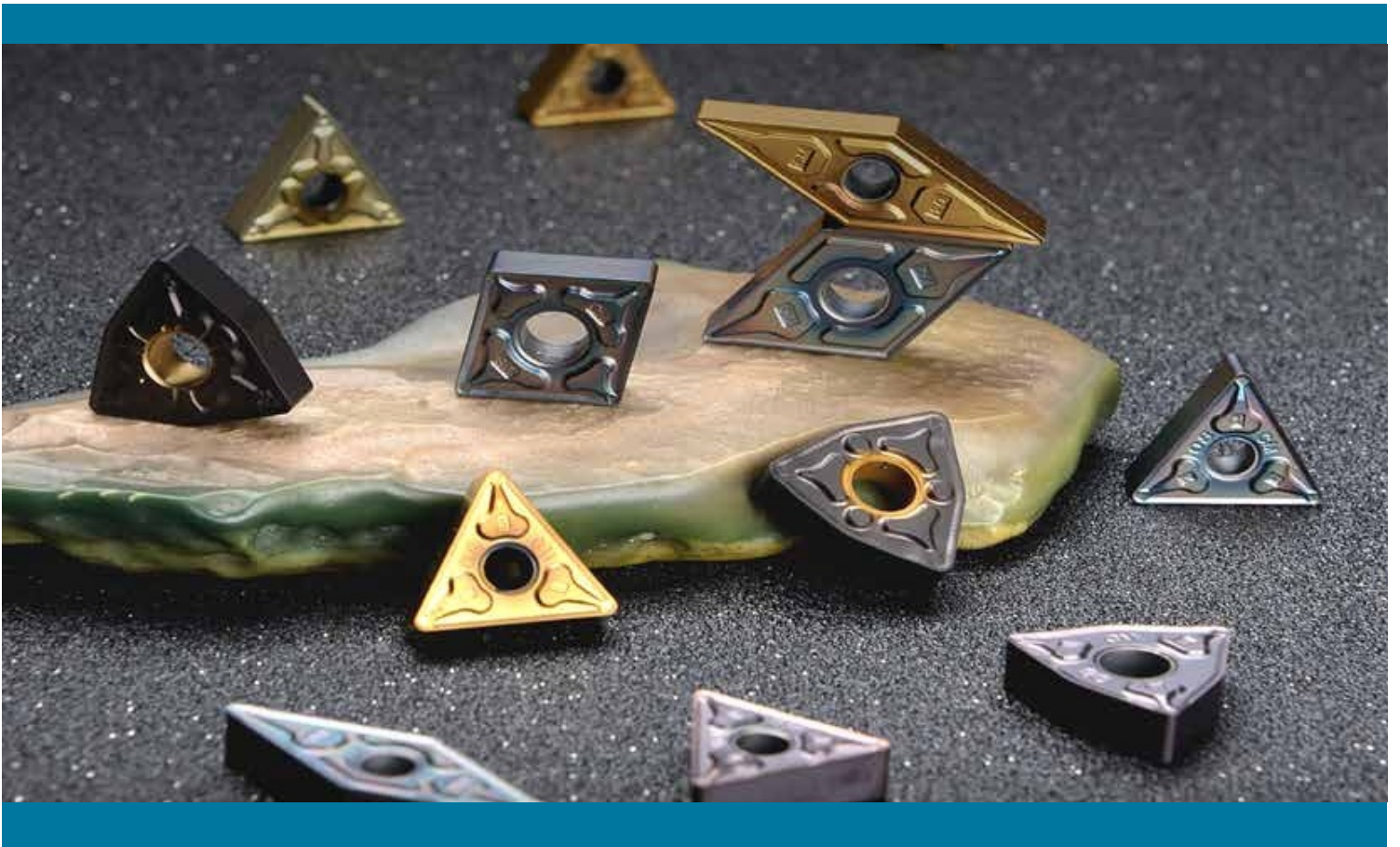


# TURNING

- Turning Tools
- Milling Tools
- Heavy Duty Processing
- Parting and Grooving
- Cermet Inserts
- Boring Tools





## Introduction

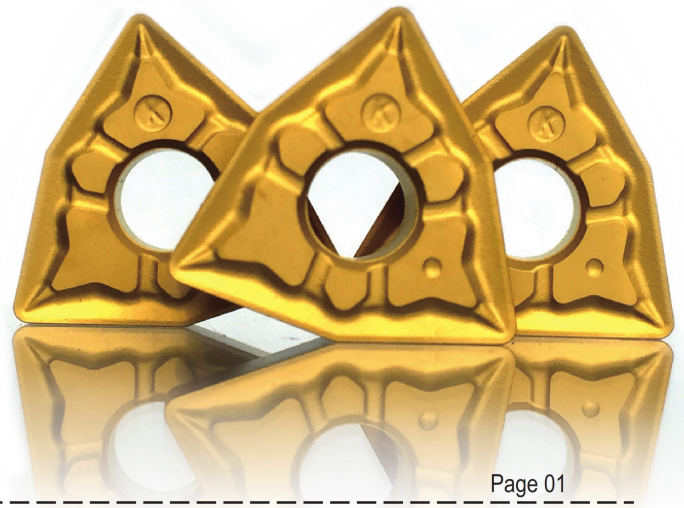
This Master Catalogue is your best source for a broad range of advanced indexable machining solutions. These "best in class" products include...

- A complete range of PVD and CVD first choice grades that includes the advantage of Mega range of Turning/Milling/Grooving/Threading/Drilling etc, with State of the Art Technology.
- Geometries that also offer a "first choice" range from finishing to roughing to meet the increasing demands of higher feed rates for greater chip control,
- Application and customer service support from our technical sales engineer is our main motto.

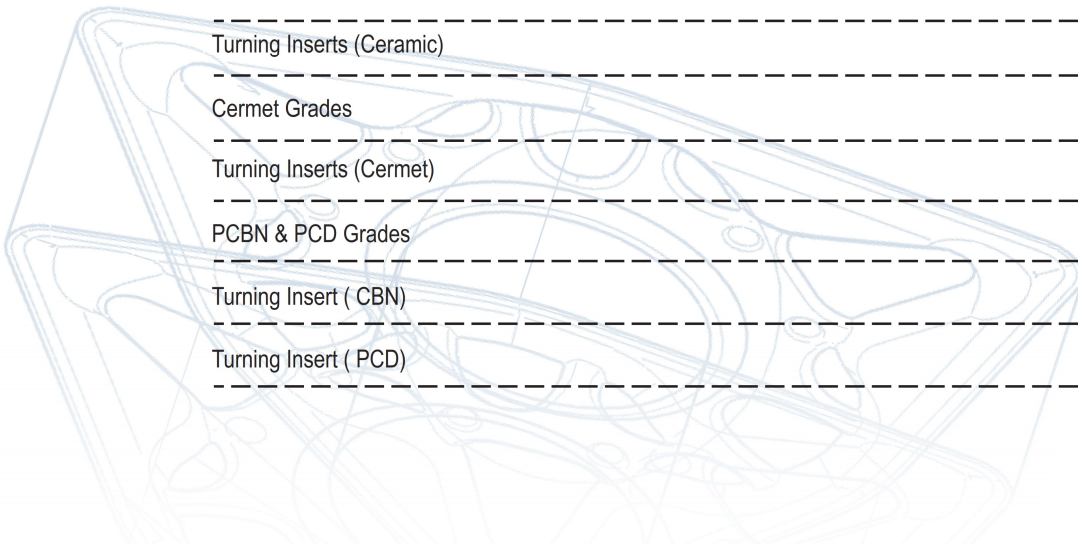
Rely on Duratec to achieve "Best in Class" machining solutions for your high end performance with satisfying results.



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## SAFETY GUIDELINES

DURATEC is continuously trying to develop safer and higher quality products  
Please be aware of the safety guidelines below prior to using DURATEC products

- It is generally accepted that the proper handling of cemented carbide tools requires awareness of safety as noted above. For more information, please contact us.
- DURATEC does not accept any responsibility for any accident caused by inappropriate use, abuse of tools, or changes to the products.

### PL (Product Liability)

In accordance with the PL (Product Liability) law, we have attached a WARNING label on the case of Duratec products. There is no warning on the surface of the tools. Please read this safety guidelines before using carbide tools and provide safety education to all users.

### Basic characteristics of CEMENTED CARBIDE tools

Cemented carbide tools are made of carbides, nitrides, carbonitrides, oxides of W, Ti, Al, Si, Ta, B etc and metal component like Co, Ni, Cr, Mo as binder. Cemented carbides tools have high hardness and specific gravity. Generally there's no smell but according to usage and treatment, appearance and color could be changed

### Precaution for CEMENTED CARBIDE tools

- 1) Cemented carbides are extremely hard and brittle at the same time.  
Impact shock or excessive clamping power could cause fracture or breaking of the tool.
- 2) Cemented carbides have large specific gravity, thus they require special attention as a heavy material when you handle big sizes or large quantities.
- 3) Cemented carbides have different thermal expansion coefficient with steel and ferrous materials. Shrink fit or swell fit products may cause trouble if they are used at undesirable conditions like extremely high or low temperatures.
- 4) There are several cemented carbide products having sharp cutting edges.  
Be careful not to handle the tools with bare hands which may cause cuts or injury, especially when removing the tools from the case, do not touch the cutting edge and be careful not to drop it.
- 5) Storing carbide tools in a corrosive atmosphere may cause erosion which can reduce toughness.
- 6) Please refer to the catalogue safety guidance prior to handling the tools.
- 7) Do not abuse tools under inappropriate conditions.

### Precaution for machining (grinding, welding, EDM) of CEMENTED CARBIDE tools

- 1) Surface condition can affect the toughness of the tool, so it is recommended to use a diamond grinding wheel.
- 2) Grinding of cemented carbide creates mist and dust. It contains harmful compositions like Co, thus it is recommended to use a mask, mist collection, and other protective facilities. If the dust gets in your skin or eye, rinse immediately with continuously running water.
- 3) In case of grinding with coolant, coolant contains harmful metal components which cause environmental problems. Handle the coolant according to the manufacturer's recommendations.
- 4) Check for cracks after re-grinding carbide tool and reuse.
- 5) Marking with laser or electric pen may cause cracks on the carbide tool. The crack can shorten tool life.
- 6) EDM of carbide may cause residual cracks on the carbide tool, so if necessary, remove the crack with a grinding process.
- 7) Brazing of carbide tools at extremely high or low temperatures compared with the melting point of brazing materials may cause loosening or breakage.
- 8) Overheating an oil base coolant may cause a fire or flames, thus be prepared for fire prevention.

## GRADE CODE SYSTEM

<b>Uncoated carbide</b>	<b>P</b>	Steel	DP20
	<b>M</b>	Stainless steel	-
	<b>K</b>	Cast iron	DPK01
	<b>N</b>	Non-ferrous metal	DPK01
	<b>S</b>	Heat resistant alloy, Titanium alloy	DPK01
	<b>H</b>	Hardened steel	-

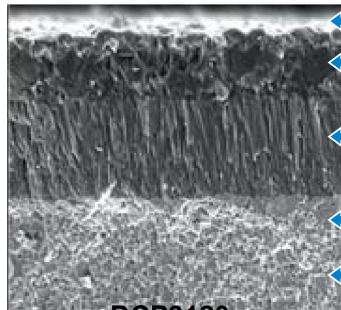
<b>Coated carbide for turning</b>	<b>P</b>	Steel	DCP 9305	DCP 9215	DCP 9120	DCP 9220	DCP 9225	DCP 9325	DCP 9335	DPM 8115	DPM 8125	DPM 8135
	<b>M</b>	Stainless steel	DPM 8115	DPM 8125	DPM 8225	DPM 8325	DPM 8135	DPM 8335				
	<b>K</b>	Cast iron	DCK 5205	DCK 5305	DCK 5215	DCK 5315	DCK 5225	DCK 5325				
	<b>N</b>	Non-ferrous metal	-									
	<b>S</b>	HRSA	DPM 8115	DPM 8125	DPM 8225	DPM 8325						
	<b>H</b>	Hardened steel	DPM 8225	DPM 8325								

<b>Coated carbide for milling</b>	<b>P</b>	Steel	DCP 9330	DCP 9340	DCP 9350	DPM 8115	DPM 8125	DPM 8135	DPM 8328
	<b>M</b>	Stainless steel	DCP 9330	DPM 8115	DPM 8125	DPM 8225	DPM 8328	DPM 8335	
	<b>K</b>	Cast iron	DCK 5205	DCK 5305	DCK 5215	DCK 5315	DCK 5225	DCK 5325	
	<b>N</b>	Non-ferrous metal	-						
	<b>S</b>	HRSA	DPM 8115	DPM 8125	DPM 8225	DPM 8328			
	<b>H</b>	Hardened steel	8225	DPM 8328					

<b>Turning cermet</b>	<b>P</b>	Steel	DTIN 20	DTIN 30
	<b>K</b>	Cast iron	DTIN 20	DTIN 30

<b>Turning Ceramic</b>	<b>P</b>	Steel	DS 01	DS 03	DT 01	DT 03
	<b>K</b>	Cast iron	DS 01	DS 03	DT 01	DT 03

# CVD Coated cemented carbide



DCP9120

- Surface gold TiN has the excellency of reducing the friction and wear recognition effect.
- Special structure of Al<sub>2</sub>O<sub>3</sub> settled layer has the best thermal barrier performance, high speed dry cutting, ensure resistance to plastic deformation of blade matrix at high speed dry cutting.
- TiCN layer with anti-wear material abrasion performance lead to the best wear resistant of the face of clearance angle.
- Using gradient sintering technology, and increase the impact resistance and wear resistance of insert, so as to improve the ability to resist damage of the insert.
- Carbide with special crystal structure improves the red hardness of the blade matrix, and strengthened the high temperature resistant performance of insert.

## DCP9115

High wear-resistant substrates combine with MT-TiCN, thick Al<sub>2</sub>O<sub>3</sub>, TiN coatings, excellent grades of steel, cast steel & stainless steel materials' finish processing at high speed cutting conditions.

## DCP9120

Special strength & toughness of the blade's substrates, perfect combinations with MT-TiCN, thick Al<sub>2</sub>O<sub>3</sub> coating, common grades for steel, suitable for steel, cast steel & stainless steel in semi-finishing, finishing.

## DCP9135

High-strength resistance & antiplastic deformation substrates, combining with MT-TiCN, thick Al<sub>2</sub>O<sub>3</sub> coating, good toughness & antiplastic deformation, suitable for steel, cast steel & stainless steel in light-roughing & roughing.

## DCP9330

High hardness substrates, medium and high speed, suitable for light & heavy milling of low alloy steel & unalloyed steel, also suitable for milling at low condition.

## DCP9340

Wear-resistant & good toughness substrates, common coating cemented carbide grades, used for medium and low speed milling of steel, cast iron, hardened steel.

## DCP9235

High-strength resistance & antiplastic deformation substrates, combining with MT-TiCN, ultra fine Al<sub>2</sub>O<sub>3</sub>, TiN coatings, good toughness & anti-plastic deformation, suitable for steel, cast steel & stainless steel in light-roughing & roughing.

## DCP9225

The combination of high wear-resistant substrate with MT-TiCN, fine grained Al<sub>2</sub>O<sub>3</sub> and TiN coatings, is a ideal grade of finishing processing of steel, stainless steel and cast iron in the case of high speed cutting.

## DCP9325

With optimized toughness and hardness substrate and MT-TiCN, fine grained Al<sub>2</sub>O<sub>3</sub> and TiN coatings, as a general using grade in ISO P25 application area, is suitable for semi-finishing and finishing processing of steel, stainless steel and cast iron.

## DCP9335

Substrate with high strength and strong resistance to plastic deformation combined with MT-TiCN, fine grained Al<sub>2</sub>O<sub>3</sub> and TiN coatings, having great toughness, is suitable for light load roughing of steel, stainless steel and cast iron.

## DCP9215

High wear resistant substrates combine with MT-TiCN, thick Al<sub>2</sub>O<sub>3</sub>, TiN coatings, excellent grades of steel, cast steel & stainless steel materials' finish processing at high-speed cutting conditions.

## DCP9225

Special strength & toughness of the insert substrates, perfect combinations with MT-TiCN, ultra fine Al<sub>2</sub>O<sub>3</sub>, TiN coatings, common grades for steel, suitable for steel, cast steel & stainless steel in semi-finishing, finishing.

**CVD Coated cemented carbide**

**DCK5205**

Coatings & tough substrates combination, supporting high-temperature & unelastic-deformation, suitable for ductile cast iron, forged cast-iron with high strength, ferrosteel in finishing & semi-finishing.

**DCK5215**

High wear-resistant substrates, perfect combinations with MTTi(CN), thick Al<sub>2</sub>O<sub>3</sub> coating, initial grades for ductile cast iron, forged cast iron, highly cutting speed allowance.

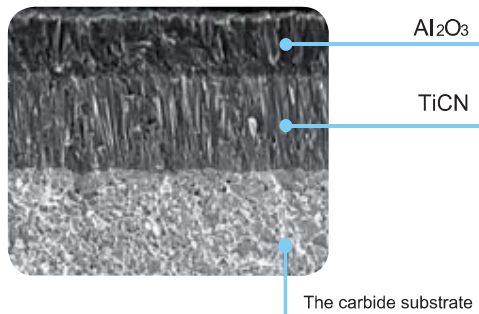
**DCK5315**

Wear-resistant & good toughness substrates, perfect combinations with MT-Ti(CN), thick Al<sub>2</sub>O<sub>3</sub> coating, initial grades for ductile cast iron & forged cast iron in roughing & highly-metal.

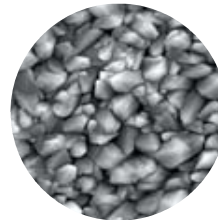
*Higher cutting speed and longer life of insert*

The inserts with special surface technology, greatly improved the surface roughness, effectively reduce the cutting force, reduce the adhesive between the cutter surface and the processed material, greatly improve the stability of inserts to use.

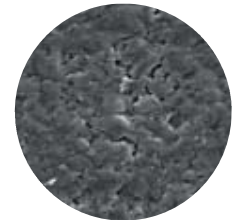
Fibrous TiCN and the perfect combination of fine grain Al<sub>2</sub>O<sub>3</sub> coating significantly improved the wear resistance and resistance to collapse of insert.



*The second generation of steel processing*



Before the surface treatment



After the surface treatment

**Contrast effect of insert abrasion test**

Workpiece(42CrMo Type:CNMG120408-GS  
Cutting parameter:Vc=390m/min ap=1mm fn=0.2mm/r

Grade of company

DCP9215



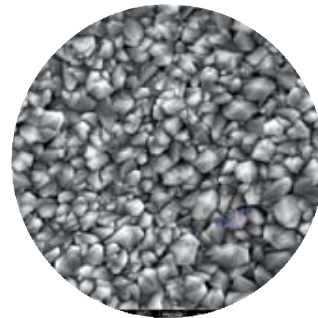
# Black general insert

First choice for high-speed and efficient processing of cast iron

- Thick  $Al_2O_3$  coating combined with strong impact resistance matrix, the insert has the stable high temperature red hardness and good impact resistance, improves the wear resistance of the insert under the requirement of high speed, high feed machining cast iron.
- All black product color shows more high-end

## Remarkable result

- Improve the production efficiency, coating and substrate are all adapted to cast iron of high speed and high feed cutting. **Cutting speed can be increased by 30% - 40%.**
- Reduce the cost, **improve the tool life of nearly 40% to 50%.**
- High stability of processing



Density fine grain layer of surface

### DCK5315

High wear-resistant substrates, perfect combinations with MTTi (CN), ultra  $Al_2O_3$ , TiN coatings, initial grades for ductile cast iron, forged cast iron, highly cutting speed allowance

### DCK5325

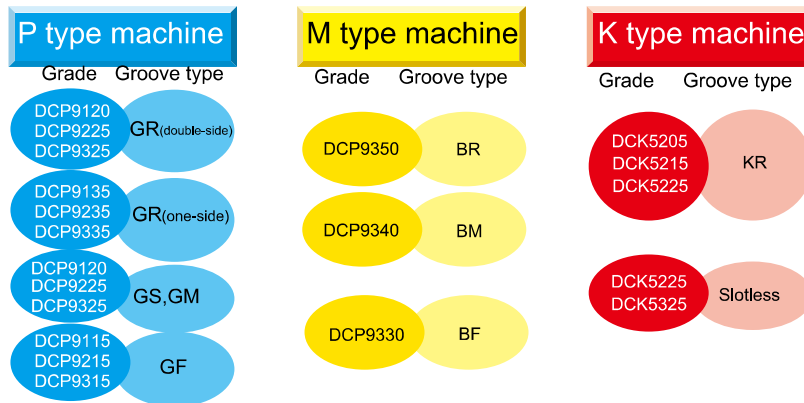
Wear-resistant & good toughness substrates, perfect combinations with MT-Ti(CN), ultra  $Al_2O_3$ , TiN coatings, initial grades for ductile cast iron & forged cast iron in roughing & highly-metal.

CVD Coated cemented carbide



# CVD coated cemented carbide

## Recommended group of grade and groove type



## Machining examples

Insert for use	Type	CNMG120408—GM	CNMG190616-BR	TNMA220412
	Grade	DCP9225	DCP9340	DCK5205
Shape				
		42CrMo HB280	1Cr13 HB270	Ferrosteel HB280
		V=240m/min ap=1.5~2mm f=0.2mm/r	V=100m/min ap=2mm f=0.3mm/r	Vmax=220m/min ap=1.3~2.5mm f=0.4~1.1mm/r
	type	Dry cutting	Dry cutting	Dry cutting
Contrast		No.  DCP9225 Company A Machine part No.(piece)/edge	No.  DCP9340 Company A Machine part No.(piece)/edge	No.  DCK5205 Company A Machine part No.(piece)/edge

## ➤ Selection System - CVD

Workpiece		Recommended grades	Recommended cutting speed (m/min)	ISO	Machining Type	Application range
P	Steel	DCP9305	250 (180-300)	P01	Finishing	
		DCP9215	280 (170-450)	P05	Finishing	
		DCP9225	200 (150-250)	P10	Semi Finishing	
		DCP9325	250 (150-350)	P15	Semi Finishing	
		DCP9120	250 (150-360)	P20	Semi Finishing	
		DCP9220	260 (150-370)	P25	Semi Finishing	
		DCP9325	130 (100-240)	P30	Roughing	
		DCP9335	190 (120-260)	P35 P40	Roughing	
M	Stainless steel	DCP9225	220 (150-250)	M10	Semi Finishing	
		DCP9325	250 (150-350)	M15	Semi Finishing	
		DCP9235	140 (100-240)	M20 M25	Roughing	
			DCP9335	190 (120-260)	M30 M40	
		K		Cast Iron	DCK5205	
DCK5305	300 (200-400)		K10		Finishing	
DCK5215	240 (180-300)		K15		Semi Finishing	
DCK5315	250 (180-300)		K20		Semi Finishing	
DCK5225	150 (130-230)		K25		Roughing	
DCK5325	180 (130-230)		K30 K35		Roughing	

# PVD coated cemented carbide

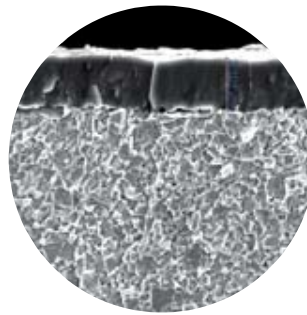
- *Let the difficult machining materials gets easy*
- *New grade of nano coated*

Special coating process lead to smooth surface, low cutting resistance force and easy chip-flow

Unique nano structure coating, closer integration with the substrate, towards higher toughness and hardness.

