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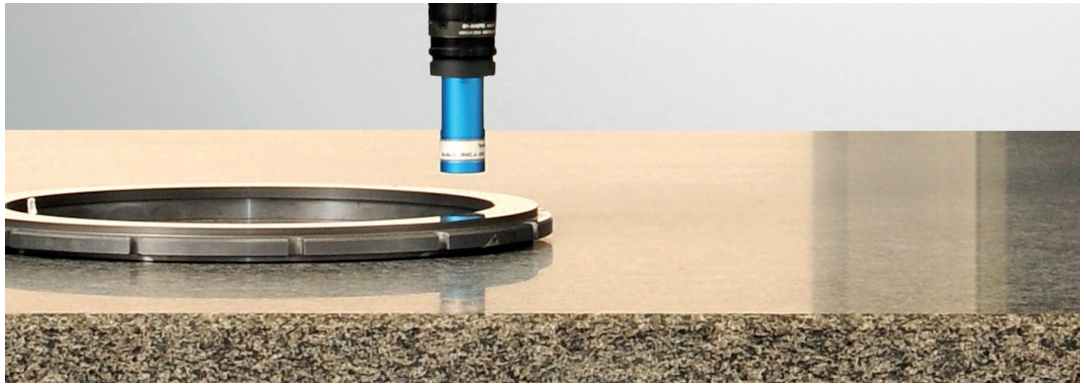
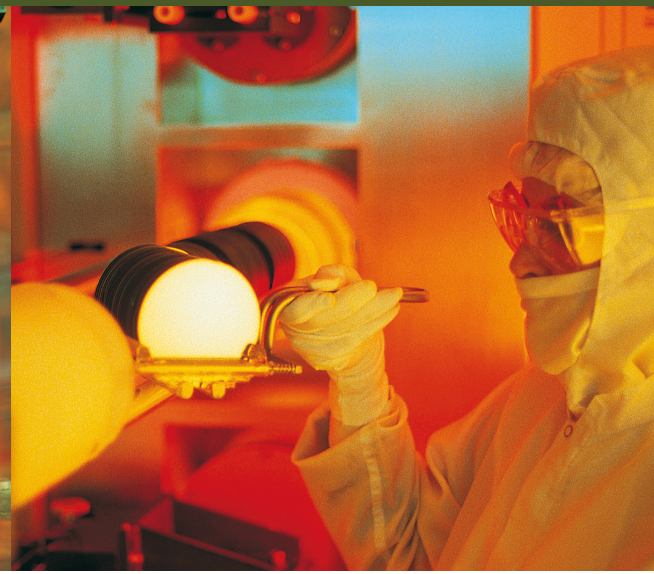


