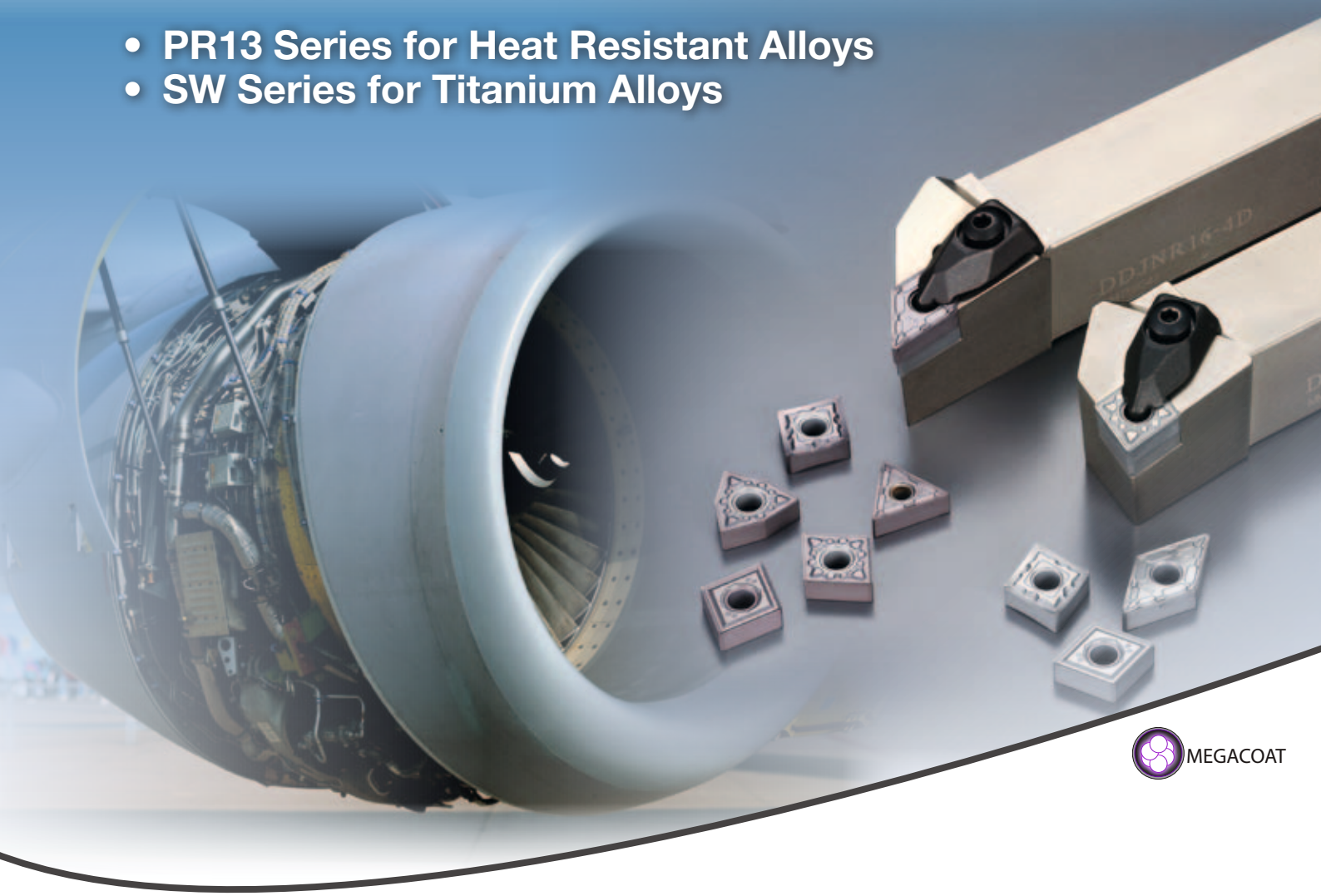
THE NEW VALUE FRONTIER

KYOCERA

PR13/SW SERIES

New Carbide Grades for difficult-to-cut-materials

- PR13 Series for Heat Resistant Alloys
- SW Series for Titanium Alloys



MEGACOAT

Nouveau grade de carbure pour les matériaux difficiles à usiner

- PR 13 séries pour les alliages réfractaires.
- SW séries pour les alliages de titane.

Nuovi gradi di metallo duro per materiali difficili da tagliare

- Serie PR13 per leghe resistenti alle alte temperature.
- Serie SW per leghe di titanio.

Nuevos grados de carburo para materiales difíciles de mecanizar

- Series PR13 para Aleaciones de Alta Resistencia.
- Series SW para Aleaciones de Titanio.