Good thermal stability and chemical stability of cutting edges provide more effective protection.

High performance TiAlN coated of nano structure ensures that the insert has a very high toughness and hardness. Unique coating technology makes the insert with smooth surface and high wear resistance, excellent thermal stability and chemical stability provide effective protection of cutting edge



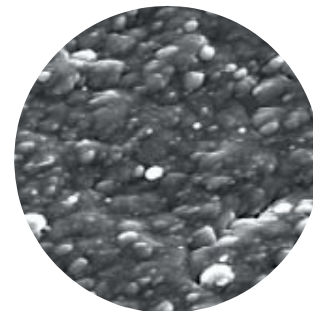
nc-TiAlN Coating DPM8125

## DPM8125

2-4µm TiAlN PVD coated, combining with ultra fine particles' substrates with high-toughness, suitable for all materials, stainless steel & high-temperature alloy in finishing, semi-finishing.

## DPM8115

2-4µm TiAlN PVD coated, combining with fine particles' substrates with high-toughness, suitable for all materials, high-temperature alloy & Ti alloy in finishing, semi-finishing.



The coating surface of DPM8125

## DPM8225

2-4µm AlCrN+AlCrSiN PVD coated, combining with ultra fine particles' substrates with high-toughness, suitable for all materials in light & medium load milling, stainless steel & high-temperature high hardness alloy in finishing, semi-finishing.

## DPM8135



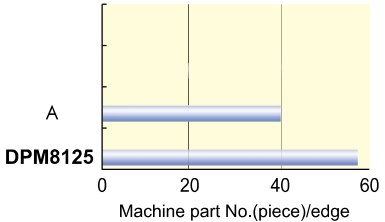
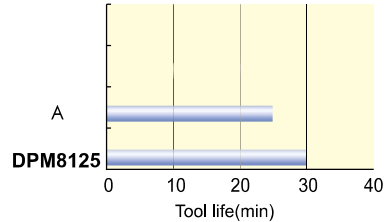
PVD coated, combining with high-resistant substrates, suitable for all materials in roughing, semi-finishing.

# PVD Coated cemented carbide

## ➤ Recommended group of grade and slot type

P type machine		M type machine	
Grade	Groove type	Grade	Groove type
DPM8135	GR	DPM8135	BR
DPM8125 DPM8225	GM	DPM8125	BM
DPM8115	GF	DPM8115	BF

## ➤ Processing case

Insert for use	Type	CNMG120404-GM	DNMG150404-BM
	Grade	DPM8125	DPM8225
Shape			
		40Cr HB280	1Cr18Ni9Ti HB240
		V=220m/min ap=2mm f=0.15mm/r	Vc=150m/min ap=1.0mm f=0.15mm/r
	type	Dry cutting	Dry cutting
Performance		 <p>A</p> <p>DPM8125</p> <p>Machine part No.(piece)/edge</p>	 <p>A</p> <p>DPM8125</p> <p>Tool life(min)</p>

## Selection System - PVD

Workpiece		Recommended grades	Recommended cutting speed (m/min)	ISO	Machining Type	Application range
P	Steel	DPM8115	250 (150-280)	P01	Finishing	
				P05		
		DPM8125	220 (180-280)	P10	Semi Finishing	
				P15		
		DPM8135	120 (100-150)	P20	Roughing	
				P25		
		DPM8225	150 (120-220)	P30	Semi Finishing	
				P35		
				P40		
		M	Stainless steel	DPM8115	200 (150-280)	
M10	Semi Finishing					
DPM8125				190 (110-270)	M15	
	M20				Semi Finishing	
DPM8225	170 (120-240)			M25		
				M30	Roughing	
DPM8135	120 (100-150)	M35				
		M40	Roughing			
K	Cast Iron	DPM8115	250 (180-300)	K05	Finishing	
				K10		
		DPM8125	250 (180-300)	K15	Semi Finishing	
				K20		
		K25				
S	HRSA	DPM8115	50 (30-70)	S05	Finishing	
				S10		
		DPM8125	30 (20-60)	S15	Semi Finishing	
				S20		
		DPM8225	40 (20-60)	S25	Semi Finishing	
				S30		

## Grade Selection

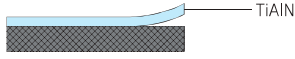
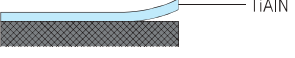
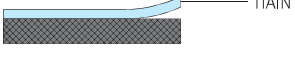
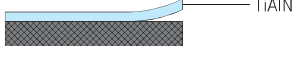
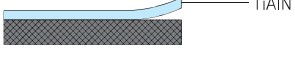
Turning Grades		P Steel				M Stainless Steel				K Cast Iron				N Non Ferrous				S HRSA				
		P05	P15	P25	P35	M05	M15	M25	M35	K05	K15	K25	K35	N05	N15	N25	N35	S05	S15	S25	S35	
CVD	DCP9035	01-10																				
	DCP9215		05-30																			
	DCP9225			15-35				10-20														
	DCP9120			15-35				10-20														
	DCP9220			20-30																		
	DCP9235				25-40				25-40													
	DCP9335				25-40				25-40													
	DCP9325			15-35				10-20														
	DCK1505										05-20											
	DCK5305										05-20											
	DCK5215										10-25											
	DCK5315										10-25											
	DCK5225											20-35										
	DCK5325											20-35										
	PVD	DPM8115	01-15						10-20			05-15										10-20
DPM8125			10-20					10-30			05-25										15-35	
DPM8225					30-40			20-30			10-30										20-30	
DPM8135				15-30				30-40														
DPM930								30-40														

## Features of CVD coated grades

Grades	Coating	Features
DCP9305 P05 (P01 - P10)		<ul style="list-style-type: none"> <li>• MT-TiCN+TiC+Al<sub>2</sub>O<sub>3</sub>+TiN</li> <li>• Stable conditions for steel finishing can obtain high metal removal rate.</li> <li>• Excellent resistance to crater wear and plastic deformation resistance. Recommended for stable conditions. Wet and dry processing</li> </ul>
DCP9215 P15 (P05 - P20)		<ul style="list-style-type: none"> <li>• MT-TiCN+Al<sub>2</sub>O<sub>3</sub>+TiN</li> <li>• Wear-resistance materials coated on the gradient sintered substrate which has both good hardness and toughness. Can bear high temperatures.</li> <li>• For steel and casting steel finishing to roughing processing. Continue cutting to light interrupted cutting.</li> </ul>
DCP9225 P25 (P15 - P35) M15(M10 - M20)		<ul style="list-style-type: none"> <li>• MT-TiCN+Al<sub>2</sub>O<sub>3</sub>+TiN</li> <li>• Combining excellent fracture resistance substrate with chipping resistance and heat resistance Al<sub>2</sub>O<sub>3</sub> increased stability, suitable for steel and cast steel continuous cutting and interrupted cutting finishing to roughing.</li> </ul>
DCP9325 P25 (P15 - P35) M15(M10 - M20)		<ul style="list-style-type: none"> <li>• MT-TiCN+TiC+Al<sub>2</sub>O<sub>3</sub>+TiN</li> <li>• Universal grade combining substrate with wear resistance and toughness and Al<sub>2</sub>O<sub>3</sub> coating with oxidation resistance and fracture resistance, suitable for steel and cast steel continuous cutting and interrupted cutting finishing to roughing.</li> </ul>

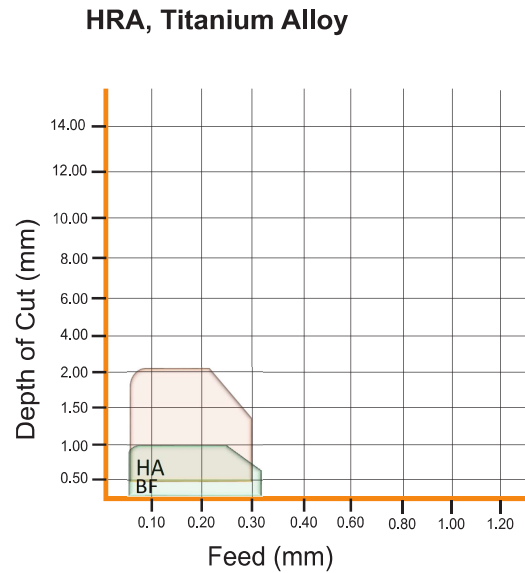
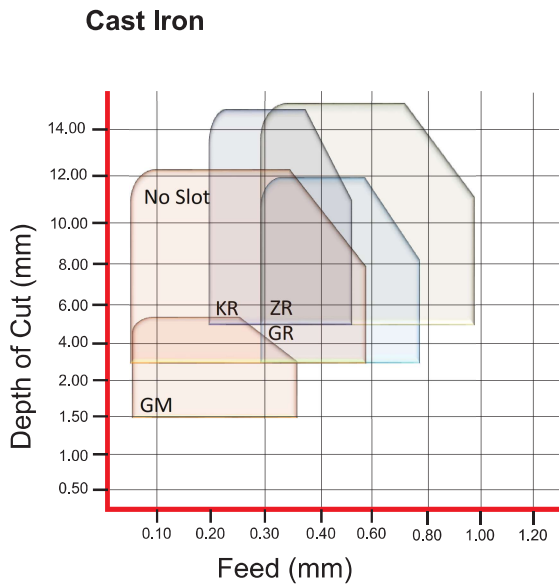
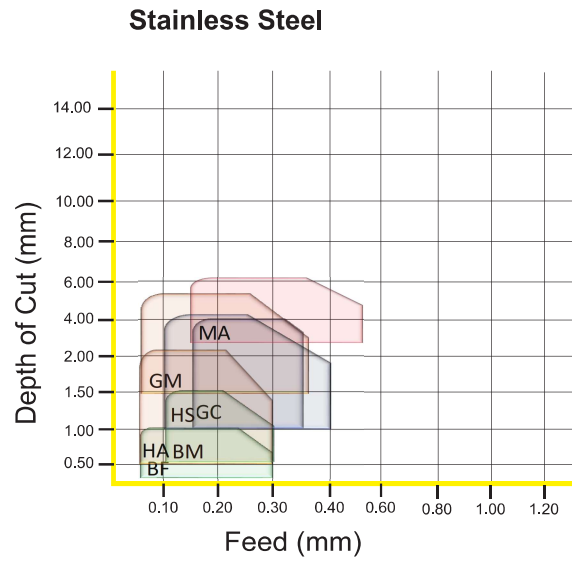
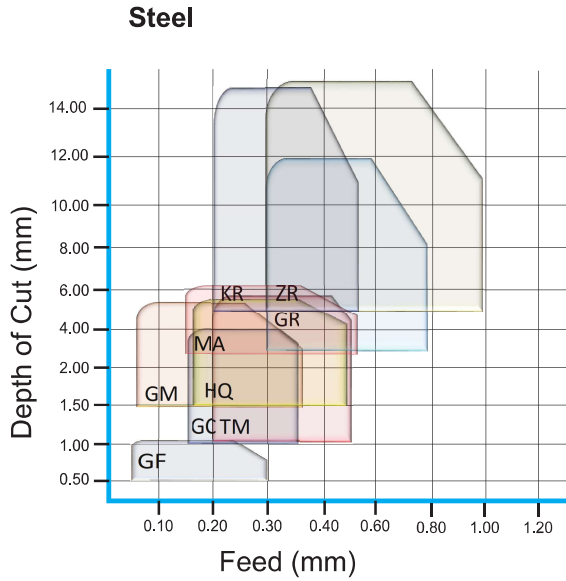
<p>DCP9120</p> <p><b>P15 (P05 - P20)</b></p>		<ul style="list-style-type: none"> <li>• MT-TiCN+TiC+Al<sub>2</sub>O<sub>3</sub>+TiN</li> <li>• Universal grade combining substrate with wear resistance and toughness and Al<sub>2</sub>O<sub>3</sub> coating with oxidation resistance and fracture resistance.</li> <li>• Special treatment on the outermost layer. Suitable for steel and cast steel medium cutting to roughing.</li> </ul>
<p>DCP9220</p> <p><b>P20 (P10 - P30)</b></p>		<ul style="list-style-type: none"> <li>• MT-TiCN+TiC+Al<sub>2</sub>O<sub>3</sub>+TiN</li> <li>• Excellent combination of high wear-resistant substrates and Al<sub>2</sub>O<sub>3</sub> coating improve welding /chipping resistance, is 1st recommended grade for general machining of steel &amp; forged steel.</li> </ul>
<p>DCP9235</p> <p><b>P35 (P25 - P40)</b></p> <p><b>M35(M25 - M40)</b></p>		<ul style="list-style-type: none"> <li>• High strength and anti-plasticdeformation substrate coated with multiple TiCN, and ultra-fine Al<sub>2</sub>O<sub>3</sub> coating characterized with high toughness. Suitable for light roughing and roughing of steel, cast steel and stainless steel.</li> <li>• Combining excellent fracture resistance substrate with chipping resistance and heat resistance Al<sub>2</sub>O<sub>3</sub> increased stability in wide ranges of cutting conditions.</li> </ul>
<p>DCP9335</p> <p><b>P35 (P25 - P40)</b></p> <p><b>M35(M25 - M40)</b></p>		<ul style="list-style-type: none"> <li>• High strength and anti-plastic-deformation substrate coated with multiple TiCN, ultra-fine Al<sub>2</sub>O<sub>3</sub> and TiN coating characterized with high toughness. Suitable for light roughing and roughing of steel, cast steel and stainless steel.</li> <li>• Machining steel and cast steel in bad conditions, Edge line security for interrupted cutting and roughing operations high metal removal rate.</li> </ul>
<p>DCK5205</p> <p><b>K05 (K05 - K20)</b></p>		<ul style="list-style-type: none"> <li>• MT-TiCN+Al<sub>2</sub>O<sub>3</sub>+TiN</li> <li>• CVD coated carbide combining extremely hard substrate can withstand high temperature without plastic deformation .</li> </ul>
<p>DCK5305</p> <p><b>K05 (K05 - K20)</b></p>		<ul style="list-style-type: none"> <li>• Recommended for ductile iron, high strength malleable cast iron and gray cast iron finish machining to semi finish machining.</li> </ul>
<p>DCK5215</p> <p><b>K15 (K10 - K25)</b></p>		<ul style="list-style-type: none"> <li>• MT-TiCN+Al<sub>2</sub>O<sub>3</sub>+TiN</li> <li>• The excellent combination of high wear resistance substrate and MT-TiCN, thick Al<sub>2</sub>O<sub>3</sub>, TiN coating is the first choice of ductile iron and gray cast iron, which allows a higher cutting speed.</li> </ul>
<p>DCK5315</p> <p><b>K15 (K10 - K25)</b></p>		<ul style="list-style-type: none"> <li>• MT-TiCN+Al<sub>2</sub>O<sub>3</sub>+TiN (Double Coating)</li> <li>• The excellent combination of high wear resistance substrate and MT-TiCN, thick Al<sub>2</sub>O<sub>3</sub>, TiN coating is the first choice of ductile iron and gray cast iron, which allows a higher cutting speed.</li> </ul>
<p>DCK5225</p> <p><b>K25 (K20 - K35)</b></p>		<ul style="list-style-type: none"> <li>• MT-TiCN+Al<sub>2</sub>O<sub>3</sub>+TiN</li> <li>• The excellent combination of good wear resistance and toughness substrate and MT-TiCN, thick Al<sub>2</sub>O<sub>3</sub>, TiN coating is the first choice of ductile iron and gray cast iron for roughing cutting high metal remove rate.</li> </ul>
<p>DCK5325</p> <p><b>K25 (K20 - K35)</b></p>		<ul style="list-style-type: none"> <li>• MT-TiCN+Al<sub>2</sub>O<sub>3</sub>+TiN (Double Coating)</li> <li>• High wear-resistant substrate of medium toughness coated with multiple TiCN, ultrafine Al<sub>2</sub>O<sub>3</sub> and TiN coating. The first choice for roughing of ductile cast iron and gray cast iron with high metal removal rate.</li> </ul>

## Features of PVD coated grades









Grades	Coating	Features
<p>DPM8115</p> <p>P05 (P01 - P10)</p> <p>M15(M10 - M20)</p> <p>K10 (K10 - K30)</p> <p>S15 (S10 - S20)</p>		<ul style="list-style-type: none"> <li>• High speed and continuous machining for a variety of steel up to HRC70, stainless steel, cast iron &amp; HRSA</li> <li>• Strong cutting edge and excellent chipping resistance guarantees stable machining, longer tool life.</li> <li>• 3-5µm AlTiN PVD coating and ultra fine grain substrate adopted.</li> </ul>
<p>DPM8125</p> <p>P15 (P10 - P20)</p> <p>M25(M10 - M30)</p> <p>K10 (K05 - K25)</p> <p>S20 (S15 - S30)</p>		<ul style="list-style-type: none"> <li>• 2-4µm TiAlN PVD coated micro-grain carbide. Use for a variety of steel, stainless steel, cast iron &amp; high temperature alloy finishing at medium to low cutting speed.</li> <li>• High thermal shock resistance, suitable for light interrupted cuts.</li> </ul>
<p>DPM8225</p> <p>P30 (P30 - P40)</p> <p>M25(M20 - M30)</p> <p>S25 (S20 - S30)</p>		<ul style="list-style-type: none"> <li>• Universal grade for stainless, HRSA &amp; hightemperature high hardness alloy machining.</li> <li>• High chipping and welding resistance for longer tool life.</li> <li>• 2-4µm Nano AlCrN+AlCrSiN PVD coating is combined with high toughness of ultra fine grain substrate, suitable for finishing &amp; medium machining.</li> </ul>
<p>DPM8135</p> <p>P20 (P15 - P30)</p> <p>M30(M30 - M40)</p>		<ul style="list-style-type: none"> <li>• PVD coated carbide grade, an alternative of toughness processes.</li> <li>• Combining the peripheral-edge grinding blade, preferred for viscous material, such as stainless steel &amp; low carbon steel.</li> <li>• Combining the excellent toughness ssubstrates, suitable for medium &amp; roughing machining.</li> </ul>
<p>DPM930</p> <p>M30(M30 - M40)</p>		<ul style="list-style-type: none"> <li>• medium, roughing and heavy interrupted cutting for stainless steel.</li> <li>• TiAlN coating and ultra fine grain substrate adopted.</li> <li>• High chipping and welding resistance for stable machining.</li> </ul>













## Chipbreaker Graph






## Turning Inserts Application Range - Negative

	Fine finishing	Finishing	Medium	Roughing	Heavy roughing
P		 GF	 GM   HQ   TM   MA	 KR	 ZR   GR
	Continuous cut ← → Interrupted cut				




	Fine finishing	Finishing	Medium	Roughing	Heavy roughing
M		 BF   HA	 MA   BM   HS   HM	 GS	
	Continuous cut ← → Interrupted cut				




K	Fine finishing	Finishing	Medium	Roughing	Heavy roughing
				 GM	  KR
Continuous cut ← → Interrupted cut					


N	Fine finishing	Finishing	Medium	Roughing	Heavy roughing
			 HA		
Continuous cut ← → Interrupted cut					


S	Fine finishing	Finishing	Medium	Roughing	Heavy roughing
			  HA		
Continuous cut ← → Interrupted cut					


## Turning Inserts Application Range - Positive

P	Fine finishing	Finishing	Medium	Roughing	Heavy roughing
			 HF	 HM	 HR
Continuous cut ←					→ Interrupted cut

M	Fine finishing	Finishing	Medium	Roughing	Heavy roughing
			 HF	 HM	 HR
Continuous cut ←					→ Interrupted cut

K	Fine finishing	Finishing	Medium	Roughing	Heavy roughing
					 HR
Continuous cut ←					→ Interrupted cut

































N	Fine finishing	Finishing	Medium	Roughing	Heavy roughing
	 AL				
Continuous cut ←—————→ Interrupted cut					

S	Fine finishing	Finishing	Medium	Roughing	Heavy roughing
	 SL				
Continuous cut ←—————→ Interrupted cut					




















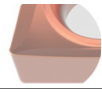







## Turning Chip breaker

### Negative Inserts

Use	Chipbreaker	Feature	Material	90° Square  C	90° Diamond  S	80° Hexagon  W	60° Triangle  T	55° Dianord  D	35° Dianord  V	Application range
Roughin	<b>GR</b> 	<ul style="list-style-type: none"> <li>Suitable for heavy duty cutting due to strong cutting edge.</li> <li>Wide chip control range with low cutting force.</li> </ul>								a =3.0~8.0 (mm/rev) fn =3.0~12.0 (mm)
	<b>KR</b> 	<ul style="list-style-type: none"> <li>With broad applied range for steel and cast iron.</li> <li>High cutting edge hardness, low cutting resistance force, easy chip-flow. Combined with more abrasive grade can get better efficiency.</li> </ul>								a =2.0~5.0 (mm/rev) fn =5.0~15.0 (mm)
	<b>ZR</b> 	<ul style="list-style-type: none"> <li>M Class double chip breaker, tough edge, with a high security, strong ability to resist plastic deformation at high removal rate.</li> </ul>								a =0.3~1.0 (mm/rev) fn =5.0~15.0 (mm)
	<b>No Slot</b> 	<ul style="list-style-type: none"> <li>For grey and nodular cast-iron.</li> <li>Broad application range for roughing</li> </ul>								a =0.05~0.6 (mm/rev) fn =3.0~12.0 (mm)
Semi-finishing	<b>GM</b> 	<ul style="list-style-type: none"> <li>With broad applied range.</li> <li>High reliability and universality with fault-free cutting. This chipbreaker matches with wear-resistance grade will be better</li> <li>Strong Cutting edge strength provide good performance at intermittent and fast feed cutting.</li> </ul>								a =0.15~0.5 (mm/rev) fn =1.5~5.0 (mm)
	<b>HQ</b> 	<ul style="list-style-type: none"> <li>The front angle and double point design can provide good sharpness and widely chip processing performance.</li> </ul>								a =0.15~0.3 (mm/rev) fn =0.5~2.0 (mm)
	<b>TM</b> 	<ul style="list-style-type: none"> <li>High universality, easy chip-flow, special bulge close to the nose radius and big rake angle generate the cutting ability and low cutting force of chip breaker</li> </ul>								a =0.1 ~0.3 (mm/rev) fn =0.5~3.0 (mm)
	<b>MA</b> 	<ul style="list-style-type: none"> <li>First recommendation for medium cutting of carbon steel and alloy steel.</li> <li>Alternative chipbreaker for finishing and light cutting of cast iron.</li> <li>Suitable for general field. Positive edge shape of blade, performance of sharp cutting.</li> </ul>								a =0.15~0.5 (mm/rev) fn =2.0~6.0 (mm)
	<b>GS</b> 	<ul style="list-style-type: none"> <li>GS Chipbreaker is engineered for medium to Roughing of stainless steel. Superior too life at high inermitted cutting, better chipflow through through wide chip pocket, prevents build up edge by how cutting force design.</li> </ul>								a =0.1 ~0.3 (mm/rev) fn =0.5~1.5 (mm)
	<b>BM</b> 	<ul style="list-style-type: none"> <li>Has a wide range of applications for stainless steel.</li> <li>Can effectively solve machining difficulties such as chip breaking and sticking phenomenon in the stainless steel processing, which can obtain higher machining efficiency.</li> </ul>								a =0.1 ~0.3 (mm/rev) fn =0.5~1.5 (mm)
	<b>HS</b> 	<ul style="list-style-type: none"> <li>Exclusive design for stainless steel cutting provide longer tool life.</li> <li>Wear resistance have been reinforced through high rake angle of chip breaker land.</li> </ul>								a =0.1~0.4 (mm/rev) fn =1.0~4.0 (mm)

