

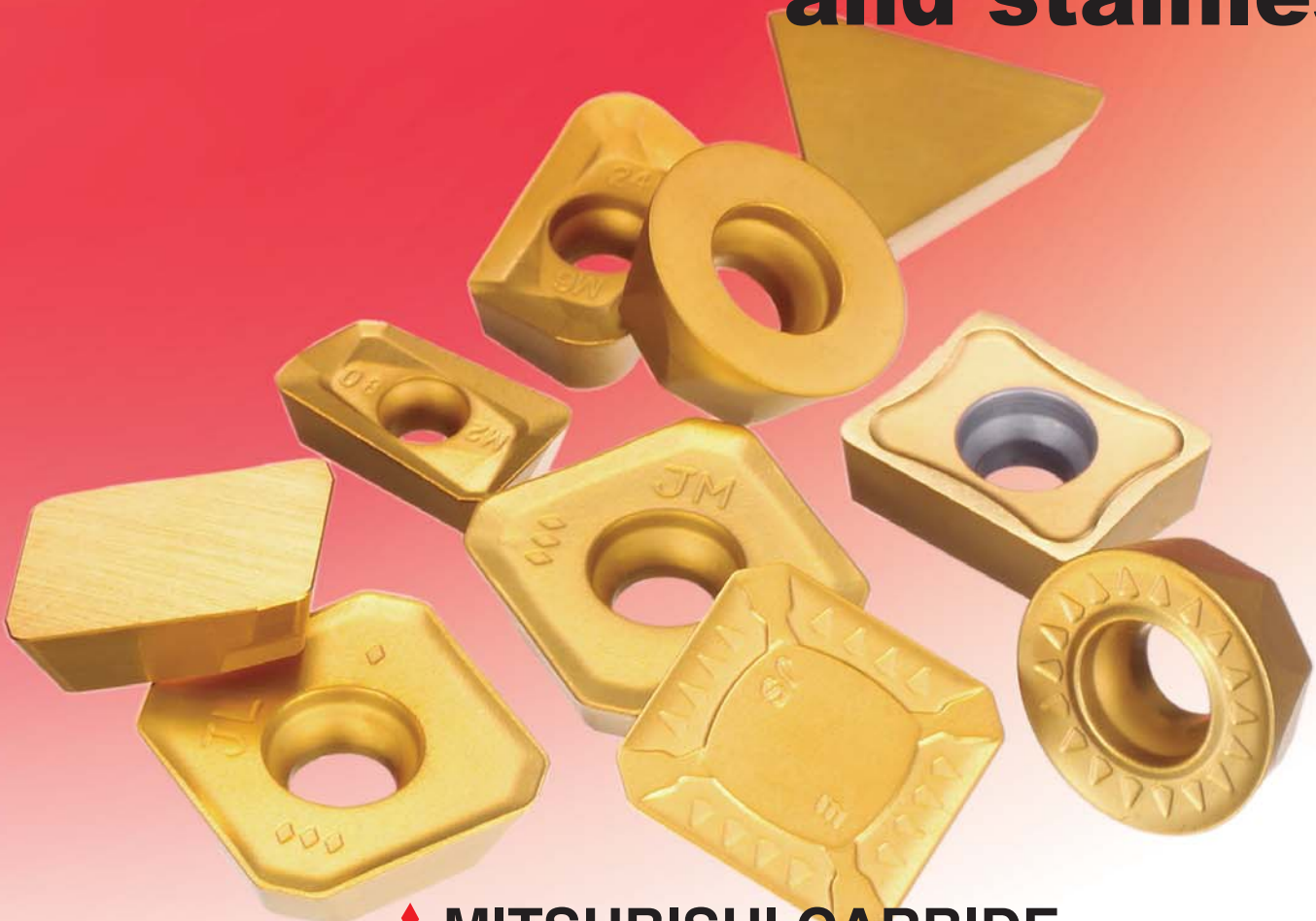
CVD coated grade for milling of steels

# F7030



Superior resistance to wear,  
fractures and thermal cracks.

**Grade with  
excellent  
toughness allows  
the highly efficient  
milling of steels  
and stainless**



# CVD coated grade for milling of steels

# F7030

## Features

The feature of CVD coated grade F7030 for steel and stainless steel milling.

