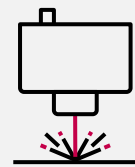


intelliWELD II PR

The high-tech scanner

- Optimized for "vision" applications (e.g. OCT)
- Compatible with single mode lasers
- Ideal for processing large workpieces
- Process overview through real-time status monitoring



**3D scan system
laser welding**

Smart welding with the intelliWELD II PR

The intelliWELD 3D scan systems have been developed for a wide range of different welding applications. They are able to cover a three-dimensional space in which parts can be processed. The scan system is designed for the on-the-fly operation, in which a handling device moves it in a simply programmed path over the component to be welded and the welding task is carried out simultaneously.

The intelliWELD II PR deflects the laser beam quickly, precisely and with high repeatability. The fast movements of the deflection mirrors increase the process

speed and reduce the positioning time from weld seam to weld seam (jump time) to a few milliseconds. This increases productivity significantly. The optional superimposition of a welding figure with oscillation geometries enables the welding result to be optimized even with complex tasks.

The compactness of the intelliWELD II PR enables it to be used and installed in a wide variety of industrial environments, whether with robots, linear axis systems or compact production systems. The optics are optimized for fiber-coupled disk or fiber lasers with powers of up to 8 kW.

The pre-focus optics of the intelliWELD II PR enable obtaining a high beam quality. "Vision"-based applications can achieve particularly good results due to the low transmission loss and the highest imaging quality. These advantages come into their own in fillet welding with precise edge tracking.



Optimized for "vision" applications

- High transmission for "vision" / NIR wavelengths; therefore ideal for coaxial sensors, lighting and observation
- No deviations between observation and processing point (no lateral color error)
- Standard monitoring channel (without tracking)
- Optional: Tracking C-Mount connection for the entire working volume



Compatible with single-mode lasers

- Particularly high imaging quality thanks to pre-focusing optics
- Various collimation focal lengths available for single-mode lasers

Ideal for the processing of larger workpieces

- Large z-stroke, large field of view can be covered
- Short process times and high throughput with 3D on-the-fly operation



Smart surveillance

- Monitoring of the most important measured values by intelligent sensors in real time
- Early warning in the event of increased stress or incorrect setting
- Integral safety concept with numerous options for laser and process control



Optical specifications intelliWELD II PR

Version	intelliWELD II PR				intelliWELD II PR Single Mode			
Focal length collimator in mm	110		135		165		250	
Focal length focussing optics in mm	470	660	470	660	470	660	470	660
Fiber adapter	QBH / QD (LLK-D)							
Wave length in nm	1.030-1.080 + NIR / 1.065-1.105 + NIR							
Limiting NA (half angle) @ 86 % in mrad	87	87	73	73	57	57	37	37
Limiting NA (half angle) @ 98.x % in mrad	130	130	110	110	86	86	56	56
Optical magnification	1 : 4.3	1 : 6.0	1 : 3.5	1 : 4.9	1 : 2.8	1 : 4	1 : 2.64	1 : 2.64
Design for OCT option	Yes*	Yes	Yes*	Yes	Yes*	Yes	Yes*	Yes
Image field size @ z = 0 (elliptical) in mm	330 × 300 (for 470 foc.) / 480 × 450 (for 660 foc.)							
Image field size @ z = 0 (rectangular) in mm	270 × 270 (for 470 foc.) / 470 × 450 (for 660 foc.)							
Focus stroke in z-direction +/- in mm	50	100	50	100	50 (in -z)	100 (in -z)	100 (in -z)	100 (in -z)
Maximum laser power in kW	8	8	8	8	3	3	3	3
Working distance (lower edge scanner) in mm	300	472	300	472	300	472	300	472

*On demand

Options and extensions



On-The-Fly welding

On-The-Fly (OTF) welding allows the scanner or the component to be moved during the welding process. This reduces the processing time to the shortest possible and increases the efficiency of the system. The Blackbird controller can perform OTF welding in conjunction with robots (e.g. KUKA, ABB or Yaskawa) or with one or two linear axes.

Optical coherence tomography

The addition of an OCT scan system to the intelliWELD II PR can add quantifiable value to the process. This ranges from finding the edge and tracking the weld seam to detecting the weld depth. The final check of the welded seam makes the OCT the universal genius of measuring systems.

