.....	276
Grinding Wheel Adapters.....	321-322
Grinding Wheel Dressers.....	319
Grooving Tool Holders.....	133-137

H

Half-Round Combination Holder.....	58
Halogen Work Lights.....	332
Hammer / Wrench.....	201
Hammers.....	349
Hand Notcher.....	354
Hand Tappers.....	101, 103-104
Hand Taps.....	96-97

Handles

Ball Knobs.....	351
Machine Levers.....	351
Pin Gage.....	36
Quill Feed Adapter.....	202
Quill Feed.....	201
Vise.....	263

Hard Jaws for Lathe Chucks.....	261-262
Hardness Tester & Accessories.....	84
Height Gage Clamps & Scribes.....	59
Height Gage Attachment.....	59, 67-69
Height Gages.....	67-69
Helicoil Style Thread Repair Kits.....	105-106
Hex Collets.....	280
Hex Dies.....	97-98
Hex Nuts.....	250
Hex Wrenches.....	165
Hi Spot Blue.....	343
Hoist Rings.....	352
Hole Mike Sets.....	28

Holders

Magnetic.....	39-45
End Mill.....	214, 221-222, 226
Indicator.....	39-43
Hold-Down Clamps.....	252
Hole Spotter Set.....	348
Horizontal & Vertical Collet Indexer.....	278
Hoses, Coolant.....	337
HSK ER Collet Chucks.....	212
HSK Face Mill Holders.....	212

I

Impact Wrenches.....	340
----------------------	-----

Indexable Tooling

Boring Bars.....	145-152
Carbide Insert.....	See Carbide Inserts
Countersinks.....	122
Cut-Off Tools.....	139-141, 143
Dovetail Cutters.....	123
End Mills.....	122, 124-128
Face Mills.....	126, 130
Grooving Holders.....	133-137
Integral Shank.....	140
Parting.....	137

INDEX

Spare Parts.....165-166
T-Slot.....123
Threading Tools.....132-137
Turning Tools.....
.....119, 132, 142-144, 153-164

Indexer, 5C.....278
Indexer, Rapid.....271
Indexing Fixtures.....273
Indexing Fixture, Rotary.....273
Indexing Quill Feed Handles...201
Indexing Spin Jigs.....277-278
Indicating Micrometers.....23

Indicator Accessories

Axial Support Bracket.....58
Back Covers.....48
Clamps.....58-59
Contact Points.....46
Conversion Point.....46
Extension Points.....46
Holders.....42-43, 58
Interapid Type Parts.....55
Magnetic Backs.....42, 44
Point Sets.....44, 46
Sets.....44-45, 58
Stands.....42-43
Universal Arms.....58

Indicators

Back Plunge46
Centering.....57
Dial.....44-45, 47-50
Dial Test.....45, 54-55
Dial with Lifting Lever.....48
Digital Electronic.....45, 51-52
Double Range Dial Test.....56
Large Face.....54
Long Range.....55-56
Metric.....47, 50, 55
Sets.....13-14
Short Range.....46
Travel.....44-51
Test.....54-56
Vertical.....55
Waterproof.....48

Inserts, Carbide.....
.....See Carbide Inserts
Inserts, Thread Repair.....105-106
Inside Micrometers.....27-28
Inspection Parallels.....25
Inspection Tool Kits.....13-14
Integral Shank Drill Chucks.....
.....207, 211, 214, 225, 239-240

J

Jacks Machinists.....253
Jack Screw Set.....253
Jacobs Taper Arbors...206, 222, 225
Jaw Nuts & Screws.....296
Jaws, Lathe Chuck...290, 297-298
Jaws/Vise.....261-262
Jobber Length Drills.....87

K

Keyless Drill Chucks.....239-240
KDK Style Quick Change Holders..
.....299-300

Keys

Drift/Center.....243
Drill Chuck.....241
Hex.....165
Lathe Chuck.....294
Torx.....350

Keyway Broaches/Bushings..117-118

Knobs

Hand.....351
Toggle.....217-220

Knurling Tools & Knurls.....305

L

L Mount Backplates.....291
Lamps.....See Lights
Latch Toggle Clamps...254-258
Lathe Centers.....306-311

