

Orbital Welding System

Weld Head, Fixture Blocks,
Side Plates, Plenum, and Collets



Series 5

- Available for outside diameters ranging from 1/8 to 5/8 in. and 3 to 16 mm
- Offers versatility for use in a variety of industries
- Weld head includes arc gap gauge, tool package, and tungsten electrodes

Series 5 Weld Head

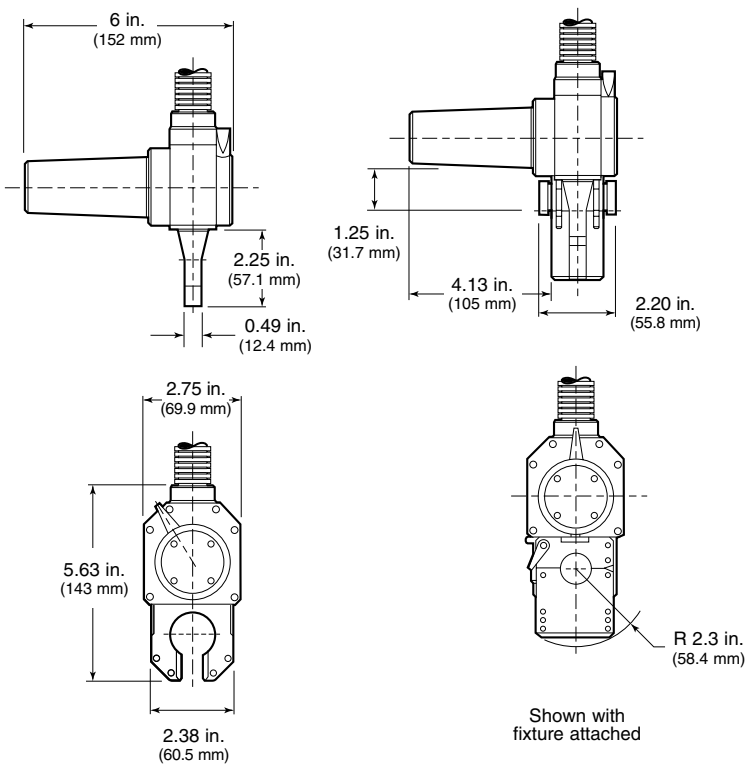
- Is for outside weld joint diameters from 1/8 to 5/8 in. and 3 to 16 mm
- Has polarized power connectors to ensure proper weld head/power supply connection
- Is suitable for prototypes
- Features optical speed control – no tachometer or calibration required

Series 5 Fixture Blocks, Side Plates, and Plenum

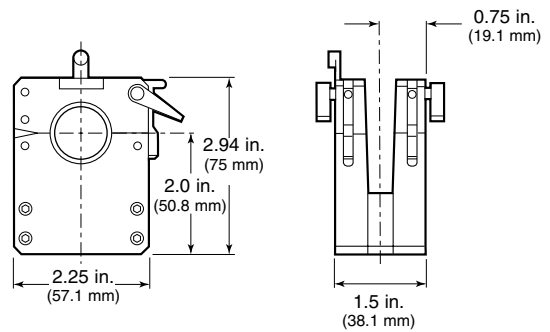
- Design offers improved productivity from the ability to set up one fixture while welding with another fixture
- Modular design provides multiple fixture combinations
- Alignment adjustment compensates for varying component tolerances
- Removable collets allow for easy component size changes
- Fixture block includes centering gauge

Ordering Information and Dimensions

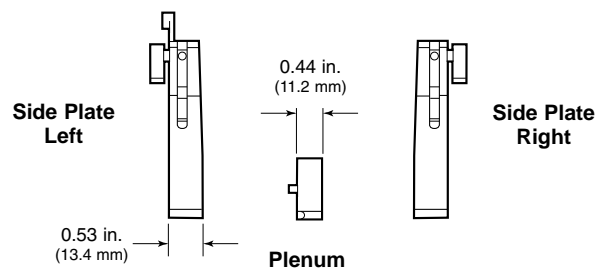
Weld Head



Fixture Block



Fixture Side Plates and Plenum



Description	Ordering Number
Weld Head	SWS-5H-C

Description	Ordering Number
Fixture Block	CWS-5TFB
Fixture Side Plate—Left	CWS-5TSPL
Fixture Side Plate—Right	CWS-5TSPR
Plenum	CWS-5PLEN

Tube Collets

- Are removeable to allow for easy size changes
- Hold components rigidly during welding
- Unique universal collet design holds components with a ± 0.005 in. (0.13 mm) tube outside diameter variation.



Ordering Information and Dimensions

Two collet halves are required per side plate.

