

From UV To IR · Precision Across The Spectrum

STANDARD MICROSTRUCTURES



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SPECIFICATIONS

OUR STANDARD PRODUCTS

The graticules shown here are offered as standard products for sale as individual items with prompt delivery from our stock. In addition to our standard products we also design and produce customized microstructures according to your special requirements and specifications. We shall be pleased to receive drawings of new designs for a detailed quotation.

TECHNICAL SPECIFICATIONS

Our graticules and scales are produced as metallic structures using photolithographic methods on different substrates, e.g. B270, SL-glass, white flashed opal glass, ceramics or glass ceramics.

The structures and lines consist of either HRC (high reflective chrome) or LRC (low reflective chrome). All edges are protection-chamfered. Some of our items are protected against damage by cemented cover glasses.

All POG standard products are 100% quality inspected in our quality assurance department.

TEST AND CALIBRATION CERTIFICATES

Upon request and additional charge, all stage micrometers and glass scales can be delivered with an official calibration certificate, issued by an external accredited test laboratory.

<http://www.pog.eu/en/ms/sms-dkd-calibration.html>

DIMENSIONS

By default, all parts will be delivered in the specified thickness. Various other thicknesses are available upon request.

Upon request and additional charge other diameters are possible for circular shaped parts. Please contact us for detailed specifications of the available diameters.

AR-COATINGS

The glass surfaces are not AR-coated by default. Upon request and additional charge, all standard microstructures can be supplied AR-coated.

ORDER PROCESSING

The actual unit prices and terms and conditions can be found on our website – www.pog.eu

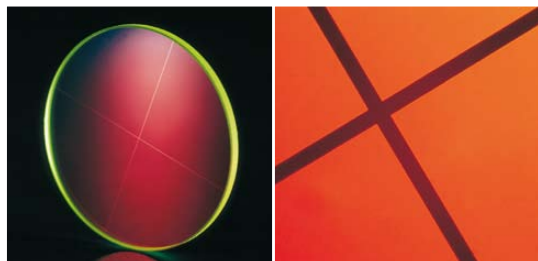
Purchase orders shall be governed by and constructed in accordance with the general business conditions of POG. Technical alterations, changes and errors excepted.



EYEPIECE GRATICULES

general view

magnified detail view

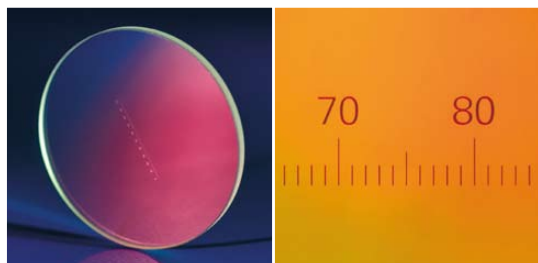


CROSSHAIR EYEPIECE GRATICULES

for integration in standard microscope eyepieces

substrate thickness: 1.5 mm

line thickness in mm	graticule diameter in mm – Item-No.			
	Ø 26.5 h8	Ø 26.0 h8	Ø 21.0 h8	Ø 19.0 h8
0.005	10008.03.101	10008.03.105	10008.03.109	10008.03.097
0.010	10008.03.102	10008.03.106	10008.03.110	10008.03.098
0.020	10008.03.103	10008.03.107	10008.03.111	10008.03.099
0.030	10008.03.104	10008.03.108	10008.03.112	10008.03.100

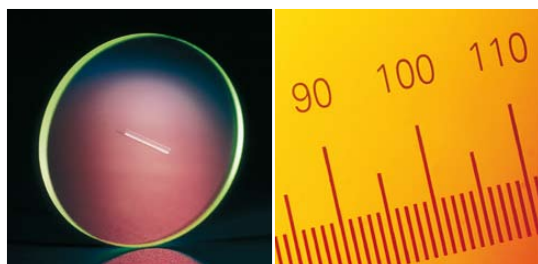


EYEPIECE MICROMETER SCALE 10:100

for integration in standard microscope eyepieces

scale: 10 mm in 100 divisions; 1 interval = 0.1 mm; substrate thickness: 1.5 mm

graticule diameter in mm	Item-No.
Ø 26.5 h8	10008.03.113
Ø 26.0 h8	10008.03.136
Ø 21.0 h8	10008.03.137
Ø 20.5 h8	10008.03.114
Ø 19.0 h8	10008.03.145