Lathe Chucks

2-Jaw.....295
3-Jaw.....
.....270, 275, 285-287, 290, 292-293, 295
4-Jaw.....287-288, 294
6-Jaw.....286, 292
5C Mount...287-288, 290-291
Backplates.....289, 291-292
Collet Chucks.....291
Front Mount.....275
Independent.....288, 294
Jaw Boring Rings.....296
Jaw Nuts & Screws.....296
Morse Taper Mount.....290
Power.....295
Self-Centering.....
.....270, 275, 285-287, 290, 292-293
Replacement Jaws.....
.....290, 296-298
Wrenches.....294
Zero-Set292

Lathe Mandrels.....282

LCD Display.....201-202
LED Machine Lamps...331-333
Letter Stamps.....345
Leveling Mounts.....203
Levels.....66

Lights

Halogen.....85
LED Machine Lamps...85, 331-333
Magnetic Base Lamps...331
Microscope Lamps.....85
Waterproof.....85, 331

Linear Scales.....201-202
Live Centers.....306-311
Lock & Shim Pins.....166
Long Travel Indicators.....55-56

M

Machine Counters.....349
Machine Lamps.....331-333
Machinery Mounts.....203
Machinist Squares.....63
Machinist's Jacks.....253
Machinist's Vises.....265
Magnetic Backs, Indicator...42, 44

Magnetic Bases.....39-45
Magnetic Chuck Parallels...318
Magnetic Chuck Controller...318
Magnetic Chuck Current Adjuster...318
Magnetic Chucks.....323-324
Magnetic Parallel Set....78, 80
Magnetic Sine Bar.....324
Magnetic Sine Plate.....324
Magnetic V Blocks.....80, 324
Magnetizer / Demagnetizer...344
Magnets & Holders.....343
Magnifiers.....85-86, 331-332

Mandrels

Cut-Off Wheel.....339
Expanding.....282
Lathe.....282

Manifolds.....342
Markers, Industrial.....343
Master Precision Levels.....66
Measuring Sets/Kits.....60
Metric Drills.....87-89
Metric Taps.....96
Micro Checking Sets.....15

Micrometers

Accessories.....15-16
Anvil, Interchangeable.....20
Ball Spherical Face.....21
Blade.....23
Deep Throat.....20
Depth.....25-26
Digital.....20
Electronic Digital.....
.....21, 24, 26, 28
Heads.....20
Indicating.....23
Inside.....27-28
Metric.....19
Outside.....17-19, 24
Pointed Spindle & Anvil...22
Screw Thread.....21
Sets.....13-14, 17-19
Vernier Spline.....22

Micrometer Accessories

Anvil Attachments.....16
Ball Attachments.....16
Bases & Stands.....39-42
Metal Cases.....16
Stands.....16, 24
Thread Triangle.....15

Micrometer Measuring Masters...16
Micrometer Stands.....16, 24
Microscopes.....85-86
Mig Welding Pliers.....345
Milling and Drilling Tables...267
Milling Cutters.....114
Milling Machine Arbors...208
Milling Machine Draw Bars...203
Milling Vises.....263-265
Mirror, Inspection.....285
Mist Coolant Units.....334-337
Mity-Mag Indicator Holder...42, 44

Morse Taper Tooling

CAT40.....222, 234
Collets.....209
Collet Chucks.....210, 234-236

Dead Centers.....306
Die Holders.....211
Drill Chucks & Arbors...209, 211
End Mill Holders.....210
Extension Sockets.....209
Lathe Chucks.....290, 306
Live Centers.....307-311
R8.....209
Revolving Tailstock Backplates...306
Revolving Tailstock Chuck Adapter...
.....211
Sleeves.....209, 243
Tail Stock Turret.....290, 306

Mounts, Machine.....203
Mufflers, Exhaust.....341, 353
Multimeters.....353

N

NC Spotting Drills.....87
Needle Files.....108
NMTB Drill Chuck Arbors...213
NMTB End Mill Holders.....213
NMTB ER Collet Chucks.....
.....213-214, 233, 235-236
Notchers.....354
Number Stamps.....345

Nuts

Coupling.....250-251
Flange.....250-251
Heavy Duty Hex.....250
Jaw Nuts & Screws.....296
T-Slot.....250-251

O

Optical Comparator.....86
Optical Punch Set.....90, 345
Outside Micrometers...17-19, 24

