HOW TO READ THE STANDARD OF ROTATING TOOL INSERTS

●How the section of milling inserts is organised

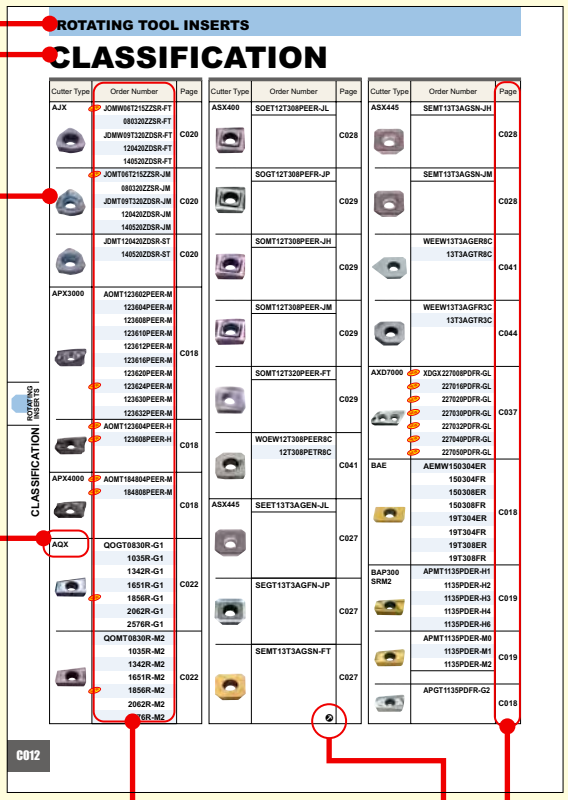
①Organised according to cutter type.
②Cutters are arranged in alphabetical order.

●How the standards for milling inserts are organised

①Classified into milling inserts, wiper inserts and drilling inserts.
②Arranged alphabetically by order number.

PAGE TITLE

PRODUCT SECTION



INSERT NUMBER

CUTTER TYPE

CONT. IN NEXT COLUMN
indicates that the description of an insert is continued in the next column.

PHOTO OF INSERT

PAGE TO GO TO
indicates the reference pages for detailed standards of specific inserts.

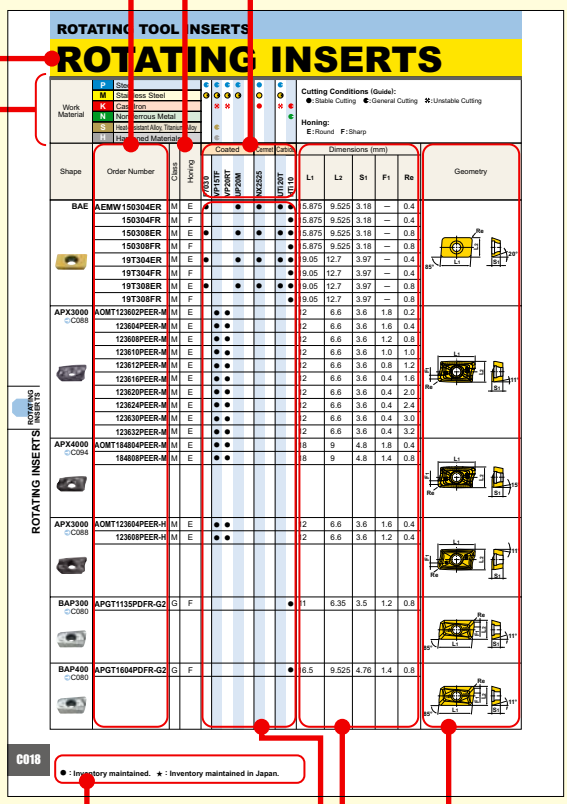
GRADE APPLICATION RECOMMENDED FOR EACH WORK MATERIAL
cutting conditions suitable for each work materials are shown as a general guide to select grade.
●:Stable Cutting ◐:General Cutting ✲:Unstable Cutting

PAGE TITLE BY TOOL APPLICATION

INSERT NUMBER

INSERT TOLERANCE • HONING

INSERT GRADE



INSERT GEOMETRY

INSERT DIMENSIONS

STOCK STATUS

LEGEND FOR STOCK STATUS MARK
is shown on the left hand page of each double-page spread.

●To Order: Please specify insert number and grade.

ROTATING TOOLS

ROTATING TOOL INSERTS

●GRADES
●SINTERED CBN / PCD

IDENTIFICATION

Symbol	Insert Shape
O	Octagonal
S	Square
T	Triangular
C	Rhombic 80°
M	Rhombic 86°
A	Parallelogram 85°
R	Round
X	Special Design
W	Wiper

①Insert Shape

Symbol	Normal Clearance
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	Other
X	Other

②Normal Clearance

① ② ③ ④

S E E R

③Tolerance Class

Symbol	D.I.C	D1	m	S1
C	6.35 9.525	±0.025	±0.013	±0.025
E	12.70 15.875	±0.025	±0.025	±0.025
K*	6.35	±0.05	±0.013	±0.025
	9.525	±0.05	±0.013	±0.025
	12.70	±0.08	±0.013	±0.025
	15.875	±0.08	±0.013	±0.025
M*	6.35	±0.05	±0.08	±0.13
	9.525	±0.05	±0.08	±0.13
	12.70	±0.08	±0.13	±0.13
	15.875	±0.1	±0.15	±0.13

The surface of insert with * mark is sintered.

④Fixing and/or for Chip Breaker

Symbol	Hole	Hole Configuration	Chip-breakers	Figure
W	With Hole	Cylindrical Hole + One Countersink (40°—60°)	No	
T	With Hole		One sided	
B	With Hole	Cylindrical Hole + One Countersink (70°—90°)	No	
N	Without Hole	—	No	
R	Without Hole	—	One sided	
X	—	—	—	Special Design

Symbol R	Symbol C	Symbol S	Symbol T	Diameter of Inscribed Circle (mm)
	06	06	11	6.35
	08	07	13	7.94
	09	09	16	9.525
10				10.00
12				12.00
	12	12	22	12.70
	16	15	27	15.875
20				20.00

⑤Insert Size

03	3.18
T3	3.97
04	4.76

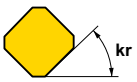
⑥Insert Thickness

E	Round
F	Sharp
T	Chamfer
S	Chamfer+Hone
X	Round (small)
Z	Strong

⑨Cutting Edge Condition

⑤	⑥	⑦	⑧	⑨	⑩	⑪		⑫
12	03	A	F	E	N	1	-	JS

⑦Cutting Edge Angle



A	45°
E	75°
P	90°

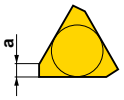
⑧Wiper Edge Normal Clearance

D	15°
E	20°
F	25°
G	30°
P	0°
N	11°

⑩Cutting Direction

L	Left
N	Neutral
R	Right

⑪Width of Wiper Edge



Symbol	a
1	1.4
2	2.4

⑫ Chip Breaker

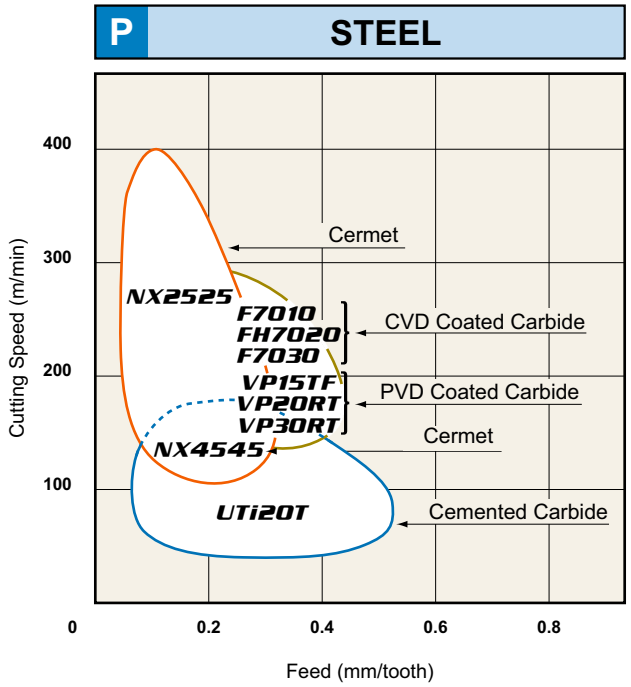
Symbol	Name
JS	JS Breaker
JH	JH Breaker
JL	JL Breaker
JM	JM Breaker
FT	FT Breaker
JP	JP Breaker

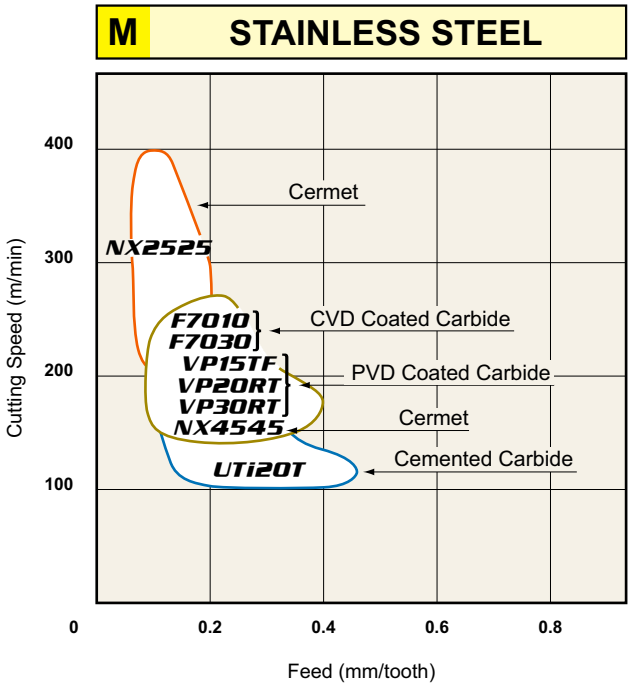
GRADES FOR MILLING

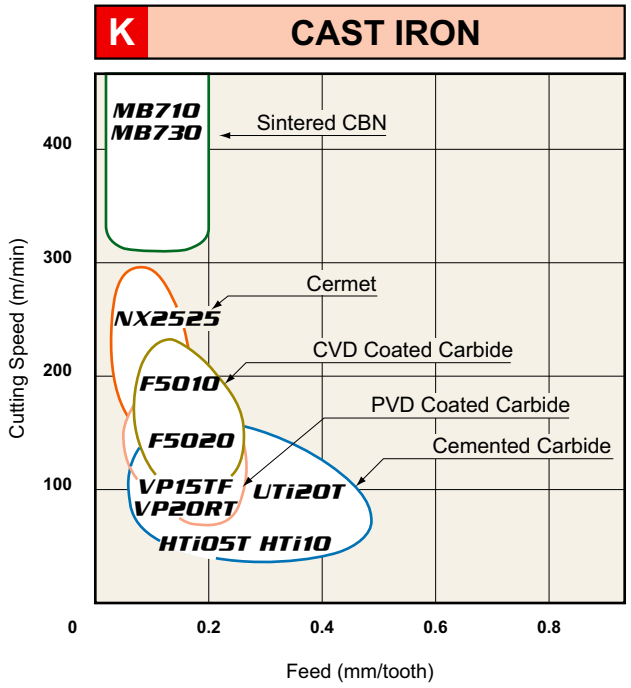
INDEXABLE INSERT GRADES FOR MILLING

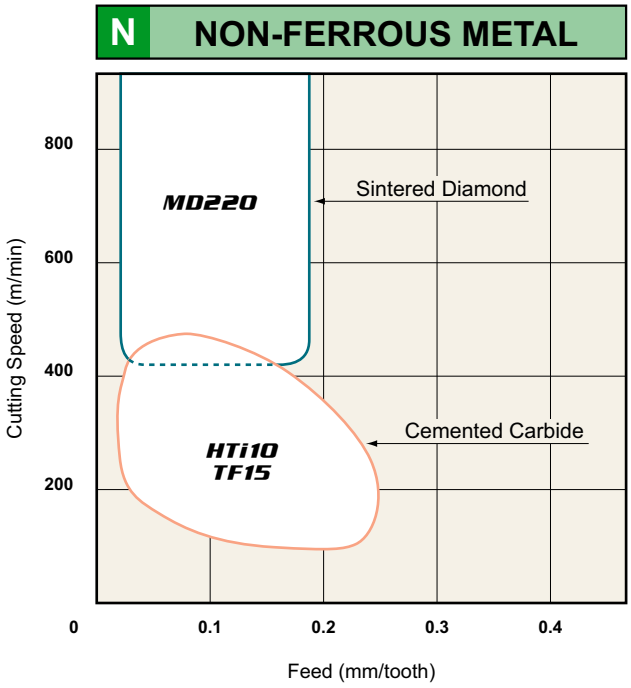
ISO		Coated Carbide						Cermet		Cemented Carbide		CBN (Sintered CBN)		PCD (Sintered Diamond)
		CVD			PVD									
P Steel	P01	F7010												
	P10		FH7020			VP15TF			NX2525					
	P20			F7030			AP20M	UP20M	VP20RT		NX4545		UTi20T			
	P30									VP30RT				
	P40													
M Stainless Steel	M01	F7010												
	M10										NX2525			
	M20			F7030		VP15TF	AP20M	UP20M	VP20RT		NX4545		UTi20T	
	M30									VP30RT				
	M40													
K Cast Iron	K01												HTi05T	MB710 MB730
	K10	F5010			VP10MF				NX2525				HTi10	
	K20			F5020		VP15TF	AP20M		VP20RT					
	K30												UTi20T	
N Non-Ferrous Metal	N01													MD220
	N10												HTi10	
	N20					LC15TF							TF15	
	N30													
S Heat Resistant Alloy • Ti Alloy	S01											MB730		
	S10					VP15TF								
	S20													
	S30													
H Hardened Materials	H01				VP10MF									
	H10					VP15TF								
	H20						AP20M							
	H30													

MILLING APPLICATION RANGE

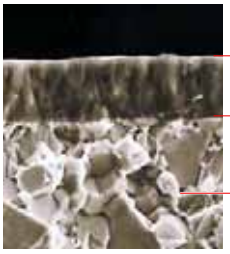








COATED CARBIDE (CVD&PVD)



<CVD>

- Special tough fibrous structure improves wear and fracture resistance.
- Covers a wide application range and reduces the number of tools required.

<PVD>

- PVD coating prolongs tool life when compared to cemented carbide under the same cutting conditions.
- Coating of tools with sharp edges is possible without softening or changing the quality of the subsrate.

