



Cavity Component for Fiber Laser (Forward) (HPCF Series)

Rev 11C

Description

The (6+1)×1 High Power Combiner with ClearCut Fiber Bragg Grating enables highly efficient combining of the powers from up to 6 multimode pump diodes into an FBG with low insertion loss for high power fiber lasers. With AFR's ClearCut designing and packaging, the devices can handle 3 kW pump power and 3 kW signal power.

Key Features

- Combiner and FBG Integrated
- Low Transmission Loss
- Exceptional Reliability

Applications

- Fiber Laser

Specifications

General Parameters

	Unit	Values
Operation Wavelength	nm	1080 ± 1
Max. Handling Signal Power	W	3000
Max. Signal Channel Insertion Loss (Total) ¹	dB	1.0
Storage Temperature	°C	- 40 to + 85
Operating Temperature	°C	0 to + 50
Cooling Bottom Plate Temperature	°C	≤ 25

Parameters for Combiner

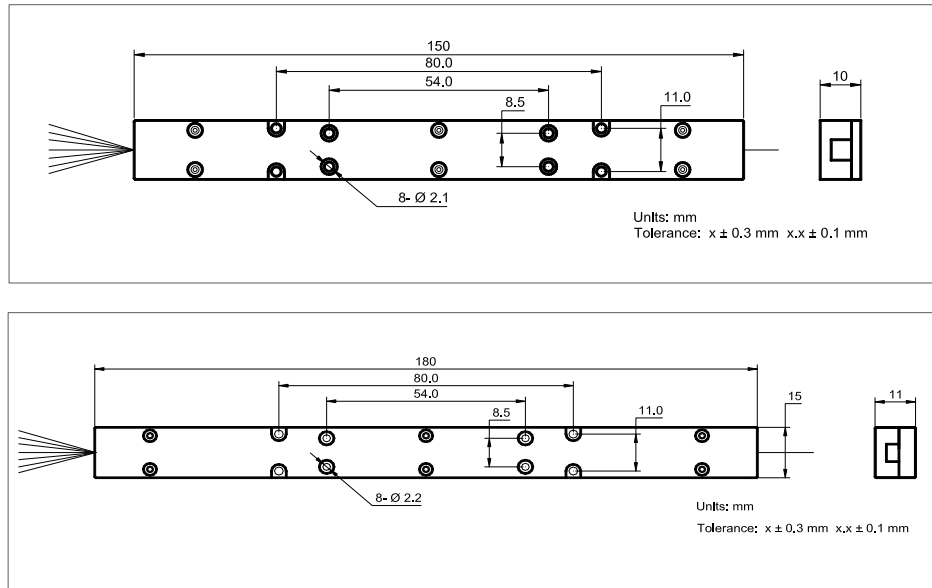
Product Type		(6+1)×1
Pump Wavelength	nm	976
Fiber Type for Input (Pump Channel)	-	BrightCore MM200/220 DCF NA0.22
Fiber Type for Input (Signal Channel)	-	Customization
Fiber Type for Output (Signal Channel)	-	20/400 DCF NA0.065
Min. Pump Efficiency	%	97
Max. Input Pump Power	W	6 × 500
Package Dimensions		
Pump Power < 3 kW	mm	150 (L) × 15 (W) × 10 (H)
Pump Power ≥ 3 kW		180 (L) × 15 (W) × 11 (H)

Parameters for FBG (HR)

Fiber Type	-	20/400 DCF NA0.065
Peak Reflectivity	%	≥ 99.0
Reflection Bandwidth at 95%	nm	1.5 - 4.0
Tolerance on Reflection Bandwidth	nm	0.1 - 0.4
Min. Side Mode Suppression Ratio	dB	20
Max. Wavelength Mismatch (OC Relative HR)	nm	0.3

¹Test with 1064 nm light source.

Package Dimensions



Ordering Information

HPCF-(6+1)×1-①①①①-②.②-③③.③-④-⑤-⑥-⑦-⑧-P⑨⑨⑨⑨

①①①①: Operation Wavelength
1080 - 1080 nm
SSSS - Specify

②.②: Reflectivity Bandwidth FBG
3.0 - 3.0 nm HR
S.S/S.S - Specify

③③.③: Peak Reflectivity of FBG
99.0 - 99.0%
SS.S - Specify

④: Length of Input Fiber (Signal)
Q - 0.75 m
1 - 1 m
S - Specify

⑤: Length of Output Fiber (Signal)
Q - 0.75 m
1 - 1 m
S - Specify

⑥: Length of Input Fiber (Pump)
Q - 0.75 m
1 - 1 m
S - Specify

⑦: Fiber Type for Input (Signal)
1 - Brightcore 20/250 DC NA0.075
2 - Brightcore 25/250 DC NA0.07
S - Specify

⑧: Fiber Type for Output
1 - Nufern LMA-GDF-20/400-HP-M NA0.065
2 - Brightcore 20/400DCF NA0.065

⑨⑨⑨⑨: Pump Power
2000 - 2000 W
3000 - 3000 W
SSSS - Specify



Cavity Component for Fiber Laser (Backward) (HPCF Series)

Rev 11C

Description

The Backward pump (6+1)×1 High Power Combiner with ClearCut Fiber Bragg Grating enables highly efficient combining of the powers from up to 6 multimode pump diodes into an FBG with low insertion loss for high power fiber lasers. With AFR's ClearCut designing and packaging, the devices can handle 3 kW pump power and 3 kW signal power.

