

ExactWeld 410

Compact, CNC-Controlled, Laser Micro-Welder

The Coherent ExactWeld 410 is a compact, but full-featured, fiber laser-based microwelding system that incorporates CNC motion to enable reliable production of even complex shaped weld seams with high precision. It is intended for precision component manufacturers working with small to medium production volumes (100 – 5000 pieces/day). This makes it ideally suited for medical device manufacturers, makers of precision sensors, and others who can't compromise on weld quality, but don't have the production floor space – or the need – for faster, larger and more sophisticated systems. It also employs a suite of process monitoring tools, all controlled through Laser FrameWork, to facilitate validation, traceability and compliance.



FEATURES

- Available laser sources include pulsed or cw, multimode or singemode
- Included FLBK 60 process head offers VarioOptics enabling multiple welding spot sizes even within a single process sequence
- Optional SmartWeld+ innovative wobble head for welding heat-sensitive and thin and dissimilar materials
- Optional SmartSense+ real-time, in-line laser process monitoring tool for the most demanding tasks
- Process observation camera and laser power monitoring options available
- All job creation, processing, monitoring, data logging, and communications controlled through the intuitive Laser FrameWork interface
- Built-in xyz stage, plus optional rotation stage

APPLICATIONS

- Medical device manufacturing
- Production of precision sensors
- High-precision microwelding

Interfaces		ExactWeld 410				
Display and Operation	24" touch screen + keyboard, additional monitor for camera vision					
Data Interfaces	USB device, RJ45					
Installation						
Dimensions (B x T x H) (mm)	700 x 1040 x 1966					
Weight (kg) (approx.)	550					
Electric	230V / 50 or 60Hz / 16A single phase					
Power Consumption	3.1 kW (approx. value), depending on selected laser source and options					
Cooling	internal forced air cooling					
Ambient Temperature	15 to 30°C					
Work Chamber						
Dimensions (B x T) (mm)	645 x 348					
Max. Payload (kg)	30					
Axes Travel XYZ (mm)	250 x 250 x 195					
Travel Speed per Axis (mm/s)	100					
Positioning Repeatability per Axis (µm)						
X	20					
Y	15					
Z	15					
Rotation Axis (optional)	Gear Driven		Direct Drive			
Max. Rotation Speed	96/min.		500/min.			
Position Accuracy	0.1°		0.02°			
Max. Load (kg)	7		10			
Laser Specifications	FL 150P SM	FL 150P MM	FL 300P MM	FL 200 ¹	FL 400 ¹	
Peak Power (kW)	1.5	1.5	3	na	na	
Pulse Energy (J)	15	15	30	na	na	
Average Power CW (W)	250	250	300	200	400	
Average Power Pulsed (W)	150	150	300	na	na	
Focus Diameter ² (mm) at Fixed Optic f150 mm	0.015 to 0.9	0.1 to 1	0.1 to 1	0.026 to 0.5	0.015 to 0.9	
Welding Diameter ² (mm) using SmartWeld+ f150 mm	30 µm to 3 mm	na	na	45 µm to 3 mm	35 µm to 3 mm	

Notes:

1. Choose direct drive rotation axis and/or SmartWeld+.
2. Value provides rough estimate and is depending on specific optical configuration and tolerances.

Mechanical Specifications

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