SELECTION STANDARD

MILLING

	Work Material	Recommended Grade	Recommended Cutting Speed (m/min)	ISO	Application Range
P	Steel	**F7010**	230 (150 — 300)	P01	F7010
		F7030	200 (150 — 250)	P10	FH7020
		VP15TF	150 (100 — 200)	P20	F7030
		VP30RT	150 (100 — 200)	P30	VP15TF
		UP20M	120 (100 — 150)	P40	AP20M, UP20M, VP20RT, VP30RT
M	Stainless Steel	**F7010**	230 (150 — 300)	M01	F7010
		F7030	200 (150 — 250)	M10	F7030
		VP15TF	150 (100 — 200)	M20	VP15TF
		VP30RT	150 (100 — 200)	M30	AP20M, UP20M, VP20RT, VP30RT
		UP20M	120 (100 — 150)	M40	
K	Cast Iron	**F5010**	200 (150 — 250)	K01	F5010
		F5020	150 (100 — 200)	K10	
		VP15TF	150 (100 — 200)	K20	F5020, VP15TF, AP20M, VP20RT
				K30	
N	Aluminium Alloy	**LC15TF**	1000 (200 — 3000)	N10	
				N20	LC15TF
				N30	
S	Heat Resistant Alloy Ti Alloy	**VP15TF**	30 (20 — 40)	S01	
				S10	
				S20	VP15TF
				S30	
H	Hardened Materials	**VP15TF**	80 (50 — 110)	H10	
				H20	VP15TF, AP20M
				H30	

CLASSIFICATION METHOD

VP **15** **TF**

- TF — Substrate Symbol
  M : UTi○○T HT : HTi○○T H : HTi○○ TF : TF○○ N : Cermet
  RT : RT90○○ MF : MF○○
- 15 — Last 2 figures of Substrate
- VP — Coating Symbol VP : VP Coating AP : AP Coating UP : UP Coating LC : DLC Coating

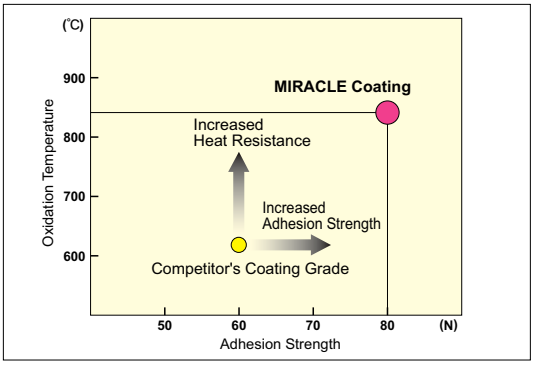
GRADE CHARACTERISTICS

Grade	Substrate		Coating Layer	
	Hardness (HRA)	T.R.S (GPa)	Composition	Thickness
F5010	91.8	2.2	TiCN-Al_2O_3-TiN	Thin
F5020	91.2	2.4	TiCN-Al_2O_3-Ti Compound	Thick
F7010	89.0	2.6	TiCN-Al_2O_3-TiN	Thin
FH7020	88.8	2.8	TiCN-Al_2O_3-Ti Compound	Thick
F7030	88.8	2.8	TiCN-Al_2O_3-TiN	Thin
VP15TF	91.5	2.5	(Al,Ti)N	Thin
VP20RT	90.5	2.5	(Al,Ti)N	Thin
VP30RT	88.8	2.8	(Al,Ti)N	Thin
UP20M	90.5	2.0	TiN	Thin

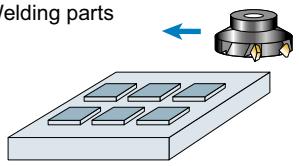
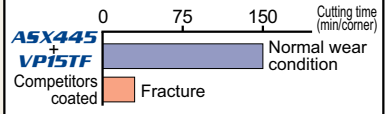
∗1GPa=102kg/mm^2

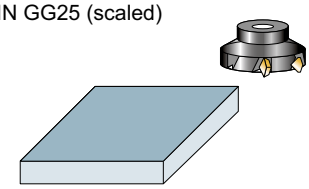
FEATURES OF VP (MIRACLE) COATING

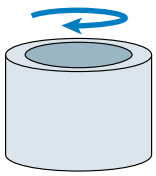
Compared to conventional coating technology, VP (MIRACLE) coating features (Al,Ti)N coating with highly increased heat resistance and adhesion strength.



APPLICATION EXAMPLES

Tool	ASX445R16007F
Insert (Grade)	SEMT13T3AGSN-JM (VP15TF)
Workpiece	Welding parts 
Component	Machine parts
Cutting Conditions: Cutting Speed (m/min)	200
Cutting Conditions: Feed per Tooth (mm/rev)	0.27
Cutting Conditions: Depth of Cut (mm)	3
Cutting Conditions: Coolant	Dry Cutting
Results	

Tool	ASX445R25014K
Insert (Grade)	SEMT13T3AGSN-FT (F5020)
Workpiece	DIN GG25 (scaled) 
Component	Table
Cutting Conditions: Cutting Speed (m/min)	180
Cutting Conditions: Feed per Tooth (mm/rev)	0.3
Cutting Conditions: Depth of Cut (mm)	3 — 4 × 2 times
Cutting Conditions: Coolant	Dry Cutting
Results	No fracturing and much longer tool life. Existing cutters' inserts broke due to the hardened work surface.

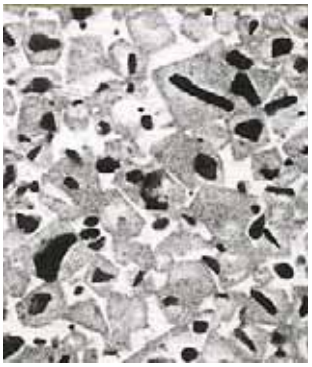
Tool	BXD4000-063A05RA
Insert (Grade)	XDGT1550PDFR-G04 (LC15TF)
Workpiece	Aluminium Alloy 
Cutting Conditions: Revolution (min^{-1})	5,600
Cutting Conditions: Cutting Speed (m/min)	1,108
Cutting Conditions: Depth of Cut (mm)	4
Cutting Conditions: Width of Cut (mm)	1.5
Cutting Conditions: Feed per Tooth (mm/tooth)	0.34
Cutting Conditions: Chip Discharge (cc/min)	57
Results	LC15TF produced a superior surface finish compared to the competitors non-coated carbide grade that generated a dull surface finish.

Tool	AQX204SA20L (VP30RT)
Workpiece	DIN Ck45 (Slotting) 
Component	Machine parts
Cutting Conditions: Cutting Speed (m/min)	80
Cutting Conditions: Feed (mm/rev)	0.1
Results	Tool life doubled.

CERMET

- **NX2525 for high speed milling.**
- **NX4545 for general milling.**

Micro-Structure of **NX2525**



Micro-Structure of **NX4545**

- NX2525 has high hardened Ti compound particles within it's microstructure therefore the grade has both excellent wear and fracture resistance properties.
- NX4545 uses a special alloy for the binder material therefore the grade has high fracture resistance properties.

SELECTION STANDARD

Milling

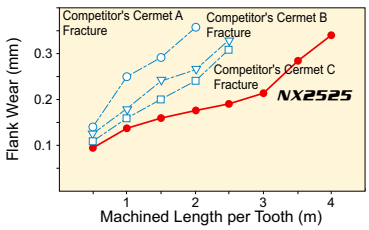
Work Material	Recommended Grade	Recommended Cutting Speed (m/min)	ISO	Application Range
P M Steel	**NX2525**	250 (150 — 350)	P10 M10	NX2525
			P20 M20	NX2525 / NX4545
	NX4545	150 (120 — 180)	P30 M30	NX4545
K Cast Iron	**NX2525**	200 (150 — 300)	K01	
			K10	NX2525
			K20	NX2525

(Note) For wet cutting of steel, please use coated carbide F7030. For wet cast iron cutting use F5010.

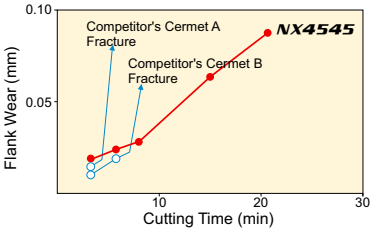
CUTTING PERFORMANCE

Cutting Performance

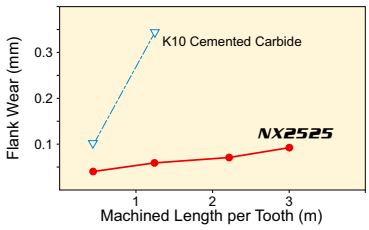
Cutting Speed : vc Depth of Cut : ap
Feed per Tooth : fz Width of Cut : ae



Steel High Speed Milling
<Cutting Conditions>
Workpiece : DIN 41CrMo4 (97W×400L)
Cutter : SE445-125B06R
Insert : SEEN1203AFTN1
vc=350m/min
ap=2.5mm
fz=0.2mm/tooth
Dry Cutting



Steel Shoulder Milling
<Cutting Conditions>
Workpiece : DIN 41CrMo4 (220HB)
Cutter : NSE400R503S32
Insert : TEEN2204PETR1
vc=200m/min
fz=0.35mm/tooth
ae=25mm
ap=3.0mm
Down Cut Dry Cutting



Cast Iron Milling
<Cutting Conditions>
Workpiece : DIN GG30 (95W×400L)
Cutter : SE445-125B06R
Insert : SEEN1203AFTN1
vc=180m/min
ap=2.5mm
fz=0.2mm/tooth
Dry Cutting

GRADE CHARACTERISTICS

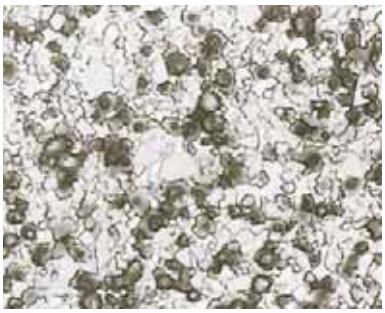
Grade	Substrate			
	Hardness (HRA)	T.R.S. (GPa)	Thermal Conductivity (W/m·K) *	Thermal Expansion (x 10^{-6}/K)
NX2525	92.2	2.0	33	7.8
NX4545	90.0	2.2	33	7.8

*1GPa=102kg/mm^2, 1W/m • K=2.39×10^{-3}cal/cm • sec • ℃

CEMENTED CARBIDE

● **The grades available are UTi20T for steel and cast iron, and HTi10 for cast iron, non-ferrous metal and non-metal.**

K Series Grade (WC-Co) 10μm



P,M Series Grade (WC-TiC-TaC-Co) 10μm

SELECTION STANDARD

MILLING

Work Material		Recommended Grade	Recommended Cutting Speed (m/min)	ISO	Application Range
P	Steel	**UTi20T**	120 (50 — 180)	P10	
				P20	UTi20T
				P30	
M	Stainless Steel	**UTi20T**	120 (50 — 180)	M10	
				M20	UTi20T
				M30	
K	Cast Iron	**HTi10**	100 (50 — 150)	K10	HTi10
				K20	
		UTi20T	120 (50 — 180)	K30	UTi20T
N	Non-Ferrous Metal	**HTi10 TF15**	400 (300 — 500)	N01	
				N10	HTi10
				N20	TF15
				N30	

MAIN COMPONENT AND APPLICATION

P series for steel cutting, K series for cast iron cutting and M series for general cutting.

ISO	Main Component	Characteristics	Work Material
P M	WC-TiC-TaC-Co	Heat / Deformation resistance.	Carbon steel, Alloy steel, Stainless steel and Cast iron
K N	WC-Co	High rigidity and wear resistance.	Cast iron, Non-Ferrous metals and Non-metal

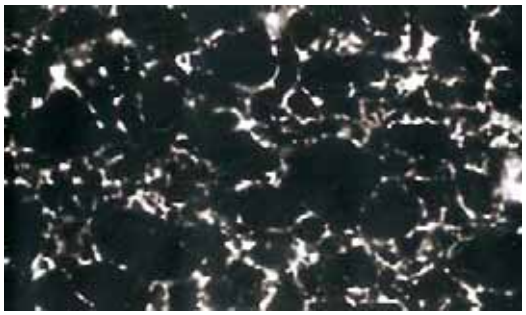
GRADE CHARACTERISTICS

ISO	Grade	Hardness (HRA)	Thermal Conductivity (W/m•K) *	Thermal Expansion ($x10^{-6}$/K)	Young's Modulus (GPa) *	T.R.S (GPa) *
P M	**UTi20T**	90.5	38	5.5	520	2.0
K N	**HTi05T**	92.5	79	4.5	600	1.5
K N	**HTi10**	92.0	79	4.6	630	2.0
N	**TF15**	91.5	71	5.3	580	4.0

*1GPa=102kg/mm^2, 1W/m • K=2.39×10^{-3}cal/cm • sec • ℃

CBN (SINTERED CBN)

- MB710 and MB730 for cast iron cutting.
- MB730 is suitable for high-speed milling of cast iron.



Micro-Structure of **MB730**

SELECTION STANDARD / RECOMMENDED CUTTING CONDITIONS

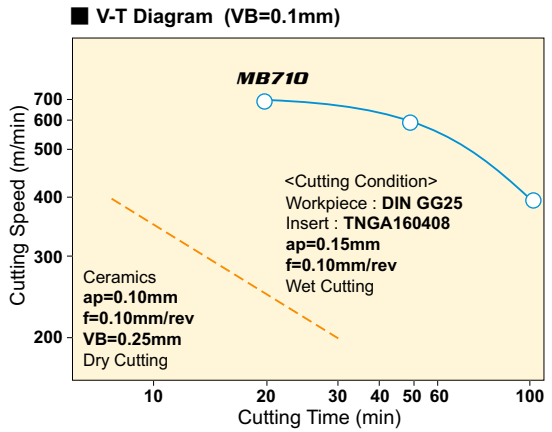
Work Material		Structure	Cutting Speed (m/min) 250 500 750 1000 1250	Feed (mm/tooth)	Depth of Cut (mm)	Coolant
Grey Cast Iron	DIN GG25	Ferritic + Pearilitic	MB710 / MB730	−0.3	−0.5	Dry
	DIN GG30	Pearilitic				

FEATURES AND BASE

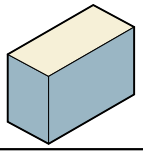
Grade	Application	Features	Main Component
MB710	For General Cutting	General purpose grade with well balanced wear and fracture resistance.	CBN TiC Al_2O_3
MB730	For High Speed Cutting	Has the largest CBN content and therefore displays good thermal conductivity. It is suitable for the high temperatures that are generated in high speed cutting.	CBN (High Content) Co Base Alloy

CUTTING PERFORMANCE

■ **V-T Diagram (VB=0.1mm)**



Application Examples

Tool		**AF5000R0404D**
Insert		**LDCN190412R (MB730)**
Machine		Machining Centre
Workpiece		 **DIN GG25**
Cutting Condition	Cutting Speed (m/min)	1200
	Depth of Cut (mm)	0.3
	Width of Cut (mm)	75
	Table Feed (mm/min)	5000
	Feed per Tooth (mm/tooth)	0.33
Result		Excellent surface finish (Rmax is 2.7μm or less), even when machining cast iron (DIN GG25).

PCD (SINTERED DIAMOND)

- **Suitable for non-ferrous metals cutting such as aluminium alloy.**
- **Suitable for extremely high speed finishing.**

Micro-Structure of **MD220**

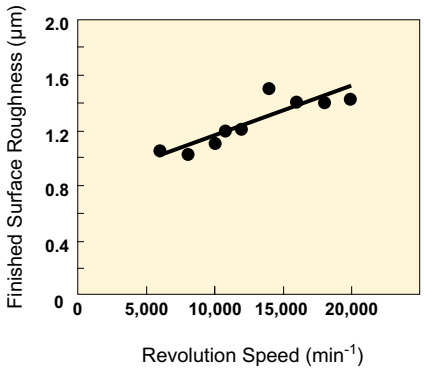
GRADE FEATURES

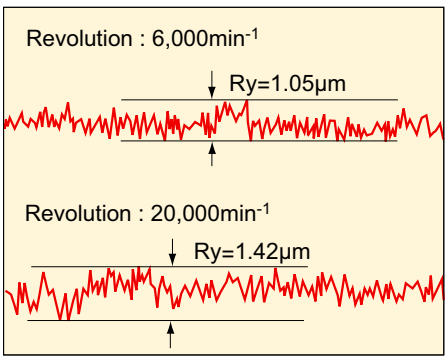
Grade	Features
MD220	Excellent in the balance between wear resistance and fracture resistance. For a wide range of tooling applications.

