

Tubing Tools and Accessories



Products

- Electric, bench top, and hand tube benders
- Tube preparation tools
- Tube support systems

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Tube Benders

Swagelok® benders provide high-quality bends on fractional and metric tubing made from materials that can be used with Swagelok tube fittings. These easy-to-use tube benders reduce installation time and effort as well as the potential for wrinkling or other damage to the tubing during bending.

Electric Tube Benders



See the Swagelok *Electric Tube Bender User's Manual*, MS-13-138, for complete setup and operating instructions.

Features

- Electronic control
- 1 to 110° bending range
- 1 to 2 in. outside diameter (0.049 to 0.220 in. wall thickness) and 25 to 50 mm outside diameter (1.2 to 5.0 mm wall thickness) tubing range
- One bend shoe for 1, 1 1/4, 1 1/2, and 2 in. sizes
- One bend shoe for 25, 32, 38, and 50 mm sizes
- CE compliant

Technical Data

- Dimensions—vertical position:
44 in. (112 cm) high, 29 in. (74 cm) wide, 30 in. (76 cm) deep
- Weight—420 lb (191 kg)
- Power requirements
MS-TBE-1—115 V (ac), 50/60 Hz; maximum current—13 A
MS-TBE-2—230 V (ac), 50/60 Hz; maximum current—7 A

See **Ordering Information, page 4.**

Tube Bending Data

Minimum tube length, bend radius, and wall thickness limits required to make a 90° bend in annealed tubing are listed below. See Swagelok *Tubing Data*, MS-01-107, for suggested tubing wall thickness for use with Swagelok tube fittings.

Fractional Tubing

Tube OD	Min Tube Length	Approx Bend Radius	Wall Thickness, Min/Max	
			Carbon Steel	Stainless Steel
Dimensions, in.				
1	20.5	4	0.049/0.120	0.065/0.120
1 1/4	22.8	5	0.065/0.180	0.083/0.156
1 1/2	25.5	6	0.083/0.220	0.090/0.188
2	32.0	8	0.095/0.220	0.109/0.188

Metric Tubing

Tube OD	Min Tube Length	Approx Bend Radius	Wall Thickness, Min/Max	
			Carbon Steel	Stainless Steel
Dimensions, mm				
25	520	103	1.2/3.0	1.8/3.0
32	582	126	2.0/4.0	2.0/4.0
38	648	152	2.2/4.5	2.2/4.5
50	810	203	—	3.0/5.0

Tube Benders

Bench Top Tube Benders

Features

- Rugged, lightweight aluminum construction
- 1 to 180° bending range
- 1/4 to 1 1/4 in. outside diameter (0.028 to 0.120 in. wall thickness) and 12 to 30 mm outside diameter (1.0 to 3.0 mm wall thickness) tubing range
- Steel bend shoes required for:
 - 1 in. outside diameter tubing with greater than 0.095 in. wall thickness
 - 25 mm tubing with greater than 2.4 mm wall thickness
 - all sizes of SAF 2507™ tubing
 - all sizes of heavy-wall annealed stainless steel tubing
 - all sizes of cold-drawn 1/8-hard stainless steel seamless tubing.
- Includes grease gun and metal carrying case for storage
- Manual model can be operated with a 1/2 in. drill motor using optional torque clutch and support arm.
- CE compliant



Manual Model



Electric Model

Technical Data

- Dimensions—tube bender in case:
14 1/2 in. (37 cm) high, 21 in. (53 cm) wide, 11 in. (28 cm) deep
- Weight—tube bender in case, excluding tools:
Manual model—75 lb (34 kg)
Electric model—79 lb (36 kg)
- Power requirements (electric model)
MS-BTB-1—110 V (ac), 50/60 Hz; maximum current—10 A
MS-BTB-2—230 V (ac), 50/60 Hz; maximum current—5 A

See **Ordering Information, page 4, and Options and Accessories, page 5.**

Tubing Data

Minimum tube length, bend radius, and wall thickness limits required to make a 90° bend in annealed tubing are listed below. See *Swagelok Tubing Data, MS-01-107*, for suggested tubing wall thickness for use with Swagelok tube fittings.

