

# Orbital Welding System

## High-Performance Weld Head



### Series 8HPH

- Accommodates outside diameters ranging from 1/8 to 1/2 in. and 3 to 12 mm
- Bench top mounted fixture
- Optical speed control—no tachometer or calibration required
- Cycle life: 10 000 welds mean-time-to-maintenance (MTTM) for 1/4 in. diameter; 3000 welds MTTM for 1/2 in. diameter
- Welding capability: 60 welds per hour for 1/4 in. diameter; 30 welds per hour for 1/2 in. diameter
- Adjustable centering gauge included
- Integrated work support system available

## High-Performance Weld Head—Series 8HPH

### Technical Data

Tube Size		Minimum Axial Clearance in. (mm)	Minimum Radial Clearance in. (mm)	Maximum Average Weld Current	Maximum Welds per Hour
in.	mm				
1/8	3	0.48 (12.2)	1.04 (26.4)	30 A	60 <sup>①</sup>
1/4	6, 8				
3/8	10			38 A	30 <sup>②</sup>
1/2	12				

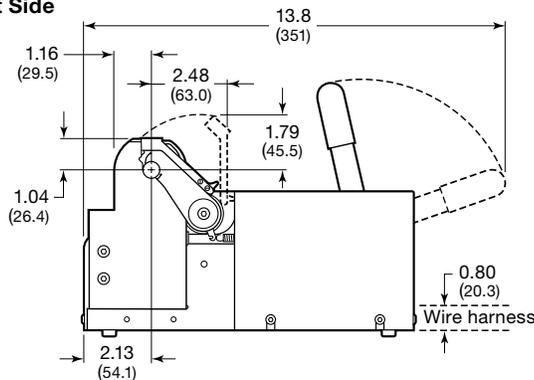
① Based on welding 1/4 × 0.035 in. 316L tubing.

② Based on welding 1/2 × 0.049 in. 316L tubing.

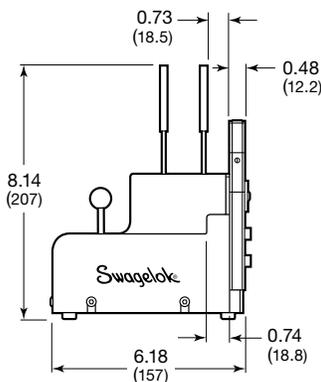
### Dimensions

Dimensions, in inches (millimeters), are for reference only and are subject to change.

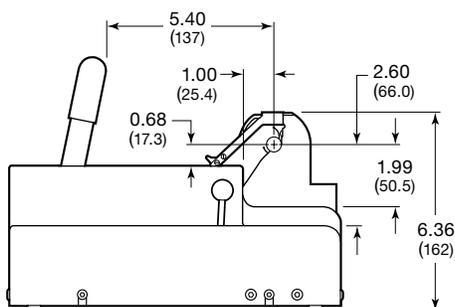
#### Right Side



#### Front



#### Left Side



### Ordering Information

#### High-Performance Weld Head

The Swagelok® Series 8HPH high-performance weld head is shipped with a fixture kit, a tool package, an electrode package, a 12.5 ft extension cable, and a user's manual.

To order a Swagelok Series 8HPH weld head, add a fixture size designator to basic ordering number **SWS-8HPH-**.

Example: **SWS-8HPH-02**

Nominal Outside Diameter	Fixture Size Designator
<b>Fractional, in.</b>	
1/8	02
1/4	04
3/8	06
1/2	08
<b>Metric, mm</b>	
3	3MM
6	6MM
8	8MM
10	10MM
12	12MM

#### Fixture Kits

Fixture kits are available for outside weld joint diameters of 1/8 to 1/2 in. and 3 to 12 mm.

- Each fixture kit includes one fixed plate, two moveable plates, and a centering gauge.
- One fixture kit is included with each high-performance weld head.



To order an additional fixture kit, select the kit ordering number from the table below.

Nominal Outside Diameter	Fixture Kit Ordering Number
<b>Fractional, in.</b>	
1/8	SWS-8HPH-SP-02
1/4	SWS-8HPH-SP-04
3/8	SWS-8HPH-SP-06
1/2	SWS-8HPH-SP-08
<b>Metric, mm</b>	
3	SWS-8HPH-SP-3MM
6	SWS-8HPH-SP-6MM
8	SWS-8HPH-SP-8MM
10	SWS-8HPH-SP-10MM
12	SWS-8HPH-SP-12MM

## Accessories

### Centering Gauge



The weld head centering gauge assures the operator that the weld components are centered in the fixture. One centering gauge is included with each high-performance weld head, based on the fixture size specified.

To order an additional centering gauge, select an ordering number from the table at right.

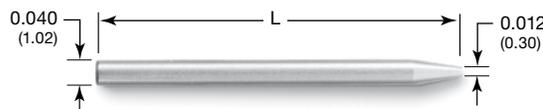
Nominal Outside Diameter	Centering Gauge Ordering Number
<b>Fractional, in.</b>	
1/8	SWS-8HPCG-02
1/4	SWS-8HPCG-04
3/8	SWS-8HPCG-06
1/2	SWS-8HPCG-08
<b>Metric, mm</b>	
3	SWS-8HPCG-3MM
6	SWS-8HPCG-6MM
8	SWS-8HPCG-8MM
10	SWS-8HPCG-10MM
12	SWS-8HPCG-12MM

### Tungsten Electrodes

Swagelok electrodes provide consistent, repeatable welds.

- Electrodes consist of 2 % ceriated tungsten, axially ground to rigid specifications.
- Electrodes are for use with argon shielding gas. Other shielding gas mixtures may require electrodes with tip diameters other than 0.012 in. (0.30 mm).
- Electrodes must be ordered in multiples of ten.