RECOMMENDED CUTTING CONDITIONS

Work Material	Cutting Speed (m/min)	Grade	Feed per Tooth (mm/tooth)	Depth of Cut (mm)
Aluminium Alloy (Si ≤12%)	1000 — 6000	**MD220**	0.3 — 3	0.05 — 0.20
Aluminium Alloy (Si ≥13%)	200 — 800			

CUTTING PERFORMANCE





<Cutting Conditions>

Workpiece	: Aluminium Alloy
Insert	: NP-GDCW1240PDFR2
Grade	: MD220
Tool	: V10000R0406D
Feed	: 0.2mm/tooth
Depth of Cut	: 0.5mm
Width of Cut	: 80mm
Dry Cutting	

CLASSIFICATION

Cutter Type	Order Number	Page
AJX 	NEW JOMW06T215ZZSR-FT	C020
	080320ZZSR-FT	
	JDMW09T320ZDSR-FT	
	120420ZDSR-FT	
	140520ZDSR-FT	
	NEW JOMT06T215ZZSR-JM	C020
	080320ZZSR-JM	
	JDMT09T320ZDSR-JM	
	120420ZDSR-JM	
	140520ZDSR-JM	
	JDMT120420ZDSR-ST	C020
	140520ZDSR-ST	
APX3000 	AOMT123602PEER-M	C018
	123604PEER-M	
	123608PEER-M	
	123610PEER-M	
	123612PEER-M	
	123616PEER-M	
	123620PEER-M	
	NEW 123624PEER-M	
	123630PEER-M	
	123632PEER-M	
	NEW AOMT123604PEER-H	C018
	NEW 123608PEER-H	
APX4000 	NEW AOMT184804PEER-M	C018
	NEW 184808PEER-M	
AQX 	QOGT0830R-G1	C022
	1035R-G1	
	1342R-G1	
	1651R-G1	
	NEW 1856R-G1	
	2062R-G1	
	2576R-G1	
	QOMT0830R-M2	C022
	1035R-M2	
	1342R-M2	
	1651R-M2	
	NEW 1856R-M2	
	2062R-M2	
	2576R-M2	

Cutter Type	Order Number	Page
ASX400 	SOET12T308PEER-JL	C028
	SOGT12T308PEFR-JP	C029
	SOMT12T308PEER-JH	C029
	SOMT12T308PEER-JM	C029
	SOMT12T320PEER-FT	C029
	WOEW12T308PEER8C	C041
	12T308PETR8C	
ASX445 	SEET13T3AGEN-JL	C027
	SEGT13T3AGFN-JP	C027
	SEMT13T3AGSN-FT	C027

Cutter Type	Order Number	Page
ASX445 	SEMT13T3AGSN-JH	C028
	SEMT13T3AGSN-JM	C028
	WEEW13T3AGER8C	C041
	13T3AGTR8C	
	WEEW13T3AGFR3C	C044
	13T3AGTR3C	
AXD7000 	NEW XDGX227008PDFR-GL	C037
	NEW 227016PDFR-GL	
	NEW 227020PDFR-GL	
	NEW 227030PDFR-GL	
	NEW 227032PDFR-GL	
	NEW 227040PDFR-GL	
	NEW 227050PDFR-GL	
BAE 	AEMW150304ER	C018
	150304FR	
	150308ER	
	150308FR	
	19T304ER	
	19T304FR	
	19T308ER	
	19T308FR	
BAP300 SRM2 	APMT1135PDER-H1	C019
	1135PDER-H2	
	1135PDER-H3	
	1135PDER-H4	
	1135PDER-H6	
	APMT1135PDER-M0	C019
	1135PDER-M1	
	1135PDER-M2	
	APGT1135PDFR-G2	C018

Cutter Type	Order Number	Page
BAP300 Under-cut type	ZRM0603R-M3	C038
	0603R-M4	
	0603R-M5	
BAP3500	XPGT13T3PDER-G1	C037
	13T3PDER-G2	
	13T3PDER-G6	
	13T3PDER-G75	
	13T3PDER-G8	
	XPGT13T3PDFR-G1	C037
	13T3PDFR-G2	
	13T3PDFR-G6	
	13T3PDFR-G75	
	13T3PDFR-G8	
	XPMT13T3PDER-M1	C038
	13T3PDER-M2	
	13T3PDER-M6	
	13T3PDER-M75	
	13T3PDER-M8	
BAP400 SRM2	APMT1604PDER-H1	C019
	1604PDER-H2	
	1604PDER-H4	
	1604PDER-H6	
	1604PDER-H8	
	APMT1604PDER-M2	C019
	APGT1604PDFR-G2	C018
BF407 QBF407	SFAN1203ZFFR2	C028
	1203ZFFL2	
	SFCN1203ZFFR2	
	1203ZFFL2	
	SFCN1203ZFFR2	C042
	WFC42ZFER2	C044

Cutter Type	Order Number	Page
BF407 QBF407	NEW NP-WFC42ZFER2	C044
BN425	SNMF43B2G	C028
BRE	REMT2004M0	C023
	REMW2004M0	C024
BRP	RPMW08T2M0E	C025
	08T2M0T	
	10T3M0E	
	10T3M0T	
	1204M0E	
	1204M0T	
	1606M0E	
	1606M0T	
	RPMT08T2M0E-JS	C025
	10T3M0E-JS	
	1204M0E-JS	
	1606M0E-JS	
BSP	SPMB1204APT	C031
BXD4000	XDGT1550PDER-G04	C036
	1550PDER-G08	
	1550PDER-G12	
	1550PDER-G16	
	1550PDER-G20	
	1550PDER-G30	
	1550PDER-G32	
	1550PDER-G40	
	1550PDER-G50	

Cutter Type	Order Number	Page
BXD4000	XDGT1550PDFR-G04	C037
	1550PDFR-G08	
	1550PDFR-G12	
	1550PDFR-G16	
	1550PDFR-G20	
	1550PDFR-G30	
	1550PDFR-G32	
	1550PDFR-G40	
	1550PDFR-G50	
	NEW XDGT1550PDFR-GL04	C037
	NEW 1550PDFR-GL08	
BXD7000	XDGT2206PDFR-G08	C037
	2206PDFR-G16	
	2206PDFR-G20	
	2206PDFR-G30	
	2206PDFR-G40	
	2206PDFR-G50	
CBJP TAB	JPMT060204-C	C020
	060204-E	
CBMP ECMP TAB	MPMT070308	C021
	090308	
	120408	
CE/F/GSP DCSP	SPMW090304	C031
	090308	
	120304	
	120308	
CV20	RPMN2004M0	C024
DCCC	CCMX083508EN-A	C019
	09T308EN-A	

CLASSIFICATION

Cutter Type	Order Number	Page
DCCC 	CCMX09T308EN-B	C019
	ZCMX083508ER-A 09T308ER-A	C038
	ZCMX09T308ER-B	C038
E404 	WEC42W11R 42W11L	C044
FBE2 	UDC16F 20F 25F 30F 32F	C036
	UDC16F 20F 25F 32F	C043
FBP415 QBP415 	SPEN1203EEER1 1203EEEL1 SPNN1203EEER1 1203EEEL1	C030
	SPER1203EEER-JS	C030
	SPEN1203EETR1	C042
	WPC42EEER10C 42EEEL10C 42EETR10C	C041

Cutter Type	Order Number	Page
FF3000 	SPCA53Z	C029
	SPCG53Z	C029
FP490 	SPEN424A	C030
FP590 	SPEN535A	C030
MG200 	MGEEW1035PFTR	C021
MG300 	MGEEW1242PFTR	C021
MG400 	MGEEW1650PFTR	C021
MG245 	MGEEW1035AFTR	C021
MG345 	MGEEW1242AFTR	C021

Cutter Type	Order Number	Page
MG445 	MGEEW1650AFTR	C021
NSE300 SE300 	TEEN1603PEFR1 1603PEER1 1603PETR1 1603PETR3 1603PESR1 1603PEZR1	C034
	TECN1603PEFR1W 1603PEER1W 1603PETR1W	C034
	TEER1603PEER-JS	C034
	TECN1603PEFR1	C042
NSE400 SE400 	TECN2204PEFR1 2204PEER1 2204PETR1 TEEN2204PEFR1 2204PEFL1 2204PEER1 2204PEEL1 2204PETR1 2204PETR3 2204PESR1 2204PEZR1 TEKN2204PEER1 2204PETR1 2204PESR1 2204PETR 2204PEZR	C034
	TEER2204PEER-JS	C034

Cutter Type	Order Number	Page
NSE400 SE400	TECN2204PEFR1	C042
OCTACUT	OEEX1705ETR1	C022
	OEMX12T3ETR1	
	12T3ESR1	
	1705ETR1	
	1705ESR1	
	OEMX12T3ETR1	C042
	OEMX12T3EER1-JS	C022
	12T3ETR1-JS	
	1705EER1-JS	
	1705ETR1-JS	
	REMX12T3TN	C024
	12T3SN	
	1705TN	
	1705SN	
	REMX12T3EN-JS	C024
	12T3TN-JS	
	1705EN-JS	
	1705TN-JS	
PMF	TPEW1303ZPER2	C035
	TPEW1303ZPTR2	C043
PMR	CPMT1205ZPEN-M2	C020
	1205ZPEN-M3	
	1906ZPEN-M2	
	1906ZPEN-M3	
SE400	WEC 400PEER10C	C040
	400PEEL10C	

Cutter Type	Order Number	Page
SE415 QSE415	SECN1203EFFR1	C026
	1203EFER1	
	1203EFTR1	
	1203EFTL1	
	SEEN1203EFFR1	
	1203EFFL1	
	1203EFER1	
	1203EFTR1	
	1203EFTR3	
	1203EFTL1	
	1203EFSR1	
	1203EFZR1	
	SEER1203EFER-JS	C026
	SECN1203EFFR1	C042
	WEC42EFFR5C	C040
	42EFFL5C	
	42EFER5C	
	42EFEL5C	
	42EFTR5C	
	WEC42EFFR10C	C040
	42EFFL10C	
	42EFER10C	
	42EFEL10C	
SE445 LSE445	SECN1203AFFN1	C025
	1203AFEN1	
	1203AFTN1	
	SEEN1203AFFN1	
	1203AFEN1	
	1203AFTN1	
	1203AFTN3	
	1203AFSN1	
	1203AFSN3	
	1203AFXN	
	1203AFZN1	
	SEER1203AFEN-JS	C025

Cutter Type	Order Number	Page
SE445 LSE445	SECN1203AFFR1	C042
	WEC42AFFR5C	C040
	42AFFL5C	
	42AFER5C	
	42AFTR5C	
	WEC42AFER10C	C040
	42AFEL10C	
SE515	SECN1504EFER1	C027
	1504EFTR1	
	SEEN1504EFFR1	
	1504EFER1	
	1504EFTR1	
	1504EFTR3	
	1504EFTL1	
	1504EFSR1	
	WEC53EFER5C	C041
	53EFEL5C	
	53EFTR5C	
SE545	SECN1504AFEN1	C026
	1504AFTN1	
	SEEN1504AFFN1	
	1504AFEN1	
	1504AFTN1	
	1504AFTN3	
	1504AFSN1	
	1504AFSN3	
	SEER1504AFEN-JS	C026
	WEC53AFER5C	C040
	53AFEL5C	
	53AFTR5C	

CLASSIFICATION

Cutter Type	Order Number	Page
SG20 	RGEN2004M0SN	C024
SPX 	NEW JPMX190412-WH	C021
	NEW MPMX120412-WH	C022
	NEW SPMX120408-WH	C031
SRB 	NEW SRBT10 NEW 12 NEW 16 NEW 20 NEW 25 NEW 30 NEW 32	C032
SRE 	SRE06R 07R 09R	C031
	SRE12R	C031
SRF 	SRFT10 12 16 20 25 30 32	C032

Cutter Type	Order Number	Page
SRM2 	SRG16C 20C 25C 30C 32C	C032
	SRG16E 20E 25E 30E 32E	C032
	SRM16C-M 20C-M 25C-M 30C-M 32C-M	C033
	SRM16E-M 20E-M 25E-M 30E-M 32E-M	C033
SRM2-40/50 	SRG40C 50C	C032
	SRG40E 50E	C032
	APMT1135PDER-H2 1604PDER-H2	C019
	APMT1135PDER-M2 1604PDER-M2	C019
STLG 	SLG22120L 22150L 22200L 38200L 38300L 38400L	C028

Cutter Type	Order Number	Page
TBE1 	SPMT120408-A	C031
TRM4 	UPE40 50	C036
	UPM40 50	C036
	UPM40P1 50P1	C036
	UPM50P0	C036
TSMP 	MPMW070308 090308 120408	C021
VIPER 	CPEX130512R	C019
	CPEX160512L	C020
	TPNX1605N	C035
ZR 	ZRM0608R	C038

Cutter Type	Order Number	Page
Corner Angle 0° 11° Positive 	TPEN1603PPR	C035
	1603PPN	
	1603PPL	
	2204PDR	
	2204PDL	
	TPNN2204PDR	C035
Corner Angle 15° 11° Positive 	SPEN1203EDR	C030
	1203EDL	
	1504EDR	
	1504EDL	
	SPNN1203EDR	C031
Corner Angle 45° 11° Positive 	SDEN1203AEN	C025
Corner Angle 45° 20° Positive 	SEER1204AFEN-JS	C026
	SEEW1204AFTN	C027
Corner Angle 45° 20° Positive 	SEMN1204AZTN	C027
11° Positive 	SPGN120304	C030
	120308	
	120312	
	150404	
	150408	
	SPMN120304	
	120308	
	120312	
	150408	
	150412	

Cutter Type	Order Number	Page
11° Positive 	TPMN160304	C035
	160304T	
	160308	
	160308T	
	160312	
	160312T	
	220404	
	220408	
	220408T	
	220412	
	220412T	
	LOMX150308R	C021
	LPMX150408R	C021
	RDHX0501M0E	C023
	0501M0S	
	0702M0E	
	0702M0S	
	07T1M0E	
	07T1M0S	
	1003M0E	
	1003M0S	
	12T3M0E	
	12T3M0S	
	1604M0E	
	1604M0S	
	RDMX0702M0E	C023
	0702M0T	
	07T1M0E	
	07T1M0T	
	1003M0E	
	1003M0S	
	1003M0T	
	12T3M0E	
	12T3M0S	
	12T3M0T	
	1604M0E	
	1604M0S	
	1604M0T	

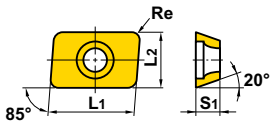
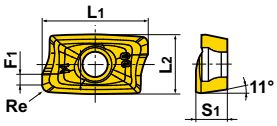
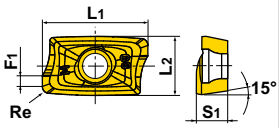
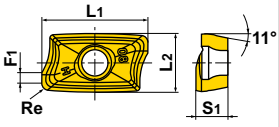
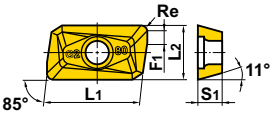
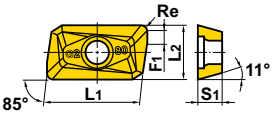
Cutter Type	Order Number	Page
	RDZX0501M0E	C023
	07T1M0E	
	0702M0E	
	1003M0E	
	1003M0S	
	12T3M0E	
	12T3M0S	
	1604M0E	
	1604M0S	
	RPMM120400G	C024

ROTATING INSERTS

Work Material		
P	Steel	
M	Stainless Steel	
K	Cast Iron	
N	Non-ferrous Metal	
S	Heat-resistant Alloy, Titanium Alloy	
H	Hardened Materials	