Fractional Tubing

Tube OD	Min Tube Length	Approx Bend Radius	Wall Thickness, Min/Max			
			Carbon Steel	Stainless Steel	Heavy-Wall Annealed SS	Cold-Drawn 1/8-Hard SS
Dimensions, in.						
1/4	7.00	1.4	0.028/0.065		0.065/0.095	0.028/0.065
3/8			0.035/0.065	0.035/0.083	0.083/0.134	0.035/0.083
1/2			0.035/0.083		0.083/0.188	0.049/0.109
5/8	8.50	1.8	0.035/0.095	0.049/0.095	—	
3/4	9.75	2.2	0.049/0.109			
7/8	10.5	2.6				
1	12.2	3.2	0.049/0.120	0.065/0.120		
1 1/4	15.0	4.4	0.065/0.120	0.083/0.120		

Metric Tubing

Tube OD	Min Tube Length	Approx Bend Radius	Wall Thickness, Min/Max	
			Carbon Steel	Stainless Steel
Dimensions, mm				
12	178	36	1.0/2.2	1.0/2.0
15	216	46	1.0/2.2	
16			1.0/2.5	1.0/2.2
18	248	55	1.2/2.5	
20		67	1.2/2.8	
22	267	67	1.2/2.8	
25	311	82	1.2/3.0	1.8/3.0
28	381	112	1.8/3.0	
30			2.0/3.0	

Tube Benders

Ordering Information, Electric and Bench Top Tube Benders

1. Select a basic ordering number.

Bender Type	Ordering Number
Electric	
115 V (ac)	MS-TBE-1
230 V (ac)	MS-TBE-2
Bench Top	
Manual	MS-BTB-M
Electric—110 V (ac)	MS-BTB-1
Electric—230 V (ac)	MS-BTB-2

Example: **MS-BTB-1**

2. Add a power cord^① designator (electric models).

Geographic Region	Voltage	Plug Type	Cord/Wire Type	Power Cord Designator
North America	110/120 V (ac) 50/60 Hz	NEMA 5-15	AWG/ SJT	-1
	220/240 V (ac) 50/60 Hz	NEMA 6-15		-2
Japan/ Taiwan	110/120 V (ac) 50/60 Hz	NEMA 5-15	Harmonized	-3
	220/240 V (ac) 50/60 Hz	NEMA L6-20		-4
United Kingdom	110/120 V (ac) 50/60 Hz	IEC-309		-5
	220/240 V (ac) 50/60 Hz	BS 1363		-6
Continental Europe/Korea	220/240 V (ac) 50/60 Hz	CEE 7/7		-7
Australia/ New Zealand	220/240 V (ac) 50/60 Hz	AS 3112		-8

Example: **MS-BTB-1-1**

^① For more information, see the Swagelok *Electrical Power Cord and Plug Options* catalog, MS-02-79.

3. Add a user's manual language designator.

User's Manual Language	Designator	User's Manual Language	Designator
Chinese	-C	German	-G
French	-F	Japanese	-J
English	-E	Spanish	-S

Example: **MS-BTB-1-1-E**

4. Add a tool kit designator.

Tool Kit	Designator
Electric	
Fractional bend shoe, roller towers, and tube clamps (1, 1 1/4, 1 1/2, and 2 in.)	-FKIT
Metric bend shoe, roller towers, and tube clamps (25, 32, 38, and 50 mm)	-MKIT
Bench Top	
Aluminum fractional bend shoes and steel rollers (1/2, 5/8, 3/4, 7/8, and 1 in.)	-FKIT
Aluminum metric bend shoes and steel rollers (12, 16, 18, 20, 22, and 25 mm)	-MKIT

Example: **MS-BTB-1-1-E-FKIT**

Bench top tube bender only: To substitute a steel bend shoe for a 1 in. or 25 mm aluminum bend shoe, add **-S16** to the fractional kit ordering number or **-S25M** to the metric kit ordering number.

