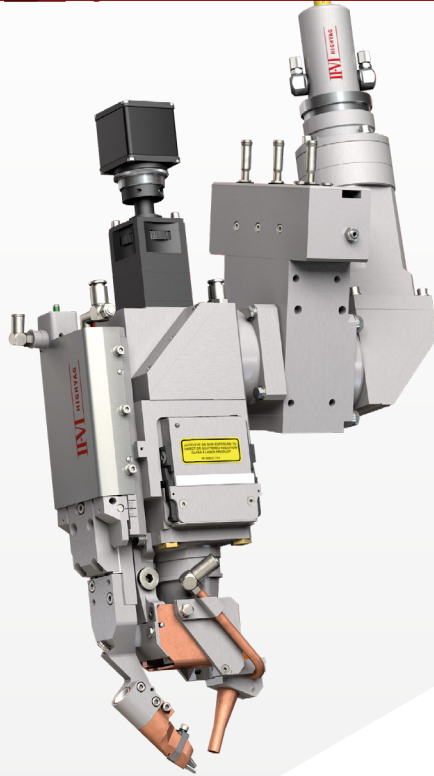


II-VI



## Laser Processing Heads

# PDT-B

### EFFICIENT AND SIMPLE PRECISION

Today, lasers are not the cost determining factor in a laser application and a laser system installation. The efficiency of modern diode, fiber and disc lasers has shifted the cost contribution to the accessories and the system integration. The new laser processing head PDT-B follows the laser's exemplary trend by providing the essential seam tracking and auto focus functions using an unmatched cost-effective design.

One of the most important requirements of the laser application is to locate the focus of the laser beam precisely at the defined seam position. The patented technology of the laser processing head PDT-B handles this task in an amazingly simple manner. A tactile sensor which is directly located in front of the laser focus controls the lateral and vertical beam position and therefore guarantees the correct position on the workpiece.

# Laser Processing Heads PDT-B

## Target-Oriented, Uncomplicated and Versatile

The seam tracking module controls the lateral seam tracking. In order to do so the PDT-B uses a very cost effective spring loaded and pneumatically controlled mechanism.

### System Features

#### Integrated tactile seam tracking

- Guided by a spring-loaded tactile sensor
- Autofocus module

#### Optimized modular optical systems

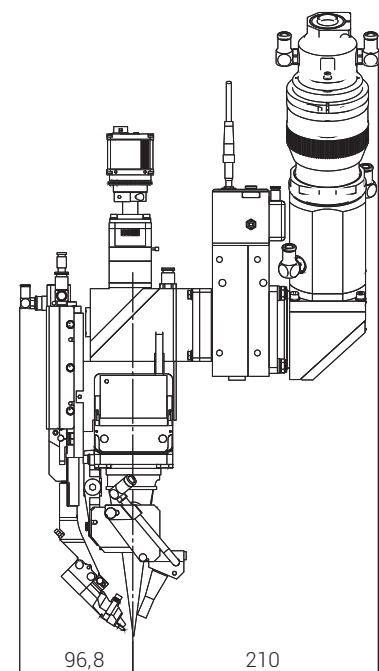
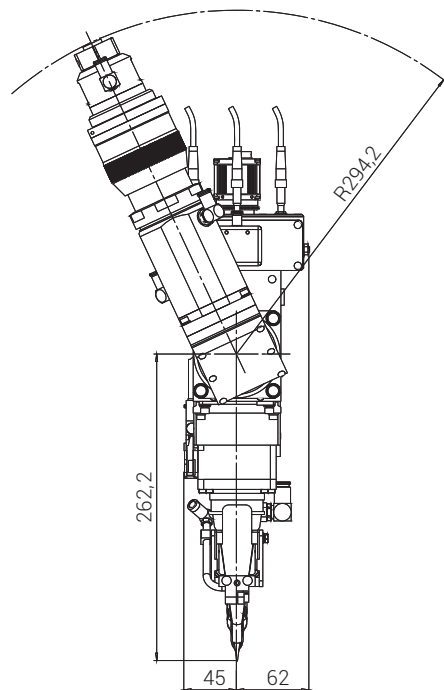
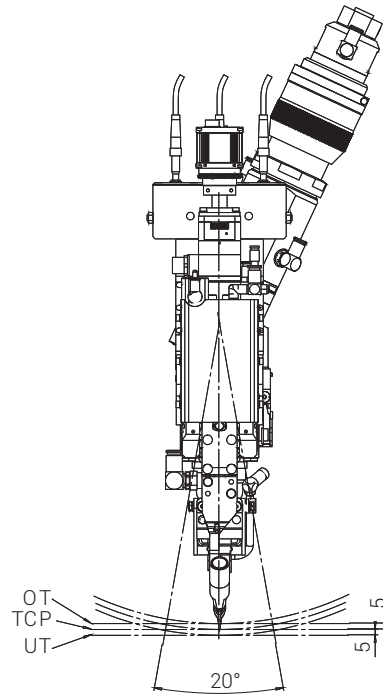
- Adaption of various laser types
- Choosing the required focus diameter for the laser application
- Modular accessories
- Optic modules with focus forming