P

Pan & Box Brakes.....353
Parallels & Sets.....75-77, 80
Parallel Cut-Off Blades...141, 304
Parting Tools.....137-141
Parts for Turning Tool Holders...
.....165-166
Permanent Magnetic Chucks...
.....323-324
Pilot Counterbores.....93-93
Pin Chuck Set.....242
Pin Vise Set.....242
Pin Gage Cases.....36
Pin/Plug Gages.....35-38
Pin/Plug Handles.....36
Pin Punches.....346
Pipe Dies.....97
Pipe Taps.....97
Pipe Jaws/Lathe...291, 296-298
Pipe Reamers.....94
Planer & Shaper Gage.....81
Plates, Angle.....81-83, 268
Pliers, Welding.....343
Plug Gages.....35-38
Plungers, Ball.....251
Pocket Comparator.....86
Point Sets, Dial & Test Indicator...
.....44, 46
Power Chucks.....295
Power Table Feeds.....202

Presettlers.....215
Presses, Arbor.....354-356
Protractors.....60-62, 65
Pumps, Coolant.....335-336
Punch Formers.....315-316
Punch Grinders.....315
Punches.....344, 346-348

Q

Quick Change Tool Posts,
Holders & Sets.....299-304
Quick Clamp for Mill Vise...262
Quick Clamp Work Stop...262
Quick Coupler.....338
Quill Feed Adapter.....202
Quill Feed Handles.....201
Quill Stops.....201
Quill Indicator Holder.....58

R

R8 Collet Racks.....205-206

R8 Tooling

Collet Chucks...207, 235-236
Collets.....205
Drill Chucks & Arbors...206-207
End Mill Holders.....206, 208
ER Holders & Sets.....
.....207, 233, 235-236
Indexable End Mill.....124
Morse Taper Sleeves.....209
Right Angle Attachment...203
Saw Arbor.....208

Rack, Transfer Punch.....348
Radius Dressers.....316-317
Radius Gages.....29
Ratchet Arbor Presses...354-356
Ratchet & Tap Handles...102
Ratchet Wrench.....340
Readout Scales, Digital...201
Reamers.....94-95
Refractometers.....335
Regulators.....342
Replacement Draw Bar...203
Retention Knobs.....217-220
Revolving Tailstock Backplates...
.....290
Riffler File Set.....108
Right Angle Attachments.....
.....81-83, 203, 268
Right Angle Plates.....77
Ring Gages.....31
Rings, Boring.....296
Rings, Hoist.....352
Rockwell Hardness Tester...84
Rotary Chucks.....271
Rotary Indexer.....271
Rotary Table Flanges.....270
Rotary Tables.....268-272
Roughing End Mills.....113
Roughness Standards.....84
Round Head Protractors.....60
Round Tool Bits.....120
Rules.....60

S

Safety Shields.....334
Sander.....338

Saws & Cutters

Convex Milling.....	114
Convex Radius.....	114
Double Angle Shank.....	115
Fly.....	120
Gear.....	116
Plain Metal Slitting.....	116
Single Angle Chamfering.....	115
Woodruff Keyseat.....	118

Saw Arbor, Slotting.....	116
Scales/Electronic.....	201-202
Scales/Rules.....	60
Scales/Linear.....	201-202
Scraper Set.....	100
Screw Bolts (Quick-Change).....	299, 302
Screw Extractors.....	109
Screw Jacks.....	253
Screw Pitch Gages.....	31
Screw Thread Micrometers.....	21
Screwless Vises.....	325

Screws

Jaw Nuts & Screws.....	296
Shell End Mill Holder.....	222
Tang for Drawbar End Holders.....	230

Scribers.....	346
Sensitive Hand Drill Feed.....	240
Shears.....	354

Sheet Metal Equipment

Benders.....	354
Brakes & Shears.....	354
Notcher.....	354
Pan & Box Brakes.....	353

Shell End Mill Holders.....	126
Shell End Mill Screws.....	222
Shields, Safety.....	334
Shim Pins.....	166
Shims.....	117, 166
Shop Apron.....	342
Shop Microscope.....	85-86
Silver & Deming Drills.....	89
Sine Bars.....	74
Sine Dresser.....	317
Sine Plates.....	81
Sine Vises.....	326, 328
Single Angle Chamfering Cutters.....	15
SK (Lyndex Style) Holders, Collet Chucks, Nuts & Sets.....	238
Sledge Hammer.....	349

