

THE NEW VALUE FRONTIER



MEGACOAT

PR12-Series

New PVD Coated MEGACOAT Inserts for Milling and Drilling

Stability

Long Tool Life

High Speed

Milling

- MFPN 1
- MEC 2
- MECX 2
- MECH 3
- MSR 4
- MSRS15 5
- MSRS90 6
- MEY 7
- MOF 7
- MOFX 8
- MRP-S/MRP 8

Insert for general use 9-11

Drilling

- DRX 12
- DRZ/DRS 13
- DR/CD 14

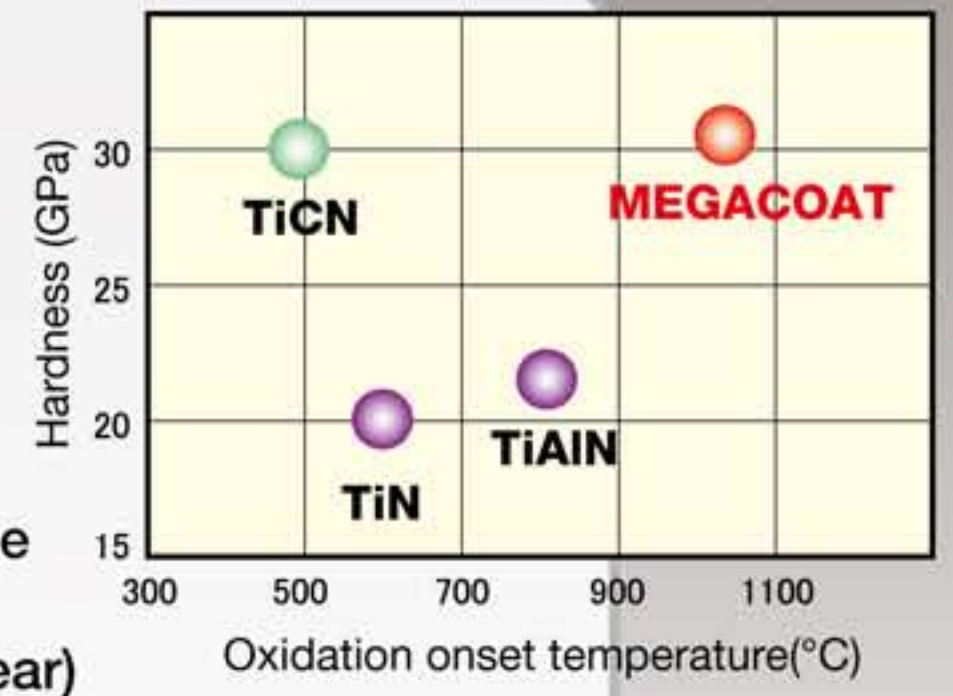
ADVANCING PRODUCTIVITY



New PVD Coated Inserts for Milling and Drilling

PR12-Series

- Improved tool life and high speed capability due to its superior heat resistance and hardness
- Stability improved through prevention of crater wear (oxidation, diffusional wear)
- High thermal stability and surface smoothness provide excellent surface finish



PR1230	MEGACOAT with special tough carbide substrate
PR1225	MEGACOAT with micrograin carbide substrate
PR1210	MEGACOAT with special carbide for cast iron

For steel, general purpose and high feed-rate machining
Suitable for heavy cutting with large chip removal

For carbon steel and stainless steel, general purpose and high feed rate
Stable cutting and long tool life for steel and stainless machining

For high-efficiency and stable machining of gray cast iron and ductile iron

High-Efficiency Face Mill

MFPN



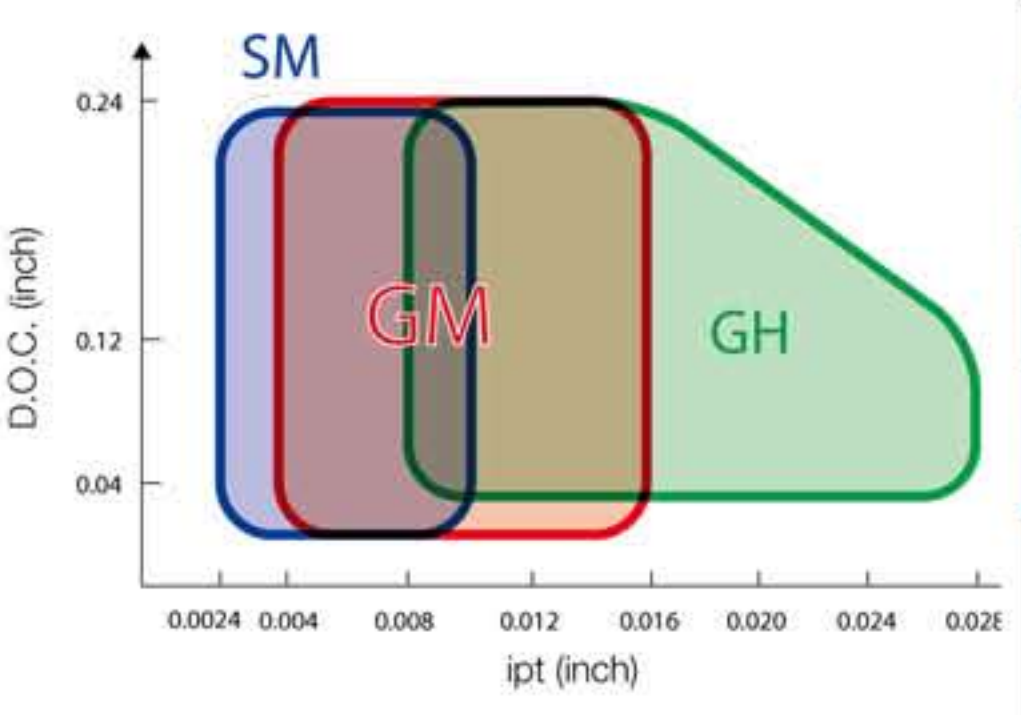
- Roughing and general-purpose face mill with 10-cornered pentagonal inserts
- Low cutting force due to helical cutting-edge design
- Fractures suppressed by double-edge position
- Chip evacuation improved by 3-dimensional chipbreakers

Applicable Insert

Shape (Right-Handed Insert Shown)	Description	Dimension (inch)					MEGACOAT		Applicable Toolholder
		A	T	ød	X	Z	PR1225	PR1210	
General	PNMU 1205ANER-GM	0.704	0.219	0.244	0.079	0.079	●	●	MFPN45...
Low cutting force	PNMU 1205ANER-SM						●	●	
Tough Edge (for heavy milling)	PNMU 1205ANER-GH						0.708	0.243	

●: Standard Stock

3-types of chipbreakers enable coverage of a wide range of milling conditions



Recommended Cutting Conditions

Work Piece Material	Insert Grade	Cutting Speed (sfm)	Chipbreaker	inches per tooth								
				0.002	0.004	0.008	0.012	0.016	0.020	0.024	0.028	
Carbon Steel	PR1225	400-600-820	GM*	0.004	0.008	0.016						
			SM	0.002	0.005	0.012						
			GH	0.008	0.016	0.028						
Alloy Steel	PR1225	325-525-725	GM*	0.004	0.008	0.016						
			SM	0.002	0.005	0.012						
			GH	0.008	0.016	0.024						
Die Steel	PR1225	280-460-630	GM*	0.004	0.008	0.014						
			SM	0.002	0.005	0.008						
			GH	0.008	0.014	0.020						
Stainless Steel	PR1225	300-500-700	GM	0.004	0.008	0.016						
			SM*	0.002	0.005	0.012						
			GH	0.008	0.016	0.028						
Gray Cast Iron	PR1210	400-600-800	GM*	0.004	0.008	0.016						
			SM	0.002	0.005	0.012						
			GH	0.008	0.016	0.028						
Nodular Cast Iron	PR1210	300-500-700	GM*	0.004	0.008	0.016						
			SM	0.002	0.004	0.008						
			GH	0.008	0.014	0.020						
Titanium Alloy	PR1210	100-160-250	SM*	0.002	0.004	0.008						

The bold-faced number indicates a center value of recommended condition.

