

# OR

## Optical rosette

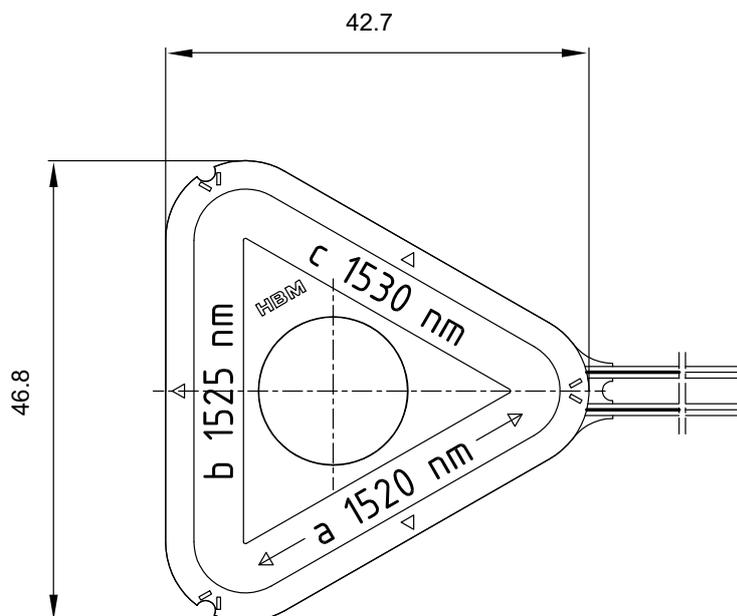
### Special features

- Optical rosette 0°/60°/120° based on fiber Bragg gratings
- Installation and evaluation like electrical strain gauges
- Suited for high strain applications ( $\pm 1\%$  deformation)
- Measurement on curved surfaces possible
- Insensitive to electromagnetic interferences
- Application in Ex-areas possible
- Lower wiring compared to electrical strain gauges
- Lower mass of glass fiber compared to standard connecting cables

Data sheet



Dimensions (in mm; 1 mm = 0.03937 inches)



## Specifications OR

<b>Design</b>		OptiMet-OMF glass fiber with Bragg gratings symmetrically embedded in modified acrylic resin, with a Bragg grating; potted in plastic material
<b>Core diameter of glass fiber, approx.</b>	µm	6
<b>Diameter of fiber cladding, approx.</b>	µm	125
<b>Outer diameter of coating, approx.</b>	µm	195
<b>Diameter with jacket, approx.</b>	mm	1.5
<b>Dimensions</b>		
<b>Length</b>	mm	42.7±1
<b>Width</b>	mm	46.8±1
<b>Thickness</b>	mm	2.0±0.5
<b>Connector (plug) <sup>1)</sup></b>		FC/APC
<b>Available Bragg wavelengths</b>	nm	Rosette 1: 1520, 1525, 1530 Rosette 2: 1535, 1540, 1545 Rosette 3: 1550, 1555, 1560 Rosette 4: 1565, 1570, 1575
<b>Bragg wavelength tolerance</b>	nm	±1
<b>k factor</b>		0.78
<b>k factor tolerance</b>	%	±2
<b>Maximum degree of reflection</b>	%	15
<b>Transverse sensitivity <sup>2)</sup></b>	%	0
<b>Reference temperature</b>	°C	23
<b>Operating temperature range</b>	°C	-10 ... +80
<b>Storage temperature range</b>	°C	-20 ... +100
<b>Thermal cross sensitivity (TCS)</b> thermal contribution of the sensor to strain signal	µm/m/°C	7.0
<b>Tolerance of thermal cross sensitivity (TCS)</b>	µm/m/°C	± 1
<b>Maximum elongation<sup>3)</sup></b> at reference temperature when using <b>Z70 adhesive</b>		
<b>Strain in positive direction</b>	µm/m	10,000 (1%)
<b>Strain in negative direction</b>	µm/m	10,000 (1%)
<b>Fatigue life <sup>3)</sup></b> at reference temperature when using <b>Z70 adhesive</b>		
<b>Achieved no. of load cycles <math>L_w</math> at</b> Alternating strain $\epsilon_w = \pm 1000 \mu\text{m/m}$ and variation of zero point $\leq 30 \mu\text{m/m}$		>>10 <sup>7</sup> (aborted after 10 <sup>7</sup> load cycles)
Alternating strain $\epsilon_w = 3000 \mu\text{m/m}$ and variation of zero point $\leq 60 \mu\text{m/m}$		>>10 <sup>7</sup> (aborted after 10 <sup>7</sup> load cycles)
<b>Fatigue life</b> at reference temperature when using <b>X280 adhesive <sup>4)</sup></b>		
<b>Achieved no. of load cycles <math>L_w</math> at</b> Alternating strain $\epsilon_w = \pm 5000 \mu\text{m/m}$ and variation of zero point $\leq 100 \mu\text{m/m}$		>>10 <sup>7</sup> (aborted after 10 <sup>7</sup> load cycles)
<b>Minimum radius of curvature, longitudinal and transverse, at reference temperature</b>	mm	25
<b>Applicable bonding materials</b> Cold curing adhesives		Z70, X60, X280

<sup>1)</sup> Spliced fiber optic cable with plug and protective cover is available as an option (length as requested by customer).

<sup>2)</sup> As per VDI/VDE/GESA 2635. A tolerance cannot be given as the transverse sensitivity is 0.

<sup>3)</sup> Determined per fiber Bragg grating.

<sup>4)</sup> Contact pressure when using X280 with optical strain gauge: 1 N/cm<sup>2</sup>

The achievable number of load cycles is dependent on the quality of installation and fatigue life of component under investigation.

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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