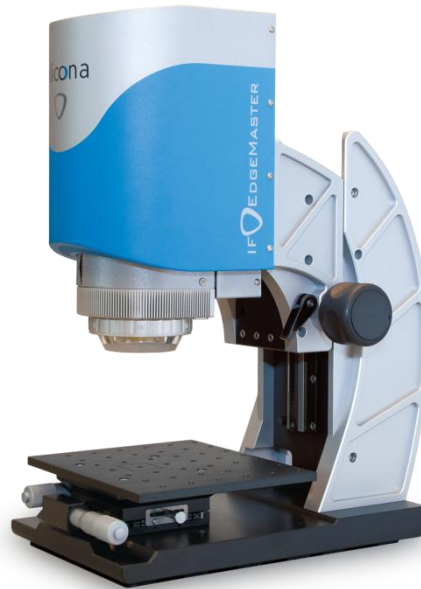


IF EDGEMASTER


Automatic Cutting Edge Measurement




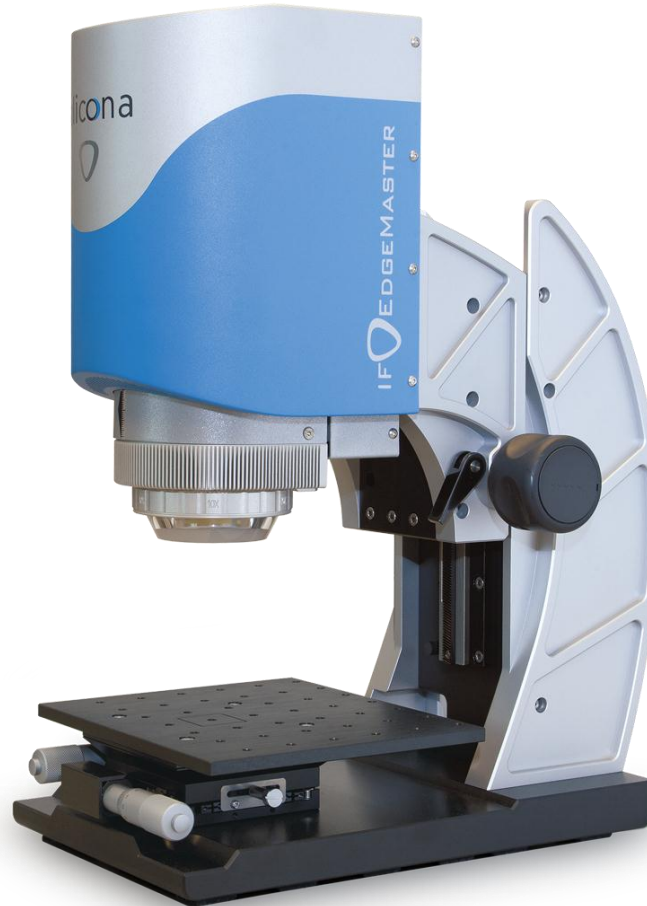
Alicona, August 2014




IF-EdgeMaster

 *The System.*
Automatic cutting
edge measurement

 *The Function.*
Form plus basket arch,
chipping plus roughness



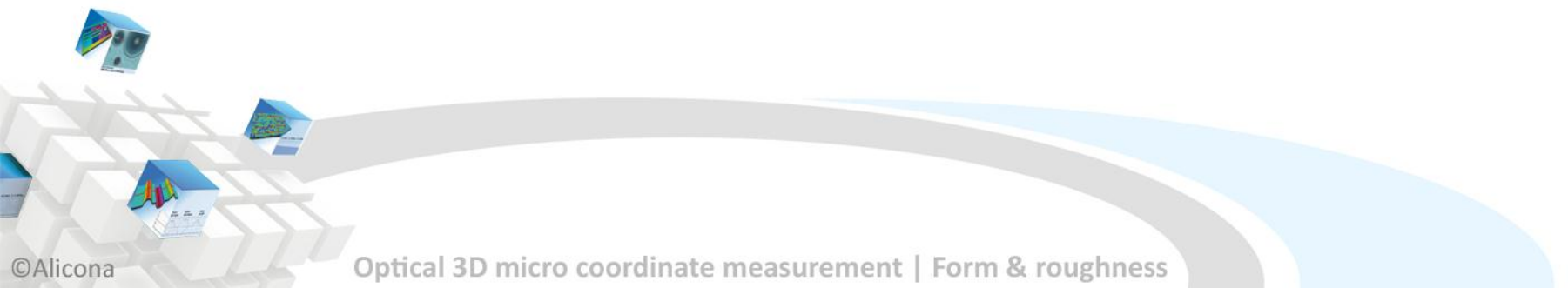
 *The Benefits.*
Highly robust measurements
at intuitive user interaction