#### System integration

- Simple and quick integration of a limited number of I/O's
- Electric pneumatic installation system EPS
- Cable management system

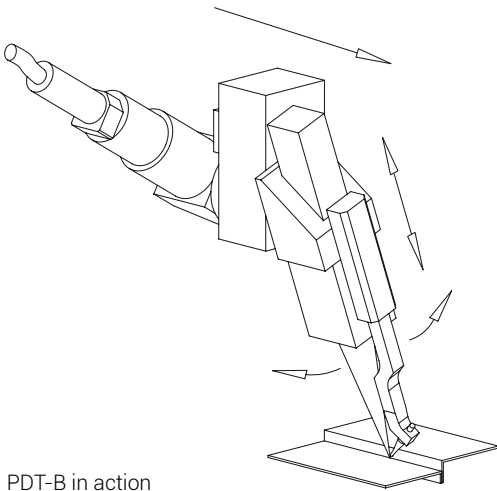
### Applications

- Laser welding
- Laser brazing
- Laser cladding



# Laser Processing Heads PDT-B

## Modules

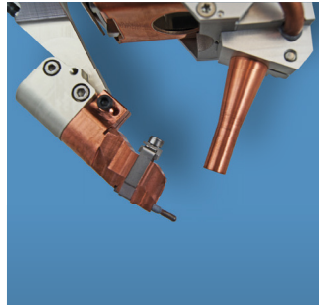


PDT-B in action

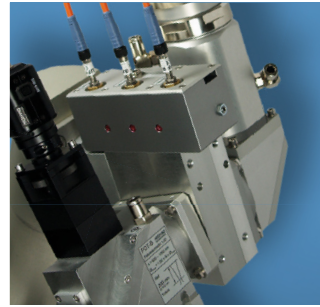
The tactile sensor guides the focusing module for laser welding or laser brazing. The focus then directly follows the sensor probe.

An adjustable rotatable force can be used to safely position the sensor at the edge geometry of the components to be joined.

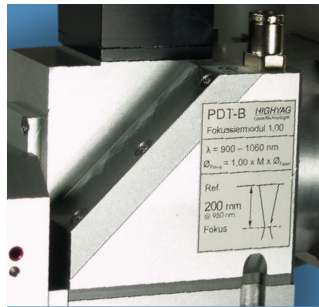
This rotatable force can be varied in value. It can also be modified during the laser application according to the geometry of the components.



Tactile sensor: guides the laser focus



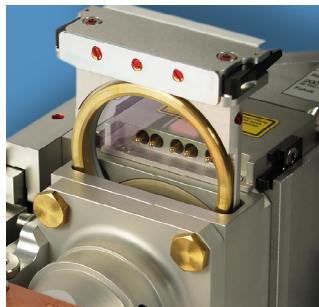
Seam tracking module



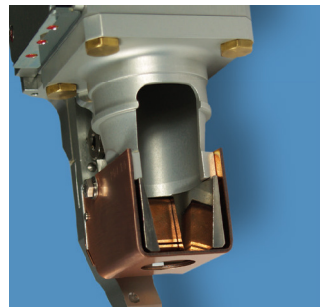
Focusing module: all laser power is focused into one point



Laser light cable receiver



Cover slide drawer: quick and easy cover slide exchange



Cross jet



Zoom collimation: variable set-up of focus diameter without change in focus position

