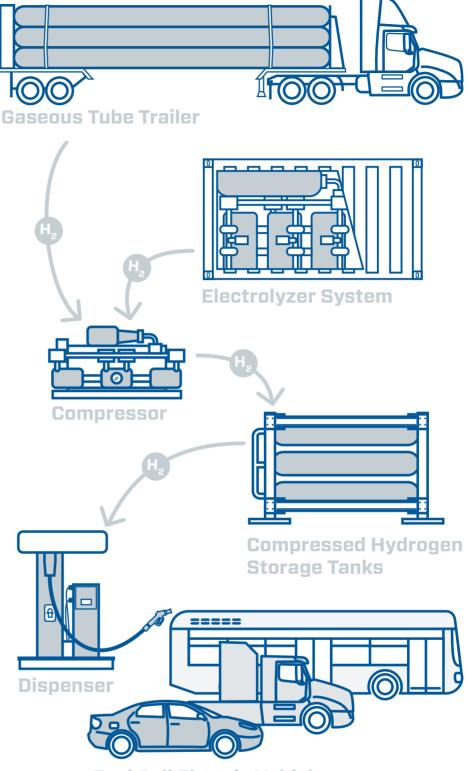
Swagelok® Hydrogen-Compatible Products

for the Hydrogen Mobility Industry

Products that are compatible for use in hydrogen on-vehicle and infrastructure applications, available from your local authorized sales and service center.

The design and operation of hydrogen systems are the responsibility of the user, who should obtain qualified assistance to ensure their safe use of hydrogen.



Fuel Cell Electric Vehicles



Introduction

Hydrogen fuel cell technology requires high-integrity fluid system components to fill and store hydrogen in cylinders and transfer it to the fuel cell on the vehicle. Swagelok offers a wide range of fluid system components for use in many types of hydrogen-related applications including the infrastructure that produces, transports, compresses, stores, and fills cylinders with hydrogen and for on-vehicle use.

Swagelok products, as listed in this document, are compatible with both on-vehicle and infrastructure hydrogen applications. Hydrogen-compatible products have had the materials of construction reviewed for appropriate use with hydrogen. Some metals are susceptible to hydrogen embrittlement, specifically hardened Belleville springs and stems. These have been replaced with less susceptible materials for compatibility with hydrogen service. Some elastomers are also more susceptible to hydrogen degradation and have been replaced with more resilient materials. Products not listed in this document may not be suitable for hydrogen applications.

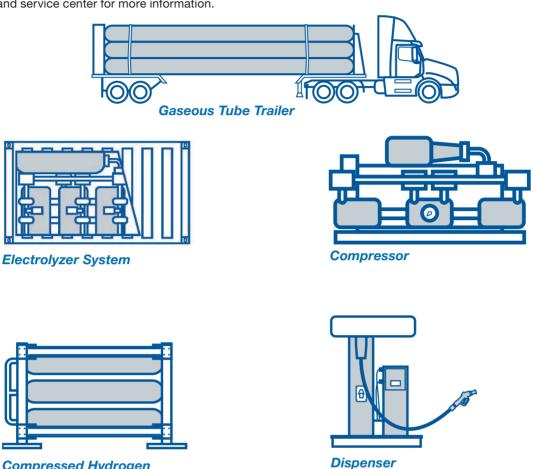
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, , ,	
FK Series	
FK Series	



Infrastructure Applications

Infrastructure applications include the dispensers, storage cylinders, compressors, separators, and pressure control devices that make up the station, as well as the hydrogen tube trailers that bring the hydrogen to the stations. Components in these locations must be hydrogen-compatible but may not require specific certifications. In addition to standard Swagelok tube fittings, a range of FK series medium-pressure fittings, cone and thread fittings, hoses, valves, and pressure gauges that are hydrogen-compatible are available.

Note: For these applications, regional standards and specifications may vary. Please consult your local authorized Swagelok sales and service center for more information.



The following provides a list of products that are hydrogen-compatible for use in infrastructure applications. Refer to Hydrogen-Compatible Products for Applications Up to 1 378 bar (20 000 psig) on page 4 for additional information.

- Swagelok tube fittings and tubing
- FK series medium-pressure fittings and tubing

Compressed Hydrogen

FKB series medium-pressure ball valves

Storage Tanks

- IPT check valves
- IPT series cone and thread fittings and tubing
- AFS series ball valves
- FJ, FL, FM, and FX series hose
- S model pressure gauges
- Pipe fittings
- Swagelok Custom Solutions, such as filling, distribution, priority, and control panels and tubing manifolds.



4 Swagelok Hydrogen-Compatible Products

Hydrogen-Compatible Products for Applications Up to 1 378 bar (20 000 psig)

These products may be ordered using standard ordering numbers given in the product literature, except where noted. Individual product ratings are as noted in the product literature.

Product	Product Type/ Series	Description	Available Sizes	Working Pressure and Ordering Information
		Straight, elbow, tee, and cross standard tube fitting	1/16 to 2 in. 2 to 50 mm	Refer to Tubing Data, MS-01-107, for pressure rating information. Refer to Gaugeable Tube Fittings and Adapter Fittings, MS-01-140, for ordering information.
	Tube	Assembly-by-Torque (AbT)	1/4 to 1/2 in. 6 to 12 mm	Refer to Assembly-by-Torque (AbT) Fittings, MS-02-466, for additional information
		Medium-pressure, FK series	1/4 to 1 in. 6 to 12 mm	Refer to Medium- and High- Pressure Fittings, Tubing, Valves, and Accessories catalog, MS-02-472, for additional information.
Fitting	Cone and Thread, IPT	Medium- and high-pressure cone and thread, medium-pressure pipe fittings and adapters	1/4 to 1 1/2 in.	Refer to Medium- and High- Pressure Fittings, Tubing, Valves, and Accessories catalog, MS-02-472, for additional information.
	Pipe	NPT/ISO	1/16 to 1 1/2 in.	Refer to Pipe Fittings catalog. MS-01-147, and Medium- and High- Pressure Fittings, Tubing, Valves, and Accessories, MS-02-472, for additional information.
		Male/female SAE	3/16 to 1 in.	Refer to Pipe Fittings catalog, MS-01-147, for additional information
	VCO with ethylene propylene O-rings only	O-ring face seal	1/8 to 1 in.	Refer to VCO O-ring Face Seal Fittings. MS-01-28, add -EP to selected ordering number
	VCR with 316 stainless steel gaskets only	Metal gasket face seal	1/8 to 1 in.	Refer to VCR Metal Gasket Face Seal Fittings, MS-01-24, 316 stainless steel gaskets only
	FJ	304 SS single braid layer reinforcement, 316L stainless steel annular convoluted core	1/4 to 2 in.	
	FL	321 stainless steel single braid layer reinforced, 316L stainless steel annular convoluted core	1/4, 1/2 in.	Refer to Hose and Flexible Tubing
Hose	FM	316L stainless steel single braid layer reinforced, 316L stainless steel annular convoluted core	1/4 to 2 in.	catalog, MS-01-180, for ordering information.
	FX	321 stainless steel double braid layer reinforced, 316L stainless steel annular convoluted core	1/4 to 2 in.	

Please consult your local authorized Swagelok sales and service center with any questions.

Products not listed in this document may not be suitable for hydrogen applications.



Hydrogen-Compatible Products for Applications Up to 1 378 bar (20 000 psig), continued

These products may be ordered using standard ordering numbers given in the product literature, except where noted. Individual product ratings are as noted in the product literature.

Product	Product Type/Series	Description	Working Pressure and Ordering Information
	316/316L seamless instrumentation grade	Stainless steel seamless tubing, ASTM A213/A269 1/8 to 2 in. and 3 to 25 mm	Refer to Stainless Steel Seamless Tubing and Tube Support Systems catalog, MS-01-181, for additional information.
Tubing	Medium-pressure	Stainless steel medium-pressure tubing, ASTM A213/A269 1/4, 3/8, 1/2, and 3/4 in.	Refer to Medium- and High-Pressure Fittings, Tubing, Valves, and Accessories catalog, MS-02-472, for additional information.
	Cone and thread	Stainless steel cone and thread tubing, medium-pressure ASTM A213 1/4 to 1 in.	Refer to Medium- and High-Pressure Fittings, Tubing, Valves, and Accessories catalog, MS-02-472, for additional information.
	AFS	Alternative fuel service (AFS) ball valve, 1/4-turn, PEEK seats	Refer to Swagelok Alternative Fuel Service (AFS) Ball Valves catalog, MS-02-303, for additional information.
Valve	FKB	Medium-pressure trunnion-style ball valve, PEEK seat	1 034 bar at -40°C to 85°C (15 000 psig at -40°F to 185°F) SS-6FKBFK6-53402 SS-8FKBFK8-53402 SS-12FKBFK12-53402 Refer to Medium- and High-Pressure Fittings, Tubing, Valves, and Accessories catalog, MS-02-472, for additional information.
	SK	Multipurpose ball valve, 1/4-turn, PEEK seats	Refer to Multipurpose Ball Valves catalog, MS-02-345, for additional information.
Gauge	PGI	S and B model industrial pressure gauge	Refer to Process Gauges, Industrial and Process catalog, MS-02-170, for additional information.

Please consult your local authorized Swagelok sales and service center with any questions.

Products not listed in this document may not be suitable for hydrogen applications.



On-Vehicle Applications

On-vehicle applications include light-duty (car and van), heavy-duty (bus and truck), rail, ship, and aerospace. Components used in light-duty cars and vans and heavy-duty trucks and buses may require EC-79 certification for use at working pressures above 30 bar (435 psig). Specific testing is required to achieve this certification, including corrosion resistance, endurance, hydraulic pressure cycle testing, and external leakage testing. Products with this certification are specially marked to reflect the approval. Products are certified to EC-79 based on the nominal pressure of either H35 or H70 pressure classes. All products are tested and certified to the MAWP for the pressure class.

Fuel Cell Electric Vehicles

Hydrogen-compatible Products Available
Refer to Hydrogen-Compatible Products for Applications
Up to 1 378 bar (20 000 psig) on page 4 for additional information.