Example: **MS-BTB-1-1-E-FKIT-S16**

Tube Benders

Options and Accessories, Bench Top Tube Benders

- Individual tool kits with aluminum or steel bend shoes may be ordered separately. Steel bend shoes are required for select tubing, as listed on page 3.

Individual Tool Kit	Basic Ordering Number
Aluminum	MS-BTT-K- ^①
Steel	MS-BTT-K-S

^① Not available in 1 1/4 in., 28 mm, and 30 mm sizes.

To order, add a size designator from the tables at right.

Example: MS-BTT-K-4

- The tripod provides portable support for the tube bender.
Ordering number: **MS-BTB-A-TP**
- The torque clutch and support arm kit allows the manual model to be operated with a 1/2 in. drill motor.
Ordering number: **MS-BTB-A-TCSA**
- The foot pedal can be used in place of the toggle switch to operate the electric model.
Ordering number: **MS-BTB-A-FS**

See the Swagelok *Bench Top Tube Bender User's Manual*, MS-13-145, for additional accessories and complete setup and operating instructions.

Fractional Size, in.	Size Designator
1/4	4
3/8	6
1/2	8
5/8	10
3/4	12
7/8	14
1	16
1 1/4	20

Metric Size, mm	Size Designator
6	6M
10	10M
12	12M
14	14M
15	15M
16	16M
18	18M
20	20M
22	22M
25	25M
28	28M
30	30M

Hand Tube Benders

Swagelok hand tube benders provide consistent, high-quality bends in tubing made from materials that can be used with Swagelok tube fittings.



Features

- The hand tube bender is available in 1/4, 5/16, 3/8, and 1/2 in., as well as 6, 8, 10, and 12 mm tubing sizes.
- Clevis handle design provides enhanced leverage for bends greater than 90°.
- Roll dies reduce bending force and tube ovality, as compared to conventional slide block design.
- 1 to 180° bending range.

The hand tube bender cannot be used for SAF 2507 tubing over 1/4 in. or for medium-pressure tubing.

Ordering Information

Tube OD	Bend Radius	Ordering Number
Dimensions, in.		
1/4	0.56	MS-HTB-4T
1/4	0.75	MS-HTB-4
5/16	0.94	MS-HTB-5
3/8		MS-HTB-6T
1/2	1.50	MS-HTB-8
Dimensions, mm		
6	15	MS-HTB-6M
8	24	MS-HTB-8M
10		MS-HTB-10M
12	38	MS-HTB-12M

Tube Preparation Tools

Tube Cutter

The Swagelok tube cutter cuts stainless steel, soft copper, and aluminum tubing from 3/16 to 1 in. and 4 to 25 mm outside diameter.

Features

- Flare-out and work hardening of tube end is reduced.
- Knobs on handle are spaced in 1/8-turn increments to provide easy reference when advancing cutter wheel.



Ordering Number:

MS-TC-308

Replacement Cutting

Wheel Ordering

Number:

MS-TCW-308

Tube Sawing Guide

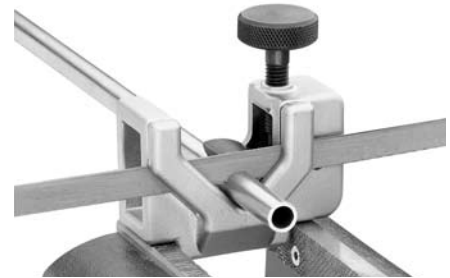
The tube sawing guide holds tubing to enable fast, accurate cutting with a hacksaw. The guide helps reduce tubing preparation time, thereby speeding system assembly.