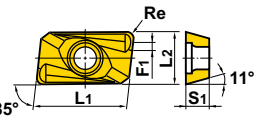
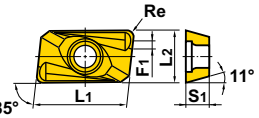
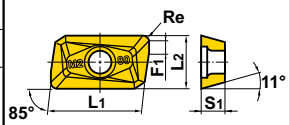
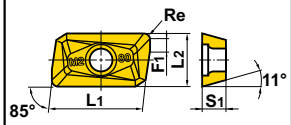
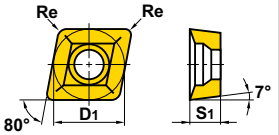
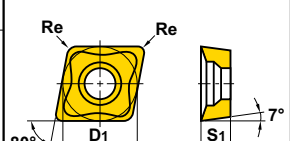
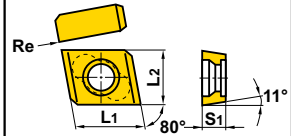
Cutting Conditions (Guide):
●: Stable Cutting ◐: General Cutting ✤: Unstable Cutting

Honing:
E: Round **F**: Sharp

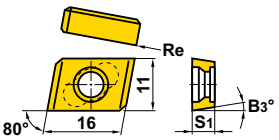
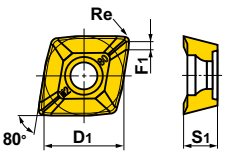
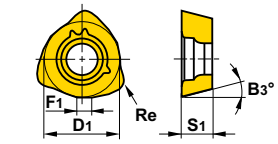
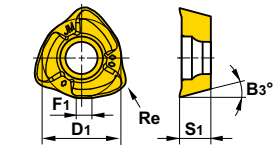
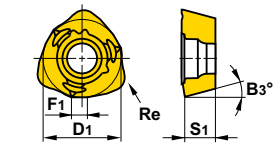
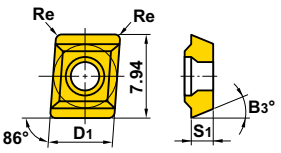
Shape	Order Number	Class	Honing	Coated				Cermet	Carbide		Dimensions (mm)					Geometry
				F7030	VP15TF	VP20RT	UP20M	NX2525	UTi20T	HTi10	L_1	L_2	S_1	F_1	Re	
BAE	AEMW150304ER	M	E	●			●	●	●	●	15.875	9.525	3.18	—	0.4	
	150304FR	M	F							●	15.875	9.525	3.18	—	0.4	
	150308ER	M	E	●			●	●	●	●	15.875	9.525	3.18	—	0.8	
	150308FR	M	F							●	15.875	9.525	3.18	—	0.8	
	19T304ER	M	E	●			●	●	●	●	19.05	12.7	3.97	—	0.4	
	19T304FR	M	F							●	19.05	12.7	3.97	—	0.4	
	19T308ER	M	E	●			●	●	●	●	19.05	12.7	3.97	—	0.8	
	19T308FR	M	F							●	19.05	12.7	3.97	—	0.8	
APX3000 C088	AOMT123602PEER-M	M	E		●	●					12	6.6	3.6	1.8	0.2	
	123604PEER-M	M	E		●	●					12	6.6	3.6	1.6	0.4	
	123608PEER-M	M	E		●	●					12	6.6	3.6	1.2	0.8	
	123610PEER-M	M	E		●	●					12	6.6	3.6	1.0	1.0	
	123612PEER-M	M	E		●	●					12	6.6	3.6	0.8	1.2	
	123616PEER-M	M	E		●	●					12	6.6	3.6	0.4	1.6	
	123620PEER-M	M	E		●	●					12	6.6	3.6	0.4	2.0	
	123624PEER-M	M	E		●	●					12	6.6	3.6	0.4	2.4	
	123630PEER-M	M	E		●	●					12	6.6	3.6	0.4	3.0	
	123632PEER-M	M	E		●	●					12	6.6	3.6	0.4	3.2	
APX4000 C094	AOMT184804PEER-M	M	E		●	●					18	9	4.8	1.8	0.4	
	184808PEER-M	M	E		●	●					18	9	4.8	1.4	0.8	
																
APX3000 C088	AOMT123604PEER-H	M	E		●	●					12	6.6	3.6	1.6	0.4	
	123608PEER-H	M	E		●	●					12	6.6	3.6	1.2	0.4	
																
BAP300 C080	APGT1135PDFR-G2	G	F							●	11	6.35	3.5	1.2	0.8	
																
BAP400 C080	APGT1604PDFR-G2	G	F							●	16.5	9.525	4.76	1.4	0.8	
																

● : Inventory maintained. ★ : Inventory maintained in Japan.

Work Material			Coated			Cermet		Carbide		Cutting Conditions (Guide): ●: Stable Cutting ◐: General Cutting ✱: Unstable Cutting Honing: E: Round
	P	Steel	◐	◐	◐	●	◐	◐		
	M	Stainless Steel	◔	◔	◔	○	◔	◔		
	K	Cast Iron		✱		●		✱	◐	
	N	Non-ferrous Metal							◐	
	S	Heat-resistant Alloy, Titanium Alloy		◔						
	H	Hardened Materials		◔						

Shape	Order Number	Class	Honing	Coated F7030	Coated VP15TF	Coated UP20M	Cermet NX2525	Cermet NX4545	Carbide UTi20T	Carbide HTi10	Dimensions (mm) L1	L2	D1	S1	F1	Re	Geometry
BAP300 C080 **SRM2** C140	**APMT1135PDER-H1**	M	E	●	●	●	●	●	●	●	11	6.35	–	3.5	1.5	0.4	
	1135PDER-H2	M	E	●	●	●	●	●	●	●	11	6.35	–	3.5	1.2	0.8	
	1135PDER-H3	M	E	●		★			●		11	6.35	–	3.5	0.8	1.2	
	1135PDER-H4	M	E	●		●			●		11	6.35	–	3.5	0.4	1.6	
	**1135PDER-H6**	M	E	●		●			●		11	6.35	–	3.5	0.4	2.4	
BAP400 C080 **SRM2** C140	**APMT1604PDER-H1**	M	E	●		●	●		●		16.5	9.525	–	4.76	1.7	0.4	
	1604PDER-H2	M	E	●	●	●	●	●	●	●	16.5	9.525	–	4.76	1.4	0.8	
	1604PDER-H4	M	E	●					●		16.5	9.525	–	4.76	0.4	1.6	
	**1604PDER-H6**	M	E	●					●		16.5	9.525	–	4.76	0.4	2.4	
	1604PDER-H8	M	E	●					●		16.5	9.525	–	4.76	0.4	3.2	
BAP300 C080 **SRM2** C140	**APMT1135PDER-M0**	M	E	★							11	6.35	–	3.5	1.8	0.2	
	1135PDER-M1	M	E	★							11	6.35	–	3.5	1.5	0.4	
	1135PDER-M2	M	E	●	●			●			11	6.35	–	3.5	1.2	0.8	
																	
BAP400 C080 **SRM2** C140	**APMT1604PDER-M2**	M	E	●	●			●			16.5	9.525	–	4.76	1.4	0.8	
																	
DCCC C134	**CCMX083508EN-A**	M	E	●		★			★		–	–	7.94	3.5	–	0.8	
	09T308EN-A	M	E	●		★			★		–	–	9.525	3.97	–	0.8	
																	
DCCC C134	**CCMX09T308EN-B**	M	E	●					★		–	–	9.525	3.97	–	0.8	
																	
VIPER	**CPEX130512R**	E	E						★		13	11	–	5	–	1.2	
																	

ROTATING INSERTS

Work Material			Coated					Carbide	Dimensions (mm)					Geometry
			F7030	FH7020	VP15TF	VP30RT	UP20M	UTi20T	D1	S1	F1	Re	B3	
P	Steel	VIPER CPEX160512L						★	—	5	—	1.2	11°	
M	Stainless Steel	PMR C152 CPMT1205ZPEN-M2	●		●				12.7	5.56	1.4	0.8	—	
K	Cast Iron	1205ZPEN-M3			★				12.7	5.56	1.4	1.2	—	
N	Non-ferrous Metal	1906ZPEN-M2	●		●				19.05	6.35	1.4	0.8	—	
S	Heat-resistant Alloy, Titanium Alloy	1906ZPEN-M3			★				19.05	6.35	1.4	1.2	—	
H	Hardened Materials	AJX C114 JOMW06T215ZZSR-FT		●	●	●			6.35	2.78	1.2	1.5	13°	
		080320ZZSR-FT		●	●	●			8	3.18	1.4	2	13°	
		JDMW09T320ZDSR-FT		●	●	●			9.525	3.97	1.8	2	15°	
		120420ZDSR-FT		●	●	●			12	4.76	2.5	2	15°	
		140520ZDSR-FT		●	●	●			14	5.56	2.8	2	15°	
		AJX C114 JOMT06T215ZZSR-JM		●	●	●			6.35	2.78	1.2	1.2	13°	
		080320ZZSR-JM		●	●	●			8	3.18	1.4	2	13°	
		JDMT09T320ZDSR-JM		●	●	●			9.525	3.97	1.8	2	15°	
		120420ZDSR-JM		●	●	●			12	4.76	2.5	2	15°	
		140520ZDSR-JM		●	●	●			14	5.56	2.8	2	15°	
		AJX C114 JDMT120420ZDSR-ST		●	●	●			12	4.76	2.5	2	15°	
		140520ZDSR-ST		●	●	●			14	5.56	2.8	2	15°	
		CBJP C148 TAB JPMT060204-C					●	●	6.5	2.38	—	0.4	11°	
		060204-E					●	●	6.5	2.38	—	0.4	11°	

Cutting Conditions (Guide):
●: Stable Cutting ◐: General Cutting ✱: Unstable Cutting

Honing:
E: Round S: Chamfer + Hone

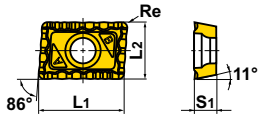
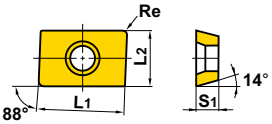
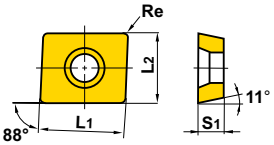
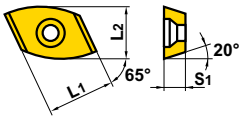
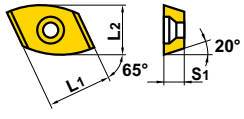
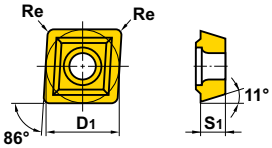
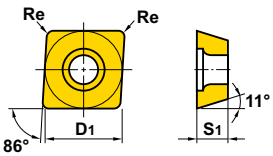
Inner insert (C) shown.

● : Inventory maintained. ★ : Inventory maintained in Japan.
□ : Non stock, produced to order only.

Work Material			Coated			Cermet	Carbide		Dimensions (mm)					
			VP15TF	VP20RT	UP20M	NX2525	UTi20T	HTi10						
P	Steel		●	●	●	●	●							
M	Stainless Steel		◔	◔	◔	○	◔							
K	Cast Iron		✻	✻		●	✻	●						
N	Non-ferrous Metal							◔						
S	Heat-resistant Alloy, Titanium Alloy		◔											
H	Hardened Materials		◔											

Cutting Conditions (Guide):
●: Stable Cutting ◔: General Cutting ✻: Unstable Cutting

Honing:
E: Round T: Chamfer

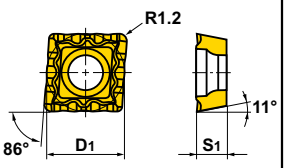
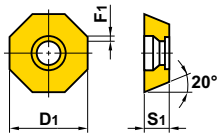
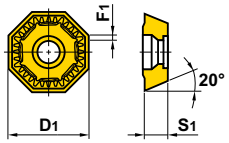
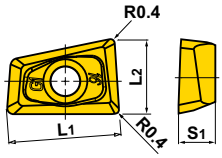
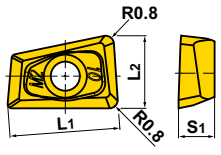
Shape	Order Number	Class	Honing	VP15TF	VP20RT	UP20M	NX2525	UTi20T	HTi10	L1	L2	D1	S1	Re	Geometry
SPX ⇨C132	**JPMX190412-WH**	M	E	★	★					19.05	12.7	—	4.76	1.2	
	**LOMX150308R**	M				●		●		15	9.525	—	3.18	0.8	
	**LPMX150408R**	M				●		●		15.88	12.7	—	4.76	0.8	
MG245 **MG345** **MG445**	**MGEEW1035AFTR**	E	T			★	★	★	★	10	9	—	3.5	—	
	**1242AFTR**	E	T				★	★	★	12	10.5	—	4.2	—	
	1650AFTR	E	T				★	★	★	16	13	—	5	—	
MG200 **MG300** **MG400**	**MGEEW1035PFTR**	E	T				★	★	★	10	9	—	3.5	—	
	**1242PFTR**	E	T				★	★	★	12	10.5	—	4.2	—	
	1650PFTR	E	T				□	★	★	16	13	—	5	—	
CBMP ⇨C148 **ECMP** **TAB**	**MPMT070308**	M	E			★		●		—	—	7.94	3.18	0.8	
	**090308**	M	E			★		●		—	—	9.525	3.18	0.8	
	120408	M	E			★		●		—	—	12.7	4.76	0.8	
TSMP ⇨C147	**MPMW070308**	M	E					●		—	—	7.94	3.18	0.8	
	**090308**	M	E					●		—	—	9.525	3.18	0.8	
	120408	M	E					●		—	—	12.7	4.76	0.8	

ROTATING INSERTS

Work Material		
P	Steel	● ◐ ◐ ◐ ◐ ✣ ◐ ◐ ● ◐ ◐
M	Stainless Steel	○ ◔ ◔ ◔ ◔ ✣ ◔ ◔ ○ ◔ ◔
K	Cast Iron	✣ ✣ ● ✣ ◐
N	Non-ferrous Metal	◐
S	Heat-resistant Alloy, Titanium Alloy	◐
H	Hardened Materials	◐

Cutting Conditions (Guide):
●: Stable Cutting ◐: General Cutting ✣: Unstable Cutting

Honing:
E: Round **S**: Chamfer + Hone **T**: Chamfer

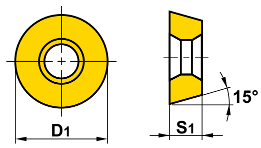
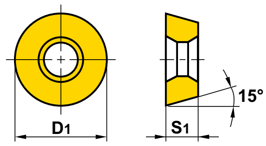
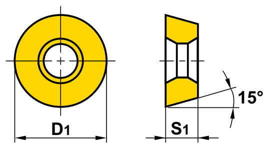
Shape	Order Number	Class	Honing	Coated								Cermet		Carbide		Dimensions (mm)					Geometry
				F7010	F7030	F620	VP15TF	VP20RT	VP30RT	AP20M	UP20M	NX2525	NX4545	UTi20T	HTi10	L1	L2	D1	S1	F1	
SPX C132	**MPMX120412-WH**	M	E				★	★								—	—	12.7	4.76	—	
																					
OCTACUT C126	**OEMX12T3ETR1**	M	T	●		▲							●	●		—	—	12.7	3.97	1	
	12T3ESR1	M	S		●											—	—	12.7	3.97	1	
	OEEX1705ETR1	E	T									●	●			—	—	17	5	1.4	
	**OEMX1705ETR1**	M	T	●		▲				▲	★	●	●	●		—	—	17	5	1.4	
	1705ESR1	M	S		●											—	—	17	5	1.4	
OCTACUT C126	**OEMX12T3EER1-JS**	M	E	●	●											—	—	12.7	3.97	1	
	12T3ETR1-JS	M	T			▲				▲				●		—	—	12.7	3.97	1	
	1705EER1-JS	M	E	●	●											—	—	17	5	1.4	
	**1705ETR1-JS**	M	T			▲				▲				●		—	—	17	5	1.4	
AQX C107	**QOGT0830R-G1**	G	E				●								●	8.4	5.5	—	3	—	
	1035R-G1	G	E				●								●	10.6	7	—	3.5	—	
	1342R-G1	G	E				●								●	13.1	8.7	—	4.2	—	
	**1651R-G1**	G	E				●								●	16.5	11	—	5.1	—	
	1856R-G1	G	E				●								●	18	12	—	5.6	—	
	2062R-G1	G	E				●								●	20.4	13.6	—	6.2	—	
	2576R-G1	G	E				●								●	25.8	17.2	—	7.6	—	
AQX C107	**QOMT0830R-M2**	M	E				●		●							8.4	5.5	—	3	—	
	1035R-M2	M	E				●		●							10.6	7	—	3.5	—	
	1342R-M2	M	E				●		●							13.1	8.7	—	4.2	—	
	**1651R-M2**	M	E				●		●							16.5	11	—	5.1	—	
	1856R-M2	M	E				●		●							18	12	—	5.6	—	
	2062R-M2	M	E				●		●							20.4	13.6	—	6.2	—	
	2576R-M2	M	E				●		●							25.8	17.2	—	7.6	—	

● : Inventory maintained. ★ : Inventory maintained in Japan.
□ : Non stock, produced to order only. ▲ : Inventory maintained. To be replaced by new products.

