

THE NEW VALUE FRONTIER



For turning  
MEGACOAT NANO

PR1535

# PR1535



Widely applicable from steel to difficult-to-cut materials

Most suitable for heat resistant alloy, titanium alloy and stainless steel

Reduction of sudden fracture at scaling and interrupted cutting

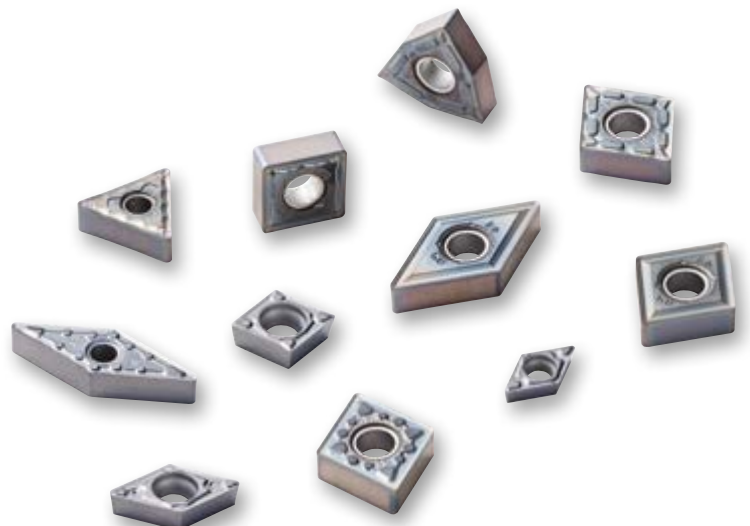
Reliable tough grade for S35 / M35 / P35

Line-up expansion NEW

For machining heat-resistant alloy  
**SG chipbreaker**

For micro boring  
**PF chipbreaker**

Ground chipbreaker for boring  
**P chipbreaker**

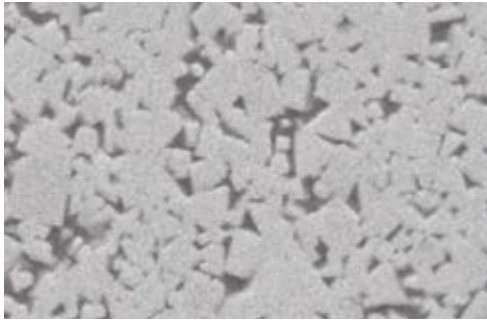


# MEGACOAT NANO PR1535

Fracture resistant with a tough substrate and high heat-resistant coating  
Stable machining of general steel, mold steel, and difficult-to-cut materials

## 1 Toughening by a new cobalt mixing ratio \*In-house evaluation

High toughness carbide base material



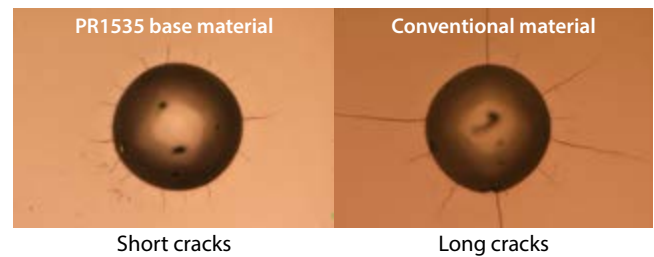
↑  
23%  
Fracture toughness\*

## 2 Stability improvement

The coarse grain structure and uniform particle size correspond to improved heat resistance, with conductivity values decreased by 11%. The uniform structure also reduces crack propagation.

Cracking comparison by diamond indenter (In-house evaluation)

↑  
Shock resistance



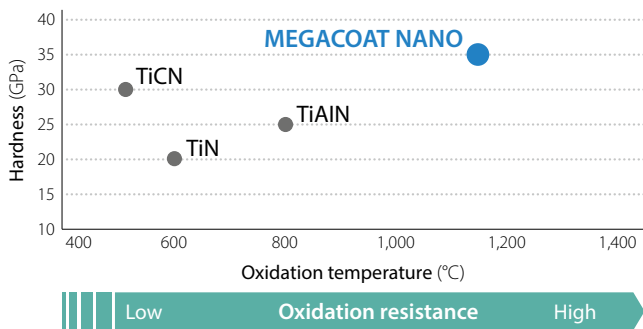
Short cracks

Long cracks

## 3 Stabilized turning operation and long tool life by special nano coating layer MEGACOAT NANO

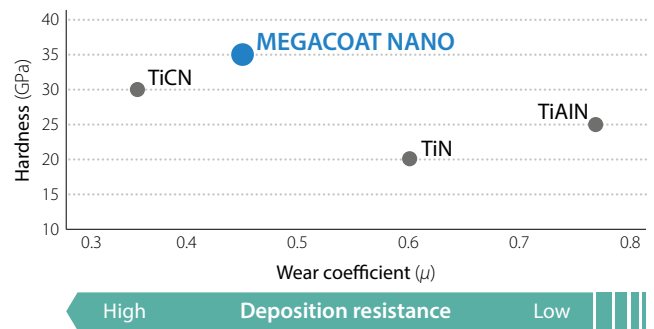
Prevents wear and fracture with high hardness (35GPa) and superior oxidation resistance (oxidation temperature 1,150° C)