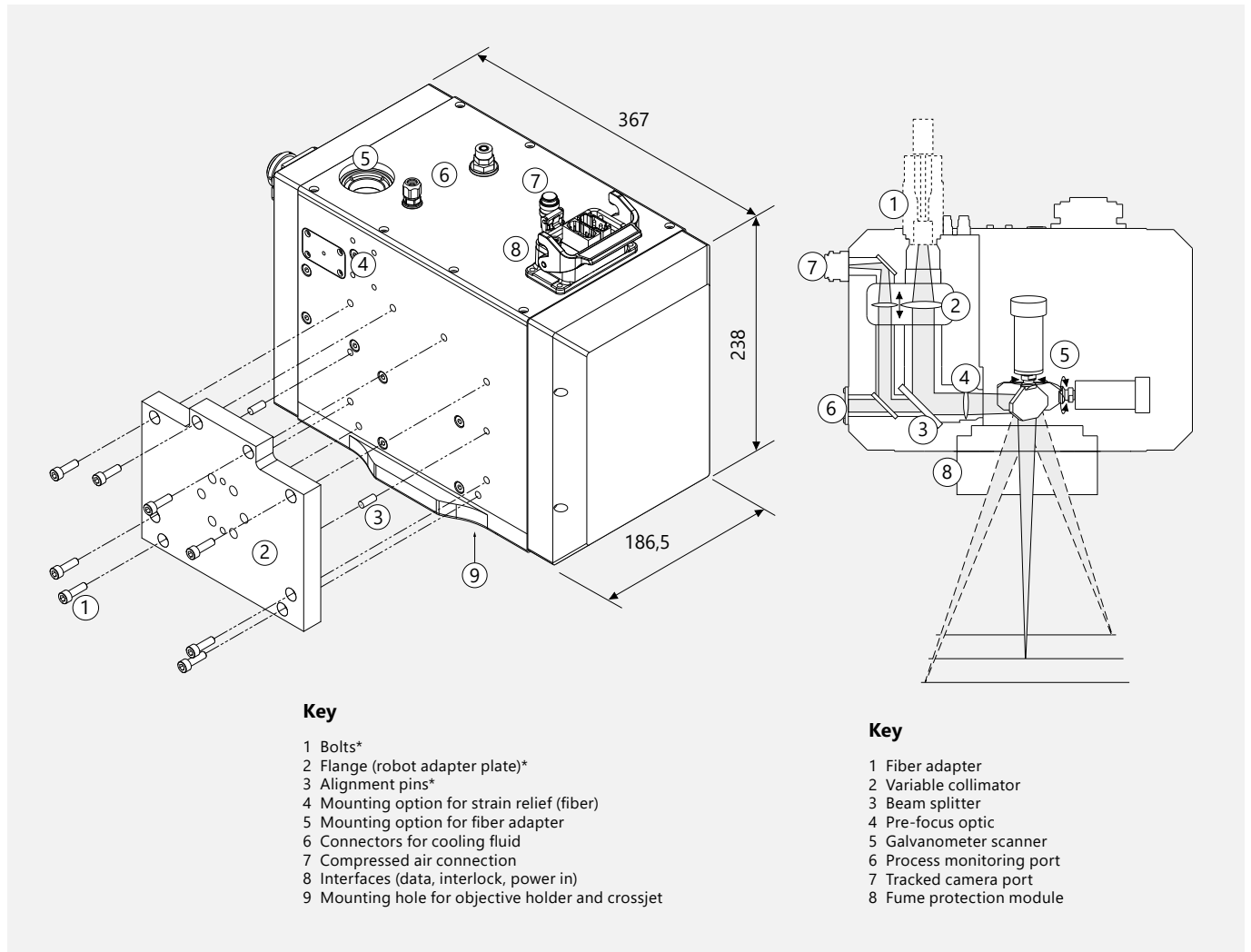
Air management

With the proven interaction of Crossjet, process nozzles, fume protection module and supplied purge air, the deposition of smoke and particles on optical components is prevented and the service life of the scan system is maximized.



Protective cover

Designed for a particularly demanding processing environment, the protective cover of the intelliWELD II PR offers additional protection against contamination from process by-products.



All dimensions in mm

*Not included in the delivery

Technical data

Weight (without attachments)	27 kg
Operating temperature	25 °C ± 10 °C
Supply voltage (supplied by the Blackbird control system)	30 V DC (29-33 V), respective max. 8 A
Water cooling specification	2 l/min at 20 °C and Δp < 0.1 bar; p < 4 bar
Filter unit purge air specification	ISO 8573 - 1 : 2010, class 5.4.4
Supplementary set for cooling water connection	Optional
Repeatability (RMS)	< 2 μrad
Long term drift over 8 h (at operating temperature)	< 0.15 mrad
Tracked camera port observation channel 2 (top)	C-Mount (optional)
Double cover slide (beam exit)	Yes
Purge Air between inner & outer cover slide	Yes
Cover slide sensor (beam exit)	Yes
Cover slide collimator	Yes, interchangeable
Flow sensor (cooling water)	Yes
Teach support	Optional
IP protection class	IP54

