

 **SUPERLOK**®

i - Fitting

Precise Connection Every Time

No More GUESSWORK!


















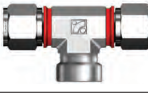























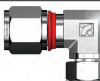








OUTPERFORMS

Competition in
Safety, Quality
& Reliability

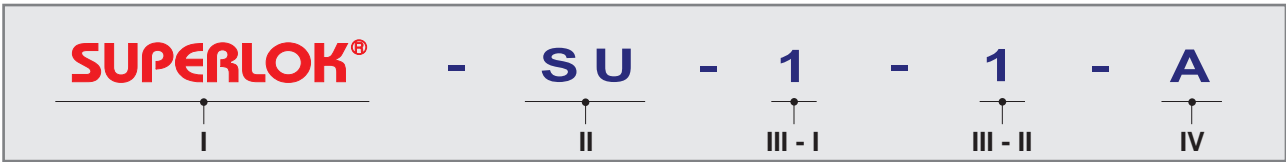


SUPERLOK® *i* - Fitting
Integration Tube Fitting Series



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Ordering Information



I: **SUPERLOK®** Tube Fitting II: Fitting Type III: Fitting Size (III-I: Tube O.D. III-II: Pipe Thread Size or Tube Size) IV: Material

I: **SUPERLOK®** Tube Fitting

II: Type of Fitting

| | | | |
|---------------------|----------------------|------------------------------------|------------------------|
| SUI: Union | SMCI: Male Connector | SUEI: Union Elbow | SUTI: Union Tee |
| SWC: Weld connector | SRI: Reducer | SSMC: SAE/MS O-Ring Male Connector | SAU: AN union SP: Plug |

■ Refer to Index - Pg 2

III: Size of Fitting

III-I: Tube O.D.

| Fractional Tube | O.D (Inch) | 1/16 | 1/8 | 3/16 | 1/4 | 5/16 | 3/8 | 1/2 | 5/8 | 3/4 | 7/8 | 1 | 1-1/4 | 1-1/2 | 2 |
|-----------------|------------|------|-----|------|-----|------|-----|-----|-----|-----|-----|----|-------|-------|----|
| | Identify | 1 | 2 | 3 | 4 | 5 | 6 | 8 | 10 | 12 | 14 | 16 | 20 | 24 | 32 |

III-II: Pipe Thread Size or tube size

| SIZE (INCH) | 1/8 | 1/4 | 3/8 | 1/2 | 3/4 | 1 | Applied Size |
|---------------|-----|-----|-----|-----|-----|-----|--|
| ISO TAPERED | 2R | 4R | 6R | 8R | 12R | 16R | JIS B0203(PT), DIN2999, BSPT |
| NPT | 2N | 4N | 6N | 8N | 12N | 16N | ANSI B1.20.1 |
| ISO PARALLEL | 2G | 4G | 6G | 8G | 12G | 16G | JIS B0202(PF), ISO 228/1, BSPP |
| UNIFIED SCREW | 2U | 4U | 6U | 8U | 12U | 16U | AMERICAN STANDARD UNIFIED SCREW THREAD |

IV: Material

| MATERIAL | Aluminum (Use dash "-") | Brass and Copper (Use dash "-") | Carbon Steel | 316 Stainless Steel | Monel Alloy 400 | Alloy 825 | Alloy 625 | Alloy C-276 |
|----------|----------------------------|---------------------------------------|------------------------------|---------------------|--------------------|--------------|--------------|----------------|
| Identify | AL | B | S45C,A105(15),SS400(400).... | 316,316L (36L) | M40 | 825 | 625 | 276 |

■ Example

| | |
|--|--|
| <p>* SMCI - 8 - 6N SS316L SUPERLOK MALE CONNECTOR , Tube O.D: 1/2", Thread: 3/8" NPT, Stainless Steel 316L</p> | <p>* In case of Stainless Steel, it is possible to express SS316 or 316 itself.</p> |
| TEES and CROSSES | |
| | <ul style="list-style-type: none"> TEES are described by the size of 1 & 2 and then the branch (3). CROSSES are described by the size of 1 & 2 and then the branch (3 & 4). <p>Ex. 1) SMBTI - 6 - 6N (- 316) MALE BRANCH TEE 3/8" X 3/8" X 3/8" NPT Stainless steel 316</p> <p>Ex. 2) SUCI - 8 UNION CROSS 1/2" X 1/2" X 1/2" X 1/2"</p> |

* Products are for reference only and are subject to change on client's request.

Features of SUPERLOK® Tube Fittings



SUPERLOK® Tube Fittings have been designed and manufactured under the strictest material management, high precision machining and the best process technology.

SUPERLOK® Tube Fittings provide a reliable, leak proof seal under severe conditions such as temperature cycling, vibration and pulsation. In addition, **SUPERLOK®** Tube Fittings can contribute to productivity improvement because of superior machined surfaces on the inner surface of each **SUPERLOK®** Tube Fitting.

SUPERLOK® Tube Fittings can be assembled easily without the requirement of any special tools. Consideration of the entire system design is important to ensure safe and reliable results.

■ Structure of **SUPERLOK®**

SUPERLOK® Tube Fittings consist of four precision parts that are manufactured under the strictest quality control. These four precision parts together make up the BEST Tube Fitting in the world.

SUPERLOK® Tube Fittings secure leak free connections due to ease of assembly providing customers with confidence and appreciation of overall lower cost of installed systems.



■ Quality and Process Control

Mako Products **SUPERLOK[®]** Tube Fittings and Valves are produced to unmatched quality through strict statistical process control.

Stringent and consistent in process analysis regulates that tight tolerances are adhered to. The written Quality Control Manual is followed and demands persistent improvement in all areas of the Quality process where possible.

■ SUPERLOK[®] Warranty

Mako Products warrants that **SUPERLOK[®]** Tube Fittings shall be free from defects in material and workmanship for the life of the product.

The purchaser's solutions shall be limited to replacement and installation of any parts that fail through a defect in material or workmanship.

SUPERLOK[®] acknowledges that this brochure is regarded as the Warranty and does not publish a separate warranty unless there is a specific special requirement.

■ SUPERLOK[®] Installation Instruction

1. Installation under 1 inch or 25MM

SUPERLOK[®] Tube Fittings shall be delivered to the customer completely assembled and ready for installation.

Turning the nut to the finger tight position is the only requirement before starting the installation.

Fittings should not be disassembled before installation to maintain cleanliness and prevent unwanted foreign material from entering the system.

Care in the proper selection of tubing also contributes to a safe and reliable installation.

Step 1

Insert the tubing into the **SUPERLOK[®]** Tube fitting making sure the tubing is bottomed out and is in complete contact with the shoulder of the fitting. Also, the nut should be in the finger-tight position at this time.

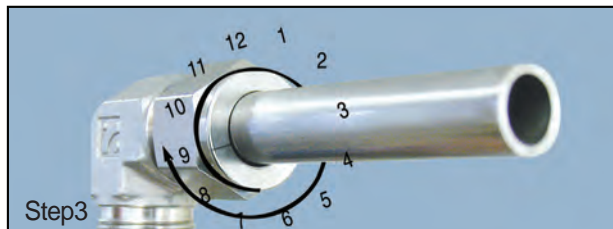
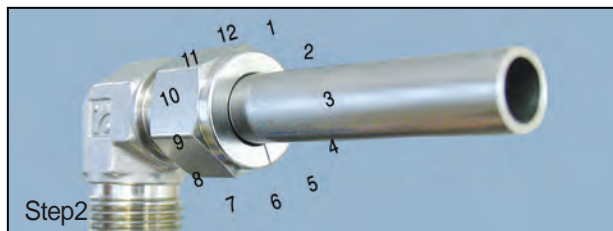
Step 2

Before tightening, mark the **SUPERLOK[®]** nut at the 6 o'clock position.

Step 3

Hold the fitting body safely with a back-up wrench and tighten the nut 1-1/4 turns until your mark reaches the 9 o'clock position.

Note: For 1/16", 1/8" and 3/16", 2, 3 and 4 mm tube fittings, tighten the nut 3/4 of a turn to the 3 o'clock position.



Gaugeability

On initial installation, the **SUPERLOK[®]** Inspection Gauge assures the installer or inspector that a fitting has been sufficiently tightened.

Position the **SUPERLOK[®]** Inspection Gauge next to the gap between the nut and the body.

- If the gauge will not enter the gap, the fitting is sufficiently tightened.



- If the gauge will enter the gap, additional tightening is required.



2. Installation for high pressure or severe service systems

Since tubing has different O.D. tolerances, it is important to have a common starting point to take out in dimensional variations. This is done by tightening the fitting slightly until the tubing cannot freely rotate in the fitting as it can in the finger-tight position. At this point tighten the nut 1-1/4 turns.

Safety Considerations on Installations for High Pressure Systems

1. Make sure the proper tubing wall thickness is selected in accordance with pressure ratings. (see Page 10) Tubing should have a hardness of HRB 80 or less.
2. Do not assemble or disassemble fittings when the system is pressurized.

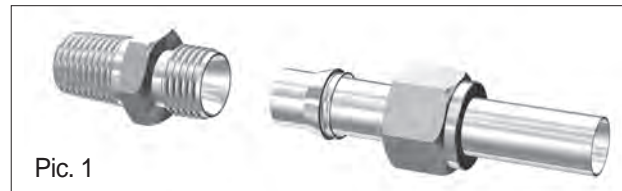
3. Re-tightening Instructions

Step 1

Pic. 1 shows the fitting in the disconnected position. Insert the tubing with the pre-swaged ferrules into the fitting body making sure the front ferrule is firmly seated as shown in Pic. 2

Step 2

Finger-tighten the nut and then with a wrench turn the nut to the original 9 o'clock position. At this point a slight change of resistance will be felt. Tighten the nut slightly more as the change in resistance is felt and the installation is complete as shown in Pic. 3 by tightening slightly more.



Technical Information

▪ Hardness Limitation

High Quality Stainless Steel tubing that is fully annealed; Seamless or Welded per ASTM A269, A213 or equivalent should be used with **SUPERLOK** Tube fittings. The tubing must be a maximum hardness of HRB 90 or less on the Rockwell Scale, however HRB 80 is more suitable for bending and offers a greater difference in hardness to the ferrules. This difference in hardness offers more ease in assembly and better interaction between the ferrules and the tubing.

▪ Compatibility

SUPERLOK Tube fittings are manufactured in order to be 100% interchangeable with other Tube Fittings currently on the market. **SUPERLOK** fully warrants the compatibility of with different manufactures provided the same strict manufacturing practices and tolerances are held by those manufactures. If possible only the **SUPERLOK** should be used to guarantee system quality.

■ Gas System Application

SUPERLOK[®] Tube Fittings are appropriate for Gas Systems, but the implementation of certain standards mentioned below should be adhered to just as in other systems.

1. Tubing hardness must be less than that of the ferrules.
2. Tubing should be free of surface imperfections, defects and round in shape.
3. Refer to Table 2 on page 10 for selection of the appropriate wall thickness. (Only shaded areas should be selected for Gas Systems)
4. Tubing ends must be cut squarely and perpendicular to the center-line of the tubing. After the tubing is cut it must be deburred on both the inside and outside with a High quality fully sharpened deburring tool.
5. Follow the **SUPERLOK[®]** Installation Instructions from pages 5 and 6 in the catalog.
6. Do not attempt to bend the tubing after a fitting has been installed in a fixed position.
7. Tubing Systems should be installed to allow for adequate expansion and contraction as well as ease of maintenance.

■ MATERIAL

SUPERLOK[®] Tube Fittings are available as standard in stainless steel, brass, and alloy material. Straight fittings are machined from cold finished bar stock and shaped bodies from forgings. Specifications for fitting materials are listed below. For special applications, contact your local distributors.

| Material | Bar Stock | Forging |
|------------------------|-------------------------|------------|
| 316 SS | ASTM A479 ASTM A276 | ASTM A182 |
| Monel, Alloy 400 | ASTM B164 | ASTM B 564 |
| Inconel, Alloy 600 | ASTM B 166 | ASTM B 564 |
| Hastelloy, Alloy C-276 | ASTM B 574 | ASTM B 564 |
| Brass | ASTM B 16 ASTM B 453 | ASTM B 283 |

■ Maximum Temperature by Materials

| | | |
|----------|---------|--------|
| Aluminum | 400 °F | 204 °C |
| Copper | 400 °F | 204 °C |
| Steel | 375 °F | 191 °C |
| SUS304 | 1000 °F | 538 °C |
| SUS316 | 1200 °F | 649 °C |
| MONEL | 800 °F | 427 °C |

Please refer to ASME B31.3 - 1993 concerning the detailed information about the maximum & minimum temperature of various materials.

