

2DWeld

Cost-Effective Process Head for High-Power Remote Laser Welding Applications

2DWeld is a modular remote laser welding head that can be configured to support a broad range of applications, from the most basic and cost-sensitive, to tight tolerance, demanding tasks involving “challenging” materials. 2DWeld relies on industrially proven components to deliver operational reliability, excellent beam quality, and consistent, high quality welding results in all applications.

2DWeld is based on the intelliSCAN 30 III 2D scanning head, and incorporates Coherent process optics and variety of high-quality F-Theta objectives. The scanner controls have been developed based on extensive applications and technology experience at Coherent. But, this sophisticated hardware is still easy to use, thanks to the unique ALI-Macro control hardware, in combination with Coherent Visual Laser Marker software. These simplify welding job preparation and control, and provide fast and reliable communication between production control systems and the 2DWeld itself.



FEATURES

- Available with several different magnifications and working areas
- Compatible with both standard FL and FL-ARM HighLight fiber lasers
- Supports up to 5 kW multi-mode and 2.5 single-mode CW operation
- Optional camera for pre-welding adjustment
- Adjustable single and double air knives

BENEFITS

- High weld quality in all applications
- Superior processing speed
- Single point of contact for installation, service and application support
- Easy and quick installation

SPECIFICATIONS		2DWELD				
Heads per system	1 – 2					
Power (kW)	Up to 5 kW (cw)					
Fiber feed	Vertical/Horizontal					
Wavelength (nm)	1070 ± 10					
Fiber connectors	QD/QB					
SCANNER OPTICAL UNIT						
Scanner type	intelliSCAN 30 III (2D)					
Collimating units (focus length, mm)	100, 120, 160, 200, 250					
Scanner aperture (mm)	30					
Objectives, F-Theta lenses (focus length, mm) *Calculated with 30mm beam diameter)	163	255	340	420	460	
Nominal working field (mm x mm)	55 x 55	82 x 82	155 x 155	185 x 185	230 x 230	
Working distance (mm)	204	303	204	292	509	
Transmission (%)	> 94					
Field correction accuracy (µm)	< 300					
Cooling water flow (l/min), at - 20°C - Δp < 0.1 bar - p < 4 bar	1.5					
Cooling air flow (l/min), at - Δp < 0.1 bar - Clean Air	20					
Operating temperature (°C)	25 ± 10					
Head weight (kg)	< 20					
SCANNER CONTROL UNIT						
Cable length between control unit and scanner (m)	10, 20					
Cable length between control unit and laser (m)	5, 15					
Power supply	110 – 250 V					
Communication protocol	I/O, Ethernet					
Control hardware	ALI-macro					
Control software	Visual Laser Marker (VLM)					
Dimensions (h x w x d, mm)	318 x 533 x 445					
Weight (kg)	< 25					
ACCESSORIES						
Accessories	CCD camera, air knife single/double 6", standard robot mounting kit, cover windows					

AVAILABLE FOCUSING OBJECTIVES

Nominal focal length [mm]	Working distance [mm]	Field size* ¹ , square [mm x mm]	Field size* ² , square [mm x mm]	Field size* ² , elliptical [mm x mm]	Diffraction limited field size ² , square [mm x mm]	Suitable for single mode laser?
163	204	55 x 55	65 x 65	126 x 76	15 x 15	No
255	303	82 x 82	95 x 95	180 x 114	62 x 62	Yes, with limited field size
340	204	155 x 155	180 x 180	285 x 203	100 x 100	No
420	292	185 x 185	195 x 195	303 x 254	195 x 195	Yes
460	509	230 x 230	255 x 255	376 x 307	151 x 151	Yes, with limited field size