Features

- Specially designed clamp holds tubing accurately, without distorting or scratching the tube surface.
- Precision guides easily position blade for all cuts.
- Recess under guide plates provides blade clearance at end of stroke.
- Retractable spring-loaded clamp allows tubing to be inserted easily.
- Guide accepts tubing sizes from 3/16 to 1 in. and 4 to 25 mm outside diameter.
- Design permits easy mounting in vise.

Ordering Number:

MS-TSG-16



Tube Deburring Tools

After use of the tube cutter or tube sawing guide, Swagelok deburring tools deburr stainless steel, steel, and hard alloy tube ends.

Features

- For deburring the inside and outside diameters of 3/16 to 1 1/2 in. and 4 to 38 mm tubing
- Steel blades for long life
- Rugged, heavy-duty die-cast housing



Ordering Number:

MS-TDT-24

For deburring the inside diameter of 1/4, 3/8, and 9/16 in. stainless steel tubing.



Ordering Number: **MS-44CT-27**

Tube Gripper Pad

The Swagelok tube gripper pad allows users to hold tubing with a firm, secure grip while using the tube cutter or tube deburring tool.



Tube Support Systems

Bolted Plastic Clamp Supports

Swagelok bolted plastic clamp supports offer versatility for mounting tubing and pipe. Three support kit configurations—single, twin, and single stacking—are available. See page 8.

Three mounting configurations—weld plate, mounting rail and rail nuts, and strut nuts—are available. See page 9.

Features

- Absorb shock and vibration
- Resist many chemicals and corrosives
- Reduce stress on system components
- Enhance system reliability
- Resist ultraviolet light
- Make system easily accessible for installation and maintenance.

Temperature Rating

-22 to 194°F (-30 to 90°C)

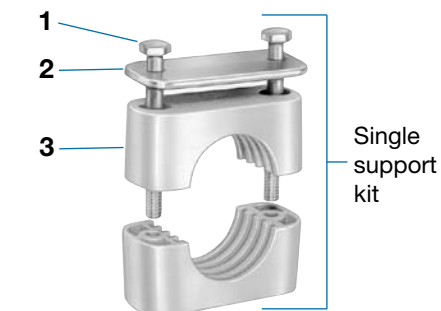
Materials of Construction

Component	Material/Specification
1 Hex head support bolts	304 SS ^①
2 Cover plate	304 SS/DIN 1.4301 SS ^①
3 Support body	Virgin polypropylene ^②
4 Lock plate	304 SS/DIN 1.4301 SS ^①
5 7/16 in. or 10 mm hex head stacking bolts	304 SS ^①
6 Weld nut	303 SS/DIN 1.4305 SS
7 Weld plate	304 SS/DIN 1.4301 SS ^①
8 Mounting rail	303 SS/DIN 1.4305 SS
9 Rail nut	CF8M/DIN 1.4408 SS
10 Strut nut	Zinc-plated steel ^③

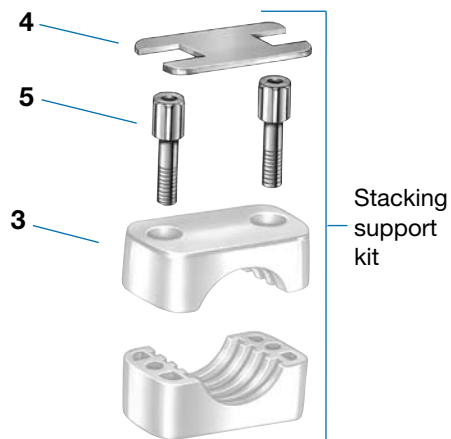
① 316 stainless steel bolts and plates are available (see **Bolted Plastic Clamp Support Options**, page 10).

② Polyamide support bodies are available (see **Bolted Plastic Clamp Support Options**, page 10).

③ 316 stainless steel strut nuts are available (see **Bolted Plastic Clamp Support Options**, page 10).