- Assembly-by-torque (AbT) fittings
- Swagelok tube fittings
- FK series medium-pressure fittings
- CH series check valves
- Alternative fuel service ball valves
- XS series industrial excess flow valves
- TF and FW series filters
- Pressure gauges
- All-metal hose
- Swagelok tubing
- Swagelok® Custom Solutions, such as CNC bent fuel lines



EC-79 Certified Products:

EC-79 certification for on vehicle applications come in two pressure classes:

- H35 pressure class is for nominal working pressure from 30 bar (435 psig) to 350 bar (5 076 psig) see page 7 and 9 for additional information.
- H70 pressure class is for nominal working pressure from 30 bar (435 psig) to 700 bar (10 159 psig) see page 24 and 25 for additional information



Fittings With EC-79 Certification for Systems Above 30 bar (435 psig) and Up to 350 bar (5 076 psig), Temperature -40 to 120°C (-40 to 248°F) — H35 Pressure Class

Product	Product Type	Description	Available Sizes ^①
	AbT	AbT Nut and Ferrule Set	Tube fitting sizes: 1/4, 3/8, 1/2 in. 6, 8, 10, 12 mm
			Ordering Information: pages 10
		Union - Swagelok tube fitting to Swagelok tube fitting Port connector Cap	Tube fitting sizes: 1/4, 3/8, 1/2, 5/8 in. 6, 8, 10, 12, 16 mm
		Plug	Ordering Information: pages 11 and 14
		Male connector - Swagelok tube fitting to 1/4 in. male NPT	Tube fitting sizes: 1/4, 3/8, 1/2, 5/8 in. 6, 8, 10, 12 mm
			Ordering Information: page 11
			Tube fitting sizes: 1/4, 3/8, 1/2, 5/8 in. 6, 8, 10, 12 mm
	Straight	Male connector - Swagelok tube fitting to SAE/MS straight thread (ST and STH) fitting	SAE/MS straight thread Male: ST: 7/16-20, 9/16-18, STH: 3/4-16
Tube fitting			Ordering Information: page 12
		Female connector - Swagelok tube fitting to 1/4 in. female NPT	Tube fitting sizes: 1/4, 5/16, 3/8, 1/2 in. 6, 8, 10, 12 mm
			Ordering Information: page 12
		Reducer - Swagelok tube fitting to tube adapter	1/4, 3/8, 1/2 in. 6, 8, 10, 12 mm
			Ordering Information: page 13
	Elbow	Union - Swagelok tube fitting to Swagelok tube fitting	1/4, 3/8, 1/2, 5/8 in. 6, 8, 10, 12, 16 mm
		- Chagolon tabo mang	Ordering Information: page 15
	Tee	Union - all Swagelok tube fitting ends	1/4, 3/8, 1/2, 5/8 in. 6, 8, 10, 12, 16 mm
			Ordering Information: page 15
	Cross	Union - all Swagelok tube fitting ends	1/4, 3/8, 1/2 in. 6, 8, 10, 12, 16 mm
			Ordering Information: page 15

① Additional sizes are available. Contact your local authorized Swagelok sales and service center for details.



② O-ring material is 75 durometer fluorocarbon FKM.

Fittings With EC-79 Certification for Systems Above 30 bar (435 psig) and Up to 350 bar (5 076 psig), Temperature -40 to 120°C (-40 to 248°F) — H35 Pressure Class, continued

Product	Product Type	Description	Available Sizes ^①
		1/4 in. NPT	Tube adapter sizes: 1/4, 3/8, 1/2 in. 6, 8, 10, 12 mm
			Ordering Information: page 16
Tube adapter	Male	SAE/MS straight thread (ST and STH)@	Tube adapter sizes: 1/4, 3/8, 1/2 in. 6, 8, 10, 12 mm SAE/MS straight thread
			ST: 7/16-20, 9/16-18 STH: 3/4-16
			Ordering Information: page 16
	Female	1/4 in. NPT	Tube adapter sizes: 1/4, 3/8, 1/2 in. 6, 8, 10, 12 mm
			Ordering Information: page 16
		Male SAE/MS straight thread to 1/4 in. male NPT②	SAE/MS straight thread 7/16-20 to 1/4 in. NPT
	Adapter		Ordering Information: page 17
		Male SAE/MS straight thread to 1/4 in. female NPT②	SAE/MS straight thread 7/16-20 to 1/4 in. NPT
			Ordering Information: page 17
	Reducer	Male to female SAE/MS straight thread (ST)②	SAE/MS straight thread ST: 9/16-18 to 7/16-20 STH: 3/4-16
			Ordering Information: page 17
Pipe fitting	Plug	1/4 in. Male NPT	1/4 in.
	i lug	1/4 III. Wale W	Ordering Information: page 17
	Hollow hex plug	Male SAE/MS straight thread (ST and STH)@	SAE/MS straight thread ST: 3/8-24, 7/16-20, 9/16-18, STH: 3/4-16
		(ST and STI)	Ordering Information: page 18
	Hex head plug	Male SAE/MS straight thread (ST and STH)②	SAE/MS straight thread ST: 3/8-24, 7/16-20, 9/16-18 STH: 3/4-16
			Ordering Information: page 18
	Pipe cap	Female NPT	1/4 in. Ordering Information: page 18

① Additional sizes are available. Contact your local authorized Swagelok sales and service center for details.

 $[\]ensuremath{@}$ O-ring material is 75 durometer fluorocarbon FKM.

Valves With EC-79 Certification for Systems Above 30 bar (435 psig) and Up to 350 bar (5 076 psig), - H35 Pressure Class

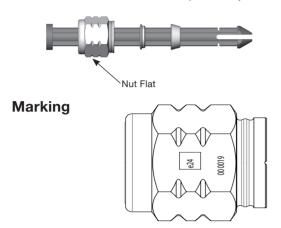
Product	Series	Temperature	Description	Available Sizes
	AFS	-40 to 120°C (-40 to 248°F)	Alternative fuel service (AFS) ball valve, 1/4-turn, PEEK seats	Fractional Swagelok tube fitting: 3/8, 1/2 in. Metric Swagelok tube fitting: 12, 16 mm Female NPT: 3/8, 1/2 in. SAE/MS straight thread ST: 3/4-16 Additional Information on page 19
Valves	Check CH Series		Poppet check valve Seal materials: Ethylene propylene or neoprene	Fractional Swagelok tube fitting: 1/4, 3/8, 1/2 in. Metric Swagelok tube fitting: 6, 8, 10, 12 mm Female NPT: 1/4 in. Male NPT: 1/4, 3/8, 1/2 in. Additional Information on page 20
	Industrial Excess XS Series	-40 to 85°C	Industrial excess flow valves Seal materials: Ethylene propylene	Fractional Swagelok tube fitting: 1/4 in. Metric Swagelok tube fitting: 6 mm Female NPT: 1/4 in. Additional Information on page 21
Filters	TF Series	- (-40 to 185°F)	Tee-type filters Nominal pore size: 0.5, 2, 7, 15 μm	Swagelok tube fitting: 1/4, 3/8, 1/2 in., 6, 8, 10,12 mm Female NPT: 1/8 in. Male NPT: 1/4 in. Additional Information on page 22
	FW Series		All-welded inline filters Nominal pore size: 0.5, 2, 7, 15 μm	Swagelok tube fitting: 1/4 in., 6 mm Female NPT: 1/4 in. Male NPT: 1/4 in. Additional Information on page 23



Ordering Numbers and Dimensions for Fittings With EC-79 Certification for Systems Above 30 bar (435 psig) and Up to 350 bar (5 076 psig), Temperature -40 to 120°C (-40 to 248°F) — H35 Pressure Class

Assembly-by-Torque (AbT) Fittings

AbT Nut and Ferrule Set (sold separately for easy installation)

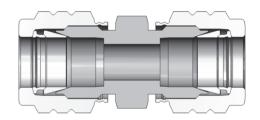


Tube OD	Ordering Sets per Number⊕ Blister Pack		Dimension Nut Flat
	Fractional,	in.	
1/4	SS-4ABT-NFSET-HV35	50	9/16 in.
3/8	SS-6ABT-NFSET-HV35	50	11/16 in.
1/2	SS-8ABT-NFSET-HV35	50	7/8 in.
	Metric, mi	m	
6	SS-6MABT-NFSET-HV35	50	14 mm
8	SS-8MABT-NFSET-HV35	50	5/8 in.
10	SS-10MABT-NFSET-HV35	50	3/4 in.
12	SS-12MABT-NFSET-HV35	50	22 mm

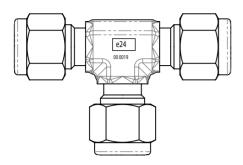
① Order in blister packs.

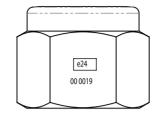
AbT Body Only Ordering Information:

- AbT union body see page 11 for base ordering number and dimensions, add BO to base ordering number.
 - Example: SS-400-6BO-HV35
- AbT male connector body SAE/MS straight thread (ST) see page 12 for base ordering number and dimensions, add BO to base ordering number. Example: SS-400-1-4STDEBO-HV35
- AbT elbow union body see page 15 for base ordering number and dimensions, add BO to base ordering number.
 - Example: SS-400-9BO-HV35
- AbT tee union body see page 15 for base ordering number and dimensions, add BO to base ordering number.
 - Example: SS-400-3BO-HV35
- AbT cross union see page 15 for base ordering number and dimensions, add BO to base ordering number.
 - Example: SS-400-4BO-HV35

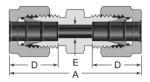


Marking



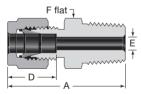


Unions



Tube		Dimensions					
OD	Ordering Number	Α	D	E			
	Dimensions, in.						
1/4	SS-400-6-HV35	1.61	0.60	0.19			
3/8	SS-600-6-HV35	1.77	0.66	0.28			
1/2	SS-810-6-HV35	2.02	0.90	0.41			
5/8	SS-1010-6-HV35	2.05	0.96	0.50			
	Dimensio	ns, mm					
6	SS-6M0-6-HV35	41.0	15.3	4.8			
8	SS-8M0-6-HV35	43.2	16.2	6.4			
10	SS-10M0-6-HV35	46.2	17.2	7.9			
12	SS-12M0-6-HV35	51.2	22.8	9.5			
16	SS-16M0-6-HV35	52.0	24.4	12.7			

Male Connectors



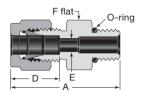
NPT

Tube	NPT		Dimensions			
OD	Size	Ordering Number	Α	D	E®	F
		Dimensio	ns, in.			
1/4		SS-400-1-4-HV35	1.49	0.60	0.19	9/16
3/8	1/4	SS-600-1-4-HV35	1.57	0.66	0.28	5/8
1/2	1/4	SS-810-1-4-HV35	1.71	0.90	0.28	13/16
5/8		SS-1010-1-4-HV35	1.74	0.96	0.28	15/16
		Dimension	ns, mm			
6		SS-6M0-1-4-HV35	37.9	15.3	4.8	14
8	1/4	SS-8M0-1-4-HV35	38.7	16.2	6.4	15
10	1/4	SS-10M0-1-4-HV35	40.9	17.2	7.1	18
12		SS-12M0-1-4-HV35	43.4	22.8	7.1	22

① The E dimension is the minimum nominal opening. These fittings may have a larger opening at the pipe/straight thread end.



