Mirror Specification Data Sheet

Carl Zeiss
SMT GmbH

to:

for:

clients reference:
SMT reference:
SMT working no.:

date 03.04.2019
version 1

	Trapezoid Plane
substrate	
surface geometry	**plane**
material	Si <100>
dimensions (L x W x H) / mm³	650 x 98-68.7 x 20 ± 0.2
	trapezoidal block
optical surface	
clear aperture (L x W) / mm²	**500 x 30**
type of footprint	rectangular
surface quality	
height error	≤ 0.6 nm (rms) // 3 nm (pv)
spatial sampling	5 - 100 mm
height error	≤ 1.0 nm (rms) // 6 nm (pv)
spatial sampling	5 - 200 mm
height error	≤ 2.0 nm (rms) // 10 nm (pv)
spatial sampling	5 - 350 mm
height error	≤ 2.5 nm (rms) // 15 nm (pv)
spatial sampling	5 - 500 mm
microroughness	
MSFR (mid spatial frequency roughness)	≤ 0.2 nm (rms)
spatial sampling (ZYGO 10x + 50x)	1 µm - 830 µm
comment	

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Optical parameters	Type of measurement	Device	Resolution	spatial sampling area
surface quality	Tactile coordinate measurement	Carl Zeiss M400, precise tactile measuring machine	< 10 nm	2 mm < λ < 560 mm
physical dimensions	Tactile coordinate measurement	Carl Zeiss precision coordinate measuring device UPMC 850 S-ACC Carat	< 300 nm	
surface quality	Interferometry	Carl Zeiss D100 direct measuring Interferometer	< 1 nm	1 mm < λ < 1000 mm
MSFR	Micro-interferometry	ZYGO, NewView 9000 (magnification 50x)	< 0.1 nm	0.34 µm < λ < 170 µm
MSFR	Micro-interferometry	ZYGO, NewView 9000 (magnification 10x)	< 0.1 nm	1.7 µm < λ < 830 µm
HSFR	Atomic force microscopy	Digital Instruments, DI nanoscope D3100M	< 0.1 nm	8 nm < λ < 1 µm

General Terms and Remarks:
Unless otherwise explicitly quoted the following regulations do apply:
1. Final tests will be performed by above listed instruments only.
2. No metrology after coating
3. Final tests for geometry and surface quality of the specified optical surface will be:
a. conducted at Carl Zeiss SMT lab
b. performed in a stress-less position, i.e. substrate supported in Bessel points, no clamping, no special holders.
c. performed in clean environment in our lab.
4. Parts generally made of the material defined in substare material of the mirror specification data sheet only. In case of coating only the materials given in the mirror specification data sheet with the specified thicknesses will be provided. Binding layers will be provided only if explicitly stated in the mirror specification data sheet. In special cases where the use of binding layers turns out to be advantagous or necessary adding of binding layers on manufacturers and customers agreement in writing.
5. Markings are manually engraved i.e. part numbers, starts, arrows etc.
6. Manual cleaning of optical surfaces using standard optical cleaning fluids. Cleanliness inspections after smoothing and after coating. No analysis for organic material residues will be conducted.
7. Substrates will be packed and sealed by Carl Zeiss specially trained staff only:
a. Part mounted in custom made Plexiglas (PMMA) container.
b. Container is shrink-wraped in plastic bag
c. Bag and container packed with damping material (i.e. foamed plastic) in shipping board