THE NEW VALUE FRONTIER

KYOCERA

CA6535/PR1535

For Milling of Heat Resistant Alloy

New Grades for a variety of workpiece materials and applications
For Ni-base heat resistant alloy and martensitic stainless steel
For titanium alloy and precipitation hardened stainless steel

ADVANCING PRODUCTIVITY

2 New Grades for extending tool life when machining heat resistant alloy and difficult-to-cut materials

CA6535 For Ni-base heat resistant alloy and martensitic stainless steel

PR1535 For titanium alloy and precipitation hardened stainless steel

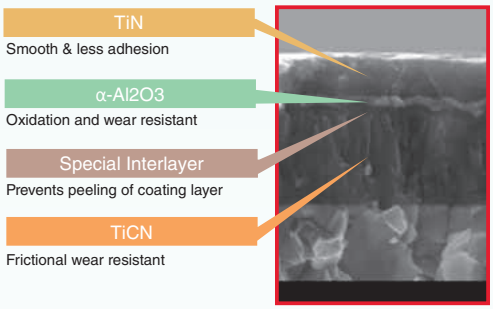
NEW

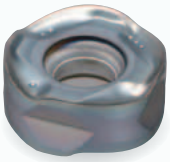
New grade for difficult-to-cut material

Stable cutting prevents insert fracturing and is good for high efficiency machining

CA6535

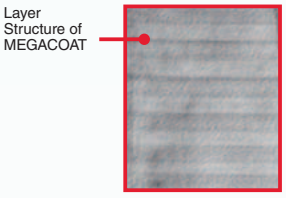
For Ni-base heat resistant alloy and martensitic stainless steel
High heat resistance and wear resistance with CVD coating
Improved stability due to thin film coating technology





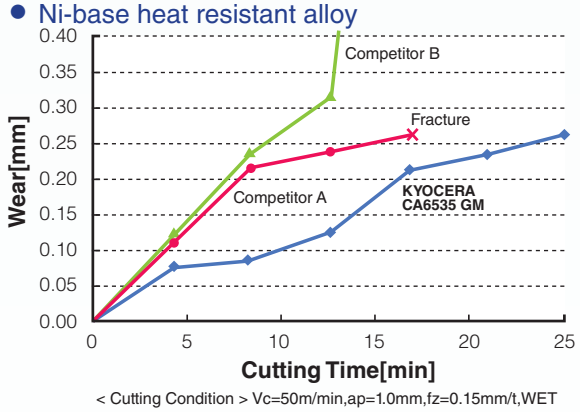
PR1535

For titanium alloy and precipitation hardened stainless steel
Stabilized milling operation and long tool life with Kyocera's MEGACOAT NANO coating technology



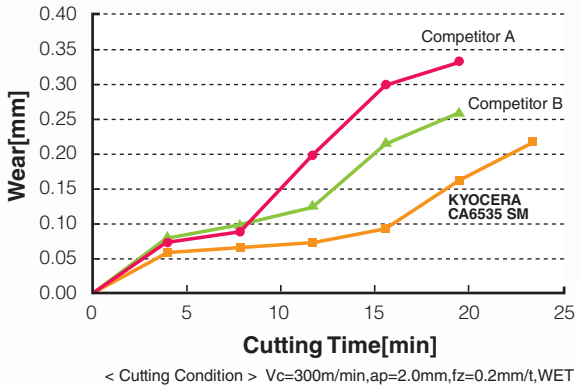
Tool Life Comparison

● Ni-base heat resistant alloy



< Cutting Condition > Vc=50m/min,ap=1.0mm,fz=0.15mm/t,WET

● Martensitic Stainless Steel



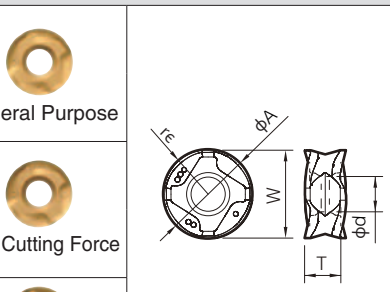
< Cutting Condition > Vc=300m/min,ap=2.0mm,fz=0.2mm/t,WET

