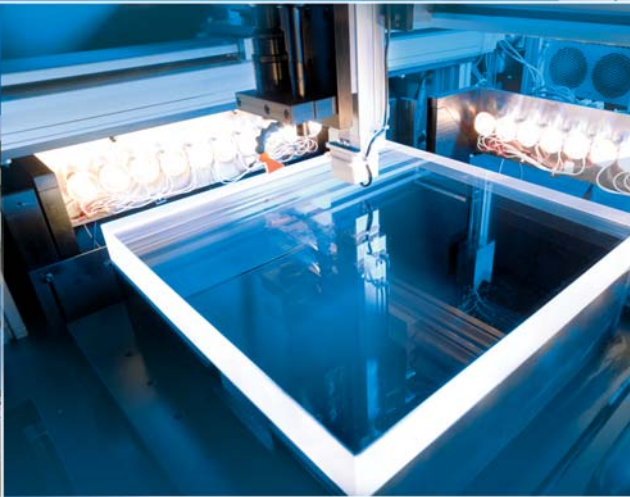
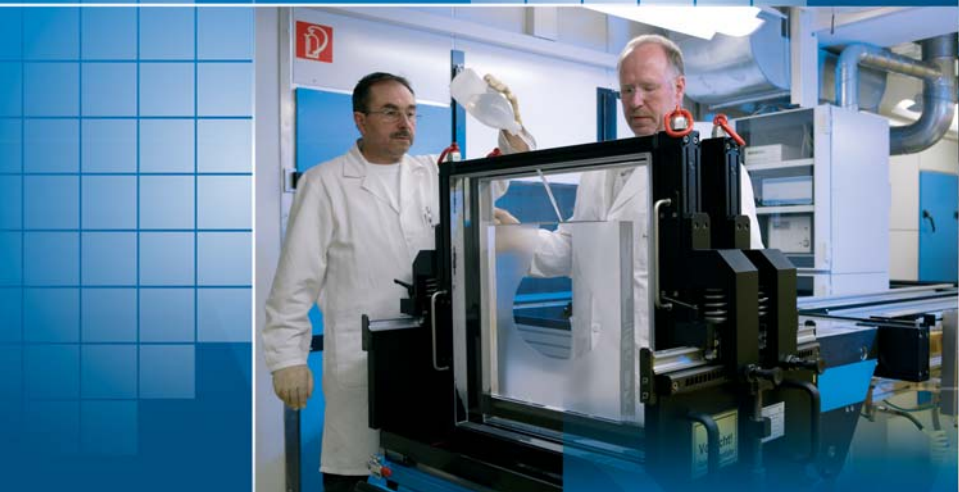
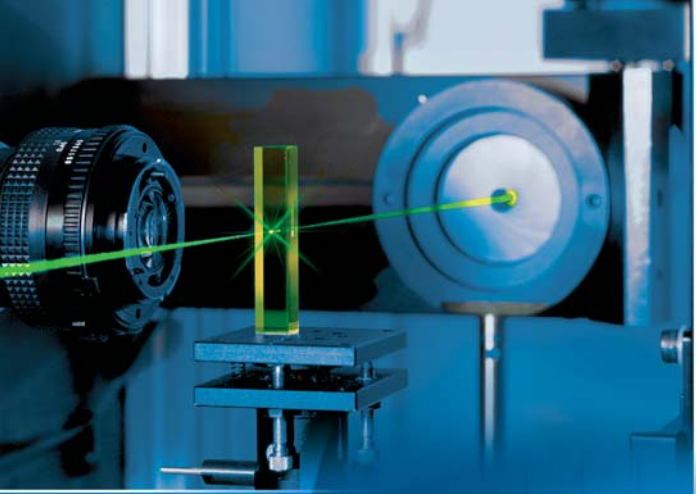


# Heraeus



## Heraeus Metrology Service

# Heraeus Quarzglas provides service for:

## Optical Homogeneity

Interferometry → 2D maps with analysis

Measurement wavelength: 632.8 nm

### Standard procedure:

Sample size: Thickness: 22 – 400 mm  
 Diameter: ≤ 450 mm,  
 rectangular plates  
 accordingly smaller  
 CA- Diameter: ≤ 430 mm,  
 rectangular plates  
 accordingly smaller

Accuracy:  $2\sigma = 0.3$  ppm



### Polished-plate-technique:

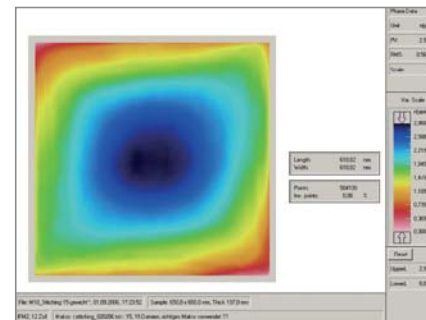
Sample size: Thickness: 20 – 80 mm  
 Diameter: 135 – 345 mm  
 CA-Diameter: 130 – 310 mm  
 Surface polished better  $\lambda/2$  with no  
 short term aberrations, tilt of about  
 4 arc minutes

