Product Description

Unique probes with Single Crystal Diamond tip specially designed for Nanoindentation, Nanoscratching, Lithography etc. Resonant frequency 500-1000kHz, force constant 100-600 N/m, typical curvature radius 25nm.
These tips are specifically designed for high mechanical loads and scratch testing applications. By using wear-resistant diamond and a board cone angle the contact size is well characterized and stays constant during repeated mechanical measurements. These probes have demonstrated highly repeatable deep (~100nm) indentations into materials such as fused silica and are able to image the indents at high resolution in-situ using the same probe. A gold reflex coating deposited on the detector side of the cantilever to enhance the reflectance of the laser beam.

The probes ideally suited to scratch testing and long period probe lifetime applications where quantitative nanomechanics are not essential.

Nominal values: force constant - 350 N/m, resonance frequency – 750 kHz.

Cantilever specifications

Geometry:	Rectangular
Material:	Diamond coated Si
Cantilever bending:	< 3°

Bulk tip specifications

Si geometry:	4 Sided Pyramid
Si tip height (h):	12,5 ± 2,5 µm
Front angle:	25 ± 5°
Back angle:	15 ± 5°
Side angle:	22.5 ± 5°
Tip offset:	15 ± 5 µm

Single crystal diamond tip specifications

Geometry:	Cone
Tip radius:	25 ± 5 nm
Tip height (h):	500 nm ± 100 nm
Tilt angle:	0 ± 1°
Tip material:	Diamond
Cone ½ angle:	45 ± 10°

General Features

Chip size	3.4x1.6x0.3
Reflective side coating	Au
Tip coating	Single crystal diamond
Tip curvature radius	typical 25nm, guaranteed <35nm

Special Features

Cantilever series	Cantilever length, L±10μm	Cantilever width, W±5μm	Cantilever thickness, T±0.5μm	Resonant frequency, kHz			Force constant, N/m		
				min	typical	max	min	typical	max
DPR_In	125	30	4.0	500	750	1000	100	350	600