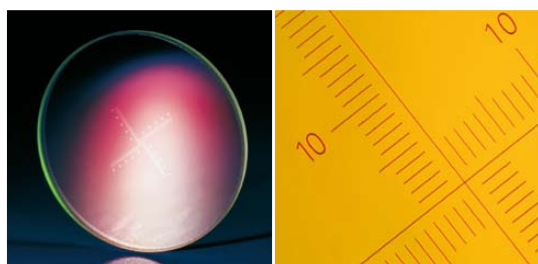


EYEPIECE MICROMETER SCALE 5:200

for integration in standard microscope eyepieces

scale: 5 mm in 200 divisions; 1 interval = 0.025 mm; substrate thickness: 1.5 mm

graticule diameter in mm	Item-No.
Ø 26.5 h8	10008.03.115
Ø 26.0 h8	10008.03.138
Ø 21.0 h8	10008.03.139
Ø 20.5 h8	10008.03.116
Ø 19.0 h8	10008.03.146

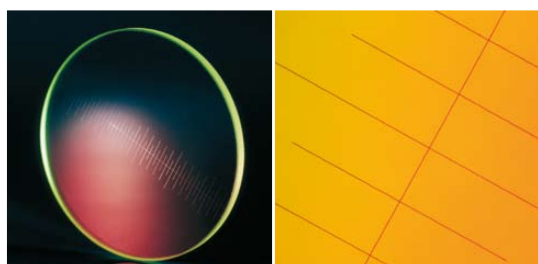


CROSSED EYEPIECE MICROMETER SCALE 2 X 10:100

for integration in standard microscope eyepieces

scale: 2 x 10 mm in 100 divisions; 1 interval = 0.1 mm; substrate thickness: 1.5 mm

graticule diameter in mm	Item-No.
Ø 26.5 h8	10008.03.117
Ø 26.0 h8	10008.03.140
Ø 21.0 h8	10008.03.141
Ø 20.5 h8	10008.03.118
Ø 19.0 h8	10008.03.147



SCALE GRATICULE 1

for integration in measurement systems

scale: 25 mm in 50 divisions; 1 interval = 0.5 mm; substrate thickness: 1.5 mm

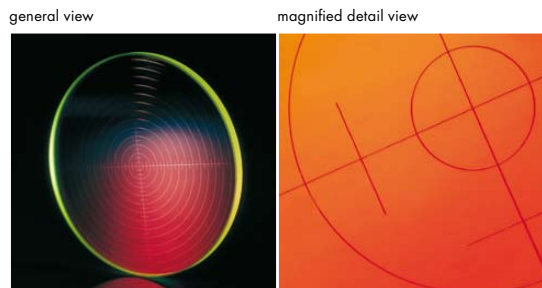
graticule diameter in mm	Item-No.
Ø 26.5 h8	10008.03.119

Tolerance h8 acc. to DIN-ISO 286.

Eyepiece reticles can be calibrated by using stage micrometers.