Accuracy:  $2\sigma = 0.05$  ppm

### Stitching-technique:

Sample size: Thickness: 20 – 240 mm  
 Dimension: ≤ 650 mm x 650 mm  
 CA: ≤ 610 mm x 610 mm

Accuracy:  $2\sigma = 1$  ppm



## Birefringence

Stress induced birefringence → 2D maps with analysis

Measurement range: 0,01 nm – 260 nm

Inspection wavelength: 632.8 nm

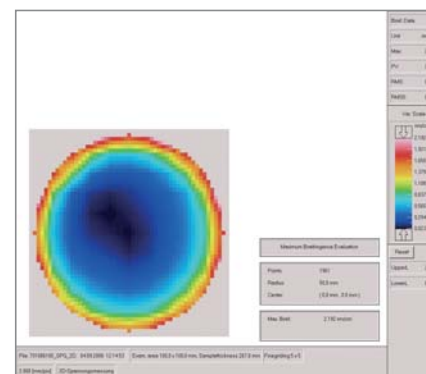
Laser spot size: 1 mm

Inspection grid: 1 mm x 1 mm

Standard inspection grid: 10 mm x 10 mm

Accuracy: < 0.05 nm/cm

Sample size: Thickness: ≤ 385 mm  
 Dimensions: ≤ 450 mm x 450 mm  
 CA: ≤ 450 mm x 450 mm



## Transmission

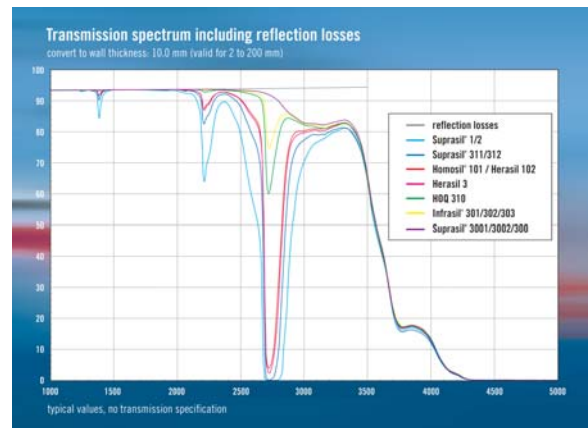
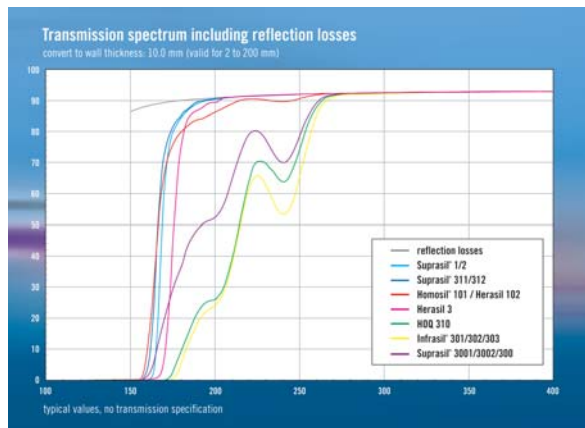
190 nm – 500 nm → Transmission spectrum or single wavelength measurements

Measurement range: 190 nm – 5000 nm

Data: 1 datapoint per nm

Accuracy: 0.5 %T

Sample size: Thickness of samples min. 10 mm, angular or round, min. area 20 x 20 mm<sup>2</sup>, max. 100 x 100 mm<sup>2</sup>



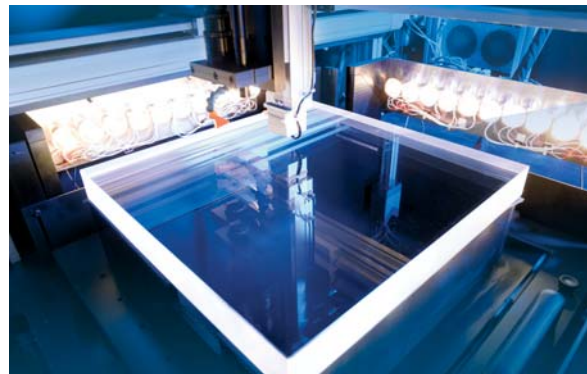
## Bubble and Inclusion Inspection

Automated detection system down to 10 μm defect size → 3D maps with analysis

Measurement range:  $\geq 10 \mu$

Accuracy: Defect size  $\pm 20 \%$ ,  
Defect location  $< 1 \text{ mm}$  in position

Sample size: 500 x 500 x 140 mm<sup>3</sup>



## Density

Accuracy: 0.01 g/cm<sup>3</sup>

Sample size: Sample volume approx. 1 cm<sup>3</sup>

## Viscosity

Measurement range: 1000°C – 1500°C

Sample size: 55 x 5 mm,  
thickness between 1 – 3 mm

Accuracy: lg 0.2 dPa s

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