Higher wear resistance ~ Improved fracture resistance ~ Increased thermal shock resistance ~ The benefit is longer tool life.

### High wear resistance

#### Superior Wear Resistance

F7030 employs a multi coated layer of fibrous TiCN and micro-grain Al<sub>2</sub>O<sub>3</sub> that prevents damage to the cutting edge and provides high resistance to flank wear and crater wear. Longer tool life is possible.

### High fracture resistance

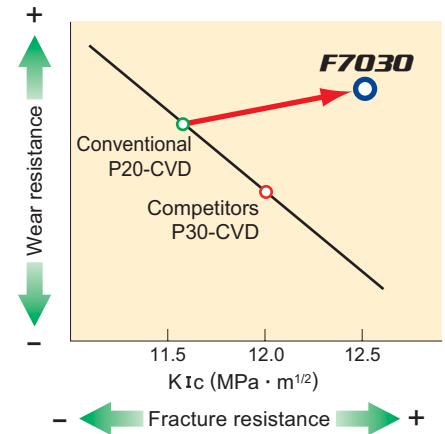
#### Improved Fracture Resistance

Special high toughness cemented carbide substrate has been developed for F7030. The substrate helps prevent fracturing and chipping even when used for interrupted cutting. Longer tool life can be achieved.

### High thermal crack resistance

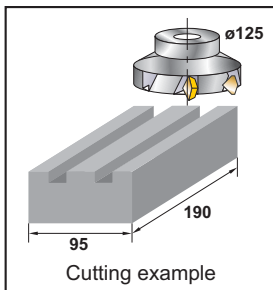
#### Greater Thermal Shock Resistance

The new substrate of F7030 Prevents the growth of thermal cracks caused when used in wet cutting applications. The cutting edge remains stable and can be used even on the most difficult milling operations. Longer tool life is the result.



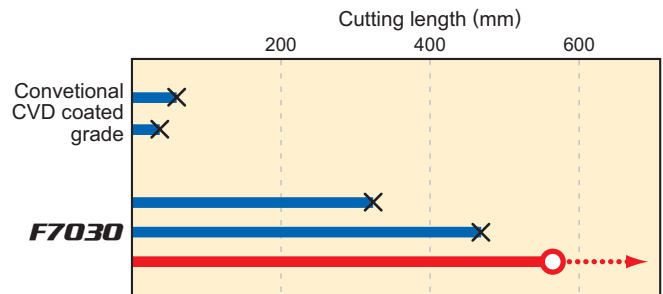
## Cutting performance

### ● Intermittent cutting of alloy steel : Fracture resistance

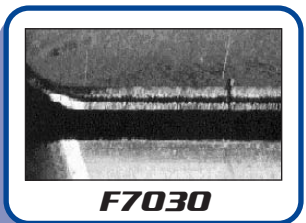
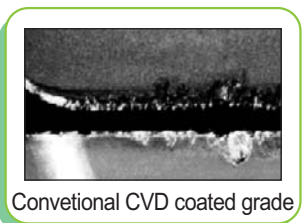
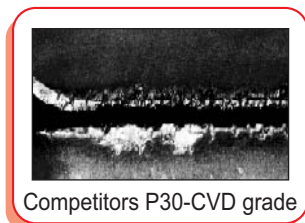


#### <Cutting conditions>

Workpiece : JIS SCM440  
Cutter : SE445R0506E  
Insert : SEEN1203AFSN1  
Cutting speed : 200m/min  
Feed per tooth : 0.35mm/tooth  
Depth of cut : 2.5mm  
Coolant : water soluble oil