 *The Technology.*
Focus-Variation in
research and production

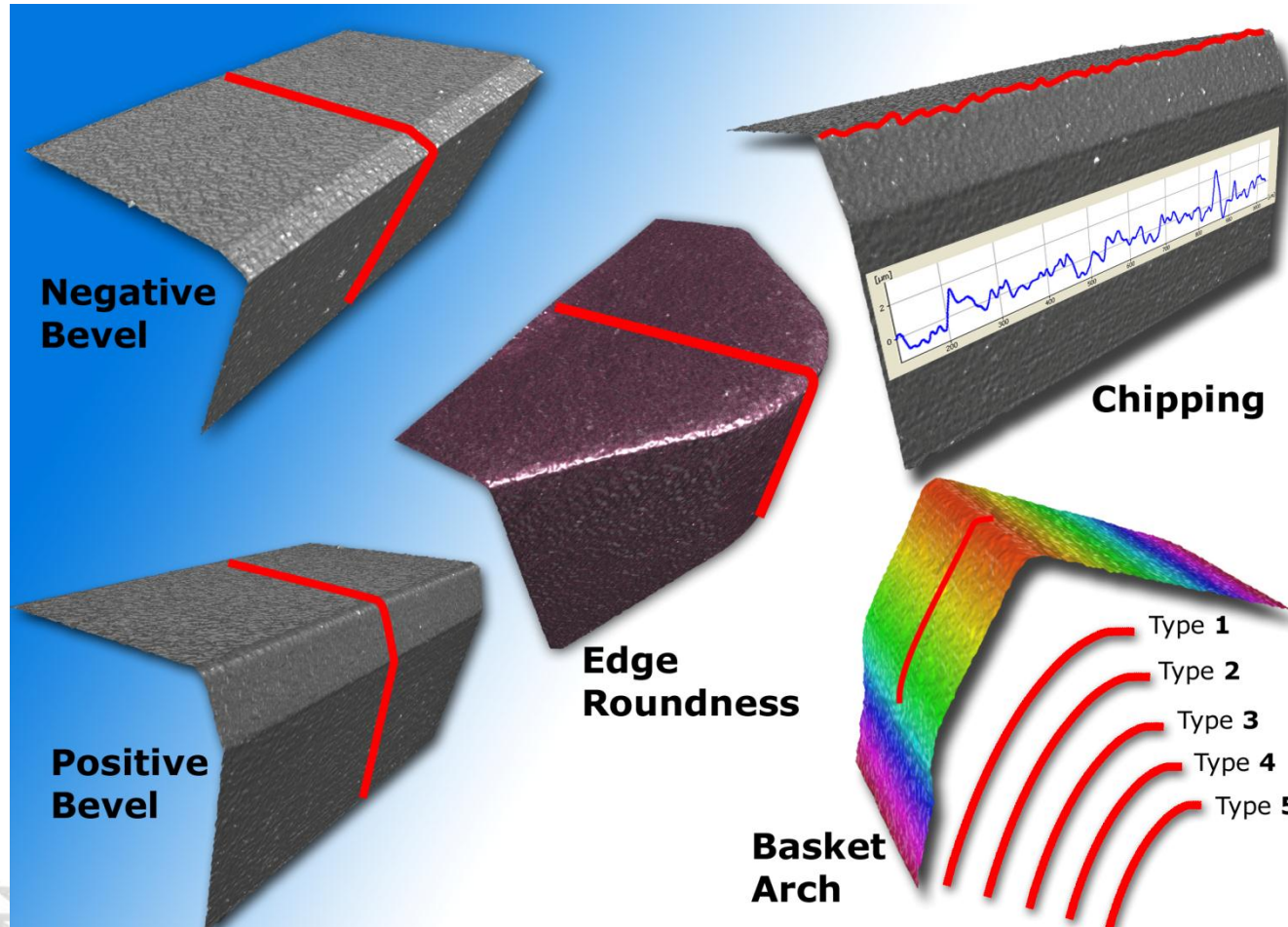


MEASUREMENT OPTIONS

With IF-EdgeMaster

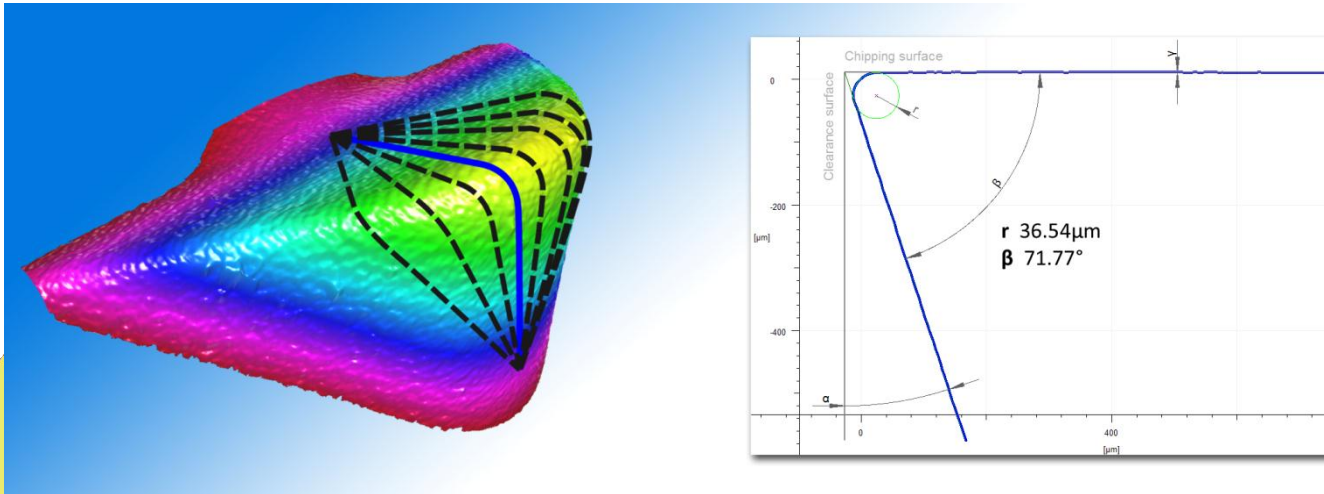


The IF-EdgeMaster measures...

