

II-VI



## Laser Processing Head **BIMO**

### **HIGH PERFORMANCE ON BEST FOCUS**

The robust modular design masters the optical requirements for all common fiber coupled laser light sources, from the diode laser to the disc and fiber laser. It also permits safe and simple operation in a 24/7 production environment. Thus, the flexible, modular system of the BIMO laser processing head forms the basis for most tasks in laser-based material processing. The processing head can be configured in individual and modular ways. This includes simple tasks, like focusing the laser light onto the workpiece, as well as configuration of the entire turnkey subsystem of the laser processing head inside the laser cell. In the most advanced stage of expansion, the processing head provides, in addition to process-relevant components, all accessories necessary for the integration into an automated production cycle. These include the proven modules for media guiding via a cable management system and the EPS electric-pneumatic installation system as interface with the system PLC and the media supplies.

# Laser Processing Heads BIMO

## Modules

### The Precision Modules of BIMO

#### Focusing



Laser light cable receiver  
LLK Auto

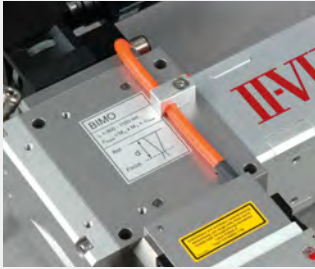


Collimation module



Focusing module