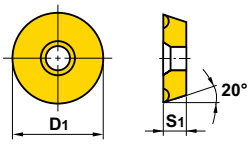
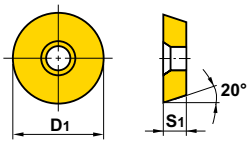
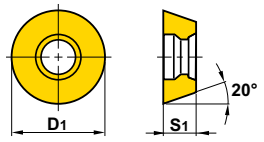
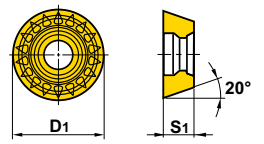
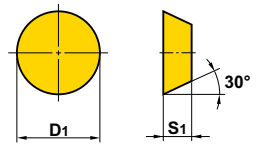
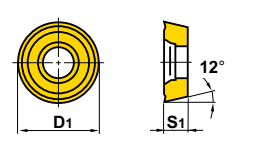
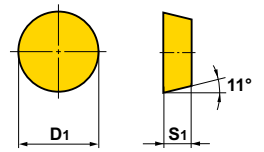
Work Material		F7030	VP15TF	VP20M	UP20M	VP10H	VP05HT	NX4545	VP25N	UTi20T
P	Steel	◐	◐	◐	◐	●	●	◐	●	◐
M	Stainless Steel	◐	◐	◐	◐			◐	●	◐
K	Cast Iron		✱	✱		◐	●		●	✱
N	Non-ferrous Metal									
S	Heat-resistant Alloy, Titanium Alloy		◐			●				
H	Hardened Materials		◐			●	●			

Cutting Conditions (Guide):
●:Stable Cutting ◐:General Cutting ✱:Unstable Cutting

Honing:
E:Round S:Chamfer + Hone T:Chamfer

Shape	Order Number	Class	Honing	Coated F7030	Coated VP15TF	Coated VP20M	Coated UP20M	Coated VP10H	Coated VP05HT	Cermet NX4545	Coated Cermet VP25N	Carbide UTi20T	Dimensions (mm) D1	Dimensions (mm) S1	Geometry
	RDHX0501M0E	H	E	●	●			●	●				5	1.5	
	0501M0S	H	S	●	●	●		●			●	●	5	1.5	
	07T1M0E	H	E	●	●			●	●				7	1.98	
	07T1M0S	H	S	●	●	●		●	●		●	●	7	1.98	
	0702M0E	H	E	●	●			●	●				7	2.38	
	0702M0S	H	S	●	●	●		●			●	●	7	2.38	
	1003M0E	H	E	●	●			●	●				10	3.18	
	1003M0S	H	S	●	●	●		●	●		●	●	10	3.18	
	12T3M0E	H	E	●	●			●	●				12	3.97	
	12T3M0S	H	S	●	●	●		●			●	●	12	3.97	
	1604M0E	H	E	●	●			●	●				16	4.76	
	1604M0S	H	S	●	●	●		●			●	●	16	4.76	
	RDMX07T1M0E	M	E					□	●				7	1.98	
	07T1M0T	M	T	●		●		●		●		●	7	1.98	
	0702M0E	M	E					□	●				7	2.38	
	0702M0T	M	T	●		●		●		●		●	7	2.38	
	1003M0E	M	E					□	●				10	3.18	
	1003M0S	M	S		□			●					10	3.18	
	1003M0T	M	T	●		●		●		●		●	10	3.18	
	12T3M0E	M	E					□	●				12	3.97	
	12T3M0S	M	S		□			●					12	3.97	
	12T3M0T	M	T	●		●		●		●		●	12	3.97	
	1604M0E	M	E					□	●				16	4.76	
	1604M0S	M	S		□			●					16	4.76	
	1604M0T	M	T	●		●		●		●		●	16	4.76	
	RDZX0501M0E	Z	E	●	●								5	1.50	
	0501M0S	Z	S	●									5	1.50	
	07T1M0E	Z	E		●								7	1.98	
	07T1M0S	Z	S	●									7	1.98	
	0702M0E	Z	E	●	●								7	2.38	
	0702M0S	Z	S	●									7	2.38	
	1003M0E	Z	E		●								10	3.18	
	1003M0S	Z	S	●	●								10	3.18	
	12T3M0E	Z	E		●								12	3.97	
	12T3M0S	Z	S	●	●								12	3.97	
	1604M0E	Z	E		●								16	4.76	
	1604M0S	Z	S	●	●								16	4.76	

ROTATING INSERTS

Work Material			Coated				Cermet	Carbide		Dimensions (mm)		Geometry
			F7030	F620	AP20M	UP20M	NX2525	UTi20T	HTi10	D1	S1	
P	Steel	BRE REMT2004M0				●		●		20	4.76	
M	Stainless Steel	BRE REMW2004M0				▲	□	●		20	4.76	
K	Cast Iron	OCTACUT C126 REMX12T3TN		▲	★			●		12.95	4.17	
		12T3SN	★							12.95	4.17	
		1705TN		▲	★			●		17.25	5.2	
		1705SN	★							17.25	5.2	
N	Non-ferrous Metal	OCTACUT C126 REMX12T3EN-JS	★							12.95	4.17	
		12T3TN-JS		▲	▲			●		12.95	4.17	
		1705EN-JS	★							17.25	5.2	
		1705TN-JS		▲	▲			●		17.25	5.2	
S	Heat-resistant Alloy, Titanium Alloy	SG20 C071 RGEN2004M0SN	●			●	●	●	●	20	4.76	
		RPMM120400G				●		●		12.7	4.76	
H	Hardened Materials	CV20 RPMN2004M0					★	★		20	4.76	

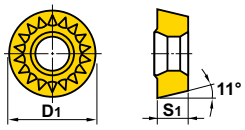
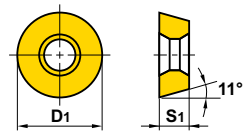
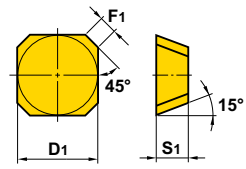
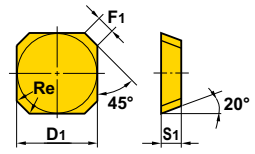
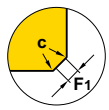
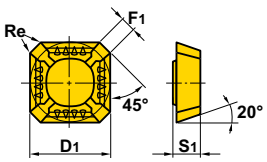
Cutting Conditions (Guide):
●: Stable Cutting ◐: General Cutting ✱: Unstable Cutting

Honing:
E: Round S: Chamfer + Hone T: Chamfer

Shape	Order Number	Class	Honing
BRE	REMT2004M0	M	E
BRE	REMW2004M0	M	E *1
OCTACUT C126	REMX12T3TN	M	T
	12T3SN	M	S
	1705TN	M	T
	1705SN	M	S
OCTACUT C126	REMX12T3EN-JS	M	E
	12T3TN-JS	M	T
	1705EN-JS	M	E
	1705TN-JS	M	T
SG20 C071	RGEN2004M0SN	E	S
	RPMM120400G	M	E
CV20	RPMN2004M0	M	E *1

*1 Grade NX2525 is "T".

● : Inventory maintained. ★ : Inventory maintained in Japan.
□ : Non stock, produced to order only. ▲ : Inventory maintained. To be replaced by new products.

Work Material			Coated								Cermet		Carbide		Dimensions (mm)				Geometry
			F7010	F7030	F620	F5010	F5020	VP15TF	AP20M	UP20M	NX2525	NX4545	UTi20T	HTi10	D1	S1	F1	Re	
Shape	Order Number	Class / Honing																	
BRP ⇨C129	RPMT08T2M0E-JS	M E		●				●					●		8	2.78	—	—	
	10T3M0E-JS	M E		●				●					●		10	3.97	—	—	
	1204M0E-JS	M E	●	●				●	●				●		12	4.76	—	—	
	1606M0E-JS	M E		●				●	●				●		16	6.35	—	—	
BRP ⇨C129	RPMW08T2M0E	M E		●								●	●		8	2.78	—	—	
	08T2M0T	M T						●							8	2.78	—	—	
	10T3M0E	M E		●								●	●		10	3.97	—	—	
	10T3M0T	M T						●							10	3.97	—	—	
	1204M0E	M E		●					●		●	●	●		12	4.76	—	—	
	1204M0T	M T						●							12	4.76	—	—	
	1606M0E	M E		●					●		●	●	●		16	6.35	—	—	
	1606M0T	M T						●							16	6.35	—	—	
Corner Angle 45°	SDEN1203AEN	E T									★	●	★		12.7	3.18	1.2	—	
LSE445 ⇨C060 SE445	SECN1203AFFN1	C F												★	12.7	3.18	1.4	1.0	
	1203AFEN1	C E												★	12.7	3.18	1.4	1.0	
	1203AFTN1	C T								□	★	★	★		12.7	3.18	1.4	1.0	
	SEEN1203AFFN1	E F												●	12.7	3.18	1.4	1.0	
	1203AFEN1	E E	●											●	12.7	3.18	1.4	1.0	
	1203AFTN1	E T	●		▲	●				●	●	●	●		12.7	3.18	1.4	1.0	
	✱ 1203AFTN3	E T	●		▲					●	●	●	●		12.7	3.18	1.4	—	
	1203AFSN1	E S	●	●		●	●								12.7	3.18	1.4	1.0	
	✱ 1203AFSN3	E S		●											12.7	3.18	1.4	—	✱ SEEN1203AFTN3 SEEN1203AFSN3
	1203AFXN	E X	●												12.7	3.18	1.4	1.0	
	1203AFZN1	E Z									●				12.7	3.18	1.4	1.0	
LSE445 ⇨C060 SE445	SEER1203AFEN-JS	E E	●	●	▲	●	●			●	●		●		12.7	3.18	1.4	1.0	

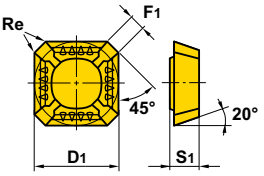
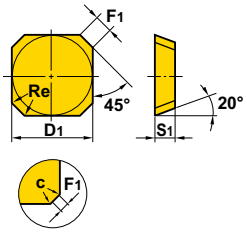
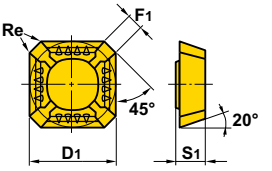
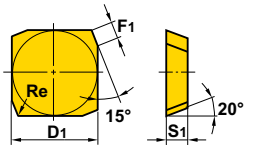
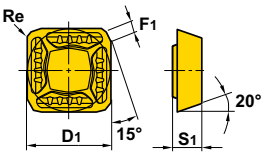
Work Material

P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-ferrous Metal
S	Heat-resistant Alloy, Titanium Alloy
H	Hardened Materials

Cutting Conditions (Guide):
●: Stable Cutting ◐: General Cutting ✱: Unstable Cutting

Honing:
E: Round F: Sharp S: Chamfer + Hone T: Chamfer
X: Round (Small) Z: Strong

ROTATING INSERTS

Work Material			Coated						Cermet		Carbide		Dimensions (mm)				Geometry
Shape	Order Number	Class	Honing	F7010	F7030	F620	F5010	F5020	UP20M	NX2525	NX4545	UTi20T	HTi10	D1	S1	F1	Re	
Corner Angle 45°	**SEER1204AFEN-JS**	E	E	●		▲	●		●			●		12.7	4.76	1.4	1.0	
SE545 ⇨C062	**SECN1504AFEN1**	C	E										●	15.875	4.76	1.4	1.0	
	1504AFTN1	C	T							★	★	★		15.875	4.76	1.4	1.0	
	SEEN1504AFFN1	E	F										●	15.875	4.76	1.4	1.0	
	1504AFEN1	E	E										●	15.875	4.76	1.4	1.0	
	1504AFTN1	E	T	●		▲	●		●	●	●	●		15.875	4.76	1.4	1.0	
	＊1504AFTN3	E	T			▲			●		●	●		15.875	4.76	1.4	—	
	1504AFSN1	E	S		●		●	●						15.875	4.76	1.4	1.0	
	＊1504AFSN3	E	S		●									15.875	4.76	1.4	—	＊SEEN1504AFTN3 SEEN1504AFSN3
SE545 ⇨C062	**SEER1504AFEN-JS**	E	E	●	●	▲	●	●	●			●		15.875	4.76	1.4	1.0	
SE415 ⇨C064	**SECN1203EFFR1**	C	F										★	12.7	3.18	1.4	1.0	
	1203EFER1	C	E										★	12.7	3.18	1.4	1.0	
	1203EFTR1	C	T						★	★	★	★		12.7	3.18	1.4	1.0	
	1203EFTL1	C	T									★		12.7	3.18	1.4	1.0	
	SEEN1203EFFR1	E	F										●	12.7	3.18	1.4	1.0	
	1203EFFL1	E	F										□	12.7	3.18	1.4	1.0	
	1203EFER1	E	E										●	12.7	3.18	1.4	1.0	
	1203EFTR1	E	T	●		▲	●		●	●	●	●		12.7	3.18	1.4	1.0	
	1203EFTL1	E	T						●			★		12.7	3.18	1.4	1.0	
	＊1203EFTR3	E	T			▲			●	●		●		12.7	3.18	1.4	—	＊SEEN1203EFTR3
	1203EFSR1	E	S		●		●	●						12.7	3.18	1.4	1.0	
	1203EFZR1	E	Z							●				12.7	3.18	1.4	1.0	Right hand insert shown.
SE415 ⇨C064	**SEER1203EFER-JS**	E	E	●	●	▲						●		12.7	3.18	1.4	1.0	

P	Steel
M	Stainless Steel
K	Cast Iron
N	Non-ferrous Metal
S	Heat-resistant Alloy, Titanium Alloy
H	Hardened Materials

Cutting Conditions (Guide):
●: Stable Cutting ◐: General Cutting ✱: Unstable Cutting

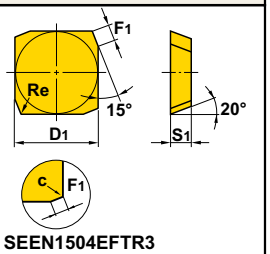
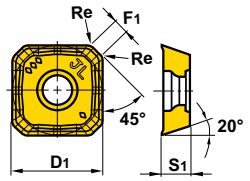
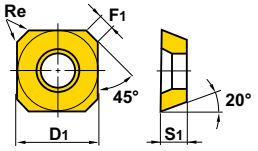
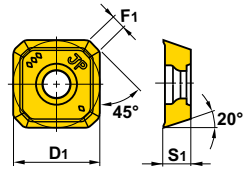
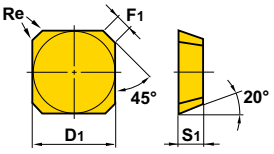
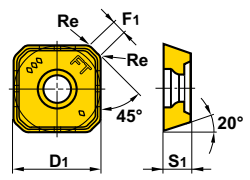
Honing:
E: Round F: Sharp S: Chamfer + Hone T: Chamfer
Z: Strong

● : Inventory maintained. ★ : Inventory maintained in Japan.
□ : Non stock, produced to order only. ▲ : Inventory maintained. To be replaced by new products.