Collet Size in.	Collet Half Ordering Number
1/8	CWS-5UCI-02
3/16	CWS-5UCI-03
1/4	CWS-5UCI-04
5/16	CWS-5UCI-05
3/8	CWS-5UCI-06
1/2	CWS-5UCI-08
9/16	CWS-5UCI-09
5/8	CWS-5UCI-10

Collet Size mm	Collet Half Ordering Number
3	CWS-5UCI-03MM
4	CWS-5UCI-04MM
5	CWS-5UCI-05MM
6	CWS-5UCI-06MM
8	CWS-5UCI-08MM
9	CWS-5UCI-09MM
10	CWS-5UCI-10MM
11	CWS-5UCI-11MM
12	CWS-5UCI-12MM
14	CWS-5UCI-14MM
15	CWS-5UCI-15MM
16	CWS-5UCI-16MM

Options and Accessories

Special Purpose Fixture Side Plates and Adapter Inserts

Fitting Side Plate 1

Fitting side plate 1 is for use with Swagelok® VCR® and VCO® fittings with captured male or female nuts and weld extension lengths of less than 0.75 in. (19 mm). A centering gauge must be used with this fitting side plate.

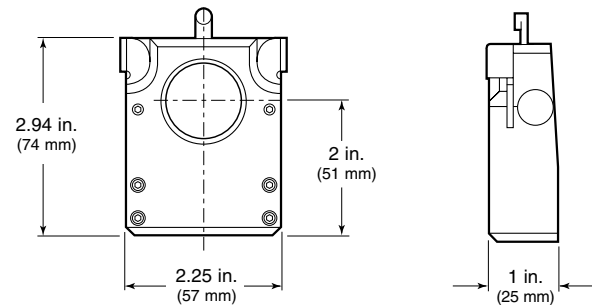
- Can be used with all other Series 5 fixture side plates
- Adapter inserts and fixture collets are also available

Description	Ordering Number
Fitting Side Plate 1	CWS-5FSP1

Adapter Inserts for Use with Fitting Side Plate 1

Adapter inserts are used to hold and accurately align the fittings as well as to protect the sealing surfaces during welding.

Fitting	Maximum Overall Length in. (mm)	Ordering Number
1/4 in. VCR gland with captured male nut	1.12 (28.4)	CWS-5MBVCO-04
1/4 in. VCR gland with captured female nut	0.72 (18.2)	CWS-5FVCR-04
1/4 in. VCO gland with captured female nut	0.77 (19.6)	CWS-5FBVCO-04



Fixture Collets for Use with Fitting Side Plate 1

The fixture collets hold adapter inserts. Two collets are required for each insert.

Description	Ordering Number
Fixture Collets	CWS-5UFCI-.95

Fitting Side Plate 2

Fitting side plate 2 is for use with Swagelok Micro-Fit® fittings and tubing. A centering gauge must be used with this fitting side plate.

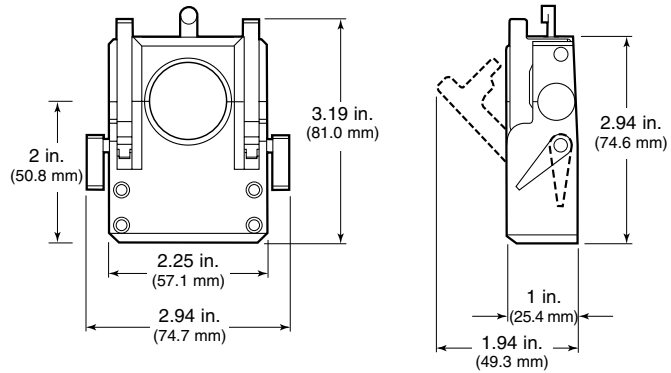
- Can be used with all other Series 5 fixture side plates
- Tube collets are also available.

Description	Ordering Number
Fitting Side Plate 2	CWS-5FSP2



Micro-Fit Fitting Collets for Use with Fitting Side Plate 2

Fitting	Ordering Number
1/8, 1/4 in., and 6 mm Micro-Fit fittings	CWS-5MWCI-04
3/8 in., 8 and 10 mm Micro-Fit fittings	CWS-5MWCI-06
1/2 in. and 12 mm Micro-Fit fittings	CWS-5MWCI-08



Tube Collets for Use with Fitting Side Plates 1 and 2

Tube collets eliminate the need to change fixture blocks/side plates.

To order tube collets for fitting side plate 1 or 2, select an ordering number.



Collet Size in.	Collet Half Ordering Number
1/8	CWS-5UFCEI-02
1/4	CWS-5UFCEI-04
3/8	CWS-5UFCEI-06
1/2	CWS-5UFCEI-08
5/8	CWS-5UFCEI-10

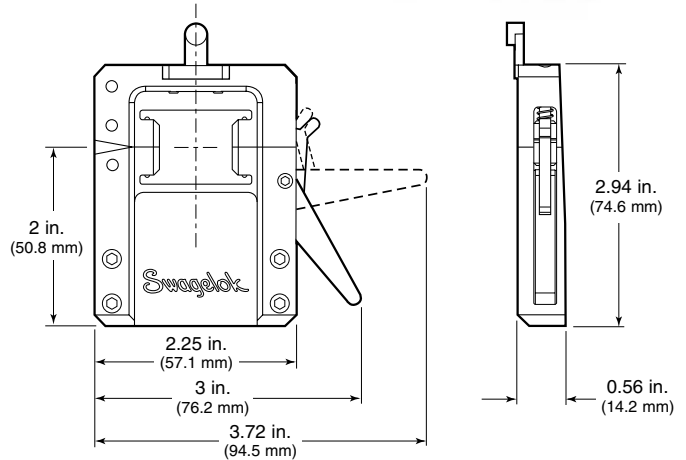
Collet Size mm	Collet Half Ordering Number
3	CWS-5UFCEI-03MM
6	CWS-5UFCEI-06MM
8	CWS-5UFCEI-08MM
10	CWS-5UFCEI-10MM
12	CWS-5UFCEI-12MM

Fitting Side Plate 3

Fitting side plate 3, which simplifies the fixturing and welding of components with a 1/2 in. (12.7 mm) tangent/ tube extension, can be used with either the standard or extended plenum. The unique colleting system eliminates the need for tools since collets snap in and out of place.