STANDARD MICROSTRUCTURES

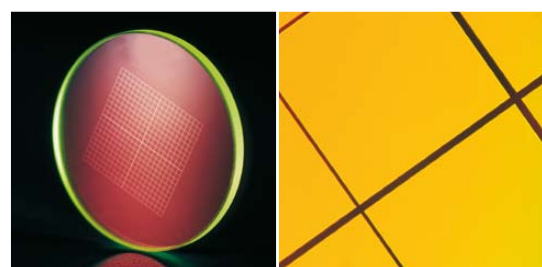
EYEPIECE GRATICULES



CROSSED SCALE GRATICULE 2

for integration in measurement systems
scale: 2 x 25 mm in 50 divisions with concentric circles;
1 interval = 0.5 mm; substrate thickness: 1.5 mm

graticule diameter in mm	Item-No.
Ø 26.5 h8	10008.03.120



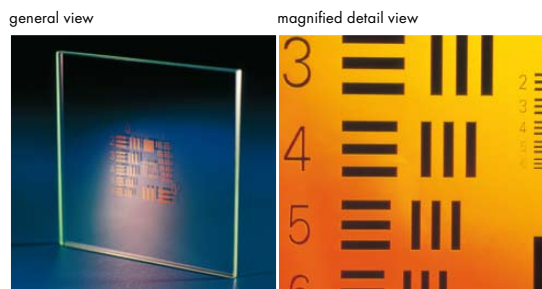
NET GRID

for integration in standard microscope eyepieces
scale: 10 mm x 10 mm in 20 x 20 squares; length: 0.5 mm; substrate thickness: 1.5 mm

graticule diameter in mm	Item-No.
Ø 26.5 h8	10008.03.142
Ø 26.0 h8	10008.03.143
Ø 21.0 h8	10008.03.144
Ø 20.5 h8	10008.03.121
Ø 19.0 h8	10008.03.148

Tolerance h8 acc. to DIN-ISO 286.
Eyepiece reticles can be calibrated by using stage micrometers.

CALIBRATION AND TEST TARGETS



USAF-RESOLUTION TARGETS

resolution test pattern with defined line structures as per table
dimensions: 40.0 x 40.0 mm
substrate thickness: 1.5 mm

positive pattern	Item-No.
dark lines in front of transparent background	10008.03.123

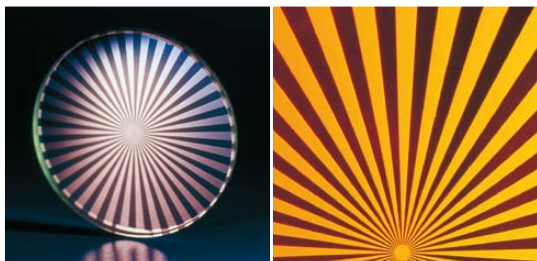
negative pattern	Item-No.
transparent lines in front of dark background	10008.03.124

pattern dimensions in line pairs per mm (LP/mm)									
element	group-no.								
No.		0	1	2	3	4	5	6	7
1		1.00	2.00	4.00	8.00	16.00	32.0	64.0	128.0
2		1.12	2.24	4.49	8.98	17.95	36.0	71.8	144.0
3		1.26	2.52	5.04	10.10	20.16	40.3	80.6	161.0
4		1.41	2.83	5.66	11.30	22.62	45.3	90.5	181.0
5		1.59	3.17	6.35	12.70	25.39	50.8	102.0	203.0
6		1.78	3.56	7.13	14.30	28.51	57.0	114.0	228.0

CALIBRATION AND TEST TARGETS

general view

magnified detail view

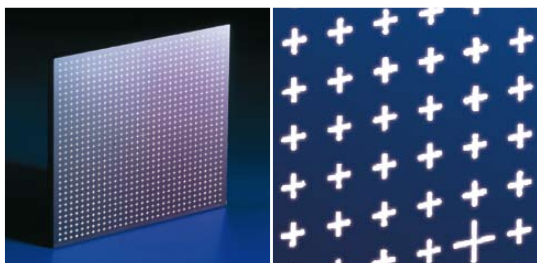


SIEMENS STAR GRATICULE

for evaluation of optical systems
 scale: 2 x 36 sectors
 substrate thickness: 1.5 mm