Sleeves

Morse Taper.....	209, 243
R8 to Morse Taper.....	209

Slotted Angle Plates.....	83
Slotting Saw Arbor.....	208
Small Hole Gages.....	33
Sockets, Extension.....	209
Soft Jaws Lathe Chucks.....	290, 296-298
Soft Jaws for Vises.....	261-263
Solid Carbide Drills.....	88
Solid Carbide End Mills.....	113
Space Blocks.....	74
Spanner Wrenches.....	351
Specimens.....	84

Spin Jigs.....	277-278
Spindle Assemblies.....	255
Spindle for Arbor Press.....	355
Spindle Sqaure.....	203
Spindle Wipes.....	230
Spiral Taps.....	96
Spotters, Blind Hole.....	348
Spotting Drills.....	87
Spring Calipers & Dividers.....	33
Spring Collets.....	227-230
Springs.....	166
Square Head Protractors.....	60-62
Square Shoulder End Mills.....	128
Square Tool Bits.....	120

Squares

Bevel.....	64
Center Square.....	63
Combination.....	62
Cylindrical.....	64
Diemakers.....	64
Double.....	62
Granite.....	64
Machinist.....	60, 63
Solid.....	63
Spindle.....	203

Stamping Sets.....	345
--------------------	-----

Stands

Arbor Press.....	356
Bench Grinder.....	353
Granite Surface Plates.....	70
Indicator.....	42-43, 58
Micrometer.....	16

Steel Files.....	108
Steel Parallels.....	75-77
Step Collets.....	278
Step Drills.....	108
Stepped Angle Plates.....	82
Stereo Microscopes.....	85-86

Stops

Collet.....	278-279
Milling Vise.....	262
Quill.....	201
Work.....	262

Stub Milling Machine Arbors.....	208
Student Inspection Kit.....	13
Studs, Clamping.....	250
Super V Block.....	79
Super Spacer.....	273
Surface Plates, Granite.....	70
Surface Roughness Standards.....	84
Surface Specimens.....	84
Swivel Angel Plates.....	82
Swivel Clamps.....	59

T

T-Nut Blanks.....	299
T-Slot Bolts.....	250-251
T-Slot Clamping Kits.....	252
T-Slot Cleaner.....	252
T-Slot Cutters.....	123
T-Slot Nuts.....	250-251
Table Feeds.....	202

Tables

Compound Slide.....	267
Cross Slide.....	267
Milling and Drilling.....	267
Rotary.....	268-273
Tilting.....	268, 272

Tailstock Turrets.....	306
Tailstocks Rotary Table.....	269-270, 273
Tang Screws.....	230
Tangent Bar & Angle Block.....	77
Tap Wrenches.....	101
Tap Wrench Extensions.....	101
Tap & Drill Sets.....	88, 106
Tap & Die Sets.....	97, 99-101
Tape.....	342
Tape Measures.....	344
Taper Pipe Reamers.....	95
Tappers.....	101, 103-104
Tapping Guide.....	101-102
Tapping Heads.....	103
Taps.....	96-97
Tap Collets.....	103
Tap Holders.....	101-104
Telescoping Gages.....	32-33
Test Indicators.....	54-56
Thickness Gages.....	26
Thin Parallels.....	75-76
Thread Detective / Identifier.....	30
Thread Plug & Ring Gages.....	31
Thread Repair Kits.....	105-106
Thread Restoring Tool.....	108
Thread Triangle.....	16
Thread Wire Insert Installation Tool.....	106
Thread Wire Measuring Sets.....	16
Threaded Backplates.....	289
Threading Inserts & Grooving Inserts.....	131
Threading Tool Holders.....	132-137
Tie Downs.....	349
Tightening Fixtures.....	215, 221, 224
Tilt/Swivel Vises.....	259
Tilting Tables.....	268, 272
Toggle Clamps.....	254-258
Tool Bits.....	119-120
Tool Holder Bushings.....	281

Tool Holders

Boring.....	142-143, 145-152
Cut-Off & Grooving.....	139-141, 143
Grooving.....	133-137, 198-199
Integral Shank.....	140
Parting.....	137
Threading.....	132-137, 198-199
Turning.....	119, 132, 142-144, 153-164

