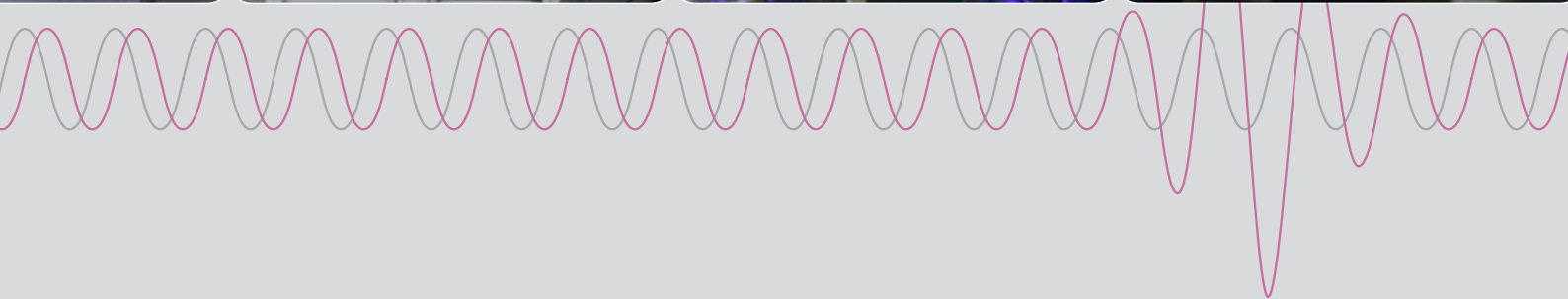


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# WATOM.

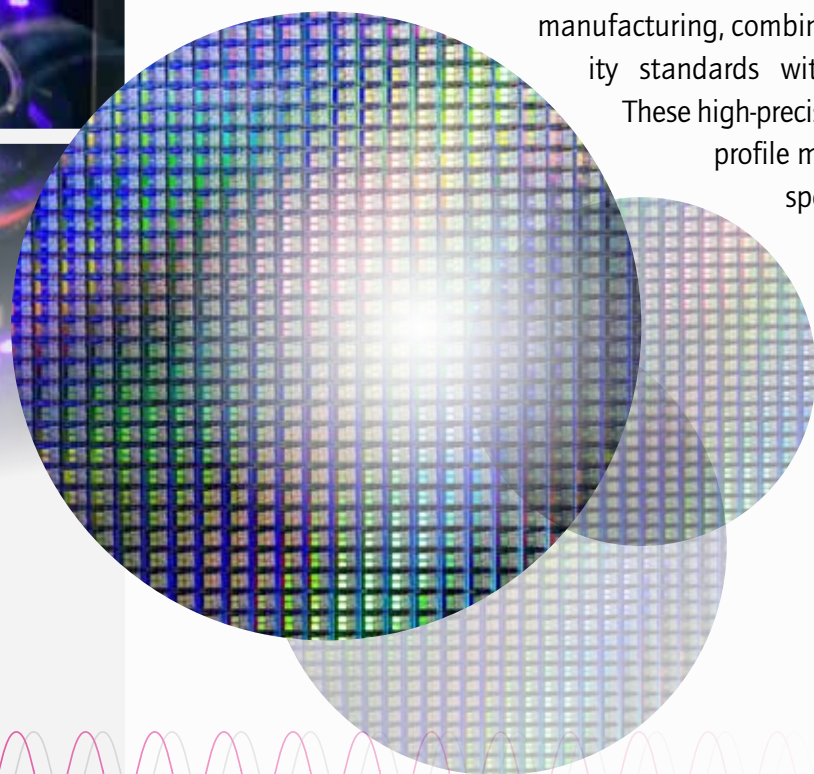
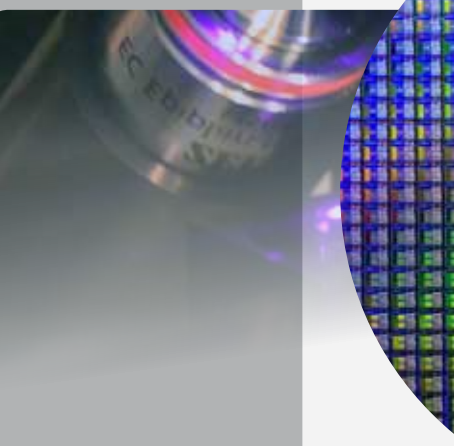
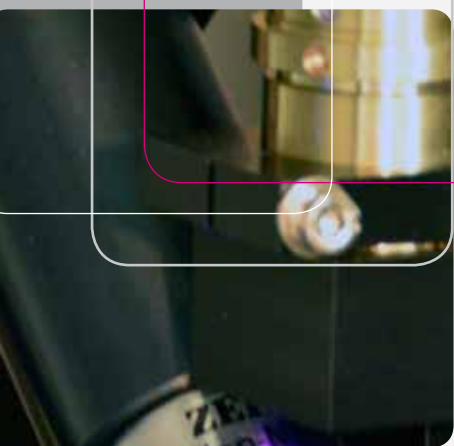
## Wafer Topography Measurement



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[ EN ]



## WATOM

### Wafer edge and notch profile measurement

The use of smaller and smaller patterns in the semiconductor industry calls for increasingly advanced materials of extremely high quality. In response to the steady improvements in the quality of wafers, KoCoS Automation has developed WATOM, a wafer edge and notch profile measurement tool which heralds a new era of extremely precise wafer geometry measurement.

