

# PRODUCT LINEUP & INSERTS

# B

## B1 - B26

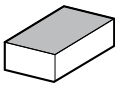
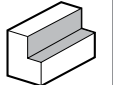
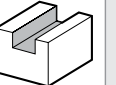
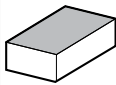
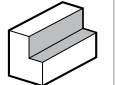
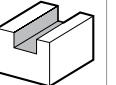





<b>MILLING SERIES</b>		<b>B2 - B8</b>
PRODUCT LINEUP		B2
<b>MILLING INSERT IDENTIFICATION SYSTEM</b>		<b>B9</b>
<b>CARBIDE &amp; CERMET MILLING INSERTS</b>		<b>B10 - B25</b>
SD□□		B10
SE□□	for MSE45, MSP15, MSE15 Toolholders	B10
SO□□	for MSO45 Toolholders	B10
SP□□	for MSP15, MSE15 Toolholders	B11
SN□□		B11
TE□□	for MTE90-SF, MTE90, MTES, Toolholders	B12
TP□□	for MTP90, MTPS Toolholders	B12
LOGU	for MFH-RAPTOR Mini Toolholders	B13
LOMU, LOGT	for M-FOUR (MEW) Toolholders	B13
LPGT	for MFH-RAPTOR Micro Toolholders	B13
PNEA, PNEG, PNMG	for MFK Toolholders	B14
PNEU, PNMU	for MFPN Toolholders	B15
RDGT, RDMT, RPGT, RPMT RPMW	for RAD-6 (MRX) Toolholders	B16
ROMU	for RAD-8 (MRW) Toolholders	B16
SOMT	for MFH-RAPTOR Toolholders	B17
WNEU, WNMU, WNGT	for M-SIX (MFWN) Toolholders	B17
APKT	for MAP Toolholders	B18
APMT	for MSR Toolholders	B18
BDMT, BDGT	for MEC, MECX, MECH Toolholders	B18
GOMT, JOMT	for MEY Toolholders	B19
ND□□, NE□□	for CEM, DMC, MEZ Toolholders	B20
OFMR, OFMT	for MOF45, MOFX45 Toolholders	B21
RDFG	for MRF, MRFW Toolholders	B21
RDHX		B21
RDMT, RPMT	for MRP, MRP-S Toolholders	B21
SD□□, SE□□	for MCSE, METS Toolholders	B22
SEMM	for MSO90, MSO90-S Toolholders	B22
SOMT, SOMW	for MSO45-S-09 Toolholders	B22
SPMT	for MSRS90, MEF Toolholders	B23, B24
TEMT	for MEAL Toolholders	B24
XPMT	for EM, EM-LE, FM-90 Toolholders	B25
APET	for FM-AL, EM-AL Toolholders	B25
DCMT, VCMT	for API Ring Groover	B25
<b>PCD MILLING INSERTS</b>		<b>B26</b>
SEEN	for MSE45 Toolholders	B26
TEEN, TEKN	for MTE90-SF, MTE90 Toolholders	B26
SOKN	for MSO45 Toolholders	B26
TPG	for MTP90 Toolholders	B26
BDMT	for MEC Toolholders	B26
NDCW	for DMC-H Toolholders	B26

45° / 70° / 75° Lead Angles

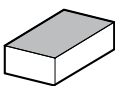
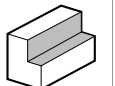
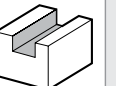
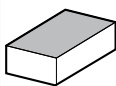
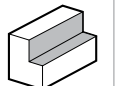
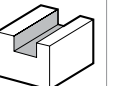









Lead Angle	Applications	Facing	Chamfering	Lead Angle	Applications	Facing	Chamfering
							
Shape				Shape			
45°	<b>MFPN45</b>  C2	<ul style="list-style-type: none"> <li>10-edge pentagonal inserts</li> <li>Double-sided pentagonal insert Economical with 10-edge insert</li> <li>Low cutting force due to helical cutting-edge design</li> <li>Fractures suppressed with double-edge position</li> </ul>		45°	<b>MFPN45</b>  C4	<ul style="list-style-type: none"> <li>10-edge pentagonal inserts</li> <li>Double-sided pentagonal insert Economical with 10-edge insert</li> <li>Low cutting force due to helical cutting-edge design</li> <li>Fractures suppressed with double-edge position</li> <li>With weldon or cylindrical shank</li> </ul>	
	<b>MOF45</b>  C14	<ul style="list-style-type: none"> <li>Octagonal insert with 8 cutting edges</li> <li>Insert sizes are available in 05 and 07</li> <li>Silver coated</li> </ul>			<b>MSO45-S-09</b>  C23	<ul style="list-style-type: none"> <li>Screw clamp system and 09 size inserts</li> <li>Smaller insert for MSO45 series</li> </ul>	
	<b>MOFX45</b>  C16	<ul style="list-style-type: none"> <li>The insert is fixed by top clamp</li> <li>Excellent surface roughness by easy edge height adjustment</li> <li>High cost performance provided by 8-edge insert</li> <li>Cutter designed with high axial rake angle and double positive angle on chipbreaker provide low cutting forces</li> <li>SH Chipbreakers (for general purpose / low cutting force) and GT chipbreakers (Tough Edge)</li> </ul>			<b>MSO45-S</b>  C22	<ul style="list-style-type: none"> <li>High efficiency machining of stainless steel</li> <li>Stronger edge with insert thickness 0.156"</li> </ul>	
	<b>MSE45 (Standard / Multi-Edge)</b>  C18	<ul style="list-style-type: none"> <li>The insert is fixed by the top clamp</li> <li>Silver coated</li> <li>Standard edge type and Multi-edge type</li> </ul>			<b>MSRS15</b>  D4	<ul style="list-style-type: none"> <li>For heavy cutting</li> <li>Max D.O.C. 0.472"</li> <li>Metal removal rate is increased drastically</li> </ul>	
	<b>MSE45-SF (Easy Edge Adjustment)</b>  C19	<ul style="list-style-type: none"> <li>Easy edge adjustment</li> <li>Silver coated</li> </ul>			<b>MSP15</b>  D8	<ul style="list-style-type: none"> <li>Facing</li> <li>Medium to roughing of steel / cast iron</li> </ul>	
	<b>MSO45</b>  C22	<ul style="list-style-type: none"> <li>Use insert with 13.494mm/C</li> <li>Insert max. external dia. matches cutter external dia.</li> </ul>			<b>MSE15</b>  D8	<ul style="list-style-type: none"> <li>Low cutting force</li> <li>For thin workpiece milling of Steel / Cast Iron</li> <li>Good anti-chatter performance</li> </ul>	
	<b>MFK</b>  C8	<ul style="list-style-type: none"> <li>High efficiency multi-edge cutter for cast iron</li> <li>Economical double-sided 10-edge inserts</li> <li>Low cutting forces due to helical cutting-edge design</li> <li>Improved surface finish, minimizing chattering and prevents burr formation</li> <li>Dual cutting edge design (high toughness)</li> </ul>					

B  
LINEUP / INSERTS

## 90° Lead Angles (Double-sided Insert)

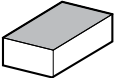

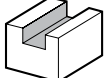
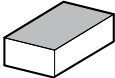

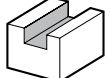




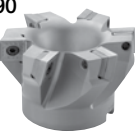
Lead Angle	Applications	Facing	Shouldering	Slotting	Lead Angle	Applications	Facing	Shouldering	Slotting
									
0°	MEW End Mill  E4	<ul style="list-style-type: none"> <li>Economical 4-edge Insert</li> <li>Obtuse edge increases cutting edge toughness</li> <li>Smooth surface wall due to low cutting forces</li> <li>Good anti-chatter performance</li> </ul>	0°	MFWN Face Mill  E42	<ul style="list-style-type: none"> <li>Economical 6-edge Insert</li> <li>Superior fracture resistance due to thick edge design</li> <li>Dynamic slant design reduces shock when cutting edge enters the workpiece</li> <li>Low cutting forces</li> <li>End mills have weldon or cylindrical shanks</li> </ul>				
	MEW Face Mill  E6			MFWN End Mill  E45					
	MEW Modular  E8								

## 90° Lead Angles (Heavy Milling)

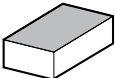

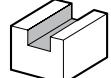
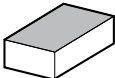

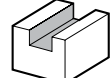
















Lead Angle	Applications	Facing	Shouldering	Slotting	Lead Angle	Applications	Facing	Shouldering	Slotting
									
0° (Long Cutting Edge)	MEWH  E29	<ul style="list-style-type: none"> <li>Low cutting force and sharp cutting performance</li> <li>Excellent surface finish quality</li> <li>Economical double-sided 4-edge inserts</li> <li>High quality and stable machining during heavy milling applications</li> </ul>	0° (Long Cutting Edge)	MECH  E32	<ul style="list-style-type: none"> <li>Notched insert promotes higher productivity</li> <li>Large depth of cut provides high efficiency cutting</li> <li>MECH is the best solution for problems with heavy milling</li> </ul>				
	MEWH Shell Mill  E30			MECH Shell Mill  E33					
	MSR  E59			MECH-BT50 MECH-BT50SA  E33					
	MSR-BT50  E61			MAP  E74					
				GEM  E75	<ul style="list-style-type: none"> <li>Cutting dia. 0.375" to 1.500"</li> <li>For small milling machines</li> </ul>				

GRADES	A
LINEUP / INSERTS	B
45° / 70° LEAD	C
75° LEAD	D
90° LEAD	E
HIGH FEED	F
MULTI-FUNCTION	G
SLOT MILLS	H
RADIUS / BALL-NOSE	J
OTHER APPLICATIONS	K
TOOL HOLDING	O
SPARE PARTS	P
TECHNICAL	R
INDEX	T

90° Lead Angles

Lead Angle	Applications	Facing	Shouldering	Slotting	Lead Angle	Applications	Facing	Shouldering	Slotting
									
