

SOLUTION FOR GRAPHITE MACHINING AND FOR NON-FERROUS METALS

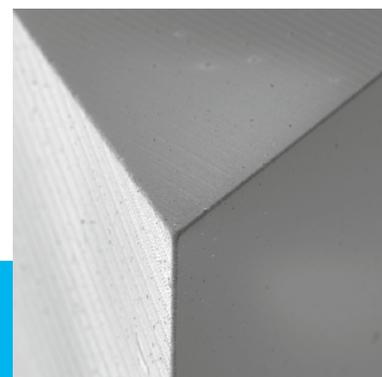
ta-C belongs to the PLATIT DLC3 hydrogen-free coating generation with over 50 % sp³ content. The high sp³ bond fraction results in a higher density, hardness (at ambient and elevated temperature), thermal stability, oxidation resistance, residual stress and lower thermal conductivity. Depending on the application from micro-tools to components, ta-C can be deposited by the PLATIT Pi411 or PL711 coating units.

Highlights:

- Over 50 % sp³ content
- High density and hardness
- Thermal stability
- Oxidation resistance
- High residual stress
- Low thermal conductivity

Coating unit 411		New Coating 	Coating unit 711	
Cathode configuration			Cathode configuration	
LGD, -, Cr, C SCIL			Cr, C	
ta-C + a-C (over 50 % ta-C)	Composition		ta-C + a-C (up to 50 % ta-C)	
Tools	Main application		Components	
SPUTTERING	Process		SPUTTERING	
From rainbow colors to anthracite	Color		Anthracite	
0.3 - 1	Coating thickness [µm]		1 - 2	
350 - 450	Young's modulus [GPa]		350 - 450	
45 - 50	Nano-hardness [GPa]		> 30	
Ra ~ 0.06 µm	Roughness		Ra ~ 0.02 µm	
Rz ~ coating thickness			Rz ~ coating thickness	
	Coefficient of friction [µ] PoD (at RT, 50 % humidity)			
~ 0.1			~ 0.1	
450	Max. service temperature [°C]		450	
< 150	Coating temperature [°C]		180 - 250	
CFRP composite material	Workpiece material		Steel	

DLC3 coated endmill under scanning electron microscope:



100 µm