Coating properties (Abrasion resistance)



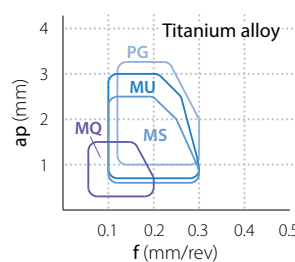
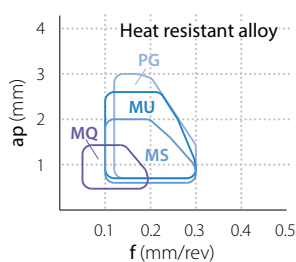
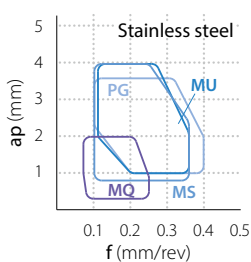
Achieve long tool life with the combination of a tough substrate and a special nano coating layer

Coating properties (Deposition resistance)



Stable machining with excellent wear resistance

Cutting condition (External)

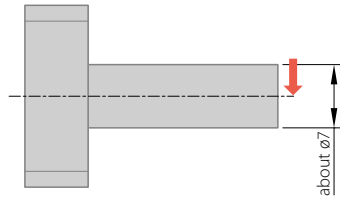


Workpiece material	Vc (m/min)
	Min. – Recommendation – Max.
Stainless steel	70 – 120 – 160
Heat resistant alloy	40 – 50 – 60
Titanium alloy	40 – 50 – 60

## Case studies

### Bolt Ni-base heat resistant alloy

Vc = 50 m/min  
ap = 1.0 mm  
f = 0.2 mm/rev  
Wet  
CNMG120408MS  
PR1535



Machining efficiency

**PR1535**  
(MS chipbreaker)

**80 pcs/edge**



Competitor A

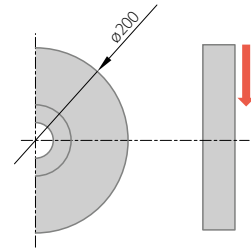
**30 pcs/edge**

PR1535 (MS chipbreaker) shows 2.6 times longer tool life compared to Competitor A

(User evaluation)

### Aircraft parts Ni-base heat resistant alloy

Vc = 50 m/min  
ap = 0.5 mm  
f = 0.1 mm/rev  
Wet  
CNMG120408MU  
PR1535



Machining efficiency

**PR1535**  
(MU chipbreaker)

**1 pcs/edge**

Competitor B

**1 pcs/edge**

PR1535-MU chipbreaker realized the stable machining by preventing the fracture at scaling and interrupted cutting compared with Competitor B.



PR1535

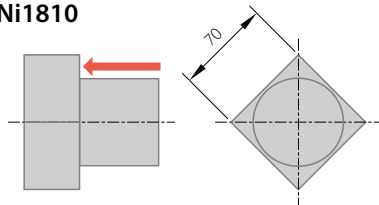


Competitor B

(User evaluation)

### Square bar X5CrNi1810

Vc = 100 m/min  
ap = 2.0 mm  
f = 0.2 mm/rev  
Wet  
CNMG120408MS  
PR1535



Machining efficiency

**PR1535**  
(MS chipbreaker)

**50 pcs/edge**



Competitor C

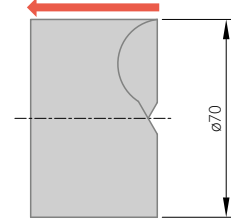
**10 pcs/edge**

Competitor C fractured due to heavy interrupted machining. PR1535 (MS chipbreaker) shows 5 times longer tool life compared to Competitor C (CVD coated carbide).

(User evaluation)

### Lenz tube X5CrNi1810

Vc = 120 m/min  
ap = 1.0 mm  
f = 0.15 mm/rev  
Wet  
CNMG120408MS  
PR1535



Machining efficiency

**PR1535**  
(MS chipbreaker)

**80 pcs/edge**



Competitor D

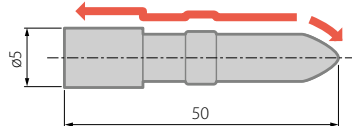
**30 pcs/edge**

Heavy interrupted machining PR1535 (MS chipbreaker) shows 2.6 times longer tool life compared to Competitor D.

(User evaluation)

### Pin X5CrNiCuNb16-4

Vc = ~55 m/min  
(n = 3,600 min<sup>-1</sup>)  
ap = 0.1~0.7 mm  
f = 0.03 mm/rev  
Wet (Oil-based)  
DCGT11T302MFP-GQ  
PR1535



Machining efficiency

**PR1535**  
(GQ chipbreaker)

**1,600 pcs/edge**



Competitor E

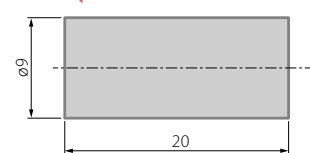
**1,200 pcs/edge**

Competitor E showed unstable tool life due to sudden defects. GQ chipbreaker (PR1535) is capable of stable machining without defects, with tool life improved to 1.3 times.

