OR
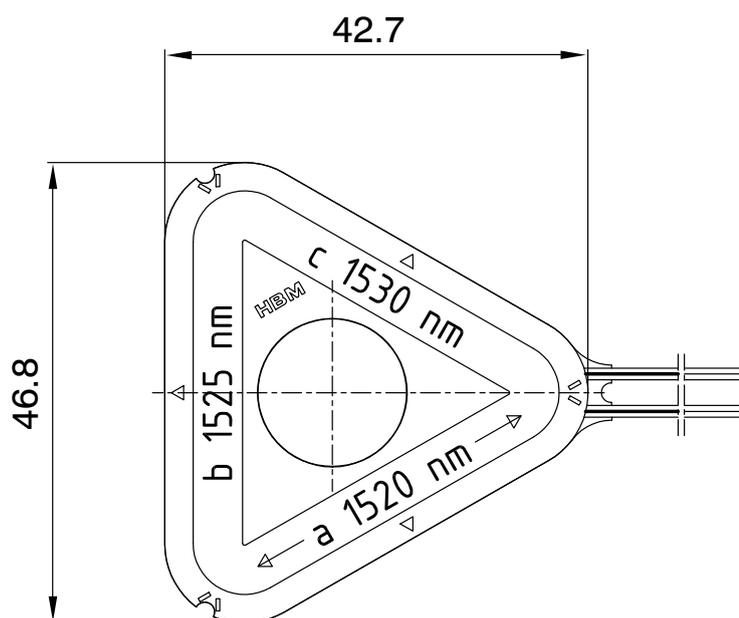
Optical Rosette

Special features

- **Optical rosette 0°/60°/120° based on fiber Bragg grating**
- **Installation and evaluation like electrical strain gages**
- **All relevant data determined and provided, e.g. gage factor**
- **Insensitive to electromagnetic interferences**
- **Application in Ex-areas possible**
- **Lower wiring outlay compared to electrical strain gages**
- **Lower mass of glass fiber compared to standard connecting cables**

Dimensions (in mm)

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Specifications

Construction		Fiberglass symmetrically embedded in modified acrylic resin, with a Bragg grating; potted in plastic material
Outside diameter of glass fiber	μm	185
Core diameter of glass fiber, approx.	μm	5
Diameter with buffer, approx.	mm	1.5
Dimensions		
Length	mm	42.7 ± 1
Width	mm	46.8 ± 1
Thickness	mm	2.0 ± 0.5
Connector (plug)[1]		FC/ACP
Available Bragg wavelengths	nm	Rosette 1: 1520, 1525, 1530
		Rosette 2: 1535, 1540, 1545
		Rosette 3: 1550, 1555, 1560
		Rosette 4: 1565, 1570, 1575
Bragg wavelength tolerance	nm	± 1
Gage factor		Approx. 0.78 (stated on the packaging)
Gage factor tolerance	%	2
Reference temperature	°C [°F]	23 [73.4]
Operating temperature range	°C [°F]	−10 ... +80 [14 ... +176]
Storage temperature range	°C [°F]	−20 ... +100 [−4 ... +212]
Temperature response (coefficient of thermal expansion of measurement object to be added)	μm/m/K	7.0
Temperature response as function of wavelength $\Delta\lambda/\lambda$ per K	ppm/K	5.5
Tolerance of temperature response	μm/m/K	1
Maximum strain[3]		
at reference temperature when using **Z70 adhesive**		
Strain in positive direction	μm/m	10.000 (1%)
Strain in negative direction	μm/m	10.000 (1%)
Fatigue life[3]		
at reference temperature when using **Z70 adhesive**		
Achieved no. of load cycles L_w at		
Alternating strain variation of zero point $\varepsilon_w = \pm 1000$ μm/m and $\Delta\varepsilon_m \le 30$ μm/m		$>>10^7$ (stopped after 10^7 load cycles)
Alternating strain variation of zero point $\varepsilon_w = \pm 3000$ μm/m and $\Delta\varepsilon_m \le 60$ μm/m		$>>10^7$ (stopped after 10^7 load cycles)
Fatigue life		
at reference temperature when using **X280 adhesive[2]**		
Achieved no. of load cycles L_w at		
Alternating strain variation of zero point $\varepsilon_w = \pm 5000$ μm/m and $\Delta\varepsilon_m \le 100$ μm/m		$>>10^7$ (stopped after 10^7 load cycles)
Minimum radius of curvature, longitudinal and transverse, at reference temperature	mm	25
Bonding material to be used cold-curing adhesives		Z70, X60, X280

[1] Spliced fiber optic cable with plug and buffer is available as an option (length as requested by customer).
[2] Contact pressure when using X280 with optical strain gage: 1 N/cm^2
Achievable number of load cycles dependent on quality of installation and fatigue life of component under investigation.
[3] Determined per fiber Bragg grating.

measure and predict with confidence

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