

neoDiam®-Tools

Features and descriptions

neoDiam® coatings on carbide tools are the best choice for machining non-ferrous materials.

NeoCoat SA offers different types of diamond coatings and suitable pretreatment processes to deliver high quality diamond coated tools. neoDiam® coatings grown on carbide tools consist of a polycrystalline diamond coating whose microstructure can be adapted depending on targeted applications.

neoDiam® coatings for carbide tools

NeoCoat has developed a coating solution for improving lifetime of cutting tools. Thanks to its know how in Hot Filament CVD deposition and interface engineering, NeoCoat offers its neoDiam® coatings for carbide tools:

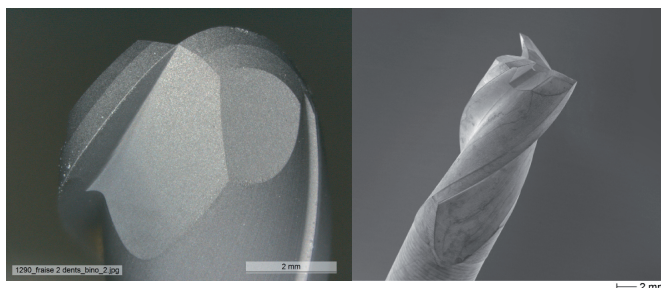
neoDiam® MCD - pure sp³ CVD diamond for machining abrasive materials such as graphite or ceramics.

neoDiam® NCD - smooth nanocrystalline diamond for machining CFRP stacks, Al-Si alloys...

In NeoCoat's facility high quality diamond coatings are deposited on large-scale HFCVD reactors and to ensure customer's satisfaction with the highest quality diamond coatings, NeoCoat has implemented a strong Quality Assurance policy.

neoDiam® coating data

Hardness	up to 10'000 HV
Thickness	from 0.3 to 12µm (typically 6µm)
Microstructure	Microcrystalline (MCD), nanocrystalline (NCD), customized
Temperature of use	< 600°C in air

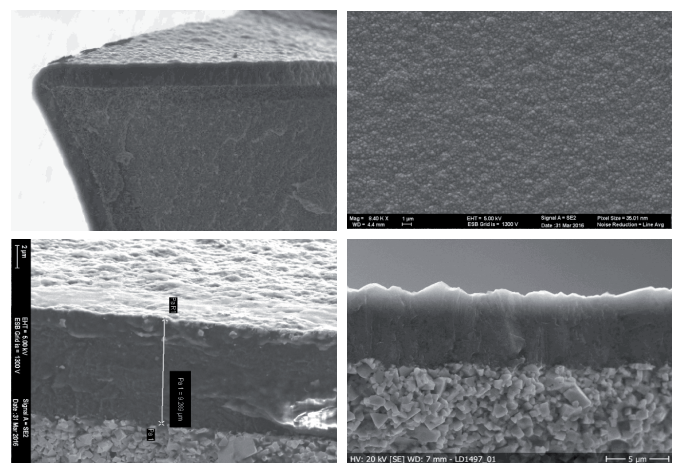


HFCVD diamond coatings on carbide tools

Specifications of coated tools

Typical data of tools coated with neoDiam® coatings:

Type	Drill, mill, insert
Diameter	From 0.3 to 20mm
Overall tool length	Max 100mm (longer possible in appropriate reactor)
Coated length of the tool	Max 30mm
Typical carbide grade	6 to 10% Co content (liste of suitable WC grades available upon request)



neoDiam® performance vs competition

Tool: 8mm drill with CVD diamond coating
Machined material: CFRP stack (airplane part)

Coating type	Run-out radial (µm)*	Number of holes*
No coating (reference)	3	80
CVD diamond (manuf. A)	up to 600	250
CVD diamond (manuf. B)	100	325
CVD diamond (manuf. C)	50	600
neoDiam® NCD	10	550

* Data from tool manufacturer

neoDiam® coating exhibits the same lifetime than the best supplier on the market but with a significantly lower ROR.