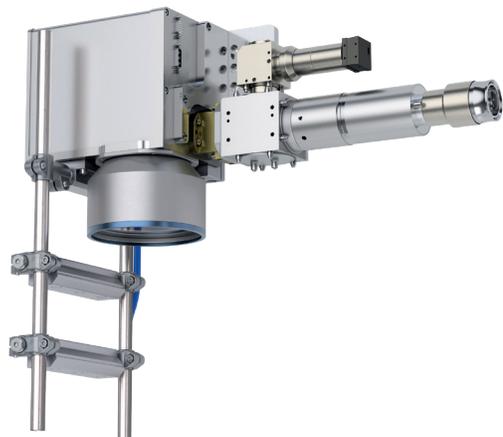
*¹ Beam diameter equals 30 mm

*² Beam diameter equals 18 mm

EXAMPLES OF WELDING HEAD LAYOUTS



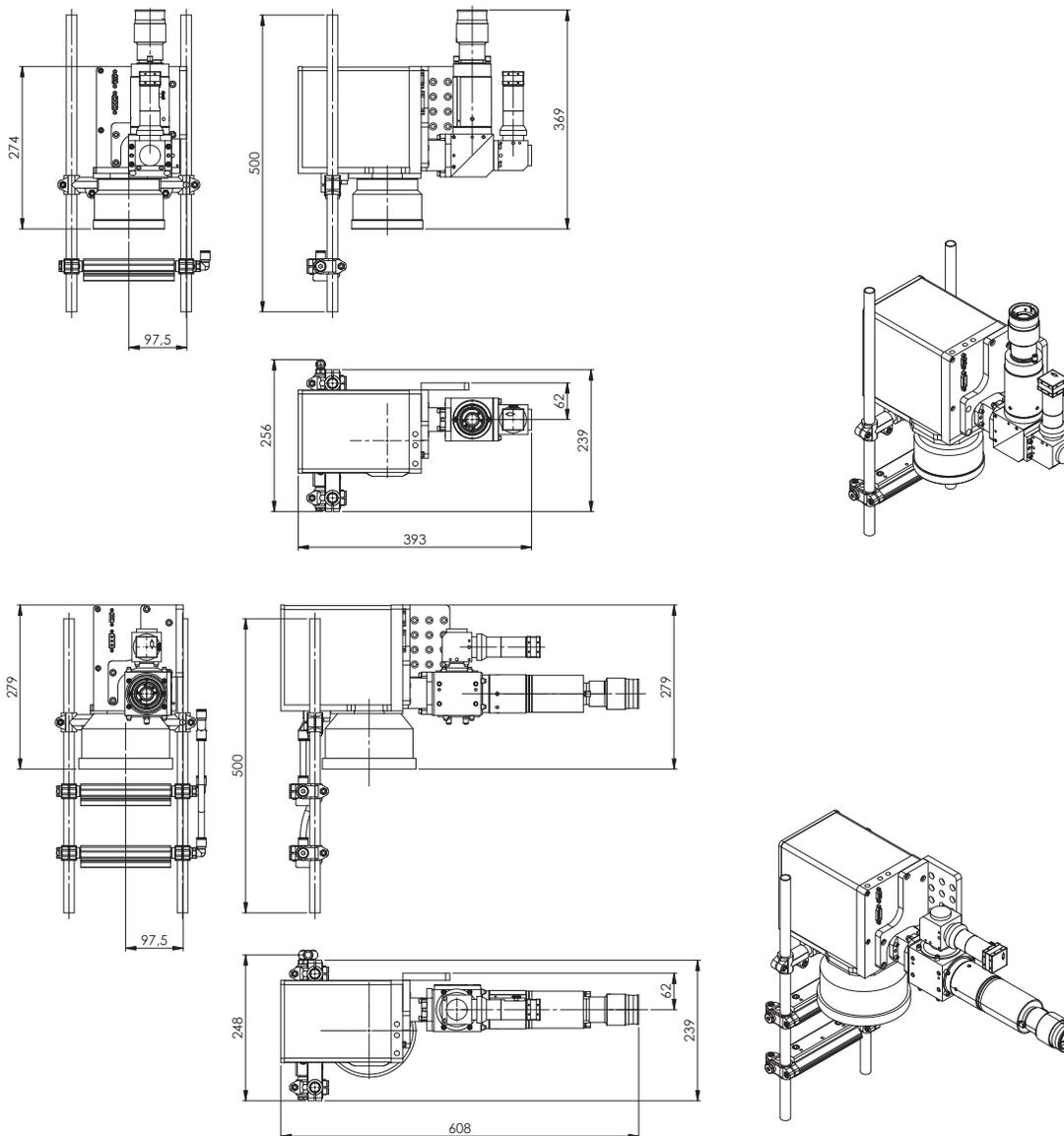
Welding head with vertical fiber feed and CU f120, FU f255, camera & single air knife



Welding head with horizontal fiber feed and CU f220, FU f163, camera & double air knife

WELDING HEAD MECHANICAL SPECIFICATIONS

Examples of the main dimension in the vertical and horizontal welding head assemblies



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Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice.

Coherent offers a limited warranty for all HighLight Lasers. For full details of this warranty coverage, please refer to the Service section at www.Coherent.com or contact your local Sales or Service Representative.

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