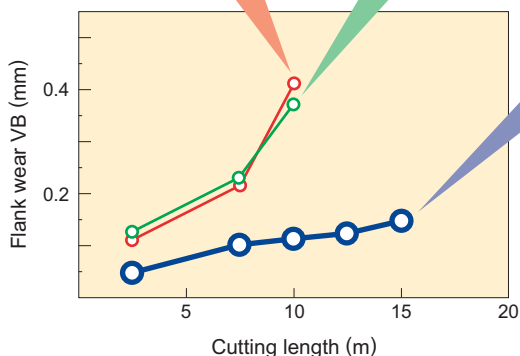


### ● Face milling of alloy steel : Wear resistance




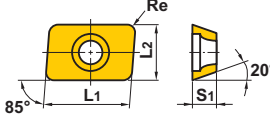

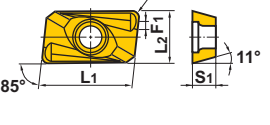

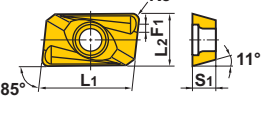

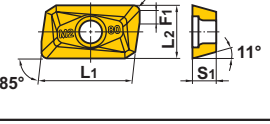

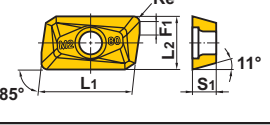

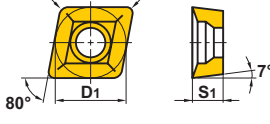

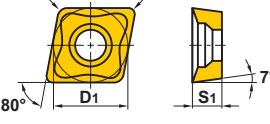

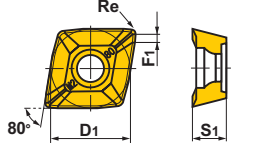

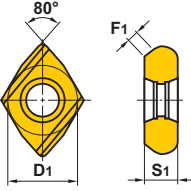

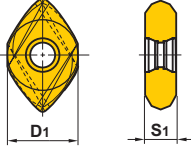
#### <Cutting conditions>

Workpiece : JIS SCM440 (220HB)  
Cutter : SE445R0506E  
Insert : SEEN1203AFSN1  
Cutting speed : 250m/min  
Feed per tooth : 0.2mm/tooth  
Depth of cut : 2.5mm  
Coolant : water soluble oil




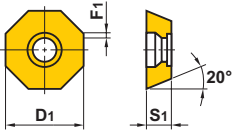

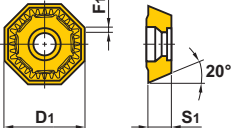

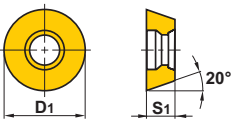

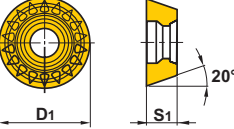

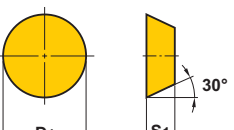



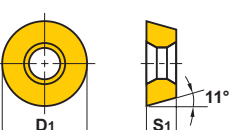

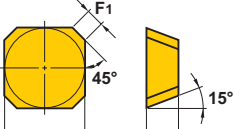

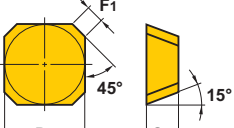
### Recommended cutting conditions

Workpiece material	Hardness	Cutting speed (m/min)	Feed of tooth (mm/tooth)
Mild steel (JIS SS400 · JIS SCM440 etc.)	≤ 180HB	200 (160–250)	0.2 (0.1–0.3)
Carbon steel · Alloy steel (JIS S45C · JIS SCM440 etc.)	180–280HB	160 (125–200)	0.2 (0.1–0.3)
Carbon steel · Alloy steel (JIS S45C · JIS SCM440 etc.)	280–350HB	120 (100–160)	0.15 (0.1–0.2)
Stainless steel (JIS SUS304 etc.)	≤ 200HB	180 (130–250)	0.2 (0.1–0.3)