High Efficiency Radius Cutter with Multiple Edges

MRW

1.Economical 8-edge insert
2.Lower cutting forces with helical cutting edge design
Obtuse edge increases cutting edge toughness
3.Flat Lock structure prevents insert rotation for stable machining

Applicable Inserts

Insert		Description		Dimension(mm)					MEGACOAT NANO (NEW)			CVD coating (NEW)
				ϕA	T	ϕd	W	rε	PR1535	PR1525	PR1510	CA6535
		ROMU	1204MOER-GM	12	4.75	4.6	11.8	6	●	●	●	●
General Purpose			1605MOER-GM	16	5.48	6.2	15.8	8	●	●	●	●
Low Cutting Force		ROMU	1204MOER-SM	12	4.75	4.6	11.8	6	●	●		●
			1605MOER-SM	16	5.48	6.2	15.8	8	●	●		●
Tough Edge (Heavy Milling)		ROMU	1204MOER-GH	12	4.75	4.6	11.8	6		●	●	
			1605MOER-GH	16	5.48	6.2	15.8	8		●	●	

●:Std. Item

Recommended Cutting Conditions

Chipbreaker	Workpiece Material	feed fz (mm/t)	Recommended Insert Grade			
			MEGACOAT NANO			CVD
			PR1535	PR1525	PR1510	CA6535
GM	Carbon Steel	0.1~**0.2**~0.3	-	★ 120~**180**~250	-	-
	Alloy Steel	0.1~**0.2**~0.3	-	★ 100~**160**~220	-	-
	Mold Steel	0.1~**0.15**~0.25	-	★ 80~**140**~180	-	-
	Austenitic Stainless Steel	0.1~**0.15**~0.2	-	☆ 100~**160**~200	-	-
	Martensitic Stainless Steel	0.1~**0.15**~0.2	☆ 150~**200**~250	-	-	-
	Precipitation Hardened Stainless Steel	0.1~**0.15**~0.2	★ 90~**120**~150	-	-	-
	Gray Cast Iron	0.1~**0.2**~0.3	-	-	★ 120~**180**~250	-
	Nodular Cast Iron	0.1~**0.15**~0.25	-	-	★ 100~**150**~200	-
	Ni-base high heat resistant alloy	0.1~**0.12**~0.15	☆ 20~**30**~50	-	-	★ 20~**30**~50
	Titanium Alloys	0.1~**0.12**~0.15		-	☆ 30~**50**~70	-
SM	Carbon Steel	0.06~**0.15**~0.2	-	☆ 120~**180**~250	-	-
	Alloy Steel	0.06~**0.15**~0.2	-	☆ 100~**160**~220	-	-
	Mold Steel	0.06~**0.12**~0.2	-	☆ 80~**140**~180	-	-
	Austenitic Stainless Steel	0.06~**0.12**~0.2	★ 100~**160**~200	-	-	-
	Martensitic Stainless Steel	0.06~**0.12**~0.2		-	-	★ 180~**240**~300
	Precipitation Hardened Stainless Steel	0.06~**0.12**~0.2	☆ 90~**120**~150	-	-	-
	Ni-base high heat resistant alloy	0.06~**0.1**~0.15	-	-	-	☆ 20~**30**~50
	Titanium Alloys	0.06~**0.1**~0.15	★ 40~**60**~80	-	-	-
GH	Carbon Steel	0.15~**0.3**~0.35	-	☆ 120~**180**~250	-	-
	Alloy Steel	0.15~**0.3**~0.35	-	☆ 100~**160**~220	-	-
	Mold Steel	0.15~**0.2**~0.3	-	☆ 80~**140**~180	-	-
	Gray Cast Iron	0.15~**0.3**~0.35	-	-	☆ 120~**180**~250	-
	Nodular Cast Iron	0.15~**0.2**~0.3	-	-	☆ 100~**150**~200	-

* The figure in bold font is center value of the recommended cutting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.