0°	Shape				0°	Shape			
	<b>MEC</b>  E15	<ul style="list-style-type: none"> <li>The twisted cutting edge improves cutting performance</li> <li>Smooth surface of shoulder Wall</li> <li>True 90° Corners</li> <li>The silver coating prevents chip wear on the tool body</li> <li>Available with coolant holes</li> </ul>				<b>MSRS90</b>  E54	<ul style="list-style-type: none"> <li>Notched insert reduces cutting forces</li> <li>Stable cutting without chatter</li> <li>Neutral insert allows the possibility of various custom-ordered cutters</li> </ul>		
	<b>MECX</b>  E25	<ul style="list-style-type: none"> <li>Efficient machining due to small diameter cutter that holds multiple inserts</li> <li>Recommended for small machines: low cutting force and high strength design</li> <li>The silver coating prevents chip wear on the tool body</li> <li>Available with coolant holes</li> </ul>				<b>MTE90-SF</b> (Easy Edge Adjustment)  E48	<ul style="list-style-type: none"> <li>A simplified adjusting mechanism eases the task of correcting cutting edge fluctuation</li> <li>Silver coated</li> </ul>		
	<b>MSO90</b>  E50	<ul style="list-style-type: none"> <li>Highly efficient multiple insert design</li> <li>Safe design with shim</li> <li>Lower weight with slim design</li> </ul>							

90° Lead Angles

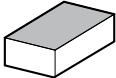

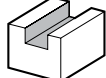


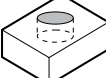

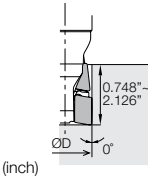
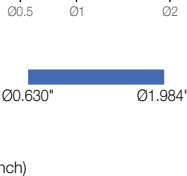

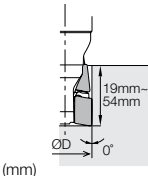
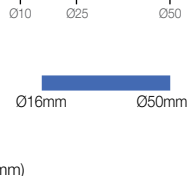
Lead Angle	Applications	Facing	Shouldering	Slotting	Lead Angle	Applications	Facing	Shouldering	Slotting
									
0°	Shape				0°	Shape			
	<b>MEC</b>  E12	<ul style="list-style-type: none"> <li>High squareness</li> <li>Low cutting force</li> <li>The silver coating prevents chip wear on the tool body</li> <li>With air hole (Over Ø16)</li> </ul>				<b>MSO90-S</b>  E51	<ul style="list-style-type: none"> <li>Screw clamping &amp; 4-edge insert reduces cost</li> <li>Good chip evacuation</li> <li>Low cutting force</li> </ul>		
	<b>MEC Modular</b>  E17					<b>MTE90</b>  E49	<ul style="list-style-type: none"> <li>Low cutting force</li> <li>For shouldering of Cast iron, Non-ferrous metals</li> </ul>		
	<b>MECX</b>  E24	<ul style="list-style-type: none"> <li>Good squareness</li> <li>Small size Insert with multi-edge specification</li> <li>Low cutting force</li> <li>The silver coating prevents chip wear on the tool body</li> <li>With air hole</li> </ul>				<b>MTP90</b>  E49	<ul style="list-style-type: none"> <li>Medium to roughing of steel / cast iron</li> <li>For small machines and M/C</li> </ul>		
	<b>EM</b>  E70	<ul style="list-style-type: none"> <li>Extended length end mills</li> </ul>				<b>DMC</b>  E65	<ul style="list-style-type: none"> <li>For small milling machine, M/C</li> </ul>		
	<b>EM-LE</b>  E71	<ul style="list-style-type: none"> <li>Long edge end mill</li> </ul>				<b>DMC-H</b>  E67	<ul style="list-style-type: none"> <li>High rake type</li> <li>For small milling machine, M/C</li> </ul>		
	<b>FM-90</b>  E72	<ul style="list-style-type: none"> <li>Fixed pocket face mills</li> </ul>				<b>DMC-SX</b>  E66	<ul style="list-style-type: none"> <li>For small milling machine, M/C</li> </ul>		
	<b>FM-AL</b>  E73	<ul style="list-style-type: none"> <li>Aluminum cutting face mills</li> <li>Fixed pocket</li> </ul>				<b>MTPS / MTES</b>  E69	<ul style="list-style-type: none"> <li>For small dia., Low cutting force type</li> </ul>		
<b>EM-AL</b>  E73				<b>MEAL</b>  E68	<ul style="list-style-type: none"> <li>For aluminum alloys</li> <li>With air hole</li> </ul>				

High Feed Cutters

Lead Angle	Applications	Facing	Shouldering	Slotting	Pocketing	Cutting Dia. ØD
						
0°	<b>MFH Face Mill</b>  F4	<ul style="list-style-type: none"> <li>Various applications with 3 insert types</li> </ul>    <p>GM (General Milling) LD (Large D.O.C.) MAX D.O.C. = 0.197" Available for Scale Removal FL (Wiper Edge) Available for both Roughing and Finishing</p>	<p>(inch) 01 01.5 02 02.5 03 04 05 06</p> <p>Ø2" Ø6"</p> <p>(mm) 08 016 025 040 050 080 0160</p> <p>Ø50mm Ø160mm</p>			
	<b>MFH End Mill</b>  F7	<ul style="list-style-type: none"> <li>Convex cutting edge reduces chatter and chip biting</li> <li>Multi-functional cutter for ramping, helical milling, plunging etc. (GM type)</li> </ul>	<p>(inch) 01 01.5 02 02.5 03 04 05 06</p> <p>Ø1" Ø1.5"</p> <p>(mm) 08 016 025 040 050 080 0160</p> <p>Ø25mm Ø80mm</p>			
	<b>MFH Modular</b>  F10		<p>(mm) 08 016 025 040 050 080 0160</p> <p>Ø25mm Ø40mm</p>			
	<b>MFH-Mini End Mill</b>  F14	<ul style="list-style-type: none"> <li>Economical double-sided 4-edge insert</li> </ul>  <p>GM</p>	<p>00.625 01 01.25</p> <p>Ø0.625" Ø1.25"</p> <p>(inch) 08 016 025 040 050 080 0160</p> <p>Ø16mm Ø32mm</p> <p>(mm)</p>			
	<b>MFH-Mini Face Mill</b>  F16	<ul style="list-style-type: none"> <li>High efficiency and high feed small diameter machining</li> </ul>	<p>01 01.5 02</p> <p>Ø1.5" Ø2"</p> <p>(inch)</p>			
	<b>MFH-Mini Modular</b>  F17		<p>00.625 01 01.25</p> <p>Ø0.625" Ø1.25"</p> <p>(inch) 08 016 025 040 050 080 0160</p> <p>Ø16mm Ø32mm</p> <p>(mm)</p>			
	<b>MFH Micro</b>  F22	<ul style="list-style-type: none"> <li>Smallest diameters in the MFH high feed milling series</li> </ul>  <p>GM</p>	<p>00.375 01</p> <p>Ø0.375" Ø0.625"</p> <p>(inch) 08 014 025 040 050 080 0160</p> <p>Ø8mm Ø14mm</p> <p>(mm)</p>			

GRADES	A
LINEUP / INSERTS	B
45° / 70° LEAD	C
75° LEAD	D
90° LEAD	E
HIGH FEED	F
MULTI-FUNCTION	G
SLOT MILLS	H
RADIUS / BALL-NOSE	J
OTHER APPLICATIONS	K
TOOL HOLDING	O
SPARE PARTS	P
TECHNICAL	R
INDEX	T

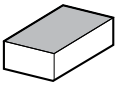
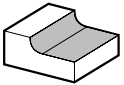
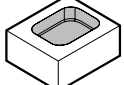

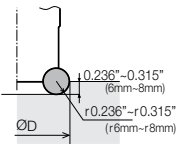
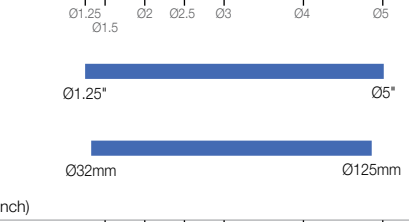

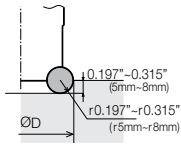
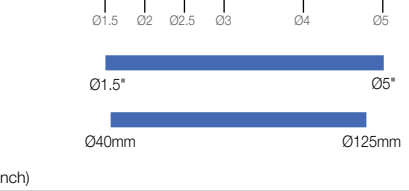

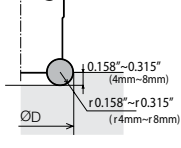
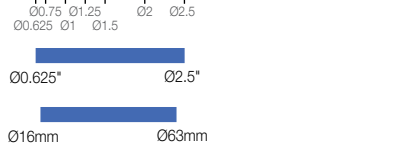

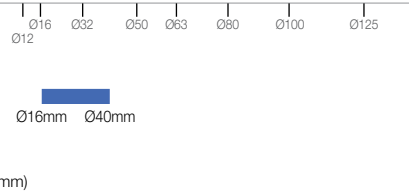

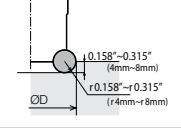
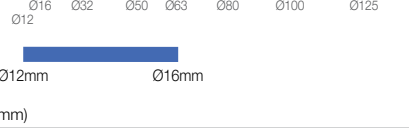
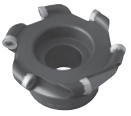
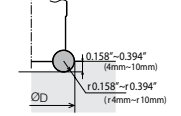
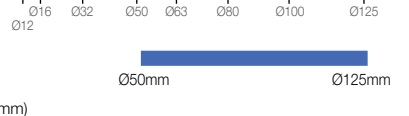
**Multi-Function End Mills**

Applications	Facing	Shouldering	Slotting	Deep Slotting	Pocketing	Drilling	Lead Angle and MAX D.O.C.	Cutting Dia. ØD
								