*: 1st Recommendation : 2nd Recommendation

High-Efficiency End Mill / Face Mill

MEC

- Low cutting force and sharp cutting performance
- Perfect 90° shoulders and smooth wall surfaces
- Large chip pocket and 2 chipbreaker types provide excellent chip evacuation

◆ Applicable Insert

Shape (Right-Handed Insert Shown)	Description	Dimension (inches)					Angle (°)		MEGACOAT Grade		Applicable Toolholder
		A	T	ød	W	rε	α	β	PR1225	PR1210	
	BDMT 110302ER-JT	0.248	0.118	0.110	0.433	.008	18	15	●	●	MEC...S-11
	110304ER-JT					1/64			●	●	
	110308ER-JT					1/32			●	●	
	BDMT 11T302ER-JT	0.264	0.150	0.110	0.433	.008	18	13	●	●	MEC...S-11T MEC...R-11...
	11T304ER-JT					1/64			●	●	
	11T308ER-JT					1/32			●	●	
	11T312ER-JT					3/64			●	●	
	11T316ER-JT					1/16			●	●	
	11T320ER-JT					5/64			●	●	
	11T324ER-JT					3/32			●	●	
	11T331ER-JT					.122			●	●	
	BDMT 170404ER-JT	0.378	0.193	0.173	0.669	1/64	18	13	●	●	MEC...S-17 MEC...R-17...
	170408ER-JT					1/32			●	●	
	170412ER-JT					3/64			●	●	
	170416ER-JT					1/16			●	●	
170420ER-JT	5/64					●			●		
170424ER-JT	3/32					●			●		
170431ER-JT	.122					●			●		
170440ER-JT	.157					●			●		
	BDMT 110302ER-JS	0.248	0.118	0.110	0.433	.0082	18	15	●	●	MEC...S-11
	110304ER-JS					1/64			●	●	
	110308ER-JS					1/32			●	●	
	BDMT 11T302ER-JS	0.264	0.150	0.110	0.433	.008	18	13	●	●	MEC...S-11T MEC...R-11...
	11T304ER-JS					1/64			●	●	
	11T308ER-JS					1/32			●	●	
	BDMT 170404ER-JS	0.378	0.193	0.173	0.669	1/64	18	13	●	●	MEC...S-17 MEC...R-17...
	170408ER-JS					1/32			●	●	

●: Standard Stock

◆ Recommended Conditions

◆ JT Chipbreaker

Workpiece Material	Feed per tooth(ipt)		Insert Grade (Cutting Speed : sfm)	
	Toolholder Description inch / (mm)		MEGACOAT	
	MEC0500-MEC0750 (MEC10-MEC19)	MEC1000-MEC15000 (MEC20-MEC40) MEC1500R-MEC4000R (MEC40R-MEC160R)	PR1225	PR1210
Stainless Steel	0.002-0.003-0.004	0.003-0.005-0.006	325-525-650	-
Carbon Steel	0.002-0.004-0.006	0.003-0.006-0.010	400-600-820	-
Alloy Steel	0.002-0.004-0.005	0.003-0.006-0.008	325-525-725	-
Die Steel	0.002-0.003-0.004	0.003-0.005-0.008	250-460-600	-
Gray Cast Iron	0.002-0.004-0.006	0.003-0.007-0.010	-	400-600-820
Nodular Cast Iron	0.002-0.003-0.004	0.003-0.006-0.008	-	325-500-650
Titanium Alloy	0.002-0.003-0.004	0.003-0.006-0.008	-	100-160-230

◆ Wet cut is recommended for Titanium Alloy

◆ JS Chipbreaker

Workpiece Material	Feed per tooth(ipt)		Insert Grade (Cutting Speed : sfm)	
	Toolholder Description		MEGACOAT	
	MEC0500-MEC0750 (MEC10-MEC19)	MEC1000-MEC15000 (MEC20-MEC40) MEC1500R-MEC4000R (MEC40R-MEC160R)	PR1225	
Stainless Steel	0.0024-0.003-0.004	0.003-0.004-0.005	400-600-820	
Carbon Steel	0.0024-0.004-0.005	0.003-0.006-0.007	400-600-820	
Alloy Steel	0.0024-0.003-0.004	0.003-0.005-0.006	325-525-725	
Die Steel	0.0024-0.003-0.004	0.003-0.004-0.005	260-460-600	

High-Efficiency Low Cutting Force End Mill / Face Mill

MECX

- Efficient machining due to more flutes per diameter
- Recommended for lower horsepower machines: low-resistance and high strength design
- Covers a broad range of applications with the multi-purpose JT chipbreaker and the low-resistance JS chipbreaker

◆ Applicable Insert

Shape (Right-Handed Insert Shown)	Description	Dimension(inches)					Angle (°)		MEGACOAT		Applicable Toolholder
		A	T	ød	W	rε	α	β	PR1225	PR1210	
	BDMT 070302ER-JT	0.181	0.118	0.091	0.276	0.008	16	15	●	●	MECX... MECX...M
	070304ER-JT					1/64			●	●	
	070308ER-JT					1/32			●	●	
	BDMT 070302ER-JS	0.181	0.118	0.091	0.276	.008	16	15	●	●	MECX... MECX...M
	070304ER-JS					1/64			●	●	
	070308ER-JS					1/32			●	●	

●: Standard Stock

◆ Recommended Cutting Conditions

Workpiece Material	Feed per tooth(ipt)		Insert Grade (Cutting Speed : sfm)	
	JS Chipbreaker	JT Chipbreaker	MEGACOAT	
			PR1225	PR1210
Stainless Steel	0.0012-0.0016-0.0020	0.0020-0.0024-0.0028	*	-
Carbon Steel	0.0016-0.0031-0.0039	0.0024-0.0039-0.0047	*	-
Alloy Steel	0.0016-0.0024-0.0031	0.0024-0.0031-0.0039	*	-
Die Steel	0.0016-0.0024-0.0031	0.0024-0.0031-0.0039	*	-
Gray Cast Iron	0.0016-0.0031-0.0040	0.0031-0.0039-0.0059	-	*
Nodular Cast Iron	0.0016-0.0024-0.0031	0.0031-0.0039-0.0047	-	*
Titanium Alloy	0.0016-0.0024-0.0031	0.0031-0.0039-0.0047	-	*


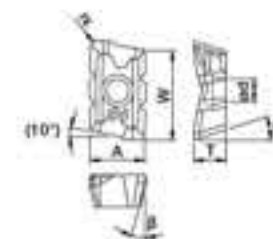

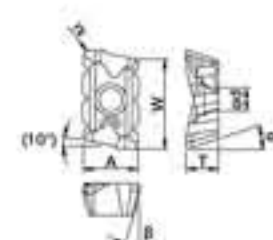

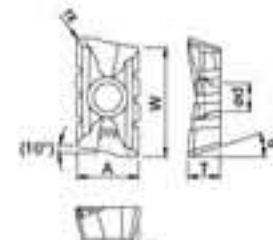

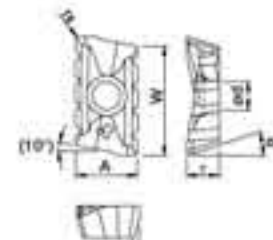
◆ Wet cut is recommended for Titanium Alloy

