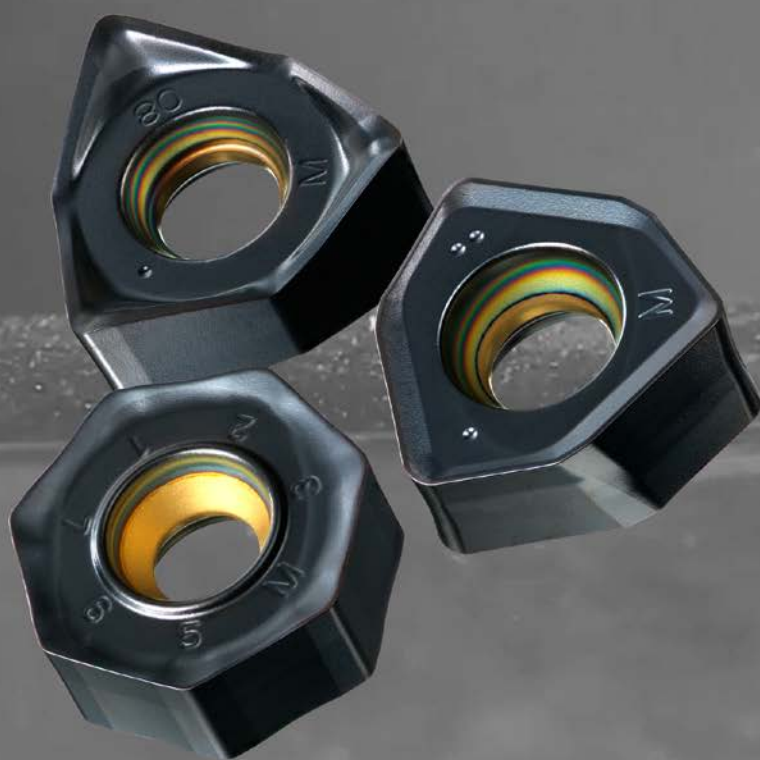


MV1000 SERIES

SETTING A NEW STANDARD FOR TOOL LIFE



MV1000 SERIES

COATED CARBIDE GRADE FOR MILLING

ADVANCED WEAR RESISTANCE

By adopting the newly developed Al-Rich coating technology, the (Al,Ti)N with a high Al content ratio displays very high hardness. This greatly improves oxidation and wear resistance.

ADVANCED THERMAL SHOCK RESISTANCE

The extreme heat resistance of this new series achieves amazing stability, not only during dry cutting, but also when wet cutting where inserts are usually prone to thermal cracking.



Graphical representation

EXCELLENT WELDING RESISTANCE

Smooth surface.

OUTSTANDING WEAR RESISTANCE

Newly developed Al-Rich coating.

EXCELLENT CHIPPING RESISTANCE FOR STABLE MACHINING

Newly developed bonding layer.

FRACTURE RESISTANCE FOR THE ULTIMATE STABILITY

Exclusive cemented carbide substrate.

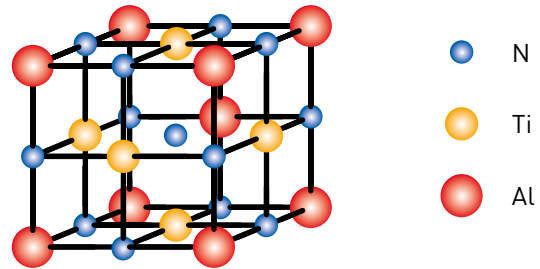


MV1000 SERIES

COMPLETE COATING TECHNOLOGY THAT REWRITES CURRENT TOOL LIFE STANDARDS

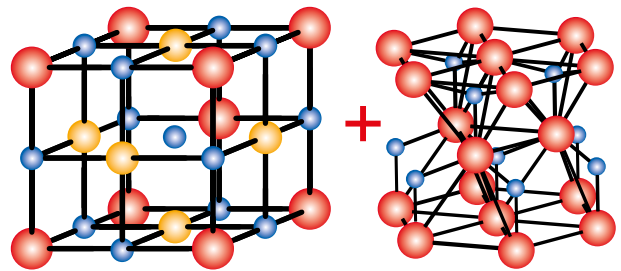
DUE TO THE NEWLY DEVELOPED AL-RICH COATING

Aluminium titanium nitride (Al,Ti)N is a compound of aluminium and titanium that is widely used as a coating for cutting tools due to its extremely hard and heat-resistant properties.



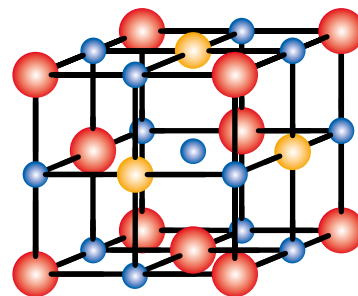
The combination of atoms with different sizes creates an exceptionally hard crystal structure.

The hardness of (Al,Ti)N increases as the Al content ratio increases, but with conventional technology, when the Al content ratio exceeds 60 %, the crystal structure changes and the hardness of (Al,Ti)N decreases.



When the Al ratio is over 60 %, a softer crystal phase is formed.

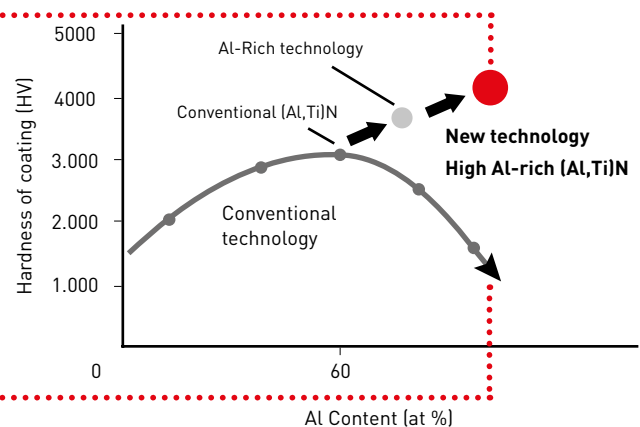
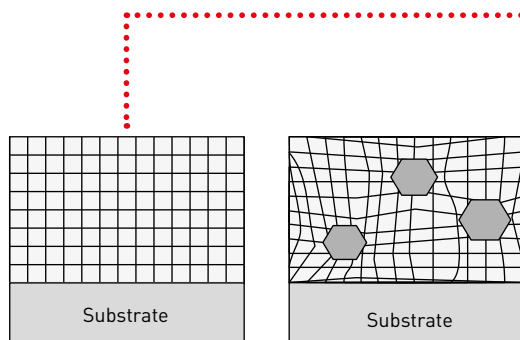
Using a new coating process based on Mitsubishi Materials' own original technology. This a way in which the Al-Rich coating does not change its crystal structure even when the Al content is increased. This enables a higher Al content and a provides a higher hardness (Al,Ti)N.



Crystal image of **MV1000** series

□ High hardness phase

⬡ Soft phase



MV1020 / MV1030

COATED CARBIDE GRADE FOR MILLING

MV1020

This grade has advanced wear and thermal shock resistance and also achieves stable cutting at unprecedented cutting speeds, especially when machining steel and ductile cast iron, thus greatly reducing work time.

MV1030

The new Al-Rich coating also provides excellent wear resistance. An unprecedented performance against sudden breakage was also realised especially during problematic wet cutting and when machining stainless steels.

Material	ISO	CVD	Material	ISO	CVD	Material	ISO	CVD
P Steel	P10	MV1020	M Stainless steel	M10	MV1030	K Cast iron	K10	MV1020
	P20	MV1030		M20	MV1030		K20	MV1020
	P30	MV1030		M30			K30	MV1030
	P40			M40			K40	

1. Dry cutting is recommended for machining stainless steel with MV1030.

MV1000 SERIES

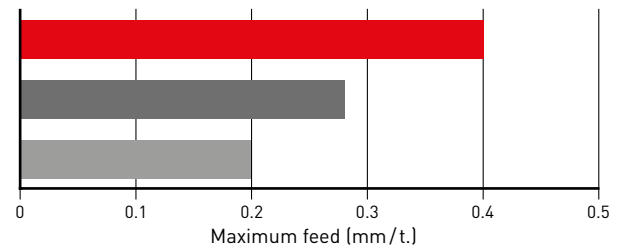
CUTTING PERFORMANCE

MV1030

COMPARISON OF FRACTURE RESISTANCE FOR INTERMITTENT CUTTING OF ALLOY STEEL

MV1030 is capable of high feed machining due to its excellent fracture resistance even during interrupted cutting.

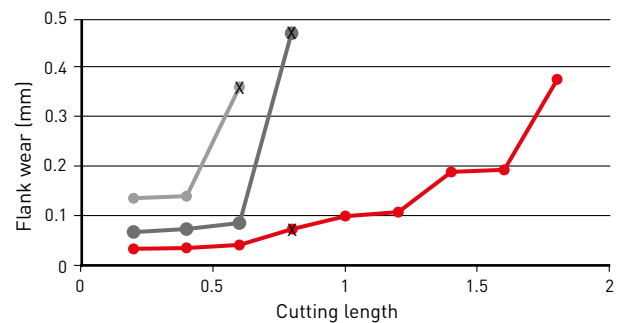
Material	DIN 41CrMo4
Tool	ASX445
Insert	SEMT13T3AGSN-JM
Vc (m/min)	200
ap (mm)	3.0
ae (mm)	100
Cutting mode	Dry cutting



COMPARISON OF WEAR RESISTANCE WHEN MACHINING STAINLESS STEEL

MV1030 suppresses damage at the cut border and can be expected to significantly improve tool life.

Material	DIN X5CrNi189
Tool	ASX445
Insert	SEMT13T3AGSN-JM
Vc (m/min)	180
fz (mm/t)	0.2
ap (mm)	2.0
ae (mm)	100
Cutting mode	Dry cutting Single insert



AFTER MACHINING 0.8 M



MV1030



Conventional A

AFTER MACHINING 0.6 M



Conventional B

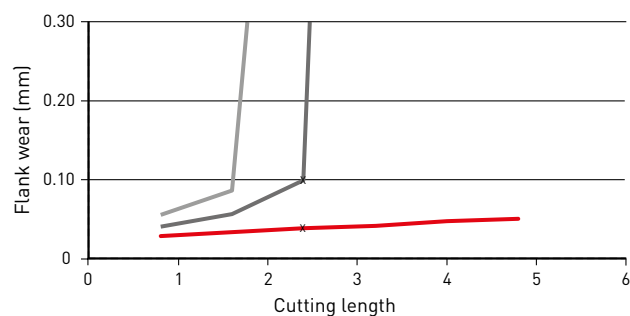
MV1000 SERIES

CUTTING PERFORMANCE

MV1020

COMPARISON OF WEAR RESISTANCE WHEN MACHINING ALLOY STEEL

Material	DIN 41CrMo4
Tool	WWX400
Insert	6NMU1409080PNER-M
Vc (m/min)	300
fz (mm/t)	0.15
ap (mm)	3.0
ae (mm)	52
Cutting mode	Dry cutting Single insert



TAKEN AFTER CUTTING LENGTH OF 2.4 M



MV1020



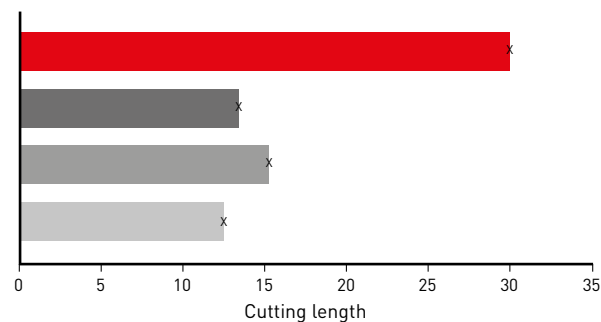
Conventional A



Conventional B

COMPARISON OF WEAR RESISTANCE WHEN MACHINING DUCTILE CAST IRON

Material	DIN GGG70
Tool	WJX14
Insert	JOMU140715ZZER-M
Vc (m/min)	220
fz (mm/t)	1.0
ap (mm)	1.0
ae (mm)	45
Cutting mode	Dry cutting Single insert



