Flange Adapters

- Threadless, weldless transition from flanged piping systems to tubing systems

- Flange types meet ASME, DIN EN, and JIS standards

- One-piece integrally machined forged body

- Available with Swagelok® tube fitting end connections up to 50 mm and 2 in.

Features

- Flange types meet ASME, DIN EN, and JIS standards
- Range of flange sizes and pressure classes
- Full range of sealing faces including flat face, raised face, RTJ, and tongue-and-groove
- 316/316L dual-certified stainless steel material standard
- Wrench flats for ease of tube fitting assembly
- Gaugeability on initial installation using Swagelok gap inspection gauges

End Connections

- Metric and fractional Swagelok tube fittings from 3 to 50 mm and 1/16 to 2 in.
- Metric and fractional Swagelok tube adapter fittings from 6 to 50 mm and 1/4 to 2 in.
- Male pipe weld end connections from 1/16 to 2 in.
- Socket weld end connections from 1/16 to 2 in.
- Other end connections are available upon request

Flange Connections

- ASME B16.5
  - Nominal flange sizes from NPS 1/2 to 2 in.
  - Pressure class ratings from 150 to 2500
- DIN EN 1092-1
  - Nominal flange sizes from DN 15 to 50
  - Pressure class ratings from PN 40 to 320
- JIS B2220
  - Nominal flange sizes from DN 15 to 50
  - Pressure class ratings from 10 to 63K
- Flange adapters to meet additional standards, such as API and ISO, are available upon request.

Regulatory Compliance

Stainless steel flange adapters with DIN EN (up to PN 160), and ANSI flanges are TÜV type approved.

According to the PED, flange adapters are classified as piping components and may not bear the CE-marking.
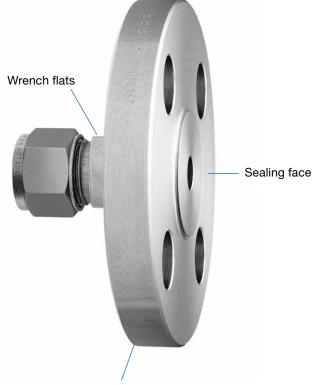
Cleaning and Packaging

All Swagelok flange adapters are cleaned in accordance with Swagelok *Standard Cleaning and Packaging (SC-10)* catalog, MS-06-62.

Special Cleaning and Packaging

To order flange adapters processed in accordance with ASTM G93 Level E, add **GQ** to the flange adapter ordering number.

Example: SS-810-F12-300**GQ**

Wrench flats

Sealing face

One-piece forged body

Flange Materials

Material	ASTM / EN Specification
316/316L stainless steel[①]	A182/1.4401
Alloy 2507	A182 F53
6-moly	A182 F44
316L	A182 316F
Alloy 400	B564
Alloy 600	
Alloy C-276	
Alloy 625	
Alloy 825	

① Over 1 in. and over 25 mm stainless steel fittings use stainless steel ferrules with PFA coating. Applications above 450°F (232°C) **require** silver-plated front ferrules and uncoated back ferrules. To order fittings with silver-plated ferrules and uncoated back ferrules, add **BM** to the ordering number.
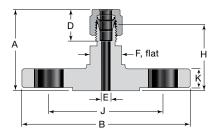Example: SS-25M0-F25E-40-B1**BM**

Note: Swagelok does not offer gaskets for use with flange adapters due to variety of system media that could be used. Choosing a compatible gasket material is the responsibility of the system designer.

Ordering Information and Dimensions

Dimensions are for reference only and are subject to change.

ANSI Flanges with Swagelok Tube Fitting or Tube Adapter

Tube OD in.	ANSI Flange NPS	Class	Ordering Number Raised Face Flange	Dimensions, in.							
				A	B	D	E	F	H	J	K
1/4	1/2	150	SS-400-F8-150	1.61	3.50	0.60	0.19	13/16	1.32	2.38	0.38
3/8	1/2	300	SS-600-F8-300	1.79	3.75	0.66	0.28	13/16	1.50	2.62	0.50
1/2	1/2	150	SS-810-F8-150	1.78	3.50	0.90	0.41	13/16	1.38	2.38	0.38
	1		SS-810-F16-150	1.90	4.25				1.50	3.12	0.50
	2		SS-810-F32-150	2.09	6.00				1.69	4.75	0.69
3/4	1		SS-1210-F16-150	1.98	4.25	0.96	0.62	1 1/4	1.58	3.12	0.50
1	1		SS-1610-F16-150	2.38	4.25	1.23	0.88	1 3/8	1.90	3.12	0.50
1 1/2	2		SS-2400-F32-150	3.40	6.00	1.97	1.34	2 1/8	2.33	4.75	0.69
2	2		SS-3200-F32-150	4.11	6.00	2.66	1.81	2 3/4	2.64	4.75	0.69