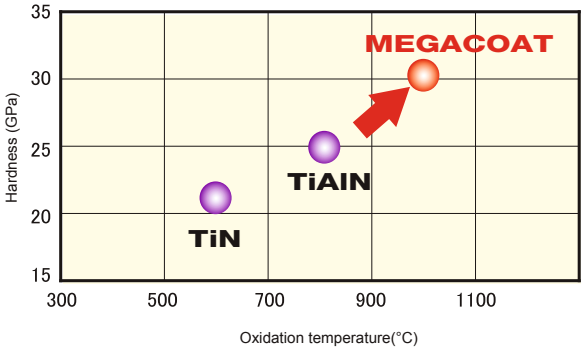
TZZ00035

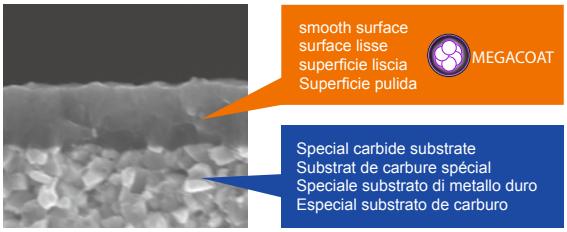
ADVANCING PRODUCTIVITY

PR13$^{05/10/25}$

For Heat Resistant Alloy
Pour en alliage résistant à la chaleur
Per la lega resistente al calore
De aleación resistente al calor

Long tool life by MEGACOAT
Longue durée de vie grâce au MEGACOAT
Lunga vita utensile grazie al MEGACOAT
Larga vida de herramienta con MEGACOAT

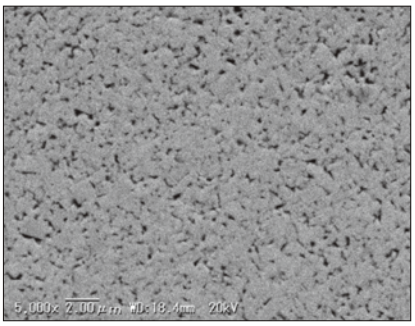




Excellent wear resistance and heat resistance
Excellente résistance à l'usure et à la chaleur
Ottima resistenza all'usura e alle alte temperature
Excelente Resistencia al desgaste y a la temperatura

MEGACOAT, with high hardness and oxidation resistance, realizes stable machining at high speed.
MEGACOAT, avec une dureté élevée et une résistance à l'oxydation, l'usinage est stable à haute vitesse.
MEGACOAT, grazie all'elevata durezza e resistenza all'ossidazione, consente una lavorazione stabile a velocità elevate.
MEGACOAT, con gran dureza y Resistencia a la oxidación, proporciona un mecanizado estable a alta velocidad.

Special carbide substrate
Substrat de carbure spécial
Speciale substrato di metallo duro
Especial substrato de carburo

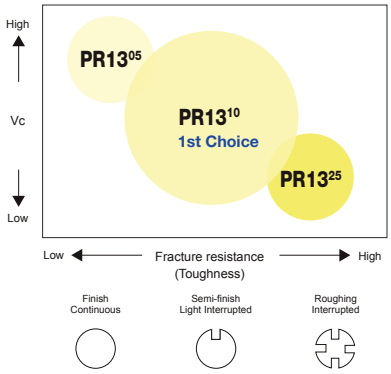


Superior heat shock resistance and high hardness stability by uniform grain.

Résistance aux chocs thermiques et haute stabilité de dureté grâce au grain uniforme.

Resistenza superiore agli shock termici ed elevata stabilità della durezza grazie alla grana uniforme.

Superior Resistencia térmica y estabilidad de la dureza por la uniformidad de su grano.

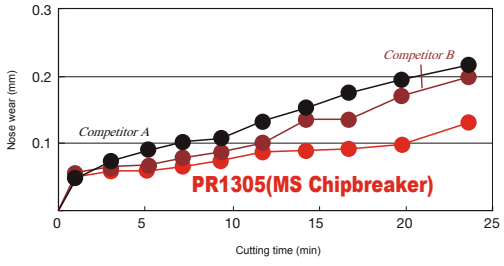


Excellent wear resistance
Excellente résistance à l'usure
Ottima resistenza all'usura
Excelente Resistencia al desgaste

Inconel 718

Internal evaluation

Condition：Vc=45m/min, ap=0.25mm, f=0.15mm/rev., wet,
Continuous (External), CNMG120408