#### Optical Extensions



Process monitoring module for  
CCTV-viewing and/or 90° beam  
bending



Variable double focus forming  
module VDFM

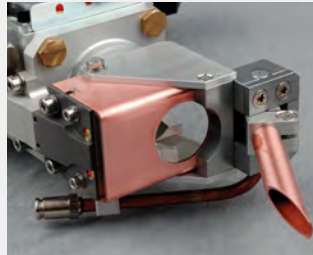


HP module for lasers with more  
than 6 kW average power

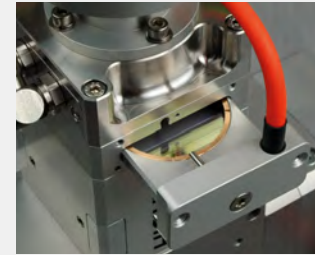
#### Protection



Cover slide drawer and cover  
slide monitoring



Cross jet and shielding gas  
module



Cover slide for additional  
protection of collimation

#### Accessories



CCTV-viewing with imaging  
optics, CCD camera and  
integrated illumination

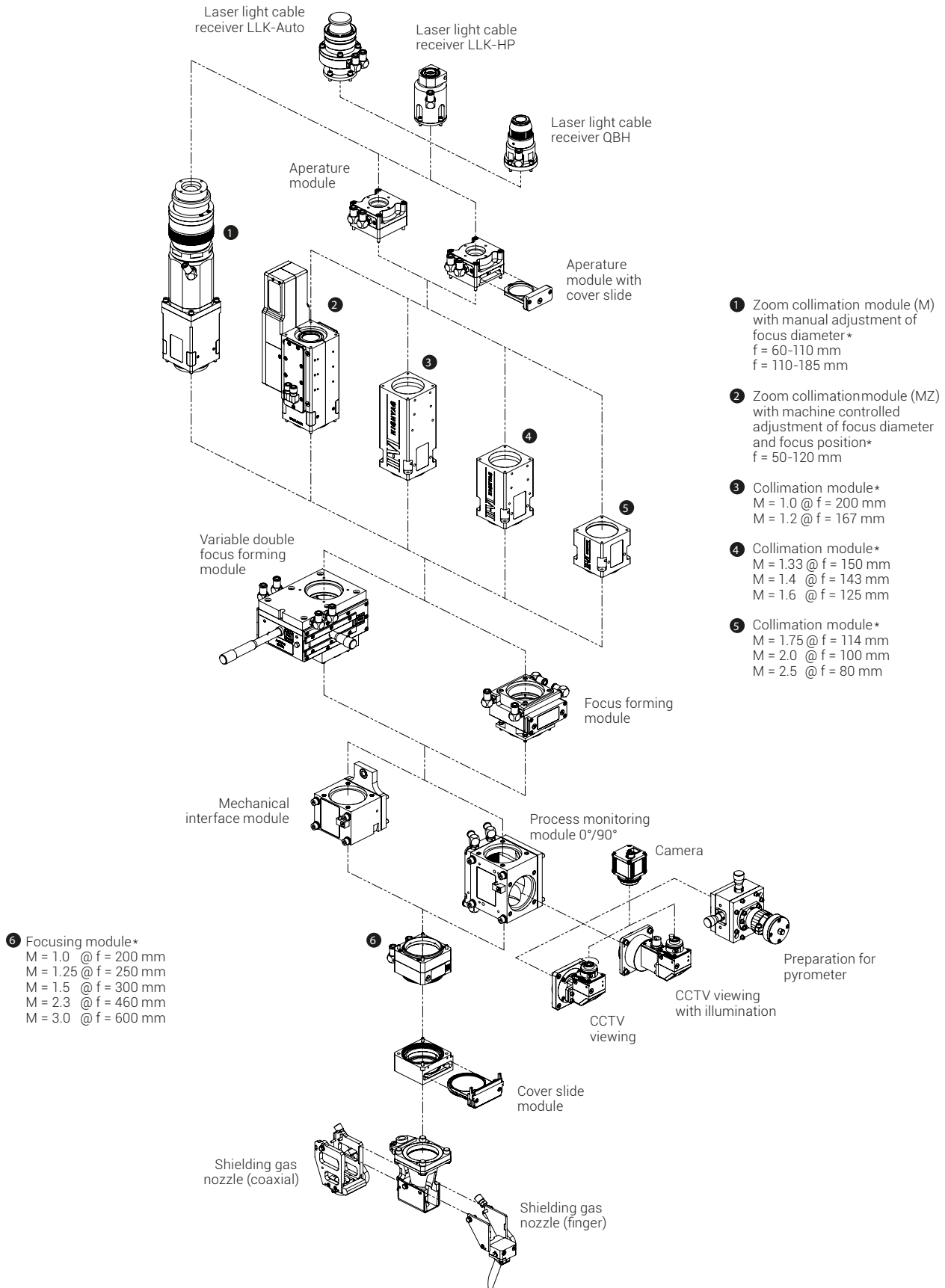


Wave length compensation  
insert



Laser power meter module  
(LPM) as insert in cover slide  
cartridge receptacle

# Laser Processing Heads BIMO



\* Others on request, not all available for diode lasers

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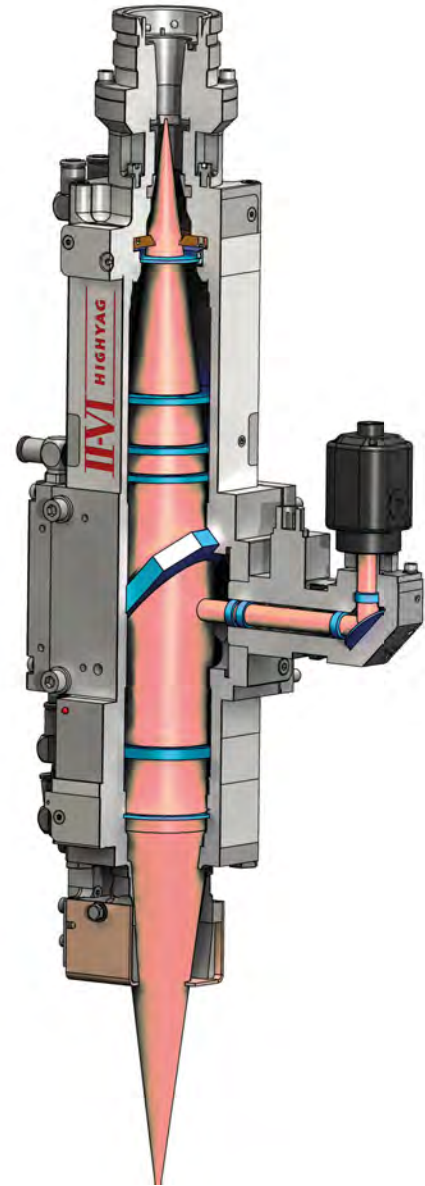
## Optical System

### Being Perfectly Focused

With the modular optical system of the BIMO laser processing head HIGHYAG managed to satisfy the requirements of focusing single mode and 20 kW laser radiation in uncompromising ways. The BIMO laser processing head focuses the respective potential of laser devices of the types diode laser, fiber laser and disc laser onto the workpiece for optimal effect, as defined by the user.