30.4 M



MV1020

13.6 M



Conventional A

15.2 M



Conventional B

12.8 M



Conventional C

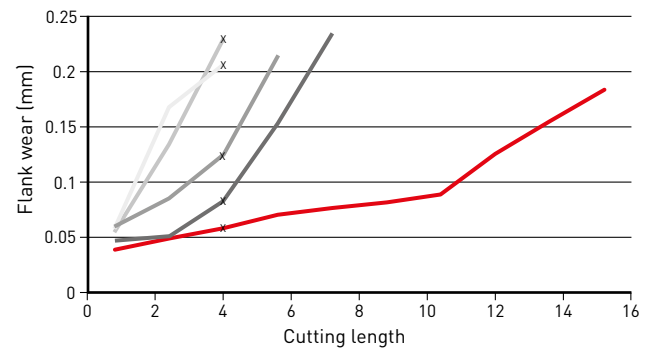
MV1000 SERIES

CUTTING PERFORMANCE

MV1020

COMPARISON OF WEAR RESISTANCE WHEN MACHINING DUCTILE CAST IRON

Material	DIN GGG70
Tool	AHX440
Insert	NNMU130508ZEN-M
Vc (m/min)	300
fz (mm/t)	0.1
ap (mm)	2.0
ae (mm)	52
Cutting mode	Dry cutting Single insert



TAKEN AFTER CUTTING LENGTH OF 4.0 M



MV1020



Conventional A



Conventional B



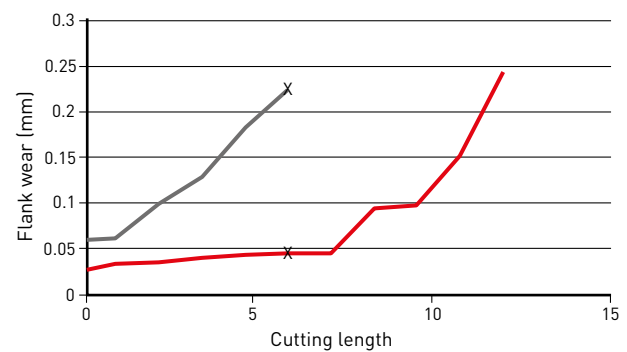
Conventional C



Conventional D

COMPARISON OF WEAR RESISTANCE WHEN MACHINING ALLOY STEEL

Material	DIN 41CrMo4
Tool	WSX445
Insert	SNMU140812ANER-M
Vc (m/min)	300
fz (mm/t)	0.2
ap (mm)	2.0
ae (mm)	100
Cutting mode	Dry cutting



TAKEN AFTER CUTTING LENGTH OF 6.0 M

12 M CUTTING LENGTH ACHIEVED



MV1020

CHIPPING OCCURS AT CUTTING LENGTH OF 6 M



Conventional A

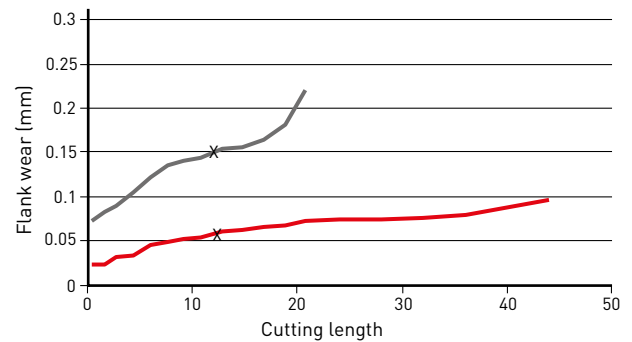
MV1000 SERIES

CUTTING PERFORMANCE

MV1020

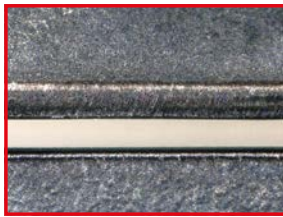
COMPARISON OF WEAR RESISTANCE FOR ROLLED STEEL

Material	DIN St 44-2
Tool	ASX445
Insert	SEMT13T3AGSN-JM
Vc (m/min)	300
fz (mm/t)	0.2
ap (mm)	2.0
ae (mm)	100
Cutting mode	Dry cutting



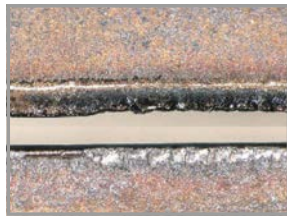
TAKEN AFTER CUTTING LENGTH OF 12.8 M

40 M CUTTING LENGTH
ACHIEVED



MV1020

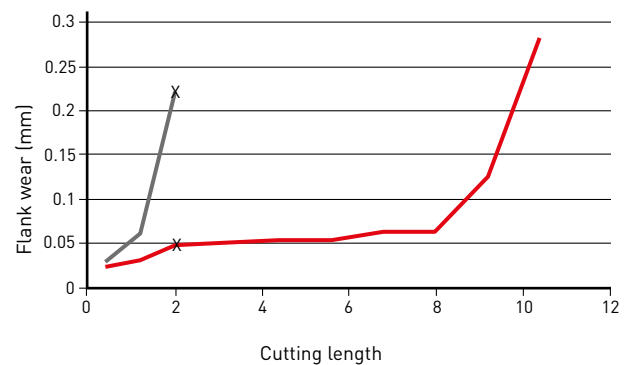
WEAR PROGRESSED AND THE
SUBSTRATE WAS EXPOSED



Conventional

COMPARISON OF WEAR RESISTANCE WHEN MACHINING CARBON STEEL

Material	DIN Ck55
Tool	ASX445
Insert	SEMT13T3AGSN-JM
Vc (m/min)	200
fz (mm/t)	0.2
ap (mm)	2.0
ae (mm)	100
Cutting mode	Wet cutting



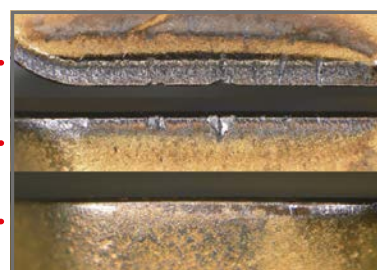
TAKEN AFTER CUTTING LENGTH OF 2.0 M

10 M CUTTING LENGTH ACHIEVED



MV1020

CHIPPING OCCURRED DUE TO THERMAL CRACKS
AT A CUTTING LENGTH OF 2 M



Conventional

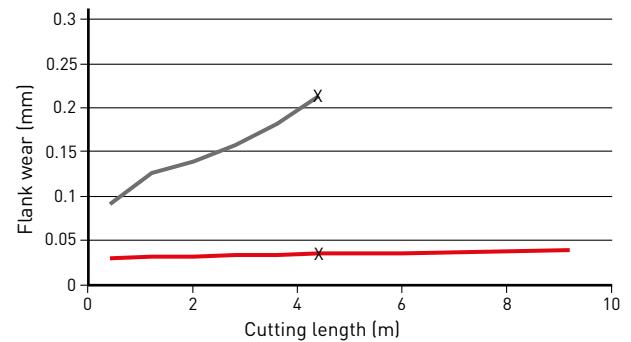
MV1000 SERIES

CUTTING PERFORMANCE

MV1020

COMPARISON OF WEAR RESISTANCE WHEN MACHINING DUCTILE CAST IRON

Material	DIN GGG40.5
Tool	ASX445
Insert	SEMT13T3AGSN-JM
Vc (m/min)	250
fz (mm/t)	0.2
ap (mm)	2.0
ae (mm)	100
Cutting mode	Dry cutting



TAKEN AFTER CUTTING LENGTH OF 4.4 M

ACHIEVES A CUTTING LENGTH OF 9 M OR MORE



MV1020

UNABLE TO CONTINUE MACHINING AFTER A CUT LENGTH OF 4.4 M

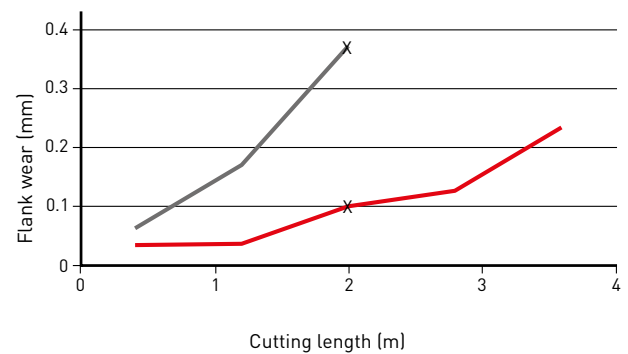


Conventional

COMPARISON OF WEAR RESISTANCE WHEN MACHINING DUCTILE CAST IRON

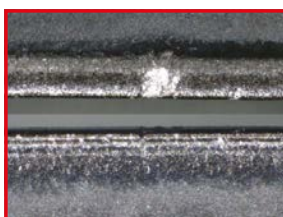
WET CUTTING

Material	DIN GGG70
Tool	ASX445
Insert	SEMT13T3AGSN-JM
Vc (m/min)	200
fz (mm/t)	0.2
ap (mm)	2.0
ae (mm)	100
Cutting mode	Wet cutting



TAKEN AFTER CUTTING LENGTH OF 2.0 M

3.5 M CUTTING LENGTH ACHIEVED



MV1020

UNABLE TO CONTINUE PROCESSING WITH A CUT LENGTH OF 2.0 M



Conventional

MV1000 SERIES

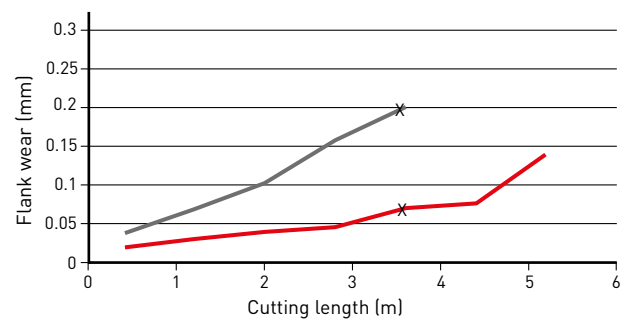
CUTTING PERFORMANCE

MV1020

COMPARISON OF WEAR RESISTANCE WHEN MACHINING DUCTILE CAST IRON

DRY CUTTING

Material	DIN GGG70
Tool	ASX445
Insert	SEMT13T3AGSN-JM
Vc (m/min)	200
fz (mm/t)	0.2
ap (mm)	2.0
ae (mm)	100
Cutting mode	Dry cutting



TAKEN AFTER CUTTING LENGTH OF 3.6 M

5.0 M CUTTING LENGTH
ACHIEVED



MV1020

CHIPPING OCCURRED DUE TO
PEELING OF THE COATING

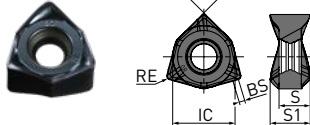
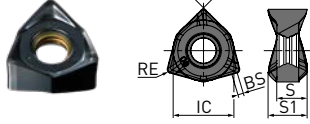
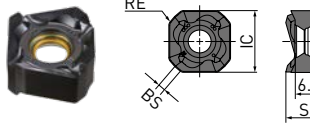
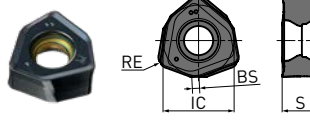
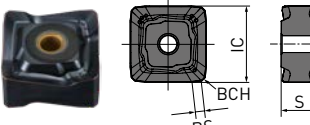


Conventional

MV1000 SERIES

INSERTS

P	Steel	◆	◆	Please note that the cutting conditions differ depending on multiple factors, for more details refer to the recommended cutting conditions. Honing: E: Round
M	Stainless steel		◆	
K	Cast iron	◆	◆	