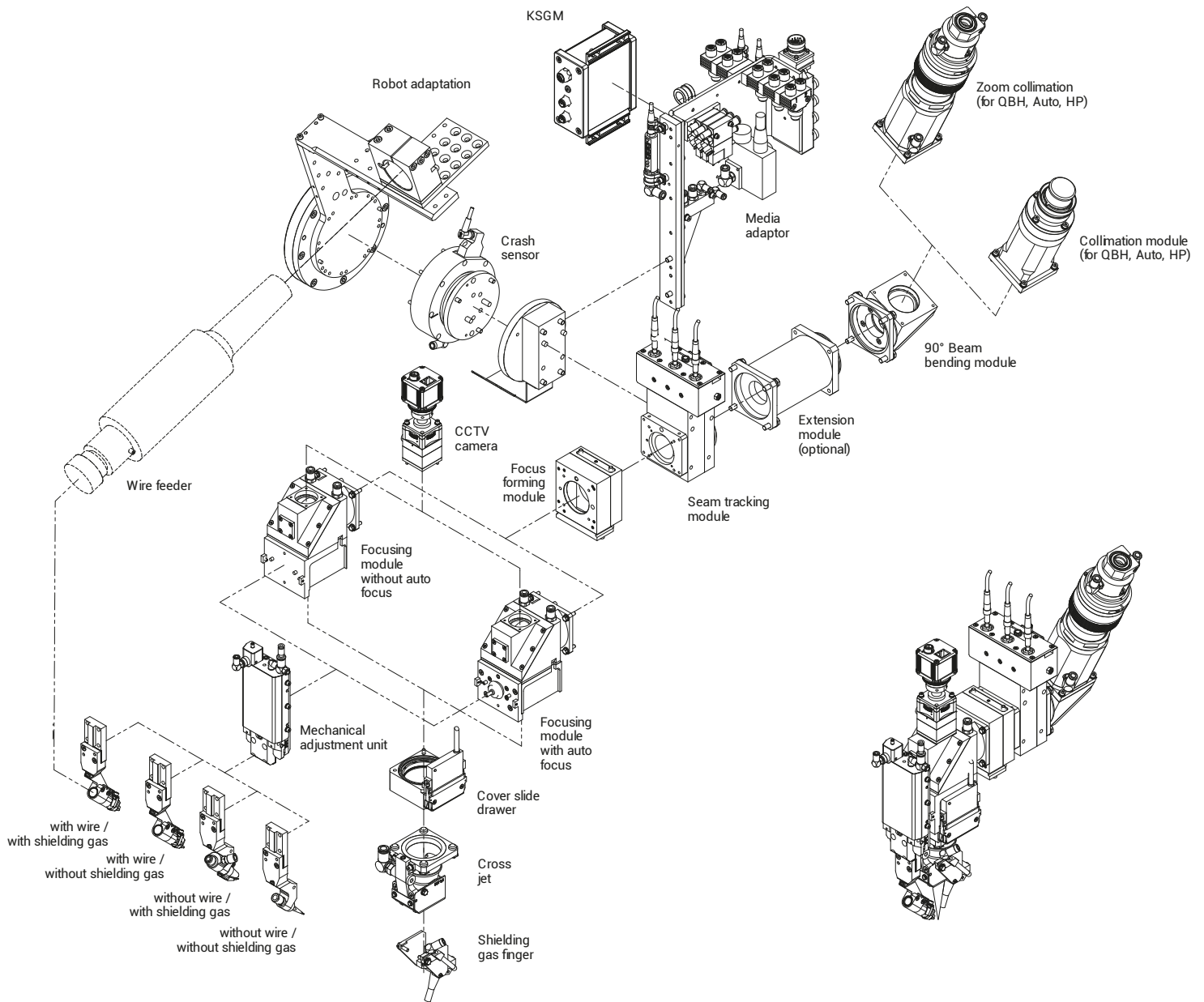


CCD camera with viewing system: visualizing the process in production

# Laser Processing Heads PDT-B

## Modular Design

### Laser Processing Head PDT-B



# Laser Processing Heads PDT-B

## Technical Data

### Optical System

Focusing system (magnification @ focal length)	1.00 @ 200 mm, 1.70 @ 340 mm, 3.45 @ 690 mm, *
Collimation system (magnification @ focal length)	1.00 @ 200 mm, 1.25 @ 160 mm, 1.50 @ 133 mm, 1.80 @ 111 mm, 2.00 @ 100 mm, 2.3 @ 87 mm, 3.0 @ 67 mm, Zoom 1.10 - 1.70 @ 180 - 118 mm, Zoom 1.80 - 3.20 @ 111 - 62 mm, *
Max. average laser power	6 kW
Max. beam parameter acceptance (half angle)	97% power content within 125 or 210 mrad, *
Wavelength	900 - 1060 nm (e.g. for diode lasers), * 1025 - 1080 nm (e.g. for YAG. fibre and disc lasers)
Transmission	> 94% @ 1064 nm
Core diameter laser light cable	200 - 1000 µm (typical), *
Laser light cable receiver	HIGHYAG LLK-HP, LLK-Auto, LLK-B, LLK-D, QBH, *

### Seam Tracking

Swiveling angle of focusing unit	Adjustable 200°, Swiveling angle 20°
Useable Z stroke (tactile sensor, focus position):	
· welding	5 mm (10 mm with auto focus)
· brazing	10 mm
Adjustable range of laser light cable receiver	360°

### Wire Feeding System

Support for wire feeder	On request, e.g. Binzel, Fronius, Dinse
Suitable for hot wire up to	200 A, *

### CCTV-Viewing

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

### Dimensions

W x D x H	Approx. 400 mm x 200 mm x 490 mm
Weight	Approx. 7 kg (depending on configuration)

### Supply

Electrical	DC 24 V, 2 A
Pneumatics	≤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, Profibus, DeviceNet, *

\*Others on request