Male Connectors



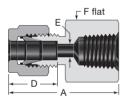
Adapts to SAE J1926/1 and ISO 11926-1 straight thread boss.

SAE/MS Straight Thread (ST) and (STH - heavy wall)

Tube	SAE/MS [®] Thread			Dimer	nsions	
OD	Size	Ordering Number	Α	D	E 2	F
		Dimensions, i	n.			
1/4	7/16-20 9/16-18 3/4-16	SS-400-1-4ST-HV35 SS-400-1-6ST-HV35 SS-400-1-8STH-HV35	1.34 1.40 1.57	0.60	0.19	9/16 11/16 7/8
3/8	7/16-20 9/16-18 3/4-16	SS-600-1-4ST-HV35 SS-600-1-6ST-HV35 SS-600-1-8STH-HV35	1.40 1.46 1.63	0.66	0.20 0.28 0.28	5/8 11/16 7/8
1/2	9/16-18 3/4-16	SS-810-1-6ST-HV35 SS-810-1-8STH-HV35	1.54 1.74	0.90	0.28 0.41	13/16 7/8
5/8	3/4-16	SS-1010-1-8STH-HV35	1.74	0.96	0.39	15/16
		Dimensions, m	ım			
6	7/16-20 9/16-18	SS-6M0-1-4ST-HV35 SS-6M0-1-6ST-HV35	34.0 35.6	15.3	4.8	14 18
8	7/16-20 9/16-18	SS-8M0-1-4ST-HV35 SS-8M0-1-6ST-HV35	35.0 36.6	16.2	5.2 6.4	15 18
10	7/16-20 9/16-18 3/4-16	SS-10M0-1-4ST-HV35 SS-10M0-1-6ST-HV35 SS-10M0-1-8STH-HV35	35.8 37.3 39.4	17.2	5.2 7.1 7.9	18 18 22
12	7/16-20 9/16-18 3/4-16	SS-12M0-1-4ST-HV35 SS-12M0-1-6ST-HV35 SS-12M0-1-8STH-HV35	40.6 39.9 41.9	22.8	5.2 7.1 9.5	22

- ① O-ring material is 75 durometer fluorocarbon FKM.
- ② The E dimension is the minimum nominal opening. These fittings may have a larger opening at the pipe/straight thread end.

Female Connectors

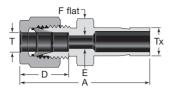


NPT

Tube	NPT		Dimensions			
OD	Size	Ordering Number	Α	D	E	F
		Dimensio	ns, in.			
1/4	1/4	SS-400-7-4-HV35	1.41	0.60	0.19	3/4
5/16	1/4	SS-500-7-4-HV35	1.45	0.64	0.25	3/4
3/8	1/4	SS-600-7-4-HV35	1.48	0.66	0.28	3/4
1/2	1/4	SS-810-7-4-HV35	1.59	0.90	0.41	13/16
		Dimensior	ns, mm			
6	1/4	SS-6M0-7-4-HV35	35.8	15.3	4.8	19
8	1/4	SS-8M0-7-4-HV35	37.0	16.2	6.4	19
10	1/4	SS-10M0-7-4-HV35	37.8	17.2	7.9	19
12	1/4	SS-12M0-7-4-HV35	40.3	22.8	9.5	22



Reducers



Tube	e OD		Dimensions			
Т	Tx	Ordering Number	Α	D	Е	F
		Dimensions,	in.			
1/4	1/4 3/8 1/2	SS-400-R-4-HV35 SS-400-R-6-HV35 SS-400-R-8-HV35	1.54 1.60 1.82	0.60	0.17 0.19 0.19	1/2 1/2 9/16
3/8	1/4 3/8 1/2 5/8	SS-600-R-4-HV35 SS-600-R-6-HV35 SS-600-R-8-HV35 SS-600-R-10-HV35	1.63 1.70 1.91 1.98	0.66	0.17 0.27 0.28 0.28	5/8 5/8 5/8 11/16
1/2	1/4 3/8 1/2 5/8	SS-810-R-4-HV35 SS-810-R-6-HV35 SS-810-R-8-HV35 SS-810-R-10-HV35	1.77 1.84 2.06 2.12	0.90	0.17 0.27 0.37 0.41	13/16
		Dimensions,	mm			
6	8 10 12	SS-6M0-R-8M-HV35 SS-6M0-R-10M-HV35 SS-6M0-R-12M-HV35	39.9 40.7 46.3	15.3	4.8	14
8	6 10 12	SS-8M0-R-6M-HV35 SS-8M0-R-10M-HV35 SS-8M0-R-12M-HV35	40.3 42.0 47.6	16.2	4.1 6.4 6.4	15
10	6 8 12 15	SS-10M0-R-6M-HV35 SS-10M0-R-8M-HV35 SS-10M0-R-12M-HV35 SS-10M0-R-15M-HV35	42.4 43.4 49.8 51.3	17.2	4.1 5.6 7.9 7.9	18
12	6 8 10 16	SS-12M0-R-6M-HV35 SS-12M0-R-8M-HV35 SS-12M0-R-10M-HV35 SS-12M0-R-16M-HV35	44.9 45.9 46.7 53.8	22.8	4.1 5.6 7.1 9.5	22

Port Connectors



Tube		Dimensions								
OD	Ordering Number	E	Н							
	Dimensions, in.									
1/4	SS-401-PC-HV35	0.17	0.98							
3/8	SS-601-PC-HV35	0.27	1.05							
1/2	SS-811-PC-HV35	0.37	1.43							
5/8	SS-1011-PC-HV35	0.47	1.49							
	Dimensions, n	nm								
6	SS-6M1-PC-HV35	4.1	25.0							
8	SS-8M1-PC-HV35	5.6	26.0							
10	SS-10M1-PC-HV35	7.1	27.1							
12	SS-12M1-PC-HV35	8.8	36.2							
16	SS-16M1-PC-HV35	12.0	37.8							

Caps and Plugs

Cap



Tube OD	Ordering Number	A	D
	Dimensions, i	n.	
1/4	SS-400-C-HV35	0.92	0.60
3/8	SS-600-C-HV35	1.01	0.66
1/2	SS-810-C-HV35	1.21	0.90
5/8	SS-1010-C-HV35	1.24	0.96
	Dimensions, m	ım	
6	SS-6M0-C-HV35	23.1	15.3
8	SS-8M0-C-HV35	24.5	16.2
10	SS-10M0-C-HV35	26.6	17.2
12	SS-12M0-C-HV35	30.6	22.8
16	SS-16M0-C-HV35	31.4	24.4

Plug

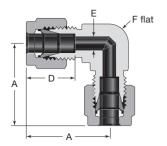


Tube OD	Ordering Number
Di	imensions, in.
1/4	SS-400-P-HV35
3/8	SS-600-P-HV35
1/2	SS-810-P-HV35
5/8	SS-1010-P-HV35
Di	mensions, mm
6	SS-6M0-P-HV35
8	SS-8M0-P-HV35
10	SS-10M0-P-HV35
12	SS-12M0-P-HV35
16	SS-16M0-P-HV35



90° Elbows

Unions

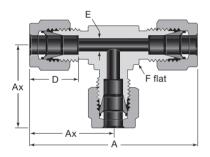


Tube ports are identical.

Tube		Dimensions						
OD	Ordering Number	Α	D	E	F, in.			
	Dir	nensions,	in.					
1/4	SS-400-9-HV35	1.06	0.60	0.19	1/2			
3/8	SS-600-9-HV35	1.20	0.66	0.28	5/8			
1/2	SS-810-9-HV35	1.42	0.90	0.41	13/16			
5/8	SS-1010-9-HV35	1.50	0.96	0.50	15/16			
	Dim	ensions,	mm					
6	SS-6M0-9-HV35	27.0	15.3	4.8	1/2			
8	SS-8M0-9-HV35	28.8	16.2	6.4	9/16			
10	SS-10M0-9-HV35	31.5	17.2	7.9	11/16			
12	SS-12M0-9-HV35	36.0	22.8	9.5	13/16			
16	SS-16M0-9-HV35	38.0	24.4	12.7	15/16			

Tees

Unions

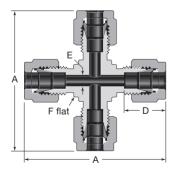


Tube ports are identical.

Tube	Ordering	Dimensions							
OD	Number	Α	Ax	D	E	F, in.			
Dimensions, in.									
1/4	SS-400-3-HV35	2.12	1.06	0.60	0.19	1/2			
3/8	SS-600-3-HV35	2.40	1.20	0.66	0.28	5/8			
1/2	SS-810-3-HV35	2.84	1.42	0.90	0.41	13/16			
5/8	SS-1010-3-HV35	3.06	1.53	0.96	0.50	1			
	Di	mensio	ns, mm						
6	SS-6M0-3-HV35	53.9	27.0	15.3	4.8	1/2			
8	SS-8M0-3-HV35	59.7	29.9	16.2	6.4	5/8			
10	SS-10M0-3-HV35	63.0	31.5	17.2	7.9	11/16			
12	SS-12M0-3-HV35	72.0	36.0	22.8	9.5	13/16			
16	SS-16M0-3-HV35	77.6	38.8	24.4	12.7	1			

Cross

Union



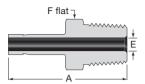
Tube ports are identical.