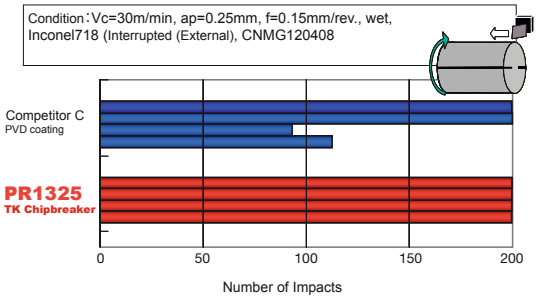


High fracture resistance
Haute résistance à la fracture
Elevata resistenza alla frattura
Alta Resistencia a la rotura

Inconel 718

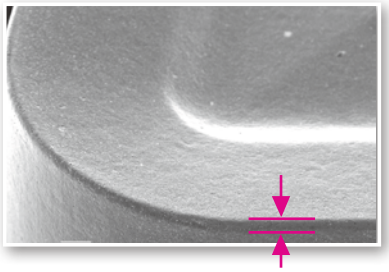
Internal evaluation

Condition：Vc=30m/min, ap=0.25mm, f=0.15mm/rev., wet,
Inconel718 (Interrupted (External), CNMG120408



New edge preparation (PR13 and SW series)
Nouvelle préparation d'arête (PR13 et SW séries)
Nuova preparazione del tagliente (serie PR13 e SW)
Nueva preparación de filos (Series PR13 y SW)

Low cutting force reduces chattering
Les faibles efforts de coupe réduisent les vibrations
La minore forza di taglio riduce le vibrazioni
El menor esfuerzo de corte reduce la craterización



Insert Grades	Application
PR13^{05}	Continuous / Finishing Continue / Finition Continua / Finitura Continuo / Acabado
PR13^{10}	**First recommendation** **Première recommandation** **Prima scelta** **Primera recomendación**
PR13^{25}	Interrupted / Roughing Interruption / Ebauche Con interruzioni / sgrossatura Interrumpido / Desbaste

Large rake angle and small radius honing controls prevents burr and notching and improves finished surface.
Grand angle de coupe et petit rayon (honing) empêche les bavures et encoches et améliore la surface finie.
L'ampio angolo di spoglia e i controlli di onatura a raggio ridotto prevengono la formazione di bava e l'usura da intaglio e migliorano la finitura superficiale.
Su mayor ángulo de desprendimiento y el pequeño radio en la arista previenen rebabas y muescas y mejoran el acabado superficial.

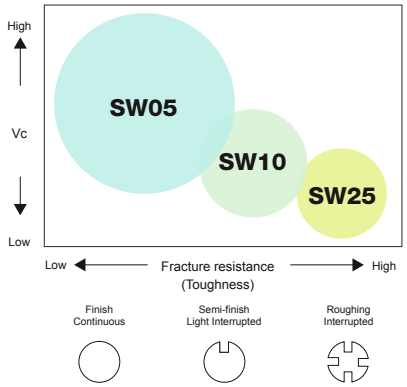
SW$^{05/10/25}$

For Titanium Alloy
Pour en alliage de titane
Per la lega in titanio
De aleación de titanio

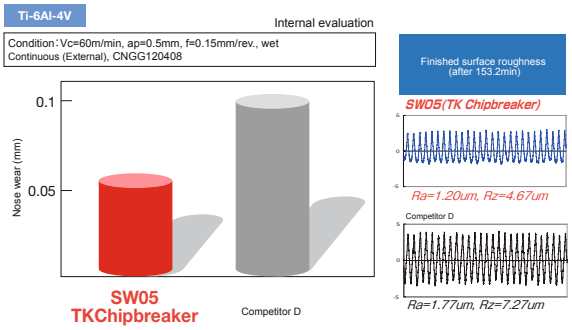
Good wear resistance and long tool life
Bonne résistance à l'usure et longue durée de vie
Buona resistenza all'usura e lunga vita utile dell'utensile
Buena Resistencia al desgaste y vida de la herramienta

Insert Grades	Application
SW05	**First recommendation** **Première recommandation** Continua / Finitura **Primera recomendación**
SW10	Tough cutting edge Arête de coupe robuste Tagliente robusto Arista de corte tenaz
SW25	Interrupted / Roughing Interruption / Ebauche Con interruzioni / sgrossatura Interrumpido/Desbaste

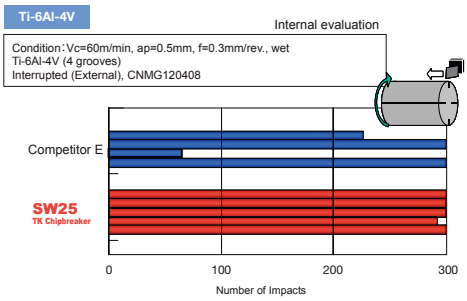
※SW10 and SW25 are available as custom order product.