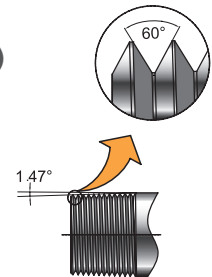
■ Vacuum, Cryogenic and High Temperature Applications

SUPERLOK[®] Tube Fittings have been tested in Vacuum, Cryogenic and High Temperatures ensuring repeatable and reliable performance in the severest of Applications.

■ THREADS

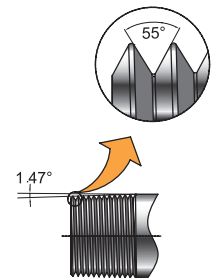
1. NPT (National Pipe Thread)

- Thread angle 60°
- Tapered angle 1.47°
- Manufactured by the standard of ASME B 1.20.1



2. ISO 7/1 Tapered Thread

- Thread angle 55°
- Tapered angle 1.47°
- Equivalent to the standard of DIN2999, BS21(BSPT) and JIS B0203(PT).

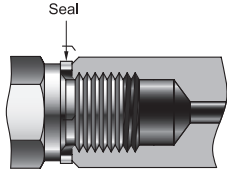


3. ISO 228/1 Parallel Thread

- Thread angle 55°
- Equivalent to the standard of BS 2779 (BSPP), JIS B0202 (PF).
- As the thread in accordance with ISO 228/1 cannot be sealed perfectly, the sealing shall be done by the following method.
- Use a gasket or O-Ring to seal.

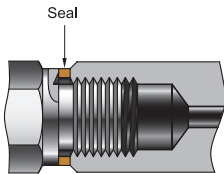
① Bonded Washer Seal

Be sealed by contacting the inclined surface of the hex body of male thread to the surface of the female thread. In case of sealing, a washer composed of metal and elastic material is located at the center of tapered surface.



② Metal Gasket Seal

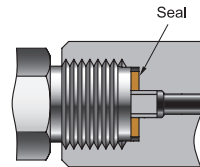
A Metal gasket (generally copper) is sealed between the body of male thread and the surface of female thread.



③ Metal Gasket Seal

This is a method to insert a gasket into the flat surface of thread's inside.

The sealing shall be completed with pushing the gasket by male thread surface.



4. UNF Thread

- Thread angle 60 °
- This is classified into UN, UNC and UNF. The standard is classified by the diameter of thread and the number of threads per inch.
- ASME B 1.1

Tube Standard Information

■ Tube Selection

Suitable tubing selection is essential in performance of tubing system.

When selecting tubing material, size and wall thickness, customer must consider pressure, flux (flow), temperature, environment and compatibility of system.

Consideration facts at the selection of tube

1. Quality of the tube materials & manufacturing method.
2. Thickness and outer diameter of tube.
3. Surface treatment of tube .
4. Hardness of tube.
5. Concentricity of tube.

■ Tube Bending

Tubing must have a minimum straight length before the start of any bend when inserting the tube into a **SUPERLOK®** Tube Fitting. Tubing where the minimum straight length is not adhered can result in leakage and jeopardize the integrity of the system.

See the chart below for minimum straight lengths.

Requirements for quality Tubing Material

- Tubing must be free of surface imperfections and suitable for Bending.

Pressure coefficient for tubing as it relates to temperature change.

■ The Recommended Straight Line Length of Tube In Tube Bending

| Tube O.D. (inch) | 1/8 | 3/16 | 1/4 | 5/16 | 3/8 | 1/2 | 5/8 | 3/4 | 7/8 | 1 |
|------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| L(mm) | 12.70 | 18.25 | 19.05 | 20.63 | 22.20 | 23.81 | 30.16 | 31.75 | 33.30 | 38.10 |

- L: The straight line length of tubing from the ending part of tubing to the beginning part of bending.

■ The Requirements for Tube Quality of the Material

Carbon steel tubing

- ASTM A179 or equivalent.
- Carbon steel tubing for an oil pressure usage of high quality, annealed and seamless.
- Maximum hardness: HRB72.
- Tubing must be free from scars and shall be suitable for bending and expansion works.

Copper tubing

- ASTM B68, B75 or equivalent.
- Copper tubing of high quality, annealed and seamless.

Stainless steel tubing

- ASTM A213, A269 or equivalent.
- Stainless steel tubing of high quality, annealed and seamless. (316, 304, 321, etc.)
- Hardness: below HRB 80.
- Tubing must be free from scars and shall be suitable for bending and expansion works.

■ Tube Quality Continued ...

Monel tubing

- ASTM B165 or equivalent.
- 400 alloy tubing of high quality, annealed and seamless.
- Hardness: below HRB 75.
- Tubing must be free from scars and shall be suitable for bending and expansion works.

■ A Pressure Grade Coefficient of Tubing Owing to Temperature Change

Table 1

| ° F | ° C | Copper | 304SS | 316SS | Monel |
|------|-----|--------|-------|-------|-------|
| 200 | 93 | 0.80 | 1.00 | 1.00 | 0.88 |
| 400 | 204 | 0.50 | 0.93 | 0.96 | 0.79 |
| 600 | 316 | --- | 0.82 | 0.85 | 0.79 |
| 800 | 427 | --- | 0.76 | 0.79 | 0.76 |
| 1000 | 538 | --- | 0.69 | 0.76 | --- |
| 1200 | 649 | --- | 0.30 | 0.37 | --- |

Multiply the allowable working pressure in Table 2 by the coefficient in Table 1 in order to decide allowable pressure at high temperature.

(See page 9, 10)

■ Example

SUS316

(3/8" O.D of tube) X (0.049" wall thickness)
1200 °F 4800 psi X 0.37 = 1776 psi

The applicable operation pressure of SUS316 tubing for wall thickness, 3/8" O.D X 0.049", is 1776 psi at 1200 °F

Technological Data

Table 2 Stainless Steel Tubing

Stainless Steel tubing which is high quality (such as 304, 316, 316L and so on), fully annealed and seamless ASTM A269, A213 or equivalent.

STAINLESS STEEL FRACTIONAL TUBE

| Tube O.D. (inch) | TUBE WALL THICKNESS (inch) | | | | | | | | | | | | |
|---------------------|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 0.010 | 0.012 | 0.014 | 0.016 | 0.020 | 0.028 | 0.035 | 0.049 | 0.065 | 0.083 | 0.095 | 0.109 | 0.120 |
| 1/16 | 5600 | 6800 | 8100 | 9400 | 12000 | | | | | | | | |
| 1/8 | | | | | | 8500 | 10900 | | | | | | |
| 3/16 | | | | | | 5400 | 7000 | 10200 | | | | | |
| 1/4 | | | | | | 4000 | 5100 | 7500 | 10200 | | | | |
| 5/16 | | | | | | | 4000 | 5800 | 8000 | | | | |
| 3/8 | | | | | | | 3300 | 4800 | 6500 | | | | |
| 1/2 | | | | | | | 2600 | 3700 | 5100 | 6700 | | | |
| 5/8 | | | | | | | | 2900 | 4000 | 5200 | 6000 | | |
| 3/4 | | | | | | | | 2400 | 3300 | 4200 | 4900 | 5800 | |
| 7/8 | | | | | | | | 2000 | 2800 | 3600 | 4200 | 4800 | |
| 1 | | | | | | | | | 2400 | 3100 | 3600 | 4200 | 4700 |

* Tubing working pressure (psi)

STAINLESS STEEL METRIC TUBE

| Tube O.D. (mm) | TUBE WALL THICKNESS (mm) | | | | | | | | | | | | |
|-------------------|--------------------------|-------|-------|-------|-------|-------|------|------|------|------|------|------|------|
| | 0.71 | 0.89 | 1.00 | 1.25 | 1.50 | 1.65 | 2.00 | 2.11 | 2.41 | 2.50 | 2.77 | 3.00 | 3.05 |
| 3 | 10800 | 13800 | 15300 | | | | | | | | | | |
| 4 | 7900 | 10100 | 11500 | 14400 | | | | | | | | | |
| 6 | 5000 | 6500 | 7400 | 9400 | 11500 | 12700 | | | | | | | |
| 8 | | 4700 | 5800 | 6800 | 8400 | 9300 | | | | | | | |
| 10 | | 3700 | 4200 | 5300 | 6500 | 7300 | | | | | | | |
| 12 | | 3000 | 3400 | 4400 | 5300 | 5900 | 6800 | 7200 | | | | | |
| 16 | | | 2500 | 3200 | 3900 | 4300 | 5300 | 5700 | 6600 | 6800 | | | |
| 18 | | | | 2800 | 3400 | 3800 | 4700 | 5000 | 5800 | 6000 | 6700 | | |
| 20 | | | | 2500 | 3000 | 3400 | 4200 | 4400 | 5100 | 5300 | 6000 | | |
| 22 | | | | 2300 | 2800 | 3000 | 3800 | 4000 | 4600 | 4800 | 5400 | | |
| 25 | | | | 2000 | 2400 | 2700 | 3300 | 3500 | 4000 | 4200 | 4700 | 5100 | 5200 |


* Tubing working pressure (psi)

Allowable stress value between -20 °F and 100 °F (-28.9 °C ~ 37.8 °C) is 19,500 psi
 Safety factor is 4 (Ultimate tensile strength is 75,000 psi)

- The above data is based on the minimum wall thickness and the maximum O. D. allowed by and under the standard of ASTM A269.
- The dimensions are not considered to erosion or corrosion.

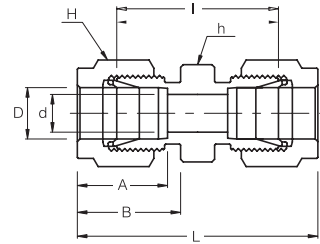


Union & Connector

| UNION | |
|---|---|
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| SMCI-GM Male Connector For Metal Gasket Seal Call for information |  |
| SGMC Male Connector For Bonded Washer Seal Call for information |  |
| SMCB Bulkhead Male Connector page 15 |  |
| SFCI Female Connector page 16 |  |
| SFCB Bulkhead Female Connector page 16 |  |



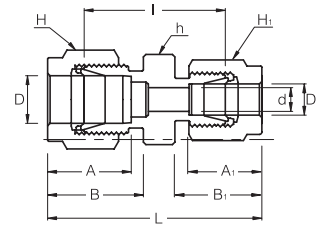
SUI Union



Connects Fractional Tubes

| Part No. | Tube O.D. D (inch) | d Min | Width Across Flat | | A | B | I | L |
|----------|-----------------------|----------|-------------------|----------|-------|-------|-------|--------|
| | | | h (inch) | H (inch) | | | | |
| SU - 1 | 1/16 | 1.27 | 5/16 | 5/16 | 8.63 | 10.92 | 17.52 | 25.15 |
| SU - 2 | 1/8 | 2.28 | 7/16 | 7/16 | 12.70 | 15.24 | 22.35 | 35.56 |
| SU - 3 | 3/16 | 3.04 | 7/16 | 1/2 | 13.71 | 16.00 | 24.13 | 37.33 |
| SUI - 4 | 1/4 | 4.82 | 1/2 | 9/16 | 15.24 | 17.78 | 26.16 | 40.89 |
| SU - 5 | 5/16 | 6.35 | 9/16 | 5/8 | 16.25 | 18.54 | 28.19 | 42.92 |
| SUI - 6 | 3/8 | 7.11 | 5/8 | 11/16 | 16.76 | 19.30 | 30.22 | 44.95 |
| SUI - 8 | 1/2 | 10.41 | 13/16 | 7/8 | 22.86 | 21.84 | 30.98 | 51.30 |
| SU - 10 | 5/8 | 12.70 | 15/16 | 1 | 24.38 | 21.84 | 31.75 | 52.07 |
| SUI - 12 | 3/4 | 15.74 | 1-1/16 | 1-1/8 | 24.38 | 21.84 | 33.27 | 53.59 |
| SU - 14 | 7/8 | 18.28 | 1-3/16 | 1-1/4 | 25.90 | 21.84 | 34.79 | 55.11 |
| SUI - 16 | 1 | 22.35 | 1-3/8 | 1-1/2 | 31.24 | 26.41 | 40.38 | 64.77 |
| SU - 20 | 1-1/4 | 27.69 | 1-3/4 | 1-7/8 | 41.15 | 38.86 | 48.00 | 92.20 |
| SU - 24 | 1-1/2 | 34.04 | 2-1/8 | 2-1/4 | 50.04 | 45.21 | 53.59 | 107.95 |
| SU - 32 | 2 | 45.97 | 2-3/4 | 3 | 67.56 | 62.74 | 74.68 | 149.35 |

