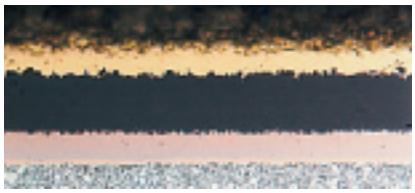
Grade Descriptions

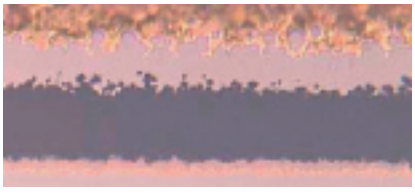


Grade NL25

A wear resistant grade for semi-finishing and finishing on steels, stainless steels and cast irons.
Coating structure - CVD TiN - TiCN - Al_2O_3 - TiN.

Grade NL30

A colbalt enriched grade for medium machining and roughing on steels, stainless steels and cast irons.
Coating structure - CVD TiN - TiCN - Al_2O_3 - TiN.



Grade NL37 (New)

Coated grade TiN-MT TiCN-TiN Al_2O_3 MT TiCN-TiN by CVD. Principally for machining steels and alloy steels.The coating has excellent resistance to wear. The enriched substrate aids resistance to stock.

Grade NL40

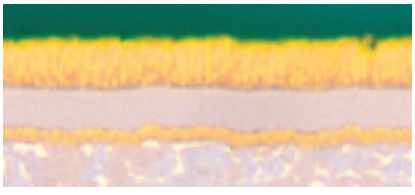
A colbalt enriched grade for medium machining and roughing primarily on stainless steels and exotic alloys.
Coating structure - CVD TiN - TiCN - Al_2O_3 - TiN.

Grade NL92

A tough grade with a high degree of edge security on steels and stainless steels.
Coating structure - CVD TiN - TiCN - Al_2O_3 - TiN.

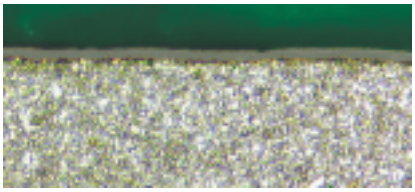
Grade SC1519

First choice wear resistant grade for medium and finish machining of cast irons.
Coating structure - CVD TiN - TiCN - Al_2O_3 - TiN.



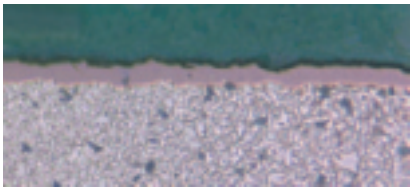
Grade MP37

A wear and heat resistant grade for machining steels, stainless steels and cast iron.
Coating structure - CVD TiN - TiCN - Al_2O_3.



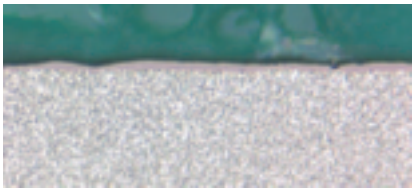
Grade SP0864

A wear resistant grade with micro-grain carbide substrate. Primarily for finish machining of titanium and exotic alloys.
Coating structure - PVD TiAlN.



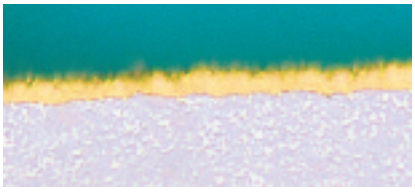
Grade SP3036/SP3064

A hard grade for light roughing and finishing operations at higher speeds. Principle application exotic alloys.
Coating structure - PVD TiAlN.



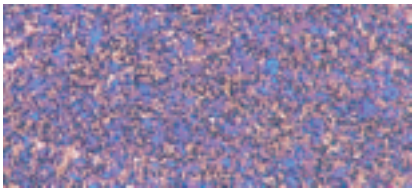
Grade SP4036/SP4064

A hard grade for light roughing and finishing operations with lower chip sections. Principle application stainless steels, exotic alloys and cast irons.
Coating structure - PVD TiAlN.



Grade SFZ

A utility grade with micro-grain carbide substrate. For operations requiring a sharp edge condition.
Coating structure - PVD TiN.



Grade GH1 - Uncoated

Uncoated micro-grain for cast iron, hardened steels to 60 HRC and non ferrous alloys. Low cutting pressure at high speeds due to sharp cutting edges.

Grade GH2 - Uncoated

Uncoated micro-grain for cast iron, stainless steels and exotic alloys. This grade is tough and able to handle high pressure, vibrations and shock.

Grade H21 - Uncoated

Uncoated grade principally for cast iron, stainless steel, high temperature alloys and aluminum alloys. Use where interrupted cuts or scale are present.

