

Weld Fittings

For Vacuum Service



- Weld fittings are cold formed and vacuum annealed
- Tubular fitting shapes include elbows, tees, crosses, reducers, and end caps
- 304 stainless steel construction with bead-blasted finish

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Features

- Vacuum-annealed, cold-formed tubular fittings minimize likelihood of stress corrosion cracking.
- Tees and crosses are fabricated using the pulled-port and 100 % penetration GTAW weld techniques.
- Weld fittings are fabricated from 304 stainless steel; 316L stainless steel is available on request.
- Weld fittings are provided with a bead blast finish unless otherwise noted.
- Vacuum Range: $\geq 10^{-9}$ Torr
- Temperature Range: -325 to 842°F (-200 to 450°C)

Applications

- High-temperature applications
- Applications where the number of flanged joints must be minimized such as roughing lines, permanent vacuum lines, or pump exhaust lines

End Connection Sizes

End connections are available in 1/2 to 4 in. sizes. Tube wall thicknesses are shown below.

End Connection Size, in.	Tube Wall in.
1/2 to 3	0.065
4	0.083

Contact your authorized Swagelok® representative for additional sizes and configurations.

Dimensions

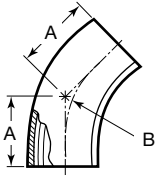
Dimensions, in inches (millimeters), are for reference only and are subject to change.

Welding Notes

- GTAW (gas tungsten arc welding) is the preferred process.
- Welds should be produced without filler wire (autogenous).
- The weld joint area should be properly cleaned to remove contaminants such as fibers, fingerprints, oils, and greases prior to welding.
- The weld ends of the components should be properly squared and deburred to minimize the gap in the weld joint.
- Welding should be performed with the internal surface of the joint protected by an inert gas such as argon.
- The finished butt weld should have 100 % penetration without discontinuities such as cracks, voids, and porosity.

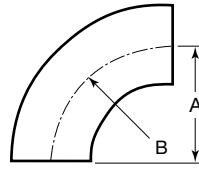
Elbows

45°



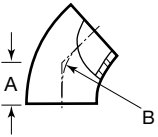
Tube OD in.	Ordering Number	Dimensions, in. (mm)	
		A	B
1	J2KS4110	1.19 (30.2)	1.50 (38.1)
1 1/2	J2KS4115	1.62 (41.1)	2.25 (57.2)
2	J2KS4120	2.31 (58.7)	3.00 (76.2)
2 1/2	J2KS4125	3.00 (76.2)	3.75 (95.3)
3	J2KS4130	3.69 (93.7)	4.50 (114)
4	J2KS4140	4.81 (122)	6.00 (152)

Short 90°



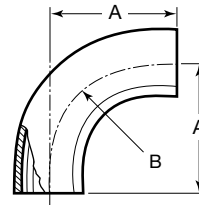
Tube OD in.	Ordering Number	Dimensions, in. (mm)	
		A	B
1/2	J2SX4150	0.75 (19.1)	0.75 (19.1)
3/4	J2SX4175	1.12 (28.4)	1.12 (28.4)
1	J2SX4110	1.50 (38.1)	1.50 (38.1)
1 1/2	J2SX4115	2.25 (57.2)	2.25 (57.2)
2	J2SX4120	3.00 (76.2)	3.00 (76.2)
2 1/2	J2SX4125	3.75 (95.3)	3.75 (95.3)
3	J2SX4130	4.50 (114)	4.50 (114)
4	J2SX4140	6.00 (152)	6.00 (152)

Short 45°



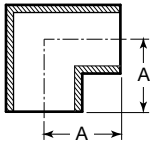
Tube OD in.	Ordering Number	Dimensions, in. (mm)	
		A	B
1/2	J2KSX4150	0.31 (7.9)	0.75 (19.1)
3/4	J2KSX4175	0.47 (11.9)	1.12 (28.4)
1	J2KSX4110	0.62 (15.7)	1.50 (38.1)
1 1/2	J2KSX4115	0.94 (23.9)	2.25 (57.2)
2	J2KSX4120	1.25 (31.8)	3.00 (76.2)
2 1/2	J2KSX4125	1.56 (39.6)	3.75 (95.3)
3	J2KSX4130	1.88 (47.8)	4.50 (114)
4	J2KSX4140	2.50 (63.5)	6.00 (152)