<p><b>MEY</b></p>  <p>➔ G2</p>	<ul style="list-style-type: none"> <li>Ultra drill mill</li> <li>Multi-function cutting (drilling / ramping / shouldering / grooving)</li> <li>High-efficiency mold cutting</li> <li>Low cutting force, good chip evacuation</li> </ul>	<ul style="list-style-type: none"> <li>Full 2-Flute structure and high stability</li> <li>Good chip control when ramping</li> </ul>	<ul style="list-style-type: none"> <li>Cutting diameters that are larger than the shank diameters enables wall shouldering</li> <li>The silver coating prevents chip wear on the tool body</li> </ul>	 <p>(inch)</p>	 <p>(inch)</p>			
<p><b>MEZ-G</b></p>  <p>➔ G6</p>	<ul style="list-style-type: none"> <li>Silver drill mill</li> <li>Multi-function cutting</li> <li>High-efficiency mold cutting</li> <li>Low cutting force, Good chip evacuation</li> </ul>	<ul style="list-style-type: none"> <li>The silver coating prevents chip wear on the tool body</li> <li>The clearance groove prevents chip welding</li> </ul>	 <p>(mm)</p>	 <p>(mm)</p>				

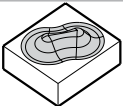
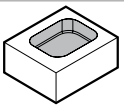

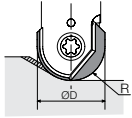
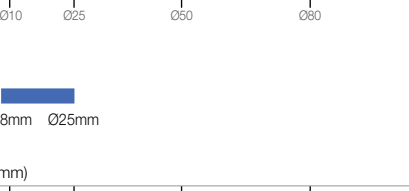

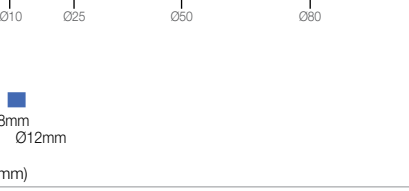
**MST Slot Mills**

MSTA ➔ H4	MSTB ➔ H8	MSTC ➔ H14
		
<ul style="list-style-type: none"> <li>Self-clamping system</li> <li>Remove insert with appropriate wrench</li> </ul>	<ul style="list-style-type: none"> <li>Easy screw on tangential clamped insert</li> </ul>	<ul style="list-style-type: none"> <li>Adjustable slotting width due to unique cam adjustment structure</li> </ul>

Radius Cutters



Applications	Facing	Shouldering	Pocketing	Lead Angle and MAX D.O.C.	Cutting Dia. ØD
					
Shape					
<b>MRW (RAD-8)</b>  J6	<ul style="list-style-type: none"> <li>High efficiency radius cutter with multiple-edge inserts</li> <li>Combines sharpness and cutting edge strength (A.R. Max. +12°)</li> <li>Prevents insert rotation during machining with flat lock structure</li> <li>Wide application range from steel to heat-resistant alloys</li> </ul>				
<b>MRX (RAD-6) Face Mill</b>  J13	<ul style="list-style-type: none"> <li>Low cutting force and high performance radius cutter</li> <li>Low cutting force due to helical cutting-edge design (A.R. Max. +10°)</li> <li>Prevents insert rotation during machining with flat lock structure</li> <li>Wide application range including facing, grooving, pocketing and plunging</li> <li>Wide application range from steel to heat-resistant alloys</li> </ul>				
<b>MRX (RAD-6) End Mill</b>  J15					
<b>MRX (RAD-6) Modular</b>  J17					
<b>MRP-S</b>  J22	<ul style="list-style-type: none"> <li>For mold cutting</li> <li>Recommended for various types of machining (contouring, helical milling, ramping, etc.)</li> <li>Firm insert seat due to new ratchet design</li> </ul>				
<b>MRP</b>  J23					

Ball-Nose End Mills


Applications	Contouring / Profiling	Pocketing	Lead Angle and MAX D.O.C.	Cutting Dia. ØD
				
Shape				
<b>MRF</b>  J2	<ul style="list-style-type: none"> <li>For high quality mold finishing</li> <li>High R-accuracy (insert's R-accuracy: under ±0.01mm)</li> <li>The bushing ensures insert installation accuracy</li> </ul>			
<b>MRFW</b>  J2	<ul style="list-style-type: none"> <li>Carbide</li> <li>For high quality mold finishing</li> <li>High R-accuracy (Insert's R-accuracy: Under ±0.01mm)</li> <li>The bushing ensures insert installation accuracy</li> <li>Anti-vibration, and stable cutting is possible with long overhang length without chattering</li> </ul>			

GRADES A  
 LINEUP / INSERTS B  
 45° / 70° LEAD C  
 75° LEAD D  
 90° LEAD E  
 HIGH FEED F  
 MULTI-FUNCTION G  
 SLOT MILLS H  
 RADIUS / BALL-NOSE J  
 OTHER APPLICATIONS K  
 TOOL HOLDING O  
 SPARE PARTS P  
 TECHNICAL R  
 INDEX T


## Chamfering

Applications	Chamfering	Countersinking	Back Chamfering	V Shape Slotting	Lead Angle and MAX D.O.C.
Shape					
<b>CM / CM-AL</b>  K5	<ul style="list-style-type: none"> <li>Chamfering angles 3°-75°</li> <li>CM-AL for aluminum cutting</li> </ul>				
<b>MCSE</b>  K6	<ul style="list-style-type: none"> <li>Chamfering angles for 30°, 45°, 60°</li> <li>Economical 4-sided insert</li> <li>Available for back chamfering</li> </ul>				




## Counterboring

Applications	Bolt Counterboring	Facing	Shouldering	Lead Angle and MAX D.O.C.
Shape				
<b>MEF</b>  K8	<ul style="list-style-type: none"> <li>Counterboring for hexagon socket bolt (M6-M30)</li> <li>Economical S-type insert (4-Edge)</li> </ul>			

## T-Slotting

Applications	T-Slotting	Back Side Milling	Lead Angle and MAX D.O.C.
Shape			
<b>METS</b>  K10	<ul style="list-style-type: none"> <li>T-Slotting</li> <li>Recommended for high feed cutting with 2 flute design</li> <li>Economical square insert (4 cutting edges)</li> </ul>		

## Grooving

Applications	Internal Grooving	Ring Grooving	API Ring Grooving	Lead Angle and MAX D.O.C.
Shape				
<b>API</b>  K2			<ul style="list-style-type: none"> <li>The most economical and reliable tool to produce API ring grooves for the oil, gas, and petrochemical industries</li> </ul>	
<b>MGI</b>  K12	<ul style="list-style-type: none"> <li>Edge Width 1.0-4.0mm</li> <li>Grooving for machining centers</li> </ul>			
<b>MVG</b>  K14		<ul style="list-style-type: none"> <li>Cutting dia. Ø30-Ø75mm</li> <li>Edge width: 4.0-4.9mm</li> <li>O-Ring grooving (G Series)</li> </ul>		



# MILLING INSERT IDENTIFICATION SYSTEM

Symbol	Shape
H	Hexagon
O	Octagon
P	Pentagon
S	Square
T	Triangle
C	80° Diamond
D	55° Diamond
E	75° Diamond
F	50° Diamond
M	86° Diamond
V	35° Diamond
W	Trigon
L	Rectangle
A	85° Parallelogram
B	82° Parallelogram
K	55° Parallelogram
R	Round

Shown angle stands for acute angle for rhombic and parallelogram inserts.

Symbol	Relief Angle
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	Other Angles

Symbol (Class)	Corner Height		Thickness		I.C. Size	
	ANSI (±inch)	ISO (±mm)	ANSI (±inch)	ISO (±mm)	ANSI (±inch)	ISO (±mm)
A	0.0002	0.005			0.0010	0.025
F			0.0010	0.025	0.0005	0.013
C	0.0005	0.013			0.0010	0.025
H					0.0005	0.013
E	0.0010	0.025	0.0010	0.025	0.0010	0.025
G			0.0050	0.130		
J	0.0002	0.005				
K*	0.0005	0.013	0.0010	0.025		
L*	0.0010	0.025			0.002-0.006	0.05-0.15
M*	0.003-0.007	0.080-0.180	0.0050	0.130		
N*			0.0010	0.025		
U*	0.005-0.015	0.130-0.380	0.0050	0.130	0.003-0.009	0.08-0.25
R	Blank with grind stock on all surfaces					
S	Blank with grind stock on top and bottom surface only					

Insert's periphery is as fired.  
\* Tolerance difference depends on size and shape of insert

I.C. Size (inch)	Symbol
5/32	1.2
3/16	1.5
7/32	1.8
1/4	2
5/16	2.5
3/8	3
7/16	3.5
1/2	4
9/16	4.5
5/8	5
11/16	5.5
3/4	6
7/8	7
1	8
1-1/4	10

Inserts with Radius			
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		

Insert with Wiper Flats	
A	Square Insert 45° Chamfer
D	Square Insert 30° Chamfer
E	Square Insert 15° Chamfer
F	Square Insert 3° Chamfer
K	Square Insert 30° Double Chamfer
L	Square Insert 15° Double Chamfer
M	Square Insert 3° Double Chamfer
N	Truncated Triangle Insert
P	Flatted Corner Triangle
X	Triangle Insert 15° Double Chamfer

Symbol	Insert
F	Sharp Edge
E	R-honed
T	Chamfered
S	Chamfered + R-honed

**ANSI (inch)**

① **S**    ② **E**    ③ **K**    ④ **N**    ⑤ **4**    ⑥ **2**    ⑦ **A**    ⑧ **F**    ⑨ **T**    ⑩ **N**    ⑪

**ISO (metric)**

① **S**    ② **E**    ③ **K**    ④ **N**    ⑤ **12**    ⑥ **03**    ⑦ **A**    ⑧ **F**    ⑨ **T**    ⑩ **N**    ⑪

④ Hole / Chipbreaker		⑤ Edge Length Symbol (ISO)		⑥ Thickness				⑦ Cutting Edge Angle		⑧ Relief Angle		⑩ Tool Hand		⑪ Manufacturer's Option
Symbol	Insert	Symbol	Diagram	ISO		ANSI		Symbol	Cutting Edge Angle	Symbol	Relief Angle	R	Right-hand	Chipbreaker, etc.
W	No Chipbreaker with Hole	S		Thickness (mm)	Symbol	Thickness (inch)	Symbol	A	45°	A	3°	L	Left-hand	
T	Single-sided Chipbreaker with Hole	T		1.59	01	1/16	1	D	60°	B	5°	N	Neutral	
F	Double-sided Chipbreaker without Hole	F		1.98	T1	5/64	1.2	E	75°	C	7°			
N	No Chipbreaker without Hole	R		2.38	02	3/32	1.5	F	85°	D	15°			
R	Single-sided Chipbreaker without Hole	A, N		2.78	T2	-	-	H	87°	E	20°			
M	Single-sided Chipbreaker with Hole	O		3.18	03	1/8	2	P	90°	F	25°			
A	No Chipbreaker with Hole	P		3.97	T3	5/32	2.5	X	65°	G	30°			
		W		4.76	04	3/16	3			N	0°			
				5.56	05	7/32	3.5			P	11°			
				6.35	06	1/4	4			R	10°			
				7.94	07	5/16	5			S	14°			
				9.525	09	3/8	6			T	22°			
										U	23°			

Thickness displayed as the distance between bottom surface and highest point on cutting edge.