Tube		Dimensions					
OD	Ordering Number	Α	D	E	F, in.		
	Dime	nsions, i	in.				
1/4	SS-400-4-HV35	2.12	0.60	0.19	1/2		
3/8	SS-600-4-HV35	2.40	0.66	0.28	5/8		
1/2	SS-810-4-HV35	2.84	0.90	0.41	13/16		
	Dimen	ısions, n	nm				
6	SS-6M0-4-HV35	53.9	15.3	4.8	1/2		
8	SS-8M0-4-HV35	59.7	16.2	6.4	5/8		
10	SS-10M0-4-HV35	67.0	17.2	7.9	13/16		
12	SS-12M0-4-HV35	72.0	22.8	9.5	13/16		
16	SS-16M0-4-HV35	74.0	24.4	12.7	15/16		



Tube Adapters

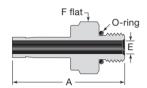
Male



NPT

Tube	NPT Size	Ordering	С)imensio	ns					
OD	in.	Number	Α	E ^①	F					
	Dimensions, in.									
1/4	1/4	SS-4-TA-1-4-HV35	1.46	0.17	9/16					
3/8	1/4	SS-6-TA-1-4-HV35	1.53	0.27	9/16					
1/2	1/4	SS-8-TA-1-4-HV35	1.75	0.28	9/16					
		Dimensions, m	m							
6	1/4	SS-6-MTA-1-4-HV35	38.1	4.1	14					
8	1/4	SS-8-MTA-1-4-HV35	39.1	5.6	14					
10	1/4	SS-10-MTA-1-4-HV35	39.9	7.1	14					
12	1/4	SS-12-MTA-1-4-HV35	46.5	7.1	16					

① The E dimension is the minimum nominal opening. These fittings may have a larger opening at the pipe/straight thread end.



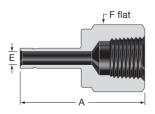
Adapts to SAE J1926/1 and ISO 11926-1 straight thread boss.

SAE/MS Straight Thread (ST) and (STH - Heavy Wall)

Tube	SAE/MS Thread	Ordering	D	imensior	าร				
OD	Size	Number	Α	E ^①	F				
	Dimensions, in.								
1/4	7/16-20	SS-4-TA-1-4ST-HV35	1.39	0.17	9/16				
3/8	7/16-20 SS-6-TA-1-4ST-HV35 9/16-18 SS-6-TA-1-6ST-HV35 3/4-16 SS-6-TA-1-8STH-HV35	1.46 1.52 1.69	0.20 0.27 0.27	9/16 11/16 7/8					
1/2	9/16-18 3/4-16	SS-8-TA-1-6ST-HV35 SS-8-TA-1-8STH-HV35	1.74 1.95	0.28 0.37	11/16 7/8				
		Dimensions, mm							
6	7/16-20	SS-6-MTA-1-4ST-HV35	32.0	4.1	14				
8	7/16-20 9/16-18	SS-8-MTA-1-4ST-HV35 SS-8-MTA-1-6ST-HV35	32.8 34.5	5.2	14 18				
10	9/16-18 3/4-16			7.1	18 22				
12	9/16-18 3/4-16	SS-12-MTA-1-6ST-HV35 SS-12-MTA-1-8STH-HV35	41.7 46.5	7.1 8.8	18 22				

O-ring material is 75 durometer fluorocarbon FKM.

Female



NPT

Tube	NPT Size	Ordering	D	imensior	ns					
OD	in.	Number	Α	E	F					
	Dimensions, in.									
1/4	1/4	SS-4-TA-7-4-HV35	1.46	0.17	3/4					
3/8	1/4	SS-6-TA-7-4-HV35	1.50	0.27	3/4					
1/2	1/4	SS-8-TA-7-4-HV35	1.71	0.37	3/4					
		Dimensions, mr	n							
6	1/4	SS-6-MTA-7-4-HV35	37.1	4.1	19					
8	1/4	SS-8-MTA-7-4-HV35	37.6	5.6	19					
10	1/4	SS-10-MTA-7-4-HV35	38.1	7.1	19					
12	1/4	SS-12-MTA-7-4-HV35	43.7	8.8	19					

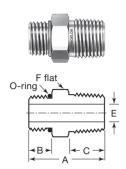
Refer to Gaugeable Tube Fittings and Adapter Fittings catalog, MS-01-140, for additional information.



 $[\]ensuremath{\textcircled{0}}$ The E dimension is the minimum nominal opening. These fittings may have a larger opening at the pipe/straight thread end.

Pipe Fittings

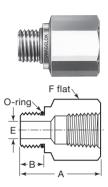
Adapters



Male SAE/MS Straight Thread to Male NPT

SAE/MS Thread Size	NPT Size			Dimensions in. (mm)				Uniform O-Ring ¹
in.	in.	Ordering Number	Α	В	С	Е	F	Size
7/16-20	1/4	SS-4-SAE-1-4-HV35	1.20 (30.5)	0.36 (9.1)	0.56 (14.2)	0.20 (5.1)	9/16	-904

① O-ring material is 75 durometer fluorocarbon FKM.

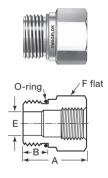


Male SAE/MS Straight Thread to Female NPT

SAE/MS Thread Size	NPT Size			Dimensions in. (mm)			Uniform O-Ring ^①
in.	in.	Ordering Number	Α	В	E	F	Size
7/16-20	1/4	SS-4-SAE-7-4-HV35	1.32 (33.5)	0.36 (9.1)	0.20 (5.1)	3/4	-904

① O-ring material is 75 durometer fluorocarbon FKM.

Reducers



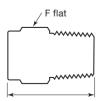
Male to Female SAE/MS Straight Thread (ST)

Male Thread Size	Female Thread Size		Dimensions in. (mm)				Uniform O-Ring ¹
in.	in.	Ordering Number	Α	В	E	F	Size
9/16-18	7/16-20	SS-6-RBST-4-HV35	1.12 (28.4)	0.39 (9.9)	0.28 (7.1)	13/16	-906
3/4-16	7/16-20	SS-8-RBSTH-4-HV35	1.10 (28.0)	0.55 (14.0)	0.39 (9.9)	7/8	-908
3/4-16	9/16-18	SS-8-RBSTH-6-HV35	1.31 (33.3)	0.55 (14.0)	0.42 (10.7)	1	-908

① O-ring material is 75 durometer fluorocarbon FKM.

Pipe Plugs





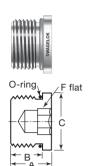
Male NPT

NPT Size		Dimensions in. (mm)		
in.	Ordering Number	Α	F	
1/4	SS-4-P-HV35	0.96 (24.4)	9/16	



Pipe Fittings

Hollow Hex Plugs



Male SAE/MS Straight Thread (ST) and (STH - Heavy Wall)

SAE/MS Thread Size		Dimensions in. (mm)				Uniform O-Ring ^①
in.	Ordering Number	Α	В	С	F	Size
3/8-24	SS-3-HPST-HV35	0.39 (9.9)	0.30 (7.6)	0.49 (12.5)	1/8	-903
7/16-20	SS-4-HPST-HV35	0.45 (11.4)	0.36 (9.1)	0.56 (14.2)	3/16	-904
9/16-18	SS-6-HPST-HV35	0.48 (12.2)	0.39 (9.9)	0.69 (17.5)	1/4	-906
3/4-16	SS-8-HPSTH-HV35	0.67 (17.0)	0.55 (14.0)	0.87 (22.1)	5/16	-908

① O-ring material is 75 durometer fluorocarbon FKM.

Hex Head Plugs





Male SAE/MS Straight Thread (ST) and (STH - Heavy Wall)

SAE/MS Thread Size	Basic Ordering	Dimensions in. (mm)			Uniform O-Ring ^①
in.	Number	Α	В	F	Size
3/8-24	SS-3-PST-HV35	0.68 (17.3)	0.30 (7.6)	1/2	-903
7/16-20	SS-4-PST-HV35	0.76 (19.3)	0.36 (9.1)	9/16	-904
9/16-18	SS-6-PST-HV35	0.82 (20.8)	0.39 (9.9)	11/16	-906
3/4-16	SS-8-PSTH-HV35	0.99 (25.1)	0.55 (14.0)	7/8	-908

① O-ring material is 75 durometer fluorocarbon FKM.

Pipe Caps





Female NPT

NPT Size	Basic Ordering	Dimensions in. (mm)			
in. Number		Α	F		
1/4	SS-4-CP-HV35	0.91 (23.1)	3/4		

Refer to Pipe Fittings catalog, MS-01-147, for additional information.



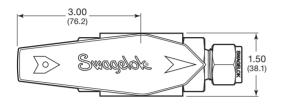
Ordering Numbers and Dimensions for Valves With EC-79 Certification for Systems Above 30 bar (435 psig) and Up to 350 bar (5 076 psig), Temperature -40 to 120°C (-40 to 248°F) — H35 Pressure Class

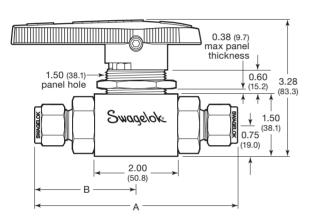
Alternative Fuel Service Ball Valve (AFS Series)

Ordering Information and Dimensions

Select an ordering number.