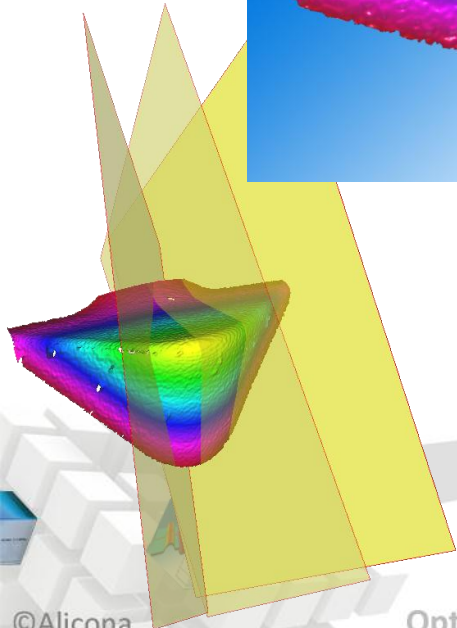


Profile Extraction

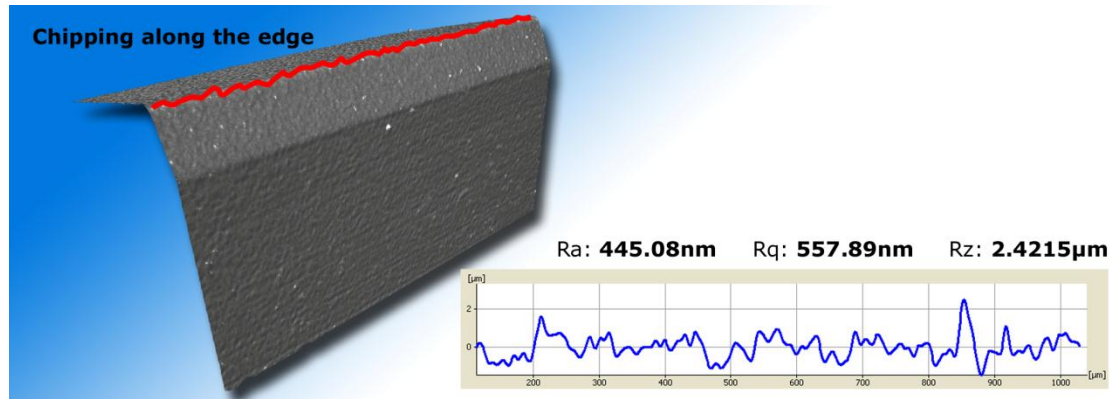
Edge Roundness Measurement



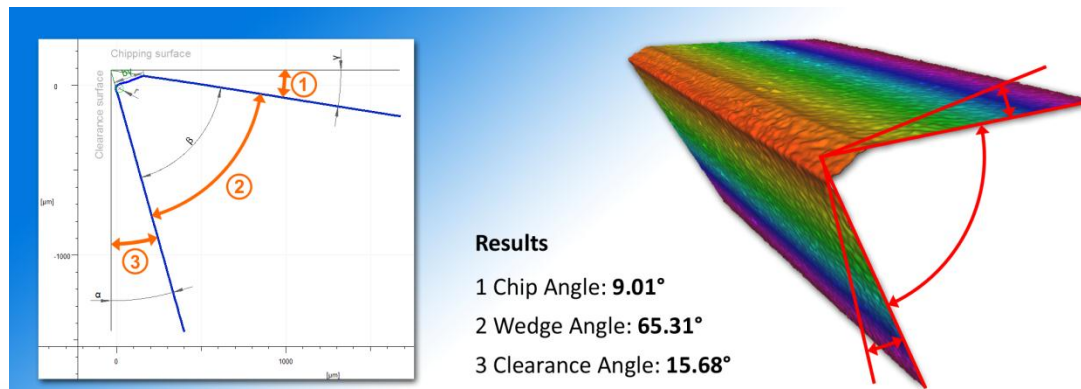
Edge roundness measurement on the tip of a cutting insert



