High-Power Reflector

HPR

Applications

- High Power Fiber Lasers
- Infrared Countermeasures
- Directed Energy
- Laser Surgery
- Astronomy
- Material Processing

Features

- Power Handling
- Highly Efficient
- Value
- Reliability
- Partnership

The HPR fiber Bragg-grating (FBG) cavity reflectors are specifically designed for high-power fiber lasers. The HPR reflectors are suitable for multi-kW lasers and are tailored to fit any fiber oscillator design.

indie's primary goal for the HPR reflectors is to reduce the cost-per-watt of high-power laser systems by enabling customers to increase the power produced by individual laser oscillators, thus reducing the number of laser cavities needed to achieve the highest power levels.

The proprietary FBG manufacturing process allows for a wide reflection bandwidth and low-loss reflectors, resulting in reduced non-linear effects and highly effective lasers.

Features Details

- **Power handling:** The efficient heat management of the HPR reflectors allows for reliable operation in multi-kW laser designs.
- **High efficiency:** By limiting component insertion loss, hence improving optical conversion efficiency, the HPR reflectors reduce overall laser system costs.
- **Value:** The HPR reflectors ensure that each laser oscillator produces optimal power, simplifying the laser system design and decreasing cost-per-watt by reducing the number of oscillators required.
- **Reliability:** Long-term dependability is critical for industrial laser systems, and indie has deployed tens of thousands of HPR units for over a decade.
- **Partnership:** indie will work through the entire product development process, from prototyping to mass production.

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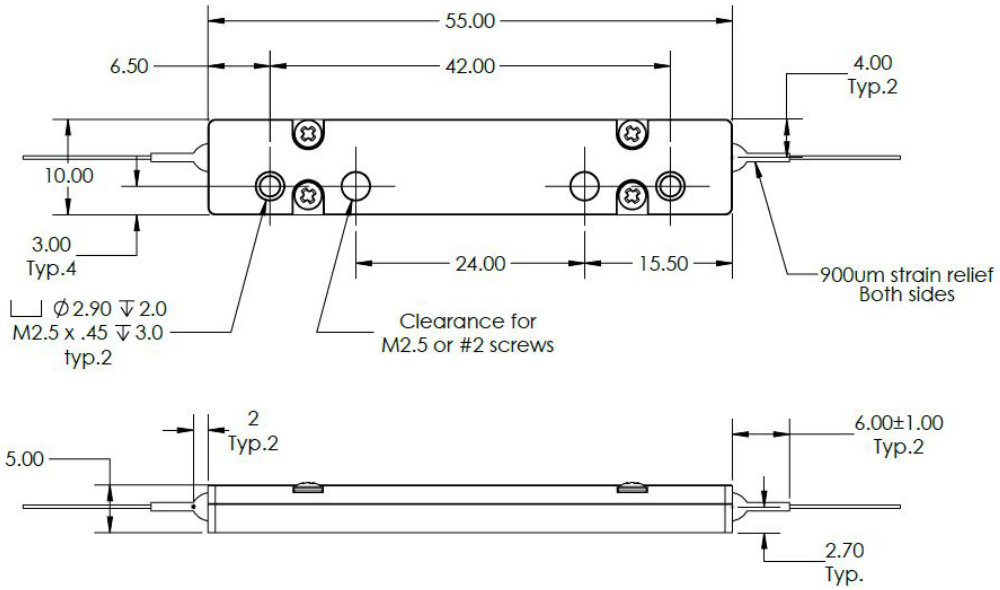
Product Dimensions



Standard Configurations Specifications

Parameters	High Reflector	Low Reflector	Units
Center wavelength at room temperature[1,2]	1060 to 1080		nm
Wavelength mismatch (low relative to high reflector)	≤0.2		nm
Reflection bandwidth	0.5 to 5.0 at 95%	0.2 to 3.0 at 50 %	nm
Reflectivity	≥99.5	6 to 50	%
Pigtail length (on each side)	1		M
Packaging	Recoated or indie's heat dissipation package		
indie's heat dissipation package cover color	Black	Gray	
RoHS compliant	Yes		

[1] Other wavelength ranges available upon request. Contact indie for more detail.

[2] Room temperature = 20 °C to 23 °C.

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Standard Fiber Types[3]

Cladding Diameter	Standard Power Handling[4]		Extended Power Handling[4]	
	Pump Power	Signal Power	Pump Power	Signal Power
125 µm	400 W	300 W	800 W	600 W
250 µm	1000 W	700 W	2000 W	1400 W
400 µm	1500 W	1100 W	3000 W	2100 W
500 µm	2500 W	1800 W	3000 W	2100 W

Use the chart below when ordering your customized item

HPR	-	X	X	x	x	x	x	.	x	-	x	.	x	x	-	x	x	.	x	-	X	x	x	/	x	x	x	X	X	-	X	x	x	x	x	-	x
		1		2							3					4					5								6	7		8		9					10	

Nomenclature Options

1	=	Grating type	7	=	Fiber type
		HR = High reflector			P = PM fiber
		OC = Output coupler (low reflector)			N = Non-PM fiber
2	=	Center wavelength (nm)	8	=	Package
3	=	Bandwidth (nm)			L = Low index acrylate
4	=	Back reflection (%)			P = Heat dissipation package
5	=	Fiber Supplier and dimensions[5] (µm)	9	=	Power handling (W)
6	=	Fiber cladding	10	=	Pigtail length (Cavity side pigtail length / outside or cavity pigtail length)
		S = Simple clad			1 = 0.5 m / 0.5 m
		D = Double clad			2 = 1.0 m / 1.0 m
		T= Triple clad			3 = 1.5 m / 1.5 m
					C = Custom

[3] Other fiber types available upon request. Contact indie for more detail.

[4] Power handling specifications are met when operating temperature is maintained between 15 °C and 40 °C.

[5] X = fiber supplier. Xx/xxx = Ø Core / Ø First cladding, If needed, please specify your preferred fiber parameters and supplier. Otherwise, indie will suggest the best option.