OPTICAL PROBES

CHRocodile unit	CHRocodile 2 S, 2 SE, 2 HS, S, SE, E, M4				CHRocodile IT TW, DW, 2 IT 500, IT 500, 2 IT 500 RW, IT 500 RW, 2 IT 1000, IT 1000, 2 IT 1000 RW, IT 1000 RW, IT 18-3000, IT 150-15000, MI5, LR	CHRocodile 2 IT 500, IT 500, 2 IT 500 RW, IT 500 RW, 2 IT 1000, IT 1000, 2 IT 1000 RW, IT 1000 RW, IT 18-3000, IT 150-15000, MI5, LR, DW
application	thickness measurement				thickness and distance	
measuring principle	interferometric					
measuring range	depends on the CHRocodile sensor					
working distance [1]	27 mm	101 mm	10.6 mm	18.1 mm	39.7 mm	100 mm
resolution in z	10 nm	10 nm	10 nm	10 nm	CHRocodile IT 500, 2 IT 500, IT 500 RW, 2 IT 500 RW: 150 nm; CHRocodile IT 1000, 2 IT 1000IT, 1000 RW, 2 IT 1000 RW: 300 nm; CHRocodile IT 150-15000: 450 nm; CHRocodile DW, LR: 50 nm; CHRocodile IT 18-3000: 100 nm; CHRocodile IT TW: 10 nm	CHRocodile IT 500, 2 IT 500, IT 500 RW, 2 IT 500 RW: 150 nm; CHRocodile IT 1000, 2 IT 1000IT, 1000 RW, 2 IT 1000 RW: 300 nm; CHRocodile IT 150-15000: 450 nm; CHRocodile DW, LR: 50 nm; CHRocodile IT 18-3000: 100 nm; CHRocodile IT TW: 10 nm
spot diameter	40 µm	50 µm	13 µm	50 µm	CHRocodile IT 500, 2 IT 500, IT 1000, 2 IT 1000, IT 18-3000, IT 150-15000; IT 500 RW, 2 IT 500 RW, IT 1000 RW, 2 IT 1000 RW, MI5, DW: 13 µm; CHRocodile LR: 9 µm; CHRocodile IT TW: 50 µm	CHRocodile IT 500, 2 IT 500, MI5 IT 500, IT 1000, 2 IT 1000, MI5 IT 1000, IT 18-3000, IT 150-15000: 35 µm CHRocodile IT 500 RW, MI5 IT 500 RW, 2 IT 500 RW, IT 1000 RW, 2 IT 1000 RW, MI5 IT 1000 RW: 41 µm; CHRocodile DW: 28 µm; CHRocodile LR: 23 µm
lateral resolution	20 µm	25 µm	6,5 µm	25 µm	CHRocodile IT 500, 2 IT 500, IT 1000, 2 IT 1000, IT 18-3000, IT 150-15000; IT 500 RW, 2 IT 500 RW, IT 1000 RW, 2 IT 1000 RW, MI5, DW: 7 µm; CHRocodile LR: 5 µm; CHRocodile IT TW: 25 µm	CHRocodile IT 500, 2 IT 500, MI5 IT 500, IT 1000, 2 IT 1000, MI5 IT 1000, IT 18-3000, IT 150-15000: 18 µm CHRocodile IT 500 RW, MI5 IT 500 RW, 2 IT 500 RW, IT 1000 RW, 2 IT 1000 RW, MI5 IT 1000 RW: 21 µm; CHRocodile DW: 14 µm; CHRocodile LR: 12 µm
numerical aperture	0,.09	0.1	0.19	0.1	0.1	0.045
measurement angle to surface [2]	90°+/-5°	90°+/-5°	90°+/-10°	90°+/-5°	90°+/-5°	90° +/- 2°
thickness measuring range	depends on the CHRocodile sensor					
dimensions (without fiber connector)	l = 54 mm d = 15 mm	l = 129 mm d = 28 mm	l = 67 mm d = 8 mm	l = 40 mm d = 8 mm	l = 58 mm d = 15 mm	l = 42.5 mm d = 15 mm
weight	21 g	278 g	23 g	10 g	53 g	40 g
order number	5005000	5005019	5003517	5002947	5002807	5006420
note		large working distance		extra compact	accessories available for distance measurement	

[1] bottom of optical probe to middle of measuring range | [2] decreasing accuracy on the limits

The given data was generated for a typical application and may be different given other circumstances. Furthermore misprints, changes and/or innovations may lead to differences in the listed measurements, technical data and features. Therefore all information is non-binding and technical data, measurements as well as features are not guaranteed by information in this product information.
APR 2018



THICKNESS | DISTANCE | TOPOGRAPHY

PRECITEC THE SMART WAY TO MEASURE

Optical Probes

The optical probes for non-contact distance and thickness measurements have a wide measuring range: from a few microns to several millimeters.

ADVANTAGES:

- precise measurements independent of the surface type
- high axial resolution for the measurement of complex structures
- measurements also on highly tilted, reflective and dispersive surfaces
- small spot diameter
- robust and compact design

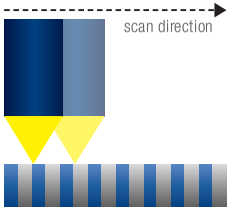
All probes are available in a vacuum version.
For every application the perfect optical probe!

RELIABLY FAST MEASUREMENTS ON CHALLENGING SAMPLES

The superior dynamic range and outstanding signal-to-noise ratio of the detectors used in the CHRocodile sensors offer excellent measuring results even on variably reflective surfaces.