High wear resistance
Haute résistance à l'usure
Elevata resistenza all'usura
Alta Resistencia al desgaste

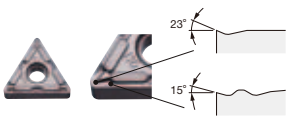


Improved fracture resistance
Améliore la résistance à la fracture
Migliore resistenza alla frattura
Resistencia a la rotura mejorada



Chipbreaker
Rompitruciolo
Brise-copeaux
Rompevirutas

MQ Chipbreaker



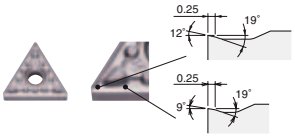
- From finishing to Medium
- Large rake angle, Circular edge line
- Low cutting force and good chip control

- De la finition à moyenne
- Grand angle de coupe ligne de l'arête circulaire
- Faible effort de coupe et bon contrôle copeaux

- Dalla finitura alla media asportazione
- Ampio angolo di spoglia, tagliente a linea circolare
- Forza di taglio ridotta e buon controllo del truciolo

- De Acabado a Medio
- Gran ángulo de desprendimiento, filo de corte redondeado
- Baja fuerza de corte y buen control de viruta

MS Chipbreaker



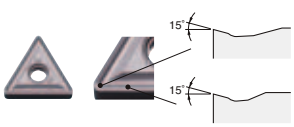
- 1st choice
- From medium to roughing
- Positive land
- Tough cutting edge
- Good chip control

- Premier choix
- De la moyenne à l'ébauche
- Positif
- Arête de coupe robuste
- Bon contrôle copeaux

- 1a scelta
- Dalla media asportazione alla sgrossatura
- Spessore positivo
- Tagliente robusto
- Buon controllo del truciolo

- Primera elección
- De medio a desbaste
- Faceta positiva
- Aristas de corte tenaces
- Buen control de viruta

MU Chipbreaker



- From medium to roughing
- Large rake angle, low cutting resistance
- Reduces notching and burrs
- Sharp edge

※Higher edge strength than MS chipbreaker at large ap.

- De la moyenne à l'ébauche
- Grand angle de coupe, faible effort de coupe
- Réduit les bavures et les encochess
- Arête tranchante

※Meilleure coupe avec le brise copeaux MS et un grand ap

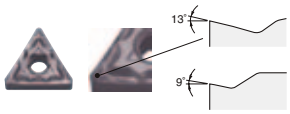
- Dalla media asportazione alla sgrossatura
- Ampio angolo di spoglia, resistenza al taglio ridotta
- Riduce la formazione di bava e l'usura da intaglio
- Tagliente vivo

※Maggiore forza del tagliente rispetto al rompitruciolo MS per ap grande

- De medio a desbaste
- Amplio angulo de desprendimiento, poca Resistencia de corte
- Reduce muescas y rebabas
- Filo reforzado

※Mayor Resistencia del filo que el rompevirutas MS a mayors ap.

TK Chipbreaker



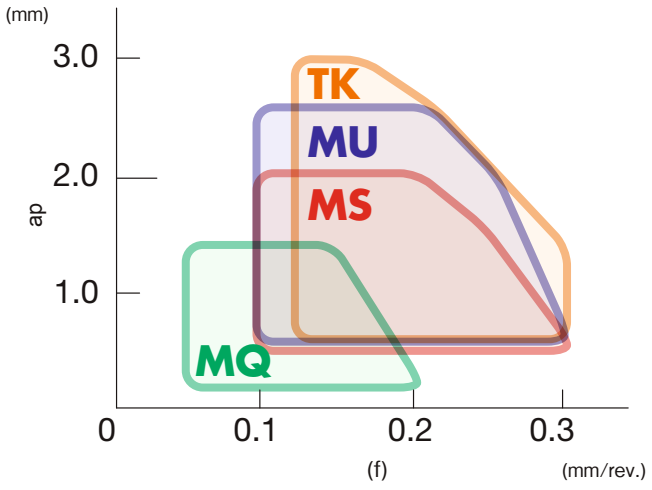
- From medium to roughing
- Chip evacuation
- Large curled chip