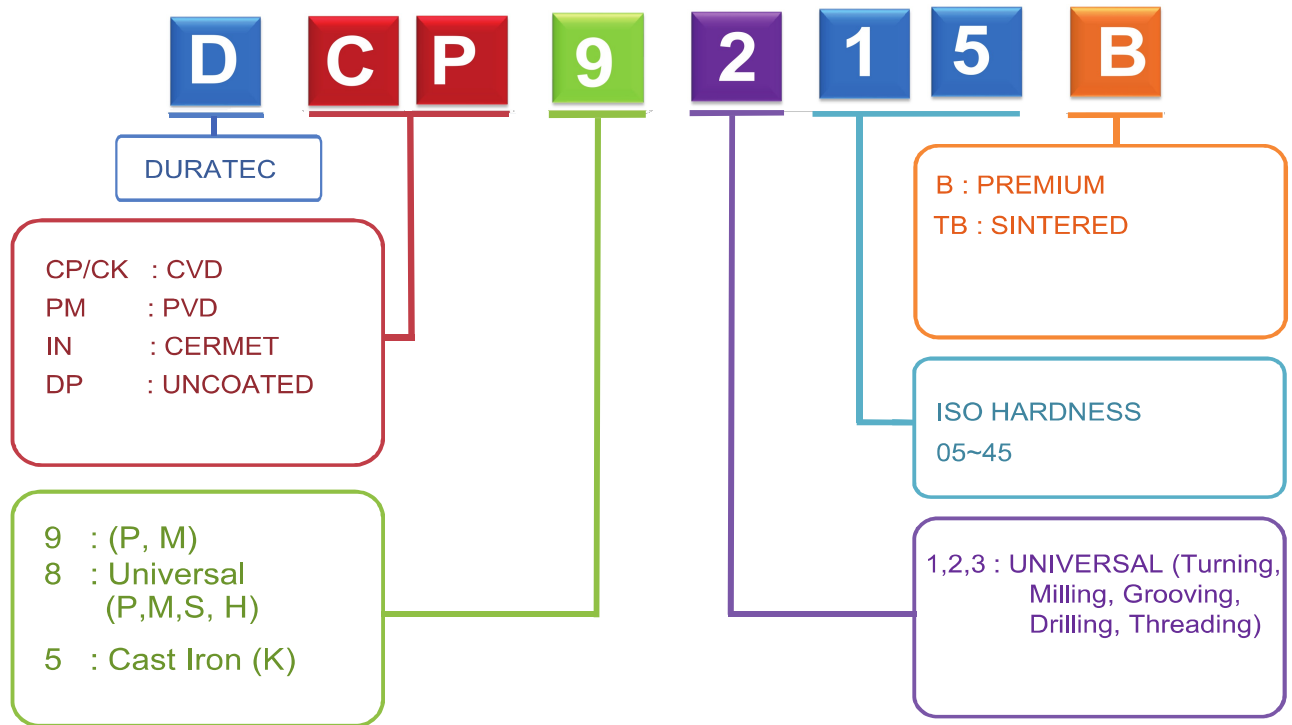
Use	Chipbreaker	Feature	Material	90° Square C	90° Diamond S	80° Hexagon W	60° Triangle T	55° Diamond D	35° Diamond V	Application range
Semi-finishing	<b>HM</b> 	<ul style="list-style-type: none"> <li>● HM Chipbreaker is engineered for medium roughing / heavy to finishing of stainless steel, unique C/B design provide smooth chip control, strong edge, superior toughness</li> </ul>								a = 0.1~0.4 (mm/rev) fn = 1.0~4.0 (mm)
	Finishing	<b>BF</b> 	<ul style="list-style-type: none"> <li>● Due to the latest chipbreaker design, it can obtain good chip control and good machining surface accuracy.</li> <li>● The extremely sharp edge and high rake angle design especially is suitable for stainless steel &amp; softy steel.</li> </ul>							
<b>GF</b> 		<ul style="list-style-type: none"> <li>● Stable Chip Control in high toughness material, low carbon steel, pipe steel &amp; Steel plates.</li> <li>● Improved chip control for facing, copy machining and better surface finish.</li> </ul>								a = 0.05~0.3 (mm/rev) fn = 0.1~1.0 (mm)
<b>HA</b> 		<ul style="list-style-type: none"> <li>● Sharp cutting edge generates low cutting force.</li> <li>● Specially designed tough main cutting edge.</li> <li>● Suitable for cutting of low carbon steel, stainless steel, aluminum</li> </ul>								a = 0.05~0.3 (mm/rev) fn = 0.1~1.0 (mm)

## Positive Inserts

Use	Chipbreaker	Feature	Material	90° Square	90° Diamond	80° Hexagon	60° Triangle	55° Dianord	35° Dianord	Application range
Roughin	<b>HR</b> 	<ul style="list-style-type: none"> <li>● Suitable for internal and external roughing of steel, stainless steel and cast iron material</li> </ul>								a = 0.3 ~ 0.7 (mm/rev) fn = 1.0 ~ 4.0 (mm)
	<b>HM</b> 	<ul style="list-style-type: none"> <li>● Excellent chip control at wide range of cutting conditions.</li> <li>● Suitable for stainless steel cutting.</li> </ul>								a = 0.2 ~ 0.5 (mm/rev) fn = 1.0 ~ 4.0 (mm)
Finishing	<b>HF</b> 	<ul style="list-style-type: none"> <li>● Excellent chip control in steel, stainless steel, grey and nodular cast-iron.</li> <li>● Suitable for both boring and outer diameter turning.</li> </ul>								a = 0.05 ~ 0.3 (mm/rev) fn = 0.1 ~ 2.0 (mm)
	<b>SL</b> 	<ul style="list-style-type: none"> <li>● Suitable for finishing machining of heat resistance alloy, titanium alloy and other aerospace parts.</li> <li>● Light cutting chip breaker with low cutting force, high reliability and universality, problem free cutting</li> </ul>								



➤ Grade Name for Coated Carbide



## ➤ Nomenclature



### 1 Insert Shape

**C** N M G 12 04 08 - GM

### 3 Tolerance

**C** N **M** G 12 04 08 - GM

Class	d (mm)	m (mm)	t (mm)
A	±0.025	±0.005	±0.025
C	±0.025	±0.013	±0.025
H	±0.013	±0.013	±0.025
E	±0.025	±0.025	±0.025
G	±0.025	±0.025	±0.13
J*	±0.05 ~ ±0.15	±0.005	±0.025
K*	±0.05 ~ ±0.15	±0.013	±0.025
L*	±0.05 ~ ±0.15	±0.025	±0.025
M*	±0.05 ~ ±0.15	±0.08 ~ ±0.20	±0.13
N*	±0.05 ~ ±0.15	±0.08 ~ ±0.18	±0.025
U*	±0.08 ~ ±0.25	±0.13 ~ ±0.38	±0.13

\* Sides are based on unground insert

Tolerance on C,E,H,M,O,P,R,S,T,W Insert Shape (Exceptional case)

d	Tolerance on d		Tolerance on m	
	J, K, L, M, N	U	M, N	U
6.35	±0.05	±0.08	±0.08	±0.13
9.525	±0.05	±0.08	±0.08	±0.13
12.7	±0.08	±0.13	±0.13	±0.20
15.875	±0.10	±0.18	±0.15	±0.27
19.05	±0.10	±0.18	±0.15	±0.27
25.4	±0.13	±0.25	±0.18	±0.38

Tolerance on D Insert Shape (Exceptional case)

d	Tolerance on d	Tolerance on m
6.35	±0.05	±0.11
9.525	±0.05	±0.11
12.7	±0.08	±0.15
15.875	±0.10	±0.18
19.05	±0.10	±0.18

### 2 Relief Angle

**C** **N** M G 12 04 08 - GM

### 4 Cross Section Type

**C** N M **G** 12 04 08 - GM

# 04 - 08 - GM

6

Height of Cutting Edge

7

Nose Radius (Nose R)

8

Chip Breaker for Turning

5

Cutting Edge Length, Diameter of Incribed Circle

C N M G 12 04 08 - GM

Symbol								Inch	IC d(mm)
C	d	S	T	R	V	W			
03	04	03	06	03	-	02	1.2(5)	3.97	
04	05	04	08	04	08	S3	1.5(6)	4.76	
05	06	05	09	05	09	03	1.8(7)	5.56	
-	-	-	-	06	-	-	-	6.00	
06	07	06	11	06	11	04	2	6.35	
08	09	07	13	07	13	05	2.5	7.94	
-	-	-	-	08	-	-	-	8.00	
09	11	09	16	09	16	06	3	9.52 5	
-	-	-	-	10	-	-	-	10.00	
11	13	11	19	11	19	07	3.5	11.11	
-	-	-	-	12	-	-	-	12.00	
12	15	12	22	12	22	08	4	12.70	
14	17	14	24	14	24	09	4.5	14.29	
16	19	15	27	15	27	10	5	15.87 5	
-	-	-	-	16	-	-	-	16.00	
17	21	17	30	17	30	11	5.5	17.46	
19	23	19	33	19	33	13	6	19.05	
-	-	-	-	20	-	-	-	20.00	
22	27	22	38	22	38	15	7	22.22 5	
-	-	-	-	25	-	-	-	25.00	
25	31	25	44	25	44	17	8	25.40	
32	38	31	54	31	54	21	10	31.75	
-	-	-	-	32	-	-	-	32.00	

) Symbol for small size insert

7

Nose Radius (Nose R)

C N M G 12 04 08 - GM

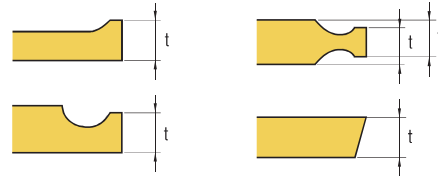


Symbol		Corner Radius	
Metric	Inch	Metric	Inch
01	0	0.1	0.004
02	0.5	0.2	0.008
04	1	0.4	1/64
08	2	0.8	1/32
12	3	1.2	3/64
16	4	1.6	1/16
20	5	2.0	5/64
24	6	2.4	3/32
28	7	2.8	7/64
32	8	3.2	1/8
00	-	⊠ Roundinsert (Inch)	
M0	-	⊠ Roundinsert (Metric)	

6

Height of Cutting Edge

C N M G 12 04 08 - GM



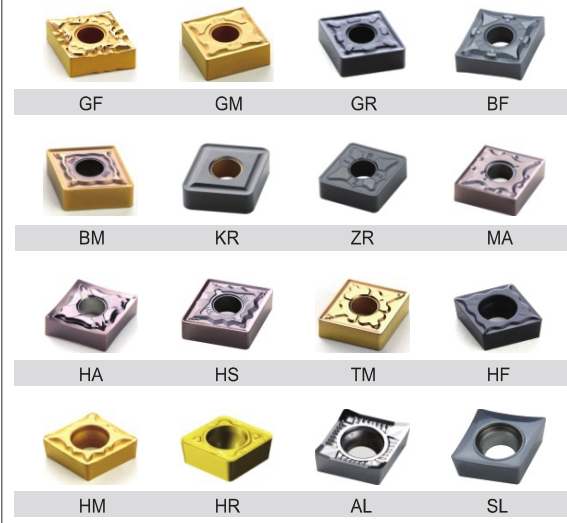
Symbol		Height of Cutting Edge(t)	
Metric	Inch	mm	Inch
01	1(2)	1.59	1/16
T0	1.125	1.79	9/12 8
T1	1.2	1.98	5/64
02	1.5(3)	2.38	3/32
T2	1.75	2.78	7/64
03	2	3.18	1/8
T3	2.5	3.97	5/32
04	3	4.76	3/16
05	3.5	5.56	7/32
06	4	6.35	1/4
07	5	7.94	5/16
09	6	9.52	3/8
11	7	11.11	7/16
12	8	12.70	1/2

( ) Symbol for small size insert

8

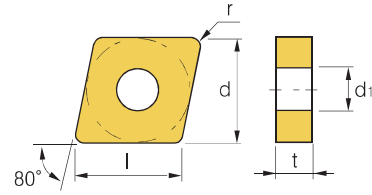
Chip Breaker for Turning






C N M G 12 04 08 - GM



# CN○○

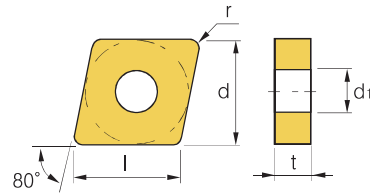
## Rhombic 80° Negative






Inserts	Designation	Coated													Dimensions (mm)													
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9335	DPM8115	DPM8125	DPM8225	DPM8135	DPM930	DCX5205	DCX5305	DCX5215	DCX5315	DCX5225	DCX5325	Uncoated	l	d	t	d1	r			
<b>CNMA</b>  Roughing	120404														●	●	●						12.4	12.7	4.76	5.16	0.4	
	120408														●	●	●	●						12.0	12.7	4.76	5.16	0.8
	120412														●	●	●							11.6	12.7	4.76	5.16	1.2
	120416														●	●	●	●						11.2	12.7	4.76	5.16	1.6
	160608														●	●	●							15.3	15.875	6.35	6.35	0.8
	160612														●	●	●	●						14.8	15.875	6.35	6.35	1.2
	160616														●	●	●							14.4	15.875	6.35	6.35	1.6
	190608														●	●	●	●						18.5	19.05	6.35	7.93	0.8
	190612														●	●	●							18.1	19.05	6.35	7.93	1.2
190616														●	●	●	●						17.7	19.05	6.35	7.93	1.6	
<b>CNMG-KR</b>  Medium to Roughing	120404-KR			●										●	●	●							12.4	12.7	4.76	5.16	0.4	
	120408-KR			●											●	●	●	●						12.0	12.7	4.76	5.16	0.8
	120412-KR			●											●	●	●							11.6	12.7	4.76	5.16	1.2
	120416-KR			●											●	●	●	●						11.2	12.7	4.76	5.16	1.6
	160608-KR			●											●	●	●							15.3	15.875	6.35	6.35	0.8
	160612-KR			●											●	●	●	●						14.8	15.875	6.35	6.35	1.2
	160616-KR			●											●	●	●							14.4	15.875	6.35	6.35	1.6
	190608-KR			●											●	●	●	●						18.5	19.05	6.35	7.93	0.8
	190612-KR			●											●	●	●							18.1	19.05	6.35	7.93	1.2
190616-KR			●											●	●	●	●						17.7	19.05	6.35	7.93	1.6	
<b>CNMG-GF</b>  Finishing	090304-GF		●	●	●																		9.2	9.525	3.18	3.81	0.4	
	090308-GF		●	●	●																			8.8	9.525	3.18	3.81	0.8
	120404-GF		●	●	●	●									●	●								12.4	12.7	4.76	5.16	0.4
	120408-GF		●	●	●	●									●	●								12.0	12.7	4.76	5.16	0.8
	120412-GF		●	●	●										●	●								11.6	12.7	4.76	5.16	1.2
<b>CNMG-GM</b>  Medium	090304-GM																						9.2	9.525	3.18	3.81	0.4	
	090308-GM														●	●								8.8	9.525	3.18	3.81	0.8
	120404-GM		●	●	●	●									●	●								12.4	12.7	4.76	5.16	0.4
	120408-GM		●	●	●	●									●	●								12.0	12.7	4.76	5.16	0.8
	120412-GM		●	●	●	●									●	●								11.6	12.7	4.76	5.16	1.2
	120416-GM		●	●	●	●									●	●	●							11.2	12.7	4.76	5.16	1.6
	160608-GM		●	●	●	●									●	●								15.3	15.875	6.35	6.35	0.8
	160612-GM		●	●	●	●									●	●	●							14.8	15.875	6.35	6.35	1.2
	160616-GM		●	●	●	●									●	●								14.4	15.875	6.35	6.35	1.6
	190608-GM		●	●	●	●									●	●	●	●						18.5	19.05	6.35	7.93	0.8
190612-GM		●	●	●	●									●	●	●							18.1	19.05	6.35	7.93	1.2	
190616-GM		●	●	●	●									●	●	●	●						17.7	19.05	6.35	7.93	1.6	
<b>CNMG-GS</b>  Medium	120404-GS													●									9.2	9.525	3.18	3.81	0.4	
	120408-GS														●									8.8	9.525	3.18	3.81	0.8
	120412-GS														●									12.4	12.7	4.76	5.16	0.4

**CN○○○**

**Rhombic 80° Negative**

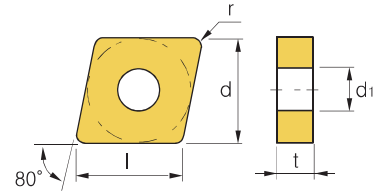






Inserts	Designation	Coated														Uncoated		Dimensions (mm)									
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9235	DCP9335	DFM8115	DFM8125	DFM8225	DFM8135	DFM930	DKK6205	DKK6305	DKK6215	DKK6315	DKK6225	DKK6325	DP20	DPK01	l	d	t	d1	r
 Roughing	090308-GR																						8.8	9.525	3.18	3.81	0.8
	120404-GR																						12.4	12.7	4.76	5.16	0.4
	120408-GR																						12.0	12.7	4.76	5.16	0.8
	120412-GR																						11.6	12.7	4.76	5.16	1.2
	120416-GR																						11.2	12.7	4.76	5.16	1.6
	160608-GR																						15.3	15.875	6.35	6.35	0.8
	160612-GR																						14.8	15.875	6.35	6.35	1.2
	160616-GR																						14.4	15.875	6.35	6.35	1.6
	190608-GR																						18.5	19.05	6.35	7.93	0.8
	190612-GR																						18.1	19.05	6.35	7.93	1.2
	190616-GR																						17.7	19.05	6.35	7.93	1.6
	190624-GR																						16.8	19.05	6.35	7.93	2.4
	250724-GR																						23.3	25.4	7.94	9.12	2.4
250924-GR																						23.3	25.4	9.52	9.12	2.4	
 Roughing	120408-ZR																					12.0	12.7	4.76	5.16	0.8	
	120412-ZR																						11.6	12.7	4.76	5.16	1.2
	120416-ZR																						11.2	12.7	4.76	5.16	1.6
	160608-ZR																						15.3	15.875	6.35	6.35	0.8
	160612-ZR																						14.8	15.875	6.35	6.35	1.2
	160616-ZR																						14.4	15.875	6.35	6.35	1.6
	190608-ZR																						18.5	19.05	6.35	7.93	0.8
	190612-ZR																						18.1	19.05	6.35	7.93	1.2
	190616-ZR																						17.7	19.05	6.35	7.93	1.6
	190624-ZR																						16.8	19.05	6.35	7.93	2.4
250724-ZR																						23.3	25.4	7.94	9.12	2.4	
250924-ZR																						23.3	25.4	9.52	9.12	2.4	
 Medium to Finishing	120404-HA																					12.4	12.7	4.76	5.16	0.4	
	120408-HA																						12.0	12.7	4.76	5.16	0.8
	120412-HA																						11.6	12.7	4.76	5.16	1.2



# CN○○○

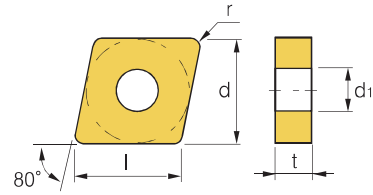
## Rhombic 80° Negative



Inserts	Designation	Coated														Uncoated		Dimensions (mm)									
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9335	DFM8115	DFM8125	DFM8225	DFM8135	DFM930	DCK6205	DCK6305	DCK6215	DCK6315	DCK6225	DCK6325	DP20	DPK01	l	d	t	d1	r	
<b>CNMG-HS</b>  Medium	120404-HS							●														12.4	12.7	4.76	5.16	0.4	
	120408-HS							●															12.0	12.7	4.76	5.16	0.8
	120412-HS																						11.6	12.7	4.76	5.16	1.2
<b>CNMG-HQ</b>  Medium	120404-HQ	●																				12.4	12.7	4.76	5.16	0.4	
	120408-HQ	●																					12.0	12.7	4.76	5.16	0.8
	120412-HQ																						11.6	12.7	4.76	5.16	1.2
<b>CNMG-TM</b>  Medium	120404-TM	●	●	●																		12.4	12.7	4.76	5.16	0.4	
	120408-TM	●	●	●																			12.0	12.7	4.76	5.16	0.8
	120412-TM																						11.6	12.7	4.76	5.16	1.2
<b>CNMG-MA</b>  Medium	090304-MA																					9.2	9.525	3.18	3.81	0.4	
	090308-MA																						8.8	9.525	3.18	3.81	0.8
	120404-MA	●	●	●	●	●																12.4	12.7	4.76	5.16	0.4	
	120408-MA	●	●	●	●	●																12.0	12.7	4.76	5.16	0.8	
	120412-MA																					11.6	12.7	4.76	5.16	1.2	
	160608-MA																					15.3	15.875	6.35	6.35	0.8	
	160612-MA																					14.8	15.875	6.35	6.35	1.2	
	160616-MA																					14.4		6.35	6.35	1.6	

# CN○○

## Rhombic 80° Negative

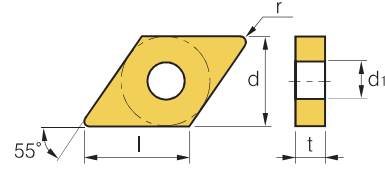


Inserts	Designation	Coated														Dimensions (mm)												
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9225	DCP9235	DCP9335	DPW8115	DPW8125	DPW8225	DPW8135	DPW930	DCK5205	DCK5305	DCK5215	DCK5315	DCK5225	DCK5325	DP20	DPK01	l	d	t	d1	r	
<b>CNMG-BF</b> 	120404-BF									●													12.4	12.7	4.76	5.16	0.4	
	120408-BF									●														12.0	12.7	4.76	5.16	0.8
	120412-BF																							11.6	12.7	4.76	5.16	1.2
	160608-BF																							15.3	15.875	6.35	6.35	0.8
	160612-BF																							14.8	15.875	6.35	6.35	1.2
	Finishing																											
<b>CNMG-BM</b> 	090304-BM																						9.2	9.525	3.18	3.18	0.4	
	090308-BM																							8.8	9.525	3.18	3.18	0.8
	120404-BM									●●														12.4	12.7	4.76	5.16	0.4
	120408-BM									●●														12.0	12.7	4.76	5.16	0.8
	120412-BM									●●														11.6	12.7	4.76	5.16	1.2
	160608-BM									●●														15.3	15.875	6.35	6.35	0.8
	160612-BM									●														14.8	15.875	6.35	6.35	1.2
	160616-BM																							14.4	15.875	6.35	6.35	1.6
Medium																												
<b>CNMM-GR</b> 	160608-GR									●●●													15.3	15.875	6.35	6.35	0.8	
	160612-GR									●●●														14.8	15.875	6.35	6.35	1.2
	160616-GR									●●●														14.4	15.875	6.35	6.35	1.6
	190608-GR									●●●														18.5	19.05	6.35	7.93	0.8
	190612-GR									●●●														18.1	19.05	6.35	7.93	1.2
	190616-GR									●●●														17.7	19.05	6.35	7.93	1.6
	190624-GR									●●●														16.8	19.05	6.35	7.93	2.4
	250724-GR									●●●														23.3	25.4	7.94	9.12	2.4
	250924-GR									●●●														23.3	25.4	9.52	9.12	2.4
Roughing																												
<b>CNMG-HM</b> 	120404-HM																						9.2	9.525	3.18	3.81	0.4	
	120408-HM																							8.8	9.525	3.18	3.81	0.8
	120412-HM																							12.4	12.7	4.76	5.16	0.4
	Medium																											