MECH Helical Endmill

- Improved chip evacuation using a flat-cut flute design
- Notched inserts lower cutting force, reduce chattering and maximize efficiency
- Long axial depth-of-cut enables high-efficiency machining



◆ Applicable Insert

Shape (Right-Handed Insert Shown)	Description	Dimension(inches)					Angle(°)		MEGACOAT			Applicable Toolholder
		A	T	ød	W	rε	α	β	PR1225	PR1230	PR1210	
 2-Notched	 BDMT 11T308ER-N2	0.264	0.150	0.110	0.433	1/32	18	13	●	●	○	MECH...-11-
 3-Notched	 BDMT 11T308ER-N3	0.264	0.150	0.110	0.433	1/32	18	13	●	●	○	MECH...-11-
 3-Notched	 BDMT 170408ER-N3	0.380	0.193	0.173	0.669	1/32	18	13	●	●	●	MECH...-17-
 4-Notched	 BDMT 170408ER-N4	0.380	0.193	0.173	0.669	1/32	18	13	●	●	●	MECH...-17-

●: Standard Stock
○: World Express

Notched insert breaks chips into small pieces

Flute with flat-cut enables good chip evacuation

Notched inserts lower cutting force, reduce chattering, and maximize efficiency

Coolant hole for bottom insert (endmill only)

Work Material :Structural Steel
Vc = 400 sfm
ap×ae=1.57inches×0.39inches
fz = 0.0047 ipt
MECH032-S32-11-5-4T

◆ Recommended Cutting Conditions

Workpiece Material	Feed Rate (ipt)	Insert Grade (Cutting Speed: sfm)		
		MEGACOAT		
		PR1225	PR1230	PR1210
Carbon Steel	0.003-0.004-0.006	☆ 390-590-820	☆ 390-590-720	
Alloy Steel	0.003-0.004-0.006	☆ 330-530-720	☆ 330-530-660	
Die Steel	0.003-0.004-0.006	☆ 260-460-590	☆ 260-460-530	
Gray Cast Iron	0.003-0.006-0.007	-		☆ 390-590-820
Nodular Cast Iron	0.003-0.006-0.007	-		☆ 330-490-660
Titanium Alloy	0.003-0.004-0.006	-		☆ 100-160-230

★ 1st Recommendation ☆ 2nd Recommendation

◆ Wet cut is recommended for Titanium Alloy

◇ Above recommended cutting conditions are applicable for notched inserts.

□ When ordering, please note that an equal number of -N2 & -N3 or -N3 & -N4 inserts are required to load the MECH cutter bodies

Long axial depth of cut enables high-efficiency machining





Heavy Roughing Milling Cutter

MSR



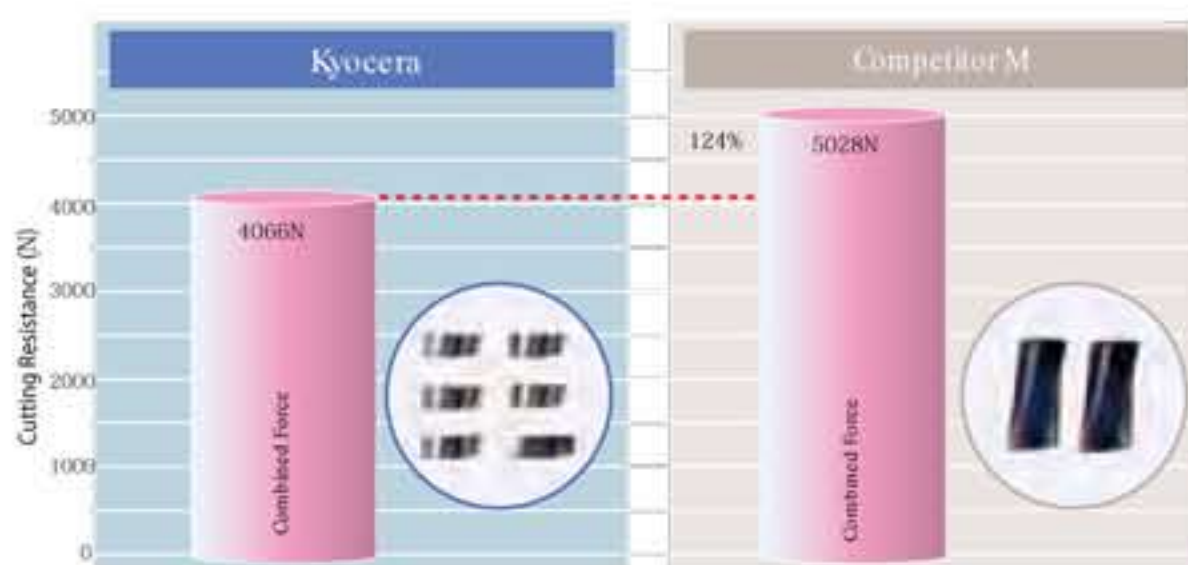
- Double the metal removal rate; double the productivity
- Large notched inserts promote heavier depths-of-cut and excellent chip control
- Heavy machining with low cutting forces
- Drastically improves machining efficiency

◆ Applicable Insert

Shape (Right-Handed Insert Shown)	Description	Dimension (inches)					Angle (°)		MEGACOAT		Applicable Toolholder
		A	T	ød	W	rε	α	β	PR1230	PR1210	
 3-Notched	APMT 250608ER-NB3	0.625	0.250	0.256	0.984	1/32	15	11	●	●	MSR... MSR...M
	250616ER-NB3					1/16			●	●	
	250640ER-NB3					0.157			●	●	
	APMT 250616EL-NB3					1/16			●		For custom order cutter
 4-Notched	APMT 250608ER-NB4	0.625	0.250	0.256	0.984	1/32	15	11	●	●	MSR... MSR...M
	250616ER-NB4					1/16			●	●	
	250640ER-NB4					0.157			●	●	
	APMT 250616EL-NB4					1/16			●		For custom order cutter
 Low resistance 3-Notched	APMT 250616ER-NB3P	0.625	0.250	0.256	0.984	1/16	15	11	●	●	MSR... MSR...M
 Low resistance 4-Notched	APMT 250616ER-NB4P	0.625	0.250	0.256	0.984	1/16	15	11	●	●	MSR... MSR...M

●: Standard Stock

◆ Comparison of cutting resistance



✂ The exclusive notched chipbreaker provides low resistance and good chip evacuation.