- De la moyenne à l'ébauche
- Evacuation copeaux
- Copeaux large enroulé

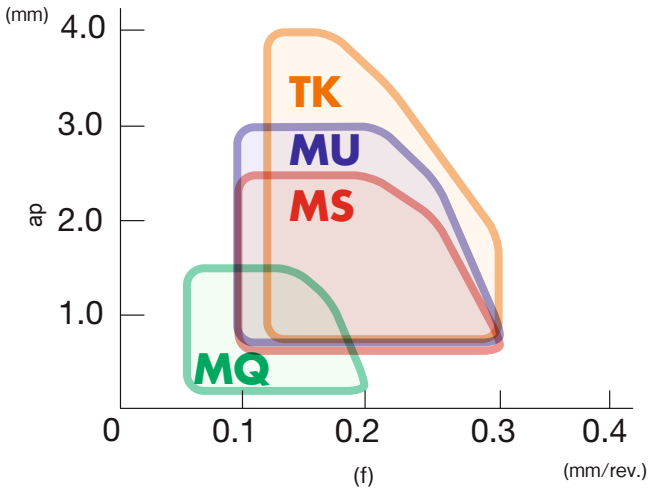
- Dalla media asportazione alla sgrossatura
- Evacuazione truciolo
- Truciolo grande arricciato

- De medio a desbaste
- Evacuación de viruta
- Virutas más rizadas

PR13 for Heat Resistant Alloy
PR13 pour en alliage résistant à la chaleur
PR13 per la lega resistente al calore
PR13 de aleación resistente al calor



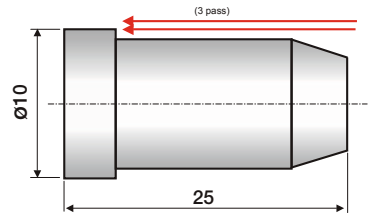
SW for Titanium Alloy
SW pour en alliage de titane
SW per la lega in titanio
SW de aleación de titanio



Case Studies
Casi di studio
Études de cas
Estudios de caso

Inconel 625

- Aircraft Parts
- Vc= 40m/min
- ap= 1.59 mm
- f = 0.15mm/rev
- WET
CNMG120408MS
(PR1310)



PR1310	8 pcs/edge
Competitor Coating L	4-5 pcs/edge

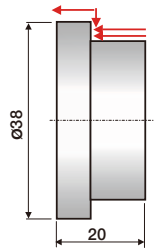
Increased tool life !

·Kyocera showed 1.6 to 2 times longer tool life than Competitor L.

Evaluation by the user

Inconel 718

- Connector
- Vc= 53m/min
- ap= 2.0 mm
- f = 0.2mm/rev
- WET
CNMG120408MS
(PR1310)



PR1310	7 pcs/edge
Competitor Coating I	3 pcs/edge

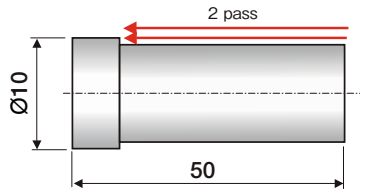
Doubled tool life

·Kyocera showed 2 times longer tool life than Competitor I.

Evaluation by the user

Inconel 718

- Square bar
- Vc= 20m/min
- ap= 1.25 mm
- f= 0.24mm/rev
- WET
- CNMG120408MS
(PR1325)



PR1325	25 pcs/edge
Competitor Coating M	6 pcs/ edge

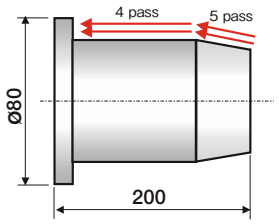
4x tool life !

·Kyocera showed 4 times longer tool life than Competitor M.

Evaluation by the user

1.4404

- Nozzle (Aircraft part)
- Vc= 90m/min
- ap= 1.25 mm~2 mm)
- f=0.125mm/rev
- WET
- CNMG120408MU
(PR1310)



PR1310	more than 5 pcs/edge
Competitor Coating J	1 pc/edge

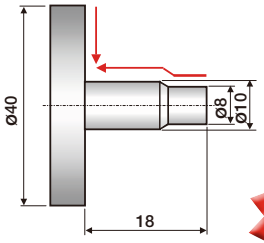
5x tool life !

·Kyocera showed 5 times longer tool life than Competitor J.

Evaluation by the user

Inconel713

- Stator
- Vc= 40m/min
- ap= 0.5 mm
- f= 0.2mm/rev
- WET
- WNMG080408MU
(PR1310)



PR1310	30-40 pcs/edge
Competitor Coating G	15-20 pcs/edge

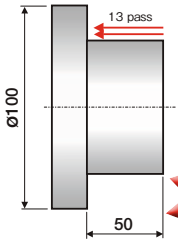
Doubled tool life

·Kyocera showed 2 times longer tool life than Competitor G.