## DN○○



### Rhombic 55° Negative

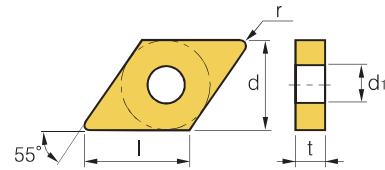


Inserts	Designation	Coated														Dimensions (mm)											
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9335	DFM8115	DFM8125	DFM8225	DFM8135	DFM930	DCK5205	DCK5305	DCK5215	DCK5315	DCK5225	DCK5325	DP20	DPK01	l	d	t	d1	r	
<b>DNMA</b>    Roughing	110408																						10.8	9.525	4.76	3.81	0.8
	150404																						15.1	12.7	4.76	5.16	0.4
	150408																						14.7	12.7	4.76	5.16	0.8
	150412																						14.4	12.7	4.76	5.16	1.2
	150604																						15.1	12.7	6.35	5.16	0.4
	150608																						14.7	12.7	6.35	5.16	0.8
	150612																						14.4	12.7	6.35	5.16	1.2
	150616																						14.0	12.7	6.35	5.16	1.6
<b>DNMG-KR</b>    Medium to Roughing	150404																						15.1	12.7	4.76	5.16	0.4
	150408																						14.7	12.7	4.76	5.16	0.8
	150412																						14.4	12.7	4.76	5.16	1.2
	150604																						15.1	12.7	6.35	5.16	0.4
	150608																						14.7	12.7	6.35	5.16	0.8
	150612																						14.4	12.7	6.35	5.16	1.2
	150616																						14.0	12.7	6.35	5.16	1.6
<b>DNMG-GF</b>    Finishing	110404-GF																						11.2	9.525	4.76	3.81	0.4
	110408-GF																						10.8	9.525	4.76	3.81	0.8
	150404-GF																						15.1	12.7	4.76	5.16	0.4
	150408-GF																						14.7	12.7	4.76	5.16	0.8
	150604-GF																						15.1	12.7	6.35	5.16	0.4
	150608-GF																						14.7	12.7	6.35	5.16	0.8
<b>DNMG-GM</b>    Medium	110404-GM																						11.2	9.525	4.76	3.81	0.4
	110408-GM																						10.8	9.525	4.76	3.81	0.8
	110412-GM																						10.3	9.525	4.76	3.81	1.2
	150404-GM																						15.1	12.7	4.76	5.16	0.4
	150408-GM																						14.7	12.7	4.76	5.16	0.8
	150412-GM																						14.4	12.7	4.76	5.16	1.2
	150604-GM																						15.1	12.7	6.35	5.16	0.4
	150608-GM																						14.7	12.7	6.35	5.16	0.8
	150612-GM																						14.4	12.7	6.35	5.16	1.2
150616-GM																						14.0	12.7	6.35	5.16	1.6	
<b>DNMG-HM</b>    Medium	150604-HM																						11.2	9.525	4.76	3.81	0.4
	150608-HM																						10.8	9.525	4.76	3.81	0.8
																							10.3	9.525	4.76	3.81	1.2



# DN○○

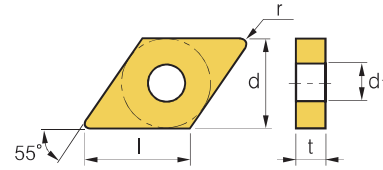
Rhombic **55° Negative**







Inserts	Designation	Coated														Dimensions (mm)										
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9235	DCP9335	DPM8115	DPM8125	DPM8225	DPM8135	DPM830	DKK5205	DKK5305	DKK5215	DKK5315	DKK5225	DKK5325	DP20	DPK01	l	d	t	d1	r
 Roughing	110404-GR	●	●	●																		11.2	9.525	4.76	3.81	0.4
	110408-GR	●	●	●																		10.8	9.525	4.76	3.81	0.8
	110412-GR																					10.3	9.525	4.76	3.81	1.2
	150404-GR																					15.1	12.7	4.76	5.16	0.4
	150408-GR	●	●	●																		14.7	12.7	4.76	5.16	0.8
	150412-GR	●	●	●																		14.4	12.7	4.76	5.16	1.2
	150604-GR																					15.1	12.7	6.35	5.16	0.4
	150608-GR	●	●	●																		14.7	12.7	6.35	5.16	0.8
	150612-GR	●	●	●																		14.4	12.7	6.35	5.16	1.2
	150616-GR	●	●	●																		14.0	12.7	6.35	5.16	1.6
 Roughing	110408-ZR		●	●																	10.8	9.525	4.76	3.18	0.8	
	110412-ZR			●	●																	10.3	9.525	4.76	3.18	1.2
	150408-ZR			●	●																	14.7	12.7	4.76	5.16	0.8
	150412-ZR			●	●																	14.4	12.7	4.76	5.16	1.2
	150608-ZR			●	●																	14.7	12.7	6.35	5.16	0.8
	150612-ZR			●	●																	14.4	12.7	6.35	5.16	1.2
	150616-ZR			●	●																	14.0	12.7	6.35	5.16	1.6
 Finishing	150404-HA							●											●	15.1	12.7	4.76	5.16	0.4		
	150408-HA							●											●	14.7	12.7	4.76	5.16	0.8		
																					15.1	12.7	6.35	5.16	0.4	
																						14.7	12.7	6.35	5.16	0.8

# DN○○

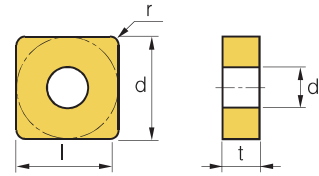
 Rhombic **55° Negative**








Inserts	Designation	Coated														Uncoated					Dimensions (mm)						
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9235	DCP9335	DPM8115	DPM8125	DPM8225	DPM8135	DPM930	DCX5205	DCX5305	DCX5215	DCX5315	DCX5225	DCX5325	DP20	DPK01	l	d	t	d1	r
<b>DNMG-TM</b>  Medium	110404-TM					●																	11.2	9.525	4.76	3.81	0.4
	110408-TM					●																	10.8	9.525	4.76	3.81	0.8
	150404-TM		●			●																	15.1	12.7	4.76	5.16	0.4
	150408-TM		●			●																	14.7	12.7	4.76	5.16	0.8
	150604-TM		●			●																	15.1	12.7	6.35	5.16	0.4
	150608-TM		●			●																	14.7	12.7	6.35	5.16	0.8
	150612-TM																						14.4	12.7	6.35	5.16	1.2
<b>DNMG-MA</b>  Medium	110404-MA					●		●●															11.2	9.525	4.76	3.81	0.4
	110408-MA					●		●●															10.8	9.525	4.76	3.81	0.8
	150404-MA		●			●		●●●															15.1	12.7	4.76	5.16	0.4
	150408-MA		●			●		●●●															14.7	12.7	4.76	5.16	0.8
	150604-MA		●			●		●●															15.1	12.7	6.35	5.16	0.4
	150608-MA		●			●		●●															14.7	12.7	6.35	5.16	0.8
	150612-MA								●●														14.4	12.7	6.35	5.16	1.2
<b>DNMG-BF</b>  Finishing	110404-BF																						11.2	9.525	4.76	3.81	0.4
	110408-BF																						10.8	9.525	4.76	3.81	0.8
	150404-BF							●															15.1	12.7	4.76	5.16	0.4
	150408-BF							●															14.7	12.7	4.76	5.16	0.8
	150604-BF							●															15.1	12.7	6.35	5.16	0.4
	150608-BF							●															14.7	12.7	6.35	5.16	0.8
	150612-BF																						14.4	12.7	6.35	5.16	1.2
<b>DNMG-BM</b>  Medium	110404-BM																						11.2	9.525	4.76	3.81	0.4
	110408-BM																						10.8	9.525	4.76	3.81	0.8
	110412-BM																						10.3	9.525	4.76	3.81	1.2
	150404-BM																						15.1	12.7	4.76	5.16	0.4
	150408-BM																						14.7	12.7	4.76	5.16	0.8
	150412-BM																						14.4	12.7	4.76	5.16	1.2
	150604-BM																						15.1	12.7	6.35	5.16	0.4
	150608-BM																						14.7	12.7	6.35	5.16	0.8
	150612-BM																						14.4	12.7	6.35	5.16	1.2
	150616-BM																						14.0	12.7	6.35	5.16	1.6

# SN○○

 Square **90° Negative**

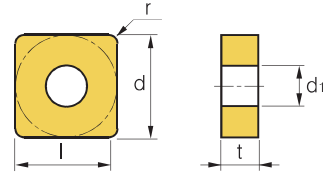






Inserts	Designation	Coated														Uncoated		Dimensions (mm)									
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9235	DCP9335	DPM8115	DPM8125	DPM8225	DPM8135	DPM930	DCK6205	DCK6305	DCK6215	DCK6315	DCK6225	DCK6325	DP20	DPK01	l	d	t	d1	r	
<b>SNMA</b>   Roughing	120404														●	●	●					12.3	12.7	4.76	5.16	0.4	
	120408														●	●	●					11.9	12.7	4.76	5.16	0.8	
	120412														●	●	●					11.5	12.7	4.76	5.16	1.2	
	120416														●	●	●					11.1	12.7	4.76	5.16	1.6	
	150608														●	●	●					15.0	15.875	6.35	6.35	0.8	
	150612														●	●	●					14.6	15.875	6.35	6.35	1.2	
	150616														●	●	●					14.2	15.875	6.35	6.35	1.6	
	190608														●	●	●					18.2	19.05	6.35	7.93	0.8	
	190612														●	●	●					17.8	19.05	6.35	7.93	1.2	
190616														●	●	●					17.4	19.05	6.35	7.93	1.6		
<b>SNMG-KR</b>   Medium to Roughing	120404-KR				●										●	●	●					12.3	12.7	4.76	5.16	0.4	
	120408-KR				●										●	●	●					11.9	12.7	4.76	5.16	0.8	
	120412-KR				●										●	●	●					11.5	12.7	4.76	5.16	1.2	
	120416-KR				●										●	●	●					11.1	12.7	4.76	5.16	1.6	
	150608-KR				●										●	●	●					15.0	15.875	6.35	6.35	0.8	
	150612-KR				●										●	●	●					14.6	15.875	6.35	6.35	1.2	
	150616-KR				●										●	●	●					14.2	15.875	6.35	6.35	1.6	
	190608-KR				●										●	●	●					18.2	19.05	6.35	7.93	0.8	
	190612-KR				●										●	●	●					17.8	19.05	6.35	7.93	1.2	
190616-KR				●										●	●	●					17.4	19.05	6.35	7.93	1.6		
<b>SNMG-GF</b>   Finishing	090304-GF																					9.1	9.525	3.81	3.81	0.4	
	090308-GF																						8.7	9.525	3.81	3.81	0.8
	120404-GF			●	●	●	●																12.3	12.7	4.76	5.16	0.4
	120408-GF			●	●	●	●																11.9	12.7	4.76	5.16	0.8
<b>SNMG-GM</b>   Medium	090304-GM																					9.1	9.525	3.81	3.81	0.4	
	090308-GM																						8.7	9.525	3.81	3.81	0.8
	120404-GM				●	●	●	●															12.3	12.7	4.76	5.16	0.4
	120408-GM				●	●	●	●															11.9	12.7	4.76	5.16	0.8
	120412-GM				●	●	●	●															11.5	12.7	4.76	5.16	1.2
	120416-GM				●	●	●	●															11.1	12.7	4.76	5.16	1.6
	150608-GM				●	●	●	●															15.0	15.875	6.35	6.35	0.8
	150612-GM				●	●	●	●															14.6	15.875	6.35	6.35	1.2
	150616-GM				●	●	●	●															14.2	15.875	6.35	6.35	1.6
	190608-GM				●	●	●	●															18.2	19.05	6.35	7.93	0.8
	190612-GM				●	●	●	●															17.8	19.05	6.35	7.93	1.2
190616-GM				●	●	●	●															17.4	19.05	6.35	7.93	1.6	
<b>SNMG-GS</b>   Roughing	120404-GS														●							9.1	9.525	3.81	3.81	0.4	
	120408-GS														●								8.7	9.525	3.81	3.81	0.8

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# SN○○

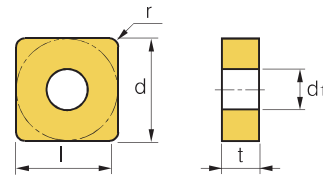
 Square **90° Negative**



Inserts	Designation	Coated													Uncoated					Dimensions (mm)									
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9235	DCP9335	DFM8115	DFM8125	DFM8225	DFM8135	DFM930	DCK6305	DCK6315	DCK6315	DCK6325	DCK6325	DP20	DPK01	l	d	t	d1	r			
 Roughing	120404-GR					●	●																12.3	12.7	4.76	5.16	0.4		
	120408-GR					●	●																	11.9	12.7	4.76	5.16	0.8	
	120412-GR					●	●																	11.5	12.7	4.76	5.16	1.2	
	120416-GR					●	●																	11.1	12.7	4.76	5.16	1.6	
	150608-GR					●	●																	15.0	15.875	6.35	6.35	0.8	
	150612-GR					●	●																	14.6	15.875	6.35	6.35	1.2	
	150616-GR					●	●																	14.2	15.875	6.35	6.35	1.6	
	190608-GR					●	●																	18.2	19.05	6.35	7.93	0.8	
	190612-GR					●	●																	17.8	19.05	6.35	7.93	1.2	
	190616-GR					●	●																	17.4	19.05	6.35	7.93	1.6	
	190624-GR					●	●																	16.6	19.05	6.35	7.93	2.4	
250724-GR					●	●																	23.0	25.4	7.94	9.12	2.4		
250924-GR					●	●																	23.0	25.4	9.52	9.12	2.4		
 Roughing	120408-ZR					●	●																11.9	12.7	4.76	5.16	0.8		
	120412-ZR					●	●																	11.5	12.7	4.76	5.16	1.2	
	120416-ZR					●	●																	11.1	12.7	4.76	5.16	1.6	
	150608-ZR					●	●																	15.0	15.875	6.35	6.35	0.8	
	150612-ZR					●	●																	14.6	15.875	6.35	6.35	1.2	
	150616-ZR					●	●																	14.2	15.875	6.35	6.35	1.6	
	190608-ZR					●	●																	18.2	19.05	6.35	7.93	0.8	
	190612-ZR					●	●																	17.8	19.05	6.35	7.93	1.2	
	190616-ZR					●	●																	17.4	19.05	6.35	7.93	1.6	
	190624-ZR					●	●																	16.6	19.05	6.35	7.93	2.4	
	250724-ZR					●	●																	23.0	25.4	7.94	9.12	2.4	
250924-ZR					●	●																	23.0	25.4	9.52	9.12	2.4		
 Medium to Finishing	120404-HA							●															12.3	12.7	4.76	5.16	0.4		
	120408-HA							●																11.9	12.7	4.76	5.16	0.8	
	120412-HA							●																11.5	12.7	4.76	5.16	1.2	
 Medium to Finishing	120404-HM																							12.3	12.7	4.76	5.16	0.4	
	120408-HM																								11.9	12.7	4.76	5.16	0.8

# SN○○

## Square 90° Negative

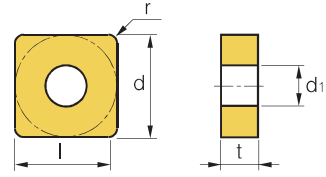


Inserts	Designation	Coated														Uncoated		Dimensions (mm)											
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9235	DCP9335	DPW8115	DPW8125	DPW8225	DPW8135	DPW930	DCK5205	DCK5305	DCK5215	DCK5315	DCK5225	DCK5325	DP20	DPK01	l	d	t	d1	r		
<b>SNMG-HS</b>  Medium	120404-HS									●													12.3	12.7	4.76	5.16	0.4		
	120408-HS									●														11.9	12.7	4.76	5.16	0.8	
	120412-HS																							11.5	12.7	4.76	5.16	1.2	
<b>SNMG-MA</b>  Medium	120404-MA	●							●	●	●	●												12.3	12.7	4.76	5.16	0.4	
	120408-MA	●							●	●	●	●													11.9	12.7	4.76	5.16	0.8
	120412-MA																								11.5	12.7	4.76	5.16	1.2
	150608-MA																												
	150612-MA																												
	150612-MA																												
<b>SNMG-BF</b>  Finishing	120404-BF									●														12.3	12.7	4.76	5.16	0.4	
	120408-BF									●															11.9	12.7	4.76	5.16	0.8
	120412-BF																												
	150608-BF																												
	150612-BF																												
<b>SNMG-BM</b>  Medium	090304-BM																							9.1	9.525	3.81	3.81	0.4	
	090308-BM																								8.7	9.525	3.81	3.81	0.8
	120404-BM										●	●													12.3	12.7	4.76	5.16	0.4
	120408-BM										●	●													11.9	12.7	4.76	5.16	0.8
	120412-BM																								11.5	12.7	4.76	5.16	1.2
	150608-BM																												
	150612-BM																												
	150616-BM																												

# SN○○○



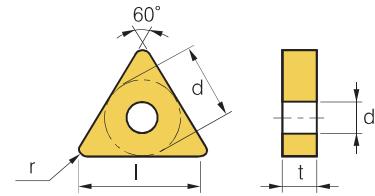
## Square 90° Negative







Inserts	Designation	Coated														Uncoated		Dimensions (mm)										
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9235	DCP9335	DPM8115	DPM8125	DPM8225	DPM8135	DPM930	DCK5205	DCK5305	DCK5215	DCK6315	DCK5225	DCK5325	DP20	DPK01	l	d	t	d1	r	
	150608-GR																							15.0	15.875	6.35	6.35	0.8
	150612-GR																							14.6	15.875	6.35	6.35	1.2
	150616-GR																							14.2	15.875	6.35	6.35	1.6
	190608-GR																							18.2	19.05	6.35	7.93	0.8
	190612-GR																							17.8	19.05	6.35	7.93	1.2
	190616-GR																							17.4	19.05	6.35	7.93	1.6
	190624-GR																							16.6	19.05	6.35	7.93	2.4
	250724-GR																							23.0	25.4	7.94	9.12	2.4
	250924-GR																							23.0	25.4	9.52	9.12	2.4
 Roughing																												

**TN**○○○

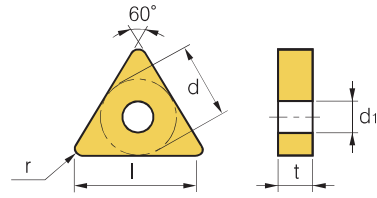
**Triangular 60° Negative**






Inserts	Designation	Coated													Dimensions (mm)													
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9235	DCP9335	DFM8115	DFM8125	DFM8225	DFM8135	DFM830	DCK5205	DCK5305	DCK6215	DCK5315	DCK6225	DCK6325	DP20	DPK01	l	d	t	d1	r	
<b>TNMA</b>   Roughing	160404														●	●	●						15.5	9.525	4.76	3.81	0.4	
	160408														●	●	●						14.5	9.525	4.76	3.81	0.8	
	160412														●	●	●						13.5	9.525	4.76	3.81	1.2	
	160416														●	●	●						12.5	9.525	4.76	3.81	1.6	
	220404														●	●	●						21.0	12.7	4.76	5.16	0.4	
	220408														●	●	●						20.0	12.7	4.76	5.16	0.8	
	220412														●	●	●						19.0	12.7	4.76	5.16	1.2	
	220416														●	●	●						18.2	12.7	4.76	5.16	1.6	
	270608															●							25.4	15.875	6.35	6.35	0.8	
	270612															●							24.4	15.875	6.35	6.35	1.2	
270616															●							23.3	15.875	6.35	6.35	1.6		
330924															●							27.1	15.875	9.52	7.93	2.4		
<b>TNMG-KR</b>   Medium to Roughing	160404-KR				●										●	●	●						15.5	9.525	4.76	3.81	0.4	
	160408-KR				●										●	●	●						14.5	9.525	4.76	3.81	0.8	
	160412-KR				●										●	●	●						13.5	9.525	4.76	3.81	1.2	
	160416-KR				●										●	●	●						12.5	9.525	4.76	3.81	1.6	
	220404-KR				●										●	●	●						21.0	12.7	4.76	5.16	0.4	
	220408-KR				●										●	●	●						20.0	12.7	4.76	5.16	0.8	
	220412-KR				●										●	●	●						19.0	12.7	4.76	5.16	1.2	
	220416-KR				●										●	●	●						18.2	12.7	4.76	5.16	1.6	
	270608-KR				●											●							25.4	15.875	6.35	6.35	0.8	
	270612-KR				●											●							24.4	15.875	6.35	6.35	1.2	
270616-KR				●											●							23.3	15.875	6.35	6.35	1.6		
330924-KR				●											●							27.1	15.875	9.52	7.93	2.4		
<b>TNMG-GF</b>   Finishing	160404-GF	●	●	●	●																		15.5	9.525	4.76	3.81	0.4	
	160408-GF	●	●	●	●																			14.5	9.525	4.76	3.81	0.8
	160412-GF	●	●	●	●																			13.5	9.525	4.76	3.81	1.2
	220404-GF	●	●	●	●																			21.0	12.7	4.76	5.16	0.4
	220408-GF	●	●	●	●																			20.0	12.7	4.76	5.16	0.8
	220412-GF	●	●	●	●																			19.0	12.7	4.76	5.16	1.2
<b>TNMG-HM</b>   Medium	160404-HM														●								15.5	9.525	4.76	3.81	0.4	
	160408-HM														●									14.5	9.525	4.76	3.81	0.8
	160412-HM														●									13.5	9.525	4.76	3.81	1.2

# TN○○○

 Triangular 60° Negative

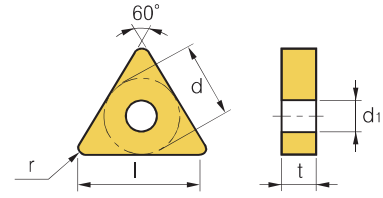





Inserts	Designation	Coated														Uncoated		Dimensions (mm)								
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9335	DPM8115	DPM8125	DPM8225	DPM8135	DPM930	DCK5205	DCK5305	DCK5216	DCK5315	DCK5225	DCK5325	DP20	DPK01	l	d	t	d1	r
<b>TNMG-GM</b>  Medium	110304-GM																					10.0	6.35	3.81	2.4	0.4
	110308-GM																					9.0	6.35	3.81	2.4	0.8
	160404-GM	●	●	●	●																	15.5	9.525	4.76	3.81	0.4
	160408-GM	●	●	●	●																	14.5	9.525	4.76	3.81	0.8
	160412-GM	●	●	●	●																	13.5	9.525	4.76	3.81	1.2
	160416-GM	●	●	●	●																	12.5	9.525	4.76	3.81	1.6
	220404-GM	●	●	●	●																	21.0	12.7	4.76	5.16	0.4
	220408-GM	●	●	●	●																	20.0	12.7	4.76	5.16	0.8
	220412-GM	●	●	●	●																	19.0	12.7	4.76	5.16	1.2
	220416-GM	●	●	●	●																	18.2	12.7	4.76	5.16	1.6
<b>TNMG-GR</b>  Roughing	160404-GR			●	●																15.5	9.525	4.76	3.18	0.4	
	160408-GR			●	●																	14.5	9.525	4.76	3.18	0.8
	160412-GR			●	●																	13.5	9.525	4.76	3.18	1.2
	160416-GR			●	●																	12.5	9.525	4.76	3.18	1.6
	220404-GR			●	●																	21.0	12.7	4.76	3.18	0.4
	220408-GR			●	●																	20.0	12.7	4.76	5.16	0.8
	220412-GR			●	●																	19.0	12.7	4.76	5.16	1.2
	220416-GR			●	●																	18.2	12.7	4.76	5.16	1.6
	270608-GR			●	●																	25.4	15.875	6.35	6.35	0.8
	270612-GR			●	●																	24.4	15.875	6.35	6.35	1.2
<b>TNMG-ZR</b>  Roughing	160408-ZR			●	●																14.5	9.525	4.76	3.18	0.8	
	160412-ZR			●	●																	13.5	9.525	4.76	3.18	1.2
	160416-ZR			●	●																	12.5	9.525	4.76	3.18	1.6
	220408-ZR			●	●																	20.0	12.7	4.76	5.16	0.8
	220412-ZR			●	●																	19.0	12.7	4.76	5.16	1.2
	220416-ZR			●	●																	18.2	12.7	4.76	5.16	1.6
	270608-ZR																					25.4	15.875	6.35	6.35	0.8
	270612-ZR																					24.4	15.875	6.35	6.35	1.2
	270616-ZR																					23.3	15.875	6.35	6.35	1.6
	330924-ZR																					27.1	15.875	9.52	7.93	2.4



