



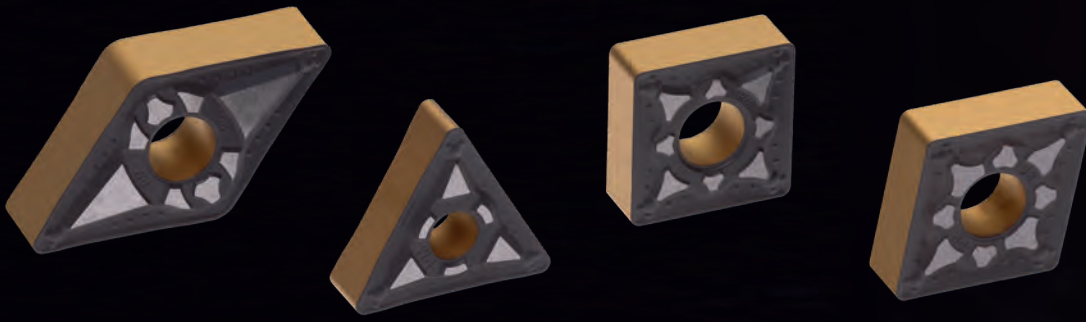
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TOOLING SOLUTIONS EXPERTS
SINCE 1916

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PILOT
Precision Products

Phoenix Shield

The New Era of Speed, Strength and Power



Unleash the power of your turning operations with **Phoenix** Shield.

Why

Phoenix Shield

Palbit's Phoenix Shield series offers you cutting edge performance across the board in every steel turning operation.

The PH2G grade series is an innovative combination of a highly dense and hard nanostructured coating base material, including a new Al_2O_3 layer with improved wear resistance which provides superior performance during high-speed turning operations.

This new grade series features nanolayer optimization and cutting edge stability, achieved with pre- and post-coating process technologies, designed to improve adhesion between layers and fine-tune tensile stress within coating.

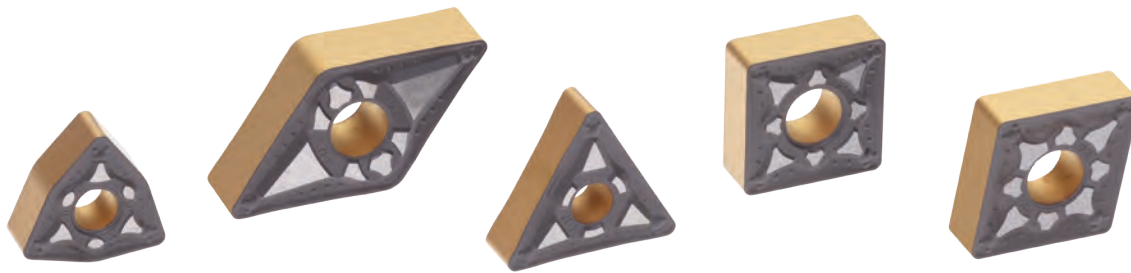
Despite high wear resistance, these new grades also deliver enhanced performance related to chipping prevention under a variety of unstable conditions. That feature significantly increases strength, and wear and heat resistance, as well as tool life, when compared to the previous generation of coatings.

The ultimate goal of Phoenix Shield is machining process optimization. This coating series addresses market demand for greater efficiency and higher cutting speeds. Phoenix Shield is also ideal for applications involving high-strength materials in automotive components applications that demand cutting tools with greater wear resistance.

Longer lasting and more reliable, the new Phoenix Shield series is sure to give you advantages in productivity and quality.



PH2G Series



**Greatly improved Al_2O_3 coating, with optimized crystal orientation.
Suitable for productive turning of steels & cast steels.**

The ideal choice for most steel turning applications from roughing to finishing, for continuous or interrupted cuts.

Technical features

Thanks to its innovative alumina layer, this new coating has greatly improved wear and heat resistance. This characteristic enables better performance in the vast majority of steel turning applications, with greater material removal rates and longer, more predictable tool life.

Unidirectional crystals

Advancements in the CVD process have allowed for a great deal of control over the direction in which alumina crystals are grown.

This capability enables the production of coatings in which every single alumina crystal provides maximum strength and wear resistance.

Other insert details

In addition to the alumina layer, this coating features a yellow top layer which allows for improved wear detection and enables you to identify unused edges, helping to reduce waste.

Furthermore, the very hard innermost TiCN layer also helps protect the insert from abrasive wear.