★:1st recommendation ☆:2nd recommendation

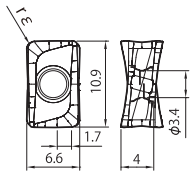
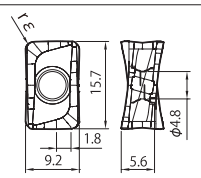
* Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy.
* Recommended feed rate is the reference value when ap is rε/2 (3mm for ROMU12, 4mm for ROMU16).
For lower feed rate than the above conditions, the conversion factor in the following table is recommended.

New Generation End mill with Double Sided 4-edged Inserts

MEW

1.Kyocera's unique mold technology reduces cutting forces equivalent to positive inserts
2.Economical 4-edge Insert
3.Improved Toolholder Durability and Insert Installation Accuracy

Applicable Inserts

Insert		Description	corner-R (rε)	MEGACOAT NANO (NEW)			CVD (NEW)
				PR1535	PR1525	PR1510	CA6535
General Purpose		LOMU 100404ER-GM	0.4	●	●	●	●
		100408ER-GM	0.8	●	●	●	●
		100412ER-GM	1.2	●	●	●	●
Low Cutting Force		LOMU 100408ER-SM	0.8	●	●	●	●
General Purpose		LOMU 150504ER-GM	0.4	●	●	●	●
		150508ER-GM	0.8	●	●	●	●
		150512ER-GM	1.2	●	●	●	●
Low Cutting Force		LOMU 150508ER-SM	0.8	●	●	●	●

●:Std. Item

Recommended Cutting Conditions

Chipbreaker	Workpiece Material	feed fz (mm/t)		Recommended Insert Grade (Cutting Speed Vc: m/min)			
		Toolholder Descriptions		MEGACOAT NANO			CVD
		MEW16~MEW18	MEW20~MEW50 MEW032R~MEW080R	PR1535	PR1525	PR1510	CA6535
GM	Carbon Steel	0.06~ ~0.2	0.08~**0.15**~0.25	-	★ 120~**180**~250	-	-
	Alloy Steel	0.06~**0.1**~0.14	0.08~**0.15**~0.2	-	★ 100~**160**~220	-	-
	Mold Steel	0.06~**0.08**~0.12	0.08~**0.12**~0.2	-	★ 80~**140**~180	-	-
	Austenitic Stainless Steel	0.06~**0.08**~0.12	0.08~**0.12**~0.15	☆ 100~**160**~200	☆ 100~**160**~200	-	-
	Martensitic Stainless Steel	0.06~**0.08**~0.12	0.08~**0.12**~0.2	☆ 150~**200**~250	-	-	★ 180~**240**~300
	Precipitation Hardened Stainless Steel	0.06~**0.08**~0.12	0.08~**0.12**~0.2	★ 90~**120**~150	-	-	-
	Gray Cast Iron	0.06~**0.1**~0.17	0.08~**0.18**~0.25	-	-	★ 120~**180**~250	-
	Nodular Cast Iron	0.06~**0.08**~0.12	0.08~**0.15**~0.2	-	-	★ 100~**150**~200	-
	Ni-base high heat resistant alloy	0.06~**0.08**~0.12	0.08~**0.12**~0.15	☆ 20~**30**~50	-	-	★ 20~**30**~50
	Titanium Alloys	0.06~**0.08**~0.12	0.08~**0.15**~0.2	☆ 40~**60**~80	-	☆ 30~**50**~70	-
SM	Carbon Steel	0.06~**0.1**~0.17	0.08~**0.15**~0.2	-	★ 120~**180**~250	-	-
	Alloy Steel	0.06~**0.08**~0.12	0.08~**0.12**~0.18	-	★ 100~**160**~220	-	-
	Mold Steel	0.06~**0.08**~0.12	0.08~**0.1**~0.15	-	★ 80~**140**~180	-	-
	Austenitic Stainless Steel	0.06~**0.08**~0.12	0.08~**0.1**~0.15	★ 100~**160**~200	☆ 100~**160**~200	-	-
	Martensitic Stainless Steel	0.06~**0.08**~0.12	0.08~**0.1**~0.15	☆ 150~**200**~250	-	-	★ 180~**240**~300
	Precipitation Hardened Stainless Steel	0.06~**0.08**~0.12	0.08~**0.1**~0.15	☆ 90~**120**~150	-	-	-
	Ni-base high heat resistant alloy	0.06~**0.08**~0.1	0.08~**0.1**~0.12	☆ 20~**30**~50	-	-	★ 20~**30**~50
	Titanium Alloys	0.06~**0.08**~0.12	0.08~**0.12**~0.18	★ 40~**60**~80	-	☆ 30~**50**~70	-