SRUI Reducing Union

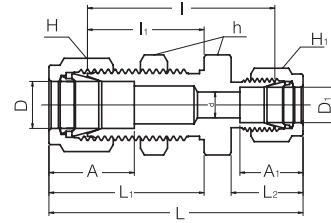


Connects Fractional Tubes

| Part No. | Tube O.D. | | d Min | Width Across Flat | | | A | A ₁ | B | B ₁ | I | L |
|----------------|-----------|-----------------------|----------|-------------------|----------|-----------------------|-------|----------------|-------|----------------|-------|-------|
| | D (inch) | D ₁ (inch) | | h (inch) | H (inch) | H ₁ (inch) | | | | | | |
| SRU - 2 - 1 | 1/8 | 1/16 | 1.27 | 7/16 | 7/16 | 5/16 | 12.7 | 8.63 | 15.24 | 10.92 | 20.60 | 31.00 |
| SRU - 3 - 2 | 3/16 | 1/8 | 2.28 | 7/16 | 1/2 | 7/16 | 13.71 | 12.70 | 16.00 | 15.24 | 23.36 | 36.57 |
| SRUI - 4 - 2 | 1/4 | 1/8 | 2.28 | 1/2 | 9/16 | 7/16 | 15.24 | 12.70 | 17.78 | 15.24 | 24.63 | 38.60 |
| SRUI - 4 - 3 | 1/4 | 3/16 | 3.04 | 1/2 | 9/16 | 1/2 | 15.24 | 13.71 | 17.78 | 16.00 | 25.40 | 39.37 |
| SRU - 5 - 2 | 5/16 | 1/8 | 2.28 | 9/16 | 5/8 | 7/16 | 16.25 | 12.70 | 18.54 | 15.24 | 25.90 | 39.87 |
| SRUI - 5 - 4 | 5/16 | 1/4 | 4.82 | 9/16 | 5/8 | 9/16 | 16.25 | 15.24 | 18.54 | 17.78 | 27.43 | 42.16 |
| SRUI - 6 - 2 | 3/8 | 1/8 | 2.28 | 5/8 | 11/16 | 7/16 | 16.76 | 12.70 | 19.30 | 15.24 | 26.92 | 40.89 |
| SRUI - 6 - 4 | 3/8 | 1/4 | 4.82 | 5/8 | 11/16 | 9/16 | 16.76 | 15.24 | 19.30 | 17.78 | 28.44 | 43.18 |
| SRUI - 6 - 5 | 3/8 | 5/16 | 6.35 | 5/8 | 11/16 | 5/8 | 16.76 | 16.25 | 19.30 | 18.54 | 29.46 | 44.19 |
| SRUI - 8 - 2 | 1/2 | 1/8 | 2.28 | 13/16 | 7/8 | 7/16 | 22.86 | 12.70 | 21.84 | 15.24 | 28.44 | 45.21 |
| SRUI - 8 - 4 | 1/2 | 1/4 | 4.82 | 13/16 | 7/8 | 9/16 | 22.86 | 15.24 | 21.84 | 17.78 | 29.46 | 46.99 |
| SRUI - 8 - 6 | 1/2 | 3/8 | 7.11 | 13/16 | 7/8 | 11/16 | 22.86 | 16.76 | 21.84 | 19.30 | 30.98 | 48.51 |
| SRUI - 10 - 6 | 5/8 | 3/8 | 7.11 | 15/16 | 1 | 11/16 | 24.38 | 16.76 | 21.84 | 19.30 | 31.75 | 49.27 |
| SRUI - 10 - 8 | 5/8 | 1/2 | 10.41 | 15/16 | 1 | 7/8 | 24.38 | 22.86 | 21.84 | 21.84 | 31.75 | 52.07 |
| SRUI - 12 - 4 | 3/4 | 1/4 | 4.82 | 1-1/16 | 1-1/8 | 9/16 | 24.38 | 15.24 | 21.84 | 17.78 | 31.75 | 49.27 |
| SRUI - 12 - 6 | 3/4 | 3/8 | 7.11 | 1-1/16 | 1-1/8 | 11/16 | 24.38 | 16.76 | 21.84 | 19.30 | 33.27 | 50.80 |
| SRUI - 12 - 8 | 3/4 | 1/2 | 10.41 | 1-1/16 | 1-1/8 | 7/8 | 24.38 | 22.86 | 21.84 | 21.84 | 33.27 | 53.59 |
| SRUI - 12 - 10 | 3/4 | 5/8 | 12.70 | 1-1/16 | 1-1/8 | 1 | 24.38 | 24.38 | 21.84 | 21.84 | 33.27 | 53.59 |
| SRUI - 16 - 8 | 1 | 1/2 | 10.41 | 1-3/8 | 1-1/2 | 7/8 | 31.24 | 22.86 | 26.41 | 21.84 | 39.50 | 63.24 |
| SRUI - 16 - 12 | 1 | 3/4 | 15.74 | 1-3/8 | 1-1/2 | 1-1/8 | 31.24 | 24.38 | 26.41 | 21.84 | 39.00 | 62.73 |

All dimensions in millimeters unless specified as "inch" • Dimensions are for reference only, subject to change.

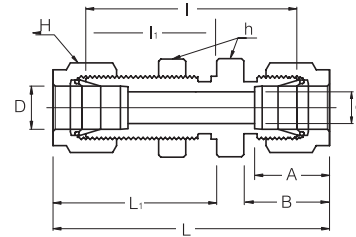
SBHRUI Bulkhead Reducing Union



Connects Fractional Tubes

| Part No. | Tube O.D. | | d Min | Width Across Flat | | | A | A ₁ | I | I ₁ | L | L ₁ | L ₂ | Panel Hole Drill Size | Thickness |
|----------------|-----------|-----------------------|----------|-------------------|----------|-----------------------|-------|----------------|-------|----------------|-------|----------------|----------------|-----------------------------|-----------|
| | D (inch) | D ₁ (inch) | | h (inch) | H (inch) | H ₁ (inch) | | | | | | | | | |
| SBHRUI - 4 - 2 | 1/4 | 1/8 | 2.28 | 5/8 | 9/16 | 7/16 | 15.24 | 12.70 | 41.14 | 26.16 | 55.11 | 33.52 | 15.24 | 11.50 | |
| SBHRUI - 6 - 4 | 3/8 | 1/4 | 4.82 | 3/4 | 11/16 | 9/16 | 16.76 | 15.24 | 45.97 | 29.46 | 60.70 | 36.57 | 17.78 | 14.68 | |
| SBHRUI - 8 - 4 | 1/2 | 1/4 | 4.82 | 15/16 | 7/8 | 9/16 | 22.86 | 15.24 | 49.27 | 31.75 | 66.80 | 41.91 | 17.78 | 19.44 | |

SBHUI Bulkhead Union

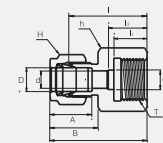


Connects Fractional Tubes

| Part No. | Tube O.D. D (inch) | d Min | Width Across Flat | | A | B | I | I ₁ | L | L ₁ | Panel Hole Drill Size | Panel Max. Thickness |
|------------|-----------------------|----------|-------------------|----------|-------|-------|-------|----------------|-------|----------------|-----------------------------|----------------------------|
| | | | h (inch) | H (inch) | | | | | | | | |
| SBHU - 1 | 1/16 | 1.27 | 5/16 | 5/16 | 8.63 | 10.92 | 23.87 | 13.46 | 31.50 | 17.27 | 5.16 | 3.05 |
| SBHU - 2 | 1/8 | 2.28 | 1/2 | 7/16 | 12.70 | 15.24 | 38.10 | 24.63 | 51.30 | 31.24 | 8.33 | 12.70 |
| SBHU - 3 | 3/16 | 3.04 | 9/16 | 1/2 | 13.71 | 16.00 | 40.38 | 25.40 | 53.59 | 32.00 | 9.92 | 12.70 |
| SBHUI - 4 | 1/4 | 4.82 | 5/8 | 9/16 | 15.24 | 17.78 | 42.92 | 26.16 | 57.65 | 33.52 | 11.50 | 10.16 |
| SBHU - 5 | 5/16 | 6.35 | 11/16 | 5/8 | 16.25 | 18.54 | 45.97 | 28.44 | 60.70 | 35.81 | 13.09 | 11.17 |
| SBHUI - 6 | 3/8 | 7.11 | 3/4 | 11/16 | 16.76 | 19.30 | 47.49 | 29.46 | 62.23 | 36.83 | 14.68 | 11.17 |
| SBHUI - 8 | 1/2 | 10.41 | 15/16 | 7/8 | 22.86 | 21.84 | 50.80 | 31.75 | 71.12 | 41.91 | 19.44 | 12.70 |
| SBHU - 10 | 5/8 | 12.70 | 1-1/16 | 1 | 24.38 | 21.84 | 52.32 | 32.51 | 72.64 | 42.67 | 22.62 | 12.70 |
| SBHUI - 12 | 3/4 | 15.74 | 1-3/16 | 1-1/8 | 24.38 | 21.84 | 58.67 | 37.33 | 78.99 | 47.49 | 25.79 | 16.76 |
| SBHU - 14 | 7/8 | 18.28 | 1-3/8 | 1-1/4 | 25.90 | 21.84 | 64.26 | 42.92 | 84.58 | 53.08 | 28.97 | 19.05 |
| SBHUI - 16 | 1 | 22.35 | 1-5/8 | 1-1/2 | 31.24 | 26.41 | 71.37 | 45.21 | 95.75 | 57.40 | 33.73 | 19.05 |

All dimensions in millimeters unless specified as "inch" • Dimensions are for reference only, subject to change.

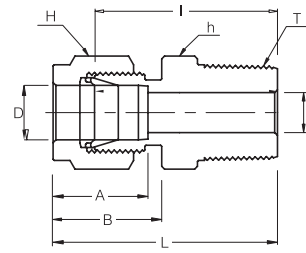
SGCI Gauge Connector



Connects Fractional Tubes to ISO Parallel Thread

| Part No. | Tube O.D. D (inch) | T (PF) | d Min | d ₁ | Width Across Flat | | A | B | I | I ₁ | I ₂ | L |
|---------------|-----------------------|-----------|----------|----------------|-------------------|----------|-------|-------|-------|----------------|----------------|-------|
| | | | | | h (inch) | H (inch) | | | | | | |
| SGCI - 4 - 4G | 1/4 | 1/4 | 4.82 | 5.58 | 3/4 | 9/16 | 15.24 | 17.78 | 30.22 | 13.00 | 17.00 | 37.59 |
| SGCI - 4 - 6G | 1/4 | 3/8 | 4.82 | 6.60 | 15/16 | 9/16 | 15.24 | 17.78 | 30.22 | 14.20 | 20.30 | 37.59 |
| SGCI - 4 - 8G | 1/4 | 1/2 | 4.82 | 6.60 | 1-1/16 | 9/16 | 15.24 | 17.78 | 36.07 | 18.80 | 24.90 | 43.43 |
| SGC - 5 - 4G | 5/16 | 1/4 | 5.58 | - | 3/4 | 5/8 | 16.25 | 18.54 | 30.98 | 13.00 | - | 38.35 |
| SGC - 5 - 8G | 5/16 | 1/2 | 7.11 | - | 1-1/16 | 5/8 | 16.25 | 18.54 | 33.53 | 18.80 | - | 40.89 |
| SGCI - 6 - 4G | 3/8 | 1/4 | 5.58 | - | 3/4 | 11/16 | 16.76 | 19.30 | 31.75 | 13.00 | - | 39.12 |
| SGCI - 6 - 6G | 3/8 | 3/8 | 6.60 | - | 15/16 | 11/16 | 16.76 | 19.30 | 31.24 | 14.20 | - | 38.61 |
| SGCI - 6 - 8G | 3/8 | 1/2 | 7.11 | - | 1-1/16 | 11/16 | 16.76 | 19.30 | 34.54 | 18.80 | - | 41.91 |
| SGCI - 8 - 4G | 1/2 | 1/4 | 5.58 | - | 7/8 | 7/8 | 22.86 | 21.84 | 31.80 | 13.00 | - | 41.95 |
| SGCI - 8 - 6G | 1/2 | 3/8 | 6.60 | - | 15/16 | 7/8 | 22.86 | 21.84 | 34.29 | 14.20 | - | 44.45 |
| SGCI - 8 - 8G | 1/2 | 1/2 | 7.11 | 7.11 | 1-1/16 | 7/8 | 22.86 | 21.84 | 38.10 | 18.80 | - | 48.26 |