⑦⑧ Corner-R(re)			
ISO		ANSI	
Symbol	Corner-R(re) (mm)	Symbol	Corner-R(re) (inch)
04	0.40	1	1/64
08	0.80	2	1/32
12	1.20	3	3/64
16	1.60	4	1/16
20	2.00	5	5/64

## Milling Inserts without Hole

### Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice
- (Hardness Under 45HRC)

P	Free-Cutting Steel Carbon/Alloy Steel	■							★	★	
M	Stainless Steel								★		
K	Gray Cast Iron Nodular Cast Iron								★	☆	
N	Non-ferrous Metals										★
S	Heat-Resistant Alloys Titanium Alloy								★	☆	
H	Hard Materials									□	

Insert (Right-hand Shown)	Part Number (ANSI)	Part Number (ISO)	Dimensions (in)					Angle (°)			Cermet		CVD Coated Carbide	MN*	MEGA COAT	PVD*	Carbide	Toolholder Page	
			A	T	X	Z	rε	α	β	γ	TN60 TN100M	TC60	CA6535 CA420M	PR1535	PR1225 PR1210	PR830	KW10		
	SDCN 42AUTN	SDCN 1203AUTN	0.500	0.125	0.020	0.047	-	15°	23°	45°	○								
	SDKN 42AUTN	SDKN 1203AUTN									○								
	42AUFN	1203AUFN																	
	(Use ISO Part Number)	SDKN 1504AUTN	0.625	0.187															
	SDKR 42AUE-S	SDKR 1203AUE-S	0.500	0.125	0.020	0.067	-	15°	23°	45°	○								
	SDMR 42AUE-H	SDMR 1203AUE-H	0.500	0.125	0.039	0.031	-	15°	23°	45°									
	SEEN 42AFTN	SEEN 1203AFTN	0.500	0.125	0.020	0.055	-	20°	25°	45°	○	●							
	SEKN 42AFTN	SEKN 1203AFTN									●	●							
	42AFFN	1203AFFN																	
	SEKN 43AFTN	SEKN 1204AFTN	0.625	0.187								●							
 1-Edge with Wiper	SEEN 42AFTR-W	SEEN 1203AFTR-W	0.500	0.125	-	0.138	B=0.573	20°	25°	45°	○								
	42AFFR-W	1203AFFR-W																	
	SEKN 42EFTR	SEKN 1203EFTR	0.500	0.125	0.047	0.055	-	20°	25°	15°	○								
	SEKR 42AFEN-S	SEKR 1203AFEN-S	0.500	0.125	0.020	0.067	-	20°	25°	45°	●	○							
	SEMR 42AFER-H	SEMR 1203AFER-H	0.500	0.125	R0.039	0.039	-	20°	25°	45°									
	(Use ISO Part Number)	SOKN 13T3AXTN	0.531	0.156	0.020	0.043	-	27°	32°	45°	○								
		13T3AXFN																	
	(Use ISO Part Number)	SOKR 13T3AXEN-J	0.531	0.156	0.020	0.043	-	27°	32°	45°	○								

\*MN: MEGACOAT NANO  
\*PVD: PVD Coated Carbide

SEEN-W inserts sold in 5 piece boxes.

Inserts sold in 10 piece boxes.

# Milling Inserts without Hole

### Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

P	Free-Cutting Steel Carbon/Alloy Steel	■							★											
M	Stainless Steel																			★
K	Gray Cast Iron Nodular Cast Iron												★							☆
N	Non-ferrous Metals																			★
S	Heat-Resistant Alloys Titanium Alloy																			★
H	Hard Materials																			☆

Insert (Right-hand Shown)	Part Number (ANSI)	Part Number (ISO)	Dimensions (in)					Angle (°)			Cermet		CVD Coated Carbide	MN*	MEGA COAT	PVD*	Carbide	Toolholder Page											
			A	T	X	Z	rε	α	β	γ	TN60	TN100M	TC60	CA6535	CA420M	PR1535	PR1225		PR1210	PR830	KW10								
	SPCN 42EDTR	SPCN 1203EDTR	0.500	0.125	R0.039	0.079	-	11°	15°	15°																			
	SPKN 42EDTR	SPKN 1203EDTR			R0.039																								
	42EDTL	1203EDTL			R0.039																								
	42EDER	1203EDER																											
	42EDFR	1203EDFR																											
	SPKN 53EDTR	SPKN 1504EDTR			0.625						0.187	0.039	0.087																
	SPEN 42EEER	SPEN 1203EEER	0.500	0.125	0.039	0.055	-	11°	20°	15°																			
	42EESR	1203EESR																											
	SPCN 42XPTR	SPCN 1203XPTR	0.500	0.125	R0.039	0.079	-	11°	25°	20°																			
	SPKN 42XPTR	SPKN 1203XPTR																											
	42XPFR	1203XPFR																											
	SPKN 53XETR	SPKN 1504XETR			0.625						0.187	0.039																	
	SPCN 63EETR1	SPCN 1904EETR1	0.750	0.187	0.028	0.047	-	11°	20°	15°																			
	SPKR 42EDER-S	SPKR 1203EDER-S	0.500	0.125	R0.039	0.079	-	11°	15°	15°																			
	SPMR 42EDER-H	SPMR 1203EDER-H	0.500	0.125	R0.039	0.079	-	11°	15°	15°																			
	SPM 422	SPMN 120308	0.500	0.125		0.031	-	11°	-	-																			
	423	120312				0.047																							
	SPM 432	SPMN 120408			0.187							0.031																	
	433	120412										0.047																	
	SPG 321	SPGN 090304			0.375							0.016																	
	SPG 421	SPGN 120304			0.500	0.125						0.031																	
	SNCN 43XNTN	SNCN 1204XNTN	0.500	0.187	0.079	0.079	-	-	-	25°																			
	SNKN 43XNTN	SNKN 1204XNTN																											
	SNMF 43XNTN	SNMF 1204XNTN	0.500	0.187	0.079	0.079	-	-	-	25°																			
	SNM 432	SNMN 120408	0.500	0.187		0.031	-	-	-	-																			
	433	120412				0.047																							
	436	120424										0.094																	

\*MN: MEGACOAT NANO  
\*PVD: PVD Coated Carbide

● : U.S. Stock  
○ : World Express (Shipping - 10 Business Days)

GRADES	A
LINEUP / INSERTS	B
45° / 70° LEAD	C
75° LEAD	D
90° LEAD	E
HIGH FEED	F
MULTI-FUNCTION	G
SLOT MILLS	H
RADIUS / BALL-NOSE	J
OTHER APPLICATIONS	K
TOOL HOLDING	O
SPARE PARTS	P
TECHNICAL	R
INDEX	T

# Milling Inserts

without Hole

### Usage Classification

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- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

P	Free-Cutting Steel Carbon/Alloy Steel	■							★	★									
M	Stainless Steel																		
K	Gray Cast Iron Nodular Cast Iron																		★
N	Non-ferrous Metals																		★
S	Heat-Resistant Alloys Titanium Alloy																		★
H	Hard Materials																		☆