Note: Some flange size and fitting combinations are not available

Ratings are taken from ASME B16.5, Table 2-2.2 and Table II-2-2.2 (based on A182 316 stainless steel material).

Pressure ratings for fittings with a flange end connection and another end connection are determined by the connection with the lower pressure rating. Refer to *Tubing Data* catalog, MS-01-107, for additional information on tubing data.

Working Pressures by Classes, psig

Temperature °F	ASME Class						
	150	300	400	600	900	1500	2500
−20 to 100	275	720	960	1440	2160	3600	6000
200	235	620	825	1240	1860	3095	5160
300	215	560	745	1120	1680	2795	4660
400	195	515	685	1025	1540	2570	4280
500	170	480	635	955	1435	2390	3980
600	140	450	600	900	1355	2255	3760
650	125	440	590	885	1325	2210	3680
700	110	435	580	870	1305	2170	3620
750	95	425	570	855	1280	2135	3560
800	80	420	565	845	1265	2110	3520
850	65	420	555	835	1255	2090	3480
900	50	415	555	830	1245	2075	3460
950	35	385	515	775	1160	1930	3220
1000	20	365	485	725	1090	1820	3030

Working Pressures by Classes, bar

Temperature °C	ASME Class						
	150	300	400	600	900	1500	2500
−29 to 38	19.0	49.6	66.2	99.3	148.9	248.2	413.7
50	18.4	48.1	64.2	96.2	144.3	240.6	400.9
100	16.2	42.2	56.3	84.4	126.6	211.0	351.6
150	14.8	38.5	51.3	77.0	115.5	192.5	320.8
200	13.7	35.7	47.6	71.3	107.0	178.3	297.2
250	12.1	33.4	44.5	66.8	100.1	166.9	278.1
300	10.2	31.6	42.2	63.2	94.9	158.1	263.5
325	9.3	30.9	41.2	61.8	92.7	154.4	257.4
350	8.4	30.3	40.4	60.7	91.0	151.6	252.7
375	7.4	29.9	39.8	59.8	89.6	149.4	249.0
400	6.5	29.4	39.3	58.9	88.3	147.2	245.3
425	5.5	29.1	38.9	58.3	87.4	145.7	242.9
450	4.6	28.8	38.5	57.7	86.5	144.2	240.4
475	3.7	28.7	38.2	57.3	86.0	143.4	238.9
500	2.8	28.2	37.6	56.5	84.7	140.9	235.0
538	1.4	25.2	33.4	50.0	75.2	125.5	208.9

Swagelok

Ordering Information, ANSI Flange Adapters with Swagelok Tube Fitting or Tube Adapter

For standard stainless steel flange adapters, select an ordering number from the table on page 3.

Build a special-order flange adapter by combining the designators in the sequence shown below.

SS - 8M0 - F16 - 150 - FF - BLIND

Flange Material

SS = 316/316L stainless steel[1]
M = Alloy 400
INC = Alloy 600
HC = Alloy C-276

[1] Over 1 in. and over 25 mm stainless steel fittings use stainless steel ferrules with PFA coating. Applications above 450°F (232°C) **require** silver-plated front ferrules and uncoated back ferrules. To order fittings with silver-plated ferrules and uncoated back ferrules, add **BM** to the ordering number.
Example: SS-8M0-F16-150-FF**BM**

