

Orbital Welding System

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



Series 5

- Is available for outside diameters ranging from 1/8 to 5/8 in. and 3 to 17.3 mm
- Provides higher output capabilities
- Offers versatility for use in a variety of industries

Series 5 Weld Head

- Is for outside weld joint diameters from 1/8 to 5/8 in. and 3 to 17.3 mm
- Offers optical speed control—no tachometer or calibration required
- Has polarized power connectors to ensure proper weld head/power supply connection
- Provides higher output capabilities:
 - Increased performance
 - Heavier-wall tubing applications.

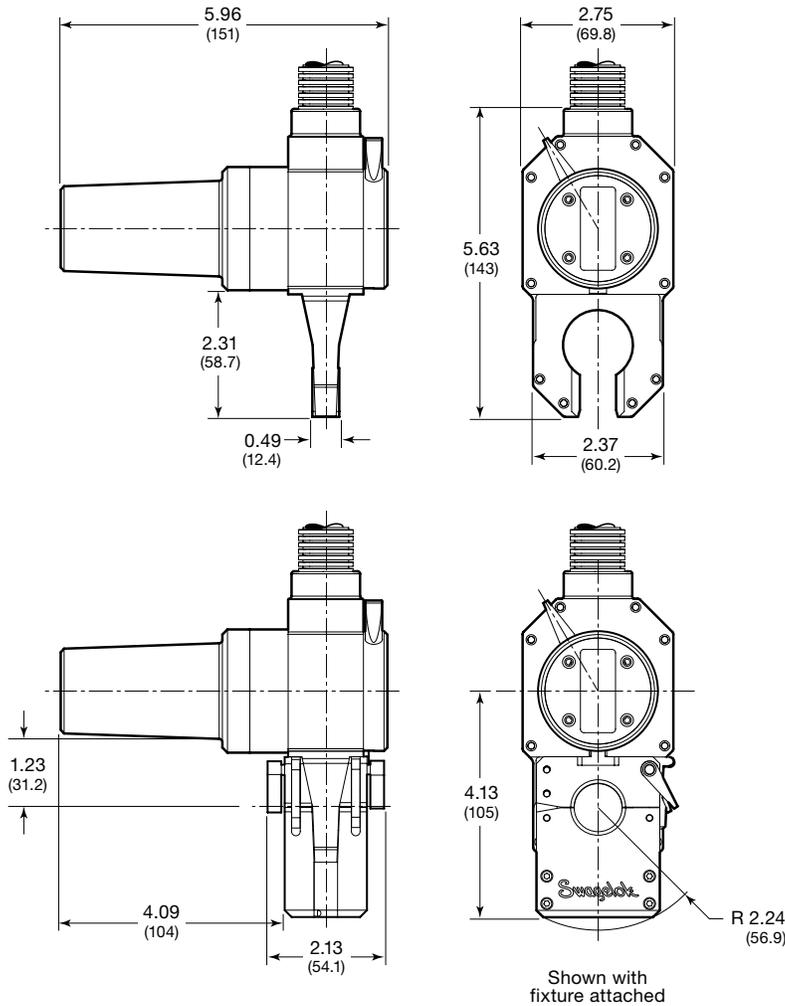
Series 5 Fixture Blocks, Side Plates, and Plenum

- 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.
- Fixture block includes centering gauge.

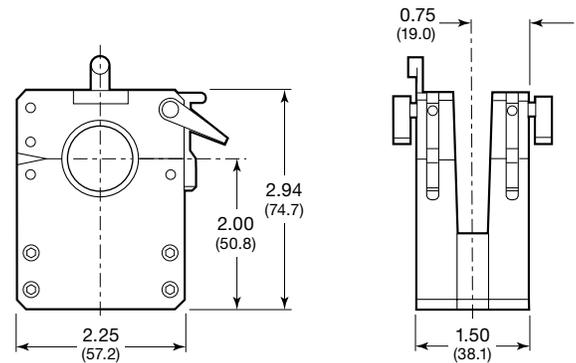
Ordering Information and Dimensions

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

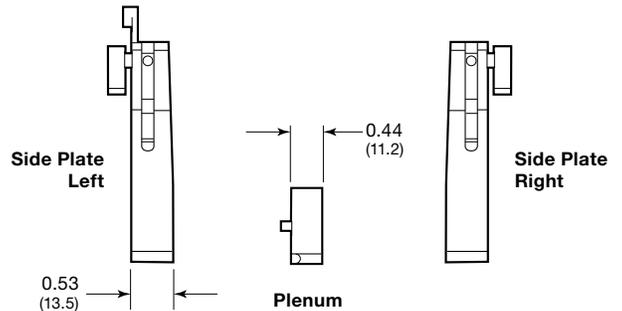
Weld Head



Fixture Block



Fixture Side Plates and Plenum



| Description | Cable Length ft (m) | Ordering Number |
|---|------------------------|-----------------|
| Weld head (includes arc gap gauge, tool package, and tungsten electrodes) | 15 (4.6) | SWS-5H-D-15 |
| | 35 (10.7) | SWS-5H-D-35 |
| | 50 (15.2) | SWS-5H-D-50 |

Cables attach directly to the Swagelok® M200 power supply. For Swagelok M100 and earlier power supply models, an adapter is required.
Ordering number: **SWS-M100-WH-ADPTR**



| 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.

