cailabs | Industrial Laser Processing

CANUNDA-USP PureBeam High Power

SPECIFICATIONS

Stable beam. Stable process. Stable production.

Features

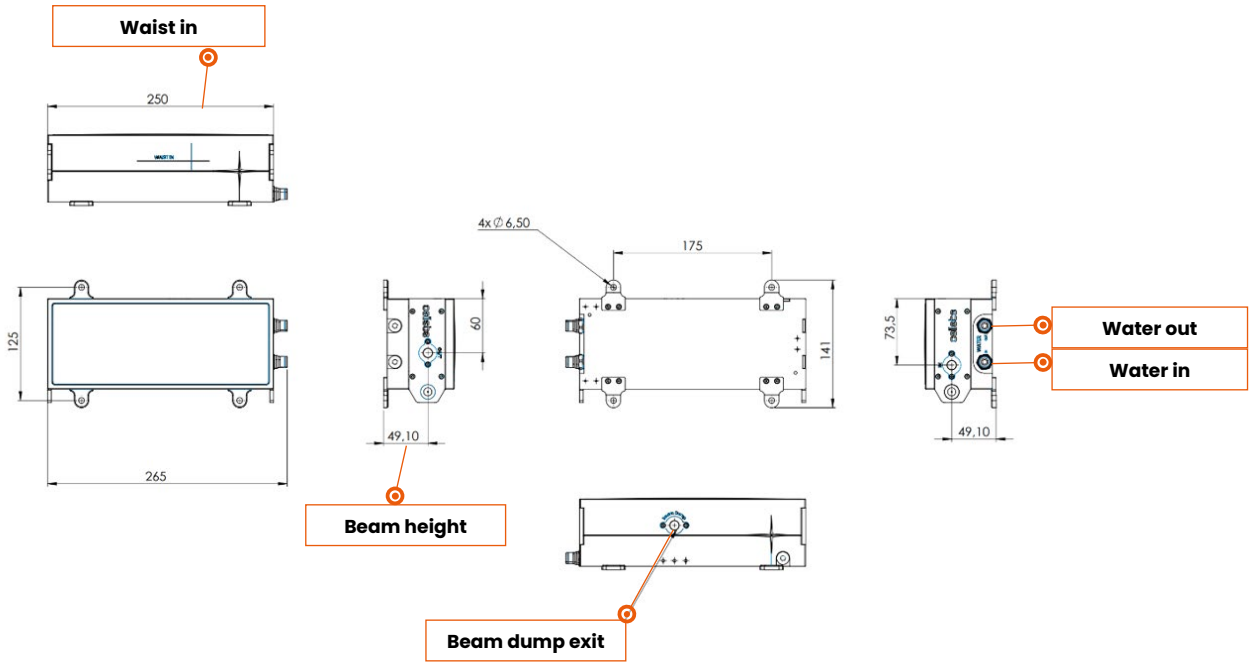
- **Passive stabilization**: fully passive architecture with no sensors, actuators, or control loops, ensuring instantaneous stabilization with no latency.
- **Clean Gaussian beam:** regardless of input beam imperfections (ellipticity, astigmatism...), only the Gaussian mode is transmitted for repeatable processing.
- **3d stability:** whatever the input (tilt, shift, defocus...) the output is perfectly stable in position, angle, and beam quality.
- **Industrial USP compatibility:** designed for ultrafast industrial operation, with pulse durations down to ~300 fs and performance up to 150 W average power /500 µJ pulse energy.

CANUNDA-USP PureBeam High-Power is a a passive beam stabilization module developed by Cailabs. Integrated in a compact 25 × 12.5 × 6.4 cm format, it delivers a clean and stable beam over time, even at high power. Positioned after the laser and before the scanner or process plane, it is designed to improve beam robustness and support repeatable industrial processing integration.

General specifications

Parameter	Value	Comment
Input beam		
Wavelength	1030 nm ± 10 nm	
Beam diameter	3.0 mm ± 10%	Measured at 1/e² at the nominal waist position (see mechanical drawings). Transmission will be lower if diameter is not matched.
M²	< 1.3	
Average power	< 150 W	Contact Cailabs if more average power is needed
Pulse duration	> 300 fs	Contact Cailabs if shorter pulse duration is needed
Energy per pulse	< 500 µJ @ 300 fs	Contact Cailabs if more energy is needed. Higher energy may be handled for longer pulse duration (e.g. < 1 mJ for 1 ps), contact Cailabs for more details.
Output beam		
Shape	Gaussian	Contact Cailabs if top-hat shaping is needed
Transmission	> 90%	For TEM00 input with nominal beam diameter. > 85% typical for industrial femtosecond lasers.
Beam diameter	Between 1.5 mm and 3.0 mm	Measured at 1/e² at the nominal waist position
Interfacing		
Water-cooling	Needed >1.5 L/min, ±0.5°C	Chiller not provided
Beam dump	Needed	Not provided, see mechanical drawings
Dimensions	265x130x70 mm	See mechanical drawings

Mechanical drawings:



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