EXAMPLES:

a) sample with differing reflective properties
(auto-adjustment enables continuous measurement)

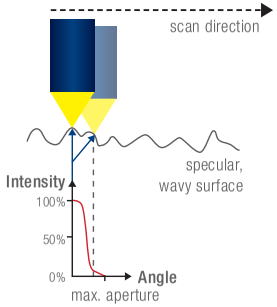


KEY

Material: BK7
Reflection ≈ 4 %

Material: Chrome
Reflection ≈ 98 %

b) sample with reflective, wavy surface
(high aperture captures sufficient light even at large angles)



CHRocodile unit	CHRocodile 2 S, 2 SE, 2 HS, S, SE, E, M4																CHRocodile LR
application	distance and thickness																
measuring principle	chromatic confocal																
measuring range	100 µm	300 µm	350 µm	400 µm	600 µm	1 mm	2 mm	2 mm	3 mm	5 mm	6 mm	8 mm	10 mm	12 mm	25 mm	38.5 mm	100 µm
working distance [1]	1.4 mm	4.5 mm	8.4 mm	15.3 mm	6.5 mm	19.1 mm	61 mm	14.1 mm	22.5 mm	29.8 mm	52.6 mm	36.3 mm	70 mm	54 mm	76.5 mm	101 mm	6.5 mm
resolution in z	3 nm	10 nm	12 nm	14 nm	20 nm	33 nm	66 nm	66 nm	100 nm	160 nm	200 nm	260 nm	330 nm	390 nm	750 nm	1.2 µm	3 nm
spot diameter	3.5 µm	5 µm	5 µm	4 µm	4 µm	3.5 µm	12.5 µm	12 µm	12 µm	25 µm	14 µm	30 µm	24 µm	30 µm	25 µm	33 µm	1.5 µm
lateral resolution	1.8 µm	2.5 µm	2.5 µm	2 µm	2 µm	1.8 µm	6 µm	6 µm	6 µm	12.5 µm	7 µm	15 µm	12 µm	15 µm	12.5 µm	17 µm	0.7 µm
numerical aperture	0.7	0.5	0.33	0.7	0.5	0.7	0.26	0.5	0.5	0.26	0.5	0.26	0.33	0.26	0.26	0.22	0.66
measurement angle to surface [2]	90°+/-45°	90°+/-30°	90°+/-20°	90°+/-45°	90°+/-30°	90°+/-45°	90°+/-15°	90°+/-30°	90°+/-30°	90°+/-15°	90°+/-30°	90°+/-15°	90°+/-20°	90°+/-15°	90°+/-15°	90°+/-12°	90°+/-40°
thickness measuring range [3]	up to 150 µm	up to 450 µm	up to 525 µm	up to 600 µm	up to 900 µm	up to 1.5 mm	up to 3 mm	up to 3 mm	up to 4.5 mm	bis 7.5 mm	up to 9 mm	up to 12 mm	up to 15 mm	up to 18 mm	up to 37.5 mm	up to 57.75 mm	up to 150 µm
dimensions (without fiber connector)	l = 66 mm d = 8 mm	l = 111 mm d = 15 mm	l = 106 mm d = 15 mm	l = 149 mm d = 50 mm	l = 125 mm d = 19 mm	l = 164 mm d = 55 mm	l = 109 mm d = 45 mm	l = 70 mm d = 33 mm	l = 106 mm d = 49 mm	l = 46 mm d = 24 mm	l = 190 mm d = 40/79 mm	l = 45 mm d = 25 mm	l = 146 mm d = 65 mm	l = 61 mm d = 36 mm	l = 243 mm d = 76 mm	l = 242 mm d = 76 mm	l = 158 mm d = 30 mm
weight	36 g	38 g	36 g	1250 g	71 g	1118 g	315 g	220 g	501 g	96 g	1110 g	97 g	721 g	281 g	1637 g	1737 g	323 g
order number	5002430	5002227	5002378	5002589	5002183	5002130	5002399	5005126	5001678	5009198	5009001	5002327	5001688	5002508	5002206	5009498	5005770
note	high numerical aperture	angled available		high numerical aperture	angled available	high numerical aperture	angled available; large working distance	extra bright	extra bright	extra compact, large working distance	large working distance	extra compact	extra bright	extra compact	extra bright	wide thickness measuring range	small spot size,extra bright,high numerical aperture

Regarding interferometric measurements the working distance can vary several millimeters. By using an LED sensor the measuring range of the chromatic probes decreases up to 10 %.

[1] bottom of optical probe to middle of measuring range | [2] decreasing accuracy on the limits | [3] refractive index n = 1.5

THICKNESS DISTANCE TOPOGRAPHY

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