graticule diameter in mm
 Ø 20.5 h8

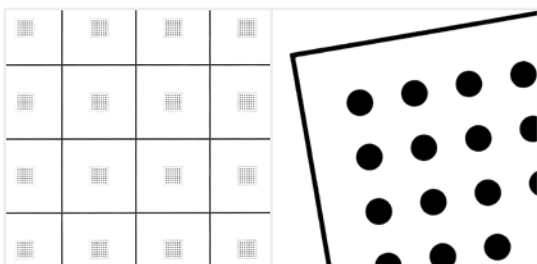
Item-No.
10008.03.122



CALIBRATION TARGET 1

cross pattern for calibration of optical systems in reflected light
 scale: white crosses on black background;
 cross pattern: 31 x 31 crosses; centre to centre distance: 2.0 mm
 line thickness: 0.2 mm
 line length: 1.0 mm
 dimensions in mm: 65.0 x 65.0
 substrate thickness: 3.0 mm

Item-No.
10008.03.022



CALIBRATION TARGET 2

dot pattern for calibration of optical systems in reflected light
 substrate thickness depending on material
 dot pattern: 7 x 7 dots
 dot diameter: 0.156 mm
 dot to dot distance: 0.312 mm

type
 ceramics (10.0 x 10.0 x 0.63 mm)
 white flashed opal glass (10.0 x 10.0 x 2.0 mm)

Item-No.
10008.03.023
10008.03.024



CALIBRATION TARGET 3

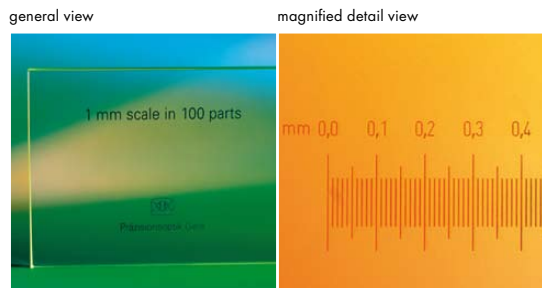
hole pattern for calibration of optical systems in transmitted light
 dimensions: 5" x 5" (127.0 x 127.0 mm)
 substrate thickness: 2.0 mm
 scale: LRC, hole pattern 5 x 3, different hole diameters

Item-No.
10008.03.025

row	hole diameter in mm				
1	0.1	0.2	0.3	0.4	0.5
2	1	2	3	4	5
3	6	7	8	9	10

STANDARD MICROSTRUCTURES

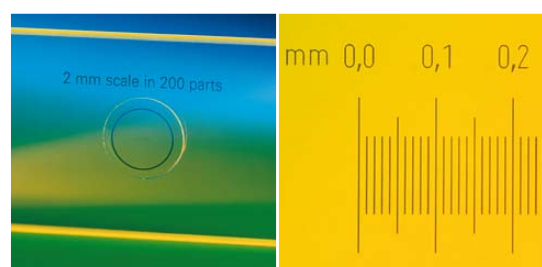
STAGE MICROMETERS AND GLASS SCALES



STAGE MICROMETER 1

for calibration of measuring microscopes
 scale: 1 mm in 100 divisions; 1 interval = 0.01 mm
 dimensions in mm: 76.0 x 26.0
 substrate thickness: 1.5 mm
 cover glass: Ø 15.0 x 0.15 mm

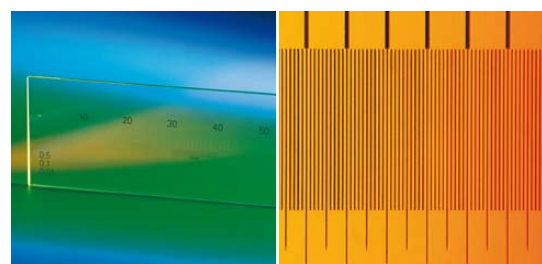
Item-No. _____
10008.04.004



STAGE MICROMETER 2

for calibration of measuring microscopes
 scale: 2 mm in 200 divisions; 1 interval = 0.01 mm
 dimensions in mm: 76.0 x 26.0
 substrate thickness: 1.5 mm
 cover glass: Ø 15.0 x 0.15 mm

