

PVD/PECVD coatings / Tribological coatings

CERTESS[®] CARBON

a-C:H implemented by PECVD (Plasma Enhanced Chemical Vapor Deposition), and

ta-C implemented by PVD

(Physical Vapor Deposition)

are both Diamond Like Carbon coatings.

DLC demonstrates a high hardness combined with excellent resistance to abrasive and adhesive wear together with extra low coefficient of friction.



This unique combination of properties offers the best solution to protect automotive components, to lower the coefficient of friction and consequently to reduce the CO₂ emissions.

Typical applications already mass production:

- Valve actuation
- Fuel system
- Transmission
- Etc.

DLC coatings can be multi-layered using materials such as Cr, CrN, Si, W, WC- C, ... and an amorphous carbon top-layer hydrogenated or not.

The choice of the under-layer is based on the application (contact pressure, etc.)

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The selection of the underlayer is based on several factors such as: the adhesion requirements, the mode of wear, the type of contact, the friction regimes encountered during operation, the applied load ...

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| Coatings | Composition | Typical coating thickness | Hardness | Deposition temperature (according to the substrate) | Maximum serviced temperature | Applications |
|--------------------------|-------------------------------|---------------------------|--|--|------------------------------|--|
| Certess [™] DT | a-C:H Metal doped | 2-4 µm | 1000-1500Hv | 150 - 350°C | 350°C | Low friction Adhesive wear Moderate abrasive wear Automotive components Starving lubrication |
| Certess [™] DDT | WC,C + a-C:H | 2-4 µm | Full range: 1000-2800 Hv Typical: 2000-2200Hv | 150 - 350°C | 350°C | Extra low friction Adhesive wear High abrasive wear Automotive components |
| Certess [™] DCX | Cr,N + a-C:H | 2-4 µm | Full range: 1000-2800 Hv Typical: 2000-2200Hv | 150 - 350°C | 350°C | High contact pressure Extra low friction Adhesive wear High abrasive wear Automotive components |
| Certess [™] DCY | Cr + WCC + a-C:H | 2-4 µm | Full range: 1000-2800 Hv Typical: 2000-2200Hv | 150 - 350°C | 350°C | Very high contact pressure Extra low friction Adhesive wear High abrasive wear Automotive components |
| Certess [™] DCZ | CrN + WCC + a-C:H | 2-4 µm | Full range: 1000-2800 Hv Typical: 2000-2200Hv | 150 - 350°C | 350°C | Extra high contact pressure Extra low friction Adhesive wear High abrasive wear Automotive components Impacts |
| Certess [™] TC | ta-C | 1-5 µm | 3000-7000Hv | 150°C | 450°C | Extra high abrasive wear Tribo-corrosion Extra low friction Adhesive wear Automotive components |



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SURFACE TREATMENTS AND COATINGS

Friction, wear, corrosion, insulation, electrical conductivity, electromagnetic shielding, optical coating, decoration.

TECHNICAL ASSISTANCE AND SURFACE ENGINEERING CONSULTING

OUR JOBBING FOOTPRINT

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21 countries

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