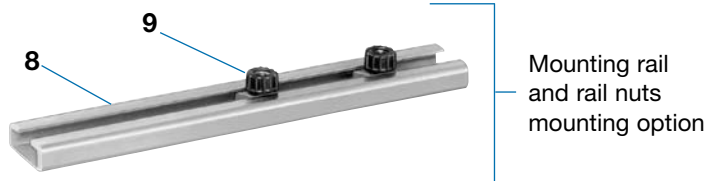
Single support kit



Stacking support kit



Weld plate mounting option



Mounting rail and rail nuts mounting option



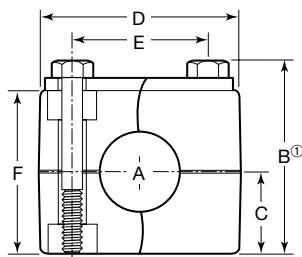
Strut nut mounting option

Tube Support Systems

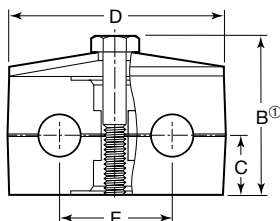
Ordering Information and Dimensions, Bolted Plastic Clamp Support Kit

Dimensions are for reference only and are subject to change.

For hose applications, consult your authorized Swagelok sales and service representative.



Single-Support Kits



Twin-Support Kits

Pipe Kits		Tube Kits				Group	Dimensions, in. (mm)				
Pipe Size A in.	Ordering Number	Tube Size A in.	Ordering Number	Tube Size A mm	Ordering Number		B ^①	C	D	E	F
Single Support^②											
—	—	1/4	304-S1-PP-4T	6	304-S1-PP-6TM	1	1.30 (33.0)	0.51 (13.0)	1.34 (34.0)	0.79 (20.0)	1.06 (27.0)
			304-S1-PP-6T	8	304-S1-PP-8TM						
		3/8	304-S1-PP-6T	10	304-S1-PP-10TM						
1/2	304-S3-PP-8P	1/2	304-S3-PP-8T	15	304-S3-PP-15TM	3	1.61 (40.9)	0.67 (17.0)	1.89 (48.0)	1.30 (33.0)	1.38 (35.1)
			304-S3-PP-16T	16	304-S3-PP-16TM						
		5/8	304-S3-PP-10T	18	304-S3-PP-18TM						
		3/4	304-S3-PP-12T	20	304-S3-PP-20TM						
		7/8	304-S3-PP-14T	22	304-S3-PP-22TM						
1	304-S3-PP-16T	25	304-S3-PP-25TM								
3/4	304-S5-PP-12P	1 1/4	304-S5-PP-20T	—	—	5	2.56 (65.0)	1.14 (29.0)	2.76 (70.1)	2.05 (52.1)	2.28 (57.9)
1	304-S5-PP-16P										
1 1/4	304-S5-PP-20P	1 1/2	304-S5-PP-24T	—	—	6	2.84 (72.1)	1.28 (32.5)	3.39 (86.1)	2.60 (66.0)	2.60 (66.0)
1 1/2	304-S6-PP-24P	2	304-S6-PP-32T								
Twin Support^③											
—	—	1/4	304-S1T-PP-4T	6	304-S1T-PP-6TM	1	1.50 (38.1)	0.53 (13.5)	1.42 (36.1)	0.79 (20.1)	—
			304-S1T-PP-6T	8	304-S1T-PP-8TM						
			304-S1T-PP-12TM	10	304-S1T-PP-10TM						
		3/8	304-S1T-PP-6T	12	304-S1T-PP-12TM						
		1/2	304-S3T-PP-8T	—	—	3	1.93 (49.0)	0.73 (18.5)	2.64 (67.1)	1.42 (36.1)	
3/4	304-S3T-PP-12T										
1	304-S3T-PP-16T										

① For overall height, add appropriate mounting option dimension.