# TN○○○

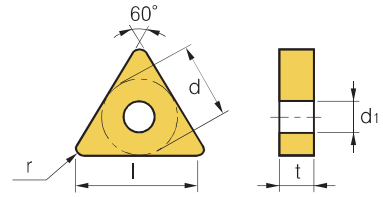
## Triangular **60° Negative**






Inserts	Designation	Coated													Uncoated					Dimensions (mm)											
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9235	DCP9335	DPM8115	DPM8125	DPM8225	DPM8135	DPM930	DCK5205	DCK5305	DCK5215	DCK5315	DCK5225	DCK5325	DP20	DPK01	l	d	t	d1	r				
<b>TNMG-HA</b>    Medium to Finishing	160404-HA									●													15.5	9.525	4.76	3.81	0.4				
	160408-HA									●														14.5	9.525	4.76	3.81	0.8			
	160412-HA																							13.5	9.525	4.76	3.81	1.2			
<b>TNMG-S</b>    Medium to Roughing	160404R/L-S	●	●							●	●												15.5	9.525	4.76	3.81	0.4				
	160408R/L-S		●	●						●	●													14.5	9.525	4.76	3.81	0.8			
	160412R/L-S		●	●						●	●													13.5	9.525	4.76	3.81	1.2			
<b>TNMG-HQ</b>    Medium	160404-HQ	●																					15.5	9.525	4.76	3.81	0.4				
	160408-HQ		●																					14.5	9.525	4.76	3.81	0.8			
	160412-HQ																							13.5	9.525	4.76	3.81	1.2			

# TN○○

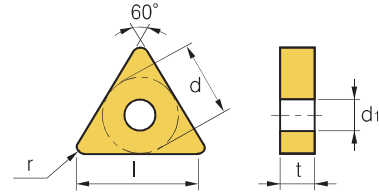
 Triangular **60° Negative**





Inserts	Designation	Coated														Dimensions (mm)													
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9335	DCP9335	DPM8115	DPM8125	DPM8225	DPM8135	DPM930	DCK5205	DCK5305	DCK5215	DCK5315	DCK5225	DCK5325	DP20	DPK01	l	d	t	d1	r		
<b>TNMG-TM</b>  Medium	160404-TM	●	●																				15.5	9.525	4.76	3.81	0.4		
	160408-TM	●	●																					14.5	9.525	4.76	3.81	0.8	
	160412-TM		●																					13.5	9.525	4.76	3.81	1.2	
<b>TNMG-MA</b>  Medium	160404-MA	●	●	●	●	●																	15.5	9.525	4.76	3.18	0.4		
	160408-MA	●	●	●	●	●																		14.5	9.525	4.76	3.18	0.8	
	160412-MA		●	●	●	●																		13.5	9.525	4.76	3.18	1.2	
	220404-MA																							21.0	12.7	4.76	5.16	0.4	
	220408-MA																							20.0	12.7	4.76	5.16	0.8	
	220412-MA																							19.0	12.7	4.76	5.16	1.2	
<b>TNMG-BF</b>  Finishing	160404-BF								●														15.5	9.525	4.76	3.18	0.4		
	160408-BF								●															14.5	9.525	4.76	3.18	0.8	
	160412-BF																							13.5	9.525	4.76	3.18	1.2	
	220404-BF																							21.0	12.7	4.76	5.16	0.4	
	220408-BF																							20.0	12.7	4.76	5.16	0.8	
	220412-BF																							19.0	12.7	4.76	5.16	1.2	

**TN**○○

 **Triangular 60° Negative**

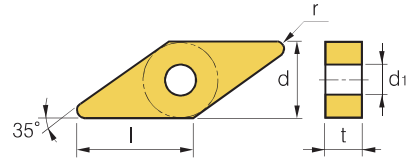


Inserts	Designation	Coated														Uncoated					Dimensions (mm)								
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9235	DCP9335	DPM8115	DPM8125	DPM8225	DPM8T35	DPM930	DCK5205	DCK5305	DCK5215	DCK5315	DCK5225	DCK5325	DP20	DPK01	l	d	t	d1	r		
<b>TNMG-BM</b>  Medium	160404-BM									●	●												15.5	9.525	4.76	3.81	0.4		
	160408-BM									●	●													14.5	9.525	4.76	3.81	0.8	
	160412-BM									●	●													13.5	9.525	4.76	3.81	1.2	
	220404-BM																							21.0	12.7	4.76	5.16	0.4	
	220408-BM																							20.0	12.7	4.76	5.16	0.8	
	220412-BM																							19.0	12.7	4.76	5.16	1.2	
	220416-BM																							18.2	12.7	4.76	5.16	1.6	
<b>TNMM-GR</b>  Roughing	160408-GR									●	●	●												14.5	9.525	4.76	3.81	0.8	
	160412-GR									●	●	●													13.5	9.525	4.76	3.81	1.2
	160416-GR									●	●	●													12.5	9.525	4.76	3.81	1.6
	220408-GR									●	●	●													20.0	12.7	4.76	5.16	0.8
	220412-GR									●	●	●													19.0	12.7	4.76	5.16	1.2
	220416-GR									●	●	●													18.2	12.7	4.76	5.16	1.6
	270608-GR									●	●	●													25.4	15.875	6.35	6.35	0.8
	270612-GR									●	●	●													24.4	15.875	6.35	6.35	1.2
	270616-GR									●	●	●													23.3	15.875	6.35	6.35	1.6
	330924-GR									●	●	●													27.1	15.875	9.52	7.93	2.4

## VN○○




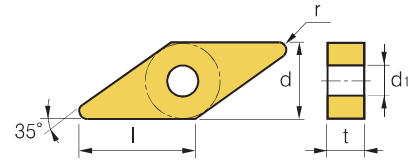
### Rhombic 35° Negative


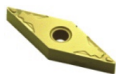
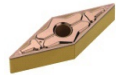


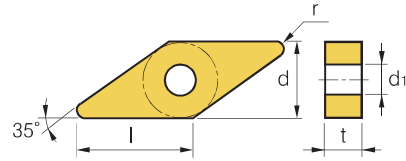
Inserts	Designation	Coated														Uncoated					Dimensions (mm)							
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9235	DCP9335	DFM8115	DFM8125	DFM8225	DFM8135	DFM930	DKK5205	DKK5305	DKK5215	DKK5315	DKK5225	DKK5325	DP20	DPK01	l	d	t	d1	r	
<b>VNMG-KR</b>  Medium to Roughing	160404-KR		●											●	●	●							15.5	9.525	4.76	3.81	0.4	
	160408-KR		●											●	●	●							14.5	9.525	4.76	3.81	0.8	
	160412-KR		●											●	●	●							13.5	9.525	4.76	3.81	1.2	
<b>VNMG-GF</b>  Finishing	160404-GF	●	●	●	●																	15.6	9.525	4.76	3.81	0.4		
	160408-GF	●	●	●	●																		14.6	9.525	4.76	3.81	0.8	
<b>VNMG-GM</b>  Medium	160404-GM	●	●	●	●										●							15.6	9.525	4.76	3.81	0.4		
	160408-GM	●	●	●	●										●								14.6	9.525	4.76	3.81	0.8	
	160412-GM		●	●	●										●								13.6	9.525	4.76	3.81	1.2	
<b>VNMG-HM</b>  Medium	160404-HM													●								15.6	9.525	4.76	3.81	0.4		
	160408-HM													●									14.6	9.525	4.76	3.81	0.8	

**VN○○**



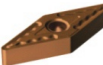
 Rhombic **35° Negative**



Inserts	Designation	Coated														Uncoated	Dimensions (mm)										
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9235	DCP9335	DPM8115	DPM8125	DPM8225	DPM8135	DPM930	DCK6205	DCK5305	DCK5215	DCK5315	DCK5225	DCK5325	DP20	DPK01	l	d	t	d1	r
<b>VNMG-HA</b>  Medium to Finishing	160404-HA									●											●	15.6	9.525	4.76	3.81	0.4	
	160408-HA									●												●	14.6	9.525	4.76	3.81	0.8
<b>VNMG-HQ</b>  Medium	160404-HQ	●																					15.6	9.525	4.76	3.18	0.4
	160408-HQ	●																					14.6	9.525	4.76	3.18	0.8
<b>VNMG-TM</b>  Medium	160404-TM	●	●																			15.6	9.525	4.76	3.18	0.4	
	160408-TM	●	●																				14.6	9.525	4.76	3.18	0.8

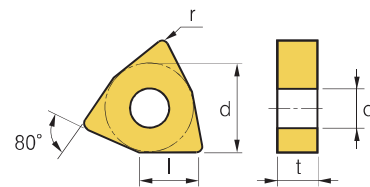





## Rhombic 35° Negative

Inserts	Designation	Coated														Uncoated		Dimensions (mm)										
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9335	DPM8115	DPM8125	DPM8225	DPM8135	DPM930	DKK5205	DKK5305	DKK5215	DKK5315	DKK5225	DKK5325	DP20	DPK01	l	d	t	d1	r		
<b>VNMG-MA</b>  Medium	160404-MA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	15.6	9.525	4.76	3.81	0.4		
	160408-MA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	14.6	9.525	4.76	3.81	0.8		
	160412-MA	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	13.6	9.525	4.76	3.81	1.2		
<b>VNMG-BF</b>  Finishing	160404-BF	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	15.6	9.525	4.76	3.81	0.4		
	160408-BF	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	14.6	9.525	4.76	3.81	0.8	
	160412-BF	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	13.6	9.525	4.76	3.81	1.2	
<b>VNMG-BM</b>  Medium	160404-BM	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	15.6	9.525	4.76	3.81	0.4		
	160408-BM	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	14.6	9.525	4.76	3.81	0.8	
	160412-BM	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	13.6	9.525	4.76	3.81	1.2	

**WN**○○

 **Trigon 80° Negative**

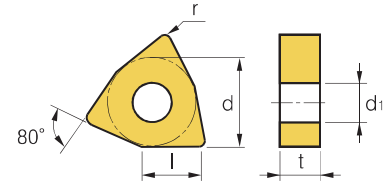


Inserts	Designation	Coated														Dimensions (mm)													
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9235	DCP9335	DPW8115	DPW8125	DPW8225	DPW8135	DPW930	DCK5205	DCK5305	DCK5215	DCK5315	DCK5225	DCK5325	DP20	DPK01	l	d	t	d1	r		
<b>WNMA</b>  Roughing	060404																						6.2	9.525	4.76	3.81	0.4		
	060408																						6.1	9.525	4.76	3.81	0.8		
	060412																						6.0	9.525	4.76	3.81	1.2		
	080404																						8.4	12.7	4.76	5.16	0.4		
	080408																						8.3	12.7	4.76	5.16	0.8		
	080412																						8.2	12.7	4.76	5.16	1.2		
	080416																						8.1	12.7	4.76	5.16	1.6		
<b>WNMG-KR</b>  Medium to Roughing	060404-KR																						6.2	9.525	4.76	3.81	0.4		
	060408-KR																						6.1	9.525	4.76	3.81	0.8		
	060412-KR																						6.0	9.525	4.76	3.81	1.2		
	080404-KR																						8.4	12.7	4.76	5.16	0.4		
	080408-KR																						8.3	12.7	4.76	5.16	0.8		
	080412-KR																						8.2	12.7	4.76	5.16	1.2		
	080416-KR																						8.1	12.7	4.76	5.16	1.6		
<b>WNMG-GF</b>  Finishing	060404-GF																						6.2	9.525	4.76	3.81	0.4		
	060408-GF																						6.1	9.525	4.76	3.81	0.8		
	060412-GF																						6.0	9.525	4.76	3.81	1.2		
	080404-GF																						8.4	12.7	4.76	5.16	0.4		
	080408-GF																						8.3	12.7	4.76	5.16	0.8		
	080412-GF																						8.2	12.7	4.76	5.16	1.2		

# WN○○○



## Trigon 80° Negative

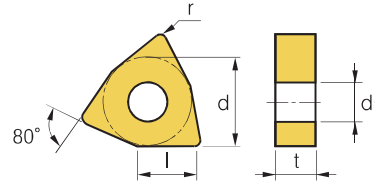





Inserts	Designation	Coated													Dimensions (mm)										
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9335	DPM8115	DPM8125	DPM8135	DPM930	DCK5205	DCK5305	DCK5215	DCK5315	DCK5225	DCK5325	DP20	DPK01	l	d	t	d1	r
<b>WNMG-GM</b>  Medium	060404-GM	●	●	●	●										●						6.2	9.525	4.76	3.81	0.4
	060408-GM	●	●	●	●										●						6.1	9.525	4.76	3.81	0.8
	060412-GM			●	●																6.0	9.525	4.76	3.81	1.2
	080404-GM	●	●	●	●										●						8.4	12.7	4.76	5.16	0.4
	080408-GM	●	●	●	●										●						8.3	12.7	4.76	5.16	0.8
	080412-GM	●	●	●	●										●						8.2	12.7	4.76	5.16	1.2
	080416-GM	●	●	●											●						8.1	12.7	4.76	5.16	1.6
<b>WNMG-GR</b>  Roughing	060404-GR																			6.2	9.525	4.76	3.81	0.4	
	060408-GR																				6.1	9.525	4.76	3.81	0.8
	060412-GR																				6.0	9.525	4.76	3.81	1.2
	080404-GR				●	●															8.4	12.7	4.76	5.16	0.4
	080408-GR				●	●															8.3	12.7	4.76	5.16	0.8
	080412-GR				●	●															8.2	12.7	4.76	5.16	1.2
	080416-GR				●	●															8.1	12.7	4.76	5.16	1.6
<b>WNMG-ZR</b>  Roughing	060408-ZR																			6.1	9.525	4.76	3.81	0.8	
	060412-ZR																				6.0	9.525	4.76	3.81	1.2
	080404-ZR																				8.4	12.7	4.76	5.16	0.4
	080408-ZR				●	●															8.3	12.7	4.76	5.16	0.8
	080412-ZR				●	●															8.2	12.7	4.76	5.16	1.2
	080416-ZR				●	●															8.1	12.7	4.76	5.16	1.6
<b>WNMG-HM</b>  Roughing	120804-HM														●					6.1	9.525	4.76	3.81	0.8	
	120812-HM														●						6.0	9.525	4.76	3.81	1.2



**WN**○○○

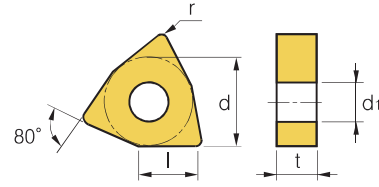
 **Trigon 80° Negative**







Inserts	Designation	Coated														Uncoated					Dimensions (mm)							
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9235	DCP9335	DPW8115	DPW8125	DPW8225	DPW8135	DPW930	DCK5205	DCK5305	DCK5215	DCK5315	DCK5225	DCK5325	DP20	DPK01	l	d	t	d1	r	
<b>WNMG-HA</b>  Medium to Finishing	060404-HA																						●	6.1	9.525	4.76	3.81	0.8
	060408-HA																						●	6.0	9.525	4.76	3.81	1.2
	080404-HA																						●	8.4	12.7	4.76	5.16	0.4
	080408-HA																						●	8.3	12.7	4.76	5.16	0.8
																								8.2	12.7	4.76	5.16	1.2
																								8.1	12.7	4.76	5.16	1.6
																								8.2	12.7	4.76	5.16	1.2
																								8.1	12.7	4.76	5.16	1.6
<b>WNMG-HS</b>  Medium	080404-HS																						8.4	12.7	4.76	5.16	0.4	
	080408-HS																						8.3	12.7	4.76	5.16	0.8	
<b>WNMG-HQ</b>  Medium	080404-HQ																						8.4	12.7	4.76	5.16	0.4	
	080408-HQ																						8.3	12.7	4.76	5.16	0.8	

# WN○○

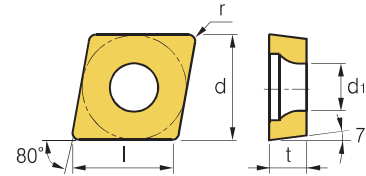
 Trigon **80° Negative**






Inserts	Designation	Coated																Uncoated		Dimensions (mm)									
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9235	DCP9335	DPM8115	DPM8125	DPM8225	DPM8135	DPM830	DCK5205	DCK5305	DCK5215	DCK5315	DCK5225	DCK5325	DP20	DPK01	l	d	t	d1	r		
<b>WNMG-TM</b>  Medium	080404-TM	●					●																	8.4	12.7	4.76	5.16	0.4	
	080408-TM	●					●																	8.3	12.7	4.76	5.16	0.8	
<b>WNMG-MA</b>  Medium	060404-MA																							6.2	9.525	4.76	3.81	0.4	
	060408-MA																							6.1	9.525	4.76	3.81	0.8	
	080404-MA																							8.4	12.7	4.76	5.16	0.4	
	080408-MA						●		●		●		●	●	●	●	●	●	●	●	●	●	●	8.3	12.7	4.76	5.16	0.8	
	080412-MA						●		●		●		●	●	●	●	●	●	●	●	●	●	●	8.2	12.7	4.76	5.16	1.2	
<b>WNMG-BF</b>  Medium	060404-BF																							6.2	9.525	4.76	3.81	0.4	
	060408-BF																							6.1	9.525	4.76	3.81	0.8	
	080404-BF																							8.4	12.7	4.76	5.16	0.4	
	080408-BF									●														8.3	12.7	4.76	5.16	0.8	
	080412-BF									●														8.2	12.7	4.76	5.16	1.2	
<b>WNMG-BM</b>  Medium	060404-BM																							6.2	9.525	4.76	3.81	0.4	
	060408-BM																							6.1	9.525	4.76	3.81	0.8	
	080404-BM													●	●									8.4	12.7	4.76	5.16	0.4	
	080408-BM													●	●									8.3	12.7	4.76	5.16	0.8	
	080412-BM													●	●									8.2	12.7	4.76	5.16	1.2	

**CC**○○○

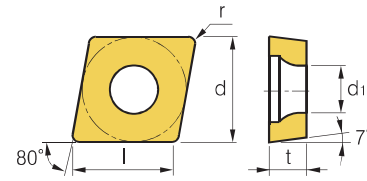
**Rhombic 80° Positive**  
Relief Angle : 7°






Inserts	Designation	Coated													Uncoated					Dimensions (mm)								
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9235	DCP9335	DPW8115	DPW8125	DPW8225	DPW8135	DPW830	DCK5205	DCK5305	DCK5215	DCK5315	DCK5225	DCK5325	DP20	DPK01	l	d	t	d1	r	
<b>CCMW</b>   Roughing	060204																						6.0	6.35	2.38	2.8	0.4	
	060208																							5.6	6.35	2.38	2.8	0.8
	09T304																							9.2	9.525	3.97	4.4	0.4
	09T308																							8.8	9.525	3.97	4.4	0.8
	120404																							12.4	12.7	4.76	5.5	0.4
	120408																							12.0	12.7	4.76	5.5	0.8
<b>CCMT-HF</b>   Finishing	060202-HF	●	●	●	●																		6.2	6.35	2.38	2.8	0.2	
	060204-HF	●	●	●	●																			6.0	6.35	2.38	2.8	0.4
	060208-HF																							5.6	6.35	2.38	2.8	0.8
	09T302-HF	●	●	●	●																			9.4	9.525	3.97	4.4	0.2
	09T304-HF	●	●	●	●																			9.2	9.525	3.97	4.4	0.4
	09T308-HF	●	●	●	●																			8.8	9.525	3.97	4.4	0.8
	120404-HF	●	●	●	●																			12.4	12.7	4.76	5.5	0.4
	120408-HF																							12.0	12.7	4.76	5.5	0.8
<b>CCMT-HM</b>   Medium	060202-HM																						6.2	6.35	2.38	2.8	0.2	
	060204-HM	●	●	●	●	●	●	●	●															6.0	6.35	2.38	2.8	0.4
	060208-HM	●	●	●	●																			5.6	6.35	2.38	2.8	0.8
	09T302-HM																							9.4	9.525	3.97	4.4	0.2
	09T304-HM	●	●	●	●	●	●	●	●	●														9.2	9.525	3.97	4.4	0.4
	09T308-HM	●	●	●	●	●	●	●	●	●	●													8.8	9.525	3.97	4.4	0.8
	120404-HM	●	●	●	●	●	●	●	●	●	●													12.4	12.7	4.76	5.5	0.4
	120408-HM	●	●	●	●	●	●	●	●	●	●													12.0	12.7	4.76	5.5	0.8



**Rhombic 80° Positive**  
Relief Angle : 7°

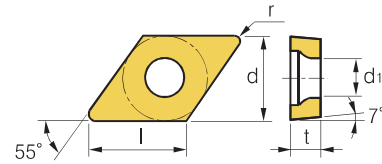


Inserts	Designation	Coated														Uncoated	Dimensions (mm)												
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9235	DCP9335	DFM8115	DFM8125	DFM8225	DFM8135	DFM930	DKK5205	DKK5305	DKK5215	DKK5315	DKK5225	DKK5325	DP20	DPK01	l	d	t	d1	r		
<b>CCMT-HR</b>  Roughing	09T304-HR						●																9.2	9.525	3.97	4.4	0.4		
	09T308-HR						●																	8.8	9.525	3.97	4.4	0.8	
	120404-HR						●																	12.4	12.7	4.76	5.5	0.4	
	120408-HR						●																	12.0	12.7	4.76	5.5	0.8	
	120412-HR						●																		11.6	12.7	4.76	5.5	1.2
<b>CCGT-AL</b>  Aluminum	060202-AL																					●	6.2	6.35	2.38	2.8	0.2		
	060204-AL																						●	6.0	6.35	2.38	2.8	0.4	
	060208-AL																						●	5.6	6.35	2.38	2.8	0.8	
	09T302-AL																						●	9.4	9.525	3.97	4.4	0.2	
	09T304-AL																						●	9.2	9.525	3.97	4.4	0.4	
	09T308-AL																						●	8.8	9.525	3.97	4.4	0.8	
	120402-AL																						●	12.6	12.7	4.76	5.5	0.4	
	120404-AL																						●	12.4	12.7	4.76	5.5	0.8	
	120408-AL																						●	12.0	12.7	4.76	5.5	0.4	
<b>CCGT-SL</b>  Finishing	060202-SL							●●															6.2	6.35	2.38	2.8	0.2		
	060204-SL							●●																6.0	6.35	2.38	2.8	0.4	
	060208-SL							●●																5.6	6.35	2.38	2.8	0.8	
	09T302-SL							●●																9.4	9.525	3.97	4.4	0.2	
	09T304-SL							●●																9.2	9.525	3.97	4.4	0.4	
	09T308-SL							●●																8.8	9.525	3.97	4.4	0.8	
	120404-SL							●●																12.4	12.7	4.76	5.5	0.4	
	120408-SL							●																12.0	12.7	4.76	5.5	0.8	