(User evaluation)

### Valve X105CrMo17

Vc = 100 m/min  
(n = 3,600 min<sup>-1</sup>)  
ap = 0.1 mm  
f = 0.06 mm/rev  
Wet (Oil-based)  
DCGT11T302MFP-SK  
PR1535



Machining efficiency

**PR1535**  
(SK chipbreaker)

**600 pcs/edge**

















Competitor F


















**450 pcs/edge**

SK chipbreaker (PR1535) tool life 1.3 times.

(User evaluation)

# Negative type inserts

















Shape	Description	Dimensions (mm)				PR1535	
		I.C.	Thick-ness	Hole diameter	Corner R (r <sub>e</sub> )		
	CNMG 120408SG	12.70	4.76	5.16	0.8	●	
	120412SG				1.2	●	
	CNMG 160612SG	15.875	6.35	6.35	1.2	●	
					160616SG	1.6	●
	CNMG 190612SG	19.05	6.35	7.94	1.2	●	
190616SG					1.6	●	
	CNMG 120404MQ	12.70	4.76	5.16	0.4	●	
	120408MQ				0.8	●	
	CNMG 120404MS	12.70	4.76	5.16	0.4	●	
	120408MS				0.8	●	
	120412MS				1.2	●	
	CNMG 120404MU	12.70	4.76	5.16	0.4	●	
	120408MU				0.8	●	
	120412MU				1.2	●	
	CNMG 120404PG				12.70	4.76	5.16
120408PG	0.8	●					
120412PG	1.2	●					
	CNMG 120404FP-TK	12.70	4.76	5.16	0.4	●	
	120408FP-TK				0.8	●	
	CNMG 120402MFP-SK	12.70	4.76	5.16	<0.2	●	
	120404MFP-SK				<0.4	●	
	DNMG 150408SG	12.70	4.76	5.16	0.8	●	
	150412SG				1.2	●	
	DNMG 150404MQ	12.70	4.76	5.16	0.4	●	
	150408MQ				0.8	●	
	DNMG 150604MQ	12.70	6.35	5.16	0.4	●	
					150608MQ	0.8	●
	DNMG 150404MS	12.70	4.76	5.16	0.4	●	
	150408MS				0.8	●	
	150412MS				1.2	●	
	DNMG 150604MS	12.70	6.35	5.16	0.4	●	
					150608MS	0.8	●
					150612MS	1.2	●
	DNMG 150404MU	12.70	4.76	5.16	0.4	●	
	150408MU				0.8	●	
	DNMG 150604MU	12.70	6.35	5.16	0.4	●	
					150608MU	0.8	●
	DNMG 150404PG	12.70	4.76	5.16	0.4	●	
	150408PG				0.8	●	
	150412PG				1.2	●	
	DNMG 150604PG	12.70	6.35	5.16	0.4	●	
					150608PG	0.8	●
					150612PG	1.2	●
	DNMG 150402R-LD	12.70	4.76	5.16	0.2	R	
	150404R-LD				0.4	R	
	DNMG 150404FP-TK	12.70	4.76	5.16	0.4	●	
	150408FP-TK				0.8	●	
	DNMG 150402MFP-SK	12.70	4.76	5.16	<0.2	●	
	150404MFP-SK				<0.4	●	

Shape	Description	Dimensions (mm)				PR1535
		I.C.	Thick-ness	Hole diameter	Corner R (r <sub>e</sub> )	
	SNMG 120408SG	12.70	4.76	5.16	0.8	●
	120412SG				1.2	●
	SNMG 190612SG	19.05	6.35	7.94	1.2	●
					190616SG	1.6
	SNMG 120408MS	12.70	4.76	5.16	0.8	●
	120412MS				1.2	●
	SNMG 120408PG	12.70	4.76	5.16	0.8	●
	120412PG				1.2	●
	TNMG 160408SG	9.525	4.76	3.81	0.8	●
	160412SG				1.2	●
	TNMG 220408SG	12.70	4.76	5.16	0.8	●
					220412SG	1.2
	TNMG 160404MQ	9.525	4.76	3.81	0.4	●
	160408MQ				0.8	●
	TNMG 160404MS	9.525	4.76	3.81	0.4	●
	160408MS				0.8	●
	160412MS				1.2	●
	TNMG 160404MU	9.525	4.76	3.81	0.4	●
	160408MU				0.8	●
	TNMG 160404PG	9.525	4.76	3.81	0.4	●
	160408PG				0.8	●
	160412PG				1.2	●
	TNMG 160402R-LD	9.525	4.76	3.81	0.2	●
	160404R-LD				0.4	●
	TNMG 160404FP-TK	9.525	4.76	3.81	0.4	●
	160408FP-TK				0.8	●
	TNMG 160402R/L-S	9.525	4.76	3.81	0.2	●
	160404R/L-S				0.4	●
	160408R/L-S				0.8	●
	TNMG 160401MFP-SK	9.525	4.76	3.81	<0.1	●
	160402MFP-SK				<0.2	●
	160404MFP-SK				<0.4	●
	VNMG 160404SG	9.525	4.76	3.81	0.4	●
	160408SG				0.8	●
	VNMG 160404MQ	9.525	4.76	3.81	0.4	●
	160408MQ				0.8	●
	VNMG 160404MS	9.525	4.76	3.81	0.4	●
	160408MS				0.8	●
	160412MS				1.2	●
	VNMG 160404MU	9.525	4.76	3.81	0.4	●
	160408MU				0.8	●
	VNMG 160402R/L-S	9.525	4.76	3.81	0.2	●
	160404R/L-S				0.4	●