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





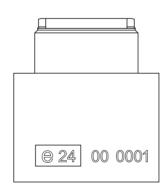
End Connections ^①		Ordering		Orifice	Dimensions in. (mm)		
Туре	Size	Number	C _v	in. (mm)	Α	В	
Fractional Swagelok	3/8 in.	SS-AFSS6-HV35	4.0	0.281 (7.1)	4.57 (116)	2.29 (58.2)	
tube fitting 1/2 in.		SS-AFSS8-HV35	7.2	0.406 (10.3)	4.80 (122)	2.40 (61.0)	
Metric Swagelok	12 mm	SS-AFSS12MM-HV35	5.2	0.406 (10.3)	4.80 (122)	2.20 (55.9)	
tube fitting	16 mm	SS-AFSS16MM-HV35	12.4	0.472 (12.0)	4.80 (122)	2.40 (61.0)	
Female	3/8 in.	SS-AFSF6-HV35	11.0	0.472	4.00 (102)	2.00 (50.8)	
NPT	1/2 in.	SS-AFSF8-HV35	13.8	(12.0)		2.00 (50.8)	
SAE	1/2 in.	SS-AFSMS8-HV35	13.8	0.472 (12.0)	4.00 (102)	2.00 (50.8)	

Dimensions shown with Swagelok tube fitting nuts finger-tight.

① Valves can be ordered with two different end connections. Contact your authorized Swagelok sales and service representative.

Marking



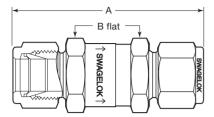


Refer to Alternative Fuel Service AFS Ball Valve catalog, MS-02-303, for additional information.



Check Valves

CH Series



End Connections		Basic Ordering		Dimensions in. (mm)		
Туре	Size	Number	Series	Α	В	
Fractional	1/4 in.	SS-CHS4-XX-YY-HV35	CH4	2.43 (61.7)	11/16	
Swagelok	3/8 in.	SS-CHS6-XX-YY-HV35	CH8	2.75 (69.9)	1	
tube fitting	1/2 in.	SS-CHS8-XX-YY-HV35	CHO	2.96 (75.2)	1	
	6 mm	SS-CHS6MM-XX-YY-HV35	CH4	2.43 (61.7)	11/16	
Metric	8 mm	SS-CHS8MM-XX-YY-HV35		2.70 (68.6)	1	
Swagelok tube fitting	10 mm	SS-CHS10MM-XX-YY-HV35	CH8	2.80 (71.1)		
	12 mm	SS-CHS12MM-XX-YY-HV35		2.96 (75.2)		
Female NPT	1/4 in.	SS-CHF4-XX-YY-HV35	CH4	2.13 (54.1)	11/16	
	1/4 in.	SS-CHM4-XX-YY-HV35	CH4	2.17 (55.1)	11/16	
Male NPT	3/8 in.	SS-CHM6-XX-YY-HV35	CH8	2.36 (59.9)		
	1/2 in.	SS-CHM8-XX-YY-HV35	CHO	2.73 (69.3)	Į.	

Check valves are designed for directional flow control only. Swagelok check valves should never be used as code safety relief devices.

Replace XX in the basic ordering number with the seal material designator below. Replace YY in the basic ordering number with the cracking pressure designator below.

Seal Materials

Seal Material	Designator
Ethylene propylene	-EP
Neoprene	-NE

To order, insert the seal material designator into the valve ordering number.

Example: SS-CHS4-EP-1/3-HV35

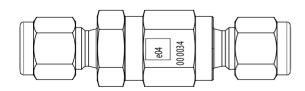
Cracking Pressure

Cracking Pressure psi (bar)	Designator
1/3 (0.03)	1/3
1 (0.07)	1
5 (0.35)	5
10 (0.69)	10
25 (1.8)	25

To order, add a cracking pressure designator to the basic ordering number.

Example: SS-CHS4-EP-1/3-HV35

Marking

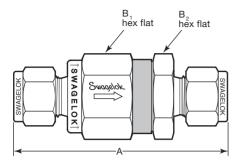


Refer to Check Valves catalog, MS-01-176, for additional information.



Industrial Excess Flow Valves

XS Series

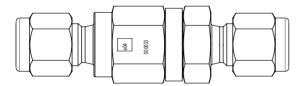


End Connections		Pressure Rating at 100°F (37°C)	Ordering		Dimens	ions, in	. (mm)
Inlet/Outlet	Size	psig (bar)	Number	Series	Α	B ₁	B ₂
Fractional Swagelok tube fitting	1/4 in.	6000 (413)	SS-XSS4-HV35	XS4	2.43 (61.7)	11/	16
Metric Swagelok tube fitting	6 mm	6000 (413)	SS-XSS6MM-HV35	XS4	2.43 (61.7)	11/	16
Female NPT	1/4 in.	6000 (413)	SS-XSF4-HV35	XS4	2.12 (53.8)	11/	16

Dimensions shown with Swagelok nuts finger-tight.

HV35 assemblies only available with ethylene propylene seals.

Marking

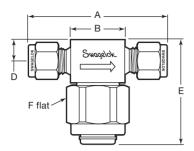


Refer to Industrial Excess Flow Valves catalog, MS-01-110, for additional information.



Filters

TF Series



End Conne	ctions		Filter	Dimensions, in. (mm)						
Туре	Size	Basic Ordering Number		Orifice	Α	В	С	D	E	F
	1/4 in.	SS-4TF-XX-HV35	4TF	0.174 (4.41)	2.47 (62.7)	1.06 (26.9)	1.00 (25.4)	0.38 (9.7)	1.87 (47.5)	1 (25.4)
	3/8 in.	SS-6TF-XX-HV35	6TF	0.213 (5.41)	2.84 (72.1)	1.32 (33.5)	4 40 (00 7) 0 40 (44		0.00 (== 1)	1 1/8
	1/2 in.	SS-8TF-XX-HV35	8TF	0.250 (6.35)	3.04 (77.2)	1.31 (33.3)	1.13 (28.7)	0.46 (11.7)	2.20 (55.9)	(28.6)
Swagelok tube fitting	6 mm	SS-6TF-MM-XX-HV35	4TF	0.172 (4.36)	2.46 (62.5)	1.06 (26.9)	1.00 (25.4)	0.38 (9.7)	1.87 (47.5)	1 (25.4)
tabo nang	8 mm	SS-8TF-MM-XX-HV35	6TF	0.213 (5.41)	2.84 (72.1)	1.38 (35.1)		0.46 (11.7)	2.20 (55.9)	1 1/8 (28.6)
	10 mm	SS-10TF-MM-XX-HV35	8TF	0.050 (0.05)	2.86 (72.6)	1.32 (33.5)	1.13 (28.7)			
	12 mm	SS-12TF-MM-XX-HV35	8TF	0.250 (6.35)	3.04 (77.2)	1.31 (33.3)				
Female NPT	1/8 in.	SS-2TF4-XX-HV35	2TF	0.174 (4.41)	2.00 (50.8)	1.00 (25.4)	1.00 (25.4)	0.38 (9.7)	1.87 (47.5)	1 (25.4)
Male NPT	1/4 in.	SS-4TF2-XX-HV35	4TF	0.174 (4.41)	2.13 (54.1)	1.00 (25.4)	1.00 (25.4)	0.38 (9.7)	1.87 (47.5)	1 (25.4)

Dimensions shown with Swagelok nuts finger-tight.

Replace XX in the basic ordering number with the element designator below.

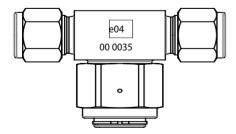
Element

Nominal Pore Size µm	Pore Size Range µm	Element Type	Element Designator
0.5	0.5 to 2		05
2	1 to 4	Sintered	2
7	5 to 10	Sintered	7
15	11 to 25		15

To order, add a element designator to the basic ordering number.

Example: SS-2TF-05-HV35

Marking

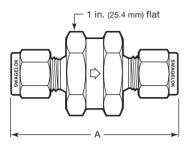


Refer to Filters catalog, MS-01-92, for additional information.



Filters

FW Series



End Connections		Element Nominal Pore Size	Basic	Dimension	ns, in. (mm)
Inlet/Outlet	Size	μm	Ordering Number	Orifice	Α
	1/4 in.	0.5	SS-4FWS-XX-HV35		2.09 (53.1)
Swagelok	1/4 in.	2, 7, 15	SS-4FW-XX-HV35	0.187 (4.75)	2.15 (54.6)
tube fittings	6 mm	0.5	SS-6FWS-MM-XX-HV35		2.13 (54.1)
	6 mm	2, 7, 15	SS-6FW-MM-XX-HV35		2.15 (54.6)
Female NPT	1/4 in.		SS-4FW4-XX-HV35	0.453 (11.5)	1.57 (39.9)
Male NPT	1/4 in.	2, 7, 15	SS-4FW2-XX-HV35	0.281 (7.14)	1.89 (48.0)
Male/ female NPT	1/4 in.	_, , , , ,	SS-4FW5-XX-HV35	0.281 (7.14)	1.72 (43.7)

Dimensions shown with Swagelok nuts finger-tight.

Replace XX in the basic ordering number with the element designator below.

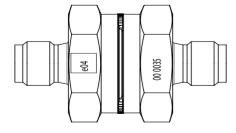
Element

Nominal Pore Size µm	Pore Size Range µm	Element Type	Element Designator
0.5	0.5 to 2		05
2	1 to 4	0: -11	2
7	5 to 10	Sintered	7
15	11 to 25		15

To order, add a element designator to the basic ordering number.

Example: SS-4FWS-05-HV35

Marking



Refer to Filters catalog, MS-01-92, for additional information.