SMCI Male Connector

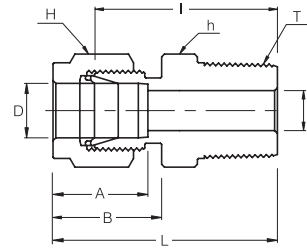


Connects Fractional Tubes to Female NPT Thread

| Part No. | Tube O.D. D (inch) | T (NPT) | d Min | Width Across Flat | | A | B | I | L |
|-----------------|-----------------------|------------|----------|-------------------|----------|-------|-------|-------|--------|
| | | | | h (inch) | H (inch) | | | | |
| SMC - 1 - 1N | 1/16 | 1/16 | 1.27 | 5/16 | 5/16 | 8.63 | 10.92 | 20.00 | 23.83 |
| SMC - 1 - 2N | 1/16 | 1/8 | 1.27 | 7/16 | 7/16 | 8.63 | 10.92 | 22.35 | 26.23 |
| SMC - 2 - 2N | 1/8 | 1/8 | 2.28 | 7/16 | 7/16 | 12.70 | 15.24 | 23.87 | 30.48 |
| SMC - 2 - 4N | 1/8 | 1/4 | 2.28 | 9/16 | 7/16 | 12.70 | 15.24 | 28.95 | 35.56 |
| SMC - 2 - 6N | 1/8 | 3/8 | 2.28 | 11/16 | 7/16 | 12.70 | 15.24 | 29.21 | 35.81 |
| SMC - 2 - 8N | 1/8 | 1/2 | 2.28 | 7/8 | 7/16 | 12.70 | 15.24 | 35.56 | 42.16 |
| SMC - 3 - 2N | 3/16 | 1/8 | 3.04 | 7/16 | 1/2 | 13.71 | 16.00 | 24.63 | 31.24 |
| SMC - 3 - 4N | 3/16 | 1/4 | 3.04 | 9/16 | 1/2 | 13.71 | 16.00 | 29.71 | 36.32 |
| SMCI - 4 - 2N | 1/4 | 1/8 | 4.82 | 1/2 | 9/16 | 15.24 | 17.78 | 25.40 | 32.76 |
| SMCI - 4 - 4N | 1/4 | 1/4 | 4.82 | 9/16 | 9/16 | 15.24 | 17.78 | 30.48 | 37.84 |
| SMCI - 4 - 6N | 1/4 | 3/8 | 4.82 | 11/16 | 9/16 | 15.24 | 17.78 | 30.98 | 38.35 |
| SMCI - 4 - 8N | 1/4 | 1/2 | 4.82 | 7/8 | 9/16 | 15.24 | 17.78 | 37.33 | 44.70 |
| SMCI - 4 - 12N | 1/4 | 3/4 | 4.82 | 1-1/16 | 9/16 | 15.24 | 17.78 | 38.86 | 46.22 |
| SMC - 5 - 2N | 5/16 | 1/8 | 4.82 | 9/16 | 5/8 | 16.25 | 18.54 | 26.67 | 34.03 |
| SMC - 5 - 4N | 5/16 | 1/4 | 6.35 | 9/16 | 5/8 | 16.25 | 18.54 | 31.24 | 38.60 |
| SMC - 5 - 6N | 5/16 | 3/8 | 6.35 | 11/16 | 5/8 | 16.25 | 18.54 | 31.75 | 39.11 |
| SMCI - 6 - 2N | 3/8 | 1/8 | 4.82 | 5/8 | 11/16 | 16.76 | 19.30 | 27.94 | 35.30 |
| SMCI - 6 - 4N | 3/8 | 1/4 | 7.11 | 5/8 | 11/16 | 16.76 | 19.30 | 32.51 | 39.87 |
| SMCI - 6 - 6N | 3/8 | 3/8 | 7.11 | 11/16 | 11/16 | 16.76 | 19.30 | 32.51 | 39.87 |
| SMCI - 6 - 8N | 3/8 | 1/2 | 7.11 | 7/8 | 11/16 | 16.76 | 19.30 | 38.86 | 46.22 |
| SMCI - 6 - 12N | 3/8 | 3/4 | 7.11 | 1-1/16 | 11/16 | 16.76 | 19.30 | 40.38 | 47.75 |
| SMCI - 8 - 2N | 1/2 | 1/8 | 4.82 | 13/16 | 7/8 | 22.86 | 21.84 | 28.70 | 38.86 |
| SMCI - 8 - 4N | 1/2 | 1/4 | 7.11 | 13/16 | 7/8 | 22.86 | 21.84 | 33.27 | 43.43 |
| SMCI - 8 - 6N | 1/2 | 3/8 | 9.65 | 13/16 | 7/8 | 22.86 | 21.84 | 33.27 | 43.43 |
| SMCI - 8 - 8N | 1/2 | 1/2 | 10.41 | 7/8 | 7/8 | 22.86 | 21.84 | 38.86 | 49.02 |
| SMCI - 8 - 12N | 1/2 | 3/4 | 10.41 | 1-1/16 | 7/8 | 22.86 | 21.84 | 40.38 | 50.54 |
| SMCI - 8 - 16N | 1/2 | 1 | 10.41 | 1-3/8 | 7/8 | 22.86 | 21.84 | 46.99 | 57.15 |
| SMC - 10 - 6N | 5/8 | 3/8 | 9.65 | 15/16 | 1 | 24.38 | 21.84 | 34.03 | 44.19 |
| SMC - 10 - 8N | 5/8 | 1/2 | 11.93 | 15/16 | 1 | 24.38 | 21.84 | 38.86 | 49.02 |
| SMC - 10 - 12N | 5/8 | 3/4 | 12.70 | 1-1/16 | 1 | 24.38 | 21.84 | 40.38 | 50.54 |
| SMCI - 12 - 8N | 3/4 | 1/2 | 11.93 | 1-1/16 | 1-1/8 | 24.38 | 21.84 | 40.38 | 50.54 |
| SMCI - 12 - 12N | 3/4 | 3/4 | 15.74 | 1-1/16 | 1-1/8 | 24.38 | 21.84 | 40.38 | 50.54 |
| SMCI - 12 - 16N | 3/4 | 1 | 15.74 | 1-3/8 | 1-1/8 | 24.38 | 21.84 | 46.99 | 57.15 |
| SMC - 14 - 12N | 7/8 | 3/4 | 15.74 | 1-3/16 | 1-1/4 | 25.90 | 21.84 | 40.38 | 50.54 |
| SMC - 14 - 16N | 7/8 | 1 | 18.28 | 1-3/8 | 1-1/4 | 25.90 | 21.84 | 46.99 | 57.15 |
| SMCI - 16 - 8N | 1 | 1/2 | 11.93 | 1-3/8 | 1-1/2 | 31.24 | 26.41 | 45.21 | 57.40 |
| SMCI - 16 - 12N | 1 | 3/4 | 15.74 | 1-3/8 | 1-1/2 | 31.24 | 26.41 | 45.21 | 57.40 |
| SMCI - 16 - 16N | 1 | 1 | 22.35 | 1-3/8 | 1-1/2 | 31.24 | 26.41 | 50.03 | 62.23 |
| SMC - 20 - 16N | 1-1/4 | 1 | 22.35 | 1-3/4 | 1-7/8 | 41.15 | 38.86 | 55.12 | 77.22 |
| SMC - 20 - 20N | 1-1/4 | 1-1/4 | 27.69 | 1-3/4 | 1-7/8 | 41.15 | 38.86 | 55.12 | 77.22 |
| SMC - 24 - 24N | 1-1/2 | 1-1/2 | 34.04 | 2-1/8 | 2-1/4 | 50.04 | 45.21 | 61.72 | 88.90 |
| SMC - 32 - 32N | 2 | 2 | 45.97 | 2-3/4 | 3 | 67.56 | 62.74 | 76.20 | 113.54 |

All dimensions in millimeters unless specified as "inch" • Dimensions are for reference only, subject to change.

SMCI Male Connector

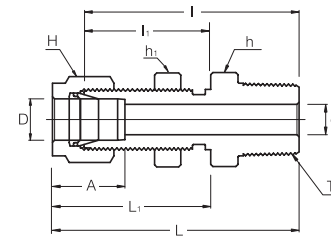


Connects Fractional Tube to Female ISO Tapered Thread

| Part No. | Tube O.D. D (inch) | T (PT) | d Min | Width Across Flat | | A | B | I | L |
|-----------------|-----------------------|-----------|----------|-------------------|----------|-------|-------|-------|-------|
| | | | | h (inch) | H (inch) | | | | |
| SMC - 2 - 2R | 1/8 | 1/8 | 2.28 | 7/16 | 7/16 | 12.70 | 15.24 | 23.87 | 30.48 |
| SMC - 2 - 4R | 1/8 | 1/4 | 2.28 | 9/16 | 7/16 | 12.70 | 15.24 | 28.95 | 35.56 |
| SMCI - 4 - 2R | 1/4 | 1/8 | 4.82 | 1/2 | 9/16 | 15.24 | 17.78 | 25.40 | 32.76 |
| SMCI - 4 - 4R | 1/4 | 1/4 | 4.82 | 9/16 | 9/16 | 15.24 | 17.78 | 30.48 | 37.84 |
| SMCI - 4 - 6R | 1/4 | 3/8 | 4.82 | 11/16 | 9/16 | 15.24 | 17.78 | 30.98 | 38.35 |
| SMCI - 4 - 8R | 1/4 | 1/2 | 4.82 | 7/8 | 9/16 | 15.24 | 17.78 | 37.33 | 44.70 |
| SMC - 5 - 2R | 5/16 | 1/8 | 4.82 | 9/16 | 5/8 | 16.25 | 18.54 | 26.67 | 34.03 |
| SMC - 5 - 4R | 5/16 | 1/4 | 6.35 | 9/16 | 5/8 | 16.25 | 18.54 | 31.24 | 38.60 |
| SMCI - 6 - 2R | 3/8 | 1/8 | 4.82 | 5/8 | 11/16 | 16.76 | 19.30 | 27.94 | 35.30 |
| SMCI - 6 - 4R | 3/8 | 1/4 | 7.11 | 5/8 | 11/16 | 16.76 | 19.30 | 32.51 | 39.87 |
| SMCI - 6 - 6R | 3/8 | 3/8 | 7.11 | 11/16 | 11/16 | 16.76 | 19.30 | 32.51 | 39.87 |
| SMCI - 6 - 8R | 3/8 | 1/2 | 7.11 | 7/8 | 11/16 | 16.76 | 19.30 | 38.86 | 46.22 |
| SMCI - 8 - 4R | 1/2 | 1/4 | 7.11 | 13/16 | 7/8 | 22.86 | 21.84 | 33.27 | 43.43 |
| SMCI - 8 - 6R | 1/2 | 3/8 | 9.65 | 13/16 | 7/8 | 22.86 | 21.84 | 33.27 | 43.43 |
| SMCI - 8 - 8R | 1/2 | 1/2 | 10.41 | 7/8 | 7/8 | 22.86 | 21.84 | 38.86 | 49.02 |
| SMCI - 8 - 12R | 1/2 | 3/4 | 10.41 | 1-1/16 | 7/8 | 22.86 | 21.84 | 40.38 | 50.54 |
| SMCI - 12 - 12R | 3/4 | 3/4 | 15.74 | 1-1/16 | 1-1/8 | 24.38 | 21.84 | 40.38 | 50.54 |
| SMCI - 16 - 16R | 1 | 1 | 22.35 | 1-3/8 | 1-1/2 | 31.24 | 26.41 | 50.03 | 62.23 |

All dimensions in millimeters unless specified as "inch" • Dimensions are for reference only, subject to change.
 *Some Bored-Through male connectors available upon request.