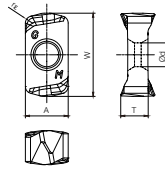

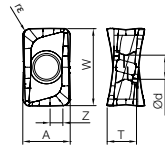



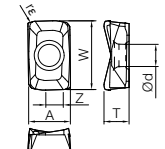

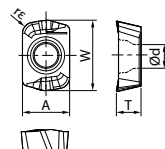
Insert (Right-hand Shown)	Part Number (ANSI)	Part Number (ISO)	Dimensions (in)					Angle (°)			Cermet		CVD Coated Carbide	MN*	MEGA COAT	PVD*	Carbide	Toolholder Page				
			A	T	X	Z	rE	α	β	γ	TN60	TN100M	TC60	CA6535	CA420M	PR1535	PR1225		PR1210	PR830	KW10	
	TEKN 32PTTR	TEKN 1603PTTR	0.375	0.125	R0.031	0.039	-	20°	22°	30°		○									E69	
	32PTFR	1603PTFR	0.375	0.125	R0.028	0.055	-	20°	22°	30°		○										
	TEEN 43PTTR	TEEN 2204PTTR	0.500	0.187	R0.039	0.055	-	20°	22°	30°		○									E48	
	TEKN 43PTTR	TEKN 2204PTTR	0.500	0.187	R0.039	0.055	-	20°	22°	30°		○									E49	
43PTFR	2204PTFR	0.500	0.187	0.028	0.055	-	20°	22°	30°													
	TEKR 43PTER-S	TEKR 2204PTER-S	0.500	0.187	R0.039	0.055	-	20°	22°	30°		○									E48	
																					E49	
	TEMR 32PTER-H	TEMR 1603PTER-H	0.375	0.125	R0.031	0.047	-	20°	22°	30°											E69	
	TEMR 43PTER-H	TEMR 2204PTER-H	0.500	0.187	R0.039	0.055	-	20°	22°	30°											E48	
	TPK 32PDTR	TPKN 1603PDTR	0.375	0.125	0.028	0.047	-	11°	15°	30°		○									E49	
	32PDFR	1603PDFR																				
	TPK 43PDTR	TPKN 2204PDTR	0.500	0.187	0.028	0.063	-	11°	15°	30°		○	●								E49	
	43PDFR	2204PDFR																				
	TPKR 43PDER-S	TPKR 2204PDER-S	0.500	0.187	R0.039	0.055	-	11°	15°	30°		○									E49	
	TPMR 32PDER-H	TPMR 1603PDER-H	0.375	0.125	R0.031	0.047	-	11°	15°	30°											E49	
	TPMR 43PDER-H	TPMR 2204PDER-H	0.500	0.187	R0.039	0.055	-	11°	15°	30°												
	TPM 221	TPMN 110304	0.250				0.016														E49	
	222	110308					0.031														E69	
	321	160304		0.125			0.016					○									E49	
	322	160308	0.375				0.031					○	●									
	323	160312					0.047					○	●									
	432	220408	0.500	0.187			0.031					○	●								-	
	TPG 181505	TPGN 090202					0.008					○										
	18151	090204	0.219	0.094	-	-	0.016	11°	-	-		●									-	
	18152	090208					0.031					○										
	2205	110302					0.008					○										
	221	110304	0.250				0.016					○									E49	
	222	110308					0.031					○									E69	
	321	160304		0.125			0.016					○										
	322	160308	0.375				0.031					○	●								E49	
323	160312					0.047					○	●										

Cutting Range	Chipbreaker	Features
Finishing-Roughing	S	S chipbreaker for general-purpose machining. Low cutting resistance due to 13° chipbreaker rake angle. Recommended for various depths of cut with 3-step chipbreaker design. Ground wiper edge enables good surface finishes.
Medium-Finishing	H	H chipbreaker for general-purpose machining. Smooth chip evacuation due to the chipbreaker's smooth rake face. 20% less cutting force than flat-top inserts due to a 25° rake angle chipbreaker.

# Milling Inserts with Hole

### Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

Insert (Right-hand Shown)	Part Number	Dimensions (in)					Angle (°)			Cemmet		CVD Coated Carbide		MEGACOAT NANO		MEGA COAT		DLC*	Carbide	Toolholder Page	
		A	T	Ød	W (X)	Z	rε	α	β	γ	TN100M	CA6535	CA420M	PR1535	PR1525	PR1510	PR1225	PR1210	PDL025		GW25
 General Purpose		LOGU 030310ER-GM	0.244	0.156	0.136	0.469	-	0.039	-	-	-	●	●	●	●						F14 F15 F16 F17
		LOMU 100404ER-GM						0.083	0.016				●	●	●	●					E4 E5 E6 E7 E8 E29
		LOMU 100408ER-GM						0.067	0.031				●	●	●	●					
LOMU 100412ER-GM	0.260	0.157	0.134	0.429		0.051	0.047	-	-	-	○	●	●	●							
LOMU 100416ER-GM						0.039	0.063				●	●	●	●							
LOMU 100420ER-GM						0.039	0.079				○	●	●	●							
LOMU 150504ER-GM						0.087	0.016				●	●	●	○							
LOMU 150508ER-GM						0.071	0.031				●	●	●	●							
LOMU 150510ER-GM	0.362	0.220	0.189	0.618		0.063	0.039	-	-	-			●								
LOMU 150512ER-GM						0.055	0.047				○	●	●	●							
LOMU 150516ER-GM						0.039	0.063				●	●	●	●							
LOMU 150520ER-GM						0.024	0.079				○	●	●	●							
 Low Cutting Force		LOMU 100408ER-SM	0.260	0.157	0.134	0.429	0.067	0.031				○	●	●	●						
		LOMU 150508ER-SM	0.362	0.220	0.189	0.618	0.071	0.031				○	●	●	●						
 Tough Edge (Heavy Milling)		LOMU 100408ER-GH	0.260	0.157	0.134	0.429	0.067	0.031				○	●	●	●						
		LOMU 150508ER-GH	0.362	0.220	0.189	0.618	0.071	0.031				○	●	●	●						
 Aluminum / Non-Ferrous Metals (2-Edge)		LOGT 100408FR-AM	0.268	0.157	0.142	0.437	0.110	0.031											●	●	E4 E5 E6 E7 E8
		LOGT 150508FR-AM	0.350	0.220	0.193	0.626	0.110	0.031												●	●
 General Purpose		LPGT 010210ER-GM	0.165	0.086	0.083	0.247	-	0.039	-	-	-	●	●	●							F22

\*DLC: DLC Coated Carbide

● : U.S. Stock  
○ : World Express (Shipping - 10 Business Days)

Inserts sold in 10 piece boxes.







GRADES	<b>A</b>
LINEUP / INSERTS	<b>B</b>
45° / 70° LEAD	<b>C</b>
75° LEAD	<b>D</b>
90° LEAD	<b>E</b>
HIGH FEED	<b>F</b>
MULTI-FUNCTION	<b>G</b>
SLOT MILLS	<b>H</b>
RADIUS / BALL-NOSE	<b>J</b>
OTHER APPLICATIONS	<b>K</b>
TOOL HOLDING	<b>O</b>
SPARE PARTS	<b>P</b>
TECHNICAL	<b>R</b>
INDEX	<b>T</b>

# Milling Inserts with Hole

**Usage Classification**

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

P	Free-Cutting Steel																			
	Carbon/Alloy Steel																			
M	Austenitic Stainless Steel																			
	Martensitic Stainless Steel																			
	Precipitation Hardened Stainless Steel																			
K	Gray Cast Iron											★	■	☆				★	☆	
	Nodular Cast Iron											★	■	☆				☆	★	
N	Non-ferrous Metals																			
	Heat-Resistant Alloys																			
S	Titanium Alloy																			
H	Hard Materials																			

Insert (Right-hand Shown)	Part Number	Dimensions (in)					Angle (°)			Cermat	CVD Coated Carbide	MEGACOAT NANO	MEGA COAT	SNC*	CVD SNC*	Toolholder	Page	
		A	T	Ød	W (X)	Z	rε	α	β									γ
		TN100M	CA6535	CA420M	PR1535	PR1525	PR1510	PR1225	PR1210									KS6050
 High Speed	PNEA 1106XNTN-T01020	0.667	0.256	-	0.059	0.059	-	-	-	-					●	●		
 High Speed (with Chipbreaker)	PNEG 1106XNTR-T00515	0.672	0.250	-	-	-	-	-	-	-					●	●		
 Surface Finish Oriented	PNEG 1106XNEN-GL	0.676	0.250	-	0.102	0.102					●	●	●					
 General Purpose	PNMG 1106XNEN-GM										●	●	●					
 Tough Edge	PNMG 1106XNEN-GH	0.678	0.250	-	0.079	0.079	-	-	-	-	●	○	●					
 Wiper Insert (2-edge)	PNEG 1106XNER-W	0.709	0.250	-	0.079	0.394					●	●	●					

\*SNC: Silicon Nitride Ceramic  
\*CVD SNC: CVD Coated Silicon Nitride Ceramic

PNEG-W inserts sold in 5 piece boxes.

Inserts sold in 10 piece boxes.

# Milling Inserts with Hole

### Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

P	Free-Cutting Steel Carbon/Alloy Steel	■				★	☆													
M	Austenitic Stainless Steel Martensitic Stainless Steel Precipitation Hardened Stainless Steel		★			☆														
K	Gray Cast Iron Nodular Cast Iron												★	☆						
N	Non-ferrous Metals																			
S	Heat-Resistant Alloys Titanium Alloy		★			☆								☆						
H	Hard Materials																			

Insert (Right-hand Shown)	Part Number	Dimensions (in)					Angle (°)			Cemet	CVD Coated Carbide	MEGACOAT NANO	MEGA COAT	SNC*	CVD SNC*	Toolholder Page	
		A	T	Ød	W (X)	Z	rε	α	β								γ
		TN100M	CA6535	CA420M	PR1535	PR1525	PR1510	PR1225	PR1210								KS6050
Ground Edge High Precision (Finishing)	PNEU 1205ANER-GL	0.689	0.219	0.244	0.106	0.106	-	-	-	-	○	●	●	●	●		C2 C3 C4
General Purpose	PNMU 1205ANER-GM	0.704	0.219	0.244	0.079	0.079	-	-	-	-	○	●	●	●	●		
Low Cutting Force	PNMU 1205ANER-SM	0.704	0.219	0.244	0.079	0.079	-	-	-	-	○	●	●	●	●		
Tough Edge (Heavy Milling)	PNMU 1205ANER-GH	0.708	0.243	0.244	0.079	0.079	-	-	-	-	○	○	●	●	●		
Wiper Insert (2-edge)	PNEU 1205ANER-W	0.703	0.219	0.244	0.091	0.319	-	-	-	-	●	○	○	●	●		
Ground Edge High Precision (Finishing)	PNEU 1205ANEL-GL	0.689	0.219	0.244	0.106	0.106	-	-	-	-	○	○	○	●		C3	
General Purpose	PNMU 1205ANEL-GM	0.704	0.219	0.244	0.079	0.079	-	-	-	-	○	○	○	○			

\*SNC: Silicon Nitride Ceramic  
\*CVD SNC: CVD Coated Silicon Nitride Ceramic

● : U.S. Stock  
○ : World Express (Shipping - 10 Business Days)

PNEU-W inserts sold in 5 piece boxes.

Inserts sold in 10 piece boxes.

