

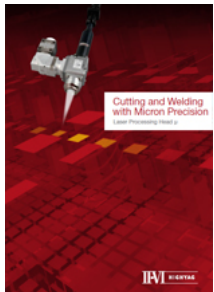
Laser Processing Head μ

**Laser Processing Head μ
Cutting and Welding with Micron Precision**

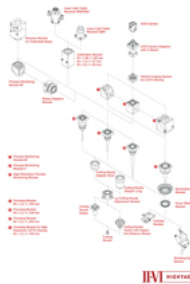
Micro laser material processing is playing an increasingly important role in flexible manufacturing. For innovative laser beam sources, including diode lasers as well as disc and fiber lasers, possible deployment scenarios are constantly expanding.

The flexible modular II-VI HIGHYAG μ laser processing head develops the full potential of laser systems in the various job scenarios in micro laser processing. Apart from cutting in the single mode in order to take kerfs with a cut width of a few μm , the processing head can also be deployed in alternative optical configurations for plastic welding with foci in the mm range. For custom applications, process-supporting modules are available, such as cutting and shield gas nozzles for welding. Process monitoring modules are designed for process monitoring and set-up. When it comes to the combination of systems for image recognition and seam detection, optical interfaces are available that permit the imaging of the processed spot with a local resolution in the μm range. The modular system permits a universal mechanical integration of the head in laser processing facilities using the most diverse geometric parameters.

In a word: The HIGHYAG μ laser processing head will set you up for any job involving micro laser material processing.



PDF Brochure »



Modular System »



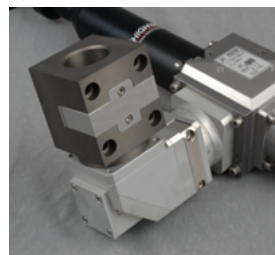
| Function | Details | Technical Data |
|----------|---------|----------------|
|----------|---------|----------------|

Laser Processing Head μ Modules and Details

The optical system of the μ laser processing head is designed to meet the requirements of micro laser material processing, including the following options:



Laser light cable receiver HIGHYAG
Adapting all common laser types for micro laser material processing, including fiber, solid-state and diode lasers from single mode to multi mode beam quality.



Laser light cable receiver for collimated laser beams Connecting the laser directly from the collimated beam or via standard industrial LLK connectors.

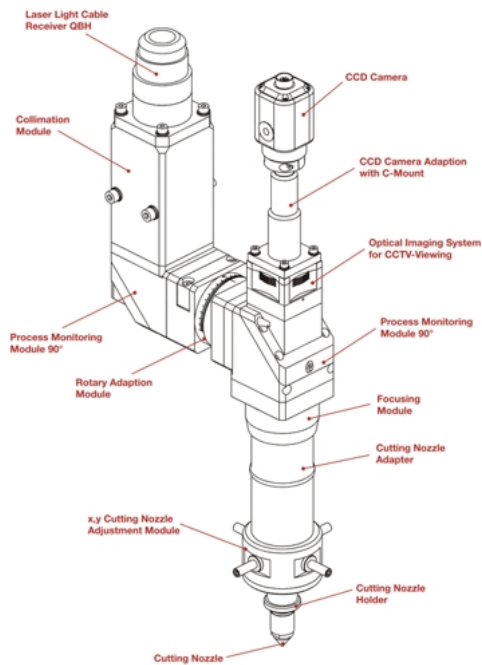


Cutting nozzle with capacitive distance sensor
Using modularity for focusing the laser beam according to custom laser application requirements. Including focus diameter with the precision of just a few μm for precision cutting tasks and larger focus diameters for plastic processing.



CCTV-viewing with imaging optics, CCD camera and integrated illumination
Optionally, the μ laser processing head provides special modules for process monitoring

Laser Processing Head μ Structure



Laser Processing Head μ Technical Data

Optical System

| | |
|--|---|
| Focusing system (magnification @ focal length) | 1.0 @ 100 mm, 1.6 @ 160 mm, * |
| Collimation system (magnification @ focal length) | 1.25 @ 80 mm, 1.5 @ 67 mm, 2.0 @ 50 mm, * |
| Max. laser power | average 250 W, peak 50 kW |
| Max. beam parameter acceptance (half angle) of laser light exiting fiber | 97 % power content within 125 or 210 mrad (depending on collimation system) |
| Wavelength | 900 - 1060 nm (e.g. for diode lasers) 1025 - 1080 nm (e.g. for YAG, fiber and disc lasers) * |
| Transmission | > 97 % |
| Core diameter laser light cable | 10 - 1000 μm (typical) |
| Laser light cable receiver | HIGHYAG LLK, HIGHYAG LLK-LP, LLK-Auto, LLK-B, QBH, IPG collimated beam connectors, * |

Cutting nozzle (optional)

| | |
|--------------------------------|-----------------------------|
| Diameter | 0.2 - 0.8 mm * |
| x,y adjustment | +/- 1.5 mm |
| Focus to nozzle position range | +/- 5.0 mm, others optional |
| Pressure cutting gas | <= 2.0 MPa |

Height sensing (optional)

| | |
|---------------|-----------------------|
| Range | 0 - 20 mm |
| Output signal | 0 - 10 V for distance |
| Response time | < 1 msec |

CCTV-viewing

| | |
|------------------------|------------|
| Magnification | 0.5 : 1 * |
| Video system | CCIR |
| Interface CCTV-viewing | C-Mount, * |

Dimensions

| | |
|------------------|---|
| Size (W x D x H) | Approx. 80 x 172 x 431 mm |
| Weight | Approx. 1.0 - 2.5 kg (depending on configuration) |

Supply

| | |
|---------------|---|
| Electric | DC 24 V, 2.5 A * |
| Pneumatics | 1.0 MPa Cross Jet: 1.0 MPa, approx. 500l/min @ 0.6 MPa |
| Shielding gas | On request, approx. 5 - 40 l/min, 0.6 MPa |

| | |
|------------------------|---------------|
| Cooling | Optional |
| PLC / field bus system | Hard wired, * |

Subject to change without prior notice
* Others on request



▶ [Link to II-VI corporate website](#)