End Connection Size

Swagelok Tube Fitting

Fractional		*Metric*	
200	= 1/8 in.	**3M0**	= 3 mm
400	= 1/4 in.	**6M0**	= 6 mm
600	= 3/8 in.	**8M0**	= 8 mm
810	= 1/2 in.	**10M0**	= 10 mm
1010	= 5/8 in.	**12M0**	= 12 mm
1210	= 3/4 in.	**14M0**	= 14 mm
1610	= 1 in.	**15M0**	= 15 mm
2000	= 1 1/4 in.	**18M0**	= 18 mm
2400	= 1 1/2 in.	**20M0**	= 20 mm
3200	= 2 in.	**22M0**	= 22 mm
		25M0	= 25 mm
		28M0	= 28 mm
		32M0	= 32 mm
		38M0	= 38 mm
		50M0	= 50 mm

Swagelok Tube Adapter[1]

Fractional		*Metric*	
4-TA	= 1/4 in.	**6-MTA**	= 6 mm
6-TA	= 3/8 in.	**8-MTA**	= 8 mm
8-TA	= 1/2 in.	**10-MTA**	= 10 mm
12-TA	= 3/4 in.	**12-MTA**	= 12 mm
16-TA	= 1 in.	**18-MTA**	= 18 mm
20-TA	= 1 1/4 in.	**20-MTA**	= 20 mm
24-TA	= 1 1/2 in.	**22-MTA**	= 22 mm
32-TA	= 2 in.	**25-MTA**	= 25 mm
		28-MTA	= 28 mm
		32-MTA	= 32 mm
		38-MTA	= 38 mm
		50-MTA	= 50 mm

[1] Over 1 in. and over 25 mm tube adapter fittings are furnished with nuts and preswaged ferrules.

Options

BLIND = Blind through hole

BT = Bored-through

PMI = 100% positive material identification, no report

PM2 = 100% positive material identification, with report

PM3 = specified % positive material identification, with report

Sealing Face (Raised Face Standard)

no designator = Raised face
FF = Flat face
RTJ = Ring joint face[1]
MFL = Male face, large
MFS = Male face, small
FFL = Female face, large
FFS = Female face, small
TFL = Tongue face, large
TFS = Tongue face, small
GFL = Groove face, large
GFS = Groove face, small

ASME B16.5 should be reviewed for specific dimensions related to sealing faces.

[1] May come with full face or contoured face.

Pressure Class

150	= 150	**900**	= 900
300	= 300	**1500**	= 1500
600	= 400/600	**2500**	= 2500

Nominal Flange Size

F8 = NPS 1/2 in.
F12 = NPS 3/4 in.
F16 = NPS 1 in.
F24 = NPS 1 1/2 in.
F32 = NPS 2 in.

Ordering Information, ANSI Flange Adapters with NPT or Weld End Connections

For standard stainless steel flange adapters, select an ordering number from the table on page 3.

Build a special-order flange adapter by combining the designators in the sequence shown below.

SS - F16 - 150 - FF - 1 - 8 - BLIND

Flange Material

SS = 316/316L stainless steel
M = Alloy 400
INC = Alloy 600
HC = Alloy C-276

Nominal Flange Size

F8 = NPS 1/2 in.
F12 = NPS 3/4 in.
F16 = NPS 1 in.
F24 = NPS 1 1/2 in.
F32 = NPS 2 in.

Pressure Class

150 = 150	**900** = 900
300 = 300	**1500** = 1500
600 = 400/600	**2500** = 2500

Options

BLIND = Blind through hole

BT = Bored-through

PMI = 100% positive material identification, no report

PM2 = 100% positive material identification, with report

PM3 = specified % positive material identification, with report

End Connection Size

NPT		*Weld*	
1 = 1/16 in.		**1W** = 1/16 in.	
2 = 1/8 in.		**2W** = 1/8 in.	
4 = 1/4 in.		**4W** = 1/4 in.	
6 = 3/8 in.		**6W** = 3/8 in.	
8 = 1/2 in.		**8W** = 1/2 in.	
12 = 3/4 in.		**12W** = 3/4 in.	
16 = 1 in.		**16W** = 1 in.	
20 = 1 1/4 in.		**20W** = 1 1/4 in.	
24 = 1 1/2 in.		**24W** = 1 1/2 in.	
32 = 2 in.		**32W** = 2 in.	

End Connection Type

1 = Male
7 = Female

Sealing Face (Raised Face Standard)

no designator = Raised face
FF = Flat face
RTJ = Ring joint face[1]
MFL = Male face, large
MFS = Male face, small
FFL = Female face, large
FFS = Female face, small
TFL = Tongue face, large
TFS = Tongue face, small
GFL = Groove face, large
GFS = Groove face, small

ASME B16.5 should be reviewed for specific dimensions related to sealing faces.