GRADES **A**

LINEUP / INSERTS **B**

45° / 70° LEAD **C**

75° LEAD **D**

90° LEAD **E**

HIGH FEED **F**

MULTI-FUNCTION **G**

SLOT MILLS **H**

RADIUS / BALL-NOSE **J**

OTHER APPLICATIONS **K**

TOOL HOLDING **O**

SPARE PARTS **P**

TECHNICAL **R**

INDEX **T**








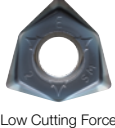

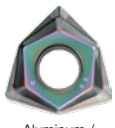


# Milling Inserts

with Hole

**Usage Classification**  
 ★ Roughing / 1st Choice  
 ☆ Roughing / 2nd Choice  
 ■ Finishing / 1st Choice  
 □ Finishing / 2nd Choice  
 (Hardness Under 45HRC)

P	Free-Cutting Steel									★															
	Carbon/Alloy Steel									★															
M	Austenitic Stainless Steel																								
	Martensitic Stainless Steel									★	☆														
	Precipitation Hardened Stainless Steel											★													
K	Gray Cast Iron																								
	Nodular Cast Iron																								
N	Non-ferrous Metals																								
	Heat-Resistant Alloys																						★	☆	
S	Titanium Alloy																								
	Hard Materials																								
H	Hard Materials																								

Insert (Right-hand Shown)	Part Number	Dimensions (in)						An- g le (°)	C er m et	C V D C o a t e d C a r b i d e	M E G A C O A T N A N O	M E G A C O A T	S N C*	C V D S N C*	D L C*	C a r b i d e	Toolholder Page
		A	T	Ød	W (X)	Z	rε										
		TN100M	CA6535	CA420M	PR1535	PR1525	PR1510										
 General Purpose	SOMT 100420ER-GM	0.406	0.180	0.181													F4 F5 F7 F8 F9 F10
	140520ER-GM	0.557	0.219	0.228			0.079	16°	●	●	●						
 Large D.O.C.	SOMT 100420ER-LD	0.411	0.180	0.181													
	140520ER-LD	0.581	0.219	0.228		0.063		16°	●	●	●						
 Wiper Edge	SOMT 100420ER-FL	0.411	0.180	0.181													
	140514ER-FL	0.574	0.219	0.228		0.122	0.055	16°	○	●	●						
 Surface Finish Oriented (Ground Tolerance)	WNEU 080608EN-GL						0.059	0.031		○	●	●					
	WNMU 080604EN-GM	0.552	0.262	0.244			0.067	0.016		○	●	●					
 General Purpose	080608EN-GM						0.051	0.031		○	●	●					
	WNMU 080608EN-SM									○	●	●					E42 E43 E45
 Low Cutting Force	WNMU 080608EN-SM																
	WNMU 080608EN-GH	0.552	0.262	0.244			0.051	0.031		○	○	●	●				
 Tough Edge (Heavy Milling)	WNMU 080608EN-GH																
	WNGT 080608FN-AM						0.059	0.031								● ●	
 Aluminum / Non-Ferrous Metals (3-Edge)	WNGT 080608FN-AM															● ●	

\*DLC: DLC Coated Carbide  
 \*SNC: Silicon Nitride Ceramic  
 \*CVD SNC: CVD Coated Silicon Nitride Ceramic







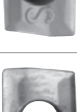


GRADES	A
LINEUP / INSERTS	B
45° / 70° LEAD	C
75° LEAD	D
90° LEAD	E
HIGH FEED	F
MULTI-FUNCTION	G
SLOT MILLS	H
RADIUS / BALL-NOSE	J
OTHER APPLICATIONS	K
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# Milling Inserts with Hole

### Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

P	Free-Cutting Steel	■			★	★		☆			
	Carbon/Alloy Steel	■			★	★		☆			
M	Austenitic Stainless Steel				★			☆			
	Martensitic Stainless Steel		★		☆						
	Precipitation Hardened Stainless Steel				★						
K	Gray Cast Iron								★		
	Nodular Cast Iron								★		
N	Non-ferrous Metals									★	☆
	Heat-Resistant Alloys		★		☆	★	★				
S	Titanium Alloy								★		☆
H	Hard Materials						■			□	

Insert (Right-hand Shown)	Part Number	Dimensions (in)					Angle (°)			Cement	CVD*	MN*	MEGACOAT			PVD*	DLC*	Carbide	Toolholder Page						
		A	T	Ød	W (X)	rε (Z)	α	β	γ				TN100M	CA6535	PR1535					PR1225	PR1230	PR1210	PR830	PDL025	GW25
													●	●	●					●	●	●	●	○	○
	APKT 1003PDER-V	0.265	0.125	0.110	0.413	11°	15°	-	●			●		○	○				E74						
	100308PDER-V								●			●	●												
	APKT 1604PDER-V	0.375	0.187	0.177	0.669				●			●		●		○									
	160416PDER-V								○																
	APMT 250608ER-NB3	0.625	0.250	0.256	0.984	15°	11°	-				●	●	●				E59 E60 E61							
	250616ER-NB3								●	●	●														
	250640ER-NB3								●	○	○														
	APMT 250616EL-NB3	0.063							○		○									-					
	APMT 250608ER-NB4	0.625	0.250	0.256	0.984	15°	11°	-				●	●	●				E59 E60 E61							
	250616ER-NB4								●	●	●														
	250640ER-NB4								●	○	○														
	APMT 250616EL-NB4	0.063							○		●									-					
	APMT 250616ER-NB3P	0.625	0.250	0.256	0.984	0.063	15°	11°	-				○	●	○				E59 E60 E61						
	APMT 250616ER-NB4P	0.625	0.250	0.256	0.984	0.063	15°	11°	-				○	●	○				E59 E60 E61						
	BDMT 070302ER-JS	0.181	0.102	0.091	0.264	16°	15°	-		○	○	●			●			E24 E25							
	070304ER-JS								○	○	●			●											
	070308ER-JS								○	○	●			●											
	BDMT 070302ER-JT	0.181	0.102	0.091	0.264	16°	15°	-		○	○	●		○	○			E24 E25							
	070304ER-JT								○	○	●		●	●											
	070308ER-JT								○	●	●		●	●											
	BDGT 11T302FR-JA	0.264	0.150	0.110	0.433	18°	13°	-								○	○	E12 E13 E14							
	11T304FR-JA								○	○	●			●	●										
	11T308FR-JA								○	○	●			●	●										
	BDGT 170404FR-JA	0.378	0.193	0.173	0.669	18°	13°	-								○	○	E15 E16 E17							
	170408FR-JA								○	○	●			●	●										
	170420FR-JA								○	○	●			●	●										
BDGT 170431FR-JA	0.122												●	●											
	BDMT 110302ER-JS	0.248	0.118	0.110	0.433	18°	15°	-		○	○	●			○			E12 E13 E14							
	110304ER-JS								○	○	●			●	●										
	110308ER-JS								○	○	●			●	●										
	BDMT 11T302ER-JS	0.264	0.150	0.110	0.433	18°	13°	-		○	○	●		○				E12 E13 E14							
	11T304ER-JS								○	○	●		●	●											
	11T308ER-JS								○	○	●		●	●											
BDMT 170404ER-JS	0.378	0.193	0.173	0.669	18°	13°	-		○	○	●		○				E15 E16 E17								
170408ER-JS								○	○	●		●	●												

\*CVD: CVD Coated Carbide    \*PVD: PVD Coated Carbide  
\*MN: MEGACOAT NANO    \*DLC: DLC Coated Carbide

# Milling Inserts with Hole

### Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

P	Free-Cutting Steel	■			★	★		☆	
	Carbon/Alloy Steel	■			★	★		☆	
M	Austenitic Stainless Steel				★	☆		☆	
	Martensitic Stainless Steel		★	☆					
	Precipitation Hardened Stainless Steel			★					
K	Gray Cast Iron							★	
	Nodular Cast Iron							★	
N	Non-ferrous Metals								
	Heat-Resistant Alloys		★	☆	★	★			
S	Titanium Alloy				★			★	
	Hard Materials						■		□

Insert (Right-hand Shown)	Part Number	Dimensions (in)				Angle (°)			Cemet TN100M	CVD* CA6535	MN* PRI535	MEGACOAT			PVD* PR830	Carbide GW25	Toolholder Page	
		A	T	Ød	W (X)	rε (Z)	α	β				γ	PRI225	PRI230				PRI210
	BDMT 110302ER-JT					0.008										E12 E13 E14		
	110304ER-JT	0.248	0.118	0.110	0.433	0.016	18°	15°	-									
	110308ER-JT					0.031												
	BDMT 11T302ER-JT					0.008										E12 E13 E14 E15 E16 E17		
	11T304ER-JT					0.016												
	11T308ER-JT					0.031												
	11T312ER-JT	0.264	0.150	0.110	0.433	0.047	18°	13°	-									
	11T316ER-JT					0.063												
	11T320ER-JT					0.079												
	11T324ER-JT					0.094												
	11T331ER-JT					0.122												
	BDMT 170404ER-JT					0.016												
	170408ER-JT					0.031												
	170412ER-JT					0.047												
170416ER-JT	0.378	0.193	0.173	0.669	0.063	18°	13°	-										
170420ER-JT					0.079													
170424ER-JT					0.094													
170431ER-JT					0.122													
170440ER-JT					0.157													
<p>2-Notch</p>	BDMT 11T308ER-N2	0.264	0.150	0.110	0.433	0.031	18°	13°	-						E32 E33 E34 E35			
<p>3-Notch</p>	BDMT 11T308ER-N3	0.264	0.150	0.110	0.433	0.031	18°	13°	-									
<p>3-Notch</p>	BDMT 170408ER-N3	0.378	0.193	0.173	0.669	0.031	18°	13°	-									
<p>4-Notch</p>	BDMT 170408ER-N4	0.378	0.193	0.173	0.669	0.031	18°	13°	-									
	GOMT 08T208ER-D	0.205	0.109	0.091	0.343											G2		
	100308ER-D	0.258	0.130	0.110	0.421	0.031	13°	17°	-									
	13T308ER-D	0.329	0.152	0.134	0.520													
	160408ER-D	0.395	0.187	0.173	0.657													
	JOMT 08T208ER-D	0.202	0.109	0.091	0.335													
	100308ER-D	0.252	0.125	0.110	0.402	0.031	17°	13°	-									
	13T308ER-D	0.318	0.146	0.134	0.520													
	160408ER-D	0.383	0.177	0.173	0.657													