● Available  
R: Std. item (Right-hand only)











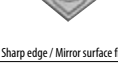


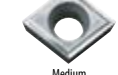





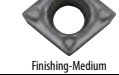



# Positive & negative type inserts

## Negative type insert

Shape	Description	Dimensions (mm)				PRI1535
		I.C.	Thick-ness	Hole diameter	Corner R (re)	
 Sharp edge / Mirror surface finish	VNGG 160402MFP-SK	9.525	4.76	3.81	<0.2	●
	160404MFP-SK				<0.4	●
 NEW Roughing	WNGM 080408SG	12.70	4.76	5.16	0.8	●
	080412SG				1.2	●
 Finishing-Medium	WNGM 080404MQ	12.70	4.76	5.16	0.4	●
	080408MQ				0.8	●
 Medium-Roughing	WNGM 080404MS	12.70	4.76	5.16	0.4	●
	080408MS				0.8	●
	080412MS				1.2	●
 Medium-Roughing	WNGM 080404MU	12.70	4.76	5.16	0.4	●
	080408MU				0.8	●
 Medium-Roughing	WNGM 080404PG	12.70	4.76	5.16	0.4	●
	080408PG				0.8	●
	080412PG				1.2	●
 Sharp edge	CNGU 070301MFR-U	7.5	3.18	3.6	<0.1	R
	070302MFR-U				<0.2	R
	070304MFR-U				<0.4	R
 Sharp edge	CNGU 070301MFR-F	7.5	3.18	3.6	<0.1	R
	070302MFR-F				<0.2	R
	070304MFR-F				<0.4	R
 Sharp edge / Mirror surface finish	CNGU 070301MFP-SK	7.5	3.18	3.6	<0.1	●
	070302MFP-SK				<0.2	●
 With honing	CNMU 070302E-GK	7.0	3.18	3.6	0.2	●
	070304E-GK				0.4	●
 Sharp edge	DNGU 080301MFR-U	7.0	3.18	3.6	<0.1	R
	080302MFR-U				<0.2	R
	080304MFR-U				<0.4	R
 Sharp edge	DNGU 080301MFR-F	7.0	3.18	3.6	<0.1	R
	080302MFR-F				<0.2	R
	080304MFR-F				<0.4	R
 Sharp edge / Mirror surface finish	DNGU 080301MFP-SK	7.0	3.18	3.6	<0.1	●
	080302MFP-SK				<0.2	●
	080304MFP-SK				<0.4	●
 With Honing	DNMU 080302E-GK	7.0	3.18	3.6	0.2	●
	080304E-GK				0.4	●
 Sharp edge	TNGU 090301MFR-U	5.56	3.18	3.0	<0.1	R
	090302MFR-U				<0.2	R
	090304MFR-U				<0.4	R
 Sharp edge	TNGU 090301MFR-F	5.56	3.18	3.0	<0.1	R
	090302MFR-F				<0.2	R
	090304MFR-F				<0.4	R













Insert whose corner-R(RE) dimension expressed with less than sign (e.g. < 0.1, < 0.2 etc.) indicate models with minus tolerance for corner-R(RE).