Grade Classification Chart - Turning

Optimum Grade Performance

Materials	Code C	Code ISO	Coated CVD GRADE NL25	NL30	NL37	NL40	NL92	MP37	SC1519
Unalloyed and Alloyed Steels P	C8	P01							
		P05	◆		◆			◆	
		P10	◆		◆			◆	
	C7	P15	◆	◆	◆			◆	
		P20	◆	◆	◆	◆		◆	
		P25	◆	◆		◆	◆	◆	
	C6	P30	◆	◆		◆	◆		
		P35				◆	◆		
	C5	P40				◆	◆		
		P45							
		P50							
Stainless Steels M		M05							
		M10	◆			◆		◆	
		M15	◆	◆		◆		◆	
		M20	◆	◆		◆	◆		
		M25	◆	◆		◆	◆		
		M30		◆		◆	◆		
		M35					◆		
		M40					◆		
Cast Irons K	C4	K01							
		K05	◆					◆	◆
	C3	K10	◆	◆				◆	◆
		K15	◆	◆					
	C2	K20	◆	◆					
		K25		◆					
	C1	K30		◆			◆		
		K35					◆		
		K40					◆		
Aluminum & Alloys N		N01							
		N05							
		N10	◆						
		N15	◆						
		N20	◆						
		N25							
		N30							
High Temperature Alloys S		S01							
		S05	◆						
		S10	◆			◆			
		S15	◆	◆		◆			
		S20		◆		◆			
		S25		◆			◆		
		S30					◆		
Hard materials H		H01							
		H05							
		H10			◆				
		H15			◆				
		H20			◆				
		H25							
		H30							

Increasing, wear resistance - Increasing cutting speed

Increasing - shock resistance - Increasing - feed

Star Guide Key to Recommended Inserts

Material Designations			
P Unalloyed Steels	M Stainless Steels	K Cast Irons	S High Temp. Alloys
P Alloyed Steels	M PH Stainless	N Aluminum & Alloys	H Hard Materials

STELLRAM®

Grade Classification Chart - Turning

Optimum Grade Performance

Materials	Code C	Code ISO	Coated PVD GRADE SFZ	SP0864	SP3036 SP3064	SP4036 SP4064	Uncoated GRADE H21	GH1	GH2
P Unalloyed and Alloyed Steels	C8	P01							
		P05							
		P10							
	C7	P15							
		P20							
		P25							
	C6	P30							
		P35							
	C5	P40							
		P45							
		P50							
M Stainless Steels		M05							
		M10							
		M15							
		M20							
		M25							
		M30							
		M35							
		M40							
K Cast Irons	C4	K01							
		K05							
	C3	K10							
		K15							
	C2	K20							
		K25							
	C1	K30							
		K35							
		K40							
N Aluminum & Alloys		N01							
		N05							
		N10							
		N15							
		N20							
		N25							
		N30							
S High Temperature Alloys		S01							
		S05							
		S10							
		S15							
		S20							
		S25							
		S30							
H Hard materials		H01							
		H05							
		H10							
		H15							
		H20							
		H25							
		H30							

Star Guide — Key to Recommended Inserts

Material Designations			
P Unalloyed Steels	M Stainless Steels	K Cast Irons	S High Temp. Alloys
P Alloyed Steels	M PH Stainless	N Aluminum & Alloys	H Hard Materials

Physical Properties

Grade	Composition	Colour	Density (g/cm^3)	Hardness (Hv)	Fracture Toughness ($N/mm^{3/2}$)	Thermal Conductivity (cal/cm.sec°C)
SA7402	Al_2O_3+TiCN	Black	4.3	2200	4.5	0.08
SA8204	Si_3N_4	Grey	3.7	1680	6.0	0.05
SA8405	Si_3N_4 + TiN	Brown	3.5	1750	6.5	0.05

ISO Grade Chart

MATERIALS TO BE MACHINED	CODE		CERAMIC		
	C	ISO	SA7402	SA8204	SA8405
Unalloyed and Alloyed Steels P	C8	P01			
		P05			
		P10			
	C7	P15			
		P20			
		P25			
	C6	P30			
		P35			
	C5	P40			
		P50			
Cast Irons K	C4	K01			
		K05			
	C3	K10			
		K15			
	C2	K20			
		K25			
	C1	K30			
		K35			
		K40			
High Temperature Alloys S		S01			
		S05			
		S10			
		S15			
		S20			
		S25			
		S30			
Hard materials H		H01			
		H05			
		H10			
		H15			
		H20			
		H25			
		H30			

Please refer to the Stellram Ceramic Catalog.

Star Guide — Key to Recommended Inserts

Material Designations			
P Unalloyed Steels	M Stainless Steels	K Cast Irons	S High Temp. Alloys
P Alloyed Steels	M PH Stainless	N Aluminum & Alloys	H Hard Materials