Work Material		
	P	Steel
	M	Stainless Steel
	K	Cast Iron
	N	Non-ferrous Metal
	S	Heat-resistant Alloy, Titanium Alloy
	H	Hardened Materials

Cutting Conditions (Guide):
●: Stable Cutting ◐: General Cutting ✻: Unstable Cutting

Honing:
E: Round F: Sharp S: Chamfer + Hone T: Chamfer

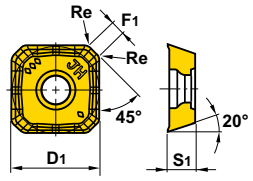
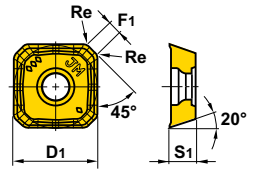
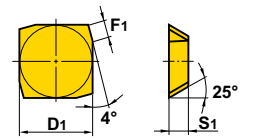
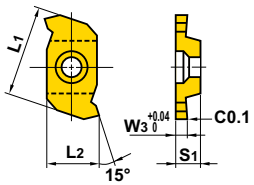
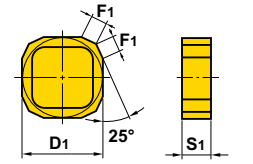
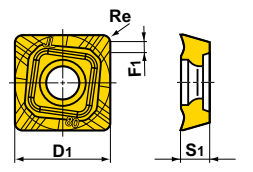
Shape	Order Number	Class	Honing	Coated								Cermet		Carbide		Dimensions (mm)				Geometry
				F7010	F7030	F620	F5010	F5020	VP15TF	VP30RT	UP20M	NX2525	NX4545	UTi20T	HT10	D1	S1	F1	Re	
SE515 ⇨C066	**SECN1504EFER1**	C	E												●	15.875	4.76	1.4	1.0	
	1504EFTR1	C	T								□	★	★	●		15.875	4.76	1.4	1.0	
	SEEN1504EFFR1	E	F												●	15.875	4.76	1.4	1.0	
	1504EFER1	E	E												●	15.875	4.76	1.4	1.0	
	1504EFTR1	E	T	●		▲	●				●	●	●	●		15.875	4.76	1.4	1.0	
	1504EFTL1	E	T	●							□					15.875	4.76	1.4	1.0	
	✻ **1504EFTR3**	E	T			▲					●			●		15.875	4.76	1.4	—	✻ SEEN1504EFTR3
	1504EFSR1	E	S		●		●	●								15.875	4.76	1.4	1.0	Right hand insert shown.
ASX445 ⇨C056	**SEET13T3AGEN-JL**	E	E		●				●	●			●			13.4	3.97	1.9	1.5	
Corner Angle 45°	**SEEW1204AFTN**	E	T								●	●	●	●		12.7	4.76	2.6	1.0	
ASX445 ⇨C056	**SEGT13T3AGFN-JP**	G	F												●	13.4	3.97	2.2	—	
Corner Angle 45°	**SEMN1204AZTN**	M	T								●					12.7	4.76	2.0	0.2	
ASX445 ⇨C056	**SEMT13T3AGSN-FT**	M	S					●								13.4	3.97	1.9	1.5	

ROTATING INSERTS

Work Material		
P	Steel	
M	Stainless Steel	
K	Cast Iron	
N	Non-ferrous Metal	
S	Heat-resistant Alloy, Titanium Alloy	
H	Hardened Materials	

Cutting Conditions (Guide):
●: Stable Cutting ◐: General Cutting ✣: Unstable Cutting

Honing:
E: Round F: Sharp S: Chamfer + Hone T: Chamfer

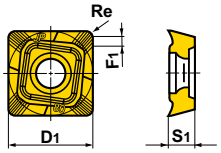
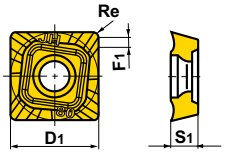
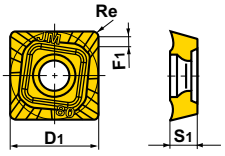
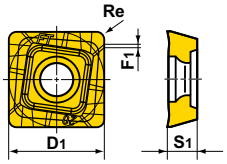
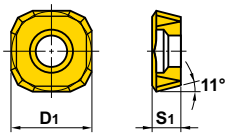
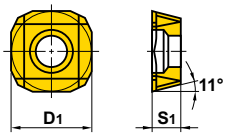
Shape	Order Number	Class	Honing	Coated F7030	Coated F5010	Coated F5020	Coated VP15TF	Coated VP30RT	Cermet NX4545	Carbide UTi20T	Carbide HTi10	L_1	L_2	D_1	S_1	F_1	W_3	Re	Geometry
ASX445 ⇨C056	**SEMT13T3AGSN-JH**	M	S	●	●		●	●				—	—	13.4	3.97	1.9	—	1.5	
ASX445 ⇨C056	**SEMT13T3AGSN-JM**	M	S	●	●	●	●	●	●			—	—	13.4	3.97	1.9	—	1.5	
BF407 ⇨C070	**SFAN 1203ZFFR2**	A	F								●	—	—	12.7	3.175	2.4	—	—	 Right hand insert shown.
	1203ZFFL2	A	F								★	—	—	12.7	3.175	2.4	—	—	
	SFCN 1203ZFFR2	C	F								●	—	—	12.7	3.175	2.4	—	—	
	1203ZFFL2	C	F								□	—	—	12.7	3.175	2.4	—	—	
STLG ⇨C149	**SLG22120L**	G	T							●		13	7	—	2.7	—	1.2	—	
	22150L	G	T							●		13	7	—	3	—	1.5	—	
	22200L	G	T							●		13	7	—	3.5	—	2	—	
	38200L	G	T							●		15.6	8	—	4	—	2	—	
	38300L	G	T							●		15.6	8	—	5	—	3	—	
	38400L	G	T							●		15.6	8	—	6	—	4	—	
BN425 DN	**SNMF43B2G**	M	E		★	★						—	—	12.7	4.8	2	—	—	
ASX400 ⇨C072	**SOET12T308PEER-JL**	E	E	●			●	●	●			—	—	12.7	3.97	1.4	—	0.8	

● : Inventory maintained. ★ : Inventory maintained in Japan.
□ : Non stock, produced to order only.

Work Material			F7030	F5010	F5020	VP15TF	VP30RT	NX2525	NX4545	HTi05T	HTi10
	P	Steel	●			●	✱	●	●		
	M	Stainless Steel	◔			◔	✱	○	◔		
	K	Cast Iron		●	●	✱		●		●	●
	N	Non-ferrous Metal								●	●
	S	Heat-resistant Alloy, Titanium Alloy				●					
	H	Hardened Materials				●					

Cutting Conditions (Guide):
●: Stable Cutting ◔: General Cutting ✱: Unstable Cutting

Honing:
E: Round **F**: Sharp

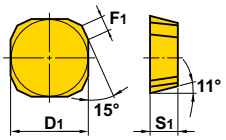
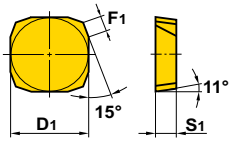
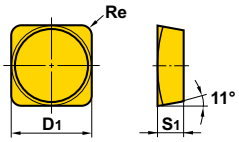
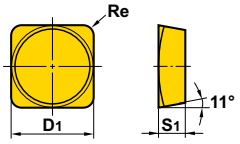
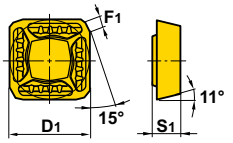
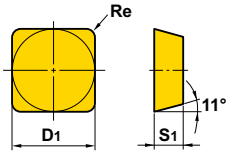
Shape	Order Number	Class	Honing	Coated					Cermet		Carbide		Dimensions (mm)				Geometry
				F7030	F5010	F5020	VP15TF	VP30RT	NX2525	NX4545	HTi05T	HTi10	D1	S1	F1	Re	
ASX400 C072 	**SOGT12T308PEFR-JP**	G	F									●	12.7	3.97	1.4	0.8	
ASX400 C072 	**SOMT12T308PEER-JH**	M	E	●	●	●	●	●					12.7	3.97	1.4	0.8	
ASX400 C072 	**SOMT12T308PEER-JM**	M	E	●	●	●	●	●		●			12.7	3.97	1.4	0.8	
ASX400 C072 	**SOMT12T320PEER-FT**	M	E			●	●						12.7	3.97	0.5	2.0	
FF3000 	**SPCA53Z**	C	E						★				15.88	4.8	–	–	
FF3000 	**SPCG53Z**	C	F						★		★		15.88	4.8	–	–	

ROTATING INSERTS

Work Material		
P	Steel	●C ●C ●C
M	Stainless Steel	○C ○C ○C
K	Cast Iron	●C ●C ✱
N	Non-ferrous Metal	●C
S	Heat-resistant Alloy, Titanium Alloy	✱ ●C ●C
H	Hardened Materials	●C

Cutting Conditions (Guide):
●: Stable Cutting ●C: General Cutting ✱: Unstable Cutting

Honing:
E: Round **F**: Sharp **T**: Chamfer

Shape	Order Number	Class	Honing	Coated F7010	Coated F7030	Coated F5010	Coated F5020	Coated UP20M	Cermet NX2525	Cermet NX4545	Carbide UTi20T	Carbide HTi05T	Carbide HTi10	D1	S1	F1	Re	Geometry
Corner Angle 15° 	SPEN1203EDR	E	T *1	●	●	●		●	●	●	●		●	12.7	3.18	1.4	—	 Right hand insert shown.
	1203EDL	E	T *1			□			●		●		●	12.7	3.18	1.4	—	
	1504EDR	E	T *1			●		●		●	●		●	15.875	4.76	1.4	—	
	1504EDL	E	T *1								●			15.875	4.76	1.4	—	
FBP415 ➲C068 	SPEN1203EEER1	E	E			●	●						●	12.7	3.175	1.4	—	 Right hand insert shown.
	1203EEEL1	E	E										★	12.7	3.175	1.4	—	
	SPNN1203EEER1	N	E			★	★						★	12.7	3.175	1.4	—	
	1203EEEL1	N	E										□	12.7	3.175	1.4	—	
FP490 	SPEN424A	E	F									★	★	12.7	3.18	—	1.6	
FP590 	SPEN535A	E	F									★		15.875	4.76	—	2.0	
FBP415 ➲C068 	SPER1203EEER-JS	E	E			●	★							12.7	3.175	1.4	—	
11° Positive 	SPGN120304	G	E *1								●		●	12.7	3.18	—	0.4	
	120308	G	E *1					★			●		●	12.7	3.18	—	0.8	
	120312	G	F					□					●	12.7	3.18	—	1.2	
	150404	G	E								●			15.875	4.76	—	0.4	
	150408	G	E *1								●		★	15.875	4.76	—	0.8	
	SPMN120304	M	E *1								●		●	12.7	3.18	—	0.4	
	120308	M	E		★			★			●		●	12.7	3.18	—	0.8	
	120312	M	E *1		★			□			●		●	12.7	3.18	—	1.2	
	150408	M	E								●			15.875	4.76	—	0.8	
	150412	M	E					□			●			15.875	4.76	—	1.2	

✱1 Grade HTi10 is "F".

● : Inventory maintained. ★ : Inventory maintained in Japan.
□ : Non stock, produced to order only.

Work Material			Coated			Cermet		Carbide		Dimensions (mm)						
			VP15TF	VP20RT	UP20M	NX2525	NX4545	UTi20T	HTi10							
P	Steel		●	◕	◕	●	◕	◕								
M	Stainless Steel		◔	◔	◔	○	◔	◔								
K	Cast Iron		✲	✲		●		✲	◕							
N	Non-ferrous Metal								◕							
S	Heat-resistant Alloy, Titanium Alloy		◔													
H	Hardened Materials		◔													

Cutting Conditions (Guide):
●: Stable Cutting ◕: General Cutting ✲: Unstable Cutting

Honing:
E: Round **S**: Chamfer + Hone **T**: Chamfer

Shape	Order Number	Class	Honing	L1	L2	D1	S1	F1	Re	Geometry
BSP C122	**SPMB1204APT**	M	T	—	—	12.7	4.76	1.4	—	
TBE1	**SPMT120408-A**	M	E	—	—	12.7	4.76	—	0.8	
CESP CFSP CGSP C146	**SPMW090304**	M	E *1	—	—	9.525	3.18	—	0.4	
	090308	M	E *1	—	—	9.525	3.18	—	0.8	
	120304	M	E *1	—	—	12.7	3.18	—	0.4	
	120308	M	E *1	—	—	12.7	3.18	—	0.8	
SPX C132	**SPMX120408-WH**	M	E	—	—	12.7	4.76	—	0.8	
Corner Angle 15°	**SPNN1203EDR**	N	E	—	—	12.7	3.18	1.4	—	Right hand insert shown.
SRE C124	**SRE06R**	E	E	8.5	6.35	—	2.3	—	0.4	
	07R	E	E	10.6	7.94	—	2.8	—	0.4	
	09R	E	E	12.7	9.525	—	3.5	—	0.4	
SRE C124	**SRE12R**	E	S	12.7	9.525	—	4	—	0.8	

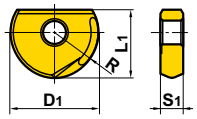
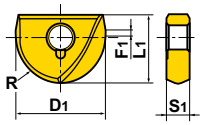
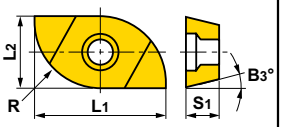
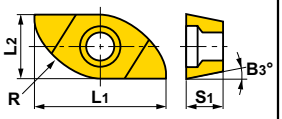
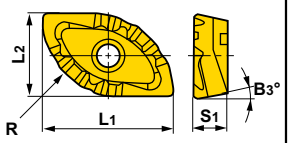
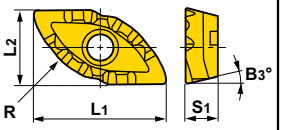
*1 Grade NX2525 and NX4545 are "T".