② Threads for single fractional supports are 1/4-20, single metric supports are M6.

③ Threads for group 1 twin supports are 1/4-20, group 3 twin supports are 5/16-18.

Single-Support Stacking Kit

You can stack up to three single bolted plastic clamp supports. The top support uses a cover plate. The lower support(s) uses a lock plate. To order a stacking support kit, add **-ST** to the single tube kit ordering number.

Example: 304-S1-PP-4T-**ST**

Tube Support Systems

Bolted Plastic Clamp Support Mounting Configurations

To order a bolted plastic clamp system, choose from the three mounting options listed below and on the next page..

Weld Plate Mounting Option

- Weld plates are available in standard and elongated lengths.
- Weld nuts are welded, not press fit, to the weld plate.

To order, select a support kit ordering number from the table on page 8.

Example: **304-S1-PP-4T**

Then identify the support kit group number listed in the table.

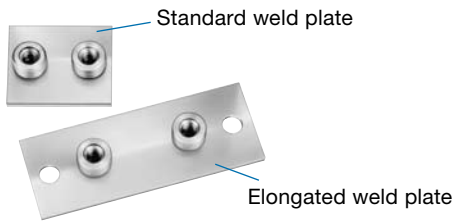
Example: **Group 1**

Select the corresponding weld plate ordering number.

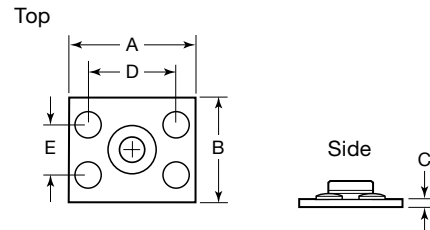
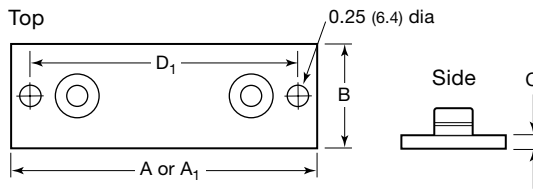
Note: The Group number for the support kit and the weld kit must be the same.

Example: **304-S1-WP**

Single-Support Weld Plate



Twin-Support Weld Plate



Weld Plate Ordering Information and Dimensions

Dimensions are for reference only and are subject to change.

Group	Ordering Number				Dimensions, in. (mm)						
	Standard		Elongated		A	A ₁ ^①	B	C	D	D ₁ ^①	E
	Fractional	Metric	Fractional	Metric							
Single-Support Weld Plate											
1	304-S1-WP	304-S1-WPM	304-S1-WPE	304-S1-WPEM	1.42 (36.1)	2.52 (64.0)	1.18 (30.0)	0.12 (3.0)	-	1.97 (50.0)	-
3	304-S3-WP	304-S3-WPM	304-S3-WPE	304-S3-WPEM	1.97 (50.0)	3.07 (78.0)				2.52 (64.0)	
5	304-S5-WP	-	304-S5-WPE	-	2.83 (71.9)	3.94 (100)				3.39 (86.1)	
6	304-S6-WP		304-S6-WPE		3.46 (87.9)	4.57 (116)				3.94 (100)	
Twin-Support Weld Plate											
1	304-S1T-WP	304-S1T-WPM	-	-	1.46 (37.1)	-	1.18 (30.0)	0.12 (3.0)	0.84 (21.3)	-	0.56 (14.2)
3	304-S3T-WP	304-S3T-WPM			2.76 (70.1)			0.20 (5.1)	2.04 (51.8)		0.45 (11.4)

① Elongated weld plate only.

Tube Support Systems

Bolted Plastic Clamp Support Mounting Configurations

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

Mounting Rail and Rail Nuts Mounting Option

- Rail nuts can be added or removed anywhere along the rail span.
- Neoprene cap holds nuts and support body in place.
- Two rail nuts are required for single-support kits; one rail nut is required for twin-support kits.