Order number	Application	Class	Honing	MV1020	MV1030	IC	S	S1	BS	RE/BCH	Geometry
6NMU0906040PNER-M	General purpose cutting	M	E	●	●	9.0	5.3	6.1	1.6	0.4	WWX200 
6NMU0906080PNER-M	General purpose cutting	M	E	●	●	9.0	5.3	6.1	1.2	0.8	
6NMU0906080PNER-R	Cutting edge strength	M	E	●	●	9.0	5.3	6.1	1.2	0.8	
6NGU1409040PNER-L	Low cutting resistance	G	E	●	●	14.0	7.0	9.0	1.7	0.4	WWX400 
6NGU1409080PNER-L	Low cutting resistance	G	E	●	●	14.0	7.0	9.0	1.3	0.8	
6NGU1409040PNER-M	General purpose cutting	G	E	●	●	14.0	7.0	9.0	1.7	0.4	
6NGU1409080PNER-M	General purpose cutting	G	E	●	●	14.0	7.0	9.0	1.3	0.8	
6NMU1409040PNER-M	General purpose cutting	M	E	●	●	14.0	7.0	9.0	1.7	0.4	
6NMU1409080PNER-M	General purpose cutting	M	E	●	●	14.0	7.0	9.0	1.3	0.8	
6NMU1409160PNER-M	General purpose cutting	M	E	●	●	14.0	7.0	9.0	0.5	1.6	
6NMU1409200PNER-M	General purpose cutting	M	E	●	●	14.0	7.0	9.0	0.5	2.0	
6NMU1409080PNER-R	Cutting edge strength	M	E	●	●	14.0	7.0	9.0	1.3	0.8	
6NMU1409160PNER-R	Cutting edge strength	M	E	●	●	14.0	7.0	9.0	0.5	1.6	
6NMU1409200PNER-R	Cutting edge strength	M	E	●	●	14.0	7.0	9.0	0.5	2.0	
SNGU140812ANER-L	Low cutting resistance	G	E	●	●	14.0	8.4	—	1.5	1.2	WSX445 
SNGU140812ANER-M	General purpose cutting	G	E	●	●	14.0	8.4	—	1.5	1.2	
SNMU140812ANER-M	General purpose cutting	M	E	●	●	14.0	8.4	—	1.5	1.2	
SNMU140812ANER-R	Cutting edge strength	M	E	●	●	14.0	8.4	—	1.5	1.2	
SNMU140812ANER-H	Cutting edge strength	M	E	●	●	14.0	8.4	—	1.5	1.2	
JOMU090512ZZER-L	Low cutting resistance	M	E	●	●	9.525	4.73	—	0.88	1.2	WJX 
JOMU140715ZZER-L	Low cutting resistance	M	E	●	●	14.0	6.58	—	1.3	1.5	
JOMU090512ZZER-M	General purpose cutting	M	E	●	●	9.525	4.75	—	0.88	1.2	
JOMU140715ZZER-M	General purpose cutting	M	E	●	●	14.0	6.63	—	1.3	1.5	
JOMU090512ZZER-R	Cutting edge strength	M	E	●	●	9.525	4.83	—	0.88	1.2	
JOMU140715ZZER-R	Cutting edge strength	M	E	●	●	14.0	6.75	—	1.3	1.5	
SNMU1206C05ZNER-M	Cast iron milling	M	E	●	●	12.7	6.2	—	1.6	0.5	WSF406W 

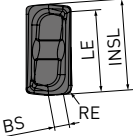
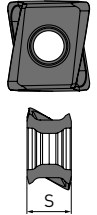
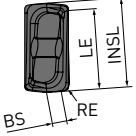
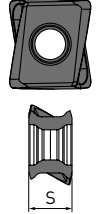
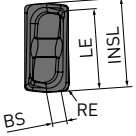
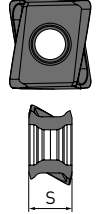
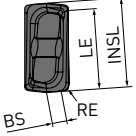
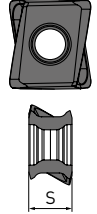
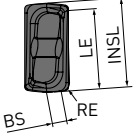
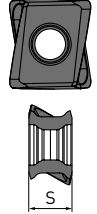
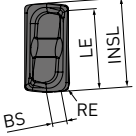
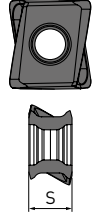
1/5

[10 inserts in one case]

16-24 

MV1000 SERIES – INSERTS

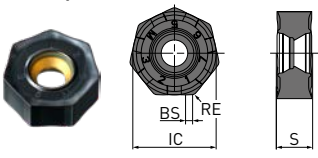
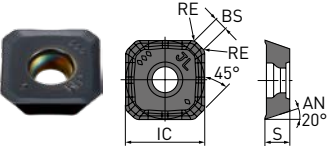
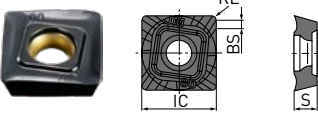
P	Steel	◆	◆	Please note that the cutting conditions differ depending on multiple factors, for more details refer to the recommended cutting conditions. Honing: E: Round
M	Stainless steel		◆	
K	Cast iron	◆	◆	

Order number	Application	Class	Honing	MV1020	MV1030	INSL	S	LE	BS	RE	Geometry
LOGU0904020PNER-L	Low cutting resistance	G	E	●	●	8.7	4.3	7.9	1.7	0.2	VPX200   
LOGU0904040PNER-L		G	E	●	●	8.7	4.3	7.9	1.5	0.4	
LOGU0904080PNER-L		G	E	●	●	8.7	4.3	7.9	1.2	0.8	
LOGU0904100PNER-L		G	E	●	●	8.7	4.3	7.9	1.0	1.0	
LOGU0904120PNER-L		G	E	●	●	8.7	4.3	7.9	0.8	1.2	
LOGU0904160PNER-L		G	E	●	●	8.7	4.3	7.9	0.5	1.6	
LOGU0904020PNER-M	General purpose cutting	G	E	●	●	8.7	4.3	7.9	1.7	0.2	VPX300   
LOGU0904040PNER-M		G	E	●	●	8.7	4.3	7.9	1.6	0.4	
LOGU0904080PNER-M		G	E	●	●	8.7	4.3	7.9	1.2	0.8	
LOGU0904100PNER-M		G	E	●	●	8.7	4.3	7.9	1.0	1.0	
LOGU0904120PNER-M		G	E	●	●	8.7	4.3	7.9	0.9	1.2	
LOGU0904160PNER-M		G	E	●	●	8.7	4.3	7.9	0.5	1.6	
LOGU1207020PNER-L	Low cutting resistance	G	E	●	●	12.4	7.0	11.3	3.0	0.2	VPX300   
LOGU1207040PNER-L		G	E	●	●	12.4	7.0	11.3	2.8	0.4	
LOGU1207080PNER-L		G	E	●	●	12.4	7.0	11.3	2.6	0.8	
LOGU1207100PNER-L		G	E	●	●	12.4	7.0	11.3	2.5	1.0	
LOGU1207120PNER-L		G	E	●	●	12.4	7.0	11.3	2.4	1.2	
LOGU1207160PNER-L		G	E	●	●	12.4	7.0	11.3	1.8	1.6	
LOGU1207200PNER-L	General purpose cutting	G	E	●	●	12.4	7.0	11.3	1.4	2.0	VPX300   
LOGU1207240PNER-L		G	E	●	●	12.4	7.0	11.3	1.2	2.4	
LOGU1207300PNER-L		G	E	●	●	12.4	7.0	11.3	0.6	3.0	
LOGU1207320PNER-L		G	E	●	●	12.4	7.0	11.3	0.4	3.2	
LOGU1207020PNER-M		G	E	●	●	12.4	7.0	11.3	3.0	0.2	
LOGU1207040PNER-M		G	E	●	●	12.4	7.0	11.3	2.8	0.4	
LOGU1207080PNER-M	General purpose cutting	G	E	●	●	12.4	7.0	11.3	2.4	0.8	VPX300   
LOGU1207100PNER-M		G	E	●	●	12.4	7.0	11.3	2.3	1.0	
LOGU1207120PNER-M		G	E	●	●	12.4	7.0	11.3	2.1	1.2	
LOGU1207160PNER-M		G	E	●	●	12.4	7.0	11.3	1.7	1.6	
LOGU1207200PNER-M		G	E	●	●	12.4	7.0	11.3	1.4	2.0	
LOGU1207240PNER-M		G	E	●	●	12.4	7.0	11.3	1.0	2.4	
LOGU1207300PNER-M	General purpose cutting	G	E	●	●	12.4	7.0	11.3	0.5	3.0	VPX300   
LOGU1207320PNER-M		G	E	●	●	12.4	7.0	11.3	0.3	3.2	

[10 inserts in one case]

MV1000 SERIES – INSERTS

P	Steel	◆	◆	Please note that the cutting conditions differ depending on multiple factors, for more details refer to the recommended cutting conditions. Honing: E: Round S: Chamfer + round
M	Stainless steel		◆	
K	Cast iron	◆	◆	

Order number	Application	Class	Honing	MV1020	MV1030	IC	S	S1	BS	RE	Geometry
NNMU130508ZER-L	Low cutting resistance	M	E	●	●	13.4	5.09	—	1.0	0.8	AHX440/475 
NNMU130508ZEN-M	General purpose cutting	M	E	●	●	13.4	5.09	—	1.0	0.8	
NNMU130532ZEN-M	General purpose cutting	M	E	●	●	13.4	5.09	—	—	3.2	
NNMU130532ZEN-R	Cutting edge strength	M	E	●	●	13.4	5.09	—	—	3.2	
NEW NNMU200708ZEN-M	General purpose cutting	M	E	●	●	20.0	7.28	—	1.0	0.8	AHX640 
NEW NNMU200712ZER-L	Low cutting resistance	M	E	●	●	20.0	7.24	—	1.0	0.8	
NEW NNMU200608ZEN-MK	General purpose cutting	M	E	●	●	20.0	6.1	—	1.0	0.8	
NEW NNMU200608ZEN-HK	Strong purpose cutting	M	E	●	●	20.0	6.1	—	1.0	0.8	
SEET13T3AGEN-JL	Finish-light cutting	E	E	●	●	13.4	3.97	—	1.9	1.5	ASX445 
SEMT13T3AGSN-JM	Light-rough cutting	M	S	●	●	13.4	3.97	—	1.9	1.5	
SEMT13T3AGSN-JH	Medium-heavy cutting	M	S	●	●	13.4	3.97	—	1.9	1.5	
SEMT13T3AGSN-FT	Cast iron milling	M	S	●	●	13.4	3.97	—	1.9	1.5	
SOET12T308PEER-JL	Finish-light cutting	E	E	●	●	12.7	3.97	—	1.4	0.8	ASX400 
SOMT12T308PEER-JM	Light-rough cutting	M	E	●	●	12.7	3.97	—	1.4	0.8	
SOMT12T308PEER-JH	Medium-heavy cutting	M	E	●	●	12.7	3.97	—	1.4	0.8	
SOMT12T320PEER-FT	Heavy interrupted cutting	M	E	●	●	12.7	3.97	—	0.5	2.0	

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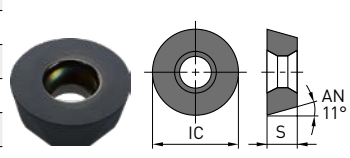
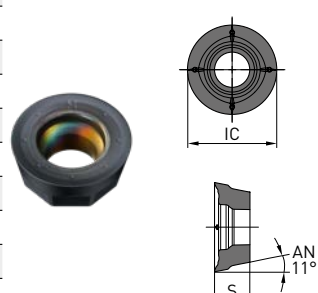
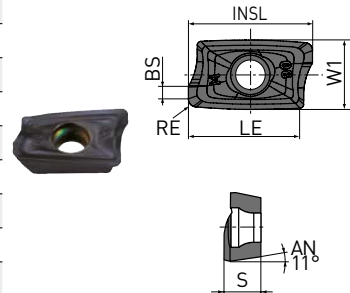
[10 inserts in one case]