ROTATING INSERTS

Work Material		
P	Steel	
M	Stainless Steel	
K	Cast Iron	
N	Non-ferrous Metal	
S	Heat-resistant Alloy, Titanium Alloy	
H	Hardened Materials	

Cutting Conditions (Guide):
●: Stable Cutting ◐: General Cutting ✱: Unstable Cutting

Honing:
E: Round F: Sharp

Shape	Order Number	Class	Honing	Coated F7030	Coated VP15TF	Coated VP20RT	Coated VP30RT	Coated VP10MF	L_1	L_2	D_1	S_1	F_1	R	B_3	Geometry
SRB C137	**SRBT10**	—	F		●				8.5	—	10	2.6	—	5	—	
	12	—	F		●				10	—	12	3	—	6	—	
	16	—	F		●				12	—	16	4	—	8	—	
	**20**	—	F		●				15	—	20	5	—	10	—	
	25	—	F		●				18.5	—	25	6	—	12.5	—	
	30	—	F		●				22.5	—	30	7		15	—	
	32	—	F		●				23.5	—	32	7		16	—	
SRF C137	* **SRFT10**	—	F		●			●	8.5	—	10	2.6	0.5	5	—	
	* **12**	—	F		●			●	10	—	12	3	0.5	6	—	
	* **16**	—	F		●			●	12	—	16	4	0.5	8	—	
	* **20**	—	F		●			●	15	—	20	5	1	10	—	
	* **25**	—	F		●			●	18.5	—	25	6	1	12.5	—	
	* **30**	—	F		●			●	22.5	—	30	7	1	15	—	
	* **32**	—	F		●			●	23.5	—	32	7	1	16	—	
SRM2 C140	**SRG16C**	G	E		●				16	8.2	—	3.5	—	8	11°	
	20C	G	E	●	●				19	10.2	—	4.6	—	10	10°	
	25C	G	E	●	●				24	12.8	—	5.5	—	12.5	10°	
	**30C**	G	E	●	●				28	15.3	—	7	—	15	10°	
	32C	G	E	●	●				28	16.3	—	7	—	16	10°	
SRM2 C140	**SRG16E**	G	E		●				13.5	6.7	—	3.5	—	8	11°	
	20E	G	E	●	●				15.5	8.5	—	4.6	—	10	9°	
	25E	G	E	●	●				20.5	10.2	—	5.5	—	12.5	9°	
	**30E**	G	E	●	●				25.2	12.2	—	7	—	15	9°	
	32E	G	E	●	●				26.1	13.1	—	7	—	16	9°	
SRM2ϕ40 ϕ50 C144	* **SRG40C**	G	E		●	●	●		36	20.5	—	8.0	—	20	11°	
	* **50C**	G	E		●	●	●		40	26	—	8.5	—	25	11°	
																
SRM2ϕ40 ϕ50 C144	* **SRG40E**	G	E		●	●	●		32	16.6	—	8.0	—	20	11°	
	* **50E**	G	E		●	●	●		35.8	20	—	8.5	—	25	11°	
																

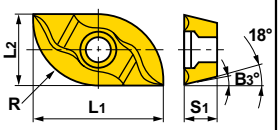
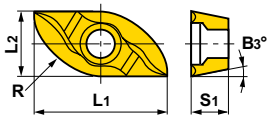
✱ 2 inserts in one case.

● : Inventory maintained.

Work Material			
	P	Steel	
	M	Stainless Steel	
	K	Cast Iron	
	N	Non-ferrous Metal	
	S	Heat-resistant Alloy, Titanium Alloy	
	H	Hardened Materials	

Cutting Conditions (Guide):
●: Stable Cutting ◐: General Cutting ✤: Unstable Cutting

Honing:
E: Round

Shape	Order Number	Class	Honing	Coated	Dimensions (mm)					Geometry
				VP15TF	L_1	L_2	S_1	R	B_3	
SRM2 C140 	**SRM16C-M**	M	E	●	16	8.2	3.5	8	11°	
	20C-M	M	E	●	19	10.2	4.6	10	10°	
	25C-M	M	E	●	24	12.8	5.5	12.5	10°	
	30C-M	M	E	●	28	15.3	7	15	10°	
	32C-M	M	E	●	28	16.3	7	16	10°	
SRM2 C140 	**SRM16E-M**	M	E	●	13.5	6.7	3.5	8	11°	
	20E-M	M	E	●	15.5	8.5	4.6	10	9°	
	25E-M	M	E	●	20.5	10.2	5.5	12.5	9°	
	30E-M	M	E	●	25.2	12.2	7	15	9°	
	32E-M	M	E	●	26.1	13.1	7	16	9°	

ROTATING INSERTS

Work Material		
P	Steel	● ◐ ◐ ◐
M	Stainless Steel	○ ◐ ◐ ◐
K	Cast Iron	● ◐ ● ◐
N	Non-ferrous Metal	● ◐ ✱ ◐
S	Heat-resistant Alloy, Titanium Alloy	● ◐ ✱ ◐
H	Hardened Materials	● ◐ ✱ ◐

Cutting Conditions (Guide):
●: Stable Cutting ◐: General Cutting ✱: Unstable Cutting

Honing:
E: Round F: Sharp S: Chamfer + Hone T: Chamfer
Z: Strong

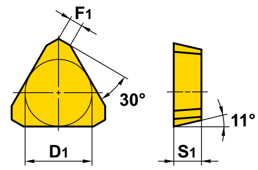
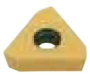
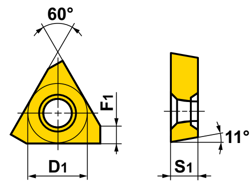
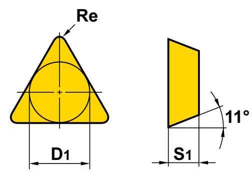
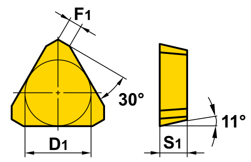
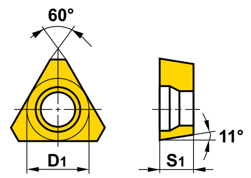
Shape	Order Number	Class	Honing	Coated F7010	Coated F7030	Coated F620	Coated F5010	Coated F5020	Coated UP20M	Cermet NX2525	Cermet NX4545	Carbide UTi20T	Carbide HTi10	D1	S1	F1	Re	Geometry
NSE300 ⇒C076 SE300	TECN1603PEFR1W	C	F										★	9.525	3.175	1.4	0.4	Wall face finishing.
	1603PEER1W	C	E										★	9.525	3.175	1.4	0.4	
	1603PETR1W	C	T							★	●	★		9.525	3.175	1.4	0.4	
NSE300 ⇒C076 SE300	TEEN1603PEFR1	E	F										●	9.525	3.175	1.4	0.4	
	1603PEER1	E	E										●	9.525	3.175	1.4	0.4	
	1603PETR1	E	T	●		▲			●	●	●	●		9.525	3.175	1.4	0.4	
	1603PETR3	E	T			▲						□		9.525	3.175	1.4	0.4	
	1603PESR1	E	S		●		●	●						9.525	3.175	1.4	0.4	
	1603PEZR1	E	Z							●				9.525	3.175	1.4	0.4	
NSE400 ⇒C076 SE400	TECN2204PEFR1	C	F										●	12.7	4.76	1.4	1.0	
	2204PEER1	C	E										●	12.7	4.76	1.4	1.0	
	2204PETR1	C	T						□	★	★	●		12.7	4.76	1.4	1.0	
	TEEN2204PEFR1	E	F										●	12.7	4.76	1.4	1.0	
	2204PEFL1	E	F										□	12.7	4.76	1.4	1.0	
	2204PEER1	E	E										●	12.7	4.76	1.4	1.0	
	2204PEEL1	E	E										□	12.7	4.76	1.4	1.0	
	2204PETR1	E	T	●		▲			●	●	●	●		12.7	4.76	1.4	1.0	
	2204PETR3	E	T			▲			●					12.7	4.76	1.4	—	
	2204PESR1	E	S		●		●	●						12.7	4.76	1.4	1.0	
	2204PEZR1	E	Z							●				12.7	4.76	1.4	1.0	
	TEKN2204PEER1	K	E										★	12.7	4.76	1.94	—	
	2204PETR1	K	T							★		★		12.7	4.76	1.94	—	
	2204PESR1	K	S		★									12.7	4.76	1.94	—	
	2204PETR	K	T								★			12.7	4.76	1.94	—	
	2204PEZR	K	Z							★				12.7	4.76	1.94	—	Right hand insert shown.
NSE300 ⇒C076	TEER1603PEER-JS	E	E	●	●	▲						●		9.525	3.175	1.4	0.4	
NSE400 ⇒C076	TEER2204PEER-JS	E	E	●	●	▲						●		12.7	4.76	1.4	1.0	

● : Inventory maintained. ★ : Inventory maintained in Japan.
□ : Non stock, produced to order only. ▲ : Inventory maintained. To be replaced by new products.

Work Material		F7030	F5010	VP15TF	UP20M	AP10H	NX2525	NX4545	UTi20T	HTi05T	HTi10
P	Steel	◐		◐	◐		●	◐	◐		
M	Stainless Steel	◐		◐	◐		●	◐	◐		
K	Cast Iron		●	❋		◐	●		❋	●	◐
N	Non-ferrous Metal									●	◐
S	Heat-resistant Alloy, Titanium Alloy			◐							
H	Hardened Materials			◐							

Cutting Conditions (Guide):
●: Stable Cutting ◐: General Cutting ❋: Unstable Cutting

Honing:
E: Round T: Chamfer

Shape	Order Number	Class	Honing	Coated F7030	Coated F5010	Coated VP15TF	Coated UP20M	Coated AP10H	Cermet NX2525	Cermet NX4545	Carbide UTi20T	Carbide HTi05T	Carbide HTi10	D1	S1	F1	Re	Geometry
Corner Angle 0° 	TPEN1603PPR	E	T	●	●		●		●	●	●		●	9.525	3.18	1.2	—	
	1603PPN	E	T *1								●		●	9.525	3.18	1.2	—	
	1603PPL	E	T *1						□					9.525	3.18	1.2	—	
	2204PDR	E	T *1	●	●		●		●	●	●		●	12.7	4.76	1.4	—	
	2204PDL	E	T *1								●		●	12.7	4.76	1.4	—	
PMF C154 	TPEW1303ZPER2	E	E			●		●						7.94	3.18	2	—	
11° Positive 	TPMN160304	M	E *1	●			□		●		●		●	9.525	3.18	—	0.4	
	160304T	M	T						●					9.525	3.18	—	0.4	
	160308	M	E *2	●			●		●		●	★	●	9.525	3.18	—	0.8	
	160308T	M	T						●					9.525	3.18	—	0.8	
	160312	M	E *1	●			●				●			9.525	3.18	—	1.2	
	160312T	M	T						●					9.525	3.18	—	1.2	
	220404	M	E				□				●			12.7	4.76	—	0.4	
	220408	M	E *1	●			●				●		●	12.7	4.76	—	0.8	
	220408T	M	T						●					12.7	4.76	—	0.8	
	220412	M	E *1	★			□				●		●	12.7	4.76	—	1.2	
	220412T	M	T						●					12.7	4.76	—	1.2	
Corner Angle 0° 	TPNN2204PDR	N	E								●			12.7	4.76	1.4	—	
VIPER 	TPNX1605N	N	E								●			9.525	5	—	—	

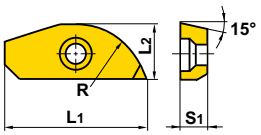
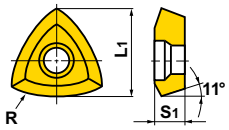
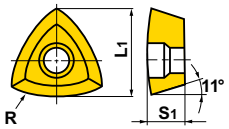
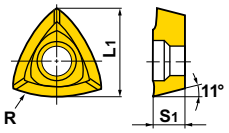
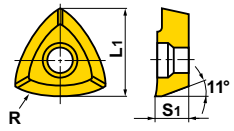
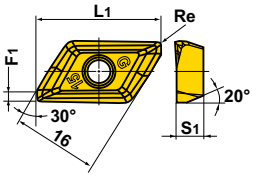
*1 Grade HTi10 is "F".
*2 Grade HTi10 is "F", Grade NX2525 is "T".

ROTATING INSERTS

Work Material		
P	Steel	
M	Stainless Steel	
K	Cast Iron	
N	Non-ferrous Metal	
S	Heat-resistant Alloy, Titanium Alloy	
H	Hardened Materials	

Cutting Conditions (Guide):
●: Stable Cutting ◐: General Cutting ✻: Unstable Cutting

Honing:
E: Round

Shape	Order Number	Class	Honing	Coated VP15TF	Coated AP15TF	Coated AP20M	Coated UP20M	Cermet NX2525	Carbide UTi20T	Carbide HTi10	L1	L2	S1	F1	Re	R	Geometry
FBE2	UDC16F	C	E	●	▲			●	●		15.4	5.9	2.5	—	—	8	
	20F	C	E	●				●	●	★	19.4	7.4	3.5	—	—	10	
	25F	C	E	●				●	●		24	9.3	4	—	—	12.5	
	30F	C	E	●				●	●		28.9	11.2	5	—	—	15	
	32F	C	E	●				●	●		29.0	11.0	5	—	—	16	
TRM4	UPE40	E	E			●	□		●		13.2	—	4.8	—	—	20	
	50	E	E			●	□		●		16.5	—	6	—	—	25	
TRM4	UPM40	M	E	●		●					13.2	—	4.8	—	—	20	
	50	M	E	●		●					16.5	—	6	—	—	25	
TRM4	UPM50P0	M	E	★		□					16.5	—	5.5	—	—	25	
TRM4	UPM40P1	M	E	●		●					13.2	—	4.4	—	—	20	
	50P1	M	E	●		●					16.5	—	5.5	—	—	25	
BXD4000 C104	XDGT1550PDER-G04	G	E	●							22	—	5	1.5	0.4	—	
	1550PDER-G08	G	E	●							22	—	5	1.1	0.8	—	
	1550PDER-G12	G	E	●							22	—	5	0.7	1.2	—	
	1550PDER-G16	G	E	●							22	—	5	0.4	1.6	—	
	1550PDER-G20	G	E	●							21.7	—	5	0.2	2.0	—	
	1550PDER-G30	G	E	●							20	—	5	0.6	3.0	—	
	1550PDER-G32	G	E	●							20	—	5	0.4	3.2	—	
	1550PDER-G40	G	E	●							19	—	5	0.5	4.0	—	
	1550PDER-G50	G	E	●							18	—	5	0.4	5.0	—	

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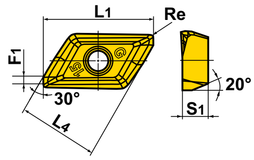
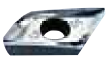
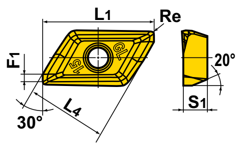
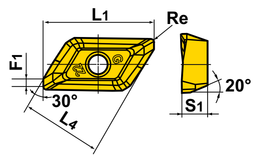
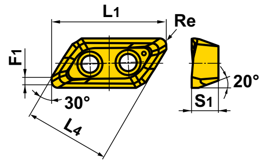
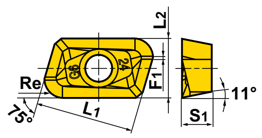
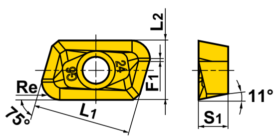
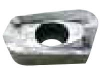
Work Material			VP15TF	LC15TF	HTi10	TF15
	P	Steel	◐			
	M	Stainless Steel	◐			
	K	Cast Iron	✤		●	
	N	Non-ferrous Metal		◐	◐	◐
	S	Heat-resistant Alloy, Titanium Alloy	◐			
	H	Hardened Materials	◐			

Cutting Conditions (Guide):
●: Stable Cutting ◐: General Cutting ✤: Unstable Cutting