Chipping and Geometry Measurements



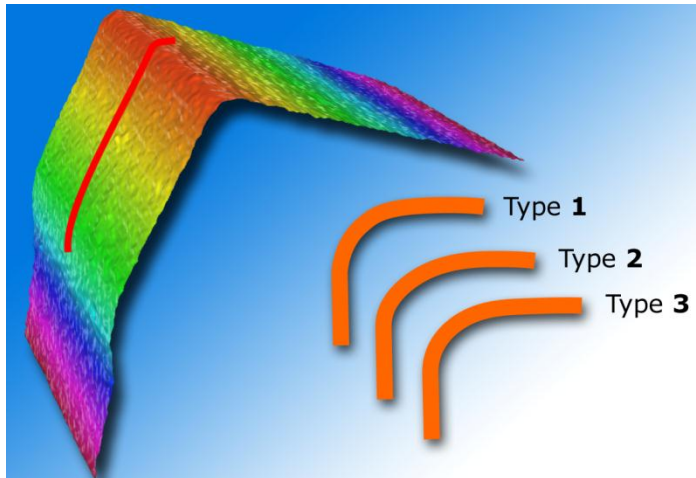
Chipping along the cutting edge



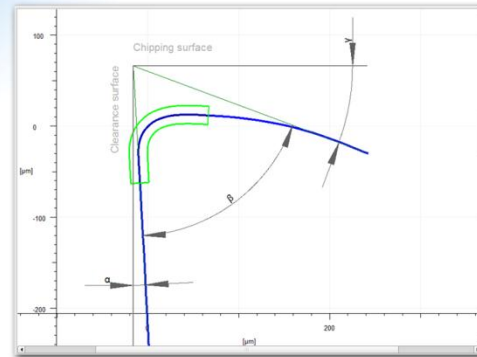
Geometry measurement of a cutting edge



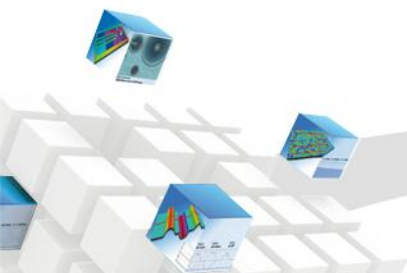
Basket Arch Measurement