SMCB Bulkhead Male Connector



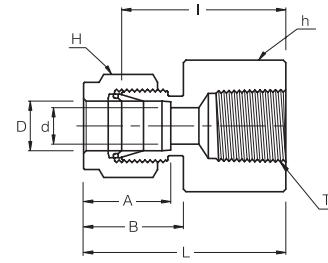
Connects Fractional Tubes to Female NPT Thread*

| Part No. | Tube O.D. D (inch) | T* (NPT) | d Min | Width Across Flat | | | A | I | I ₁ | L | L ₁ | Panel Hole Drill Size | Panel Max. Thickness |
|-----------------|-----------------------|-------------|----------|-------------------|-----------------------|----------|-------|-------|----------------|-------|----------------|--------------------------|-------------------------|
| | | | | h (inch) | h ₁ (inch) | H (inch) | | | | | | | |
| SMCB - 2 - 2N | 1/8 | 1/8 | 2.28 | 1/2 | 1/2 | 7/16 | 12.70 | 39.87 | 24.63 | 46.48 | 31.24 | 8.33 | 12.70 |
| SMCB - 4 - 2N | 1/4 | 1/8 | 4.82 | 5/8 | 5/8 | 9/16 | 15.24 | 42.16 | 26.16 | 49.53 | 33.52 | 11.50 | 10.16 |
| SMCB - 4 - 4N | 1/4 | 1/4 | 4.82 | 5/8 | 5/8 | 9/16 | 15.24 | 46.73 | 26.16 | 54.10 | 33.52 | 11.50 | 10.16 |
| SMCB - 6 - 4N | 3/8 | 1/4 | 7.11 | 3/4 | 3/4 | 11/16 | 16.76 | 50.03 | 29.46 | 57.40 | 36.83 | 14.68 | 11.17 |
| SMCB - 6 - 6N | 3/8 | 3/8 | 7.11 | 3/4 | 3/4 | 11/16 | 16.76 | 50.03 | 29.46 | 57.40 | 36.83 | 14.68 | 11.17 |
| SMCB - 6 - 8N | 3/8 | 1/2 | 7.11 | 7/8 | 3/4 | 11/16 | 16.76 | 56.38 | 29.46 | 63.75 | 36.83 | 14.68 | 11.17 |
| SMCB - 8 - 6N | 1/2 | 3/8 | 9.65 | 15/16 | 15/16 | 7/8 | 22.86 | 53.08 | 31.75 | 63.24 | 41.91 | 19.44 | 12.70 |
| SMCB - 8 - 8N | 1/2 | 1/2 | 10.41 | 15/16 | 15/16 | 7/8 | 22.86 | 58.67 | 31.75 | 68.83 | 41.91 | 19.44 | 12.70 |
| SMCB - 12 - 12N | 3/4 | 3/4 | 15.74 | 1-3/16 | 1-3/16 | 1-1/8 | 24.38 | 66.04 | 37.33 | 76.20 | 47.49 | 25.79 | 16.76 |
| SMCB - 16 - 16N | 1 | 1 | 22.35 | 1-5/8 | 1-5/8 | 1-1/2 | 31.24 | 81.02 | 45.21 | 93.21 | 57.40 | 33.73 | 19.05 |

*ISO Tapered Threads are available upon request

SFCI

Female Connector



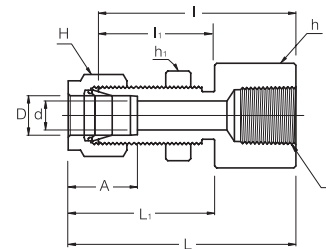
Connects Fractional Tubes to Male NPT Thread*

| Part No. | Tube O.D. D (inch) | T* (NPT) | d Min | Width Across Flat | | | A | B | I | L |
|-----------------|--------------------|----------|-------|-------------------|----------|--|-------|-------|-------|-------|
| | | | | h (inch) | H (inch) | | | | | |
| SFC - 2 - 2N | 1/8 | 1/8 | 2.28 | 9/16 | 7/16 | | 12.70 | 15.24 | 22.09 | 28.70 |
| SFC - 2 - 4N | 1/8 | 1/4 | 2.28 | 3/4 | 7/16 | | 12.70 | 15.24 | 26.92 | 33.52 |
| SFC - 3 - 2N | 3/16 | 1/8 | 3.04 | 9/16 | 1/2 | | 13.71 | 16.00 | 23.11 | 29.71 |
| SFCI - 4 - 2N | 1/4 | 1/8 | 4.82 | 9/16 | 9/16 | | 15.24 | 17.78 | 23.87 | 31.24 |
| SFCI - 4 - 4N | 1/4 | 1/4 | 4.82 | 3/4 | 9/16 | | 15.24 | 17.78 | 28.44 | 35.81 |
| SFCI - 4 - 6N | 1/4 | 3/8 | 4.82 | 7/8 | 9/16 | | 15.24 | 17.78 | 30.22 | 37.59 |
| SFCI - 4 - 8N | 1/4 | 1/2 | 4.82 | 1-1/16 | 9/16 | | 15.24 | 17.78 | 35.05 | 42.41 |
| SFC - 5 - 2N | 5/16 | 1/8 | 6.35 | 9/16 | 5/8 | | 16.25 | 18.54 | 24.63 | 32.00 |
| SFC - 5 - 4N | 5/16 | 1/4 | 6.35 | 3/4 | 5/8 | | 16.25 | 18.54 | 29.46 | 36.83 |
| SFCI - 6 - 2N | 3/8 | 1/8 | 7.11 | 5/8 | 11/16 | | 16.76 | 19.30 | 25.40 | 32.76 |
| SFCI - 6 - 4N | 3/8 | 1/4 | 7.11 | 3/4 | 11/16 | | 16.76 | 19.30 | 30.22 | 37.59 |
| SFCI - 6 - 6N | 3/8 | 3/8 | 7.11 | 7/8 | 11/16 | | 16.76 | 19.30 | 31.75 | 39.11 |
| SFCI - 6 - 8N | 3/8 | 1/2 | 7.11 | 1-1/16 | 11/16 | | 16.76 | 19.30 | 36.57 | 43.94 |
| SFCI - 6 - 12N | 3/8 | 3/4 | 7.11 | 1-5/16 | 11/16 | | 16.76 | 19.30 | 40.38 | 47.75 |
| SFCI - 8 - 4N | 1/2 | 1/4 | 10.41 | 13/16 | 7/8 | | 22.86 | 21.84 | 30.22 | 40.38 |
| SFCI - 8 - 6N | 1/2 | 3/8 | 10.41 | 7/8 | 7/8 | | 22.86 | 21.84 | 31.75 | 41.91 |
| SFCI - 8 - 8N | 1/2 | 1/2 | 10.41 | 1-1/16 | 7/8 | | 22.86 | 21.84 | 36.57 | 46.73 |
| SFCI - 8 - 12N | 1/2 | 3/4 | 10.41 | 1-5/16 | 7/8 | | 22.86 | 21.84 | 38.10 | 48.26 |
| SFC - 10 - 6N | 5/8 | 3/8 | 12.70 | 15/16 | 1 | | 24.38 | 21.84 | 31.75 | 41.91 |
| SFC - 10 - 8N | 5/8 | 1/2 | 12.70 | 1-1/16 | 1 | | 24.38 | 21.84 | 36.57 | 46.73 |
| SFCI - 12 - 8N | 3/4 | 1/2 | 15.74 | 1-1/16 | 1-1/8 | | 24.38 | 21.84 | 36.57 | 46.73 |
| SFCI - 12 - 12N | 3/4 | 3/4 | 15.74 | 1-5/16 | 1-1/8 | | 24.38 | 21.84 | 38.10 | 48.26 |
| SFC - 14 - 12N | 7/8 | 3/4 | 18.28 | 1-5/16 | 1-1/4 | | 25.90 | 21.84 | 39.62 | 49.78 |
| SFCI - 16 - 12N | 1 | 3/4 | 22.35 | 1-3/8 | 1-1/2 | | 31.24 | 26.41 | 41.14 | 53.34 |
| SFCI - 16 - 16N | 1 | 1 | 22.35 | 1-5/8 | 1-1/2 | | 31.24 | 26.41 | 50.03 | 62.23 |

* ISO Tapered Threads are available upon request

SFCB

Bulkhead Female Connector



Connects Fractional Tubes to Male NPT Thread

| Part No. | Tube O.D. D (inch) | T* (NPT) | d Min | Width Across Flat | | | A | I | I ₁ | L | L ₁ | Panel Hole Drill Size | Panel Max. Thickness |
|-----------------|--------------------|----------|-------|-------------------|-----------------------|----------|-------|-------|----------------|-------|----------------|-----------------------|----------------------|
| | | | | h (inch) | h ₁ (inch) | H (inch) | | | | | | | |
| SFCB - 2 - 2N | 1/8 | 1/8 | 2.28 | 9/16 | 1/2 | 7/16 | 12.70 | 38.10 | 24.63 | 44.70 | 31.24 | 8.33 | 12.70 |
| SFCB - 4 - 2N | 1/4 | 1/8 | 4.82 | 5/8 | 5/8 | 9/16 | 15.24 | 39.62 | 26.16 | 46.99 | 33.52 | 11.50 | 10.16 |
| SFCB - 4 - 4N | 1/4 | 1/4 | 4.82 | 3/4 | 5/8 | 9/16 | 15.24 | 44.45 | 26.16 | 51.81 | 33.52 | 11.50 | 10.16 |
| SFCB - 6 - 4N | 3/8 | 1/4 | 7.11 | 3/4 | 3/4 | 11/16 | 16.76 | 47.75 | 29.46 | 55.11 | 36.83 | 14.68 | 11.17 |
| SFCB - 8 - 6N | 1/2 | 3/8 | 10.41 | 15/16 | 15/16 | 7/8 | 22.86 | 51.56 | 31.75 | 61.72 | 41.91 | 19.44 | 12.70 |
| SFCB - 8 - 8N | 1/2 | 1/2 | 10.41 | 1-1/16 | 15/16 | 7/8 | 22.86 | 56.38 | 31.75 | 66.54 | 41.91 | 19.44 | 12.70 |
| SFCB - 12 - 12N | 3/4 | 3/4 | 15.74 | 1-1/4 | 1-3/16 | 1-1/8 | 24.38 | 63.60 | 37.33 | 73.51 | 47.49 | 25.79 | 16.76 |

All dimensions in millimeters unless specified as "inch" • Dimensions are for reference only, subject to change.