## Positive type insert












Shape Left-hand (L) is shown for inserts with angles	Description	Dimensions (mm)				Relief angle	PRI1535
		I.C.	Thick-ness	Hole diameter	Corner R (re)		
 Sharp edge	CCGT 0602005MF	6.35	2.38	2.8	<0.05	7°	●
	060201MF				<0.1		●
	060202MF				<0.2		●
	060204MF				<0.4		●
 Sharp edge	CCGT 09T3005MF	9.525	3.97	4.4	<0.05	7°	●
	09T301MF				<0.1		●
	09T302MF				<0.2		●
	09T304MF				<0.4		●
 Sharp edge / Mirror surface finish	CCGT 060201MP-CK	6.35	2.38	2.8	<0.1	7°	●
	060202MP-CK				<0.2		●
 Sharp edge / Mirror surface finish	CCGT 09T301MP-CK	9.525	3.97	4.4	<0.1	7°	●
	09T302MP-CK				<0.2		●
 Sharp edge / Mirror surface finish	CCGT 030101MP-CF	3.5	1.4	1.9	<0.1	7°	●
	030102MP-CF				<0.2		●
 Sharp edge / Mirror surface finish	CCGT 040101MP-CF	4.3	1.8	2.3	<0.1	7°	●
	040102MP-CF				<0.2		●
 NEW	CCGT 030101MFP-PF	3.50	1.4	1.9	<0.1	7°	●
	030102MFP-PF				<0.2		●
 NEW	CCGT 040101MFP-PF	4.30	1.8	2.3	<0.1	7°	●
	040102MFP-PF				<0.2		●
 Sharp edge / Mirror surface finish	CCGT 060201MFP-PF	6.35	2.38	2.8	<0.1	7°	●
	060202MFP-PF				<0.2		●
	060204MFP-PF				<0.4		●
 Sharp edge / Mirror surface finish	CCGT 060201MFP-GQ	6.35	2.38	2.8	<0.1	7°	●
	060202MFP-GQ				<0.2		●
	060204MFP-GQ				<0.4		●
 Sharp edge / Mirror surface finish	CCGT 09T301MFP-GQ	9.525	3.97	4.4	<0.1	7°	●
	09T302MFP-GQ				<0.2		●
	09T304MFP-GQ				<0.4		●
	09T304MFP-GQ				<0.4		●
 Sharp edge / Mirror surface finish	CCGT 060201MFP-GF	6.35	2.38	2.8	<0.1	7°	●
	060202MFP-GF				<0.2		●
	060204MFP-GF				<0.4		●
 Sharp edge / Mirror surface finish	CCGT 09T301MFP-GF	9.525	3.97	4.4	<0.1	7°	●
	09T302MFP-GF				<0.2		●
	09T304MFP-GF				<0.4		●
 Sharp edge / Mirror surface finish	CCGT 060201MFP-SK	6.35	2.38	2.8	<0.1	7°	●
	060202MFP-SK				<0.2		●
	060204MFP-SK				<0.4		●
 Sharp edge / Mirror surface finish	CCGT 09T301MFP-SK	9.525	3.97	4.4	<0.1	7°	●
	09T302MFP-SK				<0.2		●
	09T304MFP-SK				<0.4		●
 Medium	CCMT 09T308	9.525	3.97	4.4	0.8	7°	●
 Finishing	CCMT 060202PP	6.35	2.38	2.8	0.2	7°	●
	060204PP				0.4		●
 Finishing	CCMT 09T302PP	9.525	3.97	4.4	0.2	7°	●
	09T304PP				0.4		●
	09T308PP				0.8		●
 Finishing-Medium	CCMT 060202HQ	6.35	2.38	2.8	0.2	7°	●
	060204HQ				0.4		●
 Finishing-Medium	CCMT 09T302HQ	9.525	3.97	4.4	0.2	7°	●
	09T304HQ				0.4		●
	09T308HQ				0.8		●
 Finishing-Medium	CCMT 060202GK	6.35	2.38	2.8	0.2	7°	●
	060204GK				0.4		●
 Finishing-Medium	CCMT 09T302GK	9.525	3.97	4.4	0.2	7°	●
	09T304GK				0.4		●
 Finishing-Medium	CCMT 09T304MQ	9.525	3.97	4.4	0.2	7°	●
	09T308MQ				0.4		●

● : Available  
R : Std. item (Right-hand only)

# Positive type inserts

Shape Left-hand (L) is shown for inserts with angles	Description	Dimensions (mm)				Relief angle	PR1535
		I.C.	Thick- ness	Hole diameter	Corner R (rε)		
	CCET 0301005MR/L-F	3.5	1.4	1.9	<0.05	7°	●
	030101MR/L-F				<0.1		●
	030102MR/L-F				<0.2		●
	030104MR/L-F				<0.4		●
NEW 	CCET 040101MR/L-F	4.3	1.8	2.3	<0.1	7°	●
	040102MR/L-F				<0.2		●
	040104MR/L-F				<0.4		●
	CCET 0602005MFR/L-U	6.35	2.38	2.8	<0.05	7°	●
	060201MFR/L-U				<0.1		●
	060202MFR/L-U				<0.2		●
	CCET 09T3005MFR/L-U	9.525	3.97	4.4	<0.05	7°	●
	09T301MFR/L-U				<0.1		●
09T302MFR/L-U	<0.2				●		
	CCET 0602005MFR-J	6.35	2.38	2.8	<0.05	7°	R
	060201MFR/L-J				<0.1		●
	060202MFR/L-J				<0.2		●
	CCET 09T301MFR/L-J	9.525	3.97	4.4	<0.1	7°	●
09T302MFR/L-J	<0.2				●		
09T304MFR/L-J	<0.4				●		
	CPMH 080204	7.94	2.38	3.5	0.4	11°	●
	080208				0.8		●
	CPMH 090304	9.525	3.18	4.5	0.4	11°	●
090308	0.8				●		
	CPMT 080202PP	7.94	2.38	3.3	0.2	11°	●
	080204PP				0.4		●
	CPMT 090302PP	9.525	3.18	4.4	0.2	11°	●
090304PP	0.4				●		
090308PP	0.8				●		
	CPMT 080204GP	7.94	2.38	3.3	0.4	11°	●
	090304GP				0.4		●
	CPMT 090308GP	9.525	3.18	4.4	0.8	11°	●
	CPMH 080204HQ	7.94	2.38	3.5	0.4	11°	●
	080208HQ				0.8		●
	CPMH 090304HQ	9.525	3.18	4.5	0.4	11°	●
090308HQ	0.8				●		
	CPMT 080204XP	7.94	2.38	3.3	0.4	11°	●
	090304XP				0.4		●
	CPMT 090308XP	9.525	3.18	4.4	0.8	11°	●
	DCGT 0702005MF	6.35	2.38	2.8	<0.05	7°	●
	070201MF				<0.1		●
	070202MF				<0.2		●
	070204MF				<0.4		●
	DCGT 11T3005MF	9.525	3.97	4.4	<0.05	7°	●
11T301MF	<0.1				●		
11T302MF	<0.2				●		
11T304MF	<0.4				●		
	DCGT 070201MP-CF	6.35	2.38	2.8	<0.1	7°	●
	070202MP-CF				<0.2		●
	DCGT 11T301MP-CF	9.525	3.97	4.4	<0.1	7°	●
11T302MP-CF	<0.2				●		
	DCGT 070201MP-CK	6.35	2.38	2.8	<0.1	7°	●
	070202MP-CK				<0.2		●
	DCGT 11T301MP-CK	9.525	3.97	4.4	<0.1	7°	●
11T302MP-CK	<0.2				●		