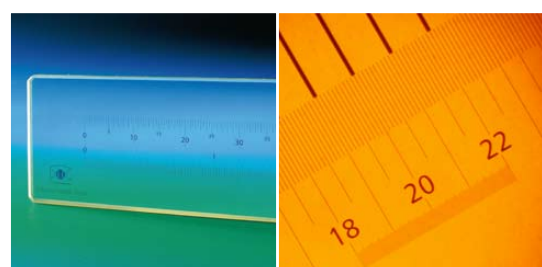
Item-No. _____
10008.04.005



STAGE MICROMETER 3

for calibration of measuring microscopes, especially for stereo microscopes
 4 scales: 70 mm in 140 divisions; 1 interval = 0.5 mm
 10 mm in 100 divisions; 1 interval = 0.1 mm
 2 mm in 200 divisions; 1 interval = 0.01 mm
 2 mm in 40 divisions; 1 interval = 0.05 mm
 dimensions in mm: 76.0 x 26.0; substrate thickness: 1.5 mm
 no cover glass

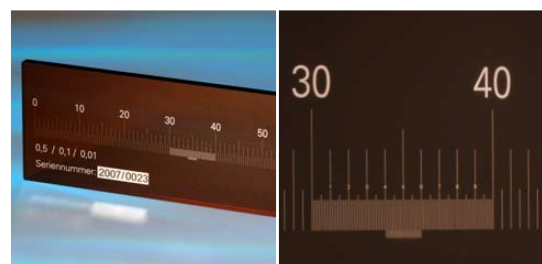
Item-No. _____
10008.03.016



STAGE MICROMETER 4 (WITH DIVISIONS IN INCH)

for calibration of measuring microscopes, especially for stereo microscopes
 4 scales: 50 mm in 100 divisions; 1 interval = 0.5 mm
 2 inches in 200 divisions; 1 interval = 10 mil
 400 mil in 400 divisions; 1 interval = 1 mil
 40 mil in 100 divisions; 1 interval = 0.4 mil
 dimensions in mm: 76.0 x 26.0; substrate thickness: 1.5 mm
 no cover glass

Item-No. _____
10008.03.017



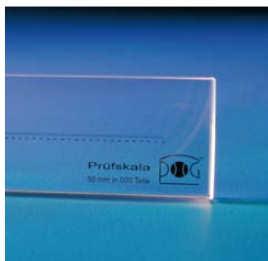
STAGE MICROMETERS FROM ZERO EXPANSION MATERIAL

for calibration of measuring microscopes
 for applications in reflected light (material – CERAN® see picture)
 and transmitted light (material – ROBAX® transparent)
 scales identical to stage micrometer 1–4; substrate thickness 2.3mm

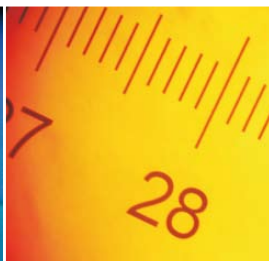
	Item-No.
Stage micrometer 1 CERAN	10008.03.034
Stage micrometer 1 ROBAX	10008.03.037
Stage micrometer 2 CERAN	10008.03.035
Stage micrometer 2 ROBAX	10008.03.038
Stage micrometer 3 CERAN	10008.03.033
Stage micrometer 3 ROBAX	10008.03.036
Stage micrometer 4 CERAN	10008.03.044
Stage micrometer 4 ROBAX	10008.03.045

STAGE MICROMETERS AND GLASS SCALES

general view



magnified detail view



TEST SCALE

for measuring of dimensions in transmitted or reflected light
scale: 50 mm in 500 divisions; 1 interval = 0.1 mm
no cover glass

dimensions in mm	material	Item-No.
76.0 x 16.0 x 1.5	B270	10008.03.018
76.0 x 16.0 x 2.3	CERAN®	10008.03.040
76.0 x 16.0 x 2.3	ROBAX®	10008.03.041



