aeroGAIN

BASE 1.2

High-power ytterbium fiber gain module

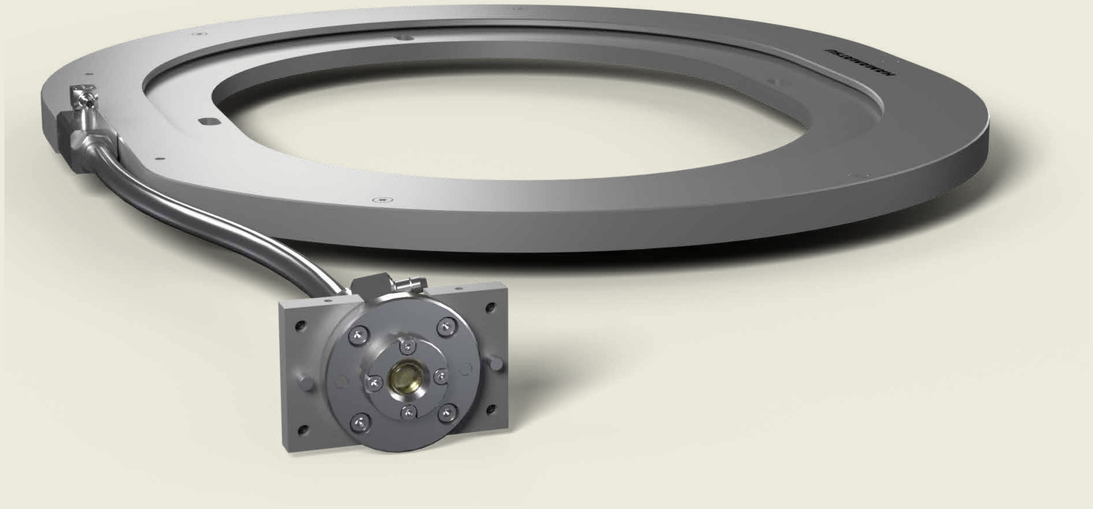
HAMAMATSU

High-performance gain module

Ideal for manufacturing of pulsed fiber lasers

The aeroGAIN-BASE 1.2 is a high-performance ytterbium fiber gain module designed for industrial manufacturers of pulsed fiber lasers.

The aeroGAIN-BASE 1.2 provides laser beams with high spectral and spatial brightness. It is also suited as an easy entry into high-power scientific setups.



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Applications

Ultrafast fiber lasers

Benefits

Large single-mode mode field diameter
The gain medium is our world-renowned DC-200/40-PZ-Yb fiber providing the largest single-mode MFD in the industry.

Thermal management ensures high performance
The gain fiber is heatsinked to the aluminum base-plate that can be clamped to e.g. a water chilled plate or an air-cooled heat sink.

For optimal performance, the aeroGAIN-BASE 1.2 is designed for counter propagating pumping through the output endcap.

The endcap and the last part of the gain fiber is mounted in a water cooled housing to ensure maximum performance and lifetime.

Standard step-index input fiber
The module is equipped with a 10 µm or 15 µm step-index standard single-mode fiber input that can easily be spliced to a seed source.

Mode expansion and reduced reflections
The output end of the module is equipped with a large AR coated endcap that provides mode expansion and reduces reflections. Excess pump light is removed by the integrated residual pump dump.

Proven reliability and long lifetime
The aeroGAIN-BASE design has a proven 24/7 industrial reliability through a significant number of long-term tests including continuous 25,000 hours operation at 55 W output power.

The design has been subjected to extensive HASS testing.

Modules are mounted on a tooling plate for secure transportation. This tooling plate can also be used as a mount in the laboratory

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Features

Truly single-mode polarization maintaining system
10 µm or 15 µm step-index fiber input
Excellent pointing stability
Easy thermal management
Robust industrial construction
Long lifetime

Specifications

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Optical

Seed input	
Recommended signal wavelength [nm]	1030 - 1040
Recommended signal input power [mW]	> 500 for high power operation
Recommended pulse duration	fs, ps or ns pulses shorter than 2 ns
Optional signal input fiber	10 µm PM core 125 µm/250 µm or 15 µm PM core 250 µm/350 µm
Signal output	
Signal gain [dB]	≤ 20 (max 75 W out)
Signal average power [W]	≤ 75
Beam quality [1]	$M^2 \leq 1.3$
Mode-field diameter, 1/e² [µm]	31 ± 2
PER [1] [dB]	≥ 15
Typical optical efficiency [1] [%]	> 70
Typical core to cladding ratio [1] [%]	> 96

Pump input	
Pump center wavelength [nm]	976 ± 2
Maximum pump power [W]	100 @ fiber facet
Pump cladding diameter [µm]	200 ± 2
Pump cladding NA (FWHM @ 950 nm)	≥ 0.55
Recommended pump coupling beam waist [µm]	≤ 160

[1] Evaluated with 1.5 W input power at 1030 nm and ≈ 75 W output power.

Please also refer to "aeroGAIN BASE 1.2 Handling Instructions" on our website for important information regarding proper use of the product.