Insert whose corner-R (RE) dimension expressed with less than sign (e.g. < 0.1, < 0.2 etc.) indicate models with minus tolerance for corner-R (RE).

Shape Left-hand (L) is shown for inserts with angles	Description	Dimensions (mm)				Relief angle	PR1535
		I.C.	Thick- ness	Hole diameter	Corner R (rε)		
	DCGT 070201MFP-GQ	6.35	2.38	2.8	<0.1	7°	●
	070202MFP-GQ				<0.2		●
	070204MFP-GQ				<0.4		●
	DCGT 11T301MFP-GQ				9.525		3.97
11T302MFP-GQ	<0.2	●					
11T304MFP-GQ	<0.4	●					
	DCGT 070201MFP-GF	6.35	2.38	2.8	<0.1	7°	●
	070202MFP-GF				<0.2		●
	070204MFP-GF				<0.4		●
	DCGT 11T301MFP-GF	9.525	3.97	4.4	<0.1	7°	●
11T302MFP-GF	<0.2				●		
11T304MFP-GF	<0.4				●		
	DCGT 070201MFP-SK	6.35	2.38	2.8	<0.1	7°	●
	070202MFP-SK				<0.2		●
	070204MFP-SK				<0.4		●
	DCGT 11T301MFP-SK	9.525	3.97	4.4	<0.1	7°	●
11T302MFP-SK	<0.2				●		
11T304MFP-SK	<0.4				●		
	DCMT 070202MQ	6.35	2.38	2.8	0.2	7°	●
	070204MQ				0.4		●
	DCMT 11T302MQ	9.525	3.97	4.4	0.2	7°	●
	11T304MQ				0.4		●
11T308MQ	0.8				●		
	DCMT 070202PP	6.35	2.38	2.8	0.2	7°	●
	070204PP				0.4		●
	DCMT 11T302PP	9.525	3.97	4.4	0.2	7°	●
11T304PP	0.4				●		
11T308PP	0.8				●		
	DCMT 070202GP	6.35	2.38	2.8	0.2	7°	●
	070204GP				0.4		●
	DCMT 11T304GP	9.525	3.97	4.4	0.4	7°	●
11T308GP	0.8				●		
	DCMT 070202GK	6.35	2.38	2.8	0.2	7°	●
	070204GK				0.4		●
	070208GK				0.8		●
	DCMT 11T302GK	9.525	3.97	4.4	0.2	7°	●
11T304GK	0.4				●		
11T308GK	0.8				●		
	DCMT 070202HQ	6.35	2.38	2.8	0.2	7°	●
	070204HQ				0.4		●
	070208HQ				0.8		●
	DCMT 11T302HQ	9.525	3.97	4.4	0.2	7°	●
11T304HQ	0.4				●		
11T308HQ	0.8				●		
	DCMT 070204XP	6.35	2.38	2.8	0.4	7°	●
	DCMT 11T302XP				9.525		3.97
	11T304XP	0.4	●				
	11T308XP	0.8	●				
	DCET 0702005MR-F	6.35	2.38	2.8	<0.05	7°	R
	070201MR/L-F				<0.1		●
	070202MR/L-F				<0.2		●
	070204MR/L-F				<0.4		●
	DCET 11T3005MR-F	9.525	3.97	4.4	<0.05	7°	R
11T301MR/L-F	<0.1				●		
11T302MR/L-F	<0.2				●		
11T304MR/L-F	<0.4				●		
	DCET 0702005MFR-J	6.35	2.38	2.8	<0.05	7°	R
	070201MFR/L-J				<0.1		●
	070202MFR/L-J				<0.2		●
	DCET 11T3005MFR-J	9.525	3.97	4.4	<0.05	7°	R
11T301MFR/L-J	<0.1				●		
11T302MFR/L-J	<0.2				●		
DCET 11T304MFR-J				<0.4		R	

● Available  
R: Std. item (Right-hand only)

# Positive type inserts


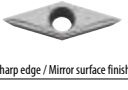
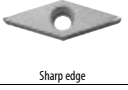
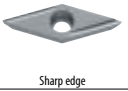