\*CVD: CVD Coated Carbide    \*PVD: PVD Coated Carbide  
 \*MN: MEGACOAT NANO

GRADES **A**

LINEUP / INSERTS **B**

45° / 70° LEAD **C**

75° LEAD **D**

90° LEAD **E**

HIGH FEED **F**

MULTI-FUNCTION **G**

SLOT MILLS **H**

RADIUS / BALL-NOSE **J**

OTHER APPLICATIONS **K**

TOOL HOLDING **O**

SPARE PARTS **P**

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# Milling Inserts with Hole

### Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

P	Free-Cutting Steel Carbon/Alloy Steel	■				★		☆	
M	Stainless Steel					★			
K	Gray Cast Iron Nodular Cast Iron							★	☆
N	Non-ferrous Metals								★
S	Heat-Resistant Alloys Titanium Alloy						★		☆
H	Hard Materials								□

Insert (Right-hand Shown)	Part Number (ANSI)	Part Number (ISO)	Dimensions (in)					Angle (°)			Cermet		CVD*	MN*	MEGACOAT			PVD*	Carbide	Toolholder Page										
			A	T	Ød	W (X)	r <sub>E</sub> (Z)	α	β	γ	TN100M	TC60	CA6535	PR1535	PR1225	PR1230	PR1210	PR830	KW10											
	NDCT 831R-B	NDCT 090204R-B	0.250	0.094	0.110	0.374	0.016	15°	-	-	●	●									E75									
	831TR	090204TR									○																	E65		
	831FR	090204FR									○																		E75	
	832R-B	090208R-B									●	●																	E75	
	032TR	120208TR									○																		E65	
	NDCT 032FR	NDCT 120208FR	0.313	0.094	0.134	0.500	0.031	15°	-	-	○										E75									
	NDCT 322FR-B	NDCT 150308FR-B	0.375	0.125	0.177	0.591	0.031	15°	-	-										●	E75									
	322FR	150308FR																								○	E66			
	NDCT 322TRX	NDCT 150308TRX	0.375	0.125	0.173	0.591	0.031	15°	-	-	○										E66									
																					E67									
	NDCW 032TR	NDCW 120208TR	0.313	0.094	0.134	0.500	0.031	15°	-	-	○	●									E75									
	NDCW 3205TR	NDCW 150302TR									○																			
	321TR	150304TR									○																			
	322TR	150308TR									●	●																		
	325TR	150320TR									○																			
	3275TR	150330TR									○																			
	3210TR	150340TR									○																			
	NDCW 322TRX	NDCW 150308TRX	0.375	0.125	0.173	0.591	0.031	15°	-	-	○																			
	322FRX	150308FRX																												
	NDMM 831ER-SP	NDMM 090204ER-SP	0.250	0.094	0.110	0.374	0.016	15°	-	-	●	●																		
	NDMM 031ER-SP	NDMM 120204ER-SP	0.313	0.094	0.134	0.500	0.016				○																			
	032ER-SP	120208ER-SP					0.031				○																			
	NDMM 321ER-SP	NDMM 150304ER-SP	0.375	0.125	0.173	0.591	0.016				○																			
	322ER-SP	150308ER-SP					0.031				○																			
	(Use ISO Part Number)	NDMM 12T308ER-T	0.298	0.156	0.134	0.500	0.031	15°	-	-	○								○	●										
	(Use ISO Part Number)	NDMM 12T308ER-N2	0.307	0.156	0.134	0.500	0.031	15°	-	-	○									○										
	(Use ISO Part Number)	NDMM 12T308ER-N3	0.307	0.156	0.134	0.500	0.031	15°	-	-	○									○										
	(Use ISO Part Number)	NDMT 080208ER-D	0.200	0.094	0.087	0.335	0.031	15°	-	-	○									○										
	(Use ISO Part Number)	10T208ER-D	0.247	0.109	0.110	0.402	0.031	20°	-	-	○									○										
	(Use ISO Part Number)	NEMT 120308ER-D	0.302	0.125	0.134	0.500	0.031	20°	-	-	○									○	●									
	(Use ISO Part Number)	16T308ER-D	0.364	0.156	0.173	0.638	0.031	20°	-	-	○									○	●									
	(Use ISO Part Number)	NDMT 080208ER-DH	0.200	0.094	0.087	0.335	0.031	15°	-	-	○									○										
	(Use ISO Part Number)	10T208ER-DH	0.247	0.109	0.110	0.402	0.031	20°	-	-	○									○										
	(Use ISO Part Number)	NEMT 120308ER-DH	0.302	0.125	0.134	0.500	0.031	20°	-	-	○									○										
	(Use ISO Part Number)	16T308ER-DH	0.364	0.156	0.173	0.638	0.031	20°	-	-	○									○										

\*CVD: CVD Coated Carbide \*PVD: PVD Coated Carbide  
\*MN: MEGACOAT NANO



# Milling Inserts with Hole

**Usage Classification**  
 ★ Roughing / 1st Choice  
 ☆ Roughing / 2nd Choice  
 ■ Finishing / 1st Choice  
 □ Finishing / 2nd Choice  
 (Hardness Under 45HRC)

P	Free-Cutting Steel Carbon/Alloy Steel	■	★	★	☆		
M	Stainless Steel		★	★			
K	Gray Cast Iron Nodular Cast Iron				★	☆	
N	Non-ferrous Metals						★
S	Heat-Resistant Alloys Titanium Alloy				★	★	☆
H	Hard Materials						□

Insert (Right-hand Shown)	Part Number (ANSI)	Part Number (ISO)	Dimensions (in)					Angle (°)			Cermet TN100M	CVD* CA6535	MN* PRI 535	MEGACOAT PRI 225 PRI 230 PRI 210	PVD* PR830	Carbide KW10	Toolholder Page
			A	T	Ød	W (X)	rε (Z)	α	β	γ							
	(Use ISO Part Number)	SDKW 09T204TN 09T204FN	0.375	0.109	0.134	-	0.016	15°	-	-	○						K6
	SEKW 421TN 421FN 422TN 422FN	SEKW 120304TN 120304FN 120308TN 120308FN	0.500	0.125	0.217	-	0.016 0.031	20°	-	-	○						
	(Use ISO Part Number)	SDKW 1204AESN 1204AETN	0.500	0.187	0.217	X= R0.039 Z= 0.059	15°	20°	45°			○				-	
	SEKW 43AFTN	SEKW 1204AFTN				X= R0.020 Z= 0.067	20°	25°		○		○	○			-	
	(Use ISO Part Number)	SDMT 1204AESR-H	0.500	0.187	0.217	X= R0.039 Z= 0.031	15°	20°	45°			○				-	
 Low Cutting Force	SDMT 31.81C	SDMT 09T204C	0.375	0.109	0.134	-	0.016	15°	-	-	○		●		○	K6	
	SEMT 421C	SEMT 120304C	0.500	0.125	0.217	-	0.016	20°	-	-			●		○		
	SDMT 221E-K	SDMT 060304E-K	0.250	0.125	0.110	-	0.016						○	○	○	K10	
	(Use ISO Part Number)	SDMT 080308E-K	0.315	0.134	-	0.031	15°	-	-				○	○	○		
	SDMT 432E-K	SDMT 120408E-K	0.500	0.187	0.173								○	○	○		
	SEKT 43AFEN-S	SEKT 1204AFEN-S	0.500	0.187	0.217	X= 0.020 Z= 0.067	20°	25°	45°	○		●					
	(Use ISO Part Number)	SEMM 09T308PESR 150408PESR	0.375 0.625	0.156 0.187	0.134 0.217	- 0.031	20°	-	-	○ ○			● ●	○ ○	● ○	E51 E50 E51	
	(Use ISO Part Number)	SOMT 0903AXEN-J	0.375	0.125	0.134	X= 0.020 Z= 0.043	27°	32°	45°	○							C23
	(Use ISO Part Number)	SOMW 0903AXTN 0903AXFN	0.375	0.125	0.134	X= 0.020 Z= 0.043	27°	32°	45°	○					●		



\*CVD: CVD Coated Carbide    \*PVD: PVD Coated Carbide  
 \*MN: MEGACOAT NANO

# Milling Inserts with Hole

### Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

P	Free-Cutting Steel Carbon/Alloy Steel				★	★		☆	
M	Stainless Steel				★	★			
K	Gray Cast Iron Nodular Cast Iron							★	
N	Non-ferrous Metals								
S	Heat-Resistant Alloys Titanium Alloy				★	★		★	
H	Hard Materials				■	■		□	

Insert (Right-hand Shown)	Part Number	Dimensions (in)					Angle (°)			Cemet	CVD*	MN*	MEGACOAT			PVD*	Carbide	Toolholder Page					
		A	T	Ød	W (X)	rε (Z)	α	β	γ				TN100M	CA6535	PR1535				PR1225	PR1230	PR1210	PR830	KW10
	SPMT 1806EDER-NB2	0.709	0.250	0.268	X= R0.047 Z= 0.122	11°	15°	15°					○	●	○	●		D4 D5					
	SPMT 1806EDER-NB3	0.709	0.250	0.268	X= R0.047 Z= 0.122	11°	15°	15°					○	●	○	●		D4 D5					
	SPMT 1806EDSR-NB2T	0.709	0.250	0.268	X= R0.047 Z= 0.122	11°	15°	15°					○	●	○			D4 D5					
	SPMT 1806EDSL-NB2T																		●	○			-
	SPMT 1806EDSR-NB3T	0.709	0.250	0.268	X= R0.047 Z= 0.122	11°	15°	15°					○	○	○			D4 D5					
	SPMT 1806EDSL-NB3T																		●	○			-
	SPMT 1806EDER-NB2P	0.709	0.250	0.268	X= R0.047 Z= 0.122	11°	15°	15°					●	○	○	○		D4 D5					
	SPMT 1806EDER-NB3P	0.709	0.250	0.268	X= R0.047 Z= 0.122	11°	15°	15°					●	●	○	○		D4 D5					
	SPMT 1806EDER-V	0.709	0.250	0.268	X= R0.047 Z= 0.122	11°	15°	15°					●	○	●	●		D4 D5					