◆ Recommended Cutting Conditions

Workpiece Material	Feed per tooth(ipt)		Insert Grade(sfm)	
	Low Cutting Force	Stronger Edge	MEGACOAT	
	NB3P+NB4P	NB3+NB4	PR1230	PR1210
Cast Iron	0.006	0.008	-	330-490-660
Carbon Steel	0.006	0.008	330-490-660	-
Stainless Steel	Not Recommended			
Non-ferrous Material	Not Recommended			

■ When using MSR, please adjust cutting speed depending on overhang length from main spindle of the machine
 Short overhang length: High end of recommended cutting speed
 Long overhang length: Low end of recommended cutting speed

□ When ordering, please note that an equal number of -NB3 & -NB4 inserts are required to load the MSR cutter bodies








Square Insert Face Mill For Heavy milling

MSRS15



- Large depth of cut and high feed rate achieve high-efficiency machining
- Unique notched insert design allows suppressed chattering and low cutting force
- Economical square inserts with four edges
- Optimal 15° rake angle

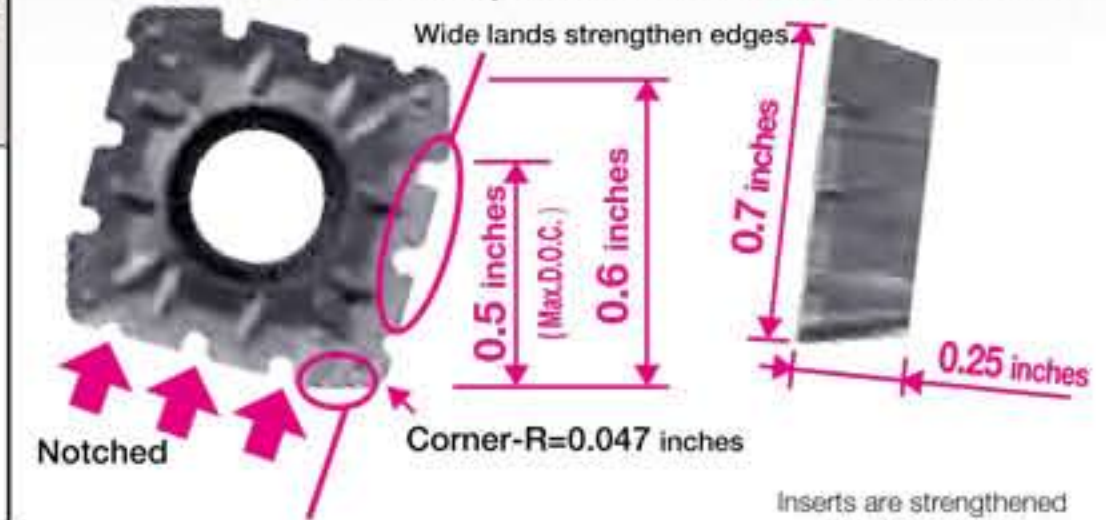
◆ Applicable Insert

Shape (Right-Handed Insert Shown)	Description	Dimension (inches)					Angle(°)			MEGACOAT			Applicable Toolholder
		A	T	ød	X	Z	α	β	γ	PR1225	PR1230	PR1210	
 2 notches General Purpose	SPMT 1806EDER-NB2	0.709	0.250	0.268	R0.047	0.122	11	15	15	●	●	●	MSRS15... MSRS15...M
 3 notches General Purpose	SPMT 1806EDER-NB3	0.709	0.250	0.268	R0.047	0.122	11	15	15	●	●	●	MSRS15... MSRS15...M
 2 notches Tough edge type	SPMT 1806EDSR-NB2T	0.709	0.250	0.268	R0.047	0.122	11	15	15	●	●	●	MSRS15... MSRS15...M
	SPMT 1806EDSL-NB2T									●	●	●	For custom order cutter
 3 notches Tough edge type	SPMT 1806EDSR-NB3T	0.709	0.250	0.268	R0.047	0.122	11	15	15	●	●	●	MSRS15... MSRS15...M
	SPMT 1806EDSL-NB3T									●	●	●	For custom order cutter
 4 notches Low resistance type	SPMT 1806EDER-NB2P	0.709	0.250	0.268	R0.047	0.122	11	15	15	●	●	●	MSRS15... MSRS15...M
 5 notches Low resistance type	SPMT 1806EDER-NB3P	0.709	0.250	0.268	R0.047	0.122	11	15	15	●	●	●	MSRS15... MSRS15...M
 Without notch	SPMT 1806EDER-V	0.709	0.250	0.268	R0.047	0.122	11	15	15	●	●	●	MSRS15... MSRS15...M

Maximum depth of cut is 0.47" (12mm)

Large depth of cut and high feed rate achieve high-efficiency machining.

Recommended depth of cut: 0.2 to 0.4 inches.



Large wiper edges achieve high feed rate.

Notched insert reduces cutting force, chattering and enables efficient machining

□ When ordering, please note that an equal number of -NB2 & -NB3 inserts are required to load the MSRS cutter bodies

◆ Recommended Cutting Conditions

Workpiece Material	Feed Rate (ipt)				Recommended Insert Grades/Cutting Speed (sfm)		
	NB2P + NB3P	NB2 + NB3	NB2T + NB3T	-γ type	MEGACOAT		
					PR1225	PR1230	PR1210
Carbon Steel	0.006	0.008	0.012	0.008	↓ 385-490-820	★ 394-500-720	·
Alloy Steel	0.006	0.008	0.012	0.008	↓ 390-500-820	★ 394-500-720	·
Die Steel	0.004	0.006	0.008	0.006	↓ 330-530-720	★ 330-530-660	·
Gray Cast Iron	0.008	0.010	0.014	0.010	·	·	★ 385-500-820
Nodular Cast Iron	0.006	0.008	0.012	0.008	·	·	★ 330-530-720
Stainless Steel	Not Recommended						
Non-ferrous Material	Not Recommended						

★1st Recommendation ↓2nd Recommendation

●: Standard Stock


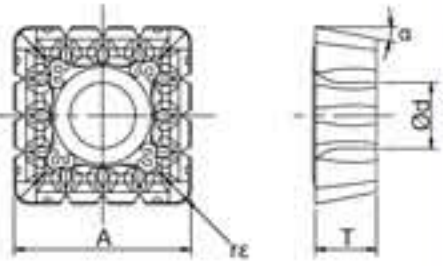

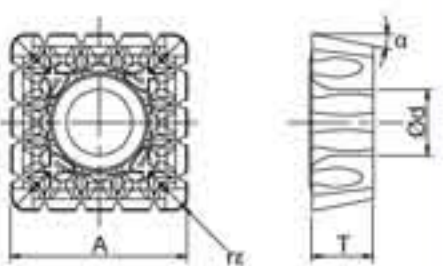

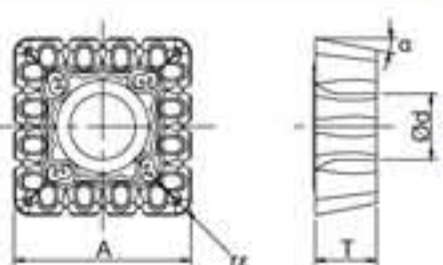

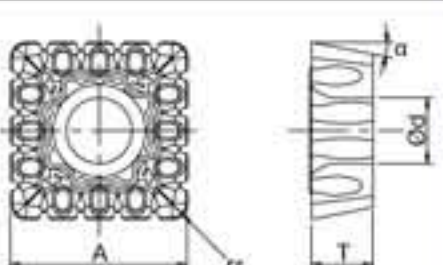

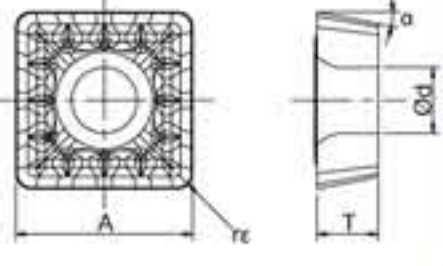
For Heavy milling

MSRS90

- Notched inserts reduce cutting force when entering the workpiece
- Smooth chip evacuation
- Available for various types of applications such as shouldering (cutting angle 90°), high-feed cutting (cutting angle 30°), and plunging