Dimensions, in inches (millimeters), are for reference only and are subject to change.



Weld Joint Nominal Outside Diameter	Nominal Gap in. (mm)	Electrode Length (L) in. (mm)	Ordering Number
<b>Fractional, in.</b>			
1/8	0.020 (0.51)	0.533 (13.5)	SWS-C.040-.533-.012-P
	0.025 (0.64)	0.528 (13.4)	SWS-C.040-.528-.012-P
	0.030 (0.76)	0.523 (13.3)	SWS-C.040-.523-.012-P
	0.035 (0.89)	0.518 (13.2)	SWS-C.040-.518-.012-P
1/4	0.025 (0.64)	0.465 (11.8)	SWS-C.040-.465-.012-P
	0.030 (0.76)	0.460 (11.7)	SWS-C.040-.460-.012-P
	0.035 (0.89)	0.455 (11.6)	SWS-C.040-.455-.012-P
	0.040 (1.02)	0.450 (11.4)	SWS-C.040-.450-.012-P
3/8	0.025 (0.64)	0.403 (10.2)	SWS-C.040-.403-.012-P
	0.030 (0.76)	0.398 (10.1)	SWS-C.040-.398-.012-P
	0.035 (0.89)	0.393 (10.0)	SWS-C.040-.393-.012-P
	0.040 (1.02)	0.388 (9.9)	SWS-C.040-.388-.012-P
1/2	0.030 (0.76)	0.335 (8.5)	SWS-C.040-.335-.012-P
	0.035 (0.89)	0.330 (8.4)	SWS-C.040-.330-.012-P
	0.040 (1.02)	0.325 (8.3)	SWS-C.040-.325-.012-P
	0.045 (1.14)	0.320 (8.1)	SWS-C.040-.320-.012-P

Weld Joint Nominal Outside Diameter	Nominal Gap in. (mm)	Electrode Length (L) in. (mm)	Ordering Number
<b>Metric, mm</b>			
3	0.020 (0.51)	0.536 (13.6)	SWS-C.040-.536-.012-P
	0.025 (0.64)	0.531 (13.5)	SWS-C.040-.531-.012-P
	0.030 (0.76)	0.526 (13.4)	SWS-C.040-.526-.012-P
	0.035 (0.89)	0.521 (13.2)	SWS-C.040-.521-.012-P
6	0.025 (0.64)	0.472 (12.0)	SWS-C.040-.472-.012-P
	0.030 (0.76)	0.467 (11.9)	SWS-C.040-.467-.012-P
	0.035 (0.89)	0.462 (11.7)	SWS-C.040-.462-.012-P
	0.040 (1.02)	0.457 (11.6)	SWS-C.040-.457-.012-P
8	0.025 (0.64)	0.433 (11.0)	SWS-C.040-.433-.012-P
	0.030 (0.76)	0.428 (10.9)	SWS-C.040-.428-.012-P
	0.035 (0.89)	0.423 (10.7)	SWS-C.040-.423-.012-P
	0.040 (1.02)	0.418 (10.6)	SWS-C.040-.418-.012-P
10	0.030 (0.76)	0.388 (9.9)	SWS-C.040-.388-.012-P
	0.035 (0.89)	0.383 (9.7)	SWS-C.040-.383-.012-P
	0.040 (1.02)	0.378 (9.6)	SWS-C.040-.378-.012-P
	0.045 (1.14)	0.373 (9.5)	SWS-C.040-.373-.012-P
12	0.030 (0.76)	0.349 (8.9)	SWS-C.040-.349-.012-P
	0.035 (0.89)	0.344 (8.7)	SWS-C.040-.344-.012-P
	0.040 (1.02)	0.339 (8.6)	SWS-C.040-.339-.012-P
	0.045 (1.14)	0.334 (8.5)	SWS-C.040-.334-.012-P

## Accessories

### Weld Head Extension Cables

Swagelok weld head extension cables provide weld head operation up to 50 ft (15.2 m) away from the power supply.



- Cables are available in lengths of 12.5 and 37.5 ft (3.8 and 11.4 m).
- One 12.5 ft extension cable is supplied with each Series 8HPH high-performance weld head.

Extension Cable ft (m)	Ordering Number
12.5 (3.8)	SWS-WHEC-B-12.5FT
37.5 (11.4)	SWS-WHEC-B-37.5FT

### Swagelok Orbital Welding System

For a complete Swagelok orbital welding system, order a Series 8HPH high-performance weld head and a Swagelok M200 power supply. See the *Swagelok Welding System M200 Power Supply* catalog, MS-02-342.



### Work Support System



The Swagelok work support system provides a variety of expandable configurations for work support of tubing runs and valves.

- The **left work support kit** contains the work support slide base, work support rails, thumb screws, and work support left brace.
- The **right work support kit** contains the work support slide base, work support rails, thumb screws, and work support right brace.
- The **full work support kit** contains all left and right work support kit components.

Work Support Kit Description	Ordering Number
Left	SWS-8HPH-WS-LT
Right	SWS-8HPH-WS-RT
Full	SWS-8HPH-WS

#### Safe Product Selection

**When selecting a product, the total system design must be considered to ensure safe, trouble-free performance. Function, material compatibility, adequate ratings, proper installation, operation, and maintenance are the responsibilities of the system designer and user.**

**Caution: Do not mix or interchange parts with those of other manufacturers.**

### Warranty Information

Swagelok products are backed by The Swagelok Limited Lifetime Warranty. For a copy, visit [swagelok.com](http://swagelok.com) or contact your authorized Swagelok representative.