Cutter / Shape	Order number	Tolerance	Stock	Geometry	Dimensions (mm)					
					L1	L2	D1	S1	F1	Re
	<b>AEMW150304ER</b>	M	●		15.875	9.525	—	3.18	—	0.4
	<b>150308ER</b>	M	●		15.875	9.525	—	3.18	—	0.8
	<b>19T304ER</b>	M	●		19.05	12.7	—	3.97	—	0.4
	<b>19T308ER</b>	M	●		19.05	12.7	—	3.97	—	0.8
	<b>APMT1135PDER-H1</b>	M	●		11	6.35	—	3.5	1.5	0.4
	<b>1135PDER-H2</b>	M	●		11	6.35	—	3.5	1.2	0.8
	<b>1135PDER-H3</b>	M	●		11	6.35	—	3.5	0.8	1.2
	<b>1135PDER-H4</b>	M	●		11	6.35	—	3.5	0.4	1.6
	<b>1135PDER-H6</b>	M	●		11	6.35	—	3.5	0.4	2.4
	<b>APMT1604PDER-H1</b>	M	●		16.5	9.525	—	4.76	1.7	0.4
	<b>1604PDER-H2</b>	M	●		16.5	9.525	—	4.76	1.4	0.8
	<b>1604PDER-H4</b>	M	●		16.5	9.525	—	4.76	0.4	1.6
	<b>1604PDER-H6</b>	M	●		16.5	9.525	—	4.76	0.4	2.4
	<b>1604PDER-H8</b>	M	●		16.5	9.525	—	4.76	0.4	3.2
	<b>APMT1135PDER-M0</b>	M	●		11	6.35	—	3.5	1.8	0.2
	<b>1135PDER-M1</b>	M	●		11	6.35	—	3.5	1.5	0.4
	<b>1135PDER-M2</b>	M	●		11	6.35	—	3.5	1.2	0.8
	<b>APMT1604PDER-M2</b>	M	●		16	9.525	—	4.76	1.4	0.8
	<b>CCMX083508EN-A</b>	M	●		—	—	7.94	3.5	—	0.8
	<b>09T308EN-A</b>	M	●		—	—	9.525	3.97	—	0.8
	<b>CCMX09T308EN-B</b>	M	●		—	—	9.525	3.97	—	0.8
	<b>CPMT1205ZPEN-M2</b>	M	●		—	—	12.7	5.56	1.4	0.8
	<b>1906ZPEN-M2</b>	M	●		—	—	19.05	6.35	1.4	0.8
	<b>CVPEX1205ANSR1</b>	E	▲		—	—	12.7	5.5	1.4	—
	<b>MGPEX1205ANTR1</b>	E	▲		—	—	12.7	5.5	—	—




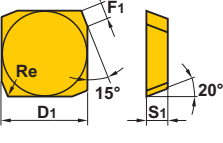

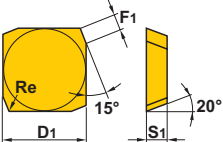

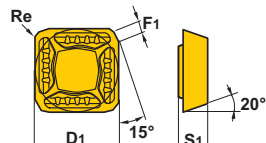

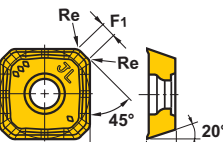
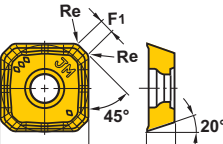


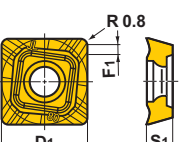
● : Inventory maintained.  
▲ : Inventory maintained. To be replaced by new products.

# F7030


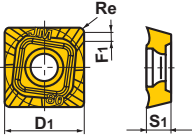

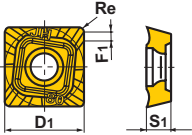

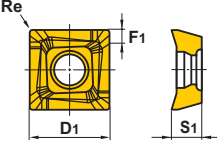

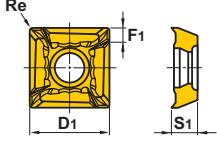
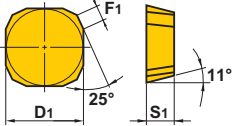