**DC**○○○



**Rhombic 55° Positive**  
Relief Angle : 7°

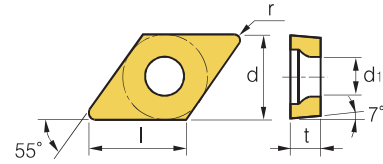


Inserts	Designation	Coated													Uncoated					Dimensions (mm)								
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9235	DCP9335	DFM8115	DFM8125	DFM8225	DFM8135	DFM930	DCK5205	DCK5305	DCK5215	DCK5315	DCK5225	DCK5325	DP20	DPK01	l	d	t	d1	r	
<b>DCMW</b>   Roughing	070204																						7.3	6.35	2.38	2.8	0.4	
	070208																							6.8	6.35	2.38	2.8	0.8
	11T304																							11.2	9.525	3.97	4.4	0.4
	11T308																							10.8	9.525	3.97	4.4	0.8
<b>DCMT-HF</b>   Finishing	070202-HF	●	●	●	●																		7.5	6.35	2.38	2.8	0.2	
	070204-HF	●	●	●	●																			7.3	6.35	2.38	2.8	0.4
	070208-HF																							6.8	6.35	2.38	2.8	0.8
	11T302-HF	●	●	●	●																			11.4	9.525	3.97	4.4	0.2
	11T304-HF	●	●	●	●																			11.2	9.525	3.97	4.4	0.4
	11T308-HF	●	●	●	●																			10.8	9.525	3.97	4.4	0.8
<b>DCMT-HM</b>   Medium	070202-HM																						7.5	6.35	2.38	2.8	0.2	
	070204-HM	●	●	●	●	●	●	●	●															7.3	6.35	2.38	2.8	0.4
	070208-HM	●	●	●	●	●	●	●	●															6.8	6.35	2.38	2.8	0.8
	11T302-HM	●	●	●	●	●	●	●	●															11.4	9.525	3.97	4.4	0.2
	11T304-HM	●	●	●	●	●	●	●	●															11.2	9.525	3.97	4.4	0.4
	11T308-HM	●	●	●	●	●	●	●	●															10.8	9.525	3.97	4.4	0.8

## DC○○○



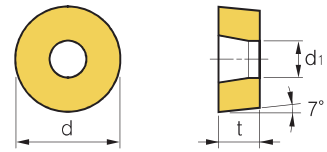
Rhombic **55° Positive**  
Relief Angle : 7°





Inserts	Designation	Coated														Uncoated	Dimensions (mm)												
		DCF9305	DCF9215	DCF9120	DCF9220	DCF9225	DCF9325	DCF9235	DCF9335	DPM8115	DPM8125	DPM8225	DPM8135	DPM930	DKK5205	DKK5305	DKK5215	DKK5315	DKK5225	DKK5325	DP20	DPK01	l	d	t	d1	r		
<b>DCMT-HR</b>   Roughing	070208-HR					●																	6.8	6.35	2.38	2.8	0.8		
	11T304-HR																							11.4	9.525	3.97	4.4	0.2	
	11T308-HR					●																		11.2	9.525	3.97	4.4	0.4	
	11T312-HR					●																		10.8	9.525	3.97	4.4	0.8	
																								10.4	9.525	9.97	4.4	1.2	
<b>DCGT-AL</b>   Aluminum	070202-AL																							7.5	6.35	2.38	2.8	0.2	
	070204-AL																								7.3	6.35	2.38	2.8	0.4
	070208-AL																								6.8	6.35	2.38	2.8	0.8
	11T302-AL																								11.4	9.525	3.97	4.4	0.2
	11T304-AL																								11.2	9.525	3.97	4.4	0.4
	11T308-AL																								10.8	9.525	3.97	4.4	0.8
	11T312-AL																								10.4	9.525	3.97	4.4	1.2
<b>DCGT-SL</b>   Finishing	070202-SL						●●																	7.5	6.35	2.38	2.8	0.2	
	070204-SL						●●																		7.3	6.35	2.38	2.8	0.4
	11T302-SL						●●																		11.4	9.525	3.97	4.4	0.2
	11T304-SL						●●																		11.2	9.525	3.97	4.4	0.4
	11T308-SL						●●																		10.8	9.525	3.97	4.4	0.8

# RC○○

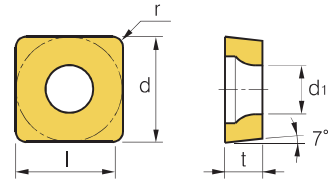
**Round R° Positive**  
Relief Angle : 7°






Inserts	Designation	Coated														Uncolored		Dimensions (mm)										
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9235	DCP9335	DFM8115	DFM8125	DFM8225	DFM8135	DFM930	DCK5205	DCK5305	DCK5215	DCK5315	DCK5225	DCK5325	DF20	DFK01	l	d	t	d1	r	
<b>RCMX</b>   Medium	1003MO																						--	10	3.18	3.6	--	
	1204MO																							--	12	4.76	4.2	--
	1606MO	●	●	●	●														●					--	16	6.35	5.2	--
	2006MO	●	●	●	●														●					--	20	6.35	6.5	--
	2507MO	●	●	●	●														●					--	25	7.94	7.25	--
	3209MO	●	●	●	●														●					--	32	9.52	9.55	--
<b>RCGT</b>   Medium	0602MO																						--	6	2.38	2.8	--	
	0803MO																							--	8	3.18	3.35	--
	1003MO																				●			--	10	3.18	4.0	--
	10T3MO																							--	10	3.97	4.4	--
	1204MO																					●		--	12	4.76	4.4	--

## SC○○○

 Square **90° Positive**  
Relief Angle : 7°

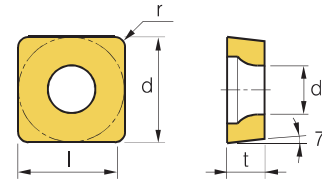


Inserts	Designation	Coated														Uncoated					Dimensions (mm)							
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9235	DCP9335	DPM8115	DPM8125	DPM8225	DPM8135	DPM930	DCX5205	DCX5305	DCX5215	DCX5315	DCX5225	DCX5325	DP20	DPK01	l	d	t	d1	r	
<b>SCMW</b>   Roughing	09T304																						9.1	9.525	3.97	4.4	0.4	
	09T308																							8.7	9.525	3.97	4.4	0.8
	120404																							12.3	12.7	4.76	5.5	0.4
	120408																							11.9	12.7	4.76	5.5	0.8
<b>SCMT-HF</b>   Finishing	09T302-HF	●	●	●	●																		9.3	9.525	3.97	4.4	0.2	
	09T304-HF	●	●	●	●																			9.1	9.525	3.97	4.4	0.4
	09T308-HF	●	●	●	●																			8.7	9.525	3.97	4.4	0.8
	120404-HF	●	●	●	●																			12.3	12.7	4.76	5.5	0.4
	120408-HF	●	●	●	●																			11.9	12.7	4.76	5.5	0.8
<b>SCMT-HM</b>   Medium	09T304-HM	●	●	●	●			●	●														9.1	9.525	3.97	4.4	0.4	
	09T308-HM	●	●	●	●			●	●															8.7	9.525	3.97	4.4	0.8
	120404-HM	●	●	●	●																			12.3	12.7	4.76	5.5	0.4
	120408-HM	●	●	●	●																			11.9	12.7	4.76	5.5	0.8



# SC○○○

Square **90° Positive**  
Relief Angle : 7°

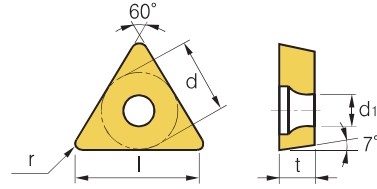


Inserts	Designation	Coated														Dimensions (mm)													
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9235	DCP9335	DPM8115	DPM8125	DPM8225	DPM8135	DPM930	DCK5205	DCK5305	DCK5215	DCK5315	DCK5225	DCK5325	DP20	DPK01	l	d	t	d1	r		
<b>SCMT-HR</b>  Roughing	09T304-HR					●																	9.2	9.525	3.97	4.4	0.4		
	09T308-HR					●																		8.8	9.525	3.97	4.4	0.8	
	120404-HR					●																		12.4	12.7	4.76	5.5	0.4	
	120408-HR					●																		12.0	12.7	4.76	5.5	0.8	
	120412-HR					●																			11.6	12.7	4.76	5.5	1.2
<b>SCGT-AL</b>  Aluminum	09T302-AL																						9.3	9.525	3.97	4.4	0.2		
	09T304-AL																							9.1	9.525	3.97	4.4	0.4	
	09T308-AL																							8.7	9.525	3.97	4.4	0.8	
	120404-AL																							12.3	12.7	4.76	5.5	0.4	
	120408-AL																								11.9	12.7	4.76	5.5	0.8
	120412-AL																								11.6	12.7	4.76	5.5	1.2
<b>SCGT-SL</b>  Finishing	09T304-SL							●●															9.1	9.525	3.97	4.4	0.2		
	09T308-SL							●●																8.7	9.525	3.97	4.4	0.4	
	120404-SL																							12.3	12.7	4.76	5.5	0.2	
	120408-SL																							11.9	12.7	4.76	5.5	0.4	
	120412-SL																							11.6	12.7	4.76	5.5	0.8	

# TC○○○



**Triangular 60° Positive**  
Relief Angle : 7°

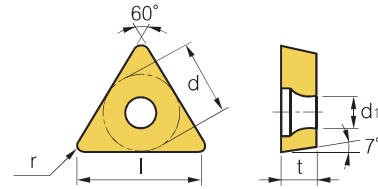


Inserts	Designation	Coated														Uncoated					Dimensions (mm)							
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9225	DCP9235	DCP9335	DPW8115	DPW8125	DPW8225	DPW8135	DPM930	DCK5205	DCK5305	DCK5215	DCK5315	DCK5225	DCK5325	DP20	DPK01	l	d	t	d1	r	
<b>TCMW</b>  Roughing	110204																						10.0	6.35	2.38	2.8	0.4	
	110208																							9.0	6.35	2.38	2.8	0.8
	16T304																							15.5	9.525	3.97	4.4	0.4
	16T308																							14.5	9.525	3.97	4.4	0.8
	16T312																							13.5	9.525	3.97	4.4	1.2
<b>TCMT-HF</b>  Finishing	090202-HF																						9.1	5.56	2.38	2.5	0.2	
	090204-HF																							8.6	5.56	2.38	2.5	0.4
	110202-HF	●	●	●	●																			10.5	6.35	2.38	2.8	0.2
	110204-HF	●	●	●	●																			10.0	6.35	2.38	2.8	0.4
	110208-HF																							9.0	6.35	2.38	2.8	0.8
	16T302-HF																							15.0	9.525	3.97	4.4	0.2
	16T304-HF	●	●	●	●																			15.5	9.525	3.97	4.4	0.4
16T308-HF	●	●	●	●																			14.5	9.525	3.97	4.4	0.8	
<b>TCMT-HM</b>  Medium	090204-HM																						8.6	5.56	2.38	2.5	0.4	
	110202-HM																							10.5	6.35	2.38	2.8	0.2
	110204-HM	●	●	●	●	●	●																	10.0	6.35	2.38	2.8	0.4
	110208-HM	●	●	●	●	●	●																	9.0	6.35	2.38	2.8	0.8
	16T304-HM	●	●	●	●	●	●	●																15.5	9.525	3.97	4.4	0.2
	16T308-HM	●	●	●	●	●	●	●																14.5	9.525	3.97	4.4	0.4
	16T312-HM	●	●	●																				13.5	9.525	3.97	4.4	0.8

**TC**○○○



**Triangular 60° Positive**  
Relief Angle : 7°

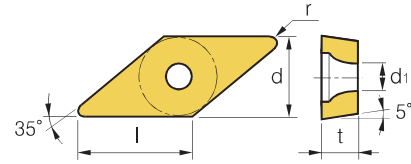


Inserts	Designation	Coated													Uncoated					Dimensions (mm)									
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9235	DCP9335	DPM8115	DPM8125	DPM8225	DPM8135	DPM930	DCK5205	DCK5305	DCK5215	DCK5315	DCK5225	DCK5325	DP20	DPK01	l	d	t	d1	r		
<b>TCMT-HR</b>  Roughing	090208-HR																						7.6	5.56	2.38	2.5	0.8		
	110204-HR			●																				10.0	6.35	2.38	2.8	0.4	
	110208-HR			●																				9.0	6.35	2.38	2.8	0.8	
	16T304-HR			●																				15.5	9.525	3.97	4.4	0.4	
	16T308-HR			●																				14.5	9.525	3.97	4.4	0.8	
	16T312-HR			●																				13.5	9.525	3.97	4.4	1.2	
<b>TCGT-AL</b>  Aluminum	090202-AL																				●		9.1	5.56	2.38	2.5	0.2		
	090204-AL																					●		8.6	5.56	2.38	2.5	0.4	
	110202-AL																					●		10.5	6.35	2.38	2.8	0.2	
	110204-AL																					●		10.0	6.35	2.38	2.8	0.4	
	110208-AL																					●		9.0	6.35	2.38	2.8	0.8	
	16T302-AL																					●		15.0	9.525	3.97	4.4	0.2	
	16T304-AL																					●		15.5	9.525	3.97	4.4	0.4	
	16T308-AL																					●		14.5	9.525	3.97	4.4	0.8	
	16T312-AL																					●		13.5	9.525	3.97	4.4	1.2	
<b>TCGT-SL</b>  Finishing	090202-SL																							9.1	5.56	2.38	2.5	0.2	
	090204-SL																								8.6	5.56	2.38	2.5	0.4
	110202-SL																								10.5	6.35	2.38	2.8	0.2
	110204-SL																								10.0	6.35	2.38	2.8	0.4
	110208-SL																								9.0	6.35	2.38	2.8	0.8
	16T304-SL																								15.0	9.525	3.97	4.4	0.4

## VB○○○



**Rhombic 35° Positive**  
Relief Angle : 5°

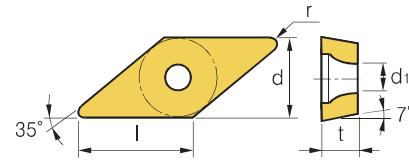


Inserts	Designation	Coated														Uncoated		Dimensions (mm)									
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9235	DCP9335	DPM8115	DPM8125	DPM8135	DPM930	DKK5205	DKK5305	DKK5215	DKK5315	DKK5225	DKK5325	DP20	DPK01	l	d	t	d1	r	
<b>VBWM</b>   Roughing	110304																					10.0	6.35	3.18	2.8	0.4	
	110308																					9.0	6.35	3.18	2.8	0.8	
	160404																					15.6	9.525	4.76	4.4	0.4	
	160408																					14.6	9.525	4.76	4.4	0.8	
	160412																					13.6	9.525	4.76	4.4	1.2	
<b>VBMT</b>   Medium	160404	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	15.6	9.525	4.76	4.4	0.4	
	160408	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	14.6	9.525	4.76	4.4	0.8	
	160412	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	13.6	9.525	4.76	4.4	1.2	
<b>VBGT-AL</b>   Aluminum	110302-AL																					10.5	6.35	3.18	2.8	0.2	
	110304-AL																					10.0	6.35	3.18	2.8	0.4	
	110308-AL																					9.0	6.35	3.18	2.8	0.8	
	160402-AL																					16.1	9.525	4.76	4.4	0.2	
	160404-AL																					15.6	9.525	4.76	4.4	0.4	
	160408-AL																					14.6	9.525	4.76	4.4	0.8	
	160412-AL																					13.6	9.525	4.76	4.4	1.2	

# VC○○○



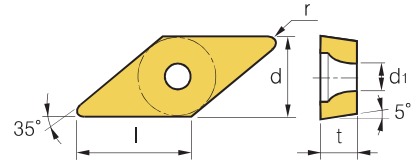
Rhombic **35° Positive**  
Relief Angle : 7°



Inserts	Designation	Coated														Uncoated					Dimensions (mm)									
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9235	DCP9335	DPW8115	DPW8125	DPW8225	DPW8135	DPW930	DCX5205	DCX5305	DCX5215	DCX5315	DCX5225	DCX5325	DP20	DPK01	l	d	t	d1	r			
<b>VCMW</b>  Roughing	110204																						10.0	6.35	3.18	2.8	0.4			
	110208																							9.0	6.35	3.18	2.8	0.8		
	16T304																							15.6	9.525	4.76	4.4	0.4		
	16T308																							14.6	9.525	4.76	4.4	0.8		
	16T312																							13.6	9.525	4.76	4.4	1.2		
<b>VCMT</b>  Medium	160404	●	●	●	●																		15.6	9.525	4.76	4.4	0.4			
	160408	●	●	●	●																			14.6	9.525	4.76	4.4	0.8		
	160412	●	●	●	●																			13.6	9.525	4.76	4.4	1.2		
<b>VCGT-AL</b>  Aluminum	110302-AL																						●	10.5	6.35	3.18	2.8	0.2		
	110304-AL																							●	10.0	6.35	3.18	2.8	0.4	
	110308-AL																							●	9.0	6.35	3.18	2.8	0.8	
	160402-AL																							●	16.1	9.525	4.76	4.4	0.2	
	160404-AL																							●	15.6	9.525	4.76	4.4	0.4	
	160408-AL																							●	14.6	9.525	4.76	4.4	0.8	
	160412-AL																							●	13.6	9.525	4.76	4.4	1.2	
	220516-AL																									18.0	12.7	5.56	5.6	1.6
	220525-AL																									15.6	12.7	5.56	5.6	2.5
220530-AL																							●	14.3	12.7	5.56	5.6	3.0		

## VB○○○

 Rhombic **35° Positive**  
Relief Angle : 5°

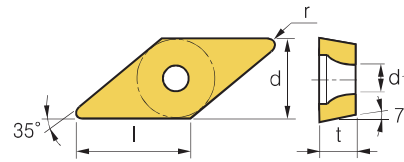


Inserts	Designation	Coated														Uncoated					Dimensions (mm)								
		DCF9305	DCF9215	DCP9120	DCF9220	DCF9225	DCF9325	DCF9235	DCF9335	DPM8115	DPM8125	DPM8225	DPM8135	DPM930	DKK5205	DKK5305	DKK5215	DKK5315	DKK5225	DKK5325	DP20	DPK01	l	d	t	d1	r		
<b>VBGT-SL</b>	110302-SL																							10.5	6.35	3.18	2.8	0.2	
	110304-SL																								10.0	6.35	3.18	2.8	0.4
	110308-SL																								9.0	6.35	3.18	2.8	0.8
	160402-SL																								16.1	9.525	4.76	4.4	0.2
	160404-SL																								15.6	9.525	4.76	4.4	0.4
	160408-SL																								14.6	9.525	4.76	4.4	0.8
Finishing																													

# VC○○○

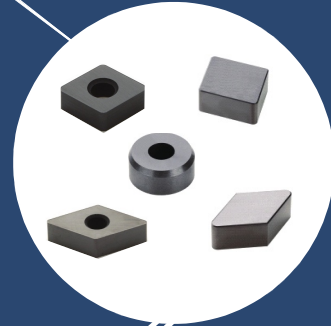


**Rhombic 35° Positive**  
Relief Angle : 7°



Inserts	Designation	Coated														Uncoated	Dimensions (mm)										
		DCP9305	DCP9215	DCP9120	DCP9220	DCP9225	DCP9325	DCP9235	DCP9335	DPM8115	DPM8125	DPM8225	DPM8135	DPM930	DCK5205	DCK5305	DCK5215	DCK5315	DCK5225	DCK5325	DP20	DPK01	l	d	t	d1	r
<b>VCGT-SL</b>	110302-SL							●●															10.5	6.35	3.18	2.5	0.2
	110304-SL							●●															10.0	6.35	3.18	2.8	0.4
	110308-SL							●●															9.0	6.35	3.18	2.8	0.8
	160402-SL							●●															16.1	9.525	4.76	4.4	0.2
	160404-SL							●●															15.6	9.525	4.76	4.4	0.4
	160408-SL							●●															14.6	9.525	4.76	4.4	0.8
Finishing																											

# CERAMIC





## ➤ Ceramic Grades

### Silicon Nitride; Titanium Nitride

- Excellent wear resistance and good impact resistance
- Excellent heat resistance, high oxidation resistance and high thermal shock resistance, so the cutting speed can generally be higher than carbide cutting tool 3 - 10 times, can realize high speed cutting and dry cutting to substantially improve production efficiency and reduce the cost production.