Fractional

| 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 |

Metric

| 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 |
| 17.3 | CWS-5UCI-17.3MM |

Options and Accessories

Special-Purpose Fixture Side Plates and Adapter Inserts

Fitting Side Plate 1

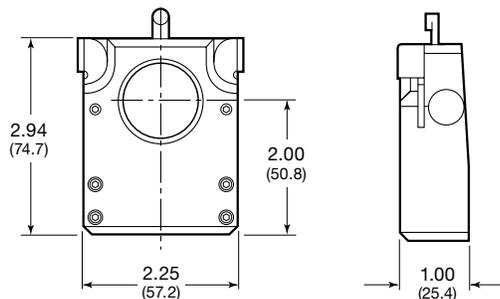
Fitting side plate 1 is for use with 1/4 in. Swagelok VCR® and VCO® fittings with captured male or female nuts and weld extension lengths of less than 0.75 in. (19.0 mm). A centering gauge must be used with this fitting side plate.

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



Ordering Information and Dimensions

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



| 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 and 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 collet with 4-40 \times 0.250 button-head cap screw | CWS-5UFCI-.95 |

Tube Collets for Use with Fitting Side Plate 1

See page 4.

Options and Accessories

Special-Purpose Fixture Side Plates and Adapter Inserts

Fitting Side Plate 1-EX

Fitting side plate 1-EX is for use with 1/2 in. Swagelok VCR fittings with captured male or female nuts.

- Can be used with all other Series 5 fixture side plates
- Adapter inserts and fixture collets, which enable use with 1/4 in. VCO and VCR fittings with captured male or female nuts, are also available.



Shown with adapter insert, available separately.

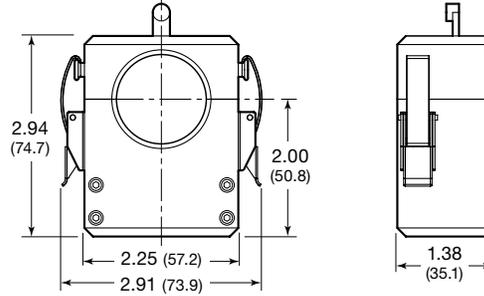
Adapter Inserts for Use with Fitting Side Plate 1-EX

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

| Fitting | Maximum Overall Length in. (mm) | Ordering Number |
|--|---------------------------------|-----------------|
| 1/2 in. VCR gland with captured male nut | 1.79 (45.5) | SWS-5MVCR-08 |
| 1/2 in. VCR gland with captured female nut | 1.12 (28.4) | SWS-5FVCR-08 |

Ordering Information and Dimensions

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



| Description | Ordering Number |
|-------------------------|-----------------|
| Fitting side plate 1-EX | SWS-5FSP1-EX |

Fixture Collets for Use with Fitting Side Plate 1-EX

The fixture collets hold adapter inserts (shown on page 3) used for 1/4 in. and smaller VCO and VCR fittings. Two collets are required for each insert.

| Description | Ordering Number |
|----------------|------------------|
| Fixture collet | SWS-5UFCl-EX-.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.

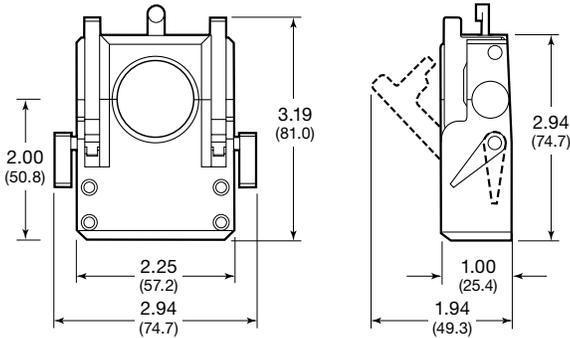


Micro-Fit Fitting Collets for Use with Fitting Side Plate 2

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

Ordering Information and Dimensions

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



| Description | Ordering Number |
|----------------------|-----------------|
| Fitting side plate 2 | CWS-5FSP2 |

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 plates 1 and 2, select an ordering number.