Specifications

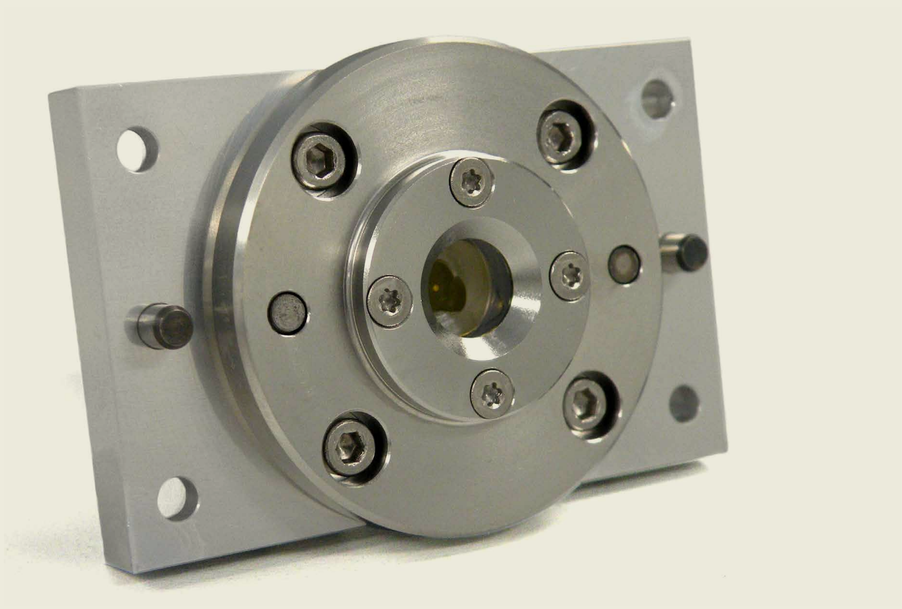
Mechanical

Base plate dimensions [1] [mm]	See drawing
Weight, excl. tooling plate [kg]	1.8
Length of input pigtail [m]	1
Output end facet angle [°]	0
Endcap length [mm]	6
Endcap diameter [2] [mm]	7

Water cooling

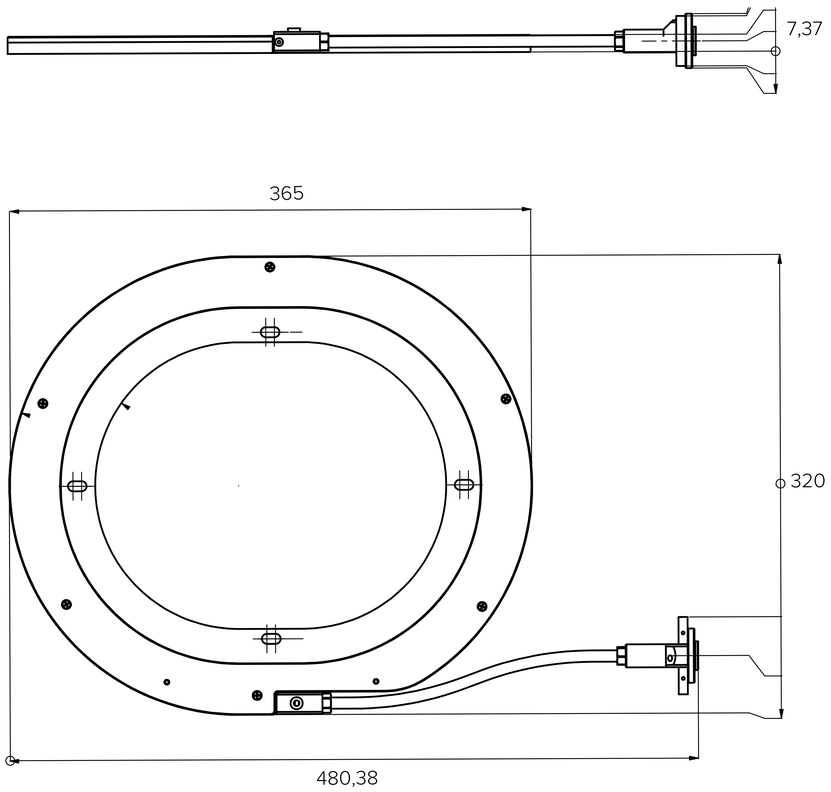
Cooling flow for base [liter/minute]	4 ± 2
Cooling flow in the tube [liter/minute]	0.2 - 0.5
Cooling water temperature [°C]	25 ± 5
Max temperature of base-plate [°C]	35

[1] The system is shipped on a larger tooling plate that can be used for mounting the module during test.
[2] Open aperture



Output endcap fixture

Technical Drawings



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All Hamamatsu Photonics A/S products are produced under our quality management system certified in accordance with the ISO 9001:2015 standard.

We're switching from NKT Photonics to Hamamatsu. Some documents and products still say NKT Photonics, others say Hamamatsu. The transition takes time, so please bear with us.

And rest assured, we're still the same people delivering the same high-quality fibers and lasers.

FORCE Certification
Systemcertificering
DS/EN ISO 9001 - Kvalitet

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