[1] May come with full face or contoured face.

Swagelok

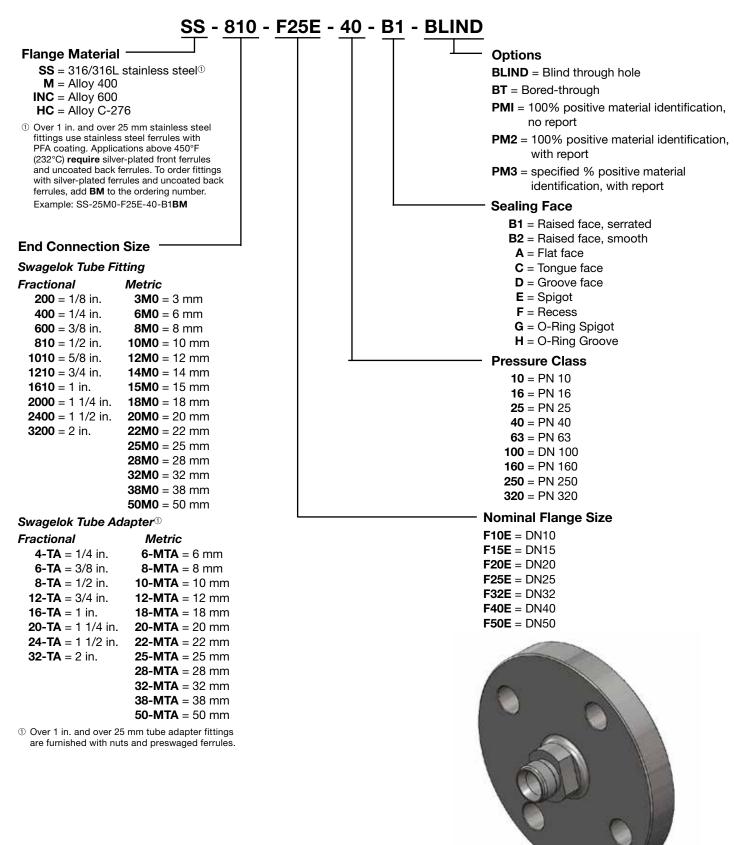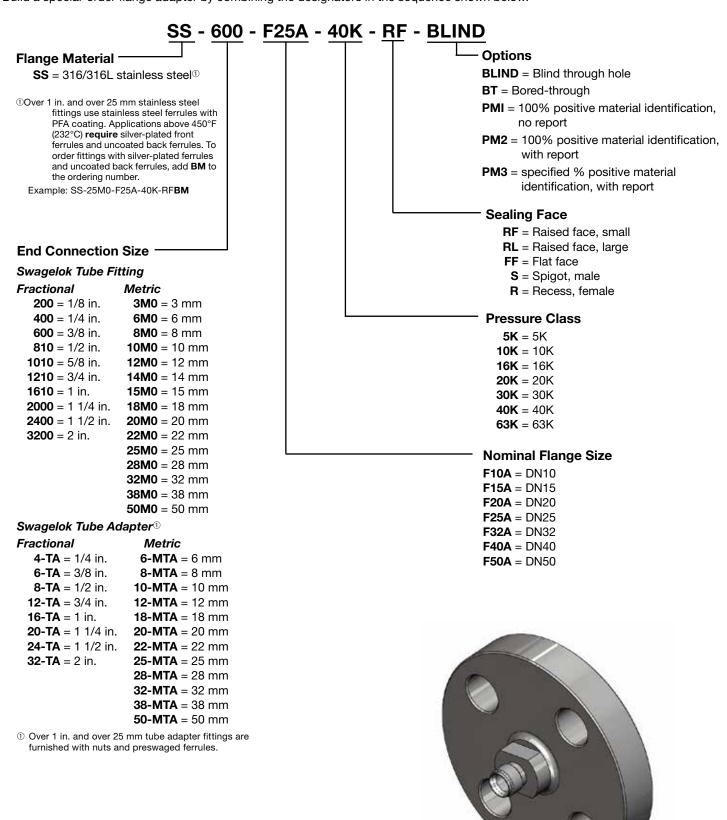## Ordering Information, DIN EN Flange Adapters

For standard stainless steel flange adapters, select an ordering number from the table on page 3.

