



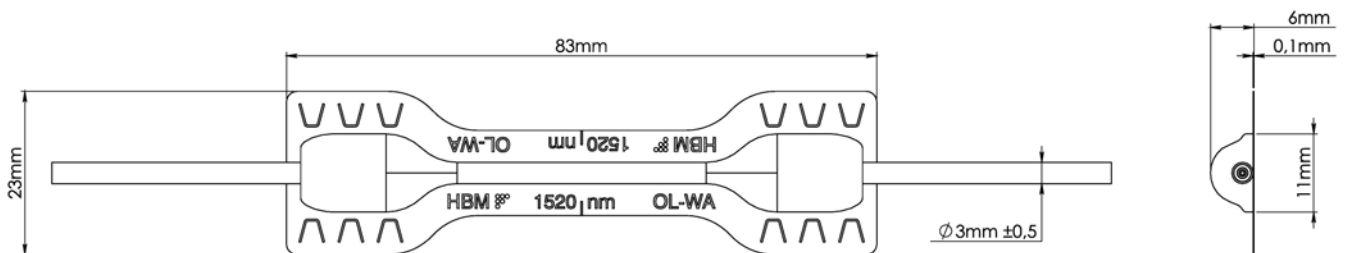
OL-WA

Weldable armored optical strain gage

Special features

- Optical strain gage, based on Fiber Bragg Gratings
- Installation by spot welding method
- Application to curved surfaces
- Application to high strain (>1%)
- Robustness of Bragg signal against mechanical disturbances
- Robust steel-armored fiber cables
- Inert against electromagnetic interference
- Applicable in explosive environment

Dimensions (in mm; 1mm = 0.03937 inches)



Specifications OL-WA

Construction		OptiMet-OMF glass fiber with Bragg grating installed on stainless steel with X120 adhesive
Core diameter of glass fiber, ca.	µm	6
Diameter of cladding, ca.	µm	125
Outer diameter of coating, ca.	µm	195
Diameter of fiber cable, ca.	mm	3.0
Thickness steel plate (material X8Cr17 , 1.4016)	mm	0.1
Dimensions		
Length	mm	83±0.1
Width	mm	23±0.1
Height	mm	6±0.1
Connector¹⁾		FC/APC
Available Bragg wavelengths	nm	1520, 1525, 1530, 1535, 1540, 1545, 1550, 1555, 1560, 1565, 1570, 1575, 1580
Tolerance of Bragg wavelength	nm	±1
k faktor		0.76
k faktor tolerance	%	±4
Maximal reflectivity	%	15
Cross sensitivity²⁾	%	0
Application temperature	°C	-40...+60
Storage temperature	°C	-40...+80
Reference temperature	°C	23
Thermal cross sensitivity (TCS)³⁾ thermal contribution of sensor to strain signal	µm/m/°C	6.6
Tolerance of thermal cross sensitivity (TCS)	µm/m/°C	±1
Maximal Strain		
Strain in positive direction	µm/m	>10,000 (1%)
Strain in negative direction	µm/m	>10,000 (1%)
Minimal bending radius⁴⁾	cm	40
Bonding method		Spot welding method ⁵⁾
Restoring force⁶⁾	$\frac{\text{N (lbf)}}{1000 \mu\text{m/m}}$	<300 (<67)

1) Steel-armored fiber cable of 20-25 cm length. Tolerable force to fiber cable during installation min. 10N (2 lbf) in an angle of 30° to the specimen surface.

2) Specified VDI/VDE/GESA 2635. A tolerance cannot be given as the traverse sensitivity is 0.

3) Thermal expansion coefficient of specimen to be added.

4) Bragg wavelength of strain FBG may change at minimal bending radius about ±1nm. Lower bending radii up to 10 cm are acceptable, but lead to much higher shifts of the Bragg wavelength.

5) Recommended spot welding device: c30 from Walter Heller GmbH (www.heller-schweisstechnik.de)

6) Estimated loading on sensor to reach a deformation of 1000 µm/m

Subject to modifications.

All product descriptions are for general information only. They are not to be understood as a guarantee of quality or durability.

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