* The figure in bold font is center value of the recommended cutting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.

★:1st recommendation ☆:2nd recommendation

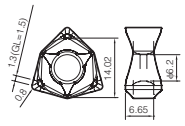
* Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy.

Lower Cutting Force 90°Cutter with Double Sided 6-edge Insert

MFWN

1.Economical 6-edge insert and strong thick edge
2.Lower Cutting Forces with Less Chattering
3.Available for left-hand toolholder (custom order) by neutral type insert

Applicable Inserts

shape		Description	MEGACOAT NANO (NEW)			CVD (NEW)
			PR1535	PR1525	PR1510	CA6535
General Purpose		WNMU 080608EN-GM	●	●	●	●
Low Cutting Force		WNMU 080608EN-SM	●	●	●	●
Surface-Finish Oriented (High precision)		WNEU 080608EN-GL	●	●	●	●

●:Std. Item

Recommended Cutting Conditions

Chipbreaker	Workpiece Material	feed fz (mm/t)	Recommended Insert Grade (Cutting Speed Vc: m/min)			
			MEGACOAT NANO			CVD
			PR1535	PR1525	PR1510	CA6535
GM	Carbon Steel	0.1~**0.2**~0.3	-	★ 120~**180**~250	-	-
	Alloy Steel	0.1~**0.2**~0.3	-	★ 100~**160**~220	-	-
	Mold Steel	0.1~**0.15**~0.25	-	★ 80~**140**~180	-	-
	Austenitic Stainless Steel	0.1~**0.15**~0.25	☆ 100~**150**~200	-	-	-
	Martensitic Stainless Steel	0.1~**0.15**~0.25	-	-	-	☆ 180~**240**~300
	Precipitation Hardened Stainless Steel	0.1~**0.15**~0.25	★ 90~**120**~150	-	-	-
	Gray Cast Iron	0.1~**0.2**~0.3	-	-	★ 120~**180**~250	-
	Nodular Cast Iron	0.1~**0.15**~0.25	-	-	★ 100~**150**~200	-
	Ni-base high heat resistant alloy	0.1~**0.12**~0.2	-	-	-	★ 20~**30**~50
SM	Carbon Steel	0.06~**0.12**~0.2	-	☆ 120~**180**~250	-	-
	Alloy Steel	0.06~0.12~0.2	-	☆ 100~**160**~220	-	-
	Mold Steel	0.06~**0.08**~0.15	-	☆ 80~**140**~180	-	-
	Austenitic Stainless Steel	0.06~**0.12**~0.2	★ 100~**150**~200		-	-
	Martensitic Stainless Steel	0.06~**0.12**~0.2		-	-	★ 180~**240**~300
	Precipitation Hardened Stainless Steel	0.06~**0.12**~0.2	☆ 90~**120**~150	-	-	-
	Gray Cast Iron	0.06~**0.12**~0.2	-	-	120~**180**~250	-
	Nodular Cast Iron	0.06~**0.08**~0.15	-	-	100~**150**~200	-
	Ni-base high heat resistant alloy	0.06~**0.1**~0.15	-	-	-	☆ 20~**30**~50
	Titanium Alloys	0.06~**0.08**~0.15	★ 40~**60**~80	-	-	-
GL	Carbon Steel	0.06~**0.12**~0.2	-	120~**180**~250	-	-
	Alloy Steel	0.06~**0.12**~0.2	-	100~**160**~220	-	-
	Mold Steel	0.06~**0.08**~0.15	-	80~**140**~180	-	-
	Austenitic Stainless Steel	0.06~**0.12**~0.2	100~**150**~200	-	-	-
	Martensitic Stainless Steel	0.06~**0.12**~0.2		-	-	180~**240**~300
	Precipitation Hardened Stainless Steel	0.06~**0.12**~0.2	90~**120**~150	-	-	-
	Gray Cast Iron	0.06~**0.12**~0.2	-	-	120~**180**~250	-
	Nodular Cast Iron	0.06~**0.08**~0.15	-	-	100~**150**~200	-
	Ni-base high heat resistant alloy	0.06~**0.1**~0.15	-	-	-	20~**30**~50
	Titanium Alloys	0.06~**0.08**~0.15	40~**60**~80	-	-	-