Shape Left-hand (L) is shown for inserts with angles	Description	Dimensions (mm)				Relief angle	PRI1535
		I.C.	Thick- ness	Hole diameter	Corner R (rε)		
	DCET 0702005MFR-U	6.35	2.38	2.8	<0.05	7°	R
	070201MFR/L-U				<0.1		L
	070202MFR/L-U				<0.2		L
	DCET 11T3005MFR-U	9.525	3.97	4.4	<0.05	7°	R
11T301MFR/L-U	<0.1				L		
11T302MFR/L-U	<0.2				L		
11T304MFR-U	<0.4				R		
	JCET 030102MR/L-F	3.5	1.4	1.9	<0.2	7°	●
	030104MR/L-F				<0.4		●
	TBGT 060101MP-CF	3.97	1.59	2.3	<0.1	5°	●
	060102MP-CF				<0.2		●
	TBGT 060101MFP-PF	3.97	1.59	2.3	<0.1	5°	●
	060102MFP-PF				<0.2		●
	060104MFP-PF				<0.4		●
	TBET 0601005MR/L	3.97	1.59	2.3	<0.05	5°	●
	060101MR/L				<0.1		●
	060102MR/L				<0.2		●
	060104MR/L				<0.4		●
	TPGT 080201MP-CF	4.76	2.38	2.3	<0.1	11°	●
	080202MP-CF				<0.2		●
	TPGT 090201MP-CF	5.56	2.38	3.0	<0.1	11°	●
090202MP-CF	<0.2				●		
	TPGT 090201MFP-PF	5.56	2.38	2.8	<0.1	11°	●
	090202MFP-PF				<0.2		●
	090204MFP-PF				<0.4		●
	TPMT 090202PP	5.56	2.38	3.0	0.2	11°	●
	090204PP				0.4		●
	TPMT 110302PP	6.35	3.18	3.3	0.2	11°	●
	110304PP				0.4		●
	TPMT 090202GP	5.56	2.38	3.0	0.2	11°	●
	090204GP				0.4		●
	TPMT 110304GP	6.35	3.18	3.3	0.4	11°	●
	110308GP				0.8		●
	TPMT 160304GP	9.525	3.18	4.5	0.4	11°	●
	090202HQ				0.2		●
	090204HQ	5.56	2.38	3.0	0.4	11°	●
	110302HQ				0.2		●
	110304HQ	6.35	3.18	3.3	0.4	11°	●
	110308HQ				0.8		●
TPMT 160302HQ	9.525	3.18	4.5	0.2	11°	●	
160304HQ				0.4		●	
160308HQ	0.8	●					
	TPMT 090204XP	5.56	2.38	3.0	0.4	11°	●
	TPMT 110304XP	6.35	3.18	3.3	0.4	11°	●
	110308XP				0.8		●
	TPMT 160304XP	9.525	3.18	4.5	0.4	11°	●
160308XP	0.8				●		
	TPGH 080201R/L	4.76	2.38	2.3	0.1	11°	●
	080202R/L				0.2		●
	080204R/L				0.4		●
	TPGH 090201R/L	5.56	2.38	3.0	0.1	11°	●
	090202R/L				0.2		●
	090204R/L				0.4		●
	TPGH 110202R/L	6.35	2.38	3.5	0.2	11°	●
	110204R/L				0.4		●
	TPGH 110302R/L	6.35	3.18	3.3	0.2	11°	●
	110304R/L				0.4		●
110308R/L	0.8				●		
TPGH 160302R/L	9.525	3.18	4.5	0.2	11°	●	
160304R/L				0.4		●	
160308R/L				0.8		●	

Insert whose corner-R (RE) dimension expressed with less than sign (e.g. < 0.1, < 0.2 etc.) indicate models with minus tolerance for corner-R (RE).






Shape Left-hand (L) is shown for inserts with angles	Description	Dimensions (mm)				Relief angle	PRI1535
		I.C.	Thick- ness	Hole diameter	Corner R (rε)		
	TPGH 090201L-H	5.56	2.38	3.0	0.1	11°	L
	090202L-H				0.2		L
	090204L-H				0.4		L
	TPGH 110302R/L-H	6.35	3.18	3.3	0.2	11°	●
110304R/L-H	0.4				●		
110308R/L-H	0.8				●		
	TPGH 160304R/L-H	9.525	3.18	4.5	0.4	11°	●
	160308R/L-H				0.8		●
	TPEH 080201MR/L-P	4.76	2.38	2.3	<0.1	11°	●
	080202MR/L-P				<0.2		●
	080204MR/L-P				<0.4		●
	TPEH 090201MR/L-P	5.56	2.38	3	<0.1	11°	●
090202MR/L-P	<0.2				●		
090204MR/L-P	<0.4				●		
	TPEH 110301MR/L-P	6.35	3.18	3.3	<0.1	11°	●
	110302MR/L-P				<0.2		●
	110304MR/L-P				<0.4		●
	VBMT 110302PP	6.35	3.18	2.8	0.2	5°	●
	110304PP				0.4		●
	110308PP				0.8		●
	VBMT 160404PP	9.525	4.76	4.4	0.4	5°	●
	160408PP				0.8		●
	160412PP				1.2		●
	VBMT 110304GP	6.35	3.18	2.8	0.4	5°	●
	VBMT 110304HQ	6.35	3.18	2.8	0.4	5°	●
110308HQ	0.8				●		
	VBMT 110302VF	6.35	3.18	2.8	0.2	5°	●
	110304VF				0.4		●
	110308VF				0.8		●
	VBET 1103005MR/L-F	6.35	3.18	2.8	<0.05	5°	●
	110301MR/L-F				<0.1		●
	110302MR/L-F				<0.2		●
	VBET 1103005MR/L-Y	6.35	3.18	2.8	<0.05	5°	●
	110301MR/L-Y				<0.1		●
	110302MR/L-Y				<0.2		●
	110304MR/L-Y				<0.4		●
	VCMT 080202PP	4.76	2.38	2.3	0.2	7°	●
	080204PP				0.4		●
	VCMT 160404PP	9.525	4.76	4.4	0.4	7°	●
	160408PP				0.8		●
	VCMT 080202VF	4.76	2.38	2.3	0.2	7°	●
	080204VF				0.4		●
	VCMT 080202HQ	4.76	2.38	2.3	0.2	7°	●
	080204HQ				0.4		●
	VCET 110301MR/L-F	6.35	3.18	2.8	<0.1	7°	●
	110302MR/L-F				<0.2		●
	110304MR/L-F				<0.4		●
	VCET 1103005MR/L-Y	6.35	3.18	2.8	<0.05	7°	●
	110301MR/L-Y				<0.1		●
	110302MR/L-Y				<0.2		●
	110304MR/L-Y				<0.4		●
	VPGT 110301MP-CF	6.35	3.18	2.8	<0.1	11°	●
	110302MP-CF				<0.2		●

