

# PH10-SmartWeld<sup>+</sup>

## High-Precision Laser Processing Head for Micro Welding Applications

SmartWeld+ precisely controls the brilliance of single-mode fiber lasers to shape welding seams in width, depth, and penetration profile.

Thus, it enables precision welding of heat-sensitive materials and dissimilar material combinations such as copper to aluminum or steel.

This brings the economy, convenience, and reliability of fiber lasers to applications that have previously been challenging for that technology.

SmartWeld+ incorporates an advanced form of beam shaping including a wide variety of oscillation patterns, plus precise control of delivered laser energy during the weld process. The result is a substantial improvement in weld precision and reliability together with minimization of the heat affected zone.



### FEATURES & BENEFITS

- Improved welding of challenging materials including copper, aluminum, titanium, steel alloys, and dissimilar materials
- Precise welding of thin and multilayer materials with minimal HAZ
- Variable spot size (30  $\mu\text{m}$  to over 1000  $\mu\text{m}$ ) which allows gap bridging and reduces fit up requirements
- Consistent control over weld depth and weld profile
- A wide choice of beam oscillation patterns to enable precise process optimization

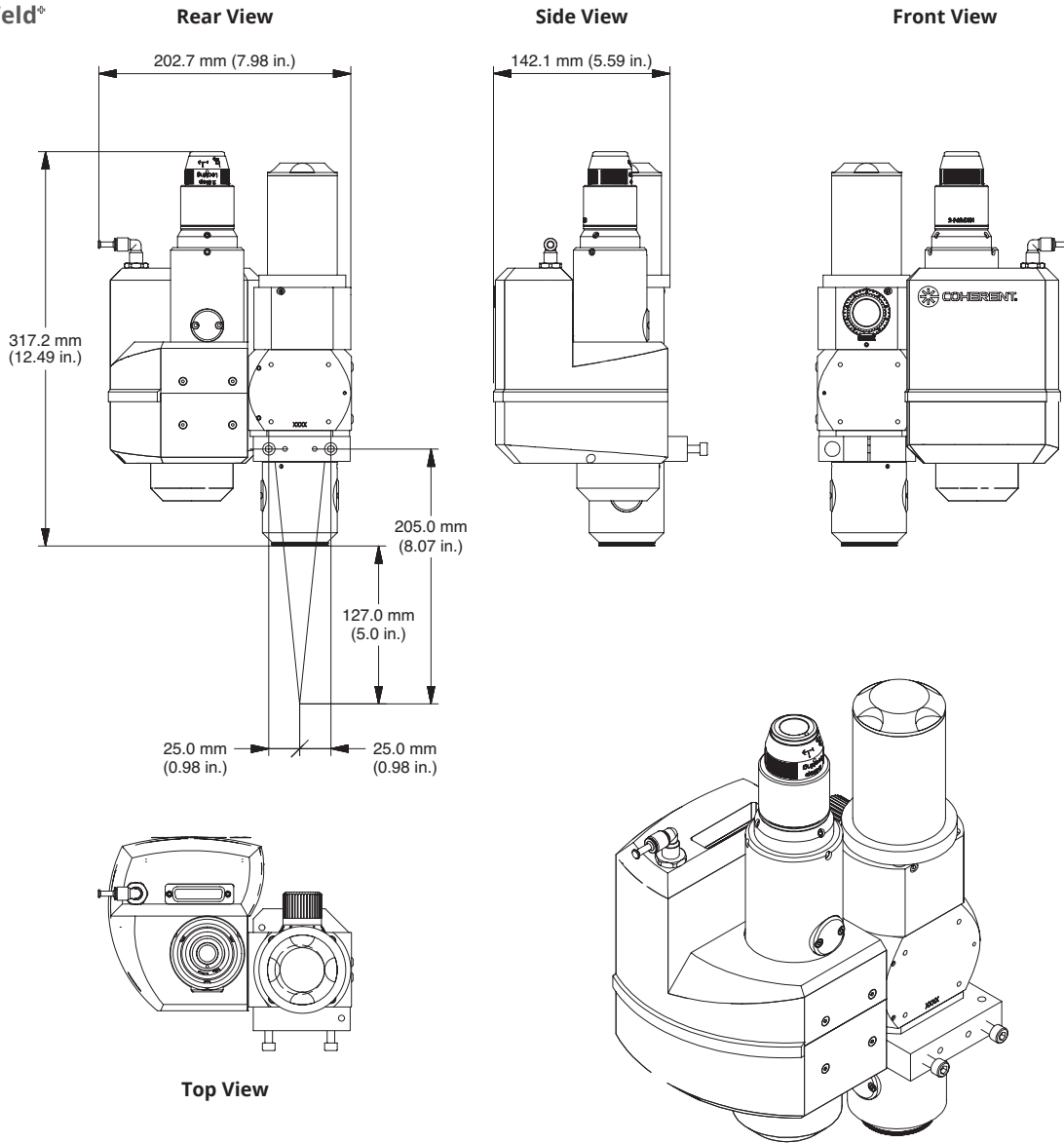
### APPLICATIONS

- Electronics
- Batteries
- Medical devices
- Automotive/E-mobility
- Aerospace

<b>SPECIFICATIONS</b>		<b>PH10-SmartWeld®</b>
Recommend laser source	Coherent StarFiber Series and FL Series	
<b>OPTICAL CONFIGURATION</b>		
Collimator (mm)		
StarFiber 600/StarFiber 400	f67	
StarFiber 150P	f80	
FL1000CSM and FL1500CSM	f100	
Focus Unit (mm)	f150 (optional f100 or f200)	
Spot Size (depending on focus unit; $\mu\text{m}$ )	28	
Depth of focus (mm)	1	
Working Wavelength (nm)	1060 to 1070	
Maximum Shape Size (mm)	12	
Maximum Shape Repetition (Hz)	3000	
<b>SIZE (standard configuration)</b>		
Dimensions (L x W x D)	317 x 197 x 157 mm (12.48 x 7.76 x 6.18 in.)	
Weight	4.4 kg (9.7 lbs)	
<b>LASER</b>		
Fiber Connection	QBH fiber connector	
Maximum NA (depends on collimator)	0.05 (F100) 0.063 (F80)	
Maximum Laser Power	300 W cw; peak 2000 W modulated	
<b>CONTROL UNIT</b>		
Size	19" x 2 HE	
Weight	7 kg (15.4 lbs.)	
Power Supply	230 V AC / 10A	
Data Connection	Ethernet	
<b>ENVIRONMENTAL CONDITIONS</b>		
Operating Temperature	25°C $\pm$ 10°C (77°F $\pm$ 50°F)	
Storage Temperature	-35°C to +60°C (-31°F to +140°F)	

## MECHANICAL SPECIFICATIONS

### PH10-SmartWeld®



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Coherent follows a policy of continuous product improvement. Specifications are subject to change without notice. Coherent's scientific and industrial lasers are certified to comply with the Federal Regulations (21 CFR Subchapter J) as administered by the Center for Devices and Radiological Health on all systems ordered for shipment after August 2, 1976.

Coherent offers a limited warranty for all PH10-SmartWeld+ Laser Processing Heads. For full details of this warranty coverage, please refer to the Service section at [www.coherent.com](http://www.coherent.com) or contact your local Sales or Service Representative. MC-018-20-0M0420 Copyright ©2020 Coherent, Inc.

