

OPIPHOTONICS

HIGH-POWER LASER DIODES



BrighteX Line
Fiber coupled
laser diodes



BrightboX Line
Laser diode
systems



High-Power
Laser Switch
and Coupler



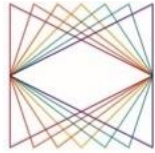
High-Power
Laser Collimator
and Optics

HIGH-POWER LASER BEAM DELIVERY SYSTEMS



OPIPHOTONICS

LASER BEAM COLLIMATOR



OPIPHOTONICS

LASER BEAM COLLIMATOR

FOR FIBER AND DIRECT DIODE LASERS



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OPI Photonics S.R.L.

<i>Registered Office</i>	<i>Operational Headquarters</i>
Via Conte Rosso 3 10121 Torino, Italy	Via Giovanni Schiaparelli 14 10148 Torino, Italy

Phone: +39 011 297 44 76
E-mail: info@opiphotonics.com
Web: www.opiphotonics.com

1 General overview

Application

- Material processing
- Industrial field

Input sources

- Fiber laser
- Direct diode laser

Features

- Up to 10 kW
- Pre-aligned and ready to use
- High-quality fused silica lenses
- Water cooled

Functionality

- OPI laser beam collimator transforms divergent high-power laser light from an optical fiber cable into a collimated beam

2 Specifications:

2.1 Fiber laser sources

	Parameter	Unit	Typical
Optical characteristics	Maximum power	kW	8
	Wavelength range	nm	1030÷1090
	Lens diameter	m	25 or 50
	Lens material	-	High-Quality Fused Silica
	Typical power loss	%	<5

2.2 Direct diode laser sources

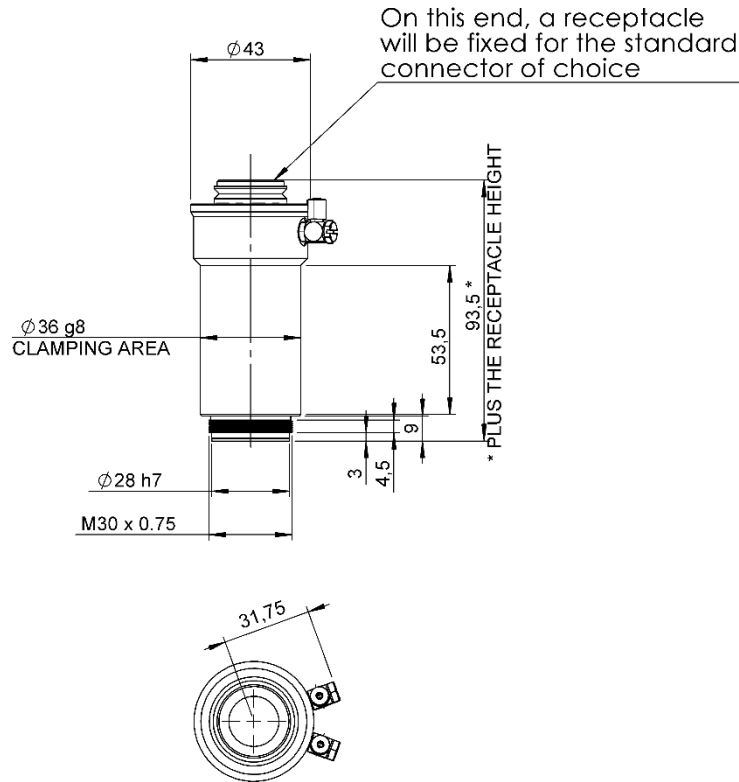
	Parameter	Unit	Typical
Optical characteristics	Maximum power	kW	10
	Wavelength range	nm	800÷1100
	Lens diameter	mm	25 or 50
	Lens material	-	High-Quality Fused Silica
	Typical power loss	%	<5

2.3 General specifications

	Parameter	Unit	Typical
Maximum ratings	Operating temperature	°C	10÷50
	Relative humidity	%	<80
	Storage temperature	°C	-20÷70
	Maximum ambient variation	°C	±10
Cooling requirements	Minimum water flow	l/min	1.5
	Typical water flow	l/min	2
	Maximum pressure	bar	3
	Water temperature	°C	20÷35 (above dew point)
	Water quality	-	Tap or demineralized water
	Water pipe ID/OD	mm	4/6

