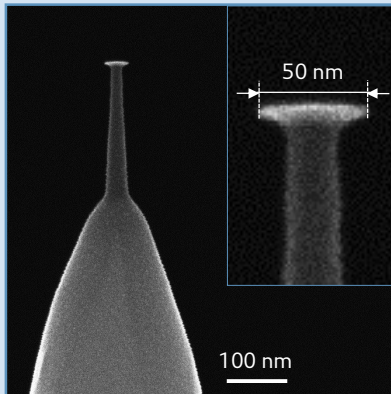


Provided with
TrueDimensions™
Online access to key probe
parameters for every
individual tip



High resolution CDR50-EBD SEM scan.

Type: CDR50-EBD

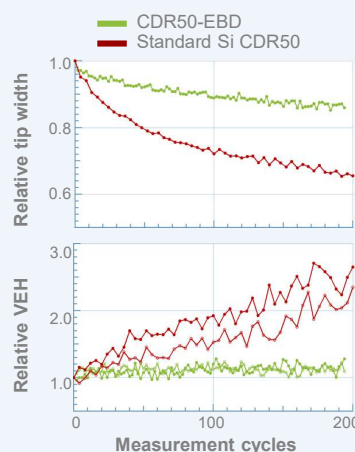
T-like CDR AFM tip for high-end 3D metrology applications

For high-resolution inspection of complex device structures and critical dimension features. Combining a T-like design with the exceptional wear resistance of high-density diamond-like carbon significantly improves reliability and throughput in 3D AFM applications.

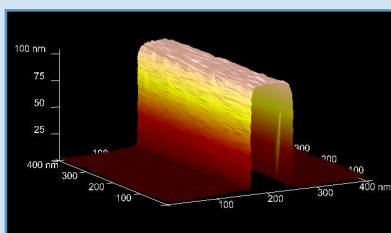
Features

- **Proven reliability.** Rotationally symmetric T-like shape with tight tip parameter specifications for reliable and consistent metrology measurements.
- **Enhanced performance.** Tilt-compensated to $3^\circ \pm 0.5^\circ$ combined with an overhang of 10 nm for unmatched degrees of reentrancy.
- **Ultra-high resolution.** 5 nm tip edge radius for high resolution sidewall roughness measurements.
- **Improved throughput.** Significantly enhanced material durability compared to state-of-the-art Si CDR tips for long-lasting tip performance and reduced cost per measurement.
- **Quality guaranteed.** 100% quality control for every individual tip. Online datasheets including individual dimensional values available 24/7 via QR code.

Application example



Comparison of the tip lifetime as a function of measurement cycles: state-of-the-art CDR50 tips made from silicon reveal a decreasing tip width (red line, top) and a steadily increasing vertical edge height emerging already after a few measurement cycles (red lines, bottom). The superior material durability of CDR50-EBD tips enable improved repeatability, reproducibility, and throughput.¹



Individual NanoCD calibration standard line measured with a CDR50-EBD tip (extracted from 3D AFM raw data). [2] Courtesy of S. Bos/LETI.

[1] Foucher J. et al., *Proc. SPIE*, 8324, 2012.
[2] Foucher J. et al., *Proc. SPIE*, 9424, 2015.