◆ Applicable Insert

Shape (Right-Handed Insert Shown)	Description	Dimension (inches)				Angle (°)	MEGACOAT		Applicable Toolholder
		A	T	ød	r		PR1230	PR1210	
 3 notches	 SPMT 180616EN-NB3	0.709	0.250	0.268	R0.047	11	●	●	MSRS90... MSRS90...M
 4 notches	 SPMT 180616EN-NB4						●	●	MSRS90... MSRS90...M
 3 notches (Low resistance type)	 SPMT 180616EN-NB3P	0.709	0.250	0.268	R0.047	11	●	●	MSRS90... MSRS90...M
 4 notches (Low resistance type)	 SPMT 180616EN-NB4P						●	●	MSRS90... MSRS90...M
 Without notches	 SPMT 180616EN-V	0.709	0.250	0.268	R0.047	11	●	●	MSRS90... MSRS90...M

●: Standard Stock

□ When ordering notched inserts, please note that an equal number of ~NB3 & ~NB4 inserts are required to load the MSRS cutter bodies

◆ Recommended Cutting Conditions

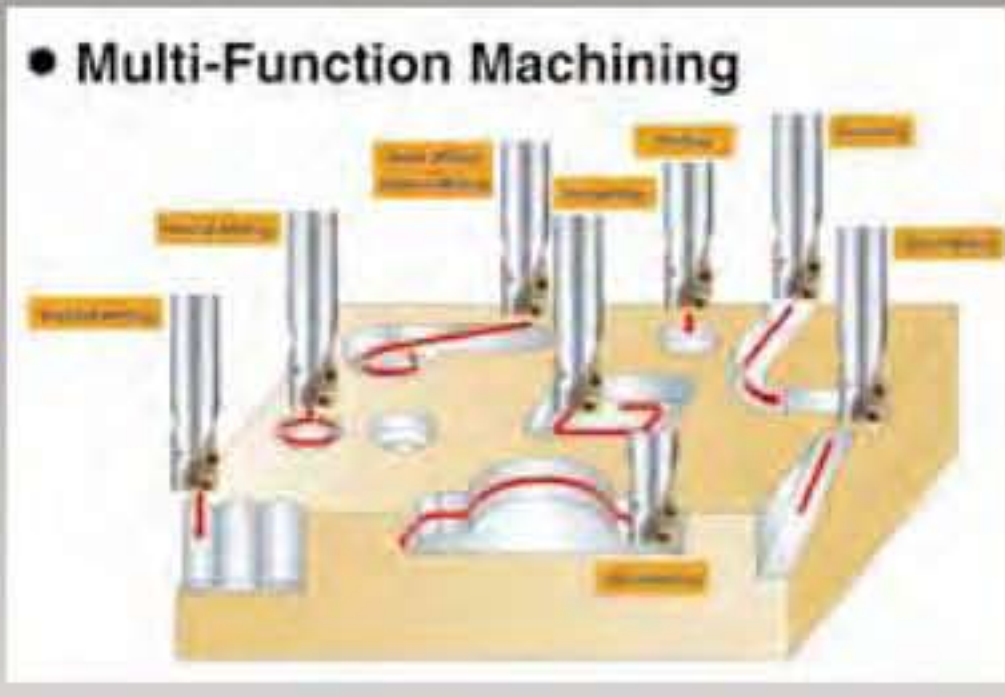
Workpiece Material	Feed Rate (ipt)		Cutting Speed (sfm)	
	Standard type NB3 NB4 & -V type	Low resistance type NB3P NB4P	MEGACOAT	
			PR1230	PR1210
Soft Steel	0.004-0.008-0.010	0.004-0.008-0.010	★ 390-490-720	☆ 395-490-720
Carbon Steel	0.004-0.008-0.010	0.004-0.008-0.010	★ 330-490-660	☆ 330-490-660
Alloy Steel	0.004-0.006-0.008	0.004-0.006-0.008	★ 330-490-660	☆ 330-490-660
Die Steel	0.004-0.006-0.008	0.004-0.005-0.006	★ 330-490-590	☆ 330-490-590
Gray Cast Iron	0.004-0.008-0.012	0.004-0.008-0.010	☆ 330-590-820	★ 330-590-820
Nodular Cast Iron	0.004-0.008-0.010	0.004-0.007-0.008	☆ 330-590-720	★ 330-590-720
Stainless Steel	Not Recommended			
Non-ferrous Metals	Not Recommended			

★1st Recommendation ☆2nd Recommendation



Multi-Function End Mill

MEY



- Two-flute effective design for milling
- Improved stability and tool life
- Low cutting resistance
- Good chip evacuation when drilling and slant milling
- The silver coating prevents chip wear on the tool body

◆ Applicable Insert

Shape (Right-Handed Insert Shown)	Description	Dimension (inches)					Angle(°)		MEGACOAT		Applicable Toolholder
		A	T	ød	W	rε	α	β	PR1225	PR1210	
	GOMT 08T208ER-D	0.205	0.109	0.091	0.343	1/32	13°	17°	●	●	MEY625-... MEY16-... MEY17-...
	100308ER-D	0.258	0.130	0.110	0.421				●	●	MEY750-... MEY20-... MEY21-...
	13T308ER-D	0.329	0.152	0.134	0.520				●	●	MEY1000-... MEY1500-... MEY25-... MEY26-... MEY40-...
	160408ER-D	0.395	0.187	0.173	0.657				●	●	MEY1250-... MEY2000-... MEY32-... MEY33-... MEY50-...
	JOMT 08T208ER-D	0.202	0.109	0.091	0.335	1/32	17°	13°	●	●	MEY625-... MEY16-... MEY17-...
	100308ER-D	0.253	0.125	0.110	0.402				●	●	MEY750-... MEY20-... MEY21-...
	13T308ER-D	0.317	0.146	0.134	0.520				●	●	MEY1000-... MEY1500-... MEY25-... MEY26-... MEY40-...
	160408ER-D	0.381	0.187	0.173	0.667				●	●	MEY1250-... MEY2000-... MEY32-... MEY33-... MEY50-...

●: Standard Stock

Octagonal Insert Face Mill

MOF



- Low cost per edge due to the 8-edge insert
- High rake angle and double-positive design reduce cutting forces
- Easy insert indexability results in improved productivity
- SH chipbreaker (for general purpose / low cutting force) and GT chipbreaker (Tough edge)
- The silver coating prevents chip wear on the tool body

◆ Applicable Insert

Shape (Right-Handed Insert Shown)	Description	Dimension (inch)					Angle(°)			MEGACOAT		Applicable Toolholder
		A	T	ød	X	Z	α	β	γ	PR1225	PR1210	
	OFMT 050405EN-GT	0.526	0.190	0.181	R0.020	0.055	26°	26°	45°	●	●	MOF45...-05-...
	070408EN-GT	0.703	0.202	0.228	0.03125	0.047				●	●	MOF45...-07-...
	OFMT 050405ER-SH	0.530	0.187	0.173	R0.020	0.067	26°	22°	45°	●	●	MOF45...-05-...
	070405EN-SH	0.708	0.192	0.228		-				26°	●	●