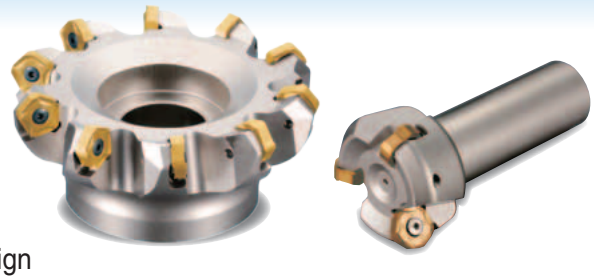
* The figure in bold font is center value of the recommended cutting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.

★:1st recommendation ☆:2nd recommendation

* Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy.

High Efficiency Face Mill

MFPN



1.Roughing and general-purpose face mill with 10-edge pentagonal inserts
2.Lower cutting forces due to the helical cutting-edge design
3.Fractures are suppressed by double-edge structure

Applicable Inserts

shape		Description	Dimension(mm)					MEGACOAT NANO (NEW)			MEGACOAT		CVD (NEW)
			A	T	ød	X	Z	PR1535	PR1525	PR1510	PR1225	PR1210	CA6535
General Purpose		PNMU 1205ANER-GM	17.88	5.56	6.2	2.0	2.0	●	●	●	●	●	●
Low Cutting Force		PNMU 1205ANER-SM						●	●	●	●	●	●
High precision (For finishing)		PNEU 1205ANER-GL	17.51	5.56		2.7	2.7	●	●	●	●	●	●