To order, select a support kit ordering number from the table on page 8.

Example: **304-S1-PP-4T**

Then select a mounting rail ordering number.

Example: **303-S0-R-3.3**

Select the corresponding (fractional or metric) rail nut ordering number.

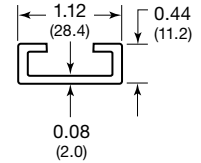
Example: 2 pc **SS-S0-RN**

Mounting Rail Ordering Information

Length, ft (m)	Ordering Number
3.3 (1)	303-S0-R-3.3
6.6 (2)	303-S0-R-6.6

Rail Nuts Ordering Information

Group	Ordering Number	
	Fractional	Metric
Single (two nuts required)		
All	SS-S0-RN	SS-S0-RNM
Twin (one nut required)		
1	SS-S0-RN	SS-S0-RNM
3	SS-S3T-RN	—



Strut Nuts Mounting Option

- Strut nuts are for use on 1 5/8 in. (41.3 mm) strut rail mounting systems.
- Strut nuts can be added or removed anywhere along the strut rail span.
- Two strut nuts are required for single-support kits; one strut nut is required for twin-support kits.

To order, select a support kit ordering number from the table on page 8.

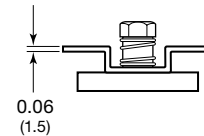
Example: **304-S1-PP-4T**

Then select the corresponding (fractional or metric) strut nut ordering number(s).

Example: 2 pc **S-S0-SN**

Strut Nuts Ordering Information

Group	Ordering Number	
	Fractional	Metric
Single (two nuts required)		
All	S-S0-SN	S-S0-SNM
Twin (one nut required)		
1	S-S0-SN	S-S0-SNM
3	S-S3T-SN	—



Bolted Plastic Clamp Support Options

Blind Support Body (Undrilled)

To order, replace the tube size designator in the support kit ordering number with **BL**.

Example: 304-S1-PP-**BL**

316 Stainless Steel Bolts and Plates

To order, replace **304** with **316** in the support kit ordering number.

Examples: **316-S1-PP-4T**
316-S1-WP

Polyamide Support Body

A polyamide support body is available for use in temperatures from -40 to 284°F (-40 to 140°C). To order, replace **PP** with **PA** in the support kit ordering number.

Example: 304-S1-**PA**-4T

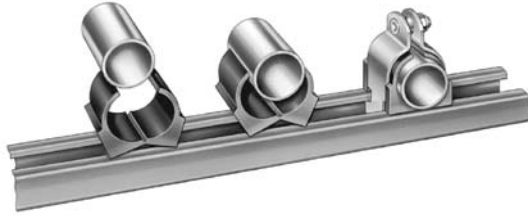
316 Stainless Steel Strut Nuts

To order, replace **S** with **SS** in the strut nuts ordering number.

Example: **SS-S0-SN**

Tube Support Systems

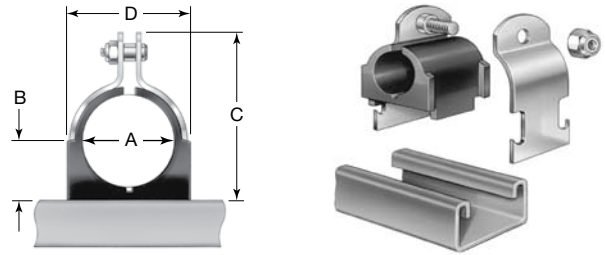
Cushioned Clamp Tube Supports



- Provide channel-mounted tube support
- Dampen shock and vibration
- Resist galvanic corrosion.

Technical Data

Component	Material	Temperature Rating
Clamp	Electro-dichromate-finished carbon steel or 316 stainless steel	-50 to 275°F (-45 to 135°C)
Cushion	Thermoplastic polypropylene-based elastomer	



Ordering Information and Dimensions

Dimensions are for reference only and are subject to change.