Build a special-order flange adapter by combining the designators in the sequence shown below.

SS - 810 - F25E - 40 - B1 - BLIND

Flange Material

SS = 316/316L stainless steel[①]
M = Alloy 400
INC = Alloy 600
HC = Alloy C-276

① Over 1 in. and over 25 mm stainless steel fittings use stainless steel ferrules with PFA coating. Applications above 450°F (232°C) **require** silver-plated front ferrules and uncoated back ferrules. To order fittings with silver-plated ferrules and uncoated back ferrules, add **BM** to the ordering number.
Example: SS-25M0-F25E-40-B1**BM**

End Connection Size

Swagelok Tube Fitting

Fractional	*Metric*
200 = 1/8 in.	**3M0** = 3 mm
400 = 1/4 in.	**6M0** = 6 mm
600 = 3/8 in.	**8M0** = 8 mm
810 = 1/2 in.	**10M0** = 10 mm
1010 = 5/8 in.	**12M0** = 12 mm
1210 = 3/4 in.	**14M0** = 14 mm
1610 = 1 in.	**15M0** = 15 mm
2000 = 1 1/4 in.	**18M0** = 18 mm
2400 = 1 1/2 in.	**20M0** = 20 mm
3200 = 2 in.	**22M0** = 22 mm
	25M0 = 25 mm
	28M0 = 28 mm
	32M0 = 32 mm
	38M0 = 38 mm
	50M0 = 50 mm

Swagelok Tube Adapter[①]

Fractional	*Metric*
4-TA = 1/4 in.	**6-MTA** = 6 mm
6-TA = 3/8 in.	**8-MTA** = 8 mm
8-TA = 1/2 in.	**10-MTA** = 10 mm
12-TA = 3/4 in.	**12-MTA** = 12 mm
16-TA = 1 in.	**18-MTA** = 18 mm
20-TA = 1 1/4 in.	**20-MTA** = 20 mm
24-TA = 1 1/2 in.	**22-MTA** = 22 mm
32-TA = 2 in.	**25-MTA** = 25 mm
	28-MTA = 28 mm
	32-MTA = 32 mm
	38-MTA = 38 mm
	50-MTA = 50 mm

① Over 1 in. and over 25 mm tube adapter fittings are furnished with nuts and preswaged ferrules.

Options

BLIND = Blind through hole
BT = Bored-through
PMI = 100% positive material identification, no report
PM2 = 100% positive material identification, with report
PM3 = specified % positive material identification, with report

Sealing Face

B1 = Raised face, serrated
B2 = Raised face, smooth
A = Flat face
C = Tongue face
D = Groove face
E = Spigot
F = Recess
G = O-Ring Spigot
H = O-Ring Groove

Pressure Class

10 = PN 10
16 = PN 16
25 = PN 25
40 = PN 40
63 = PN 63
100 = DN 100
160 = PN 160
250 = PN 250
320 = PN 320

Nominal Flange Size

F10E = DN10
F15E = DN15
F20E = DN20
F25E = DN25
F32E = DN32
F40E = DN40
F50E = DN50

Swagelok

Ordering Information, JIS Flange Adapters

For standard stainless steel flange adapters, select an ordering number from the table on page 3.

Build a special-order flange adapter by combining the designators in the sequence shown below.

SS - 600 - F25A - 40K - RF - BLIND

Flange Material

SS = 316/316L stainless steel[1]

[1]Over 1 in. and over 25 mm stainless steel fittings use stainless steel ferrules with PFA coating. Applications above 450°F (232°C) **require** silver-plated front ferrules and uncoated back ferrules. To order fittings with silver-plated ferrules and uncoated back ferrules, add **BM** to the ordering number.
Example: SS-25M0-F25A-40K-RF**BM**