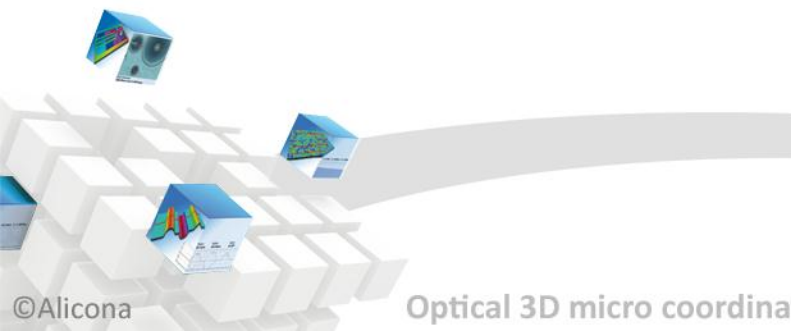
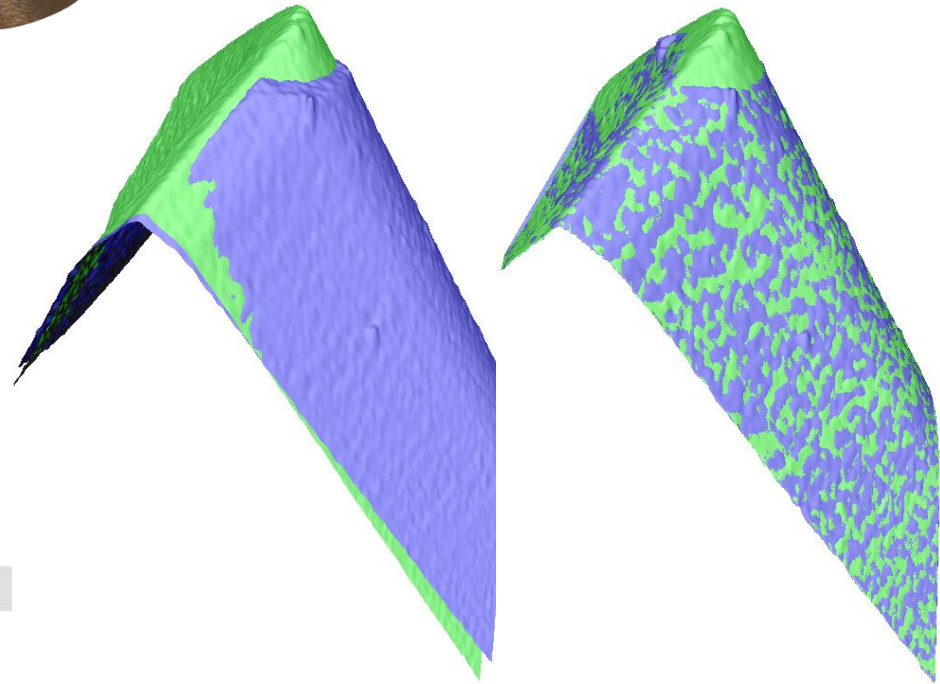
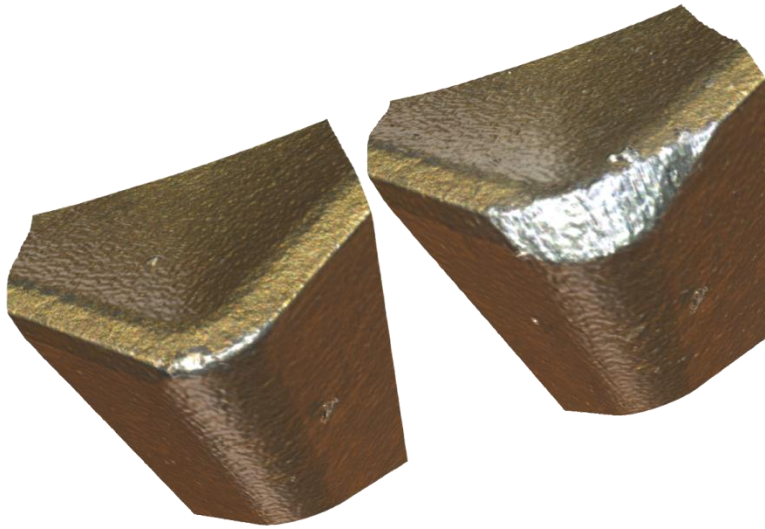
Result: **Basket Arch Type 1**



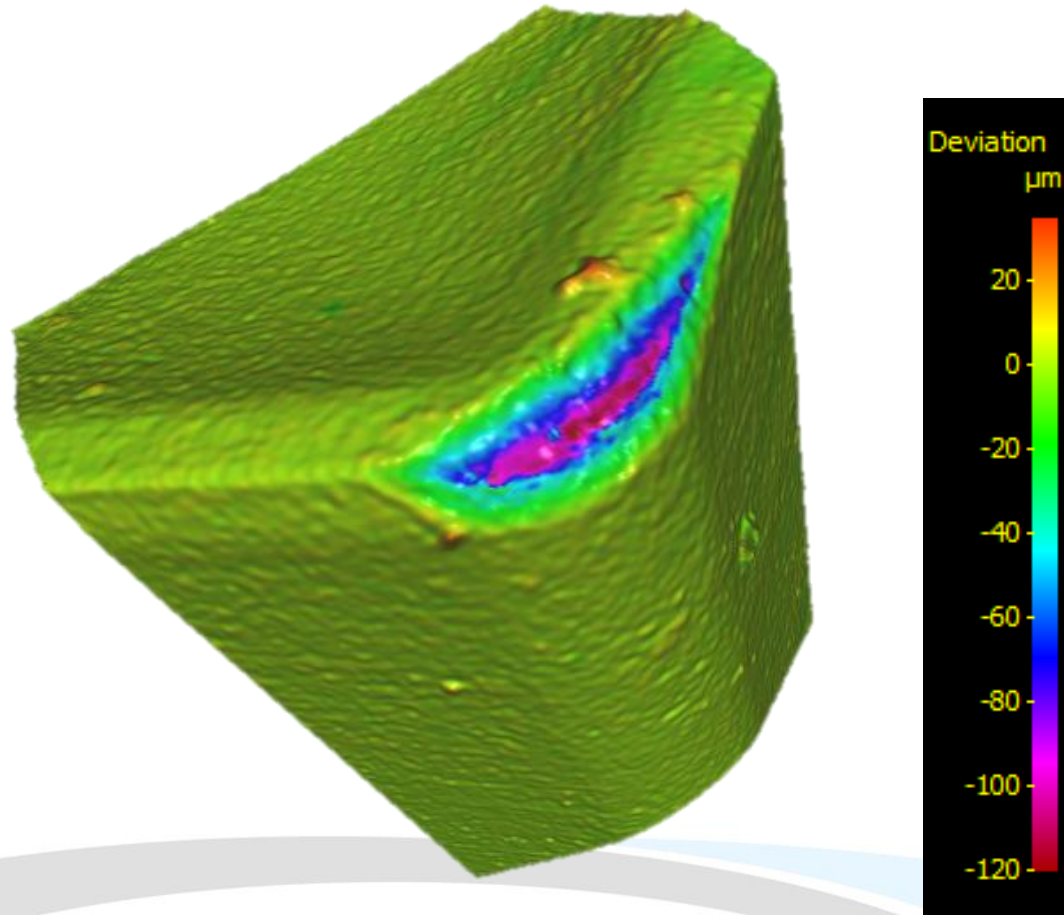
Basket arch measurement based on the saved basket arch data base