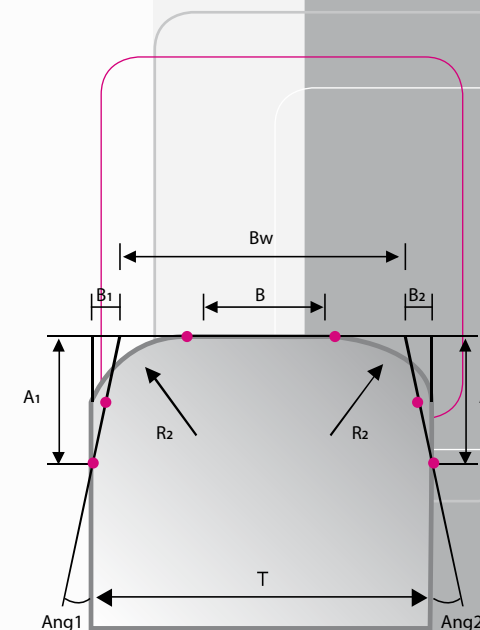
WATOM supports quality assurance throughout the wafer manufacturing process, starting at the very beginning and continuing on through to wafer reclaim.

The WATOM Edge and Notch Wafer Geometry Analyser sets the worldwide benchmark for the quality assurance of geometrical measurements in semiconductor wafer manufacturing, combining the highest quality standards with top-class service.

These high-precision, laser-based edge profile measurement tools are specially designed for optimum integration in manufacturing lines within the semiconductor industry.

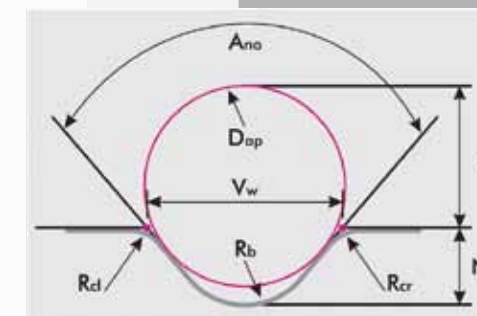
### Profile measurement

The patented measurement method which uses a light-sectioning sensor can measure the profile at any point on the wafer edge, even within the notch. As well as providing a throughput of more than 50 wafers per hour with 16 measurement points, WATOM stands out from the crowd for its ability to deliver profile evaluation to KoCoS-specific criteria, SEMI M73 standard or customer-specific criteria.



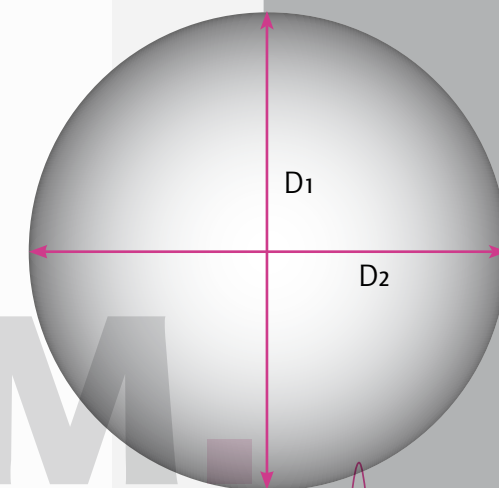
### Notch measurement

WATOM reliably determines the full range of typical notch measurement parameters with maximum precision, including angles, radii and notch depth.



### Diameter measurement

The geometrical parameters measured by WATOM include highly precise measurements of wafer diameter exact to the  $\mu\text{m}$ .



# WATOM



## WATOM LS

The patented measurement method of WATOM LS utilizes a light-sectioning sensor to measure the profile of the wafer edge with pinpoint precision, including the profile within the notch. Using a CCD camera, pictures are taken of the laser line produced by the edge profile. A mathematical algorithm developed by KoCoS is then used to determine the edge profile characteristics.



## WATOM CCD

WATOM CCD uses CCD camera measurement as an alternative to high-precision light-sectioning and provides the ideal solution for less demanding profile measurement requirements, in particular when notch measurement is not required. A telecentric lens captures the profile image of the wafer edge illuminated by a telecentric light source.

## WATOM

### From manual to fully automatic

Modern semiconductor manufacturing processes involve a wide range of different process automation techniques. Thanks to its modular design, WATOM can meet the specific requirements of every user, whether individual wafers are loaded manually or an automated material handling system (AMHS) is in place.

Wafer size does not present a problem either. Both the light-sectioning method and the CCD camera method can measure wafers from as small as 4" up to 450 mm. Automatic solutions can be equipped with either one or two load ports as required. SCARA robots provide fast wafer transport. Both vacuum and edge gripping technology are available for wafer handling.

