

COATING PROCESS

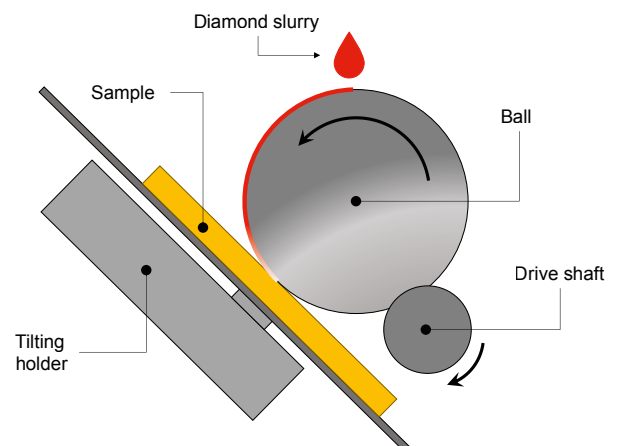
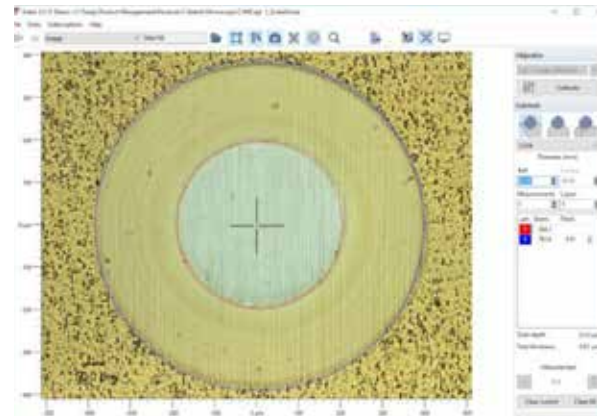
Calotest Cat²c compact

The calotest, also called ball crater method, is a simple, though destructive technique, to measure the thickness of a single or several layers on a substrate in the 100 nm - 50 μm range, with a ± 5% tolerance. The technique can be applied to planar, spherical and cylindrical samples.

A steel ball of known diameter is pressed by a fixed load against the coating surface and is rotated while a diamond suspension flows in the contact point in order to generate abrasion.

A spherical cap-shaped abrasion mark is produced on the coating, until the substrate is reached. The width of the various coating layers is measured by an optical microscope and the thickness values are obtained by applying known geometrical relations.

Dimensions of the abrasion mark allow calculation of coating thickness through easy geometrical relations implemented in the software.



Specifications

Shaft Speed and Rotation Direction	Motorised Speed: 10 – 30000 rpm Rotation direction: clockwise/counter - clockwise
Abrasion Time Range	1 – 10000 sec
Nominal Motor Torque (Max. Continuous)	28 mNm
Typical Thickness of Coating Measurement	0.1 – 50 μm
Measurement Precision	1 – 5%
Water Based Diamond Suspensions (Slurry)	Superfine slurry with diamond particles size < 0.2 μm → for thin or soft coatings (e.g. metallic, polymeric) Hi – quality slurry with diamond particles size from 0.5 to 1 μm → for thick and hard coatings (e.g. ceramic)
Ball Material and Diameters	Material: AISI 420 steel Diameters: 10, 15, 20, 25.4, 30 mm
Sample Holder Movement	For translation adjustment: 0 – 55 mm For tilt adjustment: 0° - 60°
Sample dimensions	Width: max. 47 mm Diameter: min. 2 mm, max. 55 mm

Materials

- PVD and CVD coatings
- Plasma spray coatings
- Anodic oxidation layers
- Surfaces treated by ion sputtering or ion plating
- Chemical and galvanic deposits
- Polymers
- Paints and lacquers