Elbow & Tee

ELBOWS

SMEI
Male Elbow



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SHMEI
45° Male Elbow



page 19

SPHMEI
45° Positionable Male
Elbow



page 20

SPMEI
Positionable Male Elbow



page 20, 21

SUEI
Union Elbow



page 21

SFEI
Female Elbow



page 22

TEE

SUTI
Union Tee



page 23

SRUTI
Reducing Union Tee



page 23

SMBTI
Male Branch Tee



page 24

SPMBTI
Positionable Male
Branch Tee



page 24, 25

SMRTI
Male Run Tee



page 25

SPMRTI
Positionable Male Run Tee



page 26

SFBTI
Female Branch Tee



page 27

SFRTI
Female Run Tee

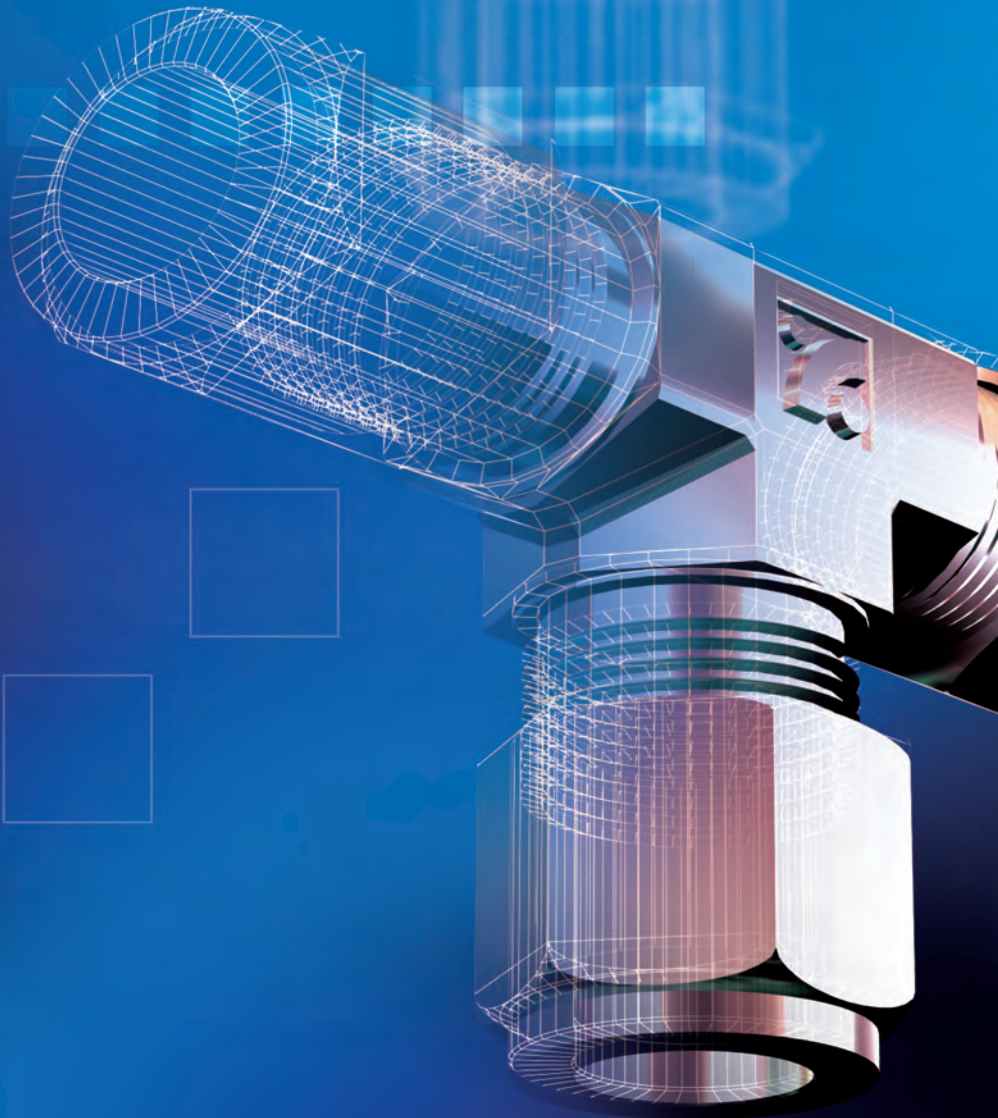


page 27

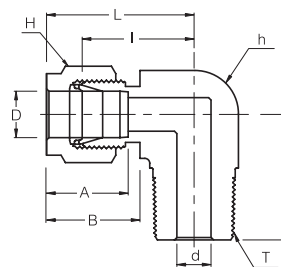
SUCI
Union Cross



page 28



SMEI Male Elbow

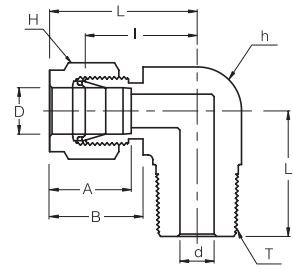


Connects Fractional Tube to Female NPT Thread

| Part No. | Tube O.D. D (inch) | T (NPT) | d Min | Width Across Flat | | A | B | I | L | L ₁ |
|-----------------|-----------------------|------------|----------|-------------------|----------|-------|-------|-------|--------|----------------|
| | | | | h (inch) | H (inch) | | | | | |
| SME - 2 - 2N | 1/8 | 1/8 | 2.28 | 1/2 | 7/16 | 12.70 | 15.24 | 18.00 | 24.30 | 18.80 |
| SME - 2 - 4N | 1/8 | 1/4 | 2.28 | 1/2 | 7/16 | 12.70 | 15.24 | 18.00 | 24.30 | 23.36 |
| SME - 3 - 2N | 3/16 | 1/8 | 3.04 | 1/2 | 1/2 | 13.71 | 16.00 | 18.79 | 25.40 | 18.79 |
| SME - 3 - 4N | 3/16 | 1/4 | 3.04 | 1/2 | 1/2 | 13.71 | 16.00 | 18.79 | 25.40 | 23.36 |
| SMEI - 4 - 2N | 1/4 | 1/8 | 4.82 | 1/2 | 9/16 | 15.24 | 17.78 | 19.55 | 26.92 | 18.79 |
| SMEI - 4 - 4N | 1/4 | 1/4 | 4.82 | 1/2 | 9/16 | 15.24 | 17.78 | 19.55 | 26.92 | 23.36 |
| SMEI - 4 - 6N | 1/4 | 3/8 | 4.82 | 5/8 | 9/16 | 15.24 | 17.78 | 22.35 | 29.71 | 26.16 |
| SMEI - 4 - 8N | 1/4 | 1/2 | 4.82 | 13/16 | 9/16 | 15.24 | 17.78 | 24.38 | 31.75 | 33.02 |
| SME - 5 - 2N | 5/16 | 1/8 | 4.82 | 9/16 | 5/8 | 16.25 | 18.54 | 21.33 | 28.70 | 19.81 |
| SME - 5 - 4N | 5/16 | 1/4 | 6.35 | 9/16 | 5/8 | 16.25 | 18.54 | 21.33 | 28.70 | 24.38 |
| SME - 5 - 6N | 5/16 | 3/8 | 6.35 | 11/16 | 5/8 | 16.25 | 18.54 | 23.11 | 30.48 | 26.16 |
| SMEI - 6 - 2N | 3/8 | 1/8 | 4.82 | 5/8 | 11/16 | 16.76 | 19.30 | 23.11 | 30.48 | 20.82 |
| SMEI - 6 - 4N | 3/8 | 1/4 | 7.11 | 5/8 | 11/16 | 16.76 | 19.30 | 23.11 | 30.48 | 25.40 |
| SMEI - 6 - 6N | 3/8 | 3/8 | 7.11 | 5/8 | 11/16 | 16.76 | 19.30 | 23.87 | 31.24 | 26.16 |
| SMEI - 6 - 8N | 3/8 | 1/2 | 7.11 | 13/16 | 11/16 | 16.76 | 19.30 | 25.90 | 33.27 | 33.02 |
| SMEI - 6 - 12N | 3/8 | 3/4 | 7.11 | 1-1/16 | 11/16 | 16.76 | 19.30 | 29.71 | 37.08 | 36.83 |
| SMEI - 8 - 4N | 1/2 | 1/4 | 7.11 | 13/16 | 7/8 | 22.86 | 21.84 | 25.90 | 36.06 | 28.19 |
| SMEI - 8 - 6N | 1/2 | 3/8 | 9.65 | 13/16 | 7/8 | 22.86 | 21.84 | 25.90 | 36.06 | 28.19 |
| SMEI - 8 - 8N | 1/2 | 1/2 | 10.41 | 13/16 | 7/8 | 22.86 | 21.84 | 25.90 | 36.06 | 33.02 |
| SMEI - 8 - 12N | 1/2 | 3/4 | 10.41 | 1-1/16 | 7/8 | 22.86 | 21.84 | 29.71 | 39.87 | 36.83 |
| SME - 10 - 6N | 5/8 | 3/8 | 9.65 | 15/16 | 1 | 24.38 | 21.84 | 27.94 | 38.10 | 30.22 |
| SME - 10 - 8N | 5/8 | 1/2 | 11.93 | 15/16 | 1 | 24.38 | 21.84 | 27.94 | 38.10 | 35.10 |
| SME - 10 - 12N | 5/8 | 3/4 | 12.70 | 1-1/16 | 1 | 24.38 | 21.84 | 29.71 | 39.87 | 36.83 |
| SMEI - 12 - 8N | 3/4 | 1/2 | 11.93 | 1-1/16 | 1-1/8 | 24.38 | 21.84 | 29.71 | 39.87 | 36.83 |
| SMEI - 12 - 12N | 3/4 | 3/4 | 15.74 | 1-1/16 | 1-1/8 | 24.38 | 21.84 | 29.71 | 39.87 | 36.83 |
| SME - 14 - 12N | 7/8 | 3/4 | 15.74 | 1-3/8 | 1-1/4 | 25.90 | 21.84 | 34.54 | 44.70 | 41.65 |
| SMEI - 16 - 12N | 1 | 3/4 | 15.74 | 1-3/8 | 1-1/2 | 31.24 | 26.41 | 36.83 | 49.02 | 41.65 |
| SMEI - 16 - 16N | 1 | 1 | 22.35 | 1-3/8 | 1-1/2 | 31.24 | 26.41 | 36.83 | 49.02 | 46.48 |
| SME - 20 - 20N | 1-1/4 | 1-1/4 | 27.69 | 1-11/16 | 1-7/8 | 41.15 | 38.86 | 44.45 | 66.55 | 47.75 |
| SME - 24 - 24N | 1-1/2 | 1-1/2 | 34.04 | 2 | 2-1/4 | 50.04 | 45.21 | 50.80 | 77.98 | 60.45 |
| SME - 32 - 32N | 2 | 2 | 45.97 | 2-3/4 | 3 | 67.56 | 62.74 | 69.85 | 107.19 | 70.61 |

All dimensions in millimeters unless specified as "inch" • Dimensions are for reference only, subject to change.

SMEI Male Elbow

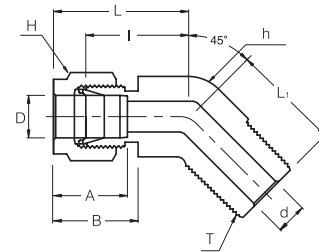


Connects Fractional Tubes to Female ISO Tapered Thread

| Part No. | Tube O.D. D (inch) | T (PT) | d Min | Width Across Flat | | A | B | I | L | L ₁ |
|---------------|-----------------------|-----------|----------|-------------------|----------|-------|-------|-------|-------|----------------|
| | | | | h (inch) | H (inch) | | | | | |
| SMEI - 4 - 2R | 1/4 | 1/8 | 4.82 | 1/2 | 9/16 | 15.24 | 17.78 | 19.55 | 26.92 | 18.79 |
| SMEI - 4 - 4R | 1/4 | 1/4 | 4.82 | 1/2 | 9/16 | 15.24 | 17.78 | 19.55 | 26.92 | 23.36 |
| SMEI - 4 - 6R | 1/4 | 3/8 | 4.82 | 5/8 | 9/16 | 15.24 | 17.78 | 22.35 | 29.71 | 26.16 |
| SMEI - 4 - 8R | 1/4 | 1/2 | 4.82 | 13/16 | 9/16 | 15.24 | 17.78 | 24.38 | 31.75 | 33.02 |
| SMEI - 5 - 4R | 5/16 | 1/4 | 6.35 | 9/16 | 5/8 | 16.25 | 18.54 | 21.33 | 28.70 | 24.38 |
| SMEI - 6 - 4R | 3/8 | 1/4 | 7.11 | 5/8 | 11/16 | 16.76 | 19.30 | 23.11 | 30.48 | 25.40 |
| SMEI - 6 - 6R | 3/8 | 3/8 | 7.11 | 5/8 | 11/16 | 16.76 | 19.30 | 23.87 | 31.24 | 26.16 |
| SMEI - 8 - 6R | 1/2 | 3/8 | 9.65 | 13/16 | 7/8 | 22.86 | 21.84 | 25.91 | 36.07 | 28.20 |
| SMEI - 8 - 8R | 1/2 | 1/2 | 10.41 | 13/16 | 7/8 | 22.86 | 21.84 | 25.91 | 36.07 | 33.02 |

All dimensions in millimeters unless specified as "inch" • Dimensions are for reference only, subject to change.