Evaluation by the user

Incoloy A286

- Shoulder bush
- Vc= 70m/min
- ap= 1.5 mm
- f= 0.18mm/rev
- WET
- CNMG120408MS
(PR1310)

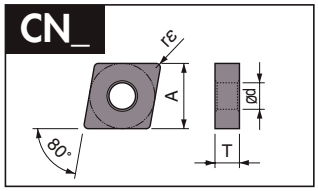


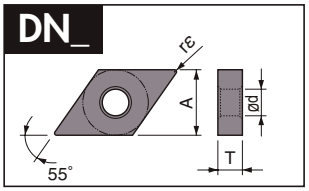
PR1310	3 pcs/edge Vc=70m/min
Competitor Coating H	2 pcs/edge Vc = 55m/min
Competitor cutting conditions Vc=55m/min	·Kyocera processed 1.5 times as many workpieces compared to Competitor H. ·Cutting speed increased 127%. Productivity improved.

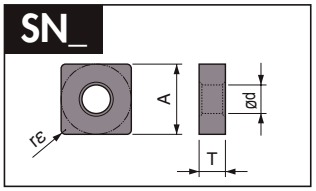
Improved Productivity !

Evaluation by the user

Negative Type Insert



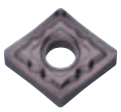
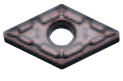


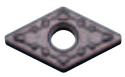
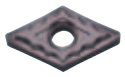


(mm)

Description	A	T	ød
CN_1204_	12.70	4.76	5.16
CN_1606_	15.875	6.35	6.35
CN_1906_	19.05		7.94
DN_1504_	12.70	4.76	5.16
DN_1506_		6.35	
SN_1204_	12.70	4.76	
SN_1906_	19.05	6.35	7.94

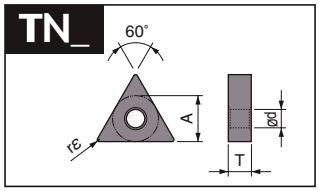
● Negative Inserts

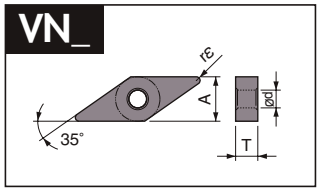
Shape	Description		(mm) Dimension	MEGACOAT Carbide			Carbide		
			rε	PR1305	PR1310	PR1325	SW05	SW10	SW25
Finishing-Medium	**CNMG**	**120404MQ**	0.4	●	●	●	●	Available as custom order product	Available as custom order product
		120408MQ	0.8	●	●	●	●		
Medium-Roughing	**CNMG**	**120404MS**	0.4	●	●	●	●		
		120408MS	0.8	●	●	●	●		
		120412MS	1.2	●	●	●	●		
		120416MS	1.6	●	●	●			
Medium-Roughing	**CNMG**	**120404MU**	0.4	●	●	●	●		
		120408MU	0.8	●	●	●	●		
	CNMG	**160608MU**	0.8		●	●			
		160612MU	1.2		●	●			
		160616MU	1.6		●	●			
	CNMG	**190612MU**	1.2		●	●			
		190616MU	1.6		●	●			
 Medium-Roughing	**CNMG**	**120404TK**	0.4	●	●	●			
		120408TK	0.8	●	●	●			
Medium-Roughing / Sharp Edge	**CNGG**	**120404TK**	0.4	●	●		●		
		120408TK	0.8	●	●		●		
 Finishing	**DNMG**	**150404MQ**	0.4	●	●	●	●		
		150408MQ	0.8	●	●	●	●		
	DNMG	**150604MQ**	0.4	●	●	●	●		
		150608MQ	0.8	●	●	●	●		