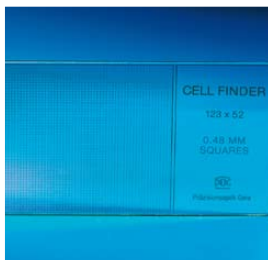
GLASS SCALES

solid measure for lengths, for measurement and calibration purposes in transmitted or reflected light; no cover glass

dimensions in mm	scales	Item-No.
120.0 x 16.0 x 2.3	100 mm in 1000 divisions 1 interval = 0.1 mm	10008.03.019
	CERAN®	10008.03.042
	ROBAX®	10008.03.043
170.0 x 16.0 x 3.0	150 mm in 1500 divisions 1 interval = 0.1 mm	10008.03.020
150.0 x 16.0 x 2.3	5" in 5000 divisions 1 interval = 1 mil	10008.03.021

CELL FINDER, SURFACE DEFECT PATTERN, PIN HOLES

general view



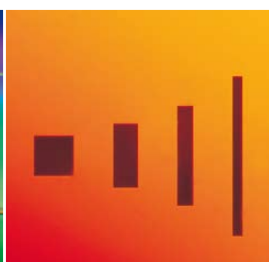
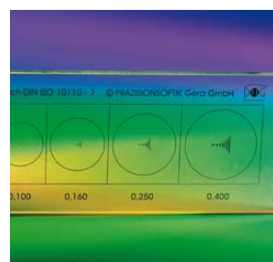
magnified detail view



CELL FINDER

for determining position of object details
object field in mm: 60 x 25 scaled in 123 x 52 cells including designation
dimensions of cells in mm: 0.48 x 0.48;
designation: 1...123 x A...Z, a...z dimensions in mm: 76.0 x 26.0;
substrate thickness: 2.0 mm
no cover glass

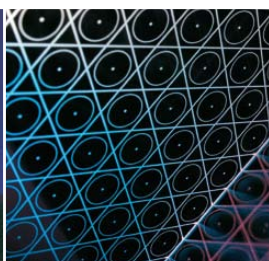
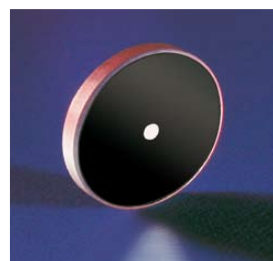
Item-No.
10008.03.126



SURFACE DEFECT PATTERN ACC. TO ISO 10110-7

for evaluation of optical surface defects
defect size comparison pattern according to DIN ISO 10110-7,
annex E design including cover glass and rubber frame
dimensions in mm: 111 x 44 x 6; substrate thickness: 2.0 mm

Type	Item-No.
Type A (grade-No. 0.400 ... 0.040)	10008.52.004
Type B (grade-No. 0.040 ... 0.004)	10008.52.006



PIN HOLES

apertures
material: glass; dimensions: 10.0 h8 (smaller diameters upon request)
substrate thickness: 1.0 mm; scale: in LRC, concentric to outer diameter

aperture	Item-No.	aperture	Item-No.
0.005 mm	10008.03.026	0.01 mm	10008.03.027
0.05 mm	10008.03.028	0.10 mm	10008.03.029
0.15 mm	10008.03.030	0.20 mm	10008.03.031
0.30 mm	10008.03.032		



COMPANY

POG Precision Optics Gera develops, produces and distributes client-specific, precision optical components and systems for applications covering the entire spectral range.

POG's product portfolio varies from conventional precision optical components and microstructures to complex optical and optoelectronic systems that are utilized in machine vision & lighting, metrology, industrial image processing, medical, sports optics and military applications. Owing to the high quality standard and com-

petitiveness of our products and services, POG has won a worldwide reputation as a technology company leveraging valuable partnerships with research institutions in Germany and abroad.

POG is DIN EN ISO 9001 certified.

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