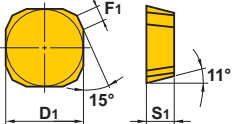

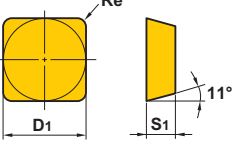

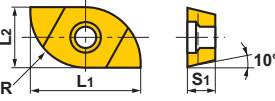

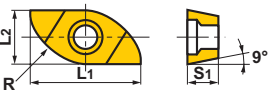
Cutter / Shape	Order number	Tolerance	Stock	Geometry	Dimensions (mm)		
					D1	S1	F1
<b>OCTACUT BOE</b> 	<b>OEMX12T3ESR1</b>	M	●		12.7	3.97	1
	<b>1705ESR1</b>	M	●		17	5	1.4
<b>OCTACUT BOE</b> 	<b>OEMX12T3EER1-JS</b>	M	●		12.7	3.97	1
	<b>1705EER1-JS</b>	M	●		17	5	1.4
<b>OCTACUT BOE</b> 	<b>REMX12T3SN</b>	M	●		12.95	4.17	—
	<b>1705SN</b>	M	●		17.25	5.2	—
<b>OCTACUT BOE</b> 	<b>REMX12T3EN-JS</b>	M	●		12.95	4.17	—
	<b>1705EN-JS</b>	M	●		17.25	5.2	—
<b>SG20</b> 	<b>RGEN2004M0SN</b>	E	●		20	4.76	—
<b>BRP</b> 	<b>RPMT08T2M0E-JS</b>	M	●		8	2.78	—
	<b>10T3M0E-JS</b>	M	●		10	3.97	—
	<b>1204M0E-JS</b>	M	●		12	4.76	—
	<b>1606M0E-JS</b>	M	●		16	6.35	—
<b>BRP</b> 	<b>RPMW08T2M0E</b>	M	●		8	2.78	—
	<b>10T3M0E</b>	M	●		10	3.97	—
	<b>1204M0E</b>	M	●		12	4.76	—
	<b>1606M0E</b>	M	●		16	6.35	—
<b>FMSD</b> 	<b>SDKN1203AEN</b>	K	▲		12.7	3.18	1.2
<b>MSD445</b> 	<b>SDNR1203AEEN-JS</b>	N	▲		12.7	3.18	1.4

● : Inventory maintained.

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Cutter / Shape	Order number	Tolerance	Stock	Geometry	Dimensions (mm)			
					D1	S1	F1	Re
	SEEN1203AFSN1	E	●		12.7	3.18	1.4	1.0
	SEKN1203AFSN1	K	●		12.7	3.18	1.4	—
	SEEN1504AFSN1	E	●		15.875	4.76	1.4	1.0
	SEKN1504AFSN1	K	●		15.875	4.76	1.4	—
	SEER1203AFEN-JS	E	●		12.7	3.18	1.4	1.0
	SEER1504AFEN-JS	E	●		15.875	4.76	1.4	1.0
	SEEN1203EFSR1	E	●	 <p>Right hand insert shown.</p>	12.7	3.18	1.4	1.0
	SEKN1203EFSR1	K	●		12.7	3.18	1.4	—
	SEEN1504EFSR1	E	●	 <p>Right hand insert shown.</p>	15.875	4.76	1.4	1.0
	SEKN1504EFSR1	K	●		15.875	4.76	1.4	—
	SEER1203EFER-JS	E	●		12.7	3.18	1.4	1.0
	SEET13T3AGEN-JL	E	●		13.4	3.97	1.9	1.5
	SEMT13T3AGSN-JM	M	●		13.4	3.97	1.9	1.5
	SEMT13T3AGSN-JH	M	●		13.4	3.97	1.9	1.5
	SOET12T308PEER-JL	E	●		12.7	3.97	1.4	0.8


