ExactWeld IP

Volume Production Solution for Polymer Welding

ExactWeld IP is a laser-based polymer welding tool that integrates easily into your production line and delivers trouble-free operation. Integration is straightforward because the modular ExactWeld IP supports pallet conveyor, rotary table, or robot arm part supply. Then, the system delivers reliable, consistent welds by combining closed loop monitoring of part collapse height during welding, ultra-stable mechanical construction, and a high reliability Coherent diode laser source. And, it's flexible – tooling jigs can be automatically exchanged, and are RFID tagged so the ExactWeld IP always knows what it's doing. ExactWeld IP is the simplest way to implement production line polymer welding.

FEATURES

- Large welding area: up to 250 x 250 mm
- Automated collapse height measurement and closed loop clamping control
- Large clamping force range: 100 N – 4500 N
- Class I operation possible
- Thermal vision option to ensure weld quality
- Servo driven Z-axis allows automatic focus position adjustment
- Automatic jig exchange with RFID tooling
- Laser power up to 400 W for high speed operation

APPLICATIONS

- Electric Vehicle Sensors, Controller Boards and Components
- Lab-on-a-chip Devices
- Medical Device Enclosures
- Microfluidic Devices
- Optical Sensors
- Printer Cartridges

COHERENT®

Superior Reliability & Performance

SIZE & WEIGHT	ExactWeld IP
Interface	
Display and Operations	24" touchscreen + keyboard
Data Interfaces	USB device, RJ45 connection, ProfiNet
INSTALLATION	
Dimensions (L x W x H)	800 X 520 X 1710 mm (31.5 x 20.5 x 67.3 in.)
including lower cabinet	980 X 660 X 2380 mm (38.6 x 26 x 93.7 in.)
Weight (including lower cabinet)	891 kg (1964.3 lbs)
ELECTRICAL	
Energy (VAC)	400
Frequency (Hz)	50/60
Current (A)	32
POWER CONSUMPTION	
Effective Power (kW)	2.2
Standby (kW)	0.8
PNEUMATIC	
Compressed Air	6 bar
AXIS SYSTEM	
Clamping Force	100 N – 4500 N
Galvo Position	Automatic Z-axis
NOISE	
Noise (acoustic field on workplace)	<70 dB (A)
INSTALLATION CONDITIONS	
Laser Safety Class (according to EN60825-1:2015)	Laser Class I available in some integration options
Description	Sub-system to be integrated into an automated production line
Working Temperature	25°C ±10°C
Storage Temperature	5°C to 40°C
Environmental Conditions	Not condensing, not corrosive, not freezing

LASER SOURCE: Compact Evolution

- CW 300 W diode laser
- High efficiency
- High power stability
- Homogeneous beam profile
- Matched beam geometry for polymer welding
- E-shutter function, CE-labelling

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FEATURES
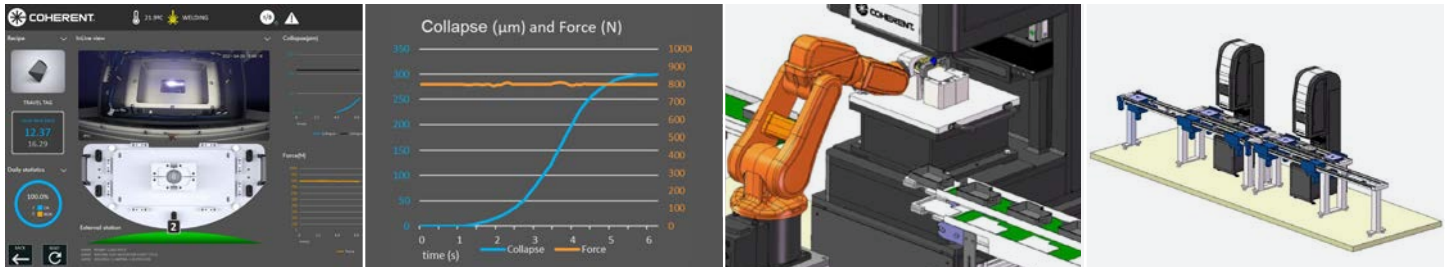
Polymer Welding Control

– Collapse height measurement and closed loop control

– High accuracy force control with integrated load cell

– Full traceability of welding process, users and parameters

– Automatic reference calibration

– Production batch control

HMI Features

– Touchscreen HMI

– Intuitive interface

– Easy configuration of the welding parameters

– Individual or group users

– Configurable user levels

– Manual mode for engineering adjustments

– Easy language selection

Integration Options

– Conveyor, rotary table or robot

– Welding areas of up to 250x250 mm

– Communication through ProfiNet

– Integration into MES/FIS/ OPC UA environments

– Lower cabinet for rack modules available

Multiple Stations

– Flexible configuration for multiple units in-line

– RFID technology for tooling identification and traceability

– Automatic load/unload of upper tooling

– Laser class I available in some integration configurations

## OPTIONS

APPLICATIONS

Thermal Vision Check*

– Welding path thermal recognition and control check

– Software module integration into Coherent's Polymer Welding HMI suite

– Easy to configure quality control parameters

– Traceability database with all acquired parameters and results

Vision System for Automatic Welding Adjustment

– Integration into the HMI

– Pattern and position detection

– *Poka-Yoke* functions

– Automatic part offset adjustment

– Datamatrix / barcode serial number reading and traceability

Automotive

– Controllers or components requiring high precision welding

– Exterior automotive parts with aesthetical requirements
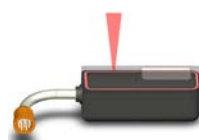
Electronic Components