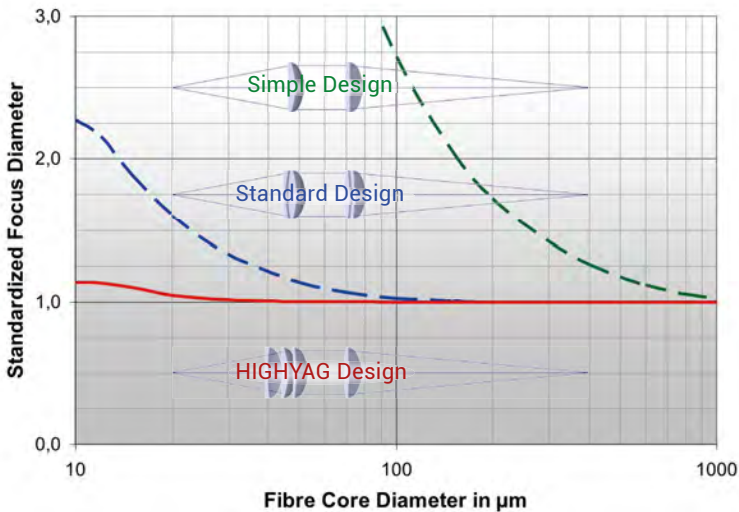
The BIMO laser processing head provides optimal preservation of the laser's beam quality. It also permits flexible deployment of modules for beam shaping and process monitoring.

Additional process optimization is possible with focus forming modules that enable a variable energy distribution at the work piece.

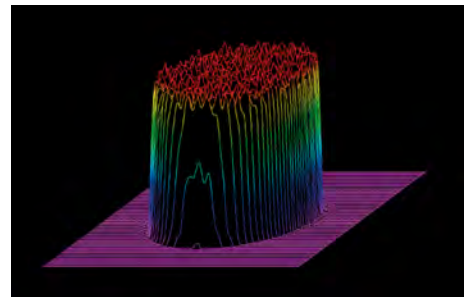


Performance of Different Focus Heads

Numerical Aperture = 0,11 (86% Power Content), Magnification = 2



Plot of a Focus with 300 µm Diameter.



# Laser Processing Heads BIMO

## Technical Data

### Optical System

Focusing system (magnification @ focal length)	1.0 @ 200 mm, 1.25 @ 250 mm, 1.5 @ 300 mm, 2.3 @ 460 mm, 3.0 @ 600 mm, *, **
Collimation system (magnification @ focal length)	1.0 @ 200 mm, 1.2 @ 167 mm, 1.33 @ 150 mm, 1.4 @ 143 mm, 1.6 @ 125 mm, 1.75 @ 114 mm, 2.0 @ 100 mm, 2.5 @ 80 mm, zoom collimation (MZ) with focal length 50 -120 mm, zoom collimation (M) with focal length 60-110 mm or 110-185 mm, *, **
Max. laser power	Average 6 kW (optional 20 kW), peak 200 kW
Max. beam parameter acceptance (half angle)	97% power content within 125 or 240 mrad (depending on collimation system)
Wavelength	$\lambda=900 - 1060$ nm (e.g. for diode lasers); $\lambda=1025 - 1080$ nm (e.g. for YAG, fibre and disc lasers), *
Transmission	> 97 % @ $\lambda=1064$ nm
Core diameter laser light cable	10 - 1000 $\mu\text{m}$ (typical)
Laser light cable receiver	HIGHYAG LLK-HP, LLK-Auto, LLK-B, LLK-D, QBH, *

### CCTV-Viewing

Interface CCTV viewing	C-Mount
Optional camera system	Ethernet, *

### Dimensions

W x D x H, examples:	
• BIMO G	Approx. 210 x 95 x 580 mm
• BIMO W	Approx. 350 x 95 x 450 mm
Weight:	
• BIMO G	Approx. 3,6 kg
• BIMO W	Approx. 4,4 kg

### Supply

Electrical	DC 24 V, 2,5 A, *
Pneumatics	$\leq 1.0$ MPa Cross jet: 1.0 MPa, approx. 500 l/min @ 0.6 MPa
Shielding gas	On request, approx. 5 - 40 l/min, 0.6 MPa
Cooling	Flow rate 2 l/min, temperature 15 - 35 °C (avoiding condensation)
PLC / field bus system	Hard wired, Interbus, Profi bus, DeviceNet, *

\* Others on request, \*\* Not all available for diode lasers