## ➤ The Features of Ceramic grades


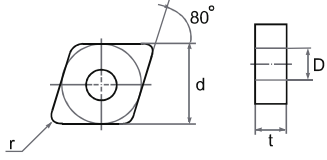

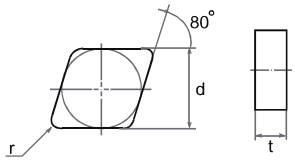
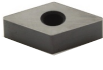
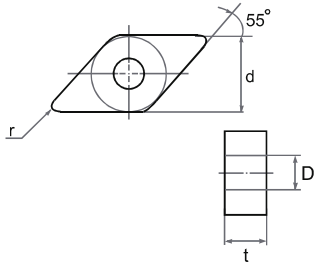

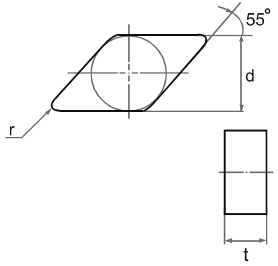

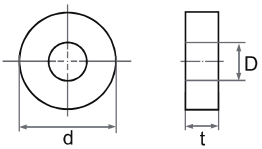
Grades	Recommend for application	Material Type	g/cm <sup>3</sup>	HRA	Mpa	Mpam <sup>1/2</sup>
<b>DS01</b>	High temperature resistance performance is good, suitable for large feed processing and milling of high hardness cast iron, ductile cast iron, hardened steel and nickel based alloy	Silicon Nitride	3.40	91-93	800-1000	7-10
<b>DS03</b>			3.85	92-94	800-1000	7-10
<b>DT01</b>	Good wear resistance, can be realized by turning on behalf of grinding or milling on behalf of grinding. Suitable for HRC<65 hardened steel and alloy cast iron medium to finishing	Titanium Nitride	4.77	93-94.5	750-950	6-8
<b>DT03</b>			4.85	93-95	700-900	6-8

## ➤ The Features of Ceramic grades

Work Pieces	Machining Type	Insert Grade	Cutting Speed Vc (m/min)	Feed (mm/rev)	Cutting Depth (mm)
<b>Chilled cast iron Hs</b>	Roughing	DS01	20-55	0.50-1.00	0.5-5.0
		DS03			
	Finishing	DS01	35-75	0.10-0.50	0.1-0.5
		DS03			
		DT01			
<b>Quenched and tempered steel HRC 30 - 40</b>	Finishing	DT01	140-200	0.05-0.20	≤0.8
		DT03			
<b>Hardened Steel HRC 60 - 65</b>	Roughing	DT01	20-40	0.10-0.25	≤2
		DT03			
	Finishing	DT01	35-80	0.05-0.20	≤0.8
		DT03			
<b>Cast iron, cast steel Hb</b>	Finishing	DT01	<1200	0.05-1.20	0.1-1.0
		DT03			
<b>Nickel based alloy, Hard nickel coating</b>	Turning & Milling	DS01	50-100	0.10-0.45	0.2-2.0
		DS03			


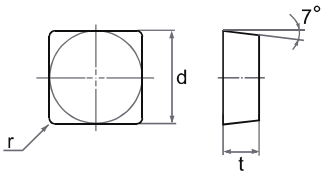

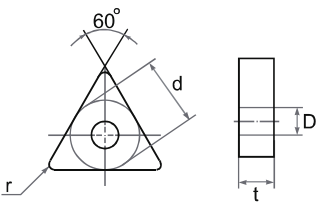

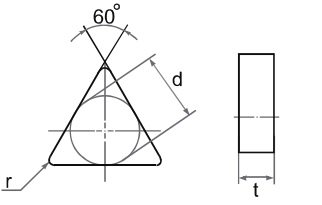
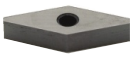
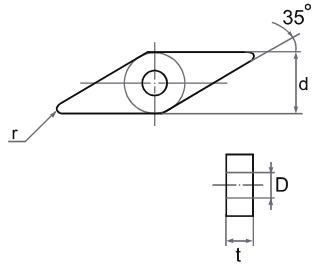


# A Turning

Inserts	Designation	Ceramics				Dimensions (mm)				Geometries
		DS01	DS03	DT01	DT03	d	t	r	D	
	120404					12.7	4.76	0.4	5.16	
	120408					12.7	4.76	0.8	5.16	
	160404					15.875	4.76	0.4	5.16	
	160408					15.875	4.76	0.8	5.16	
	160708					15.875	7.94	0.8	5.16	
	120404			●		12.7	4.76	0.4	--	
	120408			●		12.7	4.76	0.8	--	
	120412			●		12.7	4.76	1.2	--	
	120708			●		12.7	7.94	0.8	--	
	120712			●		12.7	7.94	1.2	--	
	120716			●		12.7	7.94	1.6	--	
	160708			●		15.875	7.94	0.8	--	
	160712			●		15.875	7.94	1.2	--	
160716			●		15.875	7.94	1.6	--		
	150404					12.7	4.76	0.4	5.16	
	150408					12.7	4.76	0.8	5.16	
	150412					12.7	4.76	1.2	5.16	
	150416					12.7	4.76	1.6	5.16	
	150604					12.7	6.35	0.4	5.16	
	150608					12.7	6.35	0.8	5.16	
	150612					12.7	6.35	1.2	5.16	
	150616					12.7	6.35	1.6	--	
	150404			●		12.7	4.76	0.4	--	
	150408			●		12.7	4.76	0.8	--	
	150412			●		12.7	4.76	1.2	--	
	150416			●		12.7	4.76	1.6	--	
	150604			●		12.7	6.35	0.4	--	
	150608			●		12.7	6.35	0.8	--	
	150612			●		12.7	6.35	1.2	--	
	150616			●		12.7	6.35	1.6	--	
	150704			●		12.7	7.94	0.4	--	
	150708			●		12.7	7.94	0.8	--	
	150712			●		12.7	7.94	1.2	--	
	150716			●		12.7	7.94	1.6	--	
	090400					9.525	4.76	--	3.81	
	120400					12.7	4.76	--	5.16	
	120700					12.7	7.94	--	5.16	

Inserts	Designation	Ceramics				Dimensions (mm)				Geometries
		DS01	DS03	DT01	DT03	d	t	r	D	
	090400			●		9.525	4.76	--	--	
	120400			●		12.7	4.76	--	--	
	120700			●		12.7	7.94	--	--	
	150700			●		15.875	7.94	--	--	
	190700			●		19.05	7.94	--	--	
	191000			●		19.05	10.00	--	--	
	090304					12.7	4.76	0.4	5.16	
	090308					12.7	4.76	0.8	5.16	
	120404					12.7	4.76	0.4	5.16	
	120408					12.7	4.76	0.8	5.16	
	120412					12.7	4.76	1.2	5.16	
	150608					15.875	6.35	0.8	6.35	
	150612					15.875	6.35	1.2	6.35	
	150616					15.875	6.35	1.6	6.35	
	190612					19.05	6.35	1.2	7.94	
190616					12.7	6.35	1.6	7.94		
	090304			●		9.525	3.18	0.4	--	
	090308			●		9.525	3.18	0.8	--	
	090312			●		9.525	3.18	1.2	--	
	090404			●		9.525	4.76	0.4	--	
	090408			●		9.525	4.76	0.8	--	
	090412			●		9.525	4.76	1.2	--	
	120404			●		12.7	4.76	0.4	--	
	120408			●		12.7	4.76	0.8	--	
	120412			●		12.7	4.76	1.2	--	
	120708			●		12.7	7.94	0.8	--	
	120712			●		12.7	7.94	1.2	--	
	120716			●		12.7	4.76	1.6	--	
	150708			●		15.875	7.94	0.8	--	
	150712			●		15.875	7.94	1.2	--	
	150716			●		15.875	7.94	1.6	--	
	190612			●		19.05	6.35	1.2	--	
	190616			●		19.05	6.35	1.6	--	
	190620			●		19.05	6.35	2.0	--	
	190712			●		19.05	7.94	1.2	--	
	190716			●		19.05	7.94	1.6	--	
190720			●		19.05	7.94	2.0	--		

# A Turning

Inserts	Designation	Ceramics				Dimensions (mm)				Geometries	
		DS01	DS03	DT01	DT03	d	t	r	D		
	090304					9.525	3.18	0.4	--		
	090308					9.525	3.18	0.8	--		
	090412					9.525	4.76	1.2	--		
	090416					9.525	4.76	1.6	--		
	120404					12.7	4.76	0.4	--		
	120408					12.7	4.76	0.8	--		
	120412					12.7	4.76	1.2	--		
	120416					12.7	4.76	1.6	--		
	150408					15.875	4.76	0.8	--		
	150412					15.875	4.76	1.2	--		
150416					15.875	4.76	1.6	--			
	110304					6.35	3.18	0.4	2.26		
	110308					6.35	3.18	0.8	2.26		
	160404					9.525	4.76	0.4	3.81		
	160408					9.525	4.76	0.8	3.81		
	160412					9.525	4.76	1.2	3.81		
	160416					9.525	4.76	1.6	3.81		
	220404					12.7	4.76	0.4	5.16		
	220408					12.7	4.76	0.8	5.16		
	220412					12.7	4.76	1.2	5.16		
	110304					6.35	3.18	0.4	--		
	110308					6.35	3.18	0.8	--		
	160404				●	9.525	4.76	0.4	--		
	160408				●	9.525	4.76	0.8	--		
	160412				●	9.525	4.76	1.2	--		
	160416				●	9.525	4.76	1.6	--		
	220404				●	12.7	4.76	0.4	--		
	220408				●	12.7	4.76	0.8	--		
	220412				●	12.7	4.76	1.2	--		
	220708				●	12.7	7.94	0.8	--		
	220712				●	12.7	7.94	1.2	--		
220716				●	12.7	7.94	1.6	--			
	160404					9.525	4.76	0.4	3.81		
	160408					9.525	4.76	0.8	3.81		
	160412					9.525	4.76	1.2	3.81		

Inserts	Designation	Ceramics				Dimensions (mm)				Geometries
		DS01	DS03	DT01	DT03	d	t	r	D	

	VNGN 160404					9.525	4.76	0.4	--	
	160408					9.525	4.76	0.8	--	
	160704					9.525	7.94	0.4	--	
	160708					9.525	7.94	0.8	--	
	160712					9.525	7.94	1.2	--	

	WNGA 080404					12.7	4.76	0.4	5.16	
	080408					12.7	4.76	0.8	5.16	
	080412					12.7	4.76	1.2	5.16	

Inserts	Designation	Ceramics				Dimensions (mm)				Geometries
		TS01	TS03	TT01	TT03	d	t	r	D	

	RBGX 08T					8.0	6.5	4.0	4.0	
	10T					10.0	9.0	6.0	6.0	
	12T					12.0	9.0	6.0	6.0	
	16T					16.0	13.0	8.0	8.0	
	20T					20.0	15.0	10.0	10.0	

Inserts	Designation	Ceramics				Dimensions (mm)				Geometries
		TS01	TS03	TT01	TT03	d	t	r	D	

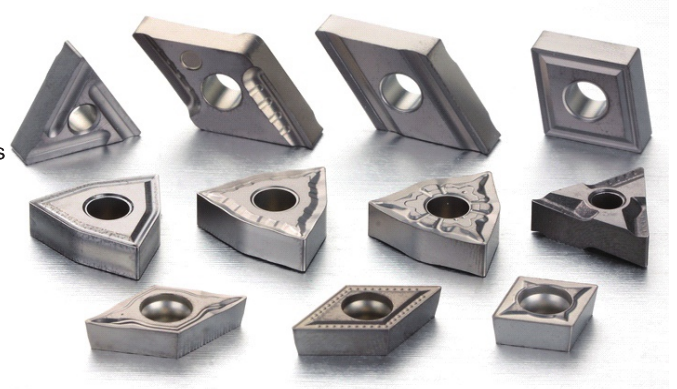
	RCGX 090700				●	9.525	7.94	7.70	120°	
	120700				●	12.7	7.94	7.70	120°	
	151000				●	15.875	10.0	9.77	120°	
	191000				●	19.05	10.0	9.77	120°	
	251200				●	25.4	12.0	11.85	140°	

## ➤ Cermet Grades

**For Steel, stainless steel, cast iron, other sintering alloy steel**  
**Continous cutting cermet.**

### **DTIM20 DTIM30**


- Functionally gradient cermet materialization leads excellent quality on both non-grinding and grinding inserts.
- Due to increase of plastic deformation resistance, it maintains superior wear resistance and precision on workpiece dimensions over long period usage with wet and dry cutting conditions machining
- Improved adhesion wear resistance on upper part and cutting edge, reduces tool cutting load and makes surface finishing smooth after machining.




- New vermet grade for finishing of cast iron, carbon steel, alloy steel, stainless steel and other sintered

**K05-K10 P05-P25 M05-M15**

## ➤ DTIM20 Grade

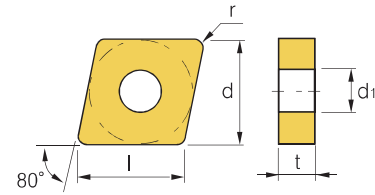
Recommended cutting speed (m/min)	ISO	K05-K10 P05-P25 M05-M15
	Density (g/cm <sup>3</sup> )	6.1-7.2
	Hardness (HRA)	>92
	Bending strength (N/mm <sup>2</sup> )	>1800
210 (120-300)	Application	Suitable for the finishing to semi-finishing of stainless steel and steel




## DTIM30 Grade

Recommended cutting speed (m/min)	ISO	K05-K10 P05-P25 M05-M15
	Density (g/cm <sup>3</sup> )	6.5-7.2
	Hardness (HRA)	>92
	Bending strength (N/mm <sup>2</sup> )	>1900
280 (150-400)	Application	Suitable for the semi-finishing to roughing of stainless steel and steel

## CN○○

 Rhombic **80° Negative**



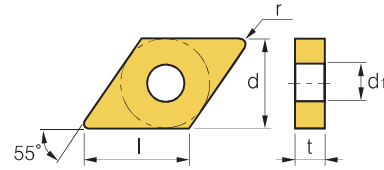
Inserts	Designation	Cermet		Dimensions (mm)					Cutting Condition	
		DTIM20	DTIM30	l	d	t	d1	r	fn (mm/rev)	ap (mm)
<b>CNMG-MT</b> 	120404	●	●	12.4	12.7	4.76	5.16	0.4	0.15-0.40	1.0-5.0
	120408	●	●	12.0	12.7	4.76	5.16	0.8	0.17-0.55	1.2-5.0
<b>CNMG-TC</b> 	120404	●	●	12.4	12.7	4.76	5.16	0.4	0.17-0.45	1.0-5.0
	120408	●	●	12.0	12.7	4.76	5.16	0.8	0.23-0.60	1.5-5.0
<b>CNMG-TS</b> 	120404			12.4	12.7	4.76	5.16	0.4	0.15-0.20	0.5-1.8
	120408			12.0	12.7	4.76	5.16	0.8	0.15-0.20	0.5-1.8



# DN○○○



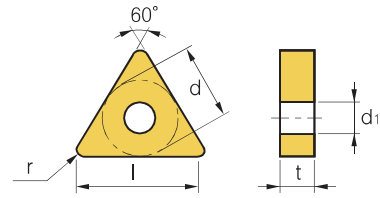
## Rhombic 55° Negative







Inserts	Designation	Cermet		Dimensions(mm)					Cutting Condition	
		DTIM20	DTIM30	l	d	t	d1	r	fn (mm/rev)	ap (mm)
<b>DNMG-MT</b> 	150404			15.1	12.7	4.76	5.16	0.4	0.15-0.40	0.8-4.0
	150408			14.7	12.7	4.76	5.16	0.8	0.17-0.50	1.0-4.0
<b>DNMG-VF</b> 	150404R	●	●	15.1	12.7	4.76	5.16	0.4	0.10-0.35	0.7-4.5
	150408R	●	●	14.7	12.7	4.76	5.16	0.8	0.12-0.45	1.0-4.5
	150404L			15.1	12.7	4.76	5.16	0.4	0.10-0.35	0.7-4.5
	150408L			14.7	12.7	4.76	5.16	0.8	0.12-0.45	1.0-4.5
<b>DNMG-S</b> 	150404R	●	●	15.1	12.7	4.76	5.16	0.4	0.20-0.40	1.0-4.0
	150408R	●	●	14.7	12.7	4.76	5.16	0.8	0.20-0.40	1.0-4.0
	150404L	●	●	15.1	12.7	4.76	5.16	0.4	0.20-0.40	1.0-4.0
	150408L	●	●	14.7	12.7	4.76	5.16	0.8	0.20-0.40	1.0-4.0
<b>DNMG-TS</b> 	150404			15.1	12.7	4.76	5.16	0.4	0.10-0.20	0.3-1.5
	150408			14.7	12.7	4.76	5.16	0.8	0.10-0.20	0.3-1.5

## TN○○○

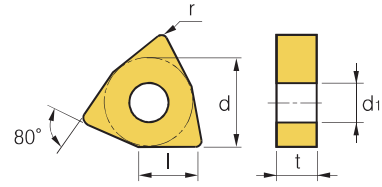
 Triangular **60° Negative**






Inserts	Designation	Cermet		Dimensions (mm)					Cutting Condition	
		DTIM20	DTIM30	l	d	t	d1	r	fn (mm/rev)	ap (mm)
<b>TNMG-MT</b> 	160404	●	●	15.5	9.525	4.76	3.81	0.4	0.17-0.40	1.0-3.5
	160408	●	●	15.5	9.525	4.76	3.81	0.8	0.17-0.50	1.2-3.5
<b>TNMG-TC</b> 	160404	●	●	15.5	9.525	4.76	3.81	0.4	0.10-0.30	0.8-3.5
	160408	●	●	15.5	9.525	4.76	3.81	0.8	0.12-0.40	1.0-3.5
<b>TNMG-VF</b> 	160404R	●	●	15.5	9.525	4.76	3.81	0.4	0.10-0.30	0.7-3.5
	160408R	●	●	15.5	9.525	4.76	3.81	0.8	0.12-0.35	1.0-3.5
	160404L			15.5	9.525	4.76	3.81	0.4	0.10-0.30	0.7-3.5
	160408L			15.5	9.525	4.76	3.81	0.8	0.12-0.35	1.0-3.5
<b>TNMG-S</b> 	160404R	●	●	15.5	9.525	4.76	3.81	0.4	0.15-0.30	0.8-3.0
	160408R	●	●	15.5	9.525	4.76	3.81	0.8	0.20-0.40	1.0-3.5
	160404L	●	●	15.5	9.525	4.76	3.81	0.4	0.15-0.30	0.8-3.0
	160408L	●	●	15.5	9.525	4.76	3.81	0.8	0.20-0.40	1.0-3.5

## WN○○○

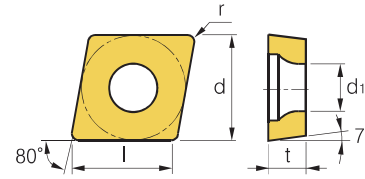
### Trigon **80° Negative**



Inserts	Designation	Cermet		Dimensions (mm)					Cutting Condition	
		DTIM20	DTIM30	l	d	t	d1	r	fn (mm/rev)	ap (mm)
<b>WNMG-MT</b> 	080404	●	●	8.4	12.7	4.76	5.16	0.4	0.12-0.40	1.0-4.0
	080408	●	●	8.3	12.7	4.76	5.16	0.8	0.17-0.55	1.2-4.0
<b>WNMG-TC</b> 	080404	●	●	8.4	12.7	4.76	5.16	0.4	0.10-0.35	1.0-4.0
	080408	●	●	8.3	12.7	4.76	5.16	0.8	0.12-0.40	1.0-4.0
<b>WNMG-TS</b> 	080404	●	●	8.4	12.7	4.76	5.16	0.4	0.1-0.2	0.2-1.8
	080408	●	●	8.3	12.7	4.76	5.16	0.8	0.1-0.2	0.2-1.8

CC○○

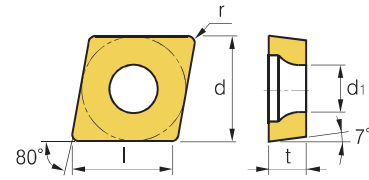
Rhombic **80° Positive**  
Relief Angle : 7°






Inserts	Designation	Cermet		Dimensions (mm)					Cutting Condition	
		DTIM20	DTIM30	l	d	t	d1	r	fn (mm/rev)	ap (mm)
<b>CCGT-F</b>    Finishing	030102R			3.3	3.5	1.39	1.9	0.2	0.03-0.15	0.1-0.4
	030104R			3.1	3.5	1.39	1.9	0.4	0.05-0.20	0.1-0.4
	040102R			4.1	4.3	1.79	2.3	0.2	0.03-0.15	0.1-0.5
	040104R			3.9	4.3	1.79	2.3	0.4	0.05-0.20	0.1-0.5
	030102L			3.3	3.5	1.39	1.9	0.2	0.03-0.15	0.1-0.4
	030104L			3.1	3.5	1.39	1.9	0.4	0.05-0.20	0.1-0.4
	040102L			4.1	4.3	1.79	2.3	0.2	0.03-0.15	0.1-0.5
	040104L			3.9	4.3	1.79	2.3	0.4	0.05-0.20	0.1-0.5
<b>CCGT-W15</b>    Finishing	060202R		●	6.5	6.35	2.38	2.8	0.2	0.02-0.20	0.1-2.0
	060204R		●	6.5	6.35	2.38	2.8	0.4	0.02-0.20	0.1-2.0
	060202L		●	6.5	6.35	2.38	2.8	0.2	0.02-0.20	0.1-2.0
	060204L		●	6.5	6.35	2.38	2.8	0.4	0.02-0.20	0.1-2.0
<b>CCGT-W20</b>    Finishing	09T302R		●	9.7	9.525	3.97	4.4	0.2	0.04-0.15	0.08-2.00
	09T304R		●	9.7	9.525	3.97	4.4	0.4	0.04-0.15	0.08-2.00
	09T302L		●	9.7	9.525	3.97	4.4	0.2	0.04-0.15	0.08-2.00
	09T304L		●	9.7	9.525	3.97	4.4	0.4	0.04-0.15	0.08-2.00
<b>CCGT-J10</b>    Medium	060202FR		●	6.5	6.35	2.38	2.8	0.2	0.03-0.11	0.06-1.70
	060204FR		●	6.5	6.35	2.38	2.8	0.4	0.03-0.11	0.06-1.70
	09T302FR		●	9.7	9.525	3.97	4.4	0.2	0.04-0.15	0.08-2.00
	09T304FR		●	9.7	9.525	3.97	4.4	0.4	0.04-0.15	0.08-2.00
	060202FL		●	6.5	6.35	2.38	2.8	0.2	0.03-0.11	0.06-1.70
	060204FL		●	6.5	6.35	2.38	2.8	0.4	0.03-0.11	0.06-1.70
	09T302FL		●	9.7	9.525	3.97	4.4	0.2	0.04-0.15	0.08-2.00
	09T304FL		●	9.7	9.525	3.97	4.4	0.4	0.04-0.15	0.08-2.00

## CC○○

 **Rhombic 80° Positive**  
Relief Angle : 7°

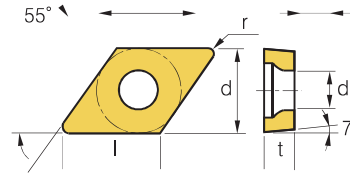


Inserts	Designation	Cermet		Dimensions (mm)					Cutting Condition	
		DTIM20	DTIM30	l	d	t	d1	r	fn (mm/rev)	ap (mm)
<b>CCMT-FG</b> 	060202			6.2	6.35	2.38	2.8	0.2	0.03-0.11	0.3-1.5
	060204	●	●	6.0	6.35	2.38	2.8	0.4	0.05-0.15	0.3-1.5
	09T304	●	●	9.2	9.525	3.97	4.4	0.4	0.07-0.20	0.4-2.0
	09T308	●	●	8.8	9.525	3.97	4.4	0.8	0.10-0.25	0.6-2.0
Finishing										
<b>CCMT-MT</b> 	060204	●	●	6.0	6.35	2.38	2.8	0.4	0.07-0.20	0.5-2.0
	09T304	●	●	9.2	9.525	3.97	4.4	0.4	0.10-0.25	0.7-3.5
	09T308	●	●	8.8	9.525	3.97	4.4	0.8	0.13-0.30	1.0-3.5
Medium										
<b>CCMT-TC</b> 	09T304	●	●	9.2	9.525	3.97	4.4	0.4	0.05-0.20	0.4-2.0
	09T308	●	●	8.8	9.525	3.97	4.4	0.8	0.10-0.25	0.5-2.0
Medium										

# DC○○○



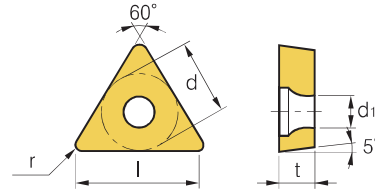
Rhombic **55° Positive**  
Relief Angle : 7°



Inserts	Designation	Cermet		Dimensions (mm)					Cutting Condition	
		DTIM20	DTIM30	l	d	t	d1	r	fn (mm/rev)	ap (mm)
 Finishing	070202R		●	7.8	6.35	2.38	2.8	0.2	0.03-0.11	0.06-1.5
	070204R		●	7.8	6.35	2.38	2.8	0.4	0.03-0.11	0.06-1.5
	070202L		●	7.8	6.35	2.38	2.8	0.2	0.03-0.11	0.06-1.5
	070204L		●	7.8	6.35	2.38	2.8	0.4	0.03-0.11	0.06-1.5
 Finishing	11T302R		●	11.6	9.525	3.97	4.4	0.2	0.04-0.15	0.08-2.0
	11T304R		●	11.6	9.525	3.97	4.4	0.4	0.04-0.15	0.08-2.0
	11T302L		●	11.6	9.525	3.97	4.4	0.2	0.04-0.15	0.08-2.0
	11T302L		●	11.6	9.525	3.97	4.4	0.4	0.04-0.15	0.08-2.0
 Medium	070202FR		●	7.8	6.35	2.38	2.8	0.2	0.03-0.11	0.06-1.5
	070204FR		●	7.8	6.35	2.38	2.8	0.4	0.03-0.11	0.06-1.5
	11T302FR		●	11.6	9.525	3.97	4.4	0.2	0.04-0.15	0.08-2.00
	11T304FR		●	11.6	9.525	3.97	4.4	0.4	0.04-0.15	0.08-2.00
	070202FL		●	7.8	6.35	2.38	2.8	0.2	0.03-0.11	0.06-1.5
	070204FL		●	7.8	6.35	2.38	2.8	0.4	0.03-0.11	0.06-1.5
	11T302FL		●	11.6	9.525	3.97	4.4	0.2	0.04-0.15	0.08-2.00
	11T304FL		●	11.6	9.525	3.97	4.4	0.4	0.04-0.15	0.08-2.00
 Finishing	070204	●	●	7.3	6.35	2.38	2.8	0.4	0.07-0.20	0.4-1.5
	070208			6.8	6.35	2.38	2.8	0.8	0.07-0.20	0.4-2.0
	11T304	●	●	11.2	9.525	3.97	4.4	0.4	0.10-0.25	0.6-1.5
	11T308	●	●	10.8	9.525	3.97	4.4	0.8	0.10-0.25	0.6-2.0
 Medium	11T304	●	●	11.2	9.525	3.97	4.4	0.4	0.10-0.25	0.7-3.0
	11T308	●	●	10.8	9.525	3.97	4.4	0.8	0.13-0.30	1.0-3.0