Technical Summary

Application

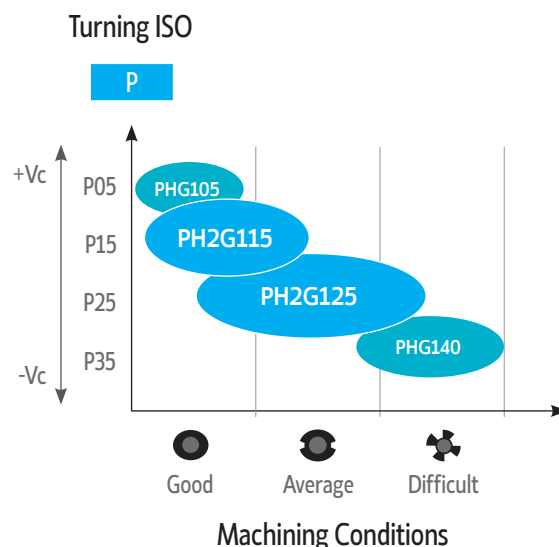
- Turning of steels and cast steels
- From roughing to finishing operations

PH2G115

- Harder grade, with improved heat resistance
- For higher cutting speeds and continuous cutting

PH2G125

- First choice for the majority of steel turning applications
- Continuous or interrupted cutting, roughing or finishing



Phoenix Shield Composition



Top coating – Titanium nitride (TiN)

Designed for easy recognition of insert tool life and wear pattern, combines with new surface treatment for lower adhesion, minimum built-up-edge and enhanced cutting edge stability. Also the special grinding treatment on both top and bottom surfaces, provides improved clamping stability widening the suitable range of applications.



CVD - Alumina coating (Al₂O₃)

This improved coating was developed to be the industry standard for crystal growth and densification on the Al₂O₃ layer. Due to the fine, dense crystal growth process, this nano-control technology increases tool life and wear resistance.



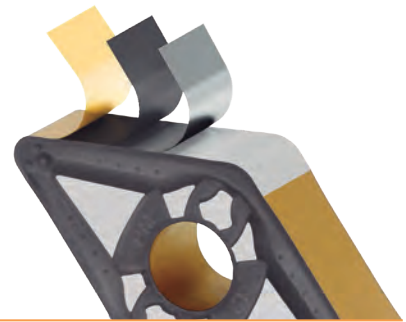
Inner coating (Ti(C,N))

Very hard and abrasion resistant layer, produced from fine grain TiCN particles for greatly improved chipping resistance.



Substrate

Palbit's cemented carbide substrates combine high strength and insert toughness.



Test Report

External Turning

Vc=250 m/min

Ap=2 mm

Fn=0,25 mm/rev

PH2G vs Competitor



Toolholder

DCLN L 2020 K12

Insert

CNMG 120408-PM

Grade

PH2G115



Toolholder

Equivalent product

Insert

Equivalent product

Grade

Equivalent product

Material: Steel 34CrNiMo6 with 26-28 HRC

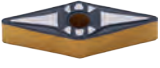



















Inserts In Stock | Chipbreaker PM

				P	
				CVD-MT	
				5D	1D
				(2) Grade Code	
Insert	(1) Geometry Code	ISO Reference	ANSI Reference	PH2G115	PH2G125
 <p>CNMG-PM Medium</p>	1123919	CNMG 120404-PM	CNMG 431-PM		
	1123790	CNMG 120408-PM	CNMG 432-PM		
	1123920	CNMG 120412-PM	CNMG 433-PM		
	1123921	CNMG 120416-PM	CNMG 434-PM		
 <p>DNMG-PM Medium</p>	1123924	DNMG 150404-PM	DNMG 431-PM		
	1123916	DNMG 150408-PM	DNMG 432-PM		
	1123925	DNMG 150412-PM	DNMG 433-PM		
	1123926	DNMG 150416-PM	DNMG 434-PM		
	1124065	DNMG 150604-PM	DNMG 441-PM		
	1123777	DNMG 150608-PM	DNMG 442-PM		
	1124066	DNMG 150612-PM	DNMG 443-PM		
 <p>SNMG-PM Medium</p>	1124083	SNMG 120404-PM	SNMG 431-PM		
	1124084	SNMG 120408-PM	SNMG 432-PM		
	1124085	SNMG 120412-PM	SNMG 433-PM		
 <p>TNMG-PM Medium</p>	1123991	TNMG 160404-PM	TNMG 331-PM		
	1123917	TNMG 160408-PM	TNMG 332-PM		
	1123992	TNMG 160412-PM	TNMG 333-PM		
	1123993	TNMG 160416-PM	TNMG 334-PM		
	1123922	TNMG 220404-PM	TNMG 431-PM		
	1123923	TNMG 220408-PM	TNMG 432-PM		
	1123994	TNMG 220412-PM	TNMG 433-PM		
1123995	TNMG 220416-PM	TNMG 434-PM			