Wear Measurement



Difference Dataset



TECHNICAL SPECIFICATIONS

IF-EdgeMaster

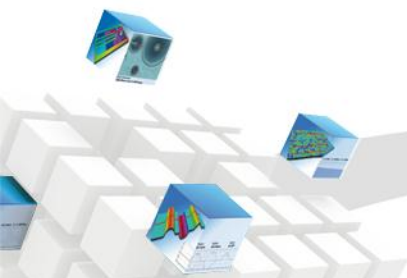


Technical Specifications

General

Measurement principle	non-contact, optical, 3-dimensional, based on Focus-Variation
Optic	objectives 10x, 20x, 50x, 2x SX, 5x SX, 10x SX, 20x SX, 50x SX
Vertical travel range manual (Z) NEW!	130mm (26mm motorized)
Vertical travel range motorized (Z)	25mm
Travel range manual xy stage	25x25mm
Maintenance NEW!	depends on the application
Weight Device	12kg
Temperature range	possible: 5 - 30°C, calibrated for 18 – 22°C
Dimensions measurement device (WxDxH)	195x316x418mm

IF-EdgeMaster G4b



Technical Specifications

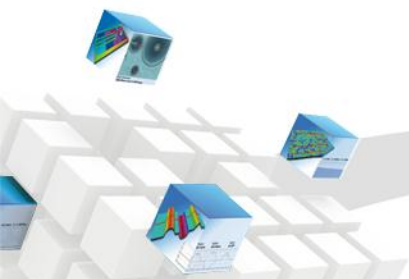
Objectives

Objectives		10x	20x	50x	2x SX ²	5x SX ²	10x SX ²	20x SX ²	50x SX ²
Sampling distance	[μm]	1	0.5	0.2	5	2	1	0.5	0.2
Min. repeatability (vertical)	[nm]	40	20	10	1240	180	45	25	15
Max. scan height	[mm]	16	12	9	25	25	25	19	12
Vertical resolution ¹	[nm]	100	50	20	3500	510	130	70	45
Working distance	[mm]	17.5	13.0	10.1	34	34	33.5	20	13
Field of view X	[mm]	2	1	0.4	10	4	2	1	0.4
Field of view Y	[mm]	2	1	0.4	10	4	2	1	0.4

¹ Vertical resolution can be adjusted depending on the application. This also influences the scan speed.

² SX objectives do have a larger working distance.

IF-EdgeMaster G4b



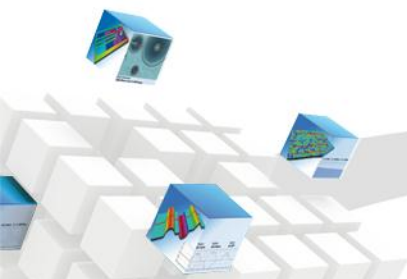
Technical Specifications

Resolution and Application Range

Objectives		10x	20x	50x	2x SX ¹	5x SX ¹	10x SX ¹	20x SX ¹	50x SX ¹
Min. measurable radius	[μm]	5	3	2	20	10	5	3	2
Min. measurable wedge angle	[$^{\circ}$]	20	20	20	20	20	20	20	20
Step height accuracy	[%]	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Min measurable roughness (Ra)	[nm]	300	150	80	-	-	450	250	150
Min. measureable roughness (Sa)	[nm]	150	75	50	-	-	250	100	80
Max. bevel length	[μm]	800	400	160	4000	2000	800	400	160

¹ SX objectives do have a larger working distance.