SHMEI 45° Male Elbow



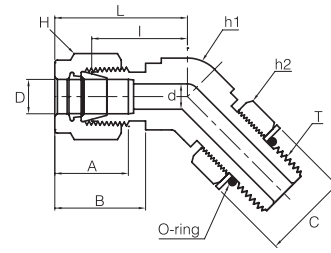
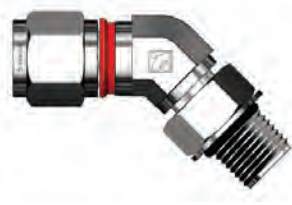
Connects Fractional Tubes to Female NPT Thread*

| Part No. | Tube O.D. D (inch) | T* (NPT) | d Min | Width Across Flat | | A | B | I | L | L ₁ |
|----------------|-----------------------|-------------|----------|-------------------|----------|-------|-------|-------|-------|----------------|
| | | | | h (inch) | H (inch) | | | | | |
| SHMEI - 4 - 2N | 1/4 | 1/8 | 4.82 | 1/2 | 9/16 | 15.24 | 17.78 | 17.27 | 24.63 | 16.51 |
| SHMEI - 4 - 4N | 1/4 | 1/4 | 4.82 | 1/2 | 9/16 | 15.24 | 17.78 | 17.27 | 24.63 | 21.08 |
| SHMEI - 6 - 2N | 3/8 | 1/8 | 4.82 | 5/8 | 11/16 | 16.76 | 19.30 | 20.57 | 27.94 | 18.28 |
| SHMEI - 6 - 4N | 3/8 | 1/4 | 7.11 | 5/8 | 11/16 | 16.76 | 19.30 | 20.57 | 27.94 | 22.86 |
| SHMEI - 6 - 6N | 3/8 | 3/8 | 7.11 | 13/16 | 11/16 | 16.76 | 19.30 | 21.84 | 29.21 | 24.13 |
| SHMEI - 8 - 6N | 1/2 | 3/8 | 9.65 | 13/16 | 7/8 | 22.86 | 21.84 | 21.84 | 32.00 | 24.13 |
| SHMEI - 8 - 8N | 1/2 | 1/2 | 10.41 | 13/16 | 7/8 | 22.86 | 21.84 | 21.84 | 32.00 | 28.95 |

*ISO Tapered Threads are available upon request

SPHMEI

45° Positionable Male Elbow

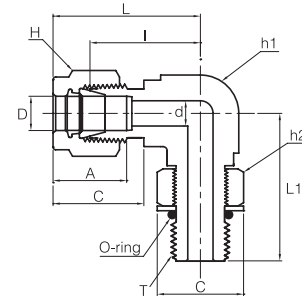
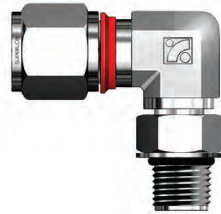


Connects Fractional Tubes to SAE/MS Straight Thread

| Part No. | Tube O.D. D (inch) | Straight Thread T(U) | d Min | Width Across Flat | | | A | B | I | L | L1 | C |
|-------------------|--------------------|----------------------|-------|-------------------|-----------|----------|-------|-------|-------|-------|-------|-------|
| | | | | h1 (inch) | h2 (inch) | H (inch) | | | | | | |
| SPHMEI - 4 - 4U | 1/4 | 7/16-20 | 4.83 | 1/2 | 9/16 | 9/16 | 15.24 | 17.78 | 18.29 | 25.64 | 25.65 | 16.51 |
| SPHMEI - 6 - 6U | 3/8 | 9/16-18 | 7.11 | 5/8 | 11/16 | 11/16 | 16.76 | 19.30 | 20.57 | 27.94 | 28.19 | 20.07 |
| SPHMEI - 8 - 8U | 1/2 | 3/4-16 | 10.41 | 13/16 | 7/8 | 7/8 | 22.86 | 21.84 | 21.84 | 32.00 | 32.26 | 25.65 |
| SPHMEI - 12 - 12U | 3/4 | 1-1/16-12 | 15.75 | 1-1/8 | 1-1/4 | 1-1/8 | 24.38 | 24.84 | 29.72 | 39.88 | 47.24 | 36.58 |
| SPHMEI - 16 - 16U | 1 | 1-5/16-12 | 22.35 | 1-3/8 | 1-1/2 | 1-1/2 | 31.24 | 26.42 | 35.31 | 47.50 | 50.55 | 43.94 |

SPMEI

Positionable Male Elbow

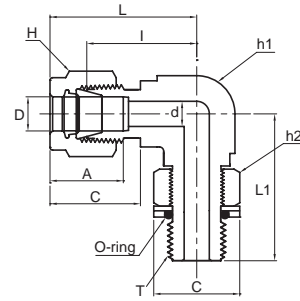
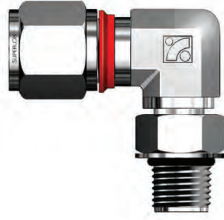


Connects Fractional Tubes to SAE/MS Straight Thread

| Part No. | Tube O.D. D (inch) | Straight Thread T(U) | d Min | Width Across Flat | | | A | B | I | L | L1 | C |
|------------------|--------------------|----------------------|-------|-------------------|-----------|----------|-------|-------|-------|--------|-------|-------|
| | | | | h1 (inch) | h2 (inch) | H (inch) | | | | | | |
| SPMEI - 4 - 4U | 1/4 | 7/16-20 | 4.83 | 1/2 | 9/16 | 9/16 | 15.24 | 17.78 | 21.08 | 28.45 | 28.45 | 16.51 |
| SPMEI - 4 - 6U | 1/4 | 9/16-18 | 4.83 | 5/8 | 11/16 | 9/16 | 15.24 | 17.78 | 23.11 | 30.48 | 32.26 | 20.07 |
| SPMEI - 5 - 5U | 5/16 | 1/2-20 | 5.84 | 9/16 | 5/8 | 5/8 | 16.26 | 18.54 | 22.86 | 30.23 | 29.46 | 18.29 |
| SPMEI - 6 - 6U | 3/8 | 9/16-18 | 7.11 | 5/8 | 11/16 | 11/16 | 16.76 | 19.30 | 24.64 | 32.00 | 32.26 | 20.07 |
| SPMEI - 6 - 8U | 3/8 | 3/4-16 | 7.11 | 13/16 | 7/8 | 11/16 | 16.76 | 19.30 | 27.43 | 34.80 | 37.85 | 25.65 |
| SPMEI - 8 - 8U | 1/2 | 3/4-16 | 10.41 | 13/16 | 7/8 | 7/8 | 22.86 | 21.84 | 27.43 | 37.59 | 37.85 | 25.65 |
| SPMEI - 10 - 10U | 5/8 | 7/8-14 | 12.70 | 15/16 | 1 | 1 | 24.38 | 21.84 | 29.46 | 39.62 | 43.43 | 29.46 |
| SPMEI - 12 - 12U | 3/4 | 1-1/16-12 | 15.75 | 1-1/16 | 1-1/4 | 1-1/8 | 24.38 | 21.84 | 31.24 | 41.40 | 48.77 | 36.58 |
| SPMEI - 14 - 14U | 7/8 | 3/16-12 | 18.29 | 1-3/16 | 1-3/8 | 1-1/4 | 25.91 | 21.84 | 33.02 | 43.18 | 50.55 | 40.39 |
| SPMEI - 16 - 16U | 1 | 1-5/16-12 | 22.35 | 1-3/8 | 1-1/2 | 1-1/2 | 31.24 | 26.42 | 38.35 | 50.55 | 53.59 | 43.94 |
| SPMEI - 20 - 20U | 1-1/4 | 1-5/8-12 | 27.69 | 1-11/16 | 1-7/8 | 1-7/8 | 41.15 | 38.86 | 45.72 | 67.82 | 58.17 | 54.86 |
| SPMEI - 24 - 24U | 1-1/2 | 1-7/8-12 | 34.04 | 2 | 2-1/8 | 2-1/4 | 50.04 | 45.21 | 50.80 | 77.98 | 60.45 | 62.23 |
| SPMEI - 32 - 32U | 2-1/2 | 2-1/2-12 | 45.97 | 2-3/4 | 2-3/4 | 3 | 67.56 | 62.74 | 69.85 | 107.19 | 71.63 | 80.26 |

All dimensions in millimeters unless specified as "inch" • Dimensions are for reference only, subject to change.

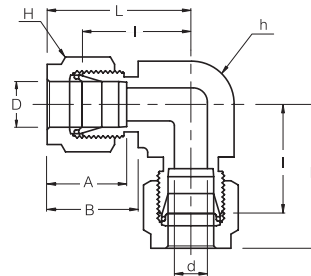
SPMEI
Positionable
Male Elbow



Connects Fractional Tubes to Female ISO Parallel Thread

| Part No. | Tube O.D. D (inch) | T (PF) | d Min | Width Across Flat | | | A | B | I | L | L1 | C |
|------------------|-----------------------|-----------|----------|-------------------|-----------|----------|-------|-------|-------|-------|-------|-------|
| | | | | h1 (inch) | h2 (inch) | H (inch) | | | | | | |
| SPMEI - 4 - 2G | 1/4 | 1/8 | 4.06 | 1/2 | 9/16 | 9/16 | 15.24 | 17.78 | 19.56 | 26.92 | 26.42 | 17.27 |
| SPMEI - 4 - 4G | 1/4 | 1/4 | 4.83 | 5/8 | 3/4 | 9/16 | 15.24 | 17.78 | 21.59 | 28.96 | 32.26 | 22.86 |
| SPMEI - 6 - 4G | 3/8 | 1/4 | 5.84 | 5/8 | 3/4 | 11/16 | 16.76 | 19.30 | 23.11 | 30.48 | 32.26 | 22.86 |
| SPMEI - 6 - 6G | 3/8 | 3/8 | 7.11 | 13/16 | 7/8 | 11/16 | 16.76 | 19.30 | 25.91 | 33.27 | 37.08 | 26.42 |
| SPMEI - 8 - 4G | 1/2 | 1/4 | 5.84 | 13/16 | 3/4 | 7/8 | 22.86 | 21.84 | 25.91 | 36.07 | 35.05 | 26.42 |
| SPMEI - 8 - 6G | 1/2 | 3/8 | 7.87 | 13/16 | 7/8 | 7/8 | 22.86 | 21.84 | 25.91 | 36.07 | 37.08 | 22.86 |
| SPMEI - 8 - 8G | 1/2 | 1/2 | 10.41 | 15/16 | 1-1/16 | 7/8 | 22.86 | 21.84 | 27.94 | 38.10 | 43.43 | 26.42 |
| SPMEI - 10 - 8G | 5/8 | 1/2 | 11.94 | 15/16 | 1-1/16 | 1 | 24.38 | 21.84 | 27.94 | 38.10 | 43.43 | 32.00 |
| SPMEI - 12 - 8G | 3/4 | 1/2 | 11.94 | 1-1/16 | 1-1/16 | 1-1/8 | 24.38 | 21.84 | 29.72 | 39.88 | 45.21 | 32.00 |
| SPMEI - 12 - 12G | 3/4 | 3/4 | 15.75 | 1-1/16 | 1-3/8 | 1-1/8 | 24.38 | 21.84 | 29.72 | 39.88 | 48.77 | 41.15 |
| SPMEI - 16 - 12G | 1 | 3/4 | 15.75 | 1-3/8 | 1-3/8 | 1-1/2 | 31.24 | 26.42 | 36.83 | 49.02 | 53.34 | 41.15 |
| SPMEI - 16 - 16G | 1 | 1 | 19.81 | 1-3/8 | 1-3/8 | 1-5/8 | 31.24 | 26.42 | 36.83 | 49.02 | 53.59 | 48.51 |

SUEI
Union Elbow

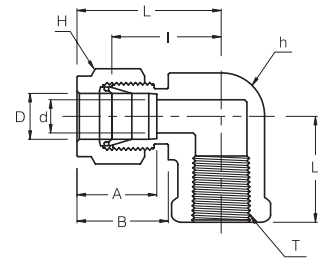
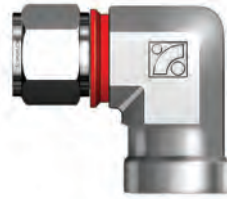


Connects Fractional Tubes

| Part No. | Tube O.D. D (inch) | d Min | Width Across Flat | | A | B | I | L |
|-----------|-----------------------|----------|-------------------|----------|-------|-------|-------|--------|
| | | | h (inch) | H (inch) | | | | |
| SUE - 1 | 1/16 | 1.27 | 3/8 | 5/16 | 8.63 | 10.92 | 14.00 | 18.03 |
| SUE - 2 | 1/8 | 2.28 | 3/8 | 7/16 | 12.70 | 15.24 | 15.74 | 22.35 |
| SUE - 3 | 3/16 | 3.04 | 1/2 | 1/2 | 13.71 | 16.00 | 18.54 | 25.14 |
| SUEI - 4 | 1/4 | 4.82 | 1/2 | 9/16 | 15.24 | 17.78 | 20.10 | 27.40 |
| SUE - 5 | 5/16 | 6.35 | 5/8 | 5/8 | 16.25 | 18.54 | 22.35 | 29.71 |
| SUEI - 6 | 3/8 | 7.11 | 5/8 | 11/16 | 16.76 | 19.30 | 23.11 | 30.48 |
| SUEI - 8 | 1/2 | 10.41 | 13/16 | 7/8 | 22.86 | 21.84 | 25.90 | 36.06 |
| SUE - 10 | 5/8 | 12.70 | 15/16 | 1 | 24.38 | 21.84 | 27.94 | 38.10 |
| SUEI - 12 | 3/4 | 15.74 | 1-1/16 | 1-1/8 | 24.38 | 21.84 | 29.71 | 39.87 |
| SUE - 14 | 7/8 | 18.28 | 1-3/8 | 1-1/4 | 25.90 | 21.84 | 34.54 | 44.70 |
| SUEI - 16 | 1 | 22.35 | 1-3/8 | 1-1/2 | 31.24 | 26.41 | 36.83 | 49.02 |
| SUE - 20 | 1-1/4 | 27.69 | 1-11/16 | 1-7/8 | 41.15 | 38.86 | 44.45 | 66.55 |
| SUE - 24 | 1-1/2 | 34.04 | 2 | 2-1/4 | 50.04 | 45.21 | 50.80 | 77.98 |
| SUE - 32 | 2 | 45.97 | 2-3/4 | 3 | 67.56 | 62.74 | 69.85 | 107.19 |

All dimensions in millimeters unless specified as "inch" • Dimensions are for reference only, subject to change.