– Electronical sensors, consumer goods and appliances

Medical Devices

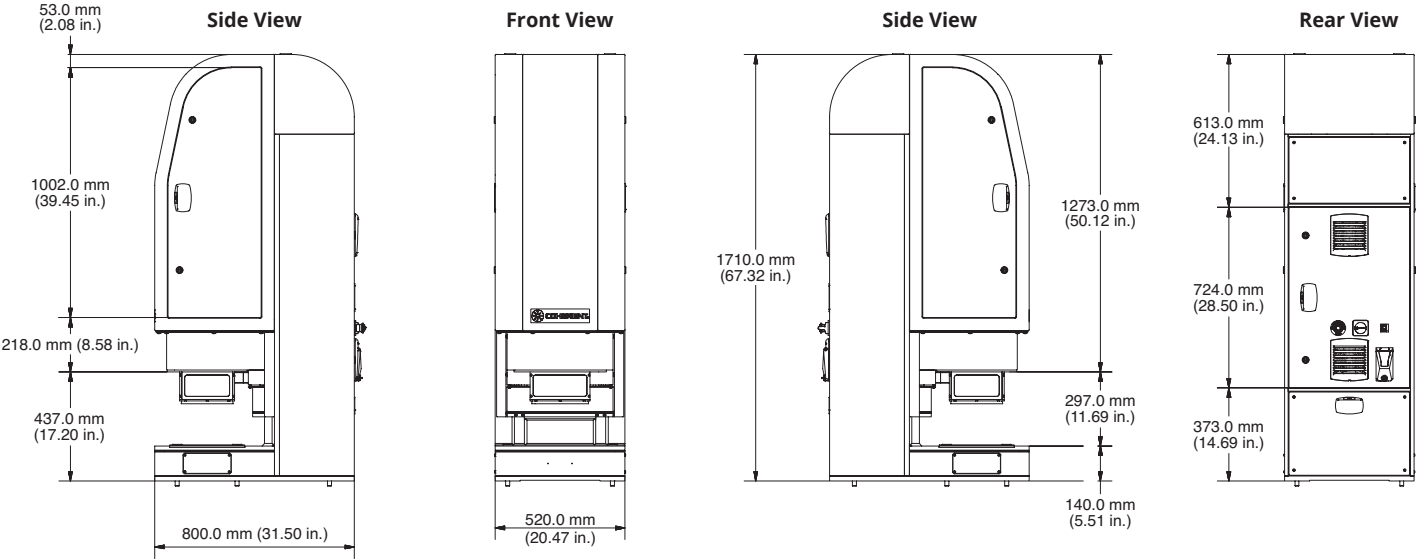– Welding of sealed or sensitive medical devices enclosures

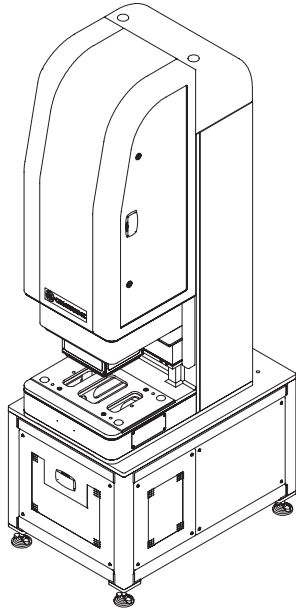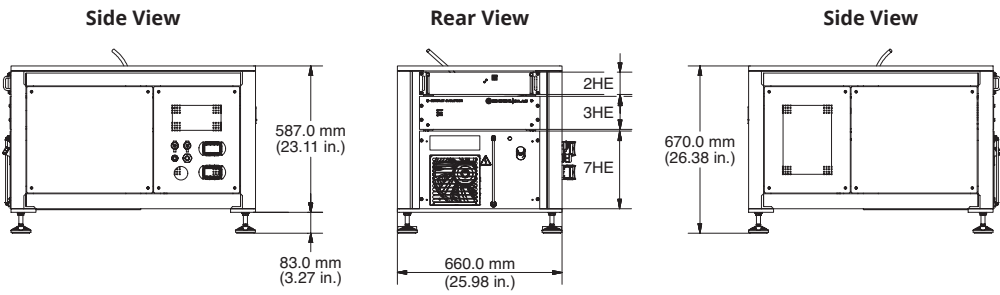– Microfluidic devices

– Lab-on-a-chip devices

* May not be available in some regions.

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MECHANICAL SPECIFICATIONS

ExactWeld IP

Side View	Front View	Side View	Rear View

53.0 mm (2.08 in.)
1002.0 mm (39.45 in.)
218.0 mm (8.58 in.)
437.0 mm (17.20 in.)
800.0 mm (31.50 in.)

520.0 mm (20.47 in.)

1710.0 mm (67.32 in.)
1273.0 mm (50.12 in.)
297.0 mm (11.69 in.)
373.0 mm (14.69 in.)
140.0 mm (5.51 in.)

613.0 mm (24.13 in.)
724.0 mm (28.50 in.)

Stand

Side View	Rear View	Side View

587.0 mm (23.11 in.)
83.0 mm (3.27 in.)
660.0 mm (25.98 in.)

2HE
3HE
7HE

670.0 mm (26.38 in.)

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Warning Hand Crush/ Force From Above

Warning Laser Class IV