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Technical specifications

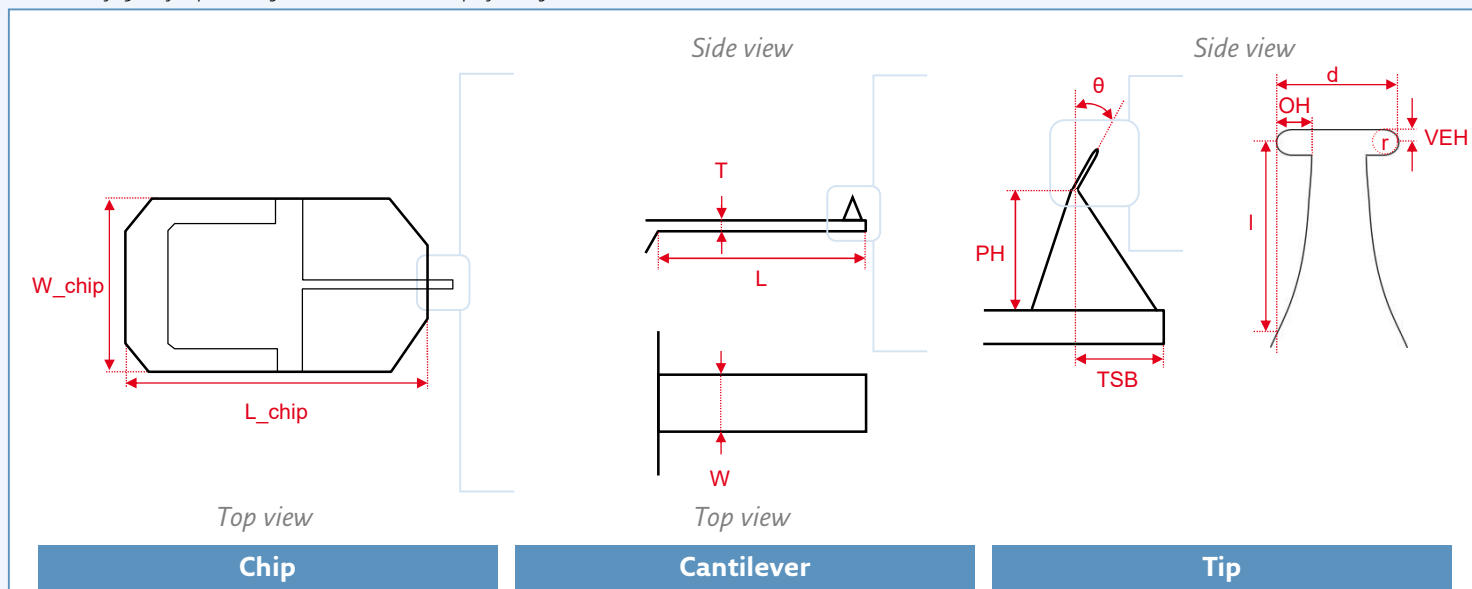
CDR50-EBD

Part number	NT_CDR50_v0010	
Tip		
Material	HDC/DLC	
Vertical edge height / VEH	10 nm	(≤15 nm)
Effective length / l	200 nm	(200-250 nm)
Total width / d	50 nm	(±5 nm)
Overhang / OH	10 nm	(5-10 nm)
Edge radius / r	5 nm	(<10 nm)
Tilt compensation / θ	3°	(±0.5°)
Pyramid height / PH	15 μ m	(10-15 μ m)
Tip set back / TSB	15 μ m	(5-25 μ m)
Cantilever		
Material	Si	
Shape	NT-RTESPA	
Length / L	120 μ m	(±5 μ m)
Width / W	30 μ m	(±2 μ m)
Thickness / T	4.4 μ m	(±0.5 μ m)
Force constant ^[1] / k	40 N/m	(±20 N/m)
Resonance frequency ^[1] / f	320 kHz	(±50 kHz)
Tip side coating	none	
Back side coating	reflex	
Chip		
Length / L_chip	3400 μ m	
Width / W_chip	1600 μ m	
Thickness / T_chip	315 μ m	
Alignment grooves	no	

Also available

Type	d	l	OH	Part number
CDR10-EBD	10 nm	100 nm	3 nm	NT_CDR10_v0010
CDR15-EBD	15 nm	150 nm	5 nm	NT_CDR15_v0010
CDR20-EBD	20 nm	150 nm	7 nm	NT_CDR20_v0010
CDR25-EBD	25 nm	150 nm	7 nm	NT_CDR25_v0010
CDR30-EBD	30 nm	150 nm	8 nm	NT_CDR30_v0010
CDR40-EBD	40 nm	150 nm	10 nm	NT_CDR40_v0010
CDR70-EBD	70 nm	300 nm	10 nm	NT_CDR70_v0010
CDR130-EBD	130 nm	300 nm	30 nm	NT_CDR130_v0010

[1] Resonance frequency f extracted from LDV measurements; cantilever stiffness k calculated from the (measured) cantilever geometry. Actual values of >90% of all probes are guaranteed to be within the specified range.



For more information please visit

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