●: Standard Stock

Octagonal Insert Face Mill

MOFX



- Wedge clamp corner change system improves productivity
- Easy-edge height adjustment system produces excellent surface finish
- 8-edge insert provides high cost-efficiency
- High axial rake angle and double-positive angle on chipbreaker provide low cutting forces
- SH chipbreaker (for general purpose / low cutting force) and GT chipbreaker (tough edge)

◆ Applicable Insert

Shape	Description	Dimension					Angle			MEGACOAT		Applicable Toolholder
		A	T	ød	W	Z	α	β	y	PR1225	PR1210	
	OFMR 070405EN-SH	0.708	0.194	-	R0.020	0.071	26°	26°	45°	●	●	MOFX45...-07-...SF
	OFMR 070408EN-GT	0.703	0.202	-	0.0312	0.043				●	●	MOFX45...-07-...SF

●: Standard Stock

Radius Mill

MRP-S/MRP



- Ideal for mold machining
- Recommended for various types of machining (Contouring, Helical Milling, Ramping, etc.)
- Easy indexing and firm clamping due to unique insert design
- Lineup includes end mills and shell mills

◆ Applicable Insert

Shape	Description	Dimension (inches)			Angle(°)	MEGACOAT		Applicable Toolholder
		A	T	ød	α	PR1230	PR1210	
	RPMT 10T3M0	0.394	0.156	0.134	11°		○	MRP...-10-...
	1204M0	0.472	0.187	0.173	11°	○	○	MRP...-12-...
	RDMT 08T2M0-H	0.315	0.109	0.134	15°	○	○	MRP...-08-...
	RPMT 1204M0-H	0.472	0.187	0.173	11°	○	○	MRP...-12-...
	1606M0-H	0.630	0.250	0.217	11°	○	○	MRP...-16-...
	2006M0-H	0.787	0.250	0.256	11°	○	○	MRP...-20

○: World Express

MSD45 / Others


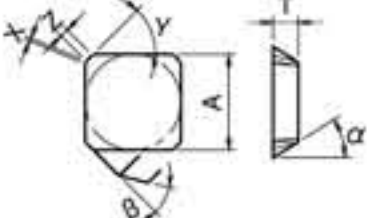

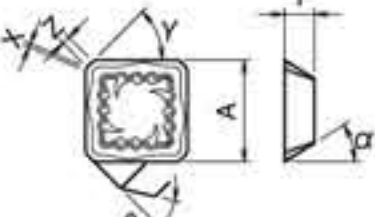
Shape (Right-Handed Insert Shown)	Description	Dimension (inches)						Angle(°)			MEGACOAT		Applicable Toolholder
		A	T	ød	X	Z	rε	α	β	γ	PR1225	PR1210	
	SDKN 42AUTN	0.5	0.125	-	0.020	0.047	-	15°	23°	45°	○	○	MSD45...
	SDKN 53AUTN	0.625	0.187	-	0.020	0.047	-	15°	23°	45°	○		-
	SDKR 42AUEN-S	0.5	0.125	-	0.197	0.067	-	15°	23°	45°	○		MSD45...
	SDKW 1204AESN	0.5	0.187	0.22	R0.039	0.059	-	15°	20°	45°	○		-
	SDKW 1204AETN											○	-
	SDMR 42AUER-H	0.5	0.125	-	R0.039	0.031	-	15°	23°	45°	○		MSD45...
	SDMT 1204AESR-H	0.5	0.187	0.217	R0.039	0.031	-	15°	20°	45°	○		-

MSE45 / MSE45-SF / Others


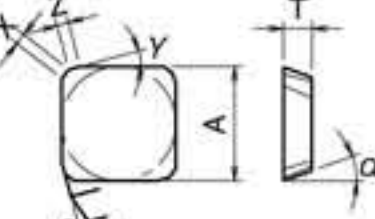

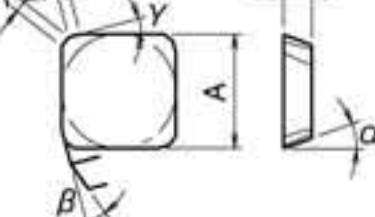

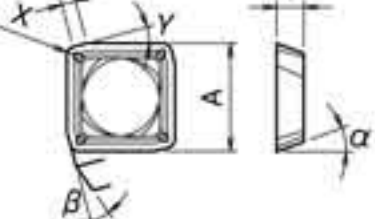





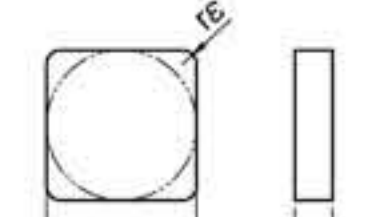
Shape (Right-Handed Insert Shown)	Description	Dimension (inches)						Angle (°)			MEGACOAT		Applicable Toolholder
		A	T	ød	X	Z	rε	α	β	γ	PR1225	PR1210	
	SEKN 42AFTN	1/2	1/8	-	0.020	0.055	-	20°	25°	45°	●	●	MSE45...
	SEKN 43AFTN	1/2	3/16	-	0.020	0.055	-	20°	25°	45°	●		-
	SEKN 53AFTN	5/8	3/16	-	0.020	0.055	-	20°	25°	45°	●		-
	SEKR 42AFEN-S	1/2	1/8	-	0.020	0.067	-	20°	25°	45°	●		MSE45...
	SEKT 43AFEN-S	1/2	3/16	0.217	0.020	0.067	-	20°	25°	45°	●		-
	SEKW 43AFTN	1/2	3/16	0.133	0.020	0.055	-	20°	25°	45°	○	○	-
	SEMR 42AFER-H	1/2	1/8	-	R0.039	0.039	-	20°	25°	45°	●		MSE45...

●:Standard Stock
○:World Express

MSO45 / MSO45-S

Shape (Right-Handed Insert Shown)	Description	Dimension (Inch)						Angle			MEGACOAT		Applicable Toolholder
		A	T	ød	X	Z	rε	α	β	γ	PR1225	PR1210	
	 SOKN 13T3AXTN	0.531	5/32	-	0.020	0.043	-	27°	32°	45°	○	○	MSO45...
	 SOKR 13T3AXEN-J	0.531	5/32	-	0.020	0.043	-	27°	32°	45°	○		MSO45...

MSP15 / Others

Shape (Right-Handed Insert Shown)	Description	Dimension (Inch)						Angle			MEGACOAT		Applicable Toolholder
		A	T	ød	X	Z	rε	α	β	γ	PR1225	PR1210	
	 SPKN 42EDTR	0.5	0.125	-	R0.039 0.039	0.079	-	11°	15°	15°	○	○	MSP15...
	SPKN 53EDTR	0.625	0.187	-	0.039	0.087	-	11°	15°	15°	○	○	-
	 SPEN 42EESR	0.5	0.125	-	0.039	0.055	-	11°	20°	15°		○	-
	 SPKR 42EDER-S	0.5	0.125	-	R0.039	0.079	-	11°	15°	15°	○		MSP15...
	 SPMR 42EDER-H	0.5	0.125	-	R0.039	0.079	-	11°	15°	15°	○		MSP15...
	 SPMN 120408	0.5	0.187	-	-	-	0.031	11°	-	-		○	-
	 SNMN 120408	0.5	0.187	-	-	-	0.031	-	-	-		○	-
	120412						0.047						