Fractional

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

Metric

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

Options and Accessories

Special-Purpose Fixture Side Plates and Adapter Inserts

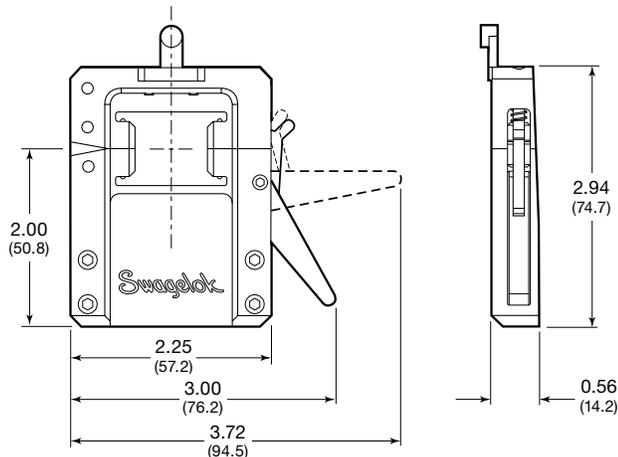
Fitting Side Plate 3

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.



Ordering Information and Dimensions

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



| 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.



Fractional

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

Metric

| Collet Size mm | Collet Half Ordering Number |
|----------------|-----------------------------|
| 3 | SWS-5F3UCI-03MM |
| 6 | SWS-5UF3CI-06MM |
| 8 | SWS-5UF3CI-08MM |
| 12 | SWS-5F3UCI-12MM |

Valve Side Plate

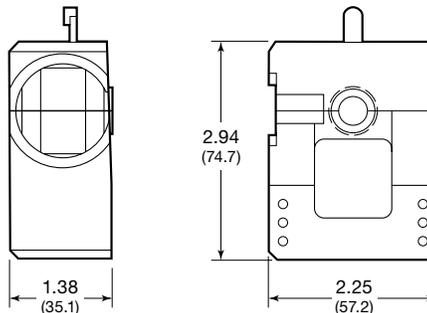
The valve side plate is used to hold Swagelok BN, DL, DP, DS, and HB (manual actuator only) series valve bodies with 1/4 in., 3/8 in., and 6 mm tube butt weld end connections.



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.

Ordering Information and Dimensions

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



| 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 |

Options and Accessories

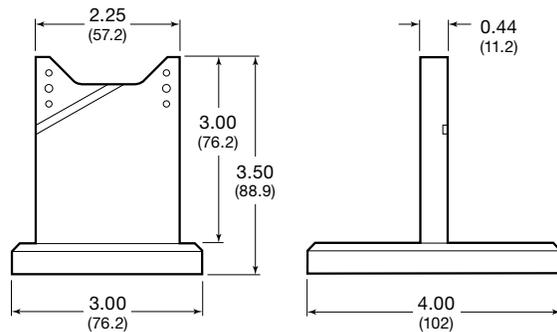
Extended Plenum

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.



Ordering Information and Dimensions

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



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

Tungsten Electrodes

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



| Weld Joint Nominal Outside Diameter | | Electrode Diameter (D) in. (mm) | Electrode 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, 17.3 | | 0.405 (10.3) | CWS-C.040-.405-P |

Weld Head Extension Cables

Swagelok weld head extension cables enable weld head operation away from the M200 power supply, up to a total cable length of 200 ft (61 m).

See the Swagelok *Series 5 Weld Head User's Manual*, MS-13-203, for information on weld head performance with optional weld head extension cables.



| Extension Cable ft (m) | Ordering Number |
|---------------------------|-----------------|
| 35 (10.7) | SWS-WHEC-D-35 |
| 50 (15.2) | SWS-WHEC-D-50 |

Weld Head Adapter Cable

The weld head adapter cable allows connection from earlier Swagelok 5H-C model weld heads to the Swagelok M200 power supply.

Ordering number: **SWS-M200-WH-ADPTR**



Options and Accessories

Weld Head Cases

Heavy-duty, custom plastic cases are available for secure transport and storage of Swagelok weld heads.

Cases include an insert for collets, accessories, or tools and a lid organizer with multiple storage or filing areas for user's manuals or other documentation.



| Description | Ordering Number |
|--|---------------------|
| Case for weld head with 15 ft (4.6 m) cable | SWS-WH-CASE-D-15 |
| Case for weld head with 35 ft (10.7 m) or 50 ft (15.2 m) cable | SWS-WH-CASE-D-50 |
| Case for micro weld head without motor module attached | SWS-WH-MICRO-CASE-D |

Additional Products

Swagelok Welding System

For orbital welding equipment and accessories see the *Swagelok Welding System M200 Power Supply* catalog, MS-02-342.



Tube Facing Tools

For information on tools for facing tubing up to 4 1/2 in. and 114.3 mm, OD, see the *Swagelok Tube Facing Tools—TF16, TF24, TF40, and TF72 Series* catalog, MS-02-426.



Tube Cutting Tool

For information on tools for cutting tubing up to 4 1/2 in. and 120 mm OD, see the *Swagelok Tube Cutting Tool—TC Series* catalog, MS-02-427.



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 or contact your authorized Swagelok representative.

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