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MV1000 SERIES – INSERTS

P	Steel	◆	◆	Please note that the cutting conditions differ depending on multiple factors, for more details refer to the recommended cutting conditions.
M	Stainless steel	◆	◆	
K	Cast iron	◆	◆	
				Honing:
				E: Round S: Chamfer + round

	Order number	Application	Class	MV1020		IC	S	BS	W1	RE	INSL	LE	Geometry
				MV1020	MV1030								
NEW	AOMT123602PEER-M	General purpose cutting	M	●	●	3.6	1.8	6.6	0.2	12	10		APX3000/4000
NEW	AOMT123604PEER-M	General purpose cutting	M	●	●	3.6	1.6	6.6	0.4	12	10		
NEW	AOMT123608PEER-M	General purpose cutting	M	●	●	3.6	1.2	6.6	0.6	12	10		
NEW	AOMT123610PEER-M	General purpose cutting	M	●	●	3.6	1.0	6.6	1	12	10		
NEW	AOMT123612PEER-M	General purpose cutting	M	●	●	3.6	0.8	6.6	1.2	12	10		
NEW	AOMT123616PEER-M	General purpose cutting	M	●	●	3.6	0.4	6.6	1.6	12	10		
NEW	AOMT123620PEER-M	General purpose cutting	M	●	●	3.6	0.4	6.6	2	12	10		
NEW	AOMT123624PEER-M	General purpose cutting	M	●	●	3.6	0.4	6.6	2.4	12	10		
NEW	AOMT123630PEER-M	General purpose cutting	M	●	●	3.6	0.4	6.6	3	12	10		
NEW	AOMT123632PEER-M	General purpose cutting	M	●	●	3.6	0.4	6.6	3.2	12	10		
NEW	AOMT123604PEER-H	Strong purpose cutting	M	●	●	3.6	1.6	6.6	0.4	12	10		
NEW	AOMT123608PEER-H	Strong purpose cutting	M	●	●	3.6	1.6	6.6	0.8	12	10		
NEW	AOMT123616PEER-H	Strong purpose cutting	M	●	●	3.6	0.4	6.6	1.6	12	10		
NEW	AOMT184804PEER-M	General purpose cutting	M	●	●	4.8	1.8	9.0	0.4	18	15		
NEW	AOMT184808PEER-M	General purpose cutting	M	●	●	4.8	1.4	9.0	0.8	18	15		
NEW	AOMT184810PEER-M	General purpose cutting	M	●	●	4.8	1.0	9.0	1	18	15		
NEW	AOMT184812PEER-M	General purpose cutting	M	●	●	4.8	0.8	9.0	1.2	18	15		
NEW	AOMT184816PEER-M	General purpose cutting	M	●	●	4.8	0.4	9.0	1.6	18	15		
NEW	AOMT184820PEER-M	General purpose cutting	M	●	●	4.8	0.4	9.0	2	18	15		
NEW	AOMT184804PEER-H	Strong purpose cutting	M	●	●	4.8	1.8	9.0	0.4	18	15		ARP
NEW	AOMT184808PEER-H	Strong purpose cutting	M	●	●	4.8	1.4	9.0	0.8	18	15		
NEW	AOMT184816PEER-H	Strong purpose cutting	M	●	●	4.8	0.4	9.0	1.6	18	15		
NEW	RPMT1040M0E8-L1	Low cutting resistance	M	●	●	10	3.97						
NEW	RPMT1040M0E4-L2	Low cutting resistance	M	●	●	10	3.97						
NEW	RPMT1040M0E8-M1	General purpose cutting	M	●	●	10	3.97						
NEW	RPMT1040M0E4-M2	General purpose cutting	M	●	●	10	3.97						
NEW	RPMT1040M0E8-R1	Strong purpose cutting	M	●	●	10	3.97						
NEW	RPMT1040M0E4-R2	Strong purpose cutting	M	●	●	10	3.97						
NEW	RPMT1248M0E8-L1	Low cutting resistance	M	●	●	12	4.76						
NEW	RPMT1248M0E4-L2	Low cutting resistance	M	●	●	12	4.76						
NEW	RPMT1248M0E8-M1	General purpose cutting	M	●	●	12	4.76						
NEW	RPMT1248M0E4-M2	General purpose cutting	M	●	●	12	4.76						
NEW	RPMT1248M0E8-R1	Strong purpose cutting	M	●	●	12	4.76						
NEW	RPMT1248M0E4-R2	Strong purpose cutting	M	●	●	12	4.76						
NEW	RPMW10T3M0E	General purpose cutting	M	●	●	10	3.97						BRP
NEW	RPMW1204M0E	General purpose cutting	M	●	●	12	4.76						
NEW	RPMW1606M0E	General purpose cutting	M	●	●	16	6.35						
NEW	RPMT08T2M0E-JS	Low cutting resistance	M	●	●	8	2.78						
NEW	RPMT10T3M0E-JS	Low cutting resistance	M	●	●	10	3.97						
NEW	RPMT1204M0E-JS	Low cutting resistance	M	●	●	12	4.76						
NEW	RPMT1606M0E-JS	Low cutting resistance	M	●	●	16	6.35						



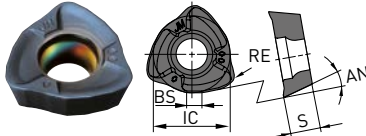
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(10 inserts in one case)

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MV1000 SERIES – INSERTS

P	Steel	◆	◆	Please note that the cutting conditions differ depending on multiple factors, for more details refer to the recommended cutting conditions. Honing: E: Round S: Chamfer + round
M	Stainless steel	◆	◆	
K	Cast iron	◆	◆	

	Order number	Application	Class	MV1020		AN	IC	S	BS	RE	Geometry
				MV1020	MV1030						
NEW	JOMW06T215ZZSR-FT	Strong purpose cutting	M	●	●	13°	6.35	2.78	1.2	1.5	AJX 
NEW	JOMW080320ZZSR-FT	Strong purpose cutting	M	●	●	13°	8	3.18	1.4	2	
NEW	JDMW09T320ZDSR-FT	Strong purpose cutting	M	●	●	15°	9.525	3.97	1.8	2	
NEW	JDMW120420ZDSR-FT	Strong purpose cutting	M	●	●	15°	12	4.76	2.5	2	
NEW	JDMW140520ZDSR-FT	Strong purpose cutting	M	●	●	15°	14	5.56	2.8	2	
NEW	JDMT120420ZDSR-ST	Strong purpose cutting	M	●	●	15°	12	4.76	2.5	2	
NEW	JDMT140520ZDSR-ST	Strong purpose cutting	M	●	●	15°	14	5.56	2.8	2	
NEW	JOMT06T216ZZER-JL	Low cutting resistance	M	●	●	13°	6.35	2.78	1.2	1.6	
NEW	JOMT080322ZZER-JL	Low cutting resistance	M	●	●	13°	8	3.18	1.4	2.2	
NEW	JDMT09T323ZDER-JL	Low cutting resistance	M	●	●	15°	9.525	3.97	1.2	1.5	
NEW	JDMT120423ZDER-JL	Low cutting resistance	M	●	●	15°	12	4.76	1.4	2	
NEW	JDMT140523ZDER-JL	Low cutting resistance	M	●	●	15°	14	5.56	1.8	2	
NEW	JOMT06T215ZZSR-JM	General purpose cutting	M	●	●	13°	6.35	2.78	1.2	1.5	
NEW	JOMT080320ZZSR-JM	General purpose cutting	M	●	●	13°	8	3.18	1.4	2	
NEW	JDMT09T320ZDSR-JM	General purpose cutting	M	●	●	15°	9.525	3.97	1.8	2	
NEW	JDMT120420ZDSR-JM	General purpose cutting	M	●	●	15°	12	4.76	2.5	2	
NEW	JDMT140520ZDSR-JM	General purpose cutting	M	●	●	15°	14	5.56	2.8	2	

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(10 inserts in one case)

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WWX200/400

RECOMMENDED CUTTING CONDITIONS

CUTTING SPEED (DRY CUTTING)

Material	Properties	Conditions	MV1020			MV1030		
			ae			ae		
			≥0.5 DC	≥0.8 DC	DC (Slot)	≥0.5 DC	≥0.8 DC	DC (Slot)
			Vc			Vc		
P	Mild steel	≤180HB	● 300 (250–350)	● 280 (230–330)	● 250 (200–300)	● 230 (190–270)	● 210 (170–250)	● 190 (150–230)
			● 290 (240–340)	● 260 (210–320)	● 240 (190–290)	● 230 (190–270)	● 210 (170–250)	● 190 (150–230)
	Carbon steel Alloy steel	180–350HB	● 260 (210–310)	● 240 (190–280)	● 210 (160–260)	● 200 (160–240)	● 180 (140–220)	● 160 (120–200)
			● 250 (200–300)	● 230 (180–270)	● 200 (150–250)	● 200 (160–240)	● 180 (140–220)	● 160 (120–200)
M	Stainless steel	—	● —	● —	● —	● 180 (160–200)	● 160 (140–180)	● —
			● —	● —	● —	● 170 (150–190)	● 150 (130–170)	● —
K	Ductile cast iron	Tensile strength ≤450MPa	● 240 (200–310)	● 220 (170–280)	● 200 (150–260)	● 210 (170–250)	● 190 (150–230)	● 170 (130–210)
			● 230 (190–300)	● 210 (160–270)	● 190 (140–250)	● 210 (170–250)	● 190 (150–230)	● 170 (130–210)
		Tensile strength ≤800MPa	● 210 (160–280)	● 190 (140–250)	● 160 (120–210)	● 170 (130–210)	● 150 (110–190)	● 130 (90–170)
			● 200 (150–270)	● 180 (130–240)	● 150 (110–200)	● 170 (130–210)	● 150 (110–190)	● 130 (90–170)

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CUTTING SPEED (WET CUTTING)

Material	Properties	Conditions	MV1020			MV1030		
			ae			ae		
			≥0.5 DC	≥0.8 DC	DC (Slot)	≥0.5 DC	≥0.8 DC	DC (Slot)
			Vc			Vc		
P	Mild steel	≤180HB	● 220 (210–230)	● 190 (180–210)	● 180 (160–190)	● 140 (130–150)	● 120 (110–130)	● 110 (100–120)
			● 210 (200–220)	● 180 (170–200)	● 170 (150–180)	● 140 (130–150)	● 120 (110–130)	● 110 (100–120)
	Carbon steel Alloy steel	180–350HB	● 200 (190–210)	● 170 (160–190)	● 160 (150–170)	● 140 (130–150)	● 120 (110–130)	● 110 (100–120)
			● 190 (180–200)	● 160 (150–180)	● 150 (140–160)	● 140 (130–150)	● 120 (110–130)	● 110 (100–120)
K	Ductile cast iron	Tensile strength ≤450MPa	● 200 (180–240)	● 180 (150–220)	● 150 (130–200)	● 160 (140–180)	● 140 (120–160)	● 120 (100–140)
			● 190 (170–230)	● 170 (140–210)	● 140 (120–190)	● 160 (140–180)	● 140 (120–160)	● 120 (100–140)
		Tensile strength ≤800MPa	● 180 (170–210)	● 160 (150–190)	● 140 (120–160)	● 150 (140–160)	● 130 (120–140)	● 110 (100–120)
			● 170 (160–200)	● 150 (140–180)	● 120 (110–150)	● 150 (140–160)	● 130 (120–140)	● 110 (100–120)

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1. The recommended cutting speed has been calculated for a depth of cut 2 mm. Please reduce the cutting speed by an appropriate amount corresponding to the increase in cutting depth.