Fittings With EC-79 Certification for Systems Above 30 bar (435 psig) and Up to 700 bar (10 159 psig), Temperature -40 to 85°C (-40 to 185°F) — H70 Pressure Class

Product	Product Type	Description	Available Sizes ^①
		Union - FK series fitting to FK series fitting Port connector Cap Plug	FK series fitting: 1/4, 3/8, 1/2 in. 6, 10, 12 mm Ordering Information: pages 27 to 30
		Male connector - FK series fitting to 1/4 in. male NPT	FK series fitting: 1/4, 3/8, 1/2 in. 6, 10, 12 mm
	Straight	Male connector - FK series fitting to SAE/MS straight thread (STH fitting)	Ordering Information: page 27 FK series fitting: 1/4, 3/8, 1/2 in. 6, 10, 12 mm SAE/MS straight thread Male: STH: 7/16-20, 9/16-18 Ordering Information: page 28
		Female connector - FK series fitting to 1/4 in. female NPT	FK series fitting: 1/4, 3/8, 1/2 in. Ordering Information: page 28
Medium- Pressure Tube		Reducing Union - FK series fitting to FK series fitting	3/8, 1/2 in. 10, 12 mm Ordering Information: page 28
Fitting (FK Series)		Reducer - FK series fitting to FK series fitting	1/4, 3/8, 1/2 in. Ordering Information: page 28
		Medium-Pressure Cone and Thread Adapter Medium-Pressure Male and Female, One-Piece	FK series fitting: 1/4 in. and 6 mm Ordering Information: page 29
		Union - FK series fitting to FK series fitting	1/4, 3/8, 1/2 in. 6, 10, 12 mm Ordering Information: page 30
	Elbow	Reducing Union - FK series fitting to FK series fitting	1/4, 3/8 in. 6, 10 mm Ordering Information: page 31
-	Tee	Union - all FK series fitting ends	1/4, 3/8, 1/2 in. 6, 10, 12 mm
_	Cross	Union - all FK series fitting ends	Ordering Information: page 31 1/4, 3/8, 1/2 in. 6, 10, 12 mm
Tube Adapter			Ordering Information: page 31 1/4, 3/8, 1/2 in.
(FK Series)	Male	1/4 in. Male NPT	Ordering Information: page 31

① Additional sizes are available. Contact your local authorized Swagelok sales and service center for details.



② O-ring is 90 durometer EPDM.

Fittings With EC-79 Certification for Systems Above 30 bar (435 psig) and Up to 700 bar (10 159 psig), Temperature -40 to 85°C (-40 to 185°F) — H70 Pressure Class

Product	Product Type	Description	Available Sizes
	A. T		1/4 in. and6 mm
	AbT	AbT Nut and Ferrule Set	Ordering Information: page 26
		Union - Swagelok tube fitting to Swagelok tube fitting Bulkhead Union Port connector	Tube fitting sizes: 1/4 in. and 6 mm
		Cap Plug	Ordering Information: pages 32 and 33
		Male connector - Swagelok tube fitting to 1/4 in. male NPT	Tube fitting sizes: 1/4 in. and 6 mm
		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Ordering Information: page 32
			Tube fitting sizes: 1/4 in. and 6 mm
	Straight	Male connector - Swagelok tube fitting to SAE/MS straight thread (STH) fitting ^②	SAE/MS straight thread Male: STH: 7/16-20, 9/16-18
Tube fitting			Ordering Information: page 32
		Female connector - Swagelok tube fitting to 1/4 in, female NPT	Tube fitting sizes: 1/4 in. and 6 mm
		1/4 III. lemale NF1	Ordering Information: page 33
			1/4 in. and 6 mm
		Reducer - Swagelok tube fitting to tube adapter	Ordering Information: page 33
	File acce	Union Consolal to be fitting to Consolal to be fitting	1/4 in. and 6 mm
	Elbow	Union - Swagelok tube fitting to Swagelok tube fitting	Ordering Information: page 33
	Too	Union all Curacial, tuba fitting and	1/4 in. and 6 mm
	Tee	Union - all Swagelok tube fitting ends	Ordering Information: page 34
	Cross	Union all Curacelek tube fitting and	1/4 in. and 6 mm
	Cross	Union - all Swagelok tube fitting ends	Ordering Information: page 34
		1/4 in. NPT	Tube adapter sizes: 1/4 in. and 6 mm
	Male		Ordering Information: page 34
Tube adapter	iviale	SAE/MS straight thread (STH)	SAE/MS straight thread STH: 7/16-20
		(0111)	Ordering Information: page 34
	Female	1/4 in. NPT	Tube adapter sizes: 1/4 in. 6 mm
			Ordering Information: page 35
	Hex head plug	Male SAE/MS straight thread (ST and STH)@	SAE/MS straight thread ST: 7/16-20, 9/16-18 Ordering Information: page 35
Pipe fittings			
	Pipe cap	Female NPT	1/4, 3/8, 1/2 in.
			Ordering Information: page 35

 $[\]textcircled{$\square$ Additional sizes are available. Contact your local authorized Swagelok sales and service center for details. } \\$

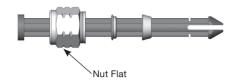


② O-ring is 90 durometer EPDM.

Ordering Numbers and Dimensions for Fittings With EC-79 Certification for Systems Above 30 bar (435 psig) and Up to 700 bar (10 159 psig), Temperature -40 to 85°C (-40 to 185°F) — H70 Pressure Class

Assembly-by-Torque (AbT) Fittings

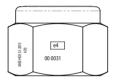
AbT Nut and Ferrule Set (sold separately for easy installation)



Tube OD	Ordering Number ^①	Sets per Blister Pack	Dimension Nut Flat						
Fractional, in.									
1/4	SS-4ABT-NFSET-HV70	50	9/16 in.						
	Metric, mm								
6	SS-6MABT-NFSET-HV70	50	14 mm						

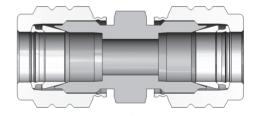
① Order in blister packs.

Marking



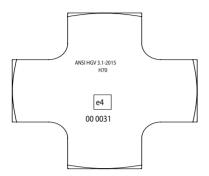
AbT Body Only Ordering Information:

- AbT union body see page 32 for base ordering number and dimensions, add **BO** to base ordering number.
 - Example: SS-400-6BO-HV70
- AbT male connector body SAE/MS straight thread heavy wall (STH) see page 32 for base ordering number and dimensions, add BO to base ordering number.
 - Example: SS-400-1-4STHBO-HV70
- AbT elbow union body see page 33 for base ordering number and dimensions, add BO to base ordering number.
 - Example: SS-400-9BO-HV70
- AbT tee union body see page 34 for base ordering number and dimensions, add BO to base ordering number.
 - Example: SS-400-3BO-HV70
- AbT cross union see page 34 for base ordering number and dimensions, add BO to base ordering number. Example: SS-400-4BO-HV70

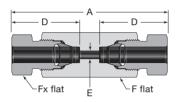


FK Series Straight Fittings

Marking



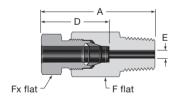
Unions



Union

Tube	Ordering	Dimensions								
OD	Number	Α	D	E	F	Fx				
Dimensions, in.										
1/4	SS-4FK0-6-HV70	2.25	1.08	0.13	5/8	9/16				
3/8	SS-6FK0-6-HV70	2.81	1.34	0.21	3/4	11/16				
1/2	SS-8FK0-6-HV70	3.36	1.59	0.38	1	7/8				
	Di	imension	s, mm							
6	SS-6MFK0-6-HV70	57.2	27.4	3.2	16	15				
10	SS-10MFK0-6-HV70	85.3	40.4	5.6	24	22				
12	SS-12MFK0-6-HV70	85.3	40.4	6.4	27	22				

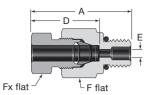
Male Connectors



NPT

Tube	NPT Size	Ordering	Dimensions							
OD	in.	Number	Α	D	E	F	Fx			
	Dimensions, in.									
1/4	1/4	SS-4FK0-1-4-HV70	1.74	1.08	0.13	5/8	9/16			
3/8	1/4	SS-6FK0-1-4-HV70	2.03	1.34	0.21	3/4	11/16			
1/2	1/4	SS-8FK0-1-4-HV70	2.33	1.59	0.25	1	7/8			
		Din	nensions,	mm						
6	1/4	SS-6MFK0-1-4-HV70	44.1	27.4	3.2	16	15			
10	1/4	SS-10MFK0-1-4-HV70	59.1	40.4	5.6	24	22			
12	1/4	SS-12MFK0-1-4-HV70	59.1	40.4	6.4	27	22			

Straight Fittings

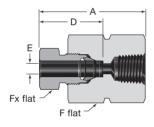


Heavy-Duty Male SAE/MS (STH)

Tube	SAE/MS ^① Thread	Ordering		С	Dimension	s	
OD	Size	Number	Α	D	E ²	F	Fx
		Dimens	sions, in.				
1/4	7/16-20	SS-4FK0-1-4STH-HV70	1.61	1.08	0.13	5/8	9/16
1/4	9/16-18	SS-4FK0-1-6STH-HV70	1.65	1.08	0.13	3/4	9/16
3/8	7/16-20	SS-6FK0-1-4STH-HV70	1.91	1.34	0.18	3/4	11/16
3/0	9/16-18	SS-6FK0-1-6STH-HV70	1.95	1.34	0.23	3/4	11/16
1/2	7/16-20	SS-8FK0-1-4STH-HV70	2.29	1.59	0.18	1	7/8
1/2	9/16-18	SS-8FK0-1-6STH-HV70	2.29	1.59	0.23	1	7/8
		Dimens	ions, mm				
	7/16-20	SS-6MFK0-1-4STH-HV70	40.8	27.4	3.2	16	15
6	9/16-18	SS-6MFK0-1-6STH-HV70	41.8	27.4	3.2	19	15
10	7/16-20	SS-10MFK0-1-4STH-HV70	58.2	40.4	4.5	24	22
10	9/16-18	SS-10MFK0-1-6STH-HV70	58.2	40.4	5.6	24	22
10	7/16-20	SS-12MFK0-1-4STH-HV70	58.2	40.4	4.5	27	22
12	9/16-18	SS-12MFK0-1-6STH-HV70	58.2	40.4	5.8	27	22

- ① O-ring is 90 durometer EPDM.
- ② The E dimension is the minimum nominal opening. These fittings may have a larger opening at the pipe/straight thread end.