●:Standard Stock
○:World Express

MTE / MTES / Others

Shape (Right-Handed Insert Shown)	Description	Dimension (inches)						Angle (°)			MEGACOAT		Applicable Toolholder
		A	T	ød	X	Z	rε	α	β	γ	PR1225	PR1210	
	TEKN 32PTTR	0.375	0.125	-	R0.031 0.028	0.039 0.055	-	20°	22°	30°	○	○	MTES
	TEKN 43PTTR	0.50	0.187	-	R0.039 0.276	0.055	-	20°	22°	30°	○	○	MTE90...
	TEKR 43PTER-S	0.5	0.187	-	R0.039	0.055	-	20°	22°	30°	○		MTE90
	TEMR 32PTER-H	0.375	0.125	-	R0.031	0.047	-	20°	22°	30°	○		MTES
	TEMR 43PTER-H	0.5	0.187	-	R0.039	0.055	-	20°	22°	30°	○		MTE90...
	TPKN 32PDTR	0.375	0.125	-	0.028	0.047	-	11°	15°	30°	○	○	-
	TPKN 43PDTR	0.5	0.187	-	0.028	0.063	-	11°	15°	30°	○	○	MTP90...
	TPKR 43PDER-S	0.5	0.187	-	R0.039	0.055	-	11°	15°	30°	○		MTP90...
	TPMR 32PDER-H	0.375	0.125	-	R0.031	0.047	-	11°	15°	30°	○		-
	TPMR 43PDER-H	0.5	0.187	-	R0.039	0.055	-	11°	15°	30°	○		MTP90...

MSO90 / MSO90-S

Shape (Right-Handed Insert Shown)	Description	Dimension (inches)					Angle (°)			MEGACOAT		Applicable Toolholder
		A	T	ød	Z	rε	α	β	γ	PR1225	PR1210	
	SEMM 150408PESR	0.625	0.187	0.217	-	0.0315	20°	-	-	●	●	MSO90...R-15-.T(-M) MSO90...-S32-15

Others

Shape	Description	Dimension (inches)					Angle (°)			MEGACOAT	Applicable Toolholder
		A	T	ød	W	rε	α	β	γ	PR1230	
	RDHX 0702M0T	0.276	0.094	0.110						○	-
	1003M0T	0.394	0.125	0.150	-	-	15°	-	-	○	
	12T3M0T	0.472	0.156	0.150						○	

●:Standard Stock
○:World Express

DRX



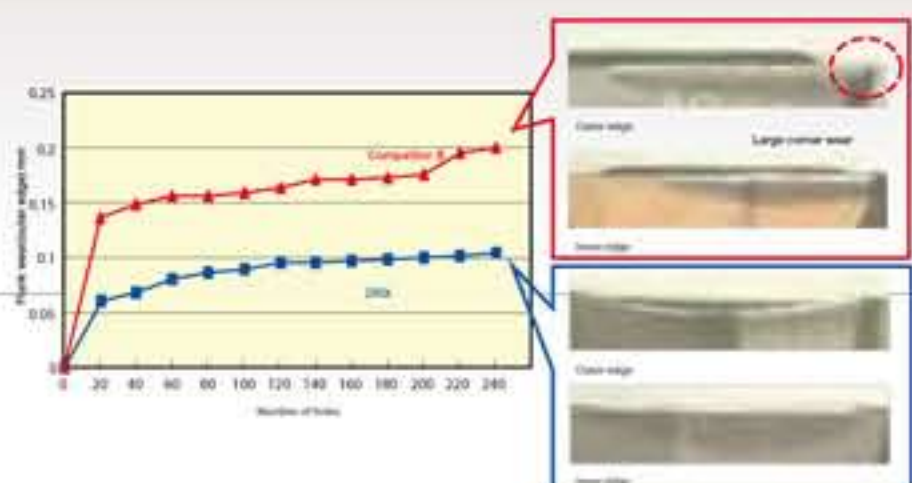
GM Chipbreaker
Carbon Steel, Cast Iron
General Purpose

GH Chipbreaker
for hardened material, for interruption with strong edge type

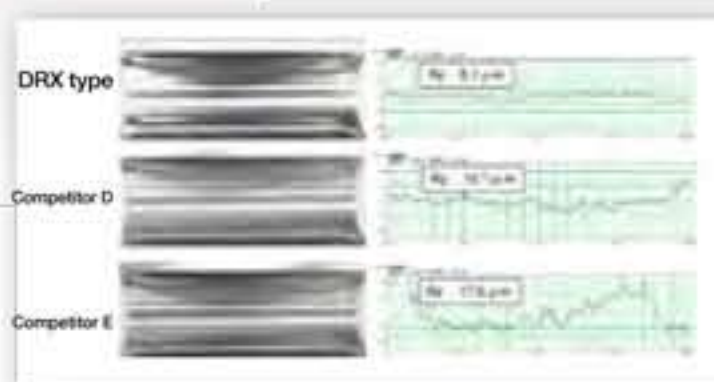
SM Chipbreaker
Stainless Steel, Low Carbon Steel, Non-ferrous Metals
Sharp cutting, for deeper drilling

- Improved chip evacuation by new twisted coolant hole technology
- 3 types of chipbreakers available for various workpiece shapes
- Superior surface finish due to high precision balanced design

Finished surface comparison



Vc=7.09 inches/min, f=0.0059 inches/rev., H=2.36 inches (through hole), e20-3D, WET, 1045, NC Lathe



Better finished surface than Competitor D and E

Possible to extend tool life of next process

◆ Applicable Insert

Shape	Description	Dimension					Angle(°)		MEGACOAT			Applicable Toolholder
		A	T	ød	W	rε	α	β	PR1230	PR1225	PR1210	
For External Edge	ZXMT 030203GM-E	0.26	0.091	0.094	0.189	0.012	7°	10°	○		○	S20-DRX -03
	ZXMT 030203GM-I	0.23	0.091	0.094	0.189	0.012	7°	10°	○	○	○	
For External Edge	ZXMT 030203GH-E	0.26	0.091	0.094	0.189	0.012	7°	10°	○			
For External Edge	ZXMT 030203SM-E	0.26	0.091	0.094	0.189	0.012	7°	10°		○		
For External Edge	ZXMT 040203GM	0.244	0.102	0.094	0.201	0.012	13°	7°	○		●	S20-DRX...-04
	05T203GM	0.287	0.108	0.098	0.219	0.012			○		●	S25-DRX...-05
	06T204GM	0.339	0.114	0.110	0.252	0.016			○		○	S25-DRX...-06
	070305GM	0.402	0.128	0.118	0.315	0.020			●		●	S25-DRX...-07
	09T306GM	0.480	0.159	0.142	0.378	0.024			●		○	S32-DRX...-09
	11T306GM	0.571	0.160	0.181	0.457	0.024			○		○	S40-DRX...-11
	140408GM	0.709	0.192	0.224	0.567	0.031			●		○	S40-DRX...-14
	170608GM	0.870	0.259	0.268	0.697	0.031			●		○	S40-DRX...-17
For External Edge	ZXMT 040203GH	0.244	0.102	0.094	0.201	0.012	13°	7°	○			S20-DRX...-04
	05T203GH	0.287	0.108	0.098	0.217	0.012			○			S25-DRX...-05
	06T204GH	0.339	0.114	0.110	0.252	0.016			○			S25-DRX...-06
	070305GH	0.402	0.128	0.118	0.315	0.020			●			S25-DRX...-07
	09T306GH	0.480	0.161	0.142	0.378	0.024			○			S32-DRX...-09
	11T306GH	0.571	0.160	0.181	0.457	0.024			○			S40-DRX...-11
	140408GH	0.709	0.192	0.224	0.567	0.031			○			S40-DRX...-14
	170608GH	0.870	0.259	0.268	0.697	0.031			○			S40-DRX...-17
For External Edge	ZXMT 040203SM	0.244	0.102	0.094	0.201	0.012	13°	7°		○		S20-DRX...-04
	05T203SM	0.287	0.108	0.098	0.217	0.012				○		S25-DRX...-05
	06T204SM	0.339	0.114	0.110	0.252	0.016				○		S25-DRX...-06
	070305SM	0.401	0.128	0.118	0.315	0.020				○		S25-DRX...-07
	09T306SM	0.480	0.159	0.142	0.378	0.024				○		S32-DRX...-09
	11T306SM	0.571	0.160	0.181	0.457	0.024				○		S40-DRX...-11
	140408SM	0.709	0.192	0.224	0.567	0.031				○		S40-DRX...-14
	170608SM	0.870	0.259	0.256	0.697	0.031				○		S40-DRX...-17