Inserts In Stock | Chipbreaker PM

Dimensions (mm)				Cutting Conditions						Technical Drawing
D	S	Re	d1	ap (mm)	Min	Max	fn (mm/rev)	Min	Max	
12.700	4.76	0.40	5.16	3.00	0.40	5.50	0.20	0.10	0.30	
12.700	4.76	0.80	5.16	3.00	0.50	5.50	0.30	0.15	0.50	
12.700	4.76	1.20	5.16	3.00	0.80	5.50	0.35	0.18	0.60	
12.700	4.76	1.60	5.16	3.00	1.00	5.50	0.40	0.23	0.65	
12.700	4.76	0.40	5.16	3.00	0.40	6.00	0.20	0.10	0.30	
12.700	4.76	0.80	5.16	3.00	0.50	6.00	0.30	0.15	0.50	
12.700	4.76	1.20	5.16	3.00	0.80	6.00	0.35	0.18	0.60	
12.700	4.76	1.60	5.16	3.00	1.00	6.00	0.40	0.23	0.65	
12.700	6.35	0.40	5.16	2.50	0.50	6.00	0.25	0.15	0.40	
12.700	6.35	0.80	5.16	3.00	0.50	6.00	0.30	0.15	0.50	
12.700	6.35	1.20	5.16	3.50	0.50	6.00	0.35	0.20	0.60	
12.700	6.35	1.60	5.16	3.00	1.00	6.00	0.40	0.23	0.65	
12.70	4.76	0.40	5.16	3.00	0.40	6.00	0.20	0.10	0.30	
12.70	4.76	0.80	5.16	3.00	0.50	6.00	0.30	0.15	0.50	
12.70	4.76	1.20	5.16	3.00	0.80	6.00	0.35	0.18	0.60	
9.525	4.76	0.40	3.81	3.00	0.40	5.00	0.20	0.10	0.30	
9.525	4.76	0.80	3.81	3.00	0.50	5.00	0.30	0.15	0.50	
9.525	4.76	1.20	3.81	3.00	0.80	5.00	0.35	0.18	0.60	
9.525	4.76	1.60	3.81	3.00	1.00	5.00	0.40	0.23	0.65	
12.700	4.76	0.40	5.16	4.00	0.40	6.60	0.20	0.10	0.30	
12.700	4.76	0.80	5.16	4.00	0.50	6.60	0.30	0.15	0.50	
12.700	4.76	1.20	5.16	4.00	0.80	6.60	0.35	0.18	0.60	
12.700	4.76	1.60	5.16	4.00	1.00	6.60	0.40	0.23	0.60	

Inserts In Stock | Chipbreaker PM

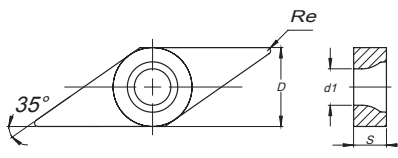
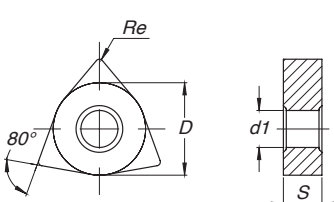
				P	
				CVD-MT	
				5D	1D
				PH2G115	PH2G125
Insert	(1) Geometry Code	ISO Reference	ANSI Reference		
 VNMG-PM Medium	1124086	VNMG 160404-PM	VNMG 331-PM		
	1124087	VNMG 160408-PM	VNMG 332-PM		
	1124600	VNMG 160412-PM	VNMG 333-PM		
 WNMG-PM Medium	1124088	WNMG 060404-PM	WNMG 331-PM		
	1124089	WNMG 060408-PM	WNMG 332-PM		
	1123988	WNMG 080404-PM	WNMG 431-PM		
	1123918	WNMG 080408-PM	WNMG 432-PM		
	1123989	WNMG 080412-PM	WNMG 433-PM		
	1123990	WNMG 080416 -PM	WNMG 434-PM		

 First choice

 Stock item

 Available Upon Request

Insert order code = (1) Geometry Code + (2) Grade Code

Dimensions (mm)				Cutting Conditions						Technical Drawing
D	S	Re	d1	ap (mm)	Min	Max	fn (mm/rev)	Min	Max	
9.525	4.76	0.40	3.81	3.00	1.00	4.00	0.25	0.10	0.30	
9.525	4.76	0.80	3.81	3.00	1.00	4.00	0.30	0.15	0.50	
9.525	4.76	1.20	3.81	3.00	1.00	4.00	0.35	0.20	0.50	
9.525	4.76	0.40	3.81	2.00	0.50	3.00	0.22	0.10	0.30	
9.525	4.76	0.80	3.81	2.00	0.50	3.00	0.30	0.15	0.50	
12.700	4.76	0.40	5.16	2.50	0.50	4.00	0.22	0.10	0.30	
12.700	4.76	0.80	5.16	2.50	0.50	4.00	0.30	0.15	0.50	
12.700	4.76	1.20	5.16	2.50	0.80	4.00	0.35	0.18	0.60	
12.700	4.76	1.60	5.16	3.00	1.00	4.00	0.35	0.20	0.65	



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ISO 9001:2015