End Connection Size

Swagelok Tube Fitting

Fractional		Metric	
200	= 1/8 in.	**3M0**	= 3 mm
400	= 1/4 in.	**6M0**	= 6 mm
600	= 3/8 in.	**8M0**	= 8 mm
810	= 1/2 in.	**10M0**	= 10 mm
1010	= 5/8 in.	**12M0**	= 12 mm
1210	= 3/4 in.	**14M0**	= 14 mm
1610	= 1 in.	**15M0**	= 15 mm
2000	= 1 1/4 in.	**18M0**	= 18 mm
2400	= 1 1/2 in.	**20M0**	= 20 mm
3200	= 2 in.	**22M0**	= 22 mm
		25M0	= 25 mm
		28M0	= 28 mm
		32M0	= 32 mm
		38M0	= 38 mm
		50M0	= 50 mm

Swagelok Tube Adapter[1]

Fractional		Metric	
4-TA	= 1/4 in.	**6-MTA**	= 6 mm
6-TA	= 3/8 in.	**8-MTA**	= 8 mm
8-TA	= 1/2 in.	**10-MTA**	= 10 mm
12-TA	= 3/4 in.	**12-MTA**	= 12 mm
16-TA	= 1 in.	**18-MTA**	= 18 mm
20-TA	= 1 1/4 in.	**20-MTA**	= 20 mm
24-TA	= 1 1/2 in.	**22-MTA**	= 22 mm
32-TA	= 2 in.	**25-MTA**	= 25 mm
		28-MTA	= 28 mm
		32-MTA	= 32 mm
		38-MTA	= 38 mm
		50-MTA	= 50 mm

[1] Over 1 in. and over 25 mm tube adapter fittings are furnished with nuts and preswaged ferrules.

Options

BLIND = Blind through hole

BT = Bored-through

PMI = 100% positive material identification, no report

PM2 = 100% positive material identification, with report

PM3 = specified % positive material identification, with report

Sealing Face

RF = Raised face, small
RL = Raised face, large
FF = Flat face
S = Spigot, male
R = Recess, female

Pressure Class

5K = 5K
10K = 10K
16K = 16K
20K = 20K
30K = 30K
40K = 40K
63K = 63K

Nominal Flange Size

F10A = DN10
F15A = DN15
F20A = DN20
F25A = DN25
F32A = DN32
F40A = DN40
F50A = DN50

Swagelok

Options

Bored-Through Flange Adapters for Thermocouples and Dip Tubes

Swagelok bored-through flange adapters with Swagelok tube fitting ends accommodate thermocouples or dip tubes. To order, add **BT** to the ordering number.

Example: SS-6M0-F25M-40-C**BT**

Tube Fitting Lap Joint Stubs

Stainless steel lap joint connectors are available for use with 1/2 in. lap joint pipe flange adapters.

Select an ordering number.

Tube OD	Sealing Surface Finish (R_a)	Ordering Number
3/8 in.	125 to 250 µin. (3.2 to 6.4 µm)	SS-600-1-0151
10 mm		SS-10M0-1-0005

Medium- and High-Pressure Fittings, Tubing, Valves, and Accessories

Refer to M*edium- and High-Pressure Fittings, Tubing, Valves, and Accessories* catalog, MS-02-472, for additional information.

Swagelok Tube Fittings

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

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, Metric, and Imperial Sizes* catalog, MS-01-181
- *Ultrahigh-Purity and High-Purity Stainless Steel Tubing, Fractional, Metric, and Imperial Sizes* catalog, MS-01-182

Tubing Data

Refer to *Tubing Data* catalog, MS-01-107, for additional information on tubing data.

Tube Benders

Refer to *Tubing Tools and Accessories* catalog, MS-01-179, for additional information.

Multihead Hydraulic Swaging Unit

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

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.

MS-02-200, RevJ, September 2021

Swagelok

Introduction

Since 1947, Swagelok has designed, developed, and manufactured high-quality, general-purpose and specialty fluid system products to meet the evolving needs of global industries. Our focus is on understanding our customers' needs, finding timely solutions, and adding value with our products and services.

We are pleased to provide this global edition of the book-bound *Swagelok Product Catalog,* which compiles more than 100 separate product catalogs, technical bulletins, and reference documents into one convenient, easy-to-use volume. Each product catalog is up to date at the time of printing, with its revision number shown on the last page of the individual catalog. Subsequent revisions will supersede the printed version and will be posted on the Swagelok website and in the Swagelok electronic Desktop Technical Reference (eDTR) tool.

For more information, visit your Swagelok website or contact your authorized Swagelok sales and service representative.

Warranty Information

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

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.