90°



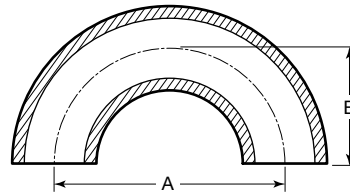
Tube OD in.	Ordering Number	Dimensions, in. (mm)	
		A	B
1	J2S4110	2.06 (52.3)	1.50 (38.1)
1 1/2	J2S4115	2.94 (74.7)	2.25 (57.2)
2	J2S4120	4.06 (103)	3.00 (76.2)
2 1/2	J2S4125	5.19 (132)	3.75 (95.3)
3	J2S4130	6.31 (160)	4.50 (114)
4	J2S4140	8.31 (211)	6.00 (152)

Long 90° Mitered



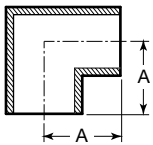
Tube OD in.	Ordering Number	A in. (mm)
3/4	J2M4175	1.40 (35.6)
1	J2M4110	1.88 (47.8)
1 1/2	J2M4115	2.39 (60.7)
2	J2M4120	2.98 (75.7)
2 1/2	J2M4125	3.75 (95.3)
4	J2M4140	4.87 (124)

180° Return Bend



Tube OD in.	Ordering Number	Dimensions, in. (mm)	
		A	B
1/2	J2WU4150	1.50 (38.1)	0.75 (19.1)
3/4	J2WU4175	2.25 (57.2)	1.13 (28.7)
1	J2WU4110	3.00 (76.2)	1.50 (38.1)
1 1/2	J2WU4115	4.50 (114)	2.25 (57.2)
2	J2WU4120	6.00 (152)	3.00 (76.2)
2 1/2	J2WU4125	7.50 (191)	3.75 (95.3)
3	J2WU4130	9.00 (229)	4.50 (114)
4	J2WU4140	12.0 (305)	6.00 (152)

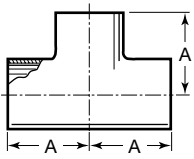
Short 90° Mitered



Tube OD in.	Ordering Number	A in. (mm)
3/4	J2MX4175	1.00 (25.4)
1	J2MX4110	1.80 (45.7)
1 1/2	J2MX4115	2.25 (57.2)
2	J2MX4120	2.59 (65.8)
2 1/2	J2MX4125	3.00 (76.2)
3	J2MX4130	2.97 (75.4)
4	J2MX4140	3.88 (98.6)

Tees

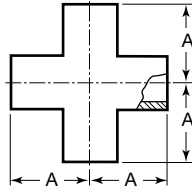
Equal



Tube OD in.	Ordering Number	A in. (mm)
1/2	J7W4150	0.75 (19.1)
3/4	J7W4175	1.00 (25.4)
1	J7W4110	1.88 (47.8)
1 1/2	J7W4115	2.25 (57.2)
2	J7W4120	3.00 (76.2)
2 1/2	J7W4125	3.00 (76.2)
3	J7W4130	3.25 (82.6)
4	J7W4140	3.88 (98.6)

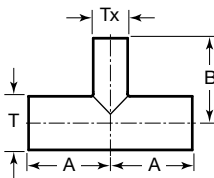
Crosses

Equal



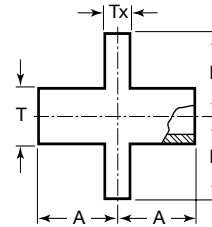
Tube OD in.	Ordering Number	A in. (mm)
1/2	J9W4150	0.75 (19.1)
3/4	J9W4175	1.00 (25.4)
1	J9W4110	1.88 (47.8)
1 1/2	J9W4115	2.25 (57.2)
2	J9W4120	3.00 (76.2)
2 1/2	J9W4125	3.00 (76.2)
3	J9W4130	3.25 (82.6)
4	J9W4140	3.88 (98.6)