WWX400

RECOMMENDED CUTTING CONDITIONS

CUTTING SPEED (DRY CUTTING)

Material	Properties	Grade	Vc	
P	Mild steel	≤180HB	MV1020	305 (250 – 360)
		MV1030	235 (190 – 280)	
		MP6120	245 (200 – 290)	
		MP6130	235 (190 – 280)	
	Carbon steel Alloy steel	180 – 280HB	MV1020	260 (210 – 310)
			MV1030	200 (155 – 245)
			MP6120	205 (160 – 250)
			MP6130	200 (155 – 245)
		280 – 350HB	MV1020	260 (210 – 310)
			MV1030	200 (155 – 245)
			MP6120	200 (155 – 245)
			MP6130	195 (150 – 240)
M	Stainless steel	>200HB	MV1030	180 (155 – 200)
		MP7130	175 (150 – 200)	
		VP15TF	175 (150 – 200)	
K	Ductile cast iron	Tensile strength ≤450MPa	MV1020	255 (200 – 310)
			MV1030	205 (160 – 250)
			MP6120	205 (160 – 250)
			MP6130	205 (160 – 250)
		Tensile strength >450MPa	MV1020	225 (160 – 290)
			MV1030	170 (130 – 210)
			MP6120	170 (130 – 210)
			MP6130	170 (130 – 210)

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WWX200

RECOMMENDED CUTTING CONDITIONS

DEPTH OF CUT / FEED PER TOOTH

DRY AND WET CUTTING

Material			Properties			Conditions			ae								
									≥0.5 DC			≥0.8 DC			DC (Slot)		
										ap	fz		ap	fz		ap	fz
P	Mild steel	≤180HB			L, M	≤3.0	0.13	[0.10–0.15]	L, M	≤3.0	0.13	[0.10–0.15]	L, M	≤2.0	0.13	[0.10–0.15]	
				M,R	≤3.0	0.16	[0.10–0.20]	M,R	≤3.0	0.16	[0.10–0.20]	—	—	—			
	Carbon steel Alloy steel	180–350HB			L, M	≤3.0	0.13	[0.10–0.15]	L, M	≤3.0	0.13	[0.10–0.15]	L, M	≤2.0	0.13	[0.10–0.15]	
				M,R	≤3.0	0.16	[0.10–0.20]	M,R	≤3.0	0.16	[0.10–0.20]	—	—	—			
K	Ductile cast iron	Tensile strength ≤450MPa			L, M	≤3.0	0.13	[0.10–0.15]	L, M	≤3.0	0.13	[0.10–0.15]	L, M	≤2.0	0.13	[0.10–0.15]	
				M,R	≤3.0	0.16	[0.10–0.20]	M,R	≤3.0	0.16	[0.10–0.20]	—	—	—			
		Tensile strength ≤800MPa			L, M	≤3.0	0.13	[0.10–0.15]	L, M	≤3.0	0.13	[0.10–0.15]	L, M	≤2.0	0.13	[0.10–0.15]	
				M,R	≤3.0	0.16	[0.10–0.20]	M,R	≤3.0	0.16	[0.10–0.20]	—	—	—			
1/1																	

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1. Refer to the above table and set up cutting conditions according to the application.

WWX400

DEPTH OF CUT / FEED PER TOOTH

DRY AND WET CUTTING

Material			Properties	Conditions	ae										
					≥0.5 DC		≥0.8 DC		DC (Slot)						
					 ap	fz	 ap	fz	 ap	fz					
P	Mild steel	≤180HB	 	L, M	≤4.0	0.13	[0.10–0.15]	L, M	≤3.0	0.13	[0.10–0.15]	L, M	≤2.0	0.13	[0.10–0.15]
				M,R	≤4.0	0.16	[0.10–0.20]	M,R	≤3.0	0.16	[0.10–0.20]	—	—	—	
	Carbon steel Alloy steel	180–350HB	 	L, M	≤4.0	0.13	[0.10–0.15]	L, M	≤3.0	0.13	[0.10–0.15]	L, M	≤2.0	0.13	[0.10–0.15]
				M,R	≤4.0	0.16	[0.10–0.20]	M,R	≤3.0	0.16	[0.10–0.20]	—	—	—	
M	Stainless steel	—	 	L,M	≤2.0	0.13	[0.10–0.15]	L, M	≤2.0	0.13	[0.10–0.15]	—	—	—	
K	Ductile cast iron	Tensile strength ≤450MPa	 	L, M	≤4.0	0.13	[0.10–0.15]	L, M	≤3.0	0.13	[0.10–0.15]	L, M	≤2.0	0.13	[0.10–0.15]
				M,R	≤4.0	0.16	[0.10–0.20]	M,R	≤3.0	0.16	[0.10–0.20]	—	—	—	
		Tensile strength ≤800MPa	 	L, M	≤4.0	0.13	[0.10–0.15]	L, M	≤3.0	0.13	[0.10–0.15]	L, M	≤2.0	0.13	[0.10–0.15]
				M,R	≤4.0	0.16	[0.10–0.20]	M,R	≤3.0	0.16	[0.10–0.20]	—	—	—	

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1. Refer to the above table and set up cutting conditions according to the application.

WSX445

RECOMMENDED CUTTING CONDITIONS

CUTTING SPEED

DRY AND WET CUTTING

Material	Properties	MV1020		MV1030	
		Vc		Vc	
		Dry cutting	Wet cutting	Dry cutting	Wet cutting
P	Mild steel	≤180HB	300 [200–400]	220 [120–320]	250 [200–300]
	Carbon steel	180–350HB	260 [170–350]	200 [100–300]	220 [170–270]
	Alloy steel	280–350HB	180 [100–250]	150 [100–200]	180 [100–250]
M	Stainless steel	—	—	—	200 [150–250]
K	Ductile cast iron	Tensile strength ≤450MPa	240 [130–350]	200 [130–250]	160 [110–240]
		Tensile strength ≤800MPa	220 [80–350]	180 [80–230]	180 [110–250]

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DEPTH OF CUT / FEED PER TOOTH

DRY AND WET CUTTING

Material			Properties											
														
					L		L, M		M		M, R		R, H	
			fz	ap	fz	ap	fz	ap	fz	ap	fz	ap	fz	ap
P	Mild steel	≤180HB	0.15 (0.1–0.2)	≤1.0	0.15 (0.1–0.2)	≤2.0	0.2 (0.15–0.25)	≤3.0	0.2 (0.15–0.25)	≤4.0	0.25 (0.2–0.3)	≤5.0		
	Carbon steel Alloy steel	180–350HB	0.15 (0.1–0.2)	≤1.0	0.15 (0.1–0.2)	≤2.0	0.2 (0.15–0.25)	≤3.0	0.2 (0.15–0.25)	≤4.0	0.25 (0.2–0.3)	≤5.0		
		280–350HB	0.15 (0.1–0.2)	≤1.0	0.15 (0.1–0.2)	≤2.0	0.2 (0.15–0.25)	≤3.0	0.2 (0.15–0.25)	≤4.0	0.25 (0.2–0.3)	≤5.0		
M	Stainless steel	—	0.15 (0.1–0.2)	≤1.0	0.15 (0.1–0.2)	≤2.0	0.2 (0.15–0.25)	≤3.0	—	—	—	—		
K	Ductile cast iron	Tensile strength ≤450MPa	0.15 (0.1–0.2)	≤1.0	0.15 (0.1–0.2)	≤2.0	0.2 (0.15–0.25)	≤3.0	0.2 (0.15–0.25)	≤4.0	0.25 (0.2–0.3)	≤5.0		
		Tensile strength ≤800MPa	0.15 (0.1–0.2)	≤1.0	0.15 (0.1–0.2)	≤2.0	0.2 (0.15–0.25)	≤3.0	0.2 (0.15–0.25)	≤4.0	0.25 (0.2–0.3)	≤5.0		

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WJX09

CHIPBREAKER SELECTION TABLE

Material	Properties						
		L		M		R	
		Conditions	ap	Conditions	ap	Conditions	ap
P	Mild steel	● ●	≤1.0	● ●	≤1.5	● ✖	≤1.5
	Carbon steel, Alloy steel	● ●	≤1.0	● ●	≤1.5	● ✖	≤1.5
M	Stainless steel	● ●	≤1.0	● ●	≤1.0	—	—
K	Ductile cast iron	● ●	≤1.0	● ●	≤1.5	● ✖	≤1.5
	Tensile strength ≤800MPa	● ●	≤1.0	● ●	≤1.0	● ✖	≤1.0

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WJX14

CHIPBREAKER SELECTION TABLE

Material	Properties						
		L		M		R	
		Conditions	ap	Conditions	ap	Conditions	ap
P	Mild steel	● ●	≤2.0	● ●	≤3.0	● ✖	≤3.0
	Carbon steel, Alloy steel	● ●	≤2.0	● ●	≤3.0	● ✖	≤3.0
M	Stainless steel	● ●	≤2.0	● ●	≤1.5	—	—
K	Ductile cast iron	● ●	≤2.0	● ●	≤3.0	—	—
	Tensile strength ≤800MPa	● ●	≤2.0	● ●	≤2.0	—	—

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WJX09

RECOMMENDED CUTTING CONDITIONS

CUTTING SPEED (DRY CUTTING)

	Material	Properties	MV1020	MV1030
			Vc	Vc
P	Mild steel	≤180HB	230 (180–280)	160 (100–220)
	Carbon steel, Alloy steel	180–350HB	220 (170–270)	150 (80–220)
M	Stainless steel	≤200HB	—	160 (130–200)
		>200HB	—	140 (80–200)
K	Ductile cast iron	Tensile strength ≤450MPa	210 (160–260)	160 (120–210)
		Tensile strength ≤800MPa	190 (140–240)	130 (90–170)

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DEPTH OF CUT/FEED PER TOOTH

DRY CUTTING

	Material	Properties		ap	DCX = 25, 28 (Z=2)	DCX = 25, 28 (Z=3)	DCX ≥ 32
					fz	fz	fz
P	Mild steel	≤180HB	M, R	≤0.5	1.3 (0.4–2.0)	1.3 (0.4–2.0)	1.5 (0.5–2.0)
				≤1.0	1.0 (0.3–1.3)	0.8 (0.3–1.0)	1.2 (0.4–1.5)
				≤1.5	0.6 (0.3–1.0)	—	0.8 (0.4–1.2)
	Carbon steel Alloy steel	180–350HB	L	≤0.5	1.2 (0.4–1.6)	1.2 (0.4–1.6)	1.2 (0.4–1.6)
				≤1.0	0.8 (0.3–1.2)	0.8 (0.3–1.0)	1.0 (0.4–2.5)
				≤1.5	0.5 (0.3–0.7)	—	0.7 (0.3–1.0)
M	Stainless steel	—	L	≤0.5	0.8 (0.3–1.0)	0.8 (0.3–1.0)	0.8 (0.3–1.0)
				≤1.0	1.0 (0.4–1.2)	1.0 (0.4–1.2)	1.0 (0.4–1.2)
			M	≤0.5	0.6 (0.2–0.8)	0.6 (0.2–0.8)	0.6 (0.2–0.8)
				≤1.0	0.8 (0.3–1.0)	0.8 (0.3–1.0)	0.8 (0.3–1.0)
K	Ductile cast iron	Tensile strength ≤450MPa	M, R	≤0.5	1.3 (0.4–1.7)	1.3 (0.4–1.7)	1.5 (0.4–2.0)
				≤1.0	0.8 (0.3–1.0)	0.7 (0.3–0.9)	1.0 (0.3–1.3)
			L	≤1.5	0.5 (0.3–0.7)	—	0.7 (0.3–1.0)
				≤0.5	1.0 (0.3–1.3)	1.0 (0.3–1.3)	1.0 (0.3–1.3)
		Tensile strength ≤800MPa	M, R	≤1.0	0.8 (0.2–1.0)	0.7 (0.2–0.9)	0.8 (0.2–1.2)
				≤0.5	1.0 (0.2–1.5)	1.0 (0.2–1.5)	1.3 (0.3–1.7)
			L	≤1.0	0.8 (0.2–1.0)	0.6 (0.2–0.8)	1.0 (0.3–1.2)
				≤0.5	0.8 (0.3–1.2)	0.8 (0.3–1.2)	0.8 (0.3–1.2)

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1. To discharge chips effectively, use an air blow when machining. When the air blow is less effective at discharging chips, we recommend wet cutting.
2. When wet cutting, tool life may become shorter than dry cutting. When carrying out wet cutting for the applications recommended with dry cutting, reduce the cutting speed by 25 %.
3. When large vibration occurs, reduce the cutting conditions.
4. For interrupted cutting, reduce the cutting speed and feed rate by 20 %.