IF-EdgeMaster G4b



Technical Specifications

Repeatability and Uncertainty
(the same parameter for all objectives)

Repeatability of radius straight edge ²	[μm]	0.04-0.3
Repeatability of radius round edge ²	[μm]	0.04-0.6
Repeatability of angle straight edge ²	[μm]	0.01-0.1
Repeatability of angle round edge ²	[μm]	0.01-0.3
Uncertainty of the radius measurement Until 20 μm 20 – 50 μm	[μm]	0.5 1

2) depending on the quality of the edge

IF-EdgeMaster G4b

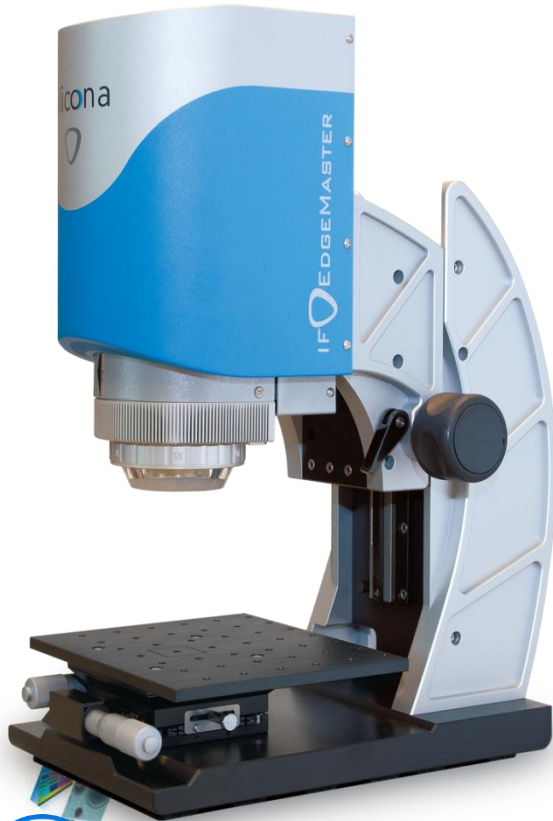


FEATURES

IF-EdgeMaster



Features IF-EdgeMaster G4



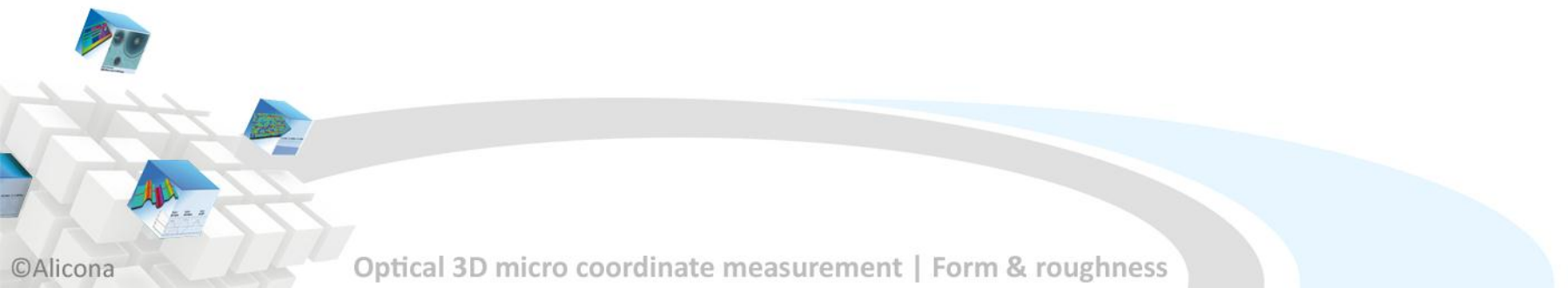
- » **insensitive to ambient light** and temperature fluctuations
- » not restricted to one type of inserts but **usable for various forms** and sizes
- » measures repeatable and accurate **without manual user influence**
- » **measurements** are achieved in **approx. 20 seconds**
- » offers miscellaneous export and **print options**
- » measures **large bevel length**
- » offers **easy handling with** a special coarse drive that simplifies focusing on the insert
- » **registered true color** information
- » adjustable and **optimized illumination** for edge measurements
- » Coaxial laser for **intuitive positioning** and focusing of a tool