● : Available  
R: Std. item (Right-hand only)  
L: Std. item (Left-hand only)

## Positive type inserts

Shape Left-hand (L) is shown for inserts with angles	Description	Dimensions (mm)				Relief angle	PR1535
		I.C.	Thick- ness	Hole diameter	Corner R (rε)		
 Sharp edge / Mirror surface finish	VPGT 080201MP-CK	4.76	2.38	2.3	<0.1	11°	●
	VPGT 080202MP-CK				<0.2		●
	VPGT 110301MP-CK	6.35	3.18	2.8	<0.1	11°	●
VPGT 110302MP-CK	<0.2				●		
 Sharp edge / Mirror surface finish	VPGT 110301MFP-GF	6.35	3.18	2.8	<0.1	11°	●
	VPGT 110302MFP-GF				<0.2		●
	 Sharp edge	VPET 080201MR/L-F	4.76	2.38	2.3	<0.1	11°
VPET 080202MR/L-F		<0.2				●	
VPET 1103005MR-F		6.35	3.18	2.8	<0.05	11°	R
VPET 110301MR-F					<0.1		R
VPET 110302MR/L-F					<0.2		●
 Sharp edge	VPET 080201MFR/L-U	4.76	2.38	2.3	<0.1	11°	●
	VPET 080202MFR/L-U				<0.2		●
	VPET 1103005MFR/L-U	6.35	3.18	2.8	<0.05	11°	●
	VPET 110301MFR/L-U				<0.1		●
	VPET 110302MFR/L-U				<0.2		●
 Sharp edge	VPET 1103005MFR-J	6.35	3.18	2.8	<0.05	11°	R
	VPET 110301MFR/L-J				<0.1		●
	VPET 110302MFR/L-J				<0.2		●

Insert whose corner-R (RE) dimension expressed with less than sign (e.g. < 0.1, < 0.2 etc.) indicate models with minus tolerance for corner-R (RE).

Shape Left-hand (L) is shown for inserts with angles	Description	Dimensions (mm)				Relief angle	PR1535
		I.C.	Thick- ness	Hole diameter	Corner R (rε)		
 Sharp edge / Mirror surface finish	WBGT 060101MPR/L-CF	3.97	1.59	2.3	<0.1	5°	●
	WBGT 060102MPR/L-CF				<0.2		●
 Sharp edge / Mirror surface finish	WBGT 060101MFPR/L-PF	3.97	1.59	2.3	<0.1	5°	●
	WBGT 060102MFPR/L-PF				<0.2		●
	WBGT 080201MFPR/L-PF	4.76	2.38	2.3	<0.1	5°	●
WBGT 080202MFPR/L-PF	<0.2				●		
 Finishing	WBMT 060102R/L-DP	3.97	1.59	2.3	<0.2	5°	●
	WBMT 060104R/L-DP				<0.4		●
	WBMT 080202R/L-DP	4.76	2.38	2.3	<0.2	5°	●
	WBMT 080204R/L-DP				<0.4		●
 Sharp edge	WBET 0601005ML-F	3.97	1.59	2.3	<0.05	5°	L
	WBET 060101MR/L-F				<0.1		●
	WBET 060102MR/L-F				<0.2		●
	WBET 060104MR/L-F				<0.4		●
	WBET 080201ML-F	4.76	2.38	2.3	<0.1	5°	L
	WBET 080202ML-F				<0.2		L
	WBET 080204MR/L-F				<0.4		●
 Sharp edge	WBET 080201MR/L-P	4.76	2.38	2.3	<0.1	5°	●
	WBET 080202MR/L-P				<0.2		●
	WBET 080204MR/L-P				<0.4		●

●: Available

R: Std. item (Right-hand only)

L: Std. item (Left-hand only)