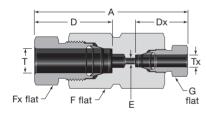
Female Connectors



NPT

Tube	NPT Size	Ordering	Dimensions, in.						
in.	in.	Number	Α	D	E	F	Fx		
1/4	1/4	SS-4FK0-7-4-HV70	1.85	1.08	0.13	1	9/16		
3/8	1/4	SS-6FK0-7-4-HV70	2.10	1.34	0.21	1	11/16		
1/2	1/4	SS-8FK0-7-4-HV70	2.42	1.59	0.38	1	7/8		

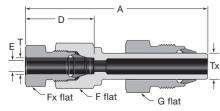
Reducers



Reducing Union

Tube	OD	Ordering			D	imensior	าร		
Т	Tx	Number	Α	D	Dx	E	F	Fx	G
			Dime	nsions, i	n.				
3/8	1/4	SS-6FK0-6-4-HV70	2.64	1.34	1.08	0.13	3/4	11/16	9/16
1/2	1/4	SS-8FK0-6-4-HV70	2.90	1.59	1.34	0.13	1	7/8	9/16
1/2	3/8	SS-8FK0-6-6-HV70	3.19	1.59	1.34	0.21	1	7/8	11/16
			Dimer	nsions, m	ım				
10	6	SS-10MFK0-6-6M-HV70	74.0	40.4	27.4	3.2	24	22	15
12	6	SS-12MFK0-6-6M-HV70	74.0	40.4	27.4	3.2	27	22	15
_ '2	10	SS-12MFK0-6-10M-HV70	86.4	40.4	40.4	5.6	27	22	22

Reducer



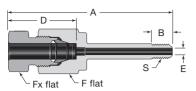
Tube	OD, in.	Ordering	Dimensions, in.						
Т	T Tx Number		Α	D	Е	F	Fx	G	
1/4	3/8	SS-4FK0-R-6FK-HV70	2.97	1.08	0.13	5/8	9/16	11/16	
1/4	1/2	SS-4FK0-R-8FK-HV70	3.31	1.08	0.13	5/8	9/16	7/8	
3/8	1/2	SS-6FK0-R-8FK-HV70	3.52	1.34	0.21	3/4	11/16	7/8	
1/2	3/8	SS-8FK0-R-6FK-HV70	3.65	1.59	0.21	1	7/8	11/16	

Reducers are furnished with nuts and preswaged ferrules.



Straight Fittings

Medium-Pressure Cone and Thread Adapters



Tube Nipple

	Tube	C&T Tube Size	Ordering	S Thread		Dimensions					
ı	OD	in.	Number	Size	Α	В	D	Е	F	Fx	
ı			Dime	ensions, in.							
	1/4	1/4	SS-4FK0-1-4CW-HV70	1/4-28 LH	2.70	0.31	1.08	0.11	5/8	9/16	
Ì	Dimensions, mm										
	6	1/4	SS-6MFK0-1-4CW-HV70	1/4-28 LH	68.5	7.9	27.4	2.7	16	15	

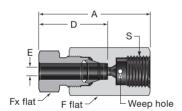
To protect surfaces from galling at installation, apply a system-compatible lubricant to the nose and threads of the coned end.

Standard CW end connections are not compatible with anti-vibration glands. Contact your authorized Swagelok representative for information on long CW end connections.

Fx flat

Male, One-Piece

Tube OD	C&T Tube Size in.	Ordering Number	S Thread Size	Dimensions A D E F				Fx	
	Dimensions, in.								
4 /4	1/4	SS-4FK0-1-4MP-HV70	7/16-20 UN	1.94	1.08	0.11	5/8	9/16	
1/4	3/8	SS-4FK0-1-6MP-HV70	9/16-18 UN	2.17	1.08	0.13	5/8	9/16	
3/8	3/8	SS-6FK0-1-6MP-HV70	9/16-18 UN	2.42	1.34	0.21	3/4	11/16	
		Dime	nsions, mm						
6	1/4	SS-6MFK0-1-4MP-HV70	7/16-20 UN	49.3	27.4	2.7	16	15	
10	3/8	SS-10MFK0-1-6MP-HV70	9/16-20 UN	70.1	40.4	5.3	24	22	



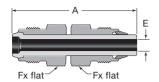
Female[®]

Tube	C&T Tube Size	Ordering	S Thread	Dimensions						
OD	in.	Number	Size	Α	D	Е	F	Fx		
Dimensions, in.										
1/4	1/4	SS-4FK0-7-4MP-HV70	7/16-20 UN	1.89	1.08	0.11	11/16	9/16		
3/8	3/8	SS-6FK0-7-6MP-HV70	9/16-18 UN	2.21	1.34	0.20	7/8	11/16		
	Dimensions, mm									
6	1/4	SS-6MFK0-7-4MP-HV70	7/16-20 UN	48.0	27.4	2.7	18	15		
10	3/8	SS-10MFK0-7-6MP-HV70	9/16-18 UN	64.8	40.4	5.1	24	22		

① C&T collars and gland are not included.

Straight Fittings

Port Connectors

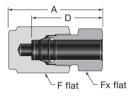


Tube	Ordering	С	imension	าร	
OD	Number	Α	Е	Fx	
	Dimensio	ons, in.			
1/4	SS-4FK0-PC-HV70	2.06	0.12	9/16	
3/8	SS-6FK0-PC-HV70	2.54	0.21	11/16	
1/2	SS-8FK0-PC-HV70	2.99	0.28	7/8	
	Dimensio	ns, mm			
6	SS-6MFK0-PC-HV70	52.3	3.0	15	
10	SS-10MFK0-PC-HV70	75.9	5.6	22	
12	SS-12MFK0-PC-HV70	75.9	6.4	22	

Port connectors are furnished with nuts and preswaged ferrules.

Caps and Plugs

Cap



Tube	Ordering	Dimensions					
OD	Number	Α	D	F	Fx		
	Dimen	sions, in					
1/4	SS-4FK0-C-HV70	1.33	1.08	5/8	9/16		
3/8	SS-6FK0-C-HV70	1.74	1.34	3/4	11/16		
1/2	SS-8FK0-C-HV70	2.05	1.59	1	7/8		
	Dimens	sions, mr	n				
6	SS-6MFK0-C-HV70	33.7	27.4	16	15		
10	SS-10MFK0-C-HV70	52.0	40.4	24	22		
12	SS-12MFK0-C-HV70	52.0	40.4	27	22		

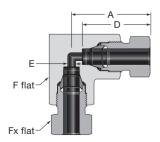
Plug



Tube	Ordering	Dimensions			
OD	Number	Α	Fx		
	Dimensions	, in.			
1/4	SS-4FK0-P-HV70	1.03	9/16		
3/8	SS-6FK0-P-HV70	1.26	11/16		
1/2	SS-8FK0-P-HV70	1.45	7/8		
	Dimensions,	, mm			
6	SS-6MFK0-P-HV70	26.2	15		
10	SS-10MFK0-P-HV70	36.7	22		
12	SS-12MFK0-P-HV70	36.7	22		

90° Elbows

Unions

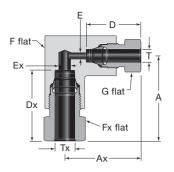


Union

Tube	Ordering	Dimensions							
OD	Number	Α	D	ш	F, in.	Fx			
Dimensions, in.									
1/4	SS-4FK0-9-HV70	1.26	1.08	0.13	5/8	9/16			
3/8	SS-6FK0-9-HV70	1.58	1.34	0.21	3/4	11/16			
1/2	SS-8FK0-9-HV70	1.87	1.59	0.38	1	7/8			
		Dimensio	ons, mm						
6	SS-6MFK0-9-HV70	31.9	27.4	3.0	5/8	15			
10	SS-10MFK0-9-HV70	47.5	40.4	5.6	1	22			
12	SS-12MFK0-9-HV70	47.5	40.4	6.4	1	22			



90° Elbows

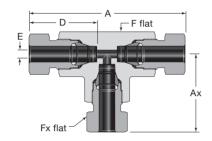


Reducing Union

Tube	Tube OD Ordering					Dimensions						
Т	Tx	Number	Α	Ax	D	Dx	Е	Ex	F, in.	Fx	G	
	Dimensions, in.											
1/4	3/8	SS-6FK0-9-4-HV70	1.61	1.48	1.08	1.34	0.13	0.21	3/4	11/16	9/16	
1/4	1/2	SS-8FK0-9-4-HV70	1.91	1.69	1.08	1.59	0.13	0.38	1	7/8	9/16	
3/8	1/2	SS-8FK0-9-6-HV70	1.91	1.82	1.34	1.59	0.21	0.38	1	7/8	11/16	
			Dimen	sions,	mm							
6	10	SS-10MFK0-9-6M-HV70	48.5	42.8	27.4	40.4	3.2	5.6	1	22	15	
_ °	12	SS-12MFK0-9-6M-HV70	48.5	42.8	27.4	40.4	3.2	6.4	1	22	22	
10	12	SS-12MFK0-9-10M-HV70	48.5	48.5	40.4	40.4	5.6	6.4	1	22	22	

Tees

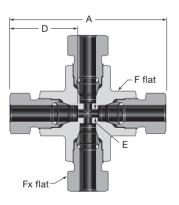
Unions



Tube	Ordering		Dimensions								
OD	Number	Α	Ax	D	Е	F, in.	Fx				
Dimensions, in.											
1/4	SS-4FK0-3-HV70	2.51	1.26	1.08	0.13	5/8	9/16				
3/8	SS-6FK0-3-HV70	3.17	1.58	1.34	0.21	3/4	11/16				
1/2	SS-8FK0-3-HV70	3.74	1.87	1.59	0.38	1	7/8				
		Dir	nensions, m	m							
6	SS-6MFK0-3-HV70	63.8	31.9	27.4	3.2	5/8	15				
10	SS-10MFK0-3-HV70	94.9	47.5	40.4	5.6	1	22				
12	SS-12MFK0-3-HV70	94.9	47.5	40.4	6.4	1	22				

Crosses

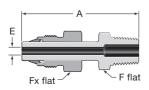
Unions



Tube	Ordering	Dimensions						
OD	Number	Α	D	Е	F, in.	Fx		
		Dimens	ions, in.					
1/4	SS-4FK0-4-HV70	2.51	1.08	0.13	5/8	9/16		
3/8	SS-6FK0-4-HV70	3.17	1.34	0.21	3/4	11/16		
1/2	SS-8FK0-4-HV70	3.74	1.59	0.38	1	7/8		
		Dimensi	ons, mm					
6	SS-6MFK0-4-HV70	63.8	27.4	3.0	5/8	15		
10	SS-10MFK0-4-HV70	94.9	40.5	5.6	1	22		
12	SS-12MFK0-4-HV70	94.9	40.5	6.4	1	22		

Tube Adapters

Male NPT



Tube OD	NPT Size	Ordering	Dimensions, in.				
in.	in.	Number	Α	E	F	Fx	
1/4	1/4	SS-4FK-TA-1-4-HV70	2.18	0.12	9/16	9/16	
3/8	1/4	SS-6FK-TA-1-4-HV70	2.53	0.21	9/16	11/16	
1/2	1/4	SS-8FK-TA-1-4-HV70	2.87	0.25	9/16	7/8	

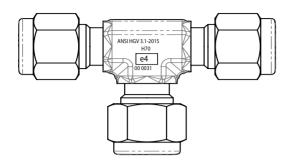
Tube adapters are furnished with nuts and preswaged ferrules.