WJX14

RECOMMENDED CUTTING CONDITIONS

CUTTING SPEED (DRY CUTTING)

	Material	Properties	MV1020	MV1030
			Vc	Vc
P	Mild steel	≤180HB	220 (170 – 270)	130 (80 – 180)
	Carbon steel, Alloy steel	180 – 350HB	200 (150 – 250)	120 (60 – 180)
M	Stainless steel	≤200HB	—	160 (130 – 200)
		>200HB	—	140 (100 – 200)
K	Ductile cast iron	Tensile strength ≤450MPa	200 (150 – 250)	150 (100 – 200)
		Tensile strength ≤800MPa	180 (130 – 230)	120 (80 – 160)

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WJX14

DEPTH OF CUT / FEED PER TOOTH

DRY CUTTING

Material	Properties		ap	DCX = 50, 52	DCX ≥ 63		
				fz	fz		
P	Mild steel	≤180HB	M, R	≤1.0	1.5 [0.6 – 2.5]	1.7 [0.6 – 2.8]	
				≤1.5	1.3 [0.6 – 2.0]	1.5 [0.6 – 2.5]	
				≤2.0	1.2 [0.6 – 2.0]	1.3 [0.6 – 2.5]	
				≤2.5	0.8 [0.3 – 1.5]	1.0 [0.3 – 1.6]	
				≤3.0	0.4 [0.2 – 1.0]	0.5 [0.2 – 1.2]	
			L	≤1.0	1.2 [0.4 – 2.0]	1.2 [0.4 – 2.0]	
	≤1.5	1.0 [0.4 – 1.8]		1.0 [0.4 – 2.5]			
	≤2.0	0.8 [0.4 – 1.7]		0.8 [0.4 – 1.7]			
	Carbon steel Alloy steel	180 – 350HB	M, R	≤1.0	1.5 [0.5 – 2.0]	1.7 [0.5 – 2.5]	
				≤1.5	1.2 [0.5 – 1.7]	1.3 [0.5 – 2.2]	
				≤2.0	1.0 [0.5 – 1.5]	1.2 [0.5 – 2.0]	
				≤2.5	0.7 [0.3 – 1.2]	0.9 [0.3 – 1.5]	
				≤3.0	0.3 [0.2 – 0.8]	0.4 [0.2 – 1.0]	
L			≤1.0	1.0 [0.3 – 1.7]	1.0 [0.3 – 1.7]		
			≤1.5	0.8 [0.3 – 1.5]	0.8 [0.3 – 1.5]		
			≤2.0	0.7 [0.3 – 1.2]	0.7 [0.3 – 1.2]		
M	Stainless steel	≤200HB	M	≤1.0	1.0 [0.5 – 1.2]	1.0 [0.5 – 1.2]	
				≤1.5	1.0 [0.5 – 1.0]	1.0 [0.5 – 1.0]	
			L	≤1.0	0.8 [0.3 – 1.2]	0.8 [0.3 – 1.2]	
				≤1.5	0.8 [0.3 – 1.0]	0.8 [0.3 – 1.0]	
			>200HB	M	≤1.0	1.0 [0.5 – 1.2]	1.0 [0.5 – 1.2]
					≤1.5	1.0 [0.5 – 1.0]	1.0 [0.5 – 1.0]
	L	≤1.0		0.8 [0.3 – 1.2]	0.8 [0.3 – 1.2]		
		≤1.5		0.8 [0.3 – 1.0]	0.8 [0.3 – 1.0]		
	K	Ductile cast iron	Tensile strength ≤450MPa	MR	≤1.0	1.5 [0.5 – 2.0]	1.7 [0.5 – 2.5]
					≤1.5	1.3 [0.5 – 1.8]	1.5 [0.5 – 2.0]
≤2.0					1.2 [0.5 – 1.8]	1.3 [0.5 – 2.0]	
≤2.5					0.7 [0.3 – 1.2]	0.9 [0.3 – 1.5]	
≤3.0					0.3 [0.2 – 0.8]	0.4 [0.2 – 1.0]	
L				≤1.0	1.2 [0.3 – 2.0]	1.2 [0.3 – 2.0]	
				≤1.5	1.0 [0.3 – 1.7]	1.0 [0.3 – 1.7]	
				≤2.0	0.8 [0.3 – 1.5]	0.8 [0.3 – 1.5]	
Tensile strength ≤800MPa			M	≤1.0	1.3 [0.4 – 1.8]	1.5 [0.4 – 2.0]	
				≤1.5	1.2 [0.4 – 1.5]	1.3 [0.4 – 1.8]	
				≤2.0	1.0 [0.4 – 1.5]	1.2 [0.4 – 1.8]	
			L	≤1.0	1.0 [0.3 – 1.7]	1.0 [0.3 – 1.7]	
				≤1.5	0.8 [0.3 – 1.5]	0.8 [0.3 – 1.5]	
				≤2.0	0.7 [0.3 – 1.2]	0.7 [0.3 – 1.2]	

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1. To discharge chips effectively, use an air blow when machining. When the air blow is less effective at discharging chips, we recommend wet cutting.
2. When wet cutting, tool life may become shorter than dry cutting. When carrying out wet cutting for the applications recommended with dry cutting, reduce the cutting speed by 25 %.
3. When large vibration occurs, reduce the cutting conditions.
4. For interrupted cutting, reduce the cutting speed and feed rate by 20 %.

WSF406W

RECOMMENDED CUTTING CONDITIONS

DRY CUTTING

Material	Properties	Conditions	ap	Vc		fz	ae
				MV1020	MV1030		
Gray cast iron	Tensile strength ≤350MPa	●	ap ≤ 0.5 mm	300 (250–300)	150 (100–200)	0.13 (0.08–0.20)	≤0.8DC
			ap ≤ 2.0 mm	250 (210–300)	150 (100–200)	0.15 (0.10–0.25)	≤0.8DC
			2.0 mm < ap ≤ 4.0 mm	220 (190–260)	140 (80–200)	0.13 (0.10–0.20)	≤0.8DC
			4.0 mm < ap ≤ 7.5 mm	200 (180–230)	110 (60–160)	0.10 (0.08–0.15)	≤0.8DC
		●	ap ≤ 0.5 mm	250 (210–300)	150 (100–200)	0.13 (0.08–0.20)	≤0.8DC
			ap ≤ 2.0 mm	220 (190–260)	150 (100–200)	0.15 (0.10–0.25)	≤0.8DC
			2.0 mm < ap ≤ 4.0 mm	200 (180–230)	140 (80–200)	0.13 (0.10–0.20)	≤0.8DC
			4.0 mm < ap ≤ 7.5 mm	180 (160–210)	110 (60–160)	0.10 (0.08–0.15)	≤0.8DC
		✖	ap ≤ 0.5 mm	220 (190–260)	140 (80–200)	0.13 (0.08–0.20)	≤0.8DC
			ap ≤ 2.0 mm	200 (180–230)	140 (80–200)	0.15 (0.10–0.25)	≤0.8DC
			2.0 mm < ap ≤ 4.0 mm	180 (160–210)	110 (60–160)	0.13 (0.10–0.20)	≤0.8DC
			4.0 mm < ap ≤ 7.5 mm	150 (100–180)	80 (40–120)	0.10 (0.08–0.15)	≤0.8DC
Ductile cast iron	Tensile strength ≤450MPa	●	ap ≤ 0.5 mm	230 (200–250)	110 (60–160)	0.13 (0.08–0.20)	≤0.8DC
			ap ≤ 2.0 mm	200 (170–230)	110 (60–160)	0.15 (0.10–0.25)	≤0.8DC
			2.0 mm < ap ≤ 4.0 mm	180 (150–210)	90 (50–130)	0.13 (0.10–0.20)	≤0.8DC
			4.0 mm < ap ≤ 7.5 mm	160 (130–190)	70 (40–100)	0.10 (0.08–0.15)	≤0.8DC
		●	ap ≤ 0.5 mm	200 (170–230)	110 (60–160)	0.13 (0.08–0.20)	≤0.8DC
			ap ≤ 2.0 mm	180 (150–210)	110 (60–160)	0.15 (0.10–0.25)	≤0.8DC
			2.0 mm < ap ≤ 4.0 mm	160 (130–190)	90 (50–130)	0.13 (0.10–0.20)	≤0.8DC
			4.0 mm < ap ≤ 7.5 mm	140 (110–170)	70 (40–100)	0.10 (0.08–0.15)	≤0.8DC
		✖	ap ≤ 0.5 mm	180 (150–200)	90 (50–130)	0.13 (0.08–0.20)	≤0.8DC
			ap ≤ 2.0 mm	160 (130–190)	90 (50–130)	0.15 (0.10–0.25)	≤0.8DC
			2.0 mm < ap ≤ 4.0 mm	140 (110–170)	70 (40–100)	0.13 (0.10–0.20)	≤0.8DC
			4.0 mm < ap ≤ 7.5 mm	120 (90–150)	60 (30– 90)	0.10 (0.08–0.15)	≤0.8DC
	Tensile strength ≤800MPa	●	ap ≤ 0.5 mm	230 (200–250)	110 (60–160)	0.13 (0.08–0.20)	≤0.8DC
			ap ≤ 2.0 mm	200 (170–230)	110 (60–160)	0.15 (0.10–0.25)	≤0.8DC
			2.0 mm < ap ≤ 4.0 mm	180 (150–210)	90 (50–130)	0.13 (0.10–0.20)	≤0.8DC
			4.0 mm < ap ≤ 7.5 mm	160 (130–190)	70 (40–100)	0.10 (0.08–0.15)	≤0.8DC
		●	ap ≤ 0.5 mm	200 (170–230)	110 (60–160)	0.13 (0.08–0.20)	≤0.8DC
			ap ≤ 2.0 mm	180 (150–210)	110 (60–160)	0.15 (0.10–0.25)	≤0.8DC
			2.0 mm < ap ≤ 4.0 mm	160 (130–190)	90 (50–130)	0.13 (0.10–0.20)	≤0.8DC
			4.0 mm < ap ≤ 7.5 mm	140 (110–170)	70 (40–100)	0.10 (0.08–0.15)	≤0.8DC
		✖	ap ≤ 0.5 mm	180 (150–210)	90 (50–130)	0.13 (0.08–0.20)	≤0.8DC
			ap ≤ 2.0 mm	160 (130–190)	90 (50–130)	0.15 (0.10–0.25)	≤0.8DC
			2.0 mm < ap ≤ 4.0 mm	140 (110–170)	70 (40–100)	0.13 (0.10–0.20)	≤0.8DC
			4.0 mm < ap ≤ 7.5 mm	120 (90–150)	60 (30– 90)	0.10 (0.08–0.15)	≤0.8DC

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VPX200/300

RECOMMENDED CUTTING CONDITIONS

CUTTING SPEED (DRY CUTTING)

Material	Properties	Conditions	Recommendation 1st 2nd	ae							
				≤0.25 DC		0.25 – 0.5 DC		0.5 – 0.75 DC		DC (Slot)	
				MV1020	MV1030	MV1020	MV1030	MV1020	MV1030	MV1020	MV1030
P	Mild steel	≤180HB	●●	L	M	280 (220–330)	230 (180–270)	270 (210–320)	220 (170–260)	220 (170–260)	180 (140–210)
	Carbon steel	180–280HB	●●	L	M	220 (170–260)	180 (140–210)	210 (160–240)	170 (130–200)	170 (130–200)	170 (130–200)
	Alloy steel	280–350HB	●●	L	M	180 (140–210)	180 (140–210)	170 (130–200)	170 (130–200)	140 (110–160)	140 (110–160)
M	Stainless steel	≤200HB	●●	L	M	—	180 (140–210)	—	170 (130–200)	—	140 (110–160)
		>200HB	●●	L	M	—	150 (110–180)	—	140 (100–160)	—	110 (80–130)
K	Ductile cast iron	Tensile strength ≤450MPa	●●	M	L	200 (150–280)	150 (100–200)	190 (140–270)	140 (90–190)	170 (130–240)	125 (80–170)
		Tensile strength ≤800MPa	●●	M	L	180 (140–250)	150 (100–200)	170 (130–240)	140 (90–190)	150 (120–210)	125 (80–170)