Honing:
E: Round F: Sharp

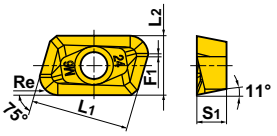
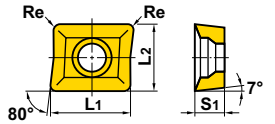
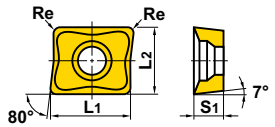
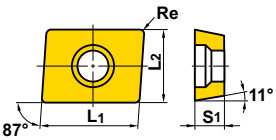
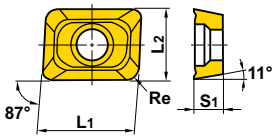
Shape	Order Number	Class	Honing	Coated VP15TF	Coated LC15TF	Carbide HTi10	Carbide TF15	Dimensions (mm) L1	L2	L4	S1	F1	Re	Geometry
BXD4000 ◐C104	XDGT1550PDFR-G04	G	F		●		●	22	–	16	5	1.5	0.4	
	1550PDFR-G08	G	F		●		●	22	–	16	5	1.1	0.8	
	1550PDFR-G12	G	F		●		●	22	–	16	5	0.7	1.2	
	1550PDFR-G16	G	F		●		●	22	–	16	5	0.4	1.6	
	1550PDFR-G20	G	F		●		●	21.7	–	16	5	0.2	2.0	
	1550PDFR-G30	G	F		●		●	20	–	16	5	0.6	3.0	
	1550PDFR-G32	G	F		●		●	20	–	16	5	0.4	3.2	
	1550PDFR-G40	G	F		●		●	19	–	16	5	0.5	4.0	
	1550PDFR-G50	G	F		●		●	18	–	16	5	0.4	5.0	
BXD4000 ◐C104	XDGT1550PDFR-GL04	G	F				●	22	–	16	5	1.5	0.4	
	1550PDFR-GL08	G	F				●	22	–	16	5	1.1	0.8	
														
BXD7000	XDGT2206PDFR-G08	G	F		□		●	30	–	22	6.35	2.0	0.8	
	2206PDFR-G16	G	F		□		★	30	–	22	6.35	1.2	1.6	
	2206PDFR-G20	G	F		□		★	30	–	22	6.35	0.8	2.0	
	2206PDFR-G30	G	F		□		★	29	–	22	6.35	0.6	3.0	
	2206PDFR-G40	G	F		□		★	27.5	–	22	6.35	0.9	4.0	
	2206PDFR-G50	G	F		□		★	27	–	22	6.35	0.4	5.0	
AXD7000 ◐C100	XDGX227008PDFR-GL	G	F		□		●	30	–	22.5	7	2.0	0.8	
	227016PDFR-GL	G	F		□		●	30	–	22.5	7	1.2	1.6	
	227020PDFR-GL	G	F		□		●	30	–	22.5	7	0.8	2.0	
	227030PDFR-GL	G	F		□		●	28.8	–	22.5	7	0.8	3.0	
	227032PDFR-GL	G	F		□		●	28.8	–	22.5	7	0.6	3.2	
	227040PDFR-GL	G	F		□		●	27.5	–	22.5	7	0.9	4.0	
	227050PDFR-GL	G	F		□		●	27	–	22.5	7	0.4	5.0	
BAP3500 ◐C086	XPGT13T3PDER-G1	G	E	★				13	7.9	–	3.97	1.6	0.4	
	13T3PDER-G2	G	E	★				13	7.9	–	3.97	1.2	0.8	
	13T3PDER-G6	G	E	★				13	7.9	–	3.97	0.4	2.4	
	13T3PDER-G75	G	E	★				13	7.9	–	3.97	0.4	3.0	
	13T3PDER-G8	G	E	★				13	7.9	–	3.97	0.4	3.2	
BAP3500 ◐C086	XPGT13T3PDFR-G1	G	F			★		13	7.9	–	3.97	1.6	0.4	
	13T3PDFR-G2	G	F			★		13	7.9	–	3.97	1.2	0.8	
	13T3PDFR-G6	G	F			★		13	7.9	–	3.97	0.4	2.4	
	13T3PDFR-G75	G	F			★		13	7.9	–	3.97	0.4	3.0	
	13T3PDFR-G8	G	F			★		13	7.9	–	3.97	0.4	3.2	

ROTATING INSERTS

Work Material			F7030	VP15TF	UP20M	NX2525	UTi20T
	P	Steel	◐	◐	◐	●	◐
	M	Stainless Steel	◑	◑	◑	○	◑
	K	Cast Iron		✣		●	✣
	N	Non-ferrous Metal					
	S	Heat-resistant Alloy, Titanium Alloy		◑			
	H	Hardened Materials		◐			

Cutting Conditions (Guide):
●: Stable Cutting ◐: General Cutting ✣: Unstable Cutting

Honing:
E: Round

Shape	Order Number	Class	Honing	Coated F7030	Coated VP15TF	Coated UP20M	Cermet NX2525	Carbide UTi20T	Dimensions (mm) L1	L2	S1	F1	Re	Geometry
BAP3500 C086	**XPMT13T3PDER-M1**	M	E	★	★				13	7.9	3.97	1.6	0.4	
	13T3PDER-M2	M	E	★	★				13	7.9	3.97	1.2	0.8	
	13T3PDER-M6	M	E	★	★				13	7.9	3.97	0.4	2.4	
	13T3PDER-M75	M	E	★	★				13	7.9	3.97	0.4	3.0	
	13T3PDER-M8	M	E	★	★				13	7.9	3.97	0.4	3.2	
DCCC C134	**ZCMX083508ER-A**	M	E	●		●		●	10.4	7.94	3.5	—	0.8	
	09T308ER-A	M	E	●		●	●	●	12	9.525	3.97	—	0.8	
DCCC C134	**ZCMX09T308ER-B**	M	E	●		□		●	12	9.525	3.97	—	0.8	
ZR	**ZRM0608R**	M	E			★			8.5	6.35	3.18	—	0.8	
BAP300 Under-cut type C085	**ZRM0603R-M3**	M	E		★				8.5	6.35	3.18	—	1.2	
	0603R-M4	M	E		★				8.5	6.35	3.18	—	1.6	
	0603R-M5	M	E		★				8.5	6.35	3.18	—	2.0	

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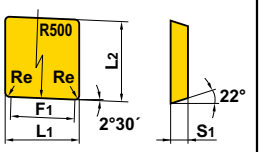
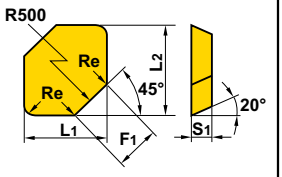
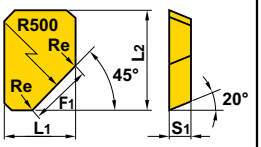
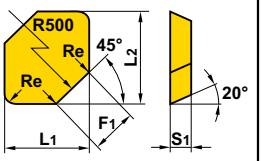
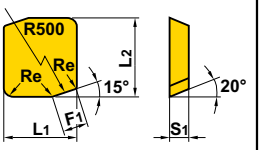
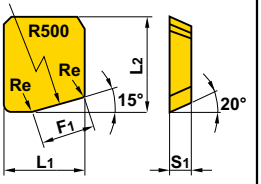
Memo

WIPER INSERTS

Work Material			Cermet	Carbide
	P	Steel	●	
	M	Stainless Steel	○	
	K	Cast Iron	●	●
	N	Non-ferrous Metal		●
	S	Heat-resistant Alloy, Titanium Alloy		
	H	Hardened Materials		

Cutting Conditions (Guide):
●: Stable Cutting ◐: General Cutting ✣: Unstable Cutting

Honing:
E: Round **F**: Sharp **T**: Chamfer

Shape	Order Number	Class	Honing	Cermet NX2525	Carbide HTi05T	Dimensions (mm) L1	L2	S1	F1	Re	Geometry
SE400	**WEC400PEER10C**	C	E		□	12.0	17.5	4.76	10	0.4	
	400PEEL10C	C	E		□	12.0	17.5	4.76	10	0.4	
											Right hand insert shown.
LSE445 ⇒C060 **SE445**	**WEC42AFFR5C**	C	F		●	12.7	15.33	3.18	5	1.0	
	42AFFL5C	C	F		□	12.7	15.33	3.18	5	1.0	
	42AFER5C	C	E		●	12.7	15.33	3.18	5	1.0	
	42AFTR5C	C	T	●		12.7	15.33	3.18	5	1.0	
											Right hand insert shown.
LSE445 ⇒C060 **SE445**	**WEC42AFER10C**	C	E		●	12.7	18.816	3.18	10	1.0	
	42AFEL10C	C	E		□	12.7	18.816	3.18	10	1.0	
											Right hand insert shown.
SE545 ⇒C062	**WEC53AFER5C**	C	E		●	15.875	18.505	4.76	5	1.0	
	53AFEL5C	C	E		□	15.875	18.505	4.76	5	1.0	
	53AFTR5C	C	T	●		15.875	18.505	4.76	5	1.0	
											Right hand insert shown.
SE415 ⇒C064	**WEC42EFFR5C**	C	F		□	12.7	13.728	3.18	5	1.0	
	42EFFL5C	C	F		□	12.7	13.728	3.18	5	1.0	
	42EFER5C	C	E		●	12.7	13.728	3.18	5	1.0	
	42EFEL5C	C	E		□	12.7	13.728	3.18	5	1.0	
	42EFTR5C	C	T	●		12.7	13.728	3.18	5	1.0	
											Right hand insert shown.
SE415 ⇒C064	**WEC42EFFR10C**	C	F		□	12.7	14.99	3.18	10	1.0	
	42EFFL10C	C	F		□	12.7	14.99	3.18	10	1.0	
	42EFER10C	C	E		★	12.7	14.99	3.18	10	1.0	
	42EFEL10C	C	E		□	12.7	14.99	3.18	10	1.0	
											Right hand insert shown.

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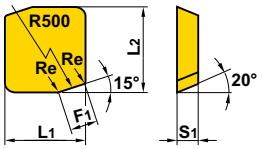
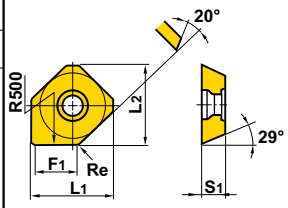
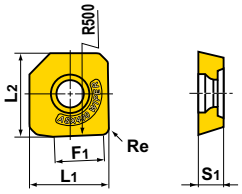
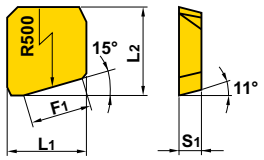
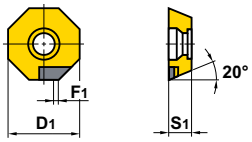
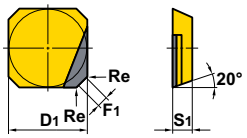
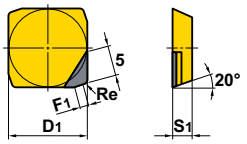
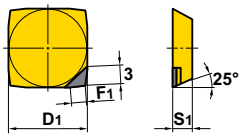
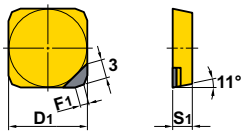
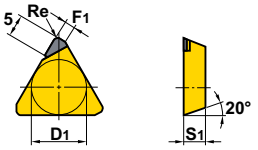
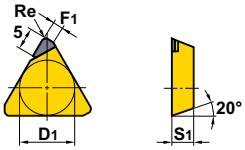
Work Material					
	P	Steel	●		
	M	Stainless Steel	●		
	K	Cast Iron	●		●
	N	Non-ferrous Metal			●
	S	Heat-resistant Alloy, Titanium Alloy			
	H	Hardened Materials			

Cutting Conditions (Guide):
●: Stable Cutting ◐: General Cutting ✣: Unstable Cutting

Honing:
E: Round **T**: Chamfer

Shape	Order Number	Class	Honing	Cermet	Carbide	Dimensions (mm)					Geometry
				NX2525	HTi05T	L_1	L_2	S_1	F_1	Re	
SE515 C066 	**WEC53EFER5C**	C	E		●	15.875	16.903	4.76	5	1.0	 Right hand insert shown.
	53EFEL5C	C	E		□	15.875	16.903	4.76	5	1.0	
	53EFTR5C	C	T	●		15.875	16.903	4.76	5	1.0	
ASX445 C056 	**WEEW13T3AGER8C**	E	E		●	16.48	16.6	3.97	8.2	1.5	
	13T3AGTR8C	E	T	●		16.48	16.6	3.97	8.1	1.5	
ASX400 C072 	**WOEW12T308PEER8C**	E	E		●	12.5	13.2	3.97	8	0.8	
	12T308PETR8C	E	T	●		12.5	13.2	3.97	8	0.8	
FBP415 C068 	**WPC42EEER10C**	C	E		●	12.7	15.163	3.175	10	—	 Right hand insert shown.
	42EEEL10C	C	E		★	12.7	15.163	3.175	10	—	
	42EETR10C	C	T		●	12.7	15.163	3.175	10	—	

CBN AND PCD

Shape	Order Number	Class	CBN		PCD		Dimensions (mm)				Geometry
			MB710	MB730	MD220		D1	S1	F1	Re	
OCTACUT C126 	**OEMX12T3ETR1**	M		●			12.7	3.97	1	—	
LSE445 C060 **SE445** 	**SECN1203AFFR1**	C			★		12.7	3.18	1.4	1.0	
SE415 C064 	**SECN1203EFFR1**	C			★		12.7	3.18	1.4	1.0	
BF407 C070 	**SFCN1203ZFFR2**	C			★		12.7	3.175	2.4	—	
FBP415 C068 	**SPEN1203EETR1**	E	★				12.7	3.175	1.4	—	
NSE300 C076 	**TECN1603PEFR1**	C			★		9.525	3.175	1.4	0.4	
NSE400 C076 	**TECN2204PEFR1**	C			★		12.7	4.76	1.4	1.0	

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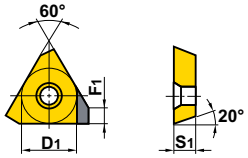
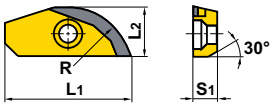
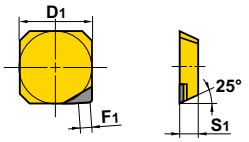
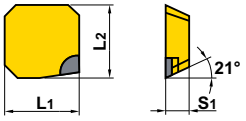
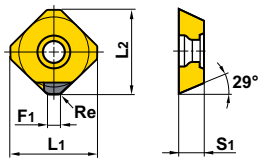
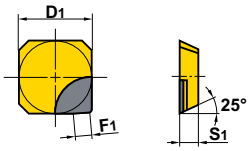
Shape	Order Number	Class	CBN		PCD		Dimensions (mm)						Geometry
			MB710	MB730	MD220		L_1	L_2	D_1	S_1	F_1	R	
PMF C154 	**TPEW1303ZPTR2**	E	●				–	–	7.94	3.18	2	–	
FBE2 	**UDC16F**	C		□			15.6	5.9	–	2.5	–	8.0	
	20F	C		★			19.4	7.4	–	3.5	–	10.0	
	25F	C		★			24	9.3	–	4	–	12.5	
	32F	C		□			29.0	11.0	–	5	–	16.0	

CBN AND PCD WITH WIPER

Shape	Order Number	Class	CBN		PCD		Dimensions (mm)						Geometry
			MB710	MB730	MD220		L_1	L_2	D_1	S_1	F_1	Re	
BF407 C070 	**NP-WFC42ZFER2**	C			★		—	—	12.4	3.175	2.4	—	
E404 	**WEC42W11R**	C			★		12.4	12.806	—	3.18	—	—	 Right hand insert shown.
	42W11L	C			□		12.4	12.806	—	3.18	—	—	
ASX445 C056 	**WEEW13T3AGFR3C**	E			●		16.48	16.6	—	3.97	3.0	1.5	
	13T3AGTR3C	E	●				16.48	16.6	—	3.97	3.0	1.5	
BF407 C070 	**WFC42ZFER2**	C			●		—	—	12.4	3.175	2.4	—	 Right hand insert shown.

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