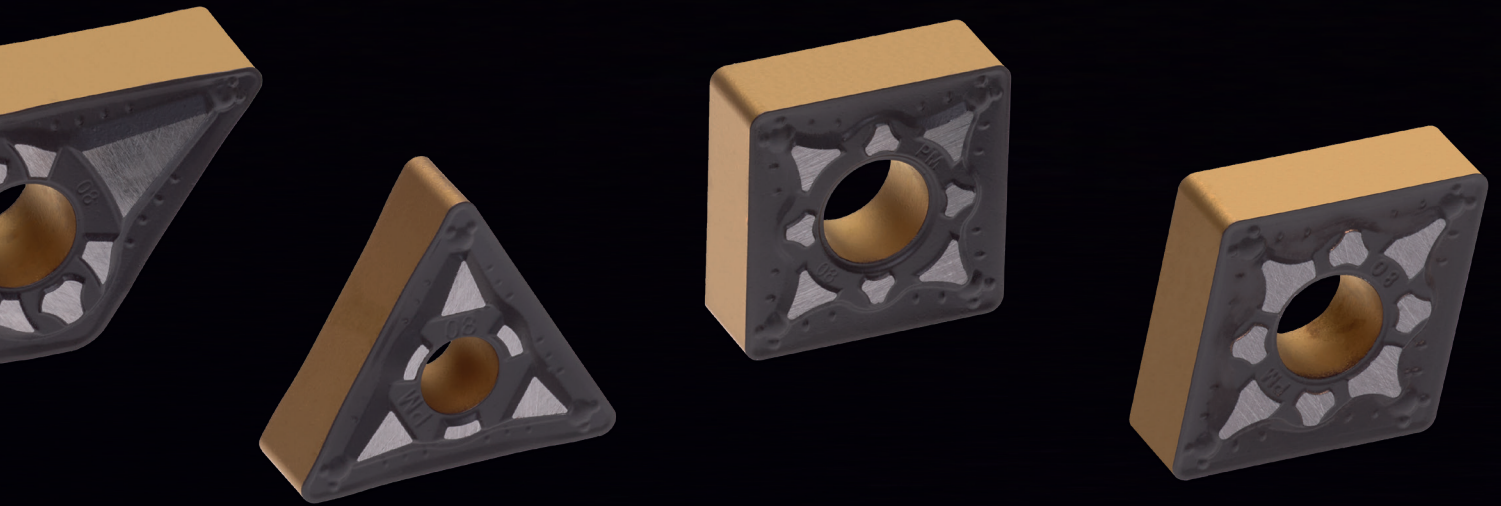




# Phoenix Shield

The new era of Speed, Strength and Power





# Why Phoenix Shield

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

PH2G grade series is an innovative combination of a highly dense and hard nanostructured coating base material, including 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 the high wear resistance, the new grades also display enhanced performance on chipping prevention throughout instabilities. This greatly boosts strength, wear and heat resistance as well as tool life when compared to the previous generation coating.

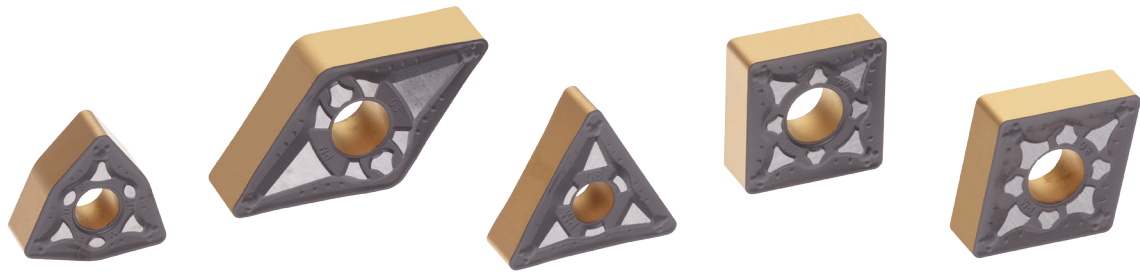
The ultimate goal is machining process optimization, in order to address market demand for greater efficiency and higher cutting speeds. In addition, the increased use of high-strength materials in automotive components also demands for cutting tools with greater wear resistance.