●: Standard Stock
○: World Express

Magic Drill

Mini-MagicDrill

DRZ/DRS




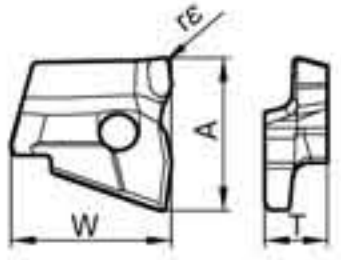

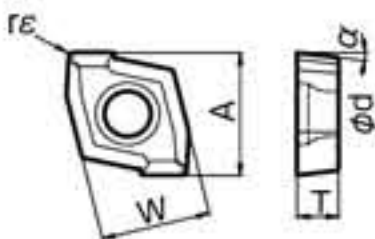

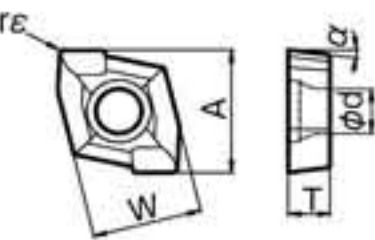

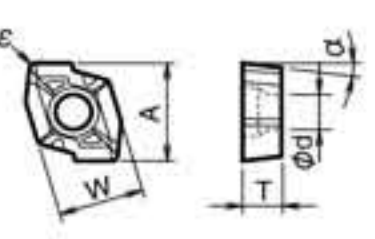
DRZ: Magic Drill

- Four cutting edges per insert promotes cost savings and increased efficiency
- Molded chipbreakers produce three separate chips for smooth chip evacuation
- Superior chip evacuation and surface finishes

DRS: Small Diameter Magic Drill

- Inner & outer edges on each indexable insert makes for easy insert replacement
- Produces small chips for good chip evacuation
- Possible to drill into a slant face without pre-drilling

◆ Applicable Insert

Shape	Description	Dimension (inches)					Angle (°)	MEGACOAT			Applicable Toolholder
		A	T	ød	W	rε	α	PR1230	PR1225	PR1210	
 	DS 100	0.346	0.138	-	0.354	0.0079	-	●		●	S75-DRS10035 S20-DRS10035 S20-DRS10336
	105	0.366	0.146		0.382			S75-DRS10537 S20-DRS10537			
	110	0.386	0.154		0.425			S75-DRS11038 S20-DRS11038			
	115	0.402	0.161		0.406			S75-DRS11540 S20-DRS11540			
	120	0.425	0.169		0.429	0.0098		S75-DRS12042 S75-DRS12544 S20-DRS12042 S20-DRS12544			
 	ZCMT 050203	0.232	0.094	0.091	0.197	0.012	7°	●	●	●	S..-DRZ -05
	06T204	0.276	0.110	0.098	0.236	0.016		●	●	●	S..-DRZ -06
	080304	0.382	0.125	0.114	0.323			●	●	●	S..-DRZ -08
	10T304	0.472	0.156	0.173	0.409			●	●	●	S..-DRZ -10
	12T306	0.563	0.156	0.220	0.504	0.024		●	●	●	S..-DRZ -12
	150408	0.701	0.187	0.220	0.622	0.031		●	●	●	S..-DRZ -15
	200608	0.898	0.25	0.256	0.799			●			S..-DRZ -20
  <p>Low cutting force Deep drilling</p>	ZCMT 050203SP	0.232	0.094	0.090	0.197	0.012	7°	●	●		S..-DRZ -05
	06T204SP	0.276	0.110	0.098	0.236	0.016		●	●		S..-DRZ -06
	080304SP	0.382	0.125	0.114	0.323			●	●		S..-DRZ -08
	10T304SP	0.472	0.156	0.173	0.409			●	●		S..-DRZ -10
	12T304SP	0.563	0.156	0.220	0.504	0.024		●	●		S..-DRZ -12
	150406SP	0.701	0.187	0.220	0.622	0.024		●	●		S..-DRZ -15
  <p>For stainless steel</p>	ZCMT 050203SU	0.232	0.094	0.090	0.197	0.012	7°	●	●		S..-DRZ -05
	06T204SU	0.276	0.110	0.098	0.236	0.016		●	●		S..-DRZ -06

●:Standard Stock

Coremaster Coredrill


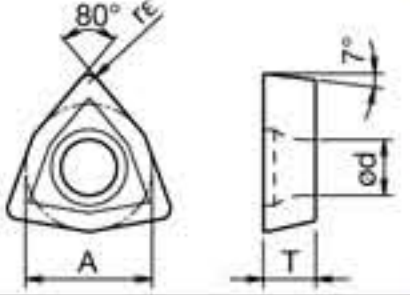
CD



Available in Fixed Pocket and Adjustable Cartridge

- Fast effective way to expand pre-existing holes
- Two effective flutes allow high feed rates for improved productivity
- Deeper drilling depths available in the XL-Series

◆ Applicable Insert

Insert	Description	Dimension (inches)				Angle (°)	MEGACOAT	Applicable Toolholder
		A	T	ød	r	α		
 	WCMT06T308	0.375	0.156	0.146	0.031	7°	●	Insert type depends on CD Coredrill diameter and no. of insert pockets. Reference the Kyocera Drilling Catalog for details.
	WCMT050308	0.313	0.125	0.126				

*Both WCMT and WCMX style inserts fit in the CD drills

●:Standard Stock


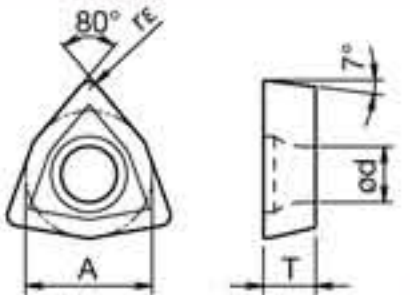
Holeshot Drill

DR



- Drilling diameters from 0.515" to 4.000"
- Swept back design allows for drilling of stacked plates and welded assemblies
- Flute designs optimized for maximum rigidity and good chip evacuation

◆ Applicable Insert

Insert	Description	Dimension (inches)				Angle (°)	MEGACOAT	Applicable Toolholder
		A	T	ød	r	α		
 	WCMT06T308	0.375	0.156	0.146	0.031	7°	●	Insert type depends on DR Drill diameter and no. of insert pockets. Reference the Kyocera Drilling Catalog for details.
	WCMT050308	0.313	0.125	0.126				

*Both WCMT and WCMX style inserts fit in the DR drills

●:Standard Stock