## TB○○○

 Triangular **60° Positive**  
Relief Angle : 5°

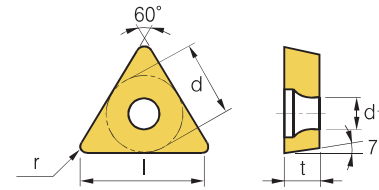




Inserts	Designation	Cermet		Dimensions (mm)					Cutting Condition	
		DTIM20	DTIM30	l	d	t	d1	r	fn (mm/rev)	ap (mm)
<b>TBGT</b>	060102R			6.4	3.97	1.59	2.16	0.2	0.05-0.20	0.1-1.3
	060104R			5.8	3.97	1.59	2.16	0.4	0.08-0.20	0.1-1.3
	060102L		●	6.4	3.97	1.59	2.16	0.2	0.05-0.20	0.1-1.3
	060104L		●	5.8	3.97	1.59	2.16	0.4	0.08-0.20	0.1-1.3
Finishing										

**TC**○○



**Triangular 60° Positive**  
Relief Angle : 7°



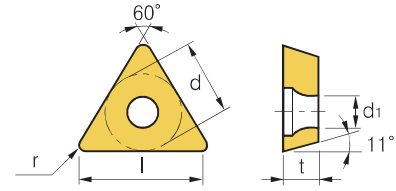
Inserts	Designation	Cermet		Dimensions (mm)					Cutting Condition	
		DTIM20	DTIM30	l	d	t	d1	r	fn (mm/rev)	ap (mm)
<b>TCGT</b> 	060102L			6.4	3.97	1.59	2.16	0.2	0.05-0.20	0.1-1.3
	060104L			5.8	3.97	1.59	2.16	0.4	0.08-0.20	0.1-1.3
	080202R			7.7	4.76	2.38	2.3	0.2	0.01-0.12	0.06-1.7
	080204R			7.2	4.76	2.38	2.3	0.4	0.01-0.15	0.08-1.7
	080202L			7.7	4.76	2.38	2.3	0.2	0.01-0.12	0.06-1.7
	080204L			7.2	4.76	2.38	2.3	0.4	0.01-0.15	0.08-1.7
Finishing										
<b>TCMT</b> 	090204			8.6	5.56	2.38	2.5	0.4	0.10-0.25	0.6-2.0
	110204			10.0	6.35	2.38	2.8	0.4	0.10-0.25	0.6-3.0
	16T304	●	●	15.5	9.525	3.97	4.4	0.4	0.10-0.25	0.8-5.0
	16T308	●	●	14.5	9.525	3.97	4.4	0.8	0.10-0.30	1.0-5.0
	Medium									




## TP○○



Triangular **60° Positive**  
Relief Angle : 11°

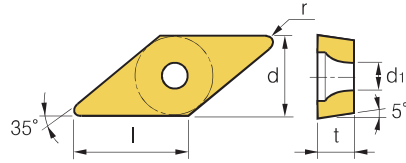



Inserts	Designation	Cermet		Dimensions(mm)					Cutting Condition		
		DTIM20	DTIM30	l	d	t	d1	r	fn (mm/rev)	ap (mm)	
<b>TPGH</b>  Finishing	080202R			7.7	4.76	2.38	2.3	0.2	0.01-0.12	0.06-1.7	
	080204R			7.2	4.76	2.38	2.3	0.4	0.01-0.15	0.08-1.7	
	090202R			9.1	5.56	2.38	3.0	0.2	0.10-0.20	0.3-1.0	
	090204R			8.6	5.56	2.38	3.0	0.4	0.10-0.25	0.5-1.0	
	110302R			10.5	6.35	3.18	3.5	0.2	0.10-0.20	0.3-1.2	
	110304R			10.0	6.35	3.18	3.5	0.4	0.10-0.25	0.5-1.2	
	080202L		●	7.7	4.76	2.38	2.3	0.2	0.01-0.12	0.06-1.7	
	080204L		●	7.2	4.76	2.38	2.3	0.4	0.01-0.15	0.08-1.7	
	090202L		●	9.1	5.56	2.38	3.0	0.2	0.10-0.20	0.3-1.0	
	090204L		●	8.6	5.56	2.38	3.0	0.4	0.10-0.25	0.5-1.0	
	110302L		●	10.5	6.35	3.18	3.5	0.2	0.10-0.20	0.3-1.2	
	110304L		●	10.0	6.35	3.18	3.5	0.4	0.10-0.25	0.5-1.2	

# VB○○



Rhombic **35° Positive**  
Relief Angle : 5°



Inserts	Designation	Cermet		Dimensions (mm)					Cutting Condition		
		DTIM20	DTIM30	l	d	t	d1	r	fn (mm/rev)	ap (mm)	
<b>VBGT-J10</b>    Finishing	110302FR		●	11.0	6.35	3.18	2.8	0.2	0.01-0.13	0.06-5.0	
	110304FR		●	11.0	6.35	3.18	2.8	0.4	0.01-0.13	0.06-5.0	
	110302FL		●	11.0	6.35	3.18	2.8	0.2	0.01-0.13	0.06-5.0	
	110304FL		●	11.0	6.35	3.18	2.8	0.4	0.01-0.13	0.06-5.0	













## Recommended cutting condition of PCBN grades

Grade	Material	Features	Cutting speed Vc(m/min)	Feed fn (mm/rev)	Depth ap(mm)
<b>DBM200</b>	Hardened steel	<ul style="list-style-type: none"> <li>● Excellent impact and wear resistance, be suitable for cast iron and iron base powder metallurgy metal.</li> <li>● Be suitable for hardened steel heavy interval cutting and milling process</li> </ul>	60-120	0.10-0.50	≤3
	Grey cast iron		500-1200	0.10-0.50	≤1
	Chilled cast iron High manganese steel, Alloy cast iron, High speed steel		500-1200	0.10-0.50	≤1
	Nodular graphite cast iron		80-250	0.05-0.50	≤0.5
	Sintered metal		600-300	0.05-0.50	≤1
	High temperature alloy		60-200	0.10-0.30	≤1
<b>DBN500</b>	Grey cast iron	<ul style="list-style-type: none"> <li>● Sharp edge, having excellent wear resistance.</li> <li>● Be suitable for cast iron and powder metallurgy metal</li> </ul>	500-1200	0.10-0.50	≤1
	Chilled cast iron High manganese steel, Alloy cast iron, High speed steel		500-1200	0.10-0.50	≤1
	Nodular graphite cast iron		80-250	0.05-0.50	≤0.5
	Sintered metal		600-300	0.05-0.50	≤1
<b>TBM300</b>	Hardened steel	<ul style="list-style-type: none"> <li>● Resistance to chipping type of PCBN grade.</li> <li>● Be suitable for finishing and semi-finishing of medium interval turning hardened steel</li> </ul>	60-200	0.10-0.30	≤1

## ➤ Recommended cutting condition of PCD grades



Material		Machining Type	Cutting speed (m/min)	Feed (mm/rev)	Depth of cut (mm)	Recommended grade	
						1#	2#
Aluminum alloy	4-8% Si	turning	900-3500	0.10-0.40	0.1-4.0	<b>DD100</b>	<b>DD050</b>
		milling	1000-5000	0.10-0.30	0.1-0.3		
	9-14% Si	turning	600-2400	0.10-0.40	0.1-4.0	<b>DD250</b>	<b>DD400</b>
		milling	700-3000	0.10-0.30	0.1-0.3		
	>13% Si	turning	300-700	0.10-0.40	0.1-4.0	<b>DD250</b>	<b>DD400</b>
		milling	400-900	0.10-0.30	0.1-0.3		
Metal matrix Composites	Al/10-20%SiC	turning/milling	300-600	0.10-0.40	0.2-1.5	<b>DD250</b>	<b>DD400</b>
Copper alloy	Copper, copper alloy	turning/milling	400-1200	0.03-0.30	0.05-2.0	<b>DD100</b>	<b>DD400</b>
Carbide alloy (Co ≤ 16%)	Unsintered	turning	60-120	0.10-0.40	0.1-1.0	<b>DD250</b>	<b>DD260</b>
	Sintering	turning	20-40	0.10-0.25	0.1-0.5		
Ceramic	Unsintered	turning	70-150	0.10-0.40	0.2-1.0	<b>DD250</b>	<b>DD260</b>
	Sintering	turning	50-80	0.10-0.25	0.1-0.5		
Rubber/fiber materials	Carbon/graphite	turning/milling	300-2000	0.05-0.30	0.1-3.0	<b>DD260</b>	
	Glass fiber/rubber	turning/milling	200-1000	0.05-0.50	0.1-3.0		
	Glass fiber/graphite	turning/milling	300-1000	0.10-0.40	0.1-3.0		







## ➤ CBN one-Use Type ( Negative / Positive)

Insert	Designation	Grades			Dimensions (mm)			
		DBM200	DBM300	DBN500	Inscribed circle	Thickness	Nose R	Hole size
 <b>CN</b> ○○  <b>80°</b> Nega	CNGA 120404		●		12.76	4.76	0.4	5.16
	120408		●		12.76	4.76	0.8	5.16
	120412		●		12.76	4.76	1.2	5.16
 <b>DN</b> ○○  <b>55°</b> Nega	DNGA 150404				12.76	4.76	0.4	5.16
	150408				12.76	4.76	0.8	5.16
	150412				12.76	4.76	1.2	5.16
 <b>SN</b> ○○  <b>90°</b> Nega	SNGA 120404		●		12.76	4.76	0.4	5.16
	120408		●		12.76	4.76	0.8	5.16
	120412		●		12.76	4.76	1.2	5.16
 <b>TN</b> ○○  <b>60°</b> Nega	TNGA 160404		●		9.525	4.76	0.4	3.81
	160408		●		9.525	4.76	0.8	3.81
	160412		●		9.525	4.76	1.2	3.81
 <b>VN</b> ○○  <b>35°</b> Nega	VNGA 160404		●		9.525	4.76	0.4	3.81
	160408		●		9.525	4.76	0.8	3.81
	160412		●		9.525	4.76	1.2	3.81
 <b>CC</b> ○○  <b>80°</b> Posi	CCGW 060202				6.35	2.38	0.2	2.8
	060204		●		6.35	2.38	0.4	2.8
	09T302				9.525	3.97	0.2	4.4
	09T304		●		9.525	3.97	0.4	4.4
	09T308		●		9.525	3.97	0.8	4.4
	09T312				9.525	3.97	1.2	4.4
	120404				12.7	4.76	0.4	5.5
	120408				12.7	4.76	0.8	5.5
	120412				12.7	4.76	1.2	5.5

Insert	Designation	Grades			Dimensions (mm)			
		DBM200	DBM300	DBN500	Inscribed cicle	Thickness	Nose R	Hole size
<p><b>DC</b> ○○ 55° Posi</p>	DCGW 070202				6.35	2.38	0.2	2.8
	070204				6.35	2.38	0.4	2.8
	070208		●		6.35	2.38	0.8	2.8
	11T302				9.525	3.97	0.2	4.4
	11T304		●		9.525	3.97	0.4	4.4
	11T308		●		9.525	3.97	0.8	4.4
	11T312				9.525	3.97	1.2	4.4
<p><b>SC</b> ○○ 90° Posi</p>	SCGW 09T304				9.525	3.97	0.4	4.4
	09T308				9.525	3.97	0.8	4.4
	09T312				9.525	3.97	1.2	4.4
<p><b>TC</b> ○○ 60° Posi</p>	TCGW 110204				6.35	2.38	0.4	2.8
	110208				6.35	2.38	0.4	2.8
	16T304				9.525	3.97	0.4	2.8
	16T308				9.525	3.97	0.8	2.8
	16T312				9.525	3.97	1.2	2.8
<p><b>VB</b> ○○ <b>VC</b> ○○ 35° Posi</p>	VBGW 110304		●		6.35	3.18	0.4	3.3
	110308		●		6.35	3.18	0.8	3.3
	160404		●		9.525	4.76	0.4	4.4
	160408				9.525	4.76	0.8	4.4
	160412				9.525	4.76	1.2	4.4
	VCGW 160404		●		9.525	4.76	0.4	4.4
	160408		●		9.525	4.76	0.8	4.4
	160412		●		9.525	4.76	1.2	4.4













## ➤ CBN Multi-Corner Type (Negative / Positive)







Insert	Designation	Grades			Dimensions (mm)			
		DBM200	DBM300	DBN500	Inscribed circle	Thickness	Nose R	Hole size
 <b>CN</b> ○○  <b>80°</b> Nega	CNGA 120404-2				12.76	4.76	0.4	5.16
	120408-2				12.76	4.76	0.8	5.16
	120412-2				12.76	4.76	1.2	5.16
 <b>DN</b> ○○  <b>55°</b> Nega	DNGA 150404-2				12.76	4.76	0.4	5.16
	150408-2				12.76	4.76	0.8	5.16
	150412-2				12.76	4.76	1.2	5.16
 <b>SN</b> ○○  <b>90°</b> Nega	SNGA 120404-2				12.76	4.76	0.4	5.16
	120408-2				12.76	4.76	0.8	5.16
	120412-2				12.76	4.76	1.2	5.16
 <b>TN</b> ○○  <b>60°</b> Nega	TNGA 160404-3				9.525	4.76	0.4	3.81
	160408-3				9.525	4.76	0.8	3.81
	160412-3				9.525	4.76	1.2	3.81
 <b>VN</b> ○○  <b>35°</b> Nega	VNGA 160404-2				9.525	4.76	0.4	3.81
	160408-2				9.525	4.76	0.8	3.81
	160412-2				9.525	4.76	1.2	3.81
 <b>CC</b> ○○  <b>80°</b> Posi	CCGW 09T302-2				9.525	3.97	0.2	4.4
	09T304-2				9.525	3.97	0.4	4.4
	09T308-2				9.525	3.97	0.8	4.4
	09T312-				9.525	3.97	1.2	4.4
	120404-2				12.7	4.76	0.4	5.5
	120408-2				12.7	4.76	0.8	5.5
	120412-2				12.7	4.76	1.2	5.5

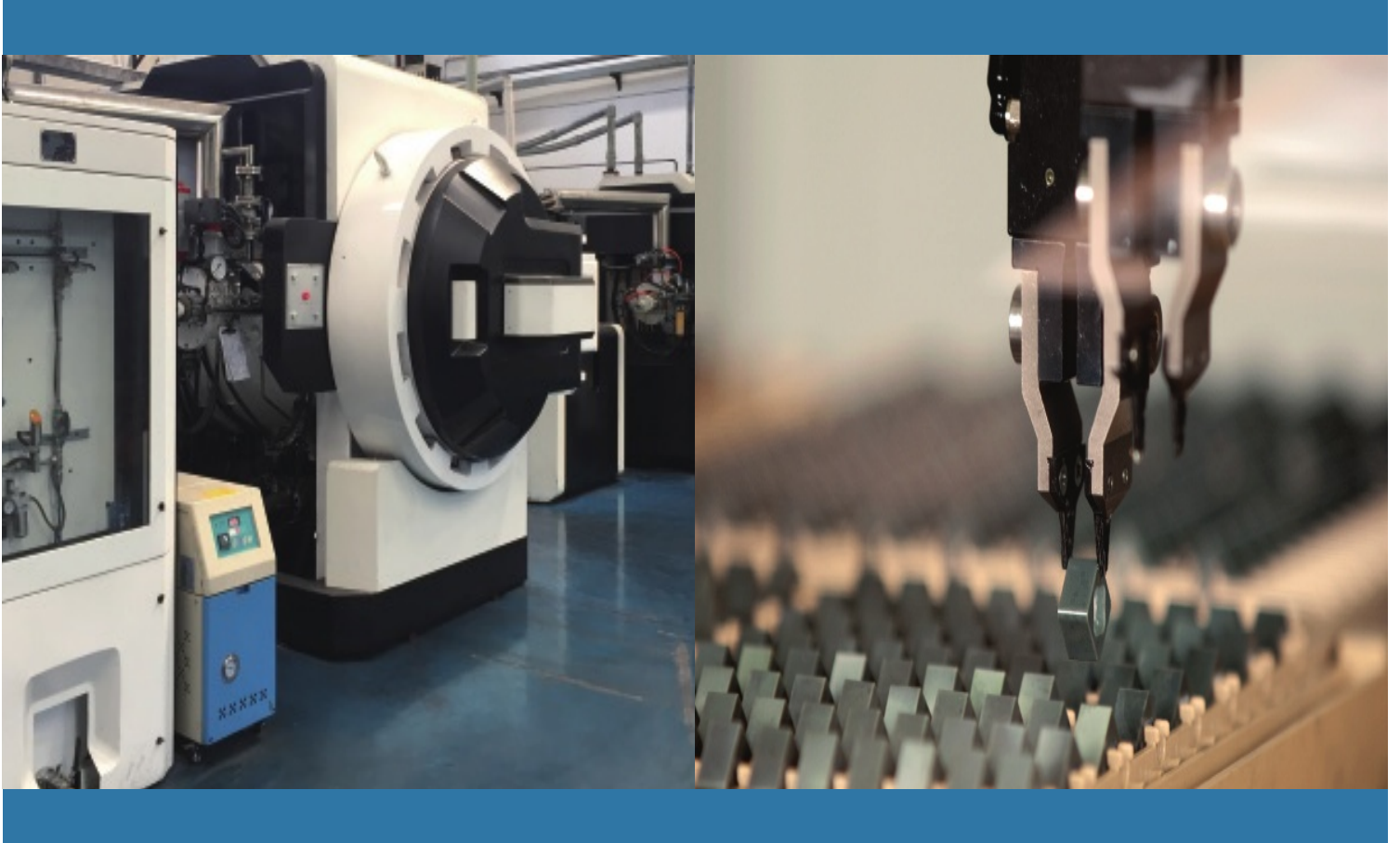
Insert	Designation	Grades			Dimensions (mm)				
		DBM200	DBM300	DBN500	Inscribed circle	Thickness	Nose R	Hole size	
 <b>DC</b> ○○ 	DCGW 11T302-2				9.525	3.97	0.2	4.4	
	11T304-2				9.525	3.97	0.4	4.4	
	11T308-2				9.525	3.97	0.8	4.4	
	11T312-2				9.525	3.97	1.2	4.4	
						9.525	3.97	0.4	4.4
 <b>TC</b> ○○ 	TCGW 16T304-3				9.525	3.97	0.4	2.8	
	16T308-3				9.525	3.97	0.8	2.8	
	16T312-3				9.525	3.97	1.2	2.8	
 <b>VB</b> ○○ <b>VC</b> ○○ 	VBGW 110304-2				6.35	3.18	0.4	3.3	
	110308-2				6.35	3.18	0.8	3.3	
	160404-2				9.525	4.76	0.4	4.4	
	160408-2				9.525	4.76	0.8	4.4	
	160412-2				9.525	4.76	1.2	4.4	
	VCGW 160404-2				9.525	4.76	0.4	4.4	
	160408-2				9.525	4.76	0.8	4.4	
	160412-2				9.525	4.76	1.2	4.4	



## ➤ PCD Insert (Negative / Positive)

Insert	Designation	Grades					Dimensions (mm)			
		DD050	DD100	DD250	DD260	DD400	Inscribed circle	Thickness	Nose R	Hole size
 <b>CN</b> ○○  <b>80°</b> Nega	CNGA 120404			●			12.76	4.76	0.4	5.16
	120408						12.76	4.76	0.8	5.16
	120412						12.76	4.76	1.2	5.16
 <b>DN</b> ○○  <b>55°</b> Nega	DNGA 150404						12.76	4.76	0.4	5.16
	150408						12.76	4.76	0.8	5.16
	150412						12.76	4.76	1.2	5.16
 <b>TN</b> ○○  <b>60°</b> Nega	TNGA 160404			●			9.525	4.76	0.4	3.81
	160408						9.525	4.76	0.8	3.81
	160412						9.525	4.76	1.2	3.81
 <b>VN</b> ○○  <b>35°</b> Nega	VNGA 160404			●			9.525	4.76	0.4	3.81
	160408			●			9.525	4.76	0.8	3.81
	160412			●			9.525	4.76	1.2	3.81
 <b>CC</b> ○○  <b>80°</b> Posi	CCGW 060202			●			6.35	2.38	0.2	2.8
	060204			●			6.35	2.38	0.4	2.8
	09T302			●			9.525	3.97	0.2	4.4
	09T304			●			9.525	3.97	0.4	4.4
	09T308						9.525	3.97	0.8	4.4
	09T312						9.525	3.97	1.2	4.4
	120404						12.7	4.76	0.4	5.5
	120408						12.7	4.76	0.8	5.5
	120412						12.7	4.76	1.2	5.5
 <b>DC</b> ○○  <b>55°</b> Posi	DCGW 070202			●			6.35	2.38	0.2	2.8
	070204			●			6.35	2.38	0.4	2.8
	070208						6.35	2.38	0.8	2.8
	11T302			●			9.525	3.97	0.2	4.4
	11T304			●			9.525	3.97	0.4	4.4
	11T308						9.525	3.97	0.8	4.4
	11T312						9.525	3.97	1.2	4.4

Insert	Designation	Grades					Dimensions (mm)			
		DD050	DD100	DD250	DD260	DD400	Inscribed circle	Thickness	Nose R	Hole size
 <b>SC</b> ○○  <b>90°</b> Posi	SCGW 09T304						9.525	3.97	0.4	4.4
	09T308						9.525	3.97	0.8	4.4
	09T312						9.525	3.97	1.2	4.4
 <b>TC</b> ○○  <b>60°</b> Posi	TCGW 110204						6.35	2.38	0.4	2.8
	110208						6.35	2.38	0.4	2.8
	16T304						9.525	3.97	0.4	2.8
	16T308						9.525	3.97	0.8	2.8
	16T312						9.525	3.97	1.2	2.8
 <b>VB</b> ○○ <b>VC</b> ○○  <b>35°</b> Posi	VBGW 110304						6.35	3.18	0.4	3.3
	110308						6.35	3.18	0.8	3.3
	160404						9.525	4.76	0.4	4.4
	160408						9.525	4.76	0.8	4.4
	160412						9.525	4.76	1.2	4.4
	VCGW 110302			●			6.35	3.18	0.2	3.3
	110304			●			6.35	3.18	0.4	3.3
	110308						9.525	4.76	0.8	4.4
	160402			●			9.525	4.76	0.2	4.4
	160404			●			9.525	4.76	0.4	4.4
	160408			●			9.525	4.76	0.8	4.4
	160412			●			9.525	4.76	1.2	4.4



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## DURATEC E-CATALOGUE OPENS

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This CATALOGUE is made as of January 2020 as per ISO standard, the information of products such as dimensions, prospective performance and quality, contained in the CATALOGUE is subject to change due to the constant Research & Development. Please, Contact us for more information