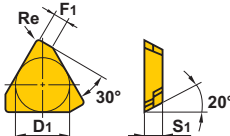

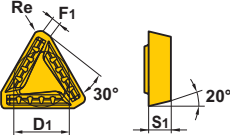

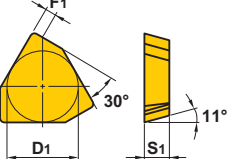

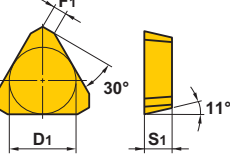

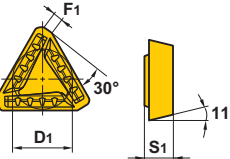

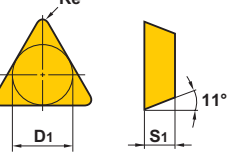

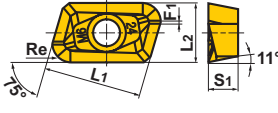

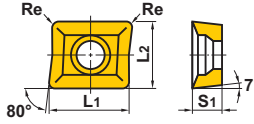

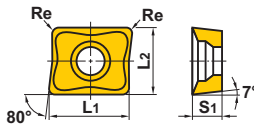
# F7030

Cutter / Shape	Order number	Tolerance	Stock	Geometry	Dimensions (mm)						
					L1	L2	D1	S1	F1	Re	R
	SOMT12T308PEER-JM	M	●		—	—	12.7	3.97	1.4	0.8	—
	SOMT12T308PEER-JH	M	●		—	—	12.7	3.97	1.4	0.8	—
	SOMT09T3PDER-H2	M	●		—	—	9.525	3.97	0.8	0.8	—
	1204PDER-H2	M	●		—	—	12.7	4.76	1.4	0.8	—
	SOMT1504PDER-Q2	M	●		—	—	15.875	4.76	2.4	0.8	—
P425 FDP-2	SPK42C2SR	K	△		—	—	12.7	3.2	2	—	—
	P525	SPK53C2SR	K		△	—	—	15.88	4.8	2	—
Right hand insert shown.											
Corner angle 15° 	SPEN1203EDR	E	▲		—	—	12.7	3.18	1.4	—	—
	SPKN1203EDR	K	▲		—	—	12.7	3.18	1.4	—	—
Right hand insert shown.											
	SPMN120308	M	●		—	—	12.7	3.18	—	0.8	—
	120312	M	●		—	—	12.7	3.18	—	1.2	—
	SRG20C	G	●		19	10.2	—	4.6	—	—	10
	25C	G	●		24	12.8	—	5.5	—	—	12.5
	30C	G	●		28	15.3	—	7	—	—	15
	SRG20E	G	●		15.5	8.5	—	4.6	—	—	10
	25E	G	●		20.5	10.2	—	5.5	—	—	12.5
	30E	G	●		25.2	12.2	—	7	—	—	15

● : Inventory maintained.

▲ : Inventory maintained.  
To be replaced by new products.

△ : Non stock, produced to order only.  
To be replaced by new products.

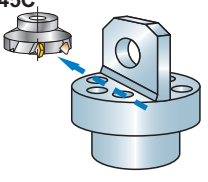
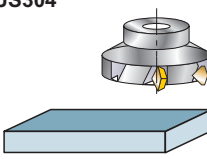
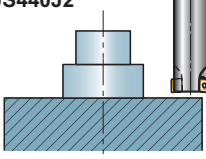
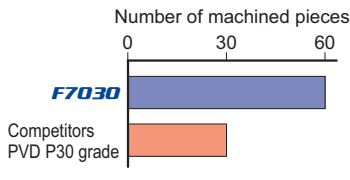
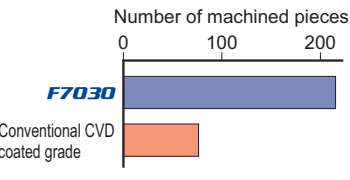
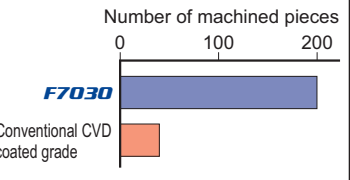
Cutter / Shape	Order number	Tolerance	Stock	Geometry	Dimensions (mm)					
					L1	L2	D1	S1	F1	Re
	NSE300,SE300 TEEN1603PESR1	E	●	 <p>Right hand insert shown.</p>	—	—	9.525	3.175	1.4	0.4
	NSE400,SE400 TEEN2204PESR1	E	●		—	—	12.7	4.76	1.4	1.0
	TEKN2204PESR1	K	●		—	—	12.7	4.76	1.94	—
	NSE300, SE300 TEER1603PEER-JS	E	●		—	—	9.525	3.175	1.4	0.4
	NSE400,SE400 2204PEER-JS	E	●		—	—	12.7	4.76	1.4	1.0
	SPH400 TPEN2204PDSR1C	E	●		—	—	12.7	4.76	1.4	—
Corner angle 0° 	TPEN1603PPR	E	▲		—	—	9.525	3.18	1.2	—
	TPKN1603PPR	K	▲		—	—	9.525	3.18	1.2	—
	TPEN2204PDR	E	▲		—	—	12.7	4.76	1.4	—
	TPKN2204PDR	K	▲		—	—	12.7	4.76	1.4	—
Corner angle 0° 	TPER1603PPER-JS	E	▲		—	—	9.525	3.18	1.4	—
	2204PDER-JS	E	▲		—	—	12.7	4.76	1.4	—
Corner angle 11° 	TPMN160304	M	●		—	—	9.525	3.18	—	0.4
	160308	M	●		—	—	9.525	3.18	—	0.8
	160312	M	□		—	—	9.525	3.18	—	1.2
	220408	M	□		—	—	12.7	4.76	—	0.8
	220412	M	●		—	—	12.7	4.76	—	1.2
	BAP3500 XPMT13T3PDER-M1	M	●		13	7.9	—	3.97	1.6	0.4
	13T3PDER-M2	M	●		13	7.9	—	3.97	1.2	0.8
	13T3PDER-M6	M	●		13	7.9	—	3.97	0.4	2.4
	13T3PDER-M75	M	●		13	7.9	—	3.97	0.4	3.0
	13T3PDER-M8	M	●		13	7.9	—	3.97	0.4	3.2
	DCCC ZCMX083508ER-A	M	□		10.4	7.94	—	3.5	—	0.8
	09T308ER-A	M	●		12	9.525	—	3.97	—	0.8
	DCCC ZCMX09T308ER-B	M	□		12	9.525	—	3.97	—	0.8