Description	Ordering Number
Fitting Side Plate 3—Left	SWS-5FSP3L
Fitting Side Plate 3—Right	SWS-5FSP3R



Tube Collets for Use with Fitting Side Plate 3

To order tube collets for fitting side plate 3, select an ordering number.

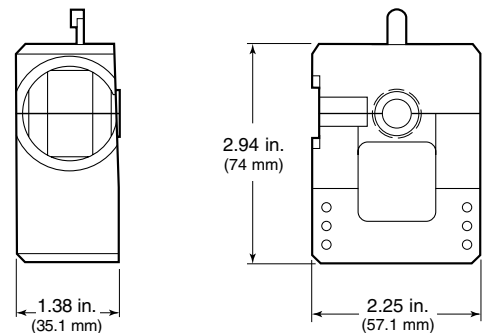


Collet Size in.	Ordering Number
1/8	SWS-5F3UCI-02
1/4	SWS-5F3UCI-04
3/8	SWS-5F3UCI-06
1/2	SWS-5F3UCI-08

Collet Size mm	Ordering Number
3	SWS-5F3UCI-03MM
6	SWS-5F3UCI-06MM
8	SWS-5F3UCI-08MM
12	SWS-5F3UCI-12MM

Valve Side Plate

The valve side plate is used to hold Swagelok BN, DL, DP, DS, and HB (manual actuator only) series valve bodies with 1/4 in., 3/8 in., and 6 mm tube butt weld end connections. The valve side plate can hold valves, completely assembled, to maintain product cleanliness, or disassembled. It can be used with other Series 5 fixture side plates and is available in both a left and right option for greater configuration flexibility and for welding valve-to-valve.

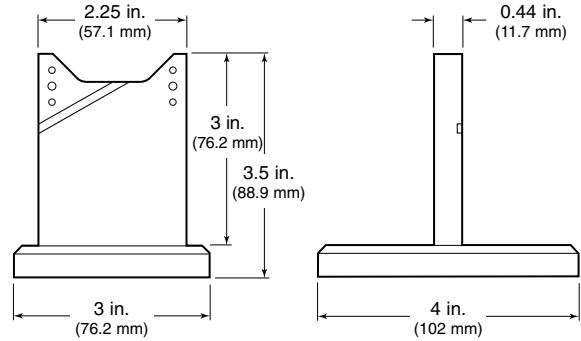


End Connection Size	Ordering Number	
	Left	Right
1/4 in.	SWS-5FSP4L-04	SWS-5FSP4R-04
3/8 in.	SWS-5FSP4L-06	SWS-5FSP4R-06
6 mm	SWS-5FSP4L-6MM	SWS-5FSP4R-6MM

Extended Plenum

The extended plenum is designed to work with all combinations of Series 5 side plates and fixture blocks. The extended plenum can be secured in a bench-top vise. The plenum stand allows the assembly to be secured to a workbench. In both cases, the extended plenum provides maximum support for fixturing, holding, and welding large and heavy components.

Description	Ordering Number
Extended plenum only	SWS-5PLEN-EXT
Extended plenum with stand	SWS-5PLEN-STAND



Weld Head Extension Cables

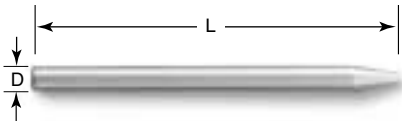
Swagelok weld head extension cables, when combined with the standard weld head, provide weld head operation of up to a maximum of 50 ft (15.2 m) away from the power supply. The cables are available in lengths of 12.5 and 37.5 ft (3.8 and 11.4 m).



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

Tungsten Electrodes

Swagelok electrodes, available in packages of ten, provide consistent, repeatable welds. Electrodes consist of 2 % ceriated tungsten, axially ground to rigid specifications.



Nominal Outside Diameter		Diameter (D) in. (mm)	Length (L) in. (mm)	Ordering Number
in.	mm			
1/8, 3/16	3	0.040 (1)	0.705 (17.9)	CWS-C.040-.705-P
1/4, 5/16	6, 8		0.605 (15.4)	CWS-C.040-.605-P
3/8, 1/2	10, 12		0.555 (14.1)	CWS-C.040-.555-P
5/8	14, 15		0.450 (11.4)	CWS-C.040-.450-P
—	16		0.405 (10.3)	CWS-C.040-.405-P

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.

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VCR, VCO, Micro-Fit
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