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WET CUTTING

Material	Properties	Conditions	Recommendation 1st 2nd	ae							
				≤0.25 DC		0.25 – 0.5 DC		0.5 – 0.75 DC		DC (Slot)	
				MV1020	MV1030	MV1020	MV1030	MV1020	MV1030	MV1020	MV1030
P	Mild steel	≤180HB	●●	L	M	210 (150–290)	140 (100–190)	200 (140–270)	130 (90–180)	150 (110–180)	100 (70–120)
	Carbon steel	180–280HB	●●	L	M	180 (140–210)	120 (90–140)	170 (120–200)	110 (80–130)	150 (110–180)	100 (70–120)
	Alloy steel	280–350HB	●●	L	M	140 (110–160)	120 (90–140)	130 (90–150)	110 (80–130)	120 (80–140)	120 (80–140)
K	Ductile cast iron	Tensile strength ≤450MPa	●●	M	L	180 (150–240)	130 (80–180)	170 (140–230)	120 (70–170)	150 (130–200)	105 (60–150)
		Tensile strength ≤800MPa	●●	M	L	160 (130–210)	130 (80–180)	150 (120–200)	120 (70–170)	130 (110–170)	105 (60–150)

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VPX200

RECOMMENDED CUTTING CONDITIONS

DEPTH OF CUT / FEED PER TOOTH

DRY AND WET CUTTING

Material	Properties	ae	Conditions	DC					
				Ø 16 - Ø 18		Ø 20 - Ø 25		Ø 28 - Ø 63	
				ap	fz	ap	fz	ap	fz
P	Mild steel	≤180HB	≤0.25DC	● ●	≤6 0.10 - 0.15	≤8 0.10 - 0.20	≤8 0.10 - 0.20	≤8 0.10 - 0.25	
			0.25 - 0.5DC	● ●	≤5 0.08 - 0.12	≤8 0.10 - 0.15	≤8 0.10 - 0.15	≤8 0.10 - 0.20	
			0.5 - 0.75DC	● ●	≤4 0.08 - 0.12	≤6 0.08 - 0.12	≤6 0.08 - 0.12	≤6 0.10 - 0.15	
			DC (Slot)	● ●	≤2 0.06 - 0.10	≤4 0.06 - 0.10	≤4 0.06 - 0.10	≤4 0.08 - 0.12	
	Carbon steel Alloy steel	180 - 280HB	≤0.25DC	● ●	≤6 0.10 - 0.15	≤8 0.10 - 0.20	≤8 0.10 - 0.20	≤8 0.10 - 0.25	
			0.25 - 0.5DC	● ●	≤5 0.08 - 0.12	≤8 0.10 - 0.15	≤8 0.10 - 0.15	≤8 0.10 - 0.20	
			0.5 - 0.75DC	● ●	≤4 0.08 - 0.12	≤6 0.08 - 0.12	≤6 0.08 - 0.12	≤6 0.10 - 0.15	
			DC (Slot)	● ●	≤2 0.06 - 0.10	≤4 0.06 - 0.10	≤4 0.06 - 0.10	≤4 0.08 - 0.12	
		280 - 350HB	≤0.25DC	● ●	≤6 0.10 - 0.15	≤8 0.10 - 0.15	≤8 0.10 - 0.15	≤8 0.10 - 0.20	
			0.25 - 0.5DC	● ●	≤5 0.08 - 0.12	≤8 0.08 - 0.12	≤8 0.08 - 0.12	≤8 0.10 - 0.15	
			0.5 - 0.75DC	● ●	≤4 0.08 - 0.12	≤6 0.06 - 0.10	≤6 0.06 - 0.10	≤6 0.08 - 0.12	
			DC (Slot)	● ●	≤2 0.06 - 0.10	≤4 0.06 - 0.10	≤4 0.06 - 0.10	≤4 0.06 - 0.10	
M	Stainless steel	—	≤0.25DC	● ●	≤6 0.10 - 0.15	≤8 0.10 - 0.20	≤8 0.10 - 0.20	≤8 0.10 - 0.20	
			0.25 - 0.5DC	● ●	≤5 0.08 - 0.12	≤8 0.08 - 0.15	≤8 0.08 - 0.15	≤8 0.08 - 0.15	
			0.5 - 0.75DC	● ●	≤4 0.06 - 0.10	≤6 0.08 - 0.12	≤6 0.08 - 0.12	≤6 0.08 - 0.12	
			DC (Slot)	● ●	≤2 0.06 - 0.10	≤4 0.06 - 0.10	≤4 0.06 - 0.10	≤4 0.06 - 0.10	
K	Ductile cast iron	Tensile strength ≤800MPa	≤0.25DC	● ●	≤6 0.10 - 0.15	≤8 0.10 - 0.20	≤8 0.10 - 0.20	≤8 0.10 - 0.20	
			0.25 - 0.5DC	● ●	≤5 0.08 - 0.12	≤8 0.10 - 0.15	≤8 0.10 - 0.15	≤8 0.10 - 0.15	
			0.5 - 0.75DC	● ●	≤4 0.08 - 0.12	≤6 0.08 - 0.12	≤6 0.08 - 0.12	≤6 0.08 - 0.12	
			DC (Slot)	● ●	≤2 0.06 - 0.10	≤4 0.06 - 0.10	≤4 0.06 - 0.10	≤4 0.06 - 0.10	

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- These cutting conditions should be referenced for standard shank types (last letter in designation is S) and arbor shank types.
If there is chatter, insert chipping, etc. during machining, alter conditions accordingly
- Chattering vibration is more likely under the following circumstances. Use a cut and feed per tooth that are at minimum recommended conditions or below.
 - When tool overhang is long (using a long shank, screw-in type, etc.)
 - Rigidity of machine, workpiece material or attachment of workpiece material is low
 - Corner radius during pocket milling
- A type with fewer teeth is recommended when the depth of cut in the radius direction (ae) is 0.5 DC or more.
- Wet cutting is recommended, when focusing on the surface finish. (Service life is shorter than for dry cutting.)
- When using under higher than recommended cutting conditions, or for long periods of time, the clamp screw may become fatigued and break during machining. Please use a new clamp screw periodically.

VPX300

RECOMMENDED CUTTING CONDITIONS

DEPTH OF CUT / FEED PER TOOTH

DRY AND WET CUTTING

Material		Properties	ae	Conditions	DC			
					Ø 25		Ø 28 – Ø 80	
					ap	fz	ap	fz
P	Mild steel	≤180HB	≤0.25DC	● ●	≤11	0.10 – 0.20	≤11	0.10 – 0.30
			0.25 – 0.5DC	● ●	≤11	0.10 – 0.15	≤11	0.10 – 0.25
			0.5 – 0.75DC	● ●	≤8	0.08 – 0.12	≤8	0.10 – 0.20
			DC (Slot)	● ●	≤5	0.06 – 0.10	≤5	0.08 – 0.15
	Carbon steel Alloy steel	180 – 280HB	≤0.25DC	● ●	≤11	0.10 – 0.20	≤11	0.10 – 0.30
			0.25 – 0.5DC	● ●	≤11	0.10 – 0.15	≤11	0.10 – 0.25
			0.5 – 0.75DC	● ●	≤8	0.08 – 0.12	≤8	0.10 – 0.20
			DC (Slot)	● ●	≤5	0.06 – 0.10	≤5	0.08 – 0.15
		280 – 350HB	≤0.25DC	● ●	≤11	0.10 – 0.15	≤11	0.10 – 0.25
			0.25 – 0.5DC	● ●	≤11	0.08 – 0.12	≤11	0.10 – 0.20
			0.5 – 0.75DC	● ●	≤8	0.06 – 0.10	≤8	0.10 – 0.15
			DC (Slot)	● ●	≤5	0.06 – 0.10	≤5	0.08 – 0.12
M	Stainless steel	—	≤0.25DC	● ●	≤11	0.10 – 0.20	≤11	0.10 – 0.20
			0.25 – 0.5DC	● ●	≤11	0.08 – 0.15	≤11	0.08 – 0.15
			0.5 – 0.75DC	● ●	≤8	0.08 – 0.12	≤8	0.08 – 0.12
			DC (Slot)	● ●	≤5	0.06 – 0.10	≤5	0.06 – 0.10
K	Ductile cast iron	Tensile strength ≤800MPa	≤0.25DC	● ●	≤11	0.10 – 0.20	≤11	0.10 – 0.25
			0.25 – 0.5DC	● ●	≤11	0.10 – 0.15	≤11	0.10 – 0.20
			0.5 – 0.75DC	● ●	≤8	0.08 – 0.12	≤8	0.10 – 0.15
			DC (Slot)	● ●	≤5	0.06 – 0.10	≤5	0.08 – 0.12

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- These cutting conditions should be referenced for standard shank types (last letter in designation is S) and arbor shank types.
If there is chatter, insert chipping, etc. during machining, alter conditions accordingly.
- Chattering vibration is more likely under the following circumstances. Use a cut and feed per tooth that are at minimum recommended conditions or below.
 - When tool overhang is long (using a long shank, screw-in type, etc.)
 - Rigidity of machine, workpiece material or attachment of workpiece material is low
 - Corner radius during pocket milling
- A type with fewer teeth is recommended when the depth of cut in the radius direction (ae) is 0.5 DC or more.
- Wet cutting is recommended, when focusing on the surface finish. (Service life is shorter than for dry cutting.)
- When using under higher than recommended cutting conditions, or for long periods of time, the clamp screw may become fatigued and break during machining. Please renew the clamp screw periodically.

AHX440S

RECOMMENDED CUTTING CONDITIONS

DRY CUTTING

Material		Properties	Vc		fz	ap	ae
			MV1020	MV1030			
P	Mild steel	≤180HB	300 (200–400)	245 (190–300)	0.3 (0.2–0.4)	≤3	≤0.8 DC
	Carbon steel	180–280HB	260 (170–350)	210 (150–270)	0.3 (0.2–0.4)	≤3	≤0.8 DC
	Alloy steel	280–350HB	180 (100–250)	135 (90–180)	0.3 (0.2–0.4)	≤3	≤0.8 DC
M	Stainless steel	≤200HB	—	185 (120–250)	0.2 (0.1–0.3)	≤3	≤0.8 DC
		>200HB	—	140 (80–200)	0.2 (0.1–0.3)	≤3	≤0.8 DC
K	Ductile cast iron	Tensile strength ≤450MPa	240 (130–350)	185 (120–250)	0.2 (0.1–0.3)	≤3	≤0.8 DC
		Tensile strength ≤800MPa	220 (80–350)	150 (100–200)	0.2 (0.1–0.3)	≤3	≤0.8 DC

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1. Refer to the above table and set up cutting conditions according to cutting applications.
2. When placing emphasis on surface finish quality, wet cutting is recommended. [tool life is lowered as compared to dry cutting]
3. The recommended depth of cut differs according to insert geometry.
4. When clamp rigidity is low and tool overhang is long, we recommended to reduce the cutting speed and the feed rate by 30 %.
5. Recommended wet cutting for good surface finishing of stainless steel. [Tool life is short compared to wet cutting.]