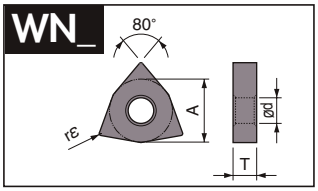
Shape	Description		(mm) Dimension	MEGACOAT Carbide			Carbide		
			rε	PR1305	PR1310	PR1325	SW05	SW10	SW25
 Medium-Roughing	**DNMG**	**150404MS**	0.4	●	●	●	●	Available as custom order product	Available as custom order product
		150408MS	0.8	●	●	●	●		
		150412MS	1.2	●	●	●	●		
	DNMG	**150604MS**	0.4	●	●	●			
		150608MS	0.8	●	●	●			
		150612MS	1.2	●	●	●			
Medium-Roughing	**DNMG**	**150404MU**	0.4	●	●	●	●		
		150408MU	0.8	●	●	●	●		
	DNMG	**150604MU**	0.4	●	●	●	●		
		150608MU	0.8	●	●	●	●		
 Medium-Roughing	**DNMG**	**150404TK**	0.4	●	●	●			
		150408TK	0.8	●	●	●			
	DNMG	**150604TK**	0.4	●	●	●			
		150608TK	0.8	●	●	●			
Medium-Roughing / Sharp Edge	**DNGG**	**150404TK**	0.4	●	●		●		
		150408TK	0.8	●	●		●		
	DNGG	**150604TK**	0.4	●	●		●		
		150608TK	0.8	●	●		●		
Finishing-Medium	**SNMG**	**120404MQ**	0.4	●	●	●	●		
		120408MQ	0.8	●	●	●	●		
Medium-Roughing	**SNMG**	**120404MS**	0.4	●	●	●	●		
		120408MS	0.8	●	●	●	●		
		120412MS	1.2	●	●	●	●		
		120416MS	1.6	●	●	●			
Medium-Roughing	**SNMG**	**190612MU**	1.2		●	●			
		190616MU	1.6		●	●			

●:Standard Item

Negative Type Insert



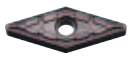




(mm)

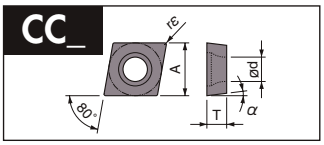
Description	A	T	ød
TN_1604_	9.525	4.76	3.81
VN_1604_			
WN_0804_	12.70		5.16

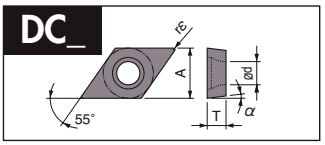
● Negative Inserts

Shape	Description		(mm) Dimension	MEGACOAT Carbide			Carbide		
			rε	PR1305	PR1310	PR1325	SW05	SW10	SW25
Finishing-Medium	TNMG	160404MQ	0.4	●	●	●	●	Available as custom order product	Available as custom order product
		160408MQ	0.8	●	●	●	●		
Medium-Roughing	TNMG	160404MS	0.4	●	●	●	●		
		160408MS	0.8	●	●	●	●		
		160412MS	1.2	●	●	●	●		
Medium-Roughing	TNMG	160404MU	0.4	●	●	●	●		
		160408MU	0.8	●	●	●	●		
Medium-Roughing / Sharp Edge	TNGG	160404TK	0.4	●	●		●		
		160408TK	0.8	●	●		●		
 Finishing	VNMG	160404MQ	0.4	●	●	●	●		
		160408MQ	0.8	●	●	●	●		
Medium-Roughing	VNMG	160404MS	0.4	●	●	●	●		
		160408MS	0.8	●	●	●	●		
		160412MS	1.2	●	●	●			
Medium-Roughing	VNMG	160404MU	0.4	●	●	●	●		
		160408MU	0.8	●	●	●	●		
Finishing-Medium	WNMG	080404MQ	0.4	●	●	●	●		
		080408MQ	0.8	●	●	●	●		
Medium-Roughing	WNMG	080404MS	0.4	●	●	●	●		
		080408MS	0.8	●	●	●	●		
		080412MS	1.2	●	●	●	●		

Shape	Description		(mm) Dimension	MEGACOAT Carbide			Carbide		
			rε	PR1305	PR1310	PR1325	SW05	SW10	SW25
Medium-Roughing	WNMG	080404MU	0.4	●	●	●	●	Available as custom order product	Available as custom order product
		080408MU	0.8	●	●	●	●		
Medium-Roughing	WNMG	080404TK	0.4	●	●	●			
		080408TK	0.8	●	●	●			
Medium-Roughing / Sharp Edge	WNGG	080404TK	0.4	●	●		●		
		080408TK	0.8	●	●		●		

Positive Type Insert

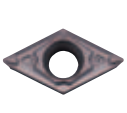




(mm)

Description	A	T	ød	α
CC_09T3_	9.525	3.97	4.4	7°
DC_0702_	6.35	2.38	2.8	
DC_11T3_	9.525	3.97	4.4	