Longer lasting and more reliable, the new Phoenix Shield series are sure to give you a step up in productivity and process security.

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



# PH2G Series



## Greatly improved $\text{Al}_2\text{O}_3$ coating, with optimised 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 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 ability 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 also features a yellow top layer, which allows for improved wear detection, and helps you identify unused edges, helping to reduce waste.

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

## Technical Advices

### Application

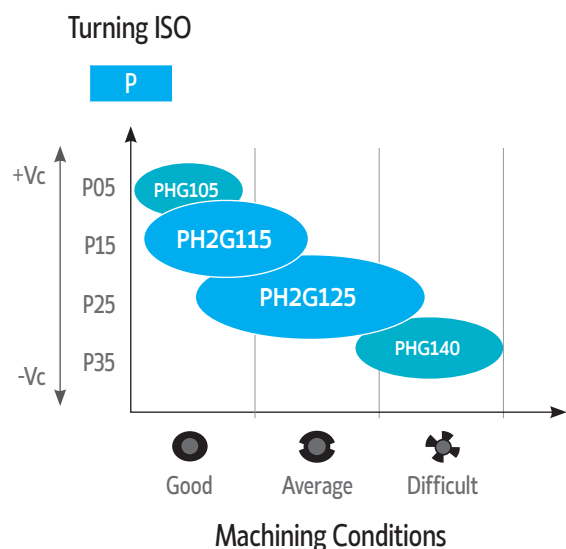
- Turning of steels and cast steels;
- From roughing to finishing operations;

### 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;





### Top coating (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 (Al<sub>2</sub>O<sub>3</sub>)

The coating has been improved and developed to be an industry leading standard for crystal growth and densification on Al<sub>2</sub>O<sub>3</sub> layer. This nano-control technology increases tool life and wear resistance due to the fine, dense crystal growth process.



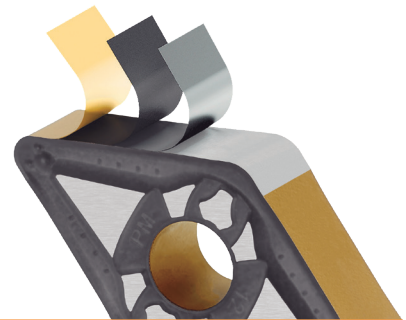
### Inner coating (Ti(C,N))

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 Already available

				P	
				CVD-MT	
				5D	1D
				(2) Grade code	
Inserts Pastilhas Plaquetas	(1) Geometry code	ISO Reference	ANSI Reference	PH2G115	PH2G125
CNMG-PM  Medium	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		
DNMG- PM  Medium	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		
SNMG- PM  Medium	1124083	SNMG 120404-PM	SNMG 431-PM		
	1124084	SNMG 120408-PM	SNMG 432-PM		
	1124085	SNMG 120412-PM	SNMG 433-PM		
TNMG-PM  Medium	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			

 First choice | Primeira opção | 1ª opção

 Stock item | Produto de stock | Itens de stock

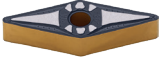






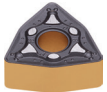












 Available under request | Disponível sobre consulta  
Disponível bajo consulta

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


# Chipbreaker PM

Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte						Technical drawing Desenho técnico Dibujo técnico
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 Already available

				P	
				CVD-MT	
				5D	1D
				(2) Grade code	
Inserts Pastilhas Plaquetas	(1) Geometry code	ISO Reference	ANSI Reference	PH2G115	PH2G125
 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 | Primeira opção | 1ª opción

 Stock item | Produto de stock | Itens de stock

 Available under request | Disponível sobre consulta  
Disponível bajo consulta

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



# Chipbreaker PM

Dimensions (mm) Dimensões (mm) Dimensiones (mm)				Cutting Conditions Condições de Corte Condiciones de Corte						Technical drawing Desenho técnico Dibujo técnico
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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