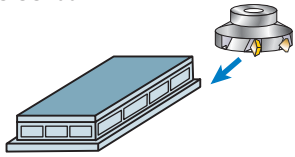
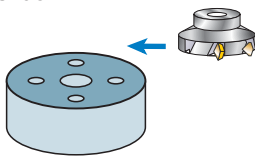
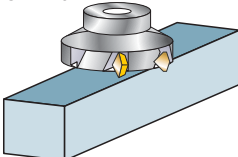
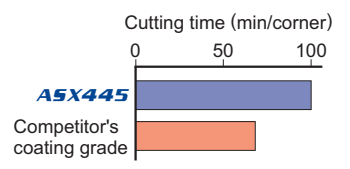
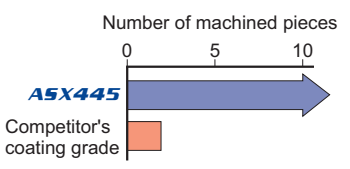
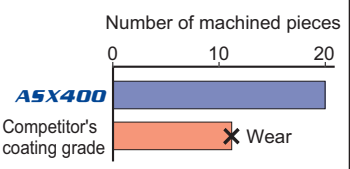
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To be replaced by new products.

# F7030

## Application examples

Insert	SEER1203AFEN-JS	SEEN1203AFSN1	APMT1135PDER-M2	
Workpiece	JIS S45C 	JIS SUS304 	JIS SUS440J2  Face and shoulder milling	
Component	Machine part	Machine part	Automotive part	
Cutting conditions	Cutting speed (m/min)	150	150	190
	Feed rate (mm/tooth)	0.17	0.2	0.08
	Depth of cut (mm)	4	2.5	5
Coolant	Water soluble oil	Dry	Water soluble oil	
Results	 More than twice the tool life.	 More than 2.5 time the tool life.	 More than 4 time the tool life.	

Insert	SEMT13T3AGSN-JM	SEMT13T3AGSN-JM	SOMT12T308PEER-JM	
Workpiece	JIS SS400 	JIS S45C 	JIS SCM440 	
Component	Plate	Machine part	Machine part	
Cutting conditions	Cutting speed (m/min)	220	200	250
	Feed rate (mm/tooth)	0.47	0.2	0.15
	Depth of cut (mm)	2.5	1.0	3
Coolant	Dry	Dry	Dry	
Results	 Cutting time (min/corner)	 Number of machined pieces	 Number of machined pieces	

**For Your Safety**

●Don't touch breakers and chips without gloves. ●Please machine within recommended application range, and exchange expired tools with new parts in advance. ●Please use safety cover and wear safety glasses. ●When using compounded cutting oils, please take fire prevention. ●When attaching chips or spare parts, please use the attached wrench or spanner. ●When using tools in revolution machining, please make a trial run to check run-out, vibration, abnormal sounds etc.

**MITSUBISHI MATERIALS CORPORATION**



Tokubaru Plant  
ISO 9001:2000  
Registration No. JSAQ 090  
JSA Plant  
ISO 9001:2000  
Registration No. JSAQ 094



Tokubaru Plant  
ISO 14001:1998  
Registration No. JSAE 038



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