●:Std. Item

Recommended Cutting Conditions

Chipbreaker	Workpiece Material	feed fz (mm/t)	Recommended Insert Grade (Cutting Speed Vc: m/min)			
			MEGACOAT NANO			CVD
			PR1535	PR1525	PR1510	CA6535
GM	Carbon Steel	0.1~**0.2**~0.4	-	★ 120~**180**~250	-	-
	Alloy Steel	0.1~**0.2**~0.4	-	★ 100~**160**~220	-	-
	Mold Steel	0.1~**0.2**~0.35	-	★ 80~**140**~180	-	-
	Austenitic Stainless Steel	0.1~**0.2**~0.4	☆ 100~**150**~200	-	-	-
	Martensitic Stainless Steel	0.1~**0.2**~0.4	-	-	-	☆ 180~**240**~300
	Precipitation Hardened Stainless Steel	0.1~**0.2**~0.3	★ 90~**120**~150	-	-	-
	Gray Cast Iron	0.1~**0.2**~0.4	-	-	★ 120~**180**~250	-
	Nodular Cast Iron	0.1~**0.2**~0.35	-	-	★ 100~**150**~200	-
	Ni-base high heat resistant alloy	0.1~**0.12**~0.2	-	-	-	★ 20~**30**~50
SM	Carbon Steel	0.06~**0.12**~0.25	-	☆ 120~**180**~250	-	-
	Alloy Steel	0.06~**0.12**~0.25	-	☆ 100~**160**~220	-	-
	Mold Steel	0.06~**0.1**~0.2	-	☆ 80~**140**~180	-	-
	Austenitic Stainless Steel	0.06~**0.12**~0.25	★ 100~**150**~200		-	-
	Martensitic Stainless Steel	0.06~**0.12**~0.25		-	-	★ 180~**240**~300
	Precipitation Hardened Stainless Steel	0.06~**0.12**~0.25	☆ 90~**120**~150	-	-	-
	Gray Cast Iron	0.06~**0.12**~0.25	-	-	120~**180**~250	-
	Nodular Cast Iron	0.06~**0.1**~0.2	-	-	100~**150**~200	-
	Ni-base high heat resistant alloy	0.06~**0.1**~0.15	-	-	-	☆ 20~**30**~50
	Titanium Alloys	0.06~**0.08**~0.15	★ 40~**60**~80	-	-	-
GL	Carbon Steel	0.06~**0.12**~0.25	-	120~**180**~250	-	-
	Alloy Steel	0.06~**0.12**~0.25	-	100~**160**~220	-	-
	Mold Steel	0.06~**0.1**~0.2	-	80~**140**~180	-	-
	Austenitic Stainless Steel	0.06~**0.12**~0.25	100~**150**~200	-	-	-
	Martensitic Stainless Steel	0.06~**0.12**~0.25		-	-	180~**240**~300
	Precipitation Hardened Stainless Steel	0.06~**0.12**~0.25	90~**120**~150	-	-	-
	Gray Cast Iron	0.06~**0.12**~0.25	-	-	120~**180**~250	-
	Nodular Cast Iron	0.06~**0.1**~0.2	-	-	100~**150**~200	-
	Ni-base high heat resistant alloy	0.06~**0.1**~0.15	-	-	-	20~**30**~50
	Titanium Alloys	0.06~**0.08**~0.15	40~**60**~80	-	-	-

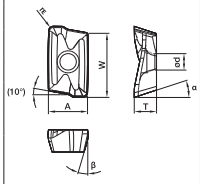
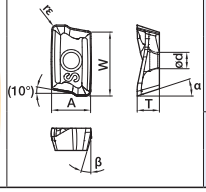
* The figure in bold font is center value of the recommended cutting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.
★:1st recommendation ☆:2nd recommendation
* Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy.

High Efficiency End mill

MEC

1.Lower cutting forces and sharp cutting performance
2.Perfect 90°shoulders, with smooth surface of shoulder wall
3.An extensive grade lineup applicable to a wide range of workpiece materials such as steel, stainless steel, cast iron and aluminum