\*CVD: CVD Coated Carbide    \*PVD: PVD Coated Carbide  
 \*MN: MEGACOAT NANO

● : U.S. Stock  
 ○ : World Express (Shipping - 10 Business Days)








GRADES	A
LINEUP / INSERTS	B
45° / 70° LEAD	C
75° LEAD	D
90° LEAD	E
HIGH FEED	F
MULTI-FUNCTION	G
SLOT MILLS	H
RADIUS / BALL-NOSE	J
OTHER APPLICATIONS	K
TOOL HOLDING	O
SPARE PARTS	P
TECHNICAL	R
INDEX	T

## Milling Inserts with Hole

### Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

P	Free-Cutting Steel Carbon/Alloy Steel				★	★												
M	Stainless Steel				★	★												
K	Gray Cast Iron Nodular Cast Iron												★					☆
N	Non-ferrous Metals																	★
S	Heat-Resistant Alloys Titanium Alloy											★	★					★
H	Hard Materials																	☆

Insert (Right-hand Shown)	Part Number	Dimensions (in)					Angle (°)			Cemet	CVD*	MN*	MEGACOAT			PVD*	Carbide	Toolholder Page					
		A	T	Ød	W (X)	rε (Z)	α	β	γ				TN100M	CA6535	PR1535				PR1225	PR1230	PR1210	PR830	KW10
 3-Notch	SPMT 180616EN-NB3	0.709	0.250	0.268	-	0.063	11°	-	-					●	●								
 4-Notch	SPMT 180616EN-NB4	0.709	0.250	0.268	-	0.063	11°	-	-					●	●								
 3-Notch / Low Cutting Force	SPMT 180616EN-NB3P	0.709	0.250	0.268	-	0.063	11°	-	-					○	○			E54 E55					
 4-Notch / Low Cutting Force	SPMT 180616EN-NB4P	0.709	0.250	0.268	-	0.063	11°	-	-					●	○								
 Without Notch	SPMT 180616EN-V	0.709	0.250	0.268	-	0.063	11°	-	-					●	●								
	SPMT 060204E-Z	0.250	0.094	0.098	-	0.016	11°	-	-					●	○		○	K8					
	060208E-Z													○	○	○							
	SPMT 090304E-Z	0.375	0.125	0.134	-	0.016	11°	-	-					●	○		○						
	090308E-Z													●	●		○						
	TEMT 250624-AQ	0.625	0.250	0.217	0.906	0.094	20°	-	-								○	E68					

\*CVD: CVD Coated Carbide    \*PVD: PVD Coated Carbide  
\*MN: MEGACOAT NANO

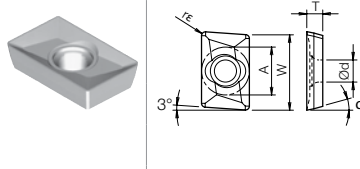
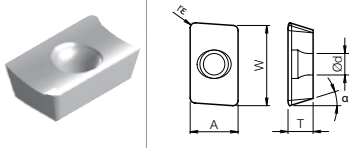


# Milling Inserts with Hole

### Usage Classification

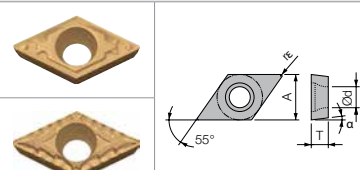
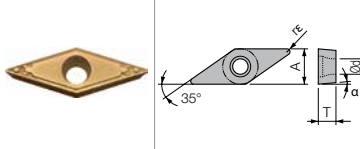
- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

<b>P</b>	Free-Cutting Steel Carbon/Alloy Steel	■	□						★	
<b>M</b>	Stainless Steel								★	
<b>K</b>	Gray Cast Iron Nodular Cast Iron								★	
<b>N</b>	Non-ferrous Metals									★
<b>S</b>	Heat-Resistant Alloys Titanium Alloy							★		☆
<b>H</b>	Hard Materials									■

Insert (Right-hand Shown)	Part Number	Dimensions (in)					Angle (°)	Cermet		MN*	PVD Coated Carbide			Carbide	Toolholder Page
		A	T	Ød	W	rε		TN100M	TC60		PR1525	PR930	PR905		
	<b>XPMT 090208</b>	1/4	0.094	0.110	0.375	0.031	15°	●	●	●		●	●	●	E70 E71 E72 K5
	<b>XPMT 15T304</b>					0.016						●	●	●	
	<b>15T308</b>					0.031		●	●		●	●	●	●	
	<b>15T316</b>					0.063	15°		●		●	●	●	●	
	<b>15T324</b>	3/8	0.156	0.157	0.607	0.094			●			●	●	●	
	<b>15T331</b>					0.122			●		●	●	●	●	
	<b>15T364</b>					0.250			●			●	●	●	
	<b>APET 1604PDRF</b>					0.039							●	K5	
	<b>160416</b>	3/8	0.188	0.157	0.630	0.062	11°						●		
	<b>160431</b>												●		
						0.125							●		

\*MN: MEGACOAT NANO

# API Inserts with Hole

Insert (Right-hand Shown)	Part Number (ANSI)	Part Number (ISO)	Dimensions (in)					Angle (°)	CVD Coated Carbide			MEGACOAT Coated Carbide		PVD Coated Carbide	Toolholder Page
			I.C. (A)	T	Ød	rε	α		CA525	CA5525	CA6525	PR1225	PR1425		
	<b>DCMT 3252HQ</b>	<b>DCMT 11T308HQ</b>	3/8	5/32	0.173	1/32	7°	●	●	●		●	●	K3	
	<b>DCMT 3253CQ</b>	<b>DCMT 11T312CQ</b>	3/8	5/32	0.173	3/64	7°		●	●			●		
	<b>VCMT 222HQ</b>	<b>VCMT 110308HQ</b>	1/4	1/8	0.110	1/32	7°				●				
	<b>VCMT 332HQ</b>	<b>VCMT 160408HQ</b>	3/8	3/16	0.173	1/32	7°	●	●	●			●		
	<b>333HQ</b>	<b>160412HQ</b>	3/8	3/16	0.173	3/64	7°				●				

● : U.S. Stock  
○ : World Express (Shipping - 10 Business Days)

GRADES **A**

LINEUP / INSERTS **B**

45° / 70° LEAD **C**

75° LEAD **D**

90° LEAD **E**

HIGH FEED **F**

MULTI-FUNCTION **G**

SLOT MILLS **H**

RADIUS / BALL-NOSE **J**

OTHER APPLICATIONS **K**

TOOL HOLDING **O**

SPARE PARTS **P**

TECHNICAL **R**

INDEX **T**


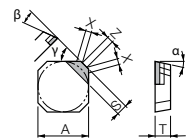

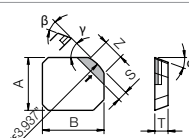
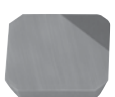
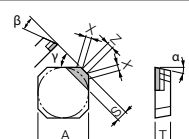
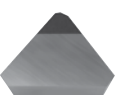
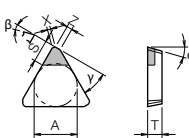

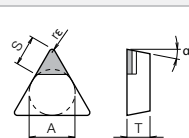

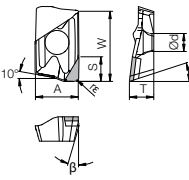

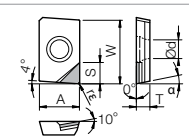
# Milling Inserts

PCD

### Usage Classification

- ★ Roughing / 1st Choice
- ☆ Roughing / 2nd Choice
- Finishing / 1st Choice
- Finishing / 2nd Choice (Hardness Under 45HRC)

P	Free-Cutting Steel Carbon/Alloy Steel			
M	Stainless Steel			
K	Gray Cast Iron Nodular Cast Iron			
N	Non-ferrous Metals	□		■
S	Heat-Resistant Alloys Titanium Alloy	□		■
H	Hard Materials			

Insert (Right-hand Shown)	Part Number (ANSI)	Part Number (ISO)	Dimensions (in)						Angle (°)			PCD			Toolholder Page
			A	T	X	Z	S	B	$\alpha$	$\beta$	$\gamma$	KPD001	KPD010	KPD230	
		SEEN 42AFFN SEEN 1203AFFN	0.500	0.125	0.020	0.055	0.138	-	20°	25°	45°	○	●		C18 C19
		SEEN 42AFFR-W SEEN 1203AFFR-W	0.492	0.125	-	0.138	0.067	0.573	20°	25°	45°	○			C19
		(Use ISO Part Number) SOKN 13T3AXFN-NE	0.531	0.156	0.016	0.043	0.118	-	27°	32°	45°			○	C22
		TEEN 32PTFR-NE TEEN 1603PTFR-NE	0.375	0.125	0.024	0.055	0.161	-	20°	22°	30°	○	●		E69
		TEKN 43PTFR-NE TEKN 2204PTFR-NE					0.185								
		TEEN 32PTFR	0.500	0.187	0.028	0.071	0.165	-	20°	22°	30°	○	○		E48 E49
		TEKN 43PTFR					0.189								
		TPG 2205 TPGN 110302	0.250	0.125	0.008	0.154	-	-	11°	-	-	○	○	E49	
TPG 221	TPGN 110304	0.016			0.146	○						○			
TPG 222	TPGN 110308	0.031			0.134	○									
		(Use ISO Part Number) BDMT 11T302FR BDMT 11T304FR	0.264	0.150	0.110	0.433	0.008	0.142	18°	13°	-	●		○	E12 E13 E14
(Use ISO Part Number) BDMT 170402FR BDMT 170404FR	0.378	0.193					0.173					0.669	0.008	0.173	18°
		NDCW 3205FRX-NE NDCW 150302FRX-NE	0.375	0.125	0.173	0.591	0.008	0.201	15°	-	-			○	E67
		NDCW 3205FRX NDCW 150302FRX					0.008	0.224				○	○		