Key Features

- Combiner and FBG Integrated
- Low Transmission Loss
- Exceptional Reliability

Applications

- Fiber Laser

Specifications

General Parameters

	Unit	Values
Operation Wavelength	nm	1080 ± 1
Max. Handling Signal Power	W	3000
Max. Signal Channel Insertion Loss (Total) ¹	dB	0.3
Storage Temperature	°C	- 40 to + 85
Operating Temperature	°C	0 to + 50
Cooling Bottom Plate Temperature	°C	≤ 25

Parameters for Combiner

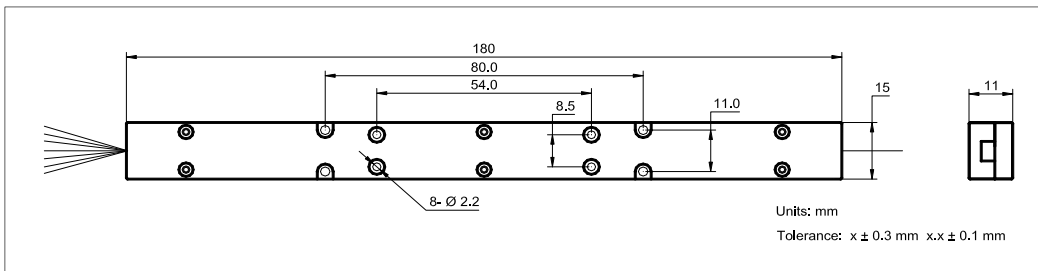
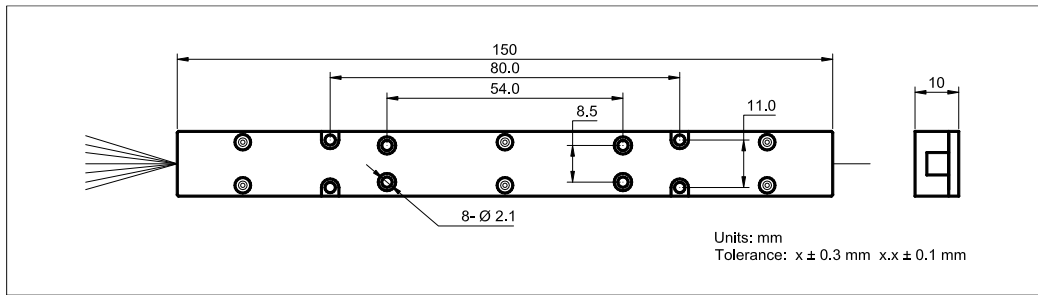
Product Type	-	Backward pump (6+1)×1
Pump Wavelength	nm	976
Fiber Type for Input (Pump Channel)	-	BrightCore MM200/220 DCF NA0.22
Fiber Type for Input (Signal Channel)	-	20/400 DCF NA0.065
Fiber Type for Output (Signal Channel)	-	Customization
Min. Pump Efficiency	%	97
Max. Input Signal Power	W	3000
Max. Input Pump Power	W	6 × 500
Max. Backward Power Handling	W	300
Package Dimensions	mm	150 (L) × 15 (W) × 10 (H) 180 (L) × 15 (W) × 11 (H)
		Pump Power < 3 kW
		Pump Power ≥ 3 kW

Parameters for FBG (OC)

Fiber Type	-	20/400 DCF NA0.065
Peak Reflectivity	%	(5.0 - 30.0) ± 2.0
Reflection Bandwidth at 50%	nm	0.2 - 2.0
Tolerance on Reflection Bandwidth	nm	0.1 - 0.2
Min. Side Mode Suppression Ratio	dB	10
Max. Wavelength Mismatch (OC Relative HR)	nm	0.3

¹Test with 1064 nm light source.

Package Dimensions



Ordering Information

HPCF-(6+1)×1-B-①①①①-②.②-③③.③-④-⑤-⑥-⑦-⑧-P⑨⑨⑨⑨

①①①①: Operation Wavelength
1080 - 1080 nm
SSSS - Specify

②.②: Reflectivity Bandwidth FBG
1.0 - 1.0 nm OC
S.S - Specify

③③.③: Peak Reflectivity of FBG
10.0 - 10.0%
SS.S - Specify

④: Length of Input Fiber (Signal)
Q - 0.75 m
1 - 1 m
S - Specify

⑤: Length of Output Fiber (Signal)
Q - 0.75 m
1 - 1 m
S - Specify

⑥: Length of Input Fiber (Pump)
Q - 0.75 m
1 - 1 m
S - Specify

⑦: Fiber Type for Input (Signal)
1 - Nufern LMA-GDF-20/400-HP-M
2 - Brightcore 20/400DCF NA0.065

⑧: Fiber Type for Output
1 - Brightcore 20/250DC NA0.075
2 - Brightcore YZ035 50/400DC NA0.12
S - Specify

⑨⑨⑨⑨: Pump Power
2000 - 2000 W
3000 - 3000 W
SSSS - Specify