Applicable Inserts

shape		Description		Dimension(mm)					Angle(°)		MEGACOAT NANO (NEW)	MEGACOAT			CVD (NEW)
				A	T	ød	W	rε	α	β	PR1535	PR1225	PR1210		CA6535
		BDMT	11T302ER-JT	6.7	3.8	2.8	11.0	0.2	18	13	•	•	•		•
			11T304ER-JT					0.4			•	•	•		•
			11T308ER-JT					0.8			•	•	•		•
			11T312ER-JT					1.2			•	•	•		•
			11T316ER-JT					1.6			•	•	•		•
			11T320ER-JT					2.0			•	•	•		•
			11T324ER-JT					2.4			•	•	•		•
			11T331ER-JT					3.1			•	•	•		•
		BDMT	170404ER-JT	9.6	4.9	4.4	17.0	0.4	18	13	•	•	•		•
			170408ER-JT					0.8			•	•	•		•
			170412ER-JT					1.2			•	•	•		•
			170416ER-JT					1.6			•	•	•		•
			170420ER-JT					2.0			•	•	•		•
			170424ER-JT					2.4			•	•	•		•
			170431ER-JT					3.1			•	•	•		•
			170440ER-JT					4.0			•	•	•		•
		BDMT	11T302ER-JS	6.7	3.8	2.8	11.0	0.2	18	13	•	•			•
			11T304ER-JS					0.4			•	•			•
			11T308ER-JS					0.8			•	•			•
		BDMT	170404ER-JS	9.6	4.9	4.4	17.0	0.4	18	13	•	•			•
			170408ER-JS					0.8			•	•			•

●:Std. Item

Recommended Cutting Conditions

Chipbreaker	Workpiece Material	feed fz (mm/t)		Recommended Insert Grade (Cutting Speed Vc: m/min)			
		Toolholder Descriptions		MEGACOAT NANO	MEGACOAT		CVD
		MEC10~MEC19	MEC20~MEC40 MEC040R~MEC160R	PR1535	PR1225	PR1210	CA6535
JT	Carbon Steel	0.06~**0.1**~0.15	0.08~**0.15**~0.25	-	★ 120~**180**~250	-	-
	Alloy Steel	0.06~**0.1**~0.12	0.08~**0.15**~0.2	-	★ 100~**160**~220	-	-
	Mold Steel	0.06~**0.08**~0.1	0.08~**0.12**~0.2	-	★ 80~**140**~180	-	-
	Austenitic Stainless Steel	0.06~**0.08**~0.1	0.08~**0.12**~0.15	☆ 100~**160**~200	☆ 100~**160**~200	-	-
	Martensitic Stainless Steel	0.06~**0.08**~0.1	0.08~**0.12**~0.2	☆ 150~**200**~250	-	-	★ 180~**240**~300
	Precipitation Hardened Stainless Steel	0.06~**0.08**~0.1	0.08~**0.12**~0.2	★ 90~**120**~150	-	-	-
	Gray Cast Iron	0.06~**0.1**~0.15	0.08~**0.18**~0.25	-	-	★ 120~**180**~250	-
	Nodular Cast Iron	0.06~**0.08**~0.1	0.08~**0.15**~0.2	-	-	★ 100~**150**~200	-
	Ni-base high heat resistant alloy	0.06~**0.08**~0.1	0.08~**0.12**~0.15	☆ 20~**30**~50	-	-	★ 20~**30**~50
	Titanium Alloys	0.06~**0.08**~0.1	0.08~**0.15**~0.2	☆ 40~**60**~80	-	☆ 30~**50**~70	-
JS	Carbon Steel	0.06~**0.1**~0.12	0.08~**0.15**~0.18	-	★ 120~**180**~250	-	-
	Alloy Steel	0.06~**0.08**~0.1	0.08~**0.12**~0.15	-	★ 100~**160**~220	-	-
	Mold Steel	0.06~**0.08**~0.1	0.08~**0.1**~0.12	-	★ 80~**140**~180	-	-
	Austenitic Stainless Steel	0.06~**0.08**~0.1	0.08~**0.1**~0.12	★ 100~**160**~200	☆ 100~**160**~200	-	-
	Martensitic Stainless Steel	0.06~**0.08**~0.1	0.08~**0.1**~0.12	☆ 150~**200**~250	-	-	★ 180~**240**~300
	Precipitation Hardened Stainless Steel	0.06~**0.08**~0.1	0.08~**0.1**~0.12	☆ 90~**120**~150	-	-	-
	Ni-base high heat resistant alloy	0.06~**0.08**~0.1	0.08~**0.1**~0.12	☆ 20~**30**~50	-	-	★ 20~**30**~50
	Titanium Alloys	0.06~**0.08**~0.1	0.08~**0.1**~0.12	★ 40~**60**~80	-	-	-

* The figure in bold font is center value of the recommended cutting conditions. Adjust the cutting speed and the feed rate within the above conditions according to the actual machining situation.