A, Tube Size		Basic Ordering Number	Dimensions, in. (mm)		
in.	mm		B	C	D
1/4	—	TBC4	0.27 (6.9)	0.98 (24.9)	0.62 (15.7)
3/8	10	TBC6	0.33 (8.4)	1.13 (28.7)	0.82 (20.8)
1/2	—	TBC8	0.40 (10.2)	1.34 (34.0)	0.94 (23.9)
3/4	20	TBC12	0.52 (13.2)	1.68 (42.7)	1.20 (30.5)
1	25	TBC16	0.65 (16.5)	1.95 (49.5)	1.44 (36.6)

Contact your authorized Swagelok representative for additional sizes. Clamp fits any 1 5/8 in. mounting channel.

To order, select a basic ordering number and add a clamp material designator.
Example: **S-TBC4**

Clamp Material	Designator
Electro-dichromate-finished carbon steel	S-
316 stainless steel	SS-

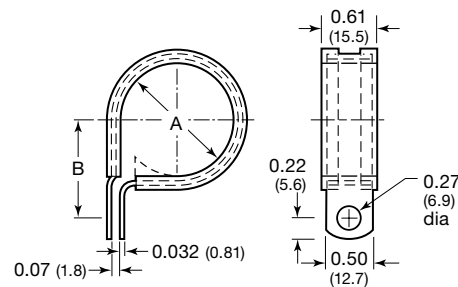
P Clamp Supports

- Are an economical way to support tube or hose runs in a variety of sizes
- Install easily to a wall or equipment frame using a single screw or bolt.



Technical Data

Component	Material	Temperature Rating
Clamp	316 SS/AMS 5524	-40 to 212°F (-40 to 100°C)
Cushion	Black EPDM/SAE J200BC715 C12, C20	



Ordering Information and Dimensions

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

A, Tube Size		Ordering Number	B in. (mm)
in.	mm		
1/4	6	SS-TBP4	0.52 (13.2)
3/8	10	SS-TBP6	0.59 (15.0)
1/2	12	SS-TBP8	0.65 (16.5)
3/4	20	SS-TBP12	0.84 (21.3)
1	25	SS-TBP16	0.95 (24.1)

Contact your authorized Swagelok representative for additional sizes.

Tube Support Systems

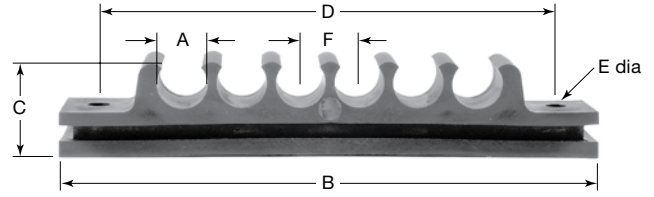
Tube Support Strips



- Organize multiple tubing or hose runs
- Offer push-in installation
- Install easily to a wall or equipment frame using two screws or bolts.

Technical Data

Component	Material	Temperature Rating
Tube support strip	Polypropylene	-40 to 200°F (-40 to 93°C)



Ordering Information and Dimensions

Dimensions are for reference only and are subject to change.

A Tube Size		Ordering Number	Maximum Number of Tubing and Hose Channels	Dimensions in. (mm)				
				B	C	D	E	F
1/4	—	MS-TSS-4	10	4.50 (114)	0.50 (12.7)	4.05 (103)	0.18 (4.6)	0.31 (8.0)
3/8	10	MS-TSS-6	10	5.62 (143)	0.61 (15.6)	5.15 (131)	0.18 (4.6)	0.43 (11.0)
1/2	—	MS-TSS-8	6	5.25 (133)	0.93 (23.6)	4.56 (116)	0.24 (6.1)	0.57 (14.5)

Contact your authorized Swagelok representative for additional sizes.

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.