The only optical instrument achieving traceable chipping measurements

IF-EdgeMaster G4

Novelties



NEW for IF-EdgeMaster G4

+ Improved focusing help
with coax sensor

+ Easy change of objectives

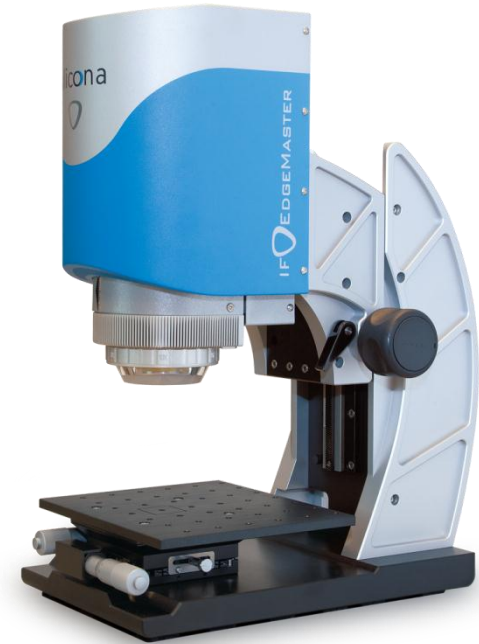
+ Compact and silent controller

+ Higher speed at 4 Mio. Points

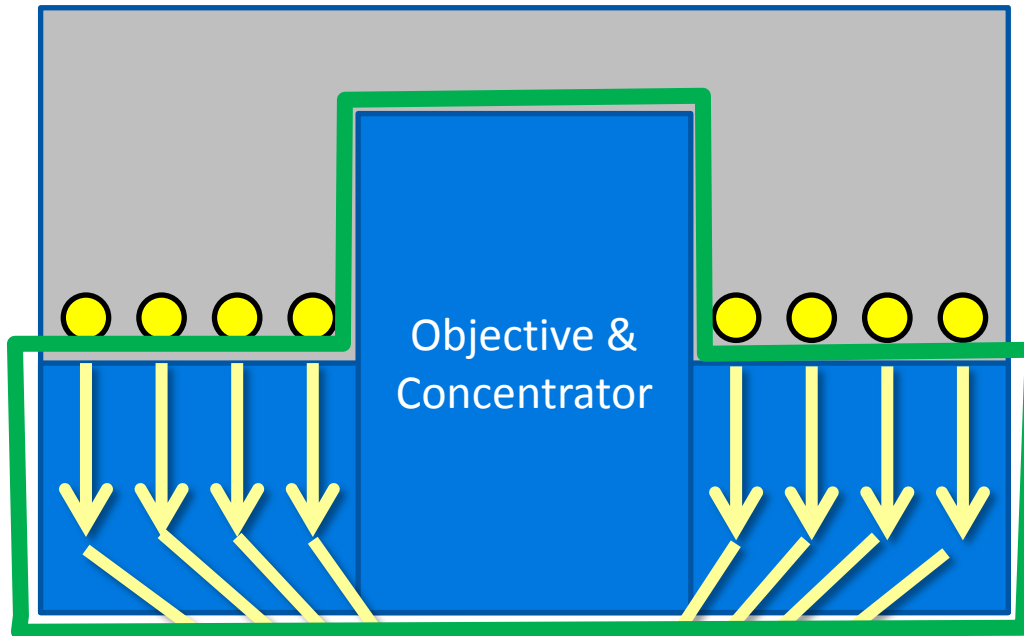
+ Ringlight with various segments
and motorized polarizer

+ Vibration and
temperature sensors

+ Measuring smaller edge radii
on a bigger field of view

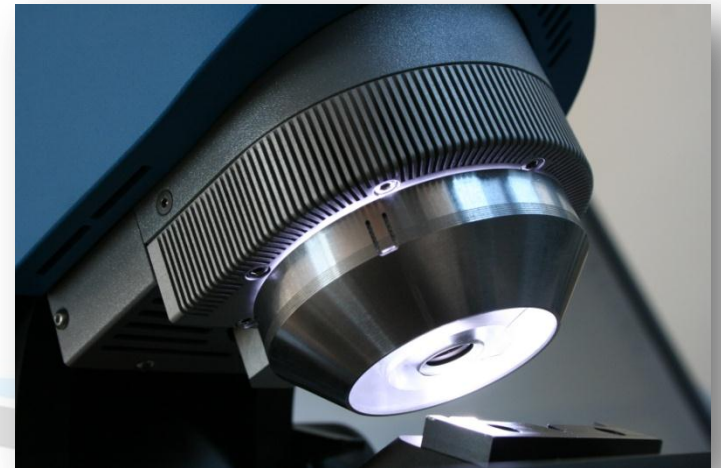


Patented* Illumination Concept **NEW!**

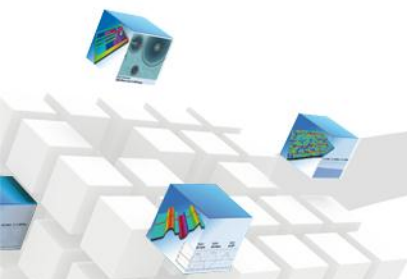


+ One part

+ Concentrator optimized for each objective



* patent pending



Illumination **NEW!**

Edge type specific:

- » Motorized polarisation
- » Ringlight with segments