SFEI
Female Elbow



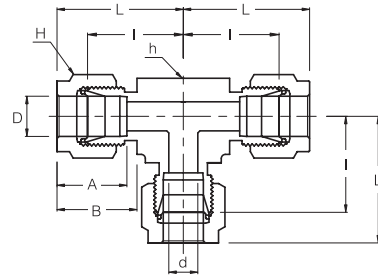
Connects Fractional Tubes to Male NPT Thread*

| Part No. | Tube O.D. D (inch) | T* (NPT) | d Min | Width Across Flat | | A | B | I | L | L ₁ |
|-----------------|--------------------|----------|-------|-------------------|----------|-------|-------|-------|-------|----------------|
| | | | | h (inch) | H (inch) | | | | | |
| SFE - 2 - 2N | 1/8 | 1/8 | 2.28 | 1/2 | 7/16 | 12.70 | 15.24 | 18.03 | 24.63 | 19.05 |
| SFE - 2 - 4N | 1/8 | 1/4 | 2.28 | 11/16 | 7/16 | 12.70 | 15.24 | 20.82 | 27.43 | 22.35 |
| SFE - 3 - 2N | 3/16 | 1/8 | 3.04 | 1/2 | 1/2 | 13.71 | 16.00 | 18.79 | 25.40 | 19.05 |
| SFEI - 4 - 2N | 1/4 | 1/8 | 4.82 | 1/2 | 9/16 | 15.24 | 17.78 | 19.55 | 26.92 | 19.05 |
| SFEI - 4 - 4N | 1/4 | 1/4 | 4.82 | 11/16 | 9/16 | 15.24 | 17.78 | 22.35 | 29.71 | 22.35 |
| SFEI - 4 - 6N | 1/4 | 3/8 | 4.82 | 13/16 | 9/16 | 15.24 | 17.78 | 24.38 | 31.75 | 22.35 |
| SFEI - 4 - 8N | 1/4 | 1/2 | 4.82 | 1 | 9/16 | 15.24 | 17.78 | 27.17 | 34.54 | 28.44 |
| SFE - 5 - 2N | 5/16 | 1/8 | 6.35 | 9/16 | 5/8 | 16.25 | 18.54 | 21.33 | 28.70 | 19.05 |
| SFE - 5 - 4N | 5/16 | 1/4 | 6.35 | 11/16 | 5/8 | 16.25 | 18.54 | 23.11 | 30.48 | 22.35 |
| SFEI - 6 - 2N | 3/8 | 1/8 | 7.11 | 5/8 | 11/16 | 16.76 | 19.30 | 23.11 | 30.48 | 19.05 |
| SFEI - 6 - 4N | 3/8 | 1/4 | 7.11 | 11/16 | 11/16 | 16.76 | 19.30 | 23.87 | 31.24 | 22.35 |
| SFEI - 6 - 6N | 3/8 | 3/8 | 7.11 | 13/16 | 11/16 | 16.76 | 19.30 | 25.90 | 33.27 | 22.35 |
| SFEI - 6 - 8N | 3/8 | 1/2 | 7.11 | 1 | 11/16 | 16.76 | 19.30 | 28.70 | 36.06 | 28.44 |
| SFEI - 8 - 4N | 1/2 | 1/4 | 10.41 | 13/16 | 7/8 | 22.86 | 21.84 | 25.90 | 36.06 | 22.35 |
| SFEI - 8 - 6N | 1/2 | 3/8 | 10.41 | 13/16 | 7/8 | 22.86 | 21.84 | 25.90 | 36.06 | 22.35 |
| SFEI - 8 - 8N | 1/2 | 1/2 | 10.41 | 1 | 7/8 | 22.86 | 21.84 | 28.70 | 38.86 | 37.00 |
| SFE - 10 - 6N | 5/8 | 3/8 | 12.70 | 15/16 | 1 | 24.38 | 21.84 | 27.94 | 38.10 | 22.35 |
| SFE - 10 - 8N | 5/8 | 1/2 | 12.70 | 1-1/16 | 1 | 24.38 | 21.84 | 29.71 | 39.87 | 28.44 |
| SFEI - 12 - 8N | 3/4 | 1/2 | 15.74 | 1-1/16 | 1-1/8 | 24.38 | 21.84 | 29.71 | 39.87 | 28.44 |
| SFEI - 12 - 12N | 3/4 | 3/4 | 15.74 | 1-3/8 | 1-1/8 | 24.38 | 21.84 | 34.54 | 44.70 | 31.75 |
| SFE - 14 - 12N | 7/8 | 3/4 | 18.28 | 1-3/8 | 1-1/4 | 25.90 | 21.84 | 34.54 | 44.70 | 31.75 |
| SFEI - 16 - 12N | 1 | 3/4 | 22.35 | 1-3/8 | 1-1/2 | 31.24 | 26.41 | 36.83 | 49.02 | 31.75 |
| SFEI - 16 - 16N | 1 | 1 | 22.35 | 1-11/16 | 1-1/2 | 31.24 | 26.41 | 41.40 | 53.59 | 38.10 |

All dimensions in millimeters unless specified as "inch" • Dimensions are for reference only, subject to change. • * ISO Tapered Threads are available upon request

SUTI

Union Tee

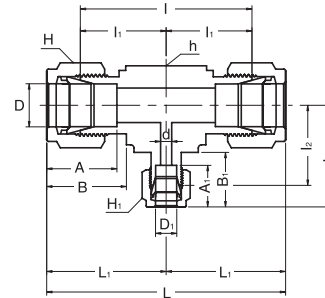


Connects Fractional Tubes

| Part No. | Tube O.D. D (inch) | d Min | Width Across Flat | | A | B | I | L |
|-----------|-----------------------|----------|-------------------|----------|-------|-------|-------|--------|
| | | | h (inch) | H (inch) | | | | |
| SUT - 1 | 1/16 | 1.27 | 3/8 | 5/16 | 8.63 | 10.92 | 14.00 | 18.03 |
| SUT - 2 | 1/8 | 2.28 | 3/8 | 7/16 | 12.70 | 15.24 | 15.80 | 22.35 |
| SUT - 3 | 3/16 | 3.04 | 1/2 | 1/2 | 13.71 | 16.00 | 18.54 | 25.14 |
| SUTI - 4 | 1/4 | 4.82 | 1/2 | 9/16 | 15.24 | 17.78 | 20.10 | 27.40 |
| SUT - 5 | 5/16 | 6.35 | 5/8 | 5/8 | 16.25 | 18.54 | 22.35 | 29.71 |
| SUTI - 6 | 3/8 | 7.11 | 5/8 | 11/16 | 16.76 | 19.30 | 23.11 | 30.48 |
| SUTI - 8 | 1/2 | 10.41 | 13/16 | 7/8 | 22.86 | 21.84 | 25.90 | 36.06 |
| SUT - 10 | 5/8 | 12.70 | 1 | 1 | 24.38 | 21.84 | 28.70 | 38.86 |
| SUTI - 12 | 3/4 | 15.74 | 1-1/16 | 1-1/8 | 24.38 | 21.84 | 29.71 | 39.87 |
| SUT - 14 | 7/8 | 18.28 | 1-3/8 | 1-1/4 | 25.90 | 21.84 | 34.54 | 44.70 |
| SUTI - 16 | 1 | 22.35 | 1-3/8 | 1-1/2 | 31.24 | 26.41 | 36.83 | 49.02 |
| SUT - 20 | 1-1/4 | 27.69 | 1-11/16 | 1-7/8 | 41.15 | 38.86 | 44.45 | 66.55 |
| SUT - 24 | 1-1/2 | 34.04 | 2 | 2-1/4 | 50.04 | 45.21 | 50.80 | 77.98 |
| SUT - 32 | 2 | 45.97 | 2-3/4 | 3 | 67.56 | 62.74 | 69.85 | 107.19 |

SRUTI

Reducing Union Tee



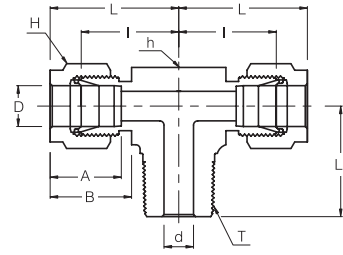
Connects Fractional Tubes

| Part No. | Tube O.D. | | d Min | Width Across Flat | | | A | A ₁ | B | B ₁ | I | I ₁ | I ₂ | L | L ₁ | L ₂ |
|-----------------|-----------|-----------------------|----------|-------------------|----------|-----------------------|-------|----------------|-------|----------------|-------|----------------|----------------|-------|----------------|----------------|
| | D (inch) | D ₁ (inch) | | h (inch) | H (inch) | H ₁ (inch) | | | | | | | | | | |
| SRUTI - 6 - 4 | 3/8 | 1/4 | 4.82 | 5/8 | 11/16 | 9/16 | 16.76 | 15.24 | 19.30 | 17.78 | 46.22 | 23.11 | 21.59 | 60.96 | 30.48 | 28.95 |
| SRUTI - 8 - 4 | 1/2 | 1/4 | 4.82 | 13/16 | 7/8 | 9/16 | 22.86 | 15.24 | 21.84 | 17.78 | 51.81 | 25.90 | 24.38 | 72.13 | 36.06 | 31.75 |
| SRUTI - 8 - 6 | 1/2 | 3/8 | 7.11 | 13/16 | 7/8 | 11/16 | 22.86 | 16.76 | 21.84 | 19.30 | 51.81 | 25.90 | 25.90 | 72.13 | 36.06 | 33.27 |
| SRUTI - 10 - 6 | 5/8 | 3/8 | 7.11 | 1 | 1 | 11/16 | 24.38 | 16.76 | 21.84 | 19.30 | 57.40 | 28.70 | 28.70 | 77.72 | 38.86 | 36.06 |
| SRUTI - 12 - 6 | 3/4 | 3/8 | 7.11 | 1 1/16 | 1 1/8 | 11/16 | 24.38 | 16.76 | 21.84 | 19.30 | 59.43 | 29.71 | 29.71 | 79.75 | 39.87 | 37.08 |
| SRUTI - 12 - 8 | 3/4 | 1/2 | 10.41 | 1 1/16 | 1 1/8 | 7/8 | 24.38 | 22.86 | 21.84 | 21.84 | 59.43 | 29.71 | 29.71 | 79.75 | 39.87 | 39.87 |
| SRUTI - 16 - 6 | 1 | 3/8 | 7.11 | 1 3/8 | 1 1/2 | 1 1/16 | 31.24 | 16.76 | 26.41 | 19.30 | 73.66 | 36.83 | 34.54 | 98.04 | 49.02 | 41.91 |
| SRUTI - 16 - 8 | 1 | 1/2 | 10.41 | 1 3/8 | 1 1/2 | 7/8 | 31.24 | 21.84 | 26.41 | 22.86 | 73.66 | 36.83 | 34.54 | 98.04 | 49.02 | 44.70 |
| SRUTI - 16 - 12 | 1 | 3/4 | 15.74 | 1 3/8 | 1 1/2 | 1 1/8 | 31.24 | 24.38 | 26.41 | 21.84 | 73.66 | 36.83 | 34.54 | 98.04 | 49.02 | 44.70 |

All dimensions in millimeters unless specified as "inch" • Dimensions are for reference only, subject to change.

SMBTI

Male Branch Tee



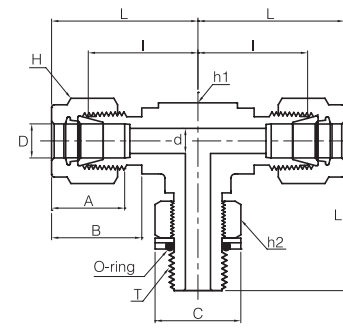