● Positive Inserts

Shape	Description		(mm) Dimension	MEGACOAT Carbide			Carbide		
			rε	PR1305	PR1310	PR1325	SW05	SW10	SW25
Finishing-Medium	CCMT	09T304MQ	0.4	●	●	●	●	Available as custom order product	Available as custom order product
		09T308MQ	0.8	●	●	●	●		
 Finishing-Medium	DCMT	070202MQ	0.2	●	●	●	●		
		070204MQ	0.4	●	●	●	●		
	DCMT	11T304MQ	0.4	●	●	●	●		
		11T308MQ	0.8	●	●	●	●		

●:Standard Item

Recommended Cutting Conditions
Conditions de coupe recommandée
Parametri di Taglio Consigliati
Condiciones de corte recomendadas

ap indicates radius

Material	Cutting range	Grade	Chipbreaker	Cutting Conditions		
				Vc (m/min)	ap (mm)	f (mm/rev.)
Nickel base heat resistant alloy (Inconel718 etc.)	Finishing	**PR1305**	**MQ**	45-**55**-80	0.2-**0.5**-1.0	0.05-**0.1**-0.2
	Medium-Roughing	**PR1310**	**MS/MU**	40-**45**-60	0.5-**1.0**-2.0	0.1-**0.15**-0.25
	Roughing	**PR1325**	**TK**	35-**40**-50	1.0-**1.5**-3.5	0.1-**0.2**-0.3
Iron base heat resistant alloy (A286 etc.)	Finishing	**PR1305**	**MQ**	50-**70**-90	0.2-**0.5**-1.0	0.05-**0.1**-0.2
	Medium-Roughing	**PR1310**	**MS/MU**	45-**55**-70	0.5-**1.0**-2.0	0.1-**0.15**-0.25
	Roughing	**PR1325**	**TK**	40-**45**-55	1.0-**1.5**-3.5	0.1-**0.2**-0.3
Cobalt base heat resistant alloy (S816, Stellite etc.)	Finishing	**PR1305**	**MQ**	40-**50**-70	0.2-**0.5**-1.0	0.05-**0.1**-0.2
	Medium-Roughing	**PR1310**	**MS/MU**	35-**40**-55	0.5-**1.0**-2.0	0.1-**0.15**-0.25
	Roughing	**PR1325**	**TK**	30-**35**-45	1.0-**1.5**-3.0	0.1-**0.2**-0.3
Precipitation hardening stainless steels (SUS630 etc.)	Finishing	**PR1305**	**MQ**	100-**140**-180	0.2-**0.5**-1.5	0.05-**0.1**-0.2
	Medium-Roughing	**PR1310**	**MS/MU**	80-**120**-155	0.5-**1.0**-2.5	0.15-**0.2**-0.3
	Roughing	**PR1325**	**TK**	60-**80**-100	1.0-**2.0**-4.0	0.15-**0.2**-0.35
Titanium alloy (Ti-6Al-4V etc.)	Finishing	**SW05**	**MQ**	40-**70**-100	0.2-**0.5**-1.0	0.05-**0.1**-0.2
	Medium-Roughing	**SW05**	**MS/MU/TK**	40-**60**-80	0.5-**1.0**-4.0	0.15-**0.2**-0.3

Conditions based on CNMG120408 type insert

KYOCERA

KYOCERA Fineceramics GmbH
Cutting Tool Division
Hammfelddamm 6, 41460 Neuss, Germany
Phone: +49 (0) 2131 1637-115
Fax: +49 (0) 2131 1637-152
www.kyocera.de / www.kyocera.eu
ceratip@kyocera.de

KYOCERA Fineceramics SAS.
Cutting Tool Division
Parc Tertiaire Silic, 21 Rue de Villeneuve
BP 90439, 94528 Rungis Cedex, France
Phone: +33 (0) 1 45 12 06 93 Fax: +33 (0) 1 56 72 18 94
www.kyocera.fr

KYOCERA Fineceramics GmbH Poland Branch Office
Cutting Tool Division
Leg. ul.Europejska 4, 55-220, Jelcz-Laskowice, Poland
Phone: +48-(0) 71-381-12-15 Fax: +48-(0) 71-381-12-16
www.kyocera.eu

KYOCERA Fineceramics GmbH Italy Branch Office
Cutting Tool Division
Via Torino 51, 20123 Milan, Italy
Phone: +39-02 00620 845 Fax: +39-02 00620 848
www.kyocera.it

KYOCERA Fineceramics GmbH Spain Branch Office
Cutting Tool Division
Avenida Manacor 4, 28290 Las Matas, Madrid, Spain
Phone: +34-91-631-83-92-802 Fax: +34-91-631-82-19
www.kyocera.es