These features ensure that WATOM systems can comply with the requirements of any class of clean room, including ISO 1 if needed. All the usual carrier-ID, OHT, AGV and wafer ID solutions used in the semiconductor industry can be added as optional extras, as can additional load ports, if required.





## Operation

WATOM relies on the ARDAS software for operation, control and evaluation. This modular software, which has been specially developed by KoCoS for the specific purpose of geometrical measurement, is well structured and easy to use.

WATOM fulfills all the requirements of modern semiconductor manufacturing equipment, whether used in operator mode, expert mode or fully automatic mode.

### Operator mode

Very little input is required from the operator to start the measurement process. A pass/fail assessment is made on the basis of a comparison of the actual results with the target results pre-defined for each customer.

### Expert mode

Using the expert mode, trained personnel can create measurement recipes, carry out statistical analyses and run detailed measurements of individual points.

### Automatic mode

Thanks to the GEM-SECS interface, WATOM can be integrated quickly and easily in the host environment of modern semiconductor fabs.

## Technical data

### Throughput:

50 wafers/h with 16 profile measurement points, notch measurement and diameter measurement

MTBF: 1000 h

MTTR: 1 h

### Accuracy

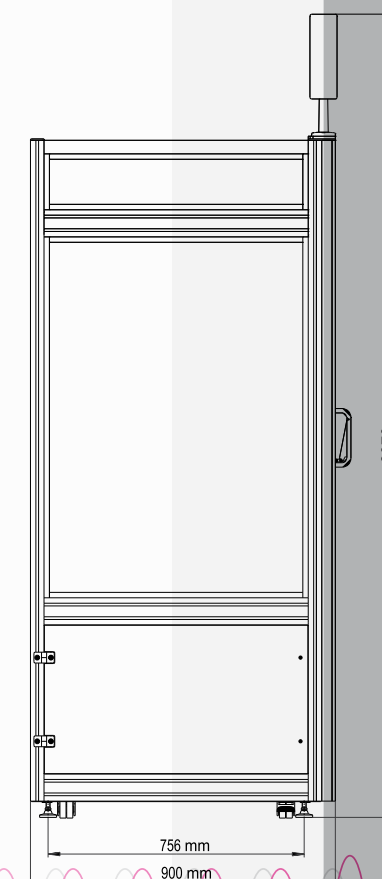
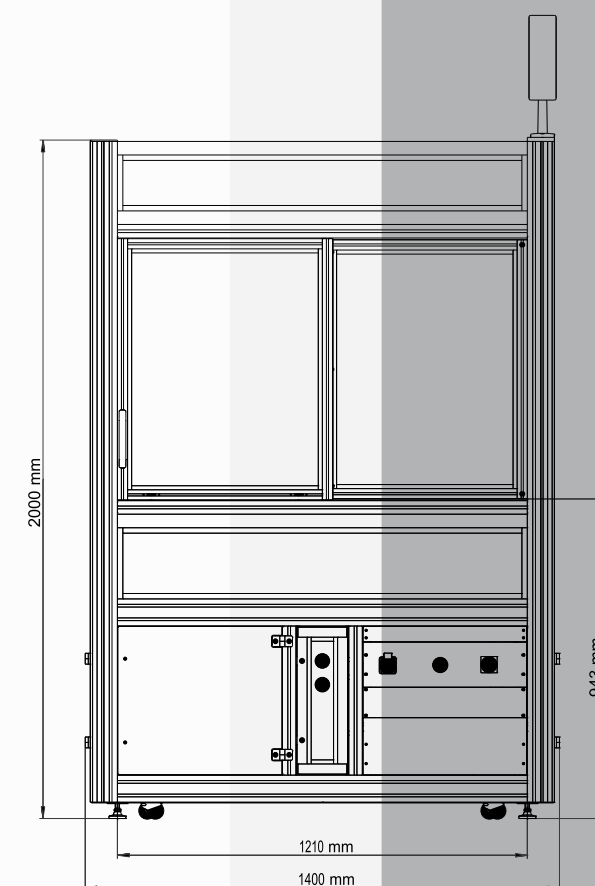
	Standard deviation accuracy	
Radii	$\pm 1 \mu\text{m}$	$1 \mu\text{m}$
Half angles	$\pm 0.2^\circ$	$0.05^\circ$
Blunt lengths	$\pm 2 \mu\text{m}$	$1 \mu\text{m}$
Facet lengths	$\pm 2 \mu\text{m}$	$1 \mu\text{m}$
Profile deformation	$> 5 \mu\text{m}$	

### Facilities:

Control interface:	Ethernet
Input voltage:	88 to 264 VAC, 47 to 63 Hz
CDA:	0.6 MPa (87 psi)
Vacuum:	68 kPa (9.8 psi)
Operating Temperature:	20 to 24°C

### Order code:

WATOM dia type	
dia diameter	100, 150, 200, 300, 450
type sensor type	LS, CCD



# WATOM.



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