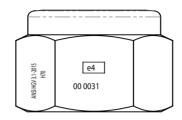


Ordering Numbers and Dimensions for EC-79 H70 Class (700 bar (10 159 psig)) Certified Products

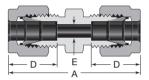
Straight Tube Fittings

Markings



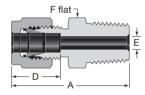


Unions



Tube		Dimensions						
OD	Ordering Number	Α	D	Е				
	Dimensions, in.							
1/4	SS-400-6-HV70	1.61	0.60	0.19				
Dimensions, mm								
6	SS-6M0-6-HV70	41.0	15.3	4.8				

Male Connectors



NPT

Tube	NPT		Dimensions						
OD	Size	Ordering Number	Α	D	E ^①	F			
	Dimensions, in.								
1/4	1/4	SS-400-1-4-HV70	1.49	0.60	0.19	9/16			
	Dimensions, mm								
6	1/4	SS-6M0-1-4-HV70	37.9	15.3	4.8	14			

① The E dimension is the minimum nominal opening. These fittings may have a larger opening at the pipe/straight thread end.

F flat O-ring D A

Adapts to SAE J1926/1 and ISO 11926-1 straight thread boss.

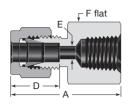
SAE/MS Straight Thread Heavy Wall (STH)

Tube	SAE/MS ^① Thread		Dimensions						
OD	Size	Ordering Number	Α	D	E 2	F			
	Dimensions, in.								
1/4	7/16-20 9/16-18	SS-400-1-4STH-HV70 SS-400-1-6STH-HV70	1.39 1.48	0.60	0.18	9/16 11/16			
	Dimensions, mm								
6	7/16-20 9/16-18	SS-6M0-1-4STH-HV70 SS-6M0-1-6STH-HV70	35.3 37.1	15.3	4.3	14 18			

- ① O-ring is 90 durometer EPDM.
- ② The E dimension is the minimum nominal opening. These fittings may have a larger opening at the pipe/straight thread end.



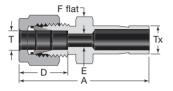
Female Connectors



NPT

Tube	NPT			Dimer	nsions		
OD	Size	Ordering Number	Α	D	E	F	
	Dimensions, in.						
1/4	1/4	SS-400-7-4-HV70	1.41	0.60	0.19	3/4	
Dimensions, mm							
6	1/4	SS-6M0-7-4-HV70	35.8	15.3	4.8	19	

Reducers



Tube OD				Dimer	nsions		
Т	Tx	Ordering Number	Α	D	Е	F	
	Dimensions, in.						
1/4	1/4	SS-400-R-4-HV70	1.54	0.60	0.17	1/2	

Port Connectors



Tube		Dimer	nsions
OD	Ordering Number	E	Н
	Dimensions,	in.	
1/4	SS-401-PC-HV70	0.17	0.98
	Dimensions, r	nm	
6	SS-6M1-PC-HV70	4.1	25.0

Caps and Plugs

Cap



Tube OD Ordering Number		A	D			
	Dimensions, i	n.				
1/4	SS-400-C-HV70	0.92	0.60			
Dimensions, mm						
6	SS-6M0-C-HV70	23.1	15.3			

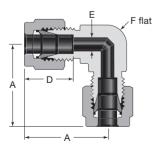
Plug



Tube OD	Ordering Number			
Di	mensions, in.			
1/4	SS-400-P-HV70			
Dimensions, mm				
6	SS-6M0-P-HV70			

90° Elbows

Unions



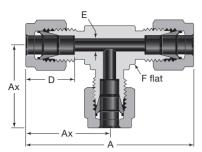
Tu	be			Dimensions			
OD		Ordering Number	Α	D	E	F , in.	
	Dimensions, in.						
1,	/4	SS-400-9-HV70	1.06	0.60	0.19	1/2	
Dimensions, mm							
	6	SS-6M0-9-HV70	27.0	15.3	4.8	1/2	

Tube ports are identical.



Tees

Unions

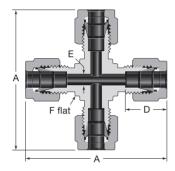


Tube ports are identical.

Tube	Ordering			imensions		
OD			Ax	D	E	F, in.
	Dimensions, in.					
1/4	SS-400-3-HV70	2.12	1.06	0.60	0.19	1/2
Dimensions, mm						
6	SS-6M0-3-HV70	53.9	27.0	15.3	4.8	1/2

Cross

Union

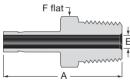


Tube ports are identical.

Tube		Dimensions					
OD	Ordering Number	Α	D	E	F, in.		
	Dimensions, in.						
1/4	SS-400-4-HV70	2.12	0.60	0.19	1/2		
Dimensions, mm							
6	SS-6M0-4-HV70	53.9	15.3	4.8	1/2		

Tube Adapters

Male



Adapts to SAE J1926/1 and ISO 11926-1 straight thread boss.

NPT

Tube	NPT Size	Ordering Dimensions		ns			
OD	in.	Number	Α	E ^①	F		
	Dimensions, in.						
1/4	1/4	SS-4-TA-1-4-HV70	1.46	0.17	9/16		
Dimensions, mm							
6	1/4	SS-6-MTA-1-4-HV70	38.1	4.1	14		

 $[\]ensuremath{\textcircled{1}}$ The E dimension is the minimum nominal opening. These fittings may have a larger opening at the pipe/straight thread end.

SAE/MS Straight Thread Heavy Wall (STH)

Tube	SAE/MS ^①	Ordering	ring Dimensions				
OD	Thread Size	Number	Α	E ²	F		
	Dimensions, in.						
1/4	7/16-20	SS-4-TA-1-4STH-HV70	1.45	0.17	9/16		
Dimensions, mm							
6	7/16-20	SS-6-MTA-1-4STH-HV70	33.8	4.1	14		

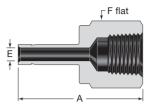
① O-ring is 90 durometer EPDM.



② The E dimension is the minimum nominal opening. These fittings may have a larger opening at the pipe/straight thread end.

Tube Adapters

Female



NPT

Tube	NPT Size	Ordering	Dimension		ns	
OD	in.	Number	Α	E	F	
Dimensions, in.						
1/4	1/4	SS-4-TA-7-4-HV70	1.46	0.17	3/4	
Dimensions, mm						
6	1/4	SS-6-MTA-7-4-HV70	37.1	4.1	19	

Pipe Fittings

Pipe Caps





Female NPT

NPT Size	Basic Ordering	Dimens in. (mr	
in.	Number	Α	F
1/4	SS-4-CP-HV70	0.91 (23.1)	3/4
3/8	SS-6-CP-HV70	1.03 (26.2)	7/8
1/2	SS-8-CP-HV70	1.34 (34.0)	1 1/16

Hex Head Plugs



Male SAE/MS Straight Thread (ST)

SAE/MS Thread Size	Basic Ordering		Uniform O-Ring ^①		
in.	Number	Α	В	F	Size
7/16-20	SS-4-PSTH-HV70	0.81 (20.6)	0.36 (9.1)	9/16	-904
9/16-18	SS-6-PSTH-HV70	0.88 (22.4)	0.39 (9.9)	11/16	-906

① O-ring material is 90 durometer EPDM.

Replacement Parts

Swagelok Tube Fitting Nut-Ferrule Set and Ferrule Set

Use of Nuts and Ferrules

Using Swagelok nuts and ferrules on tube fittings or valves with tube end connections requires critical interaction of precision parts.

Swagelok nuts and ferrules are sold as replacement parts for use with only Swagelok bodies, fittings, valves, and hose products.

Sets are shown with arbors. One arbor holds five nut-ferrule sets.

Nut-Ferrule Set



The nut-ferrule set contains one nut, one back ferrule, and one front ferrule.

	Basic Ordering Number				
Tube OD	HV35	HV70			
	Dimensions, in.				
1/4	SS-400-NFSET-HV35	SS-400-NFSET-HV70			
3/8	SS-600-NFSET-HV35	_			
1/2	SS-810-NFSET-HV35	_			
	Dimensions, mm				
6	SS-6M0-NFSET-HV35	SS-6M0-NFSET-HV70			
8	SS-8M0-NFSET-HV35	_			
10	SS-10M0-NFSET-HV35	_			
12	SS-12M0-NFSET-HV35	_			

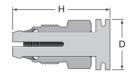
FK Series Fitting Nut and Ferrules Cartridge

Each cartridge contains a front ferrule, back ferrule, and male nut. Fractional cartridges are assembled on red arbors; metric cartridges are assembled on vellow arbors.





⚠ Do not use medium-pressure nut and ferrules with any other Swagelok tube fittings.



Tube	Ordering	Dimensions				
OD Number		D	н			
Dimensions, in.						
1/4	SS-4FK-NFSET-HV70	0.69	1.43			
3/8	SS-6FK-NFSET-HV70	0.81	1.72			
1/2	SS-8FK-NFSET-HV70	1.00	1.97			
Dimensions, mm						
6	SS-6MFK-NFSET-HV70	17.5	36.4			
10	SS-10MFK-NFSET-HV70	25.4	49.9			
12	SS-12MFK-NFSET-HV70	25.4	49.9			

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.

⚠ WARNING

Do not mix/interchange Swagelok products or components not governed by industrial design standards, including Swagelok tube fitting end connections, 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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