Tool Posts & Sets

40 Position.....	304
Aloris Type.....	301-303
KDK Style.....	299-300
Miniature Sets.....	304
Quick Change Tool Posts/Sets.....	301-304
Toolmaker's Vises.....	325-329
Top Notch Style Tooling.....	135
Torque Wrenches.....	350
Torx Keys.....	350

Transfer Punches.....	348
Transfer Screws.....	347
Truing Dressers.....	318
Tube Notcher.....	354
Turning Tool Holders.....	119, 132, 142-144, 153-164
Turning Tool Sets.....	119-121
Turrets, Tailstock.....	306
Twin-Lock Vises.....	265
Tool Holder Bushings.....	281

U

Universal Angle Blocks.....	77, 81
Universal Extension Arms.....	58
Universal Bender.....	354
Universal Wheel Dresser.....	316

V

V-Angle Plates.....	82
---------------------	----

V-Blocks

Aluminum Cast.....	80
Magnetic.....	80
Cast Iron.....	80
Elongated.....	79
Four-Way.....	79
Granite.....	80
Multi-Use.....	78
Stainless Steel & Steel.....	78-79
Toolmaker's.....	78
Triple "V".....	79
V-Blocks & Clamps.....	78
Vee Blocks.....	79
Ultra Precision.....	78

V-Flange Tooling

Collet Chucks.....	222-223
Drill Chuck Arbors.....	243
Drill Chuck.....	221-222
End Mill Holders.....	221
ER Holder.....	223
Morse Taper.....	222
Retention Knobs.....	217-220
Shell Mill.....	222
Tool Setting Fixture.....	221

Valves, Coolant.....	337
Vernier Calipers.....	11-13
Vernier Height Gage.....	67

Vises

2-Way Swivel.....	265
Angle.....	259, 265, 343
Angle Tight.....	264
Centering.....	266
Cross Slide.....	218
Double Lock Type.....	263-265
Drill Press.....	259-260
EDM.....	327-328, 330
Machine (Horiz./Vert.).....	265
Machinist's.....	265
Milling.....	263-265
Pin.....	242
Quick Clamp Mill.....	260, 265
Rotary Table.....	268, 273
Screwless.....	325, 328
Screw Type.....	328-329
Self Centering CNC.....	224
Sine.....	326, 328
Stainless Steel.....	327-330

Super Lock.....	264
Swivel.....	326
Tilt.....	259, 326
Toolmaker's.....	325-329
Twin-Lock CNC.....	265
Universal Mount.....	326
Welder's.....	343

Vise Accessories

Adjustable Tailstock.....	269, 273
Dividing Plates.....	269, 273
Handles.....	263
Jaw Block.....	263
Jaws.....	261-262, 263
Mill Stop.....	262
Speed Handle.....	263
Swivel Bases.....	263
Work Stop.....	262
Worm Gear & Metal.....	273
VisiDresser.....	316

W

Wavy Parallels.....	77
Wedge Sets for Chucks.....	247
Wheel Dressers.....	316
Wheels, CBN.....	320
Wheels, Diamond.....	320
Wiggler/Center Finder.....	204
Wipes, Spindle.....	230
Wire Gage Drill Sets.....	87
Wire Measuring Gages.....	16, 30
Welder's Pliers.....	343
Work Lights & Magnifiers.....	331-333

Wrenches

5C Collet.....	279
Adjustable Face Spanner.....	351
Air.....	340
Combination.....	350
Coolant Hose.....	337
Drawbar.....	203
Drill Chuck.....	240
ER Collet.....	231-232
Hammer / Wrench Combo.....	201
Hex.....	165
Impact.....	340
Lathe Chuck.....	294
Tap & Reamer.....	102
Torque.....	350
Torx.....	165

X

XYZ Table Feeds.....	202
----------------------	-----

Z

Z-Axis Setters.....	215-216
Zero-Set Lathe Chucks/Backplates.....	292



▶ **PRECISION MEASURING TOOLS**

▶ **CARBIDE INSERTS**

▶ **CUTTING TOOLS**

▶ **MACHINE TOOL ACCESSORIES**

▶ **MRO & SHOP SUPPLIES**

▶ **AIR, POWER & HAND TOOLS**