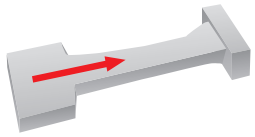
★:1st recommendation ☆:2nd recommendation

* Machining with coolant is recommended for Ni-base Heat Resistant Alloy and Titanium Alloy.

MRW Case Studies

12Cr Steel

- Turbine Blade
- Vc=270m/min
- fz=0.278mm/t
- ap=0.5~1.0mm ae=max35mm
- Dry
- MRW050R-12-6T-M (6 inserts)
- ROMU1204M0ER-SM(CA6535)



1.2 times the machining efficiency
Economical double faced insert

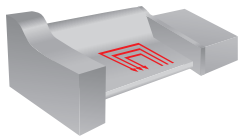
CA6535	Stable machining
Competitor A (Positive cutter)	Unstable machining with large noise

MRW improved machining efficiency 1.2 times with same tool life compared to Competitor A.
MRW has cost advantage due to double sided inserts.

User Evaluation

12Cr Steel

- Turbine Blade
- Vc=250m/min
- fz=0.16mm/t
- ap=2.0mm ae=5~30mm
- Wet
- MRW050R-12-5T-M (5 inserts)
- ROMU1204M0ER-SM(CA6535)



Same or longer tool life
Economical by double face insert

CA6535	Stable, available for further machining
Competitor B (Positive cutter)	Unstable machining with large noise

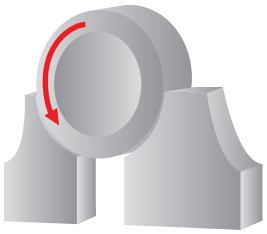
MRW showed less damage on the cutting edge and reduced cutting noise.
MRW has equal or longer tool life and cost advantage due to double sided inserts.

User Evaluation

MFWN Case Studies

SUS316L

- Energy Plant Part
- Vc=150m/min
- fz=0.15mm/t
- ap=3~5mm
- Wet
- MFWN90160R-8T (8 inserts)
- WNMU080608EN-GM(PR1535)



PR1535	1pcs/edge
Competitor C (negative cutter)	1pcs/edge

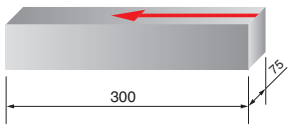
MFWN improved cutting edge condition and surface finish compared to Competitor C.

User Evaluation

MFPN Case Studies

Ti-6Al-4V

- Chemical Plant Part
- Vc=26m/min
- fz=0.46mm/t
- ap=3.0mm
- Wet
- MFPN45160R-8T (8 inserts)
- PNMU1205ANER-SM(PR1535)



Economical hexagonal double face insert

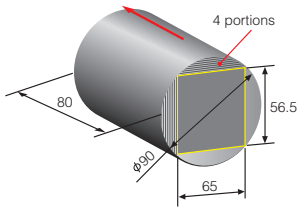
PR1535	4pcs/edge
Competitor D (positive cutter)	4pcs/edge

MFPN processed the same number of output as Competitor D. Edge condition was still possible to extend tool life.
MFPN has cost advantage due to 10-edge use compared with Competitor D (4-edge).

User Evaluation

Ni-base high heat resistant alloy

- Airplane Part
- Vc=50m/min
- fz=0.125mm/t
- ap=2mm
- Wet
- MFPN45100R-8T (8 inserts)
- PNMU1205ANER-GM(CA6535)



CA6535	3.5portions/edge
Competitor E (Positive cutter)	2.5portions/edge

MFPN achieved 1.4 times longer tool life compared with Competitor E.
Stable machining.

User Evaluation

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