Reducing



Tube OD, in.		Ordering Number	Dimensions, in. (mm)	
T	Tx		A	B
1.00	0.50	J7WR411050	1.88 (47.8)	1.00 (25.4)
	0.75	J7WR411075		1.12 (28.4)
1.50	0.50	J7WR411550	2.25 (57.2)	1.25 (31.8)
	0.75	J7WR411575		1.38 (35.1)
	1.00	J7WR411510		2.12 (53.8)
2.00	0.50	J7WR412050	3.00 (76.2)	1.50 (38.1)
	0.75	J7WR412075		1.62 (41.1)
	1.00	J7WR412010		2.38 (60.5)
	1.50	J7WR412015		2.50 (63.5)
2.50	1.50	J7WR412515	3.00 (76.2)	2.75 (69.9)
	2.00	J7WR412520		3.25 (82.6)
3.00	1.50	J7WR413015	3.25 (82.6)	3.00 (76.2)
	2.00	J7WR413020		3.50 (88.9)
	2.50	J7WR413025		3.25 (82.6)
4.00	1.50	J7WR414015	3.88 (98.6)	3.62 (91.9)
	2.00	J7WR414020		4.00 (102)
	2.50	J7WR414025		3.75 (95.3)
	3.00	J7WR414030		3.75 (95.3)

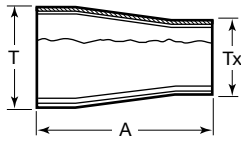
Reducing



Tube OD, in.		Ordering Number	Dimensions, in. (mm)	
T	Tx		A	B
1.00	0.50	J9WR411050	1.88 (47.8)	1.00 (25.4)
	0.75	J9WR411075		1.12 (28.4)
1.50	0.50	J9WR411550	2.25 (57.2)	1.25 (31.8)
	0.75	J9WR411575		1.38 (35.1)
	1.00	J9WR411510		2.12 (53.8)
2.00	0.50	J9WR412050	3.00 (76.2)	1.50 (38.1)
	0.75	J9WR412075		1.62 (41.1)
	1.00	J9WR412010		2.38 (60.5)
	1.50	J9WR412015		2.50 (63.5)
2.50	1.50	J9WR412515	3.00 (76.2)	2.75 (69.9)
	2.00	J9WR412520		3.25 (82.6)
3.00	1.50	J9WR413015	3.25 (82.6)	3.00 (76.2)
	2.00	J9WR413020		3.50 (88.9)
	2.50	J9WR413025		3.25 (82.6)
4.00	1.50	J9WR414015	3.88 (98.6)	3.62 (91.9)
	2.00	J9WR414020		4.00 (102)
	2.50	J9WR414025		3.75 (95.3)
	3.00	J9WR414030		3.75 (95.3)

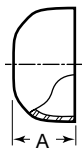
Reducers and End Caps

Concentric Reducers



Tube OD, in.		Ordering Number	A in. (mm)
T	Tx		
1.00	0.50	JB31W411050	1.38 (35.1)
	0.75	JB31W411075	
1.50	1.00	JB31W411510	2.38 (60.5)
2.00	1.00	JB31W412010	2.38 (60.5)
	1.50	JB31W412015	
2.50	1.50	JB31W412515	
	2.00	JB31W412520	
3.00	1.50	JB31W413015	3.62 (91.9)
	2.00	JB31W413020	
	2.50	JB31W413025	
4.00	2.00	JB31W414020	
	2.50	JB31W414025	
	3.00	JB31W414030	

End Caps



Tube OD in.	Ordering Number	A in. (mm)
1/2	J16W450	0.25 (6.4)
3/4	J16W475	0.31 (7.9)
1	J16W410	0.44 (11.2)
1 1/2	J16W415	0.56 (14.2)
2	J16W420	0.75 (19.1)
2 1/2	J16W425	1.06 (26.9)
3	J16W430	1.12 (28.4)
4	J16W440	1.25 (31.8)

Tubing Products

Swagelok offers a wide variety of tubing products.

Contact your authorized Swagelok representative or see these Swagelok catalogs for more information:

- *Stainless Steel Seamless Tubing, Fractional Sizes, MS-01-153-SCS*
- *Stainless Steel Tubing, Imperial Sizes, MS-01-159-SCS*



Swagelok Orbital Welding System

See the *Swagelok Welding System M200 Power Supply* catalog, MS-02-342, for more information.



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.

Warranty Information

Swagelok products are backed by The Swagelok Limited Lifetime Warranty. For a copy, visit swagelok.com or contact your authorized Swagelok representative.