AHX475S

RECOMMENDED CUTTING CONDITIONS

DRY CUTTING

Material	Properties		Vc		fz	ap	ae
			MV1020	MV1030			
P	Mild steel	≤180HB	R 220 (170–270)	140 (80–200)	0.6	≤1.6	≤0.5 DC
			R 220 (170–270)	140 (80–200)	0.8	≤1.6	0.5 DC < ae ≤ 0.8 DC
			M 220 (170–270)	140 (80–200)	1.0	≤1.6	0.8 DC < ae ≤ DC
	Carbon steel	180–280HB	R 200 (150–250)	120 (60–180)	0.6	≤1.6	≤0.5 DC
			R 200 (150–250)	120 (60–180)	0.8	≤1.6	0.5 DC < ae ≤ 0.8 DC
			M 200 (150–250)	120 (60–180)	1.0	≤1.6	0.8 DC < ae ≤ DC
	Alloy steel	280–350HB	R 150 (100–200)	90 (30–150)	0.5	≤1.6	≤0.5 DC
			R 150 (100–200)	90 (30–150)	0.6	≤1.6	0.5 DC < ae ≤ 0.8 DC
			R 150 (100–200)	90 (30–150)	0.7	≤1.6	0.8 DC < ae ≤ DC
K	Ductile cast iron	Tensile strength ≤450MPa	R 200 (150–250)	140 (80–200)	0.6	≤1.6	≤0.5 DC
			R 200 (150–250)	140 (80–200)	0.8	≤1.6	0.5 DC < ae ≤ 0.8 DC
			M 200 (150–250)	140 (80–200)	1.0	≤1.6	0.8 DC < ae ≤ DC
	Ductile cast iron	Tensile strength ≤800MPa	R 180 (130–230)	140 (80–200)	0.5	≤1.6	≤0.5 DC
			R 180 (130–230)	140 (80–200)	0.6	≤1.6	0.5 DC < ae ≤ 0.8 DC
			R 180 (130–230)	140 (80–200)	0.7	≤1.6	0.8 DC < ae ≤ DC

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1. When clamp rigidity is low and tool overhang is long, we recommended to reduce the cutting speed and the feed rate by 30 %.

AHX640S

RECOMMENDED CUTTING CONDITIONS

DRY CUTTING

	Material	Properties		Vc		fz	ap	ae
				MV1020	MV1030			
P	Mild steel	≤180HB	M, L	300 (200–400)	245 (190–300)	0.3 (0.2–0.4)	≤5	≤0.8 DC
	Carbon steel	180–280HB	M, L	260 (170–350)	210 (150–270)	0.3 (0.2–0.4)	≤5	≤0.8 DC
	Alloy steel	280–350HB	M, L	180 (100–250)	135 (90–180)	0.3 (0.2–0.4)	≤5	≤0.8 DC
M	Stainless steel	≤200HB	L	—	185 (120–250)	0.2 (0.1–0.3)	≤5	≤0.8 DC
		>200HB	L	—	140 (80–200)	0.2 (0.1–0.3)	≤5	≤0.8 DC
	PH stainless steel	<450HB	L	—	130 (100–160)	0.2 (0.1–0.3)	≤5	≤0.8 DC
K	Gray cast iron	Tensile strength ≤450MPa	M, MK, HK	240 (130–350)	185 (120–250)	0.2 (0.1–0.3)	≤5	≤0.8 DC
		Tensile strength ≤800MPa	M, MK, HK	220 (80–350)	150 (100–200)	0.2 (0.1–0.3)	≤5	≤0.8 DC

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ASX445

RECOMMENDED CUTTING CONDITIONS

DRY AND WET CUTTING

Material	Properties	Vc		fz		fz		fz	
		MV1020	MV1030						
P	Mild steel	≤180HB	300 (200–400)	275 (200–350)	0.15 (0.1–0.2)	JL	0.2 (0.1–0.3)	JM	0.3 (0.2–0.4)
	Carbon steel	180–350HB	260 (170–350)	235 (170–300)	0.15 (0.1–0.2)	JL	0.2 (0.1–0.3)	JM	0.3 (0.2–0.4)
	Alloy steel	280–350HB	180 (100–250)	165 (100–230)	0.15 (0.1–0.2)	JL	0.2 (0.1–0.3)	JM	0.3 (0.2–0.4)
M	Stainless steel	—	—	220 (170–270)	0.15 (0.1–0.2)	JL	0.2 (0.1–0.3)	JM	0.3 (0.2–0.4)
K	Ductile cast iron	Tensile strength ≤450MPa	240 (130–350)	190 (130–250)	0.15 (0.1–0.2)	JL	0.2 (0.1–0.3)	JM	0.3 (0.2–0.4)
		Tensile strength >450MPa	220 (80–350)	110 (80–150)	0.15 (0.1–0.2)	JL	0.2 (0.1–0.3)	JM	0.3 (0.2–0.4)

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ASX400

RECOMMENDED CUTTING CONDITIONS

DRY AND WET CUTTING

Material	Properties	Vc		fz		fz		fz	
		MV1020	MV1030						
P	Mild steel	≤180HB	300 (200–400)	275 (200–350)	0.18 (0.08–0.28)	JL	0.20 (0.10–0.30)	JM	0.25 (0.10–0.35)
	Carbon steel	180–350HB	260 (170–350)	235 (170–300)	0.15 (0.07–0.23)	JL	0.18 (0.10–0.28)	JM	0.20 (0.10–0.30)
	Alloy steel	280–350HB	180 (100–250)	165 (100–230)	0.13 (0.06–0.20)	JL	0.15 (0.10–0.25)	JM	0.18 (0.10–0.28)
M	Stainless steel	—	—	220 (170–270)	0.15 (0.07–0.23)	JL	0.18 (0.10–0.28)	JM	0.20 (0.10–0.30)
K	Ductile cast iron	Tensile strength ≤450MPa	240 (130–350)	190 (130–250)	0.18 (0.10–0.28)	JL	0.20 (0.10–0.30)	JM	0.25 (0.10–0.35)
		Tensile strength >450MPa	220 (80–350)	110 (80–150)	0.18 (0.10–0.28)	JL	0.20 (0.10–0.30)	JM	0.25 (0.10–0.35)

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APX3000/4000

RECOMMENDED CUTTING CONDITIONS

CUTTING SPEED (DRY CUTTING)

Material	Properties	Conditions	Recommendation 1st 2nd	ae							
				≤0.25 DC		0.25 – 0.5 DC		0.5 – 0.75 DC		DC (Slot)	
				MV1020	MV1030	MV1020	MV1030	MV1020	MV1030	MV1020	MV1030
P	Mild steel	≤180HB	● ●	L	M	280 (220–330)	230 (180–270)	270 (210–320)	220 (170–260)	220 (170–260)	180 (140–210)
	Carbon steel	180–280HB	● ●	L	M	220 (170–260)	180 (140–210)	210 (160–240)	170 (130–200)	170 (130–200)	170 (130–200)
	Alloy steel	280–350HB	● ●	L	M	180 (140–210)	180 (140–210)	170 (130–200)	170 (130–200)	140 (110–160)	140 (110–160)
M	Austenitic stainless steel	≤200HB	● ●	L	M	—	180 (140–210)	—	170 (130–200)	—	140 (110–160)
		>200HB	● ●	L	M	—	150 (110–180)	—	140 (100–160)	—	110 (80–130)
	PH stainless steel	<450HB	● ●	L	M	—	140 (110–170)	—	140 (110–170)	—	140 (110–170)
K	Gray cast iron	≤450HB	● ●	M	L	200 (150–280)	150 (100–200)	190 (140–270)	140 (90–190)	170 (130–240)	125 (80–170)
	Ductile cast iron	≤800MPa	● ●	M	L	180 (140–250)	150 (100–200)	170 (130–240)	140 (90–190)	150 (120–210)	125 (80–170)

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ARP5/6

RECOMMENDED CUTTING CONDITIONS

DRY CUTTING

Material	Properties	MV1020	MV1030
		Vc	Vc
M	Austenitic stainless steel		
	≤200HB	250 (200 – 300)	220 (170 – 270)
	>200HB	220 (170 – 270)	190 (140 – 240)
	Duplex steel		
	≤280HB	250 (200 – 300)	220 (170 – 270)
	Ferritic and martensitic stainless steel		
	≤200HB	270 (220 – 320)	240 (190 – 290)
	>200HB	270 (220 – 320)	240 (190 – 290)
	PH stainless steel		
	<450HB	190 (140 – 240)	170 (120 – 220)

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WET CUTTING

Material	Properties	MV1020	MV1030
		Vc	Vc
M	Austenitic stainless steel		
	≤200HB	180 (130 – 230)	150 (100 – 200)
	>200HB	150 (100 – 200)	130 (80 – 180)
	Duplex steel		
	≤280HB	180 (130 – 230)	150 (100 – 200)
	Ferritic and martensitic stainless steel		
	≤200HB	190 (140 – 240)	170 (120 – 220)
	>200HB	190 (140 – 240)	170 (120 – 220)
	PH stainless steel		
	<450HB	130 (80 – 180)	120 (70 – 170)

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BRP

RECOMMENDED CUTTING CONDITIONS

DRY CUTTING

	Material	Properties	MV1020	MV1030
			Vc	Vc
P	Mild steel	≤180HB	300 (200 – 400)	250 (200 – 300)
	Carbon steel	180 – 280HB	260 (170 – 350)	220 (170 – 270)
	Alloy steel	280 – 350HB	180 (100 – 250)	135 (90 – 180)
M	Austenitic stainless steel	≤200HB	250 (200 – 300)	220 (170 – 270)
		>200HB	220 (170 – 270)	190 (140 – 240)
	PH stainless steel	<450HB	190 (140 – 240)	170 (120 – 220)
K	Gray cast iron	≤450MPa	240 (130 – 350)	190 (130 – 250)
	Ductile cast iron	≤800MPa	220 (80 – 350)	110 (80 – 150)

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FEED PER TOOTH (mm/t.)

Type	Depth of cut (mm)							
	1	2	3	4	5	6	7	8
BRP4	0.40	0.30	0.20	0.10	—	—	—	—
BRP5	0.40	0.35	0.30	0.20	0.10	—	—	—
BRP6	0.50	0.40	0.30	0.25	0.23	0.20	—	—
BRP8	0.60	0.50	0.45	0.40	0.33	0.30	0.25	0.20

AJX

RECOMMENDED CUTTING CONDITIONS

CUTTING SPEED (DRY CUTTING)

		MV1020	MV1030
Material	Properties	Vc	Vc
P	Mild steel	230 (180 – 280)	160 (100 – 220)
	Carbon steel	220 (170 – 270)	150 (80 – 220)
	Alloy steel	180 (100 – 250)	140 (70 – 210)
	Alloy tool steel	180 (100 – 250)	140 (70 – 210)
M	Austenitic stainless steel	—	160 (130 – 200)
		—	140 (80 – 200)
	PH stainless steel	—	140 (80 – 200)
K	Gray cast iron	210 (160 – 260)	160 (120 – 210)
	Ductile cast iron	190 (140 – 240)	130 (90 – 170)

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EUROPEAN SALES COMPANIES

GERMANY

MMC HARTMETALL GMBH
Comeniusstr. 2 . 40670 Meerbusch
Phone +49 2159 91890 . Fax +49 2159 918966
Email admin@mmchg.de

UK Office

MMC HARDMETAL UK LTD
1 Centurion Court, Centurion Way
Tamworth, B77 5PN
Phone +44 1827 312312
Email enquiries@mitsubishicarbide.co.uk

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Phone +33 1 69 35 53 53 . Fax +33 1 69 35 53 50
Email mmfsales@mmc-metal-france.fr

POLAND

MMC HARDMETAL POLAND SP. Z O.O
Al. Armii Krajowej 61 . 50-541 Wrocław
Phone +48 71335 1620 . Fax +48 71335 1621
Email sales@mitsubishicarbide.com.pl

ITALY

MMC ITALIA S.R.L.
Viale Certosa 144 . 20156 Milano
Phone +39 0293 77031 . Fax +39 0293 589093
Email info@mmc-italia.it

TURKEY

MMC HARTMETALL GMBH ALMANYA - İZMİR MERKEZ ŞUBESİ
Adalet Mahallesi Anadolu Caddesi No: 41-1 . 15001 35530 Bayraklı / İzmir
Phone +90 232 5015000 . Fax +90 232 5015007
Email info@mmchg.com.tr

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