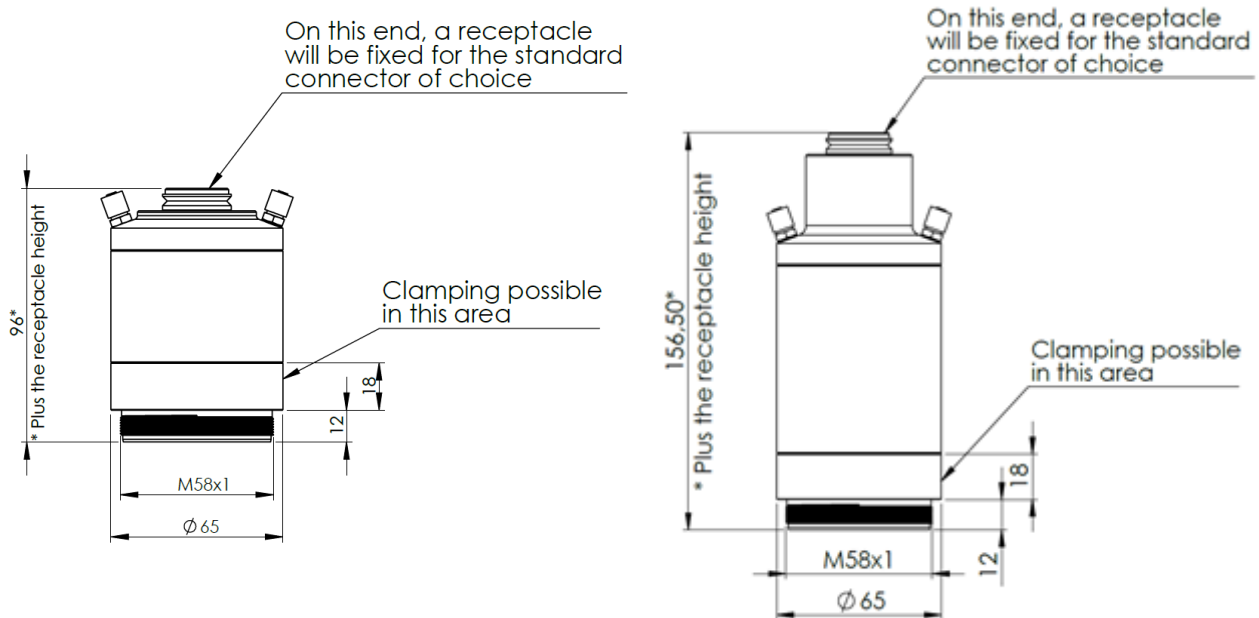
3 Technical drawings

3.1 25mm diameter collimator



All dimensions are in millimetres.

3.2 50mm diameter collimator



For focal length up to 60mm

For focal length greater than 60mm

All dimensions are in millimetres.

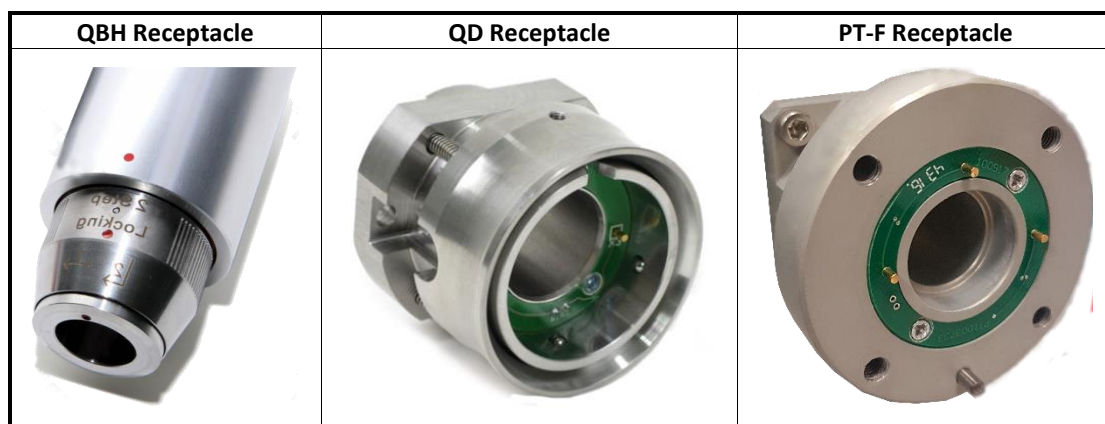
4 Optical configurations

	Design focal length (mm)	Maximum NA	Lens diameter (mm)	EFL at 1064nm (mm)
Fiber Laser	50	0.2	25	50 ($\pm 0.5\%$)
	60	0.18	25	60 ($\pm 0.5\%$)
	75	0.15	25	75 ($\pm 0.5\%$)
	80	0.14	25	80 ($\pm 0.5\%$)
	120	0.18	50	120 ($\pm 0.5\%$)
	150	0.15	50	153 ($\pm 0.5\%$)
	200	0.11	50	200 ($\pm 0.5\%$)
	250	0.09	50	250 ($\pm 0.5\%$)

	Design focal length (mm)	Maximum NA	Lens diameter (mm)	EFL at 920nm (mm)
Direct Diode Laser	40	0.22	25	38.5 ($\pm 0.5\%$)
	50	0.22	50	49,7 ($\pm 0.5\%$)
	60	0.22	50	59 ($\pm 0.5\%$)
	80	0.22	50	87,3 ($\pm 0.5\%$)
	100	0.22	50	97,2 ($\pm 0.5\%$)

5 Receptacle configurations

The laser beam switch can be equipped with several types of fiber receptacle, starting from the most diffuse QBH and QD coming to the new PT-F. One example of each receptacle is shown in the table below.



6 Customization

The laser beam collimator for fiber and direct diode lasers is conceived as a standard product with some possible customizations.

Minor customizations are available on the standard part numbers and are tracked by the “OO” suffix in the extended part number.

The customizations will change the components used inside the device:

- Design focal length (“X” field of the extended part number)
- Lens diameter (“Y” field of the extended part number)
- Input receptacle (“Z” field of the extended part number)
- Wavelength range (“A” field of the extended part number)

Major customization is possible only on specific request and after feasibility evaluation.

7 Ordering information

Extended part number: CLM-X-Y-Z-A-OO

Part number data:

- Design focal length – X:
 - 40
 - 50
 - 60
 - 75
 - 80
 - 100
 - 120
 - 150
 - 200
 - 250
- Lens diameter – Y:
 - 25
 - 50
- Input receptacle – Z:
 - QBH
 - QD
 - PT-F
- Co Wavelength range – A:
 - FL – Fiber Laser
 - DL – Direct Diode Laser



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