



# Fiber-Coupled Laser

## FLEX I-2000

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### Features:

- Clamping™ Patented Technology (Solder free mounting of laser bars)
- Long lifetime
- High reliability
- Low thermal resistances
- Wide storage temperature - 40° C to + 85° C
- No SMILE effect

### Suitable for:

- Marking
- Polymer welding
- Direct Ho pumping

FLEX I-2000

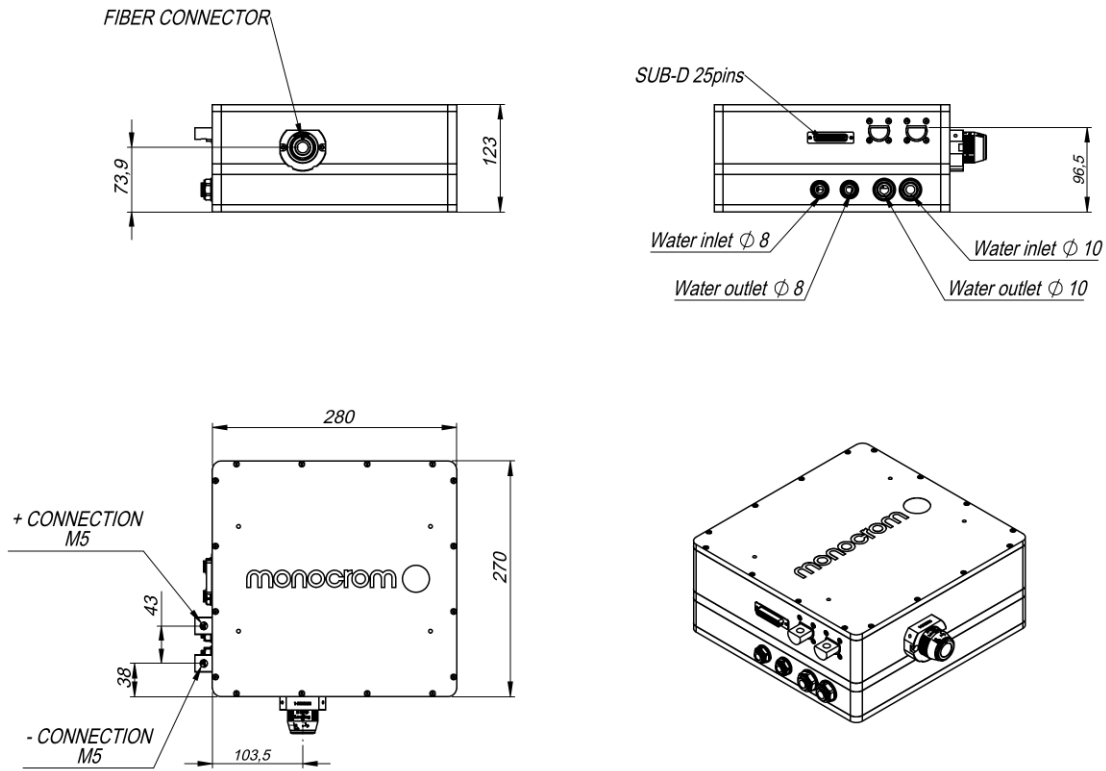
Product specification are subject to change without notice.  
For complete details, please contact your local MONOCROM Representative.

UNE EN ISO 9001:2015

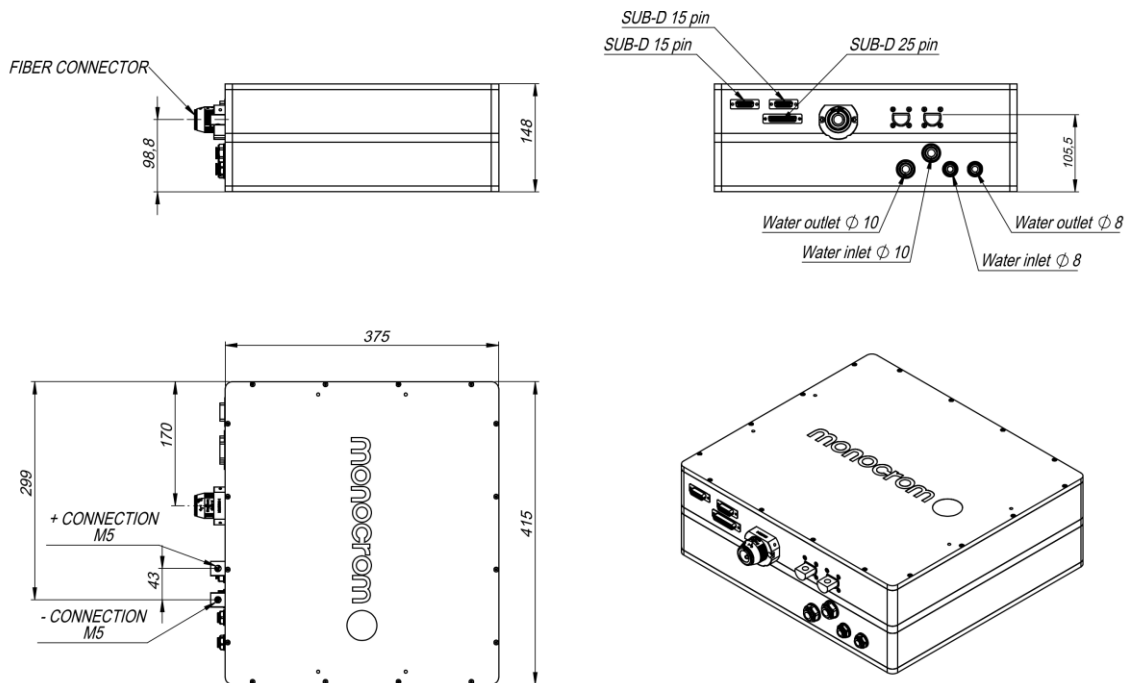
**MONOCROM S.L.**

C/Vilanoveta 6  
08800 Vilanova i la Geltrú (Barcelona)  
Spain  
T. +34 938 149 450  
F. +34 938 143 767  
E. sales@monocrom.com  
www.monocrom.com

## Monocrom FLEX I-2000 6S



## Monocrom FLEX I-2000 10S



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## FLEX I-2000 | TECH Specifications

Laser Parameters <sup>(1,2,3,4)</sup>	2S	4S	6S	10S
Wavelength <sup>(5)</sup> [nm]			2100	
Linewidth <sup>(6)</sup> [nm]		< 15		15-19
Optical power (unpolarized) [W]		35	60	105
Optical power (linearly polarized) [W]	18	32	54	95
Coupling efficiency of unpol. light to 600 / 400 µm fiber			> 95% / > 90%	
Repetition rate <sup>(7)</sup>			CW – 10 kHz	
Pulse width <sup>(7)</sup>			50 µs – CW	
Power stability			< 1% @ 8 h	
Pulse to pulse stability			< 1% rms	
<b>Optics</b>				
Operating voltage <sup>(8)</sup> [V]	< 5	< 9	< 18	< 35
Threshold current [A]			< 9	
Operating current [A]			< 85	
Divergence without fiber <sup>(9)</sup> [mrad]			10 (FA) / 15 (SA)	
Beam size without fiber [mm × mm]			12 × 6	
Fiber connector type <sup>(10)</sup>			HP-SMA-905   D80   QBH	
Beam quality BPP <sup>(11)</sup> @ 400 µm [mm mrad]			44	
Beam quality BPP <sup>(11)</sup> @ 600 µm [mm mrad]			67	
Pointing stability @ fixed power [µrad]			± 50	
<b>Operating Parameters<sup>(12)</sup></b>				
Coolant flow [l/min]	1.2	2.5	5	10
Coolant pressure [bar]			< 3.5 bar	
Coolant temperature [°C]			20 – 25	
Recommended coolant			90% DI water + 10% ethylene glycol	
Warm up time [min]			< 2	
Operating temperature [°C]			non-condensing – 55	
<b>Body</b>				
Electrical connections	Series 702 Binder		SUB-D-25	2x SUB-D-15 SUB-D-25
Driver electronics			external 19-inch rack mount	
Weight [kg]	< 0.5	< 5	< 15	< 25
Laser head dimensions (L × W × H) [mm <sup>3</sup> ]	125× 52× 52	140× 250× 123	280× 270× 123	415× 375× 148
Laser class product (EN-60825)			4	
Expected lifetime [h]			20000	

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1. This is a preliminary specification sheet; validation of specification is in process.
2. If any other requirements are needed, please contact us.
3. Specifications at 20 °C, at the beginning of the lifetime.
4. Specifications are subjected to chips availability.
5. Other centre wavelengths on request. Everything between 1900 nm and 2400 nm will have very similar properties.
6. Measured at FWHM.
7. Values depend on power supply and driver electronics chosen.
8. Voltage from the power supply must be higher, as due to high current there will be a voltage drop in the cables.
9. Measured at FW95% energy.
10. Other fiber connectors available on request.
11. Determined by taking  $1\sigma$  values and under assumption of a NA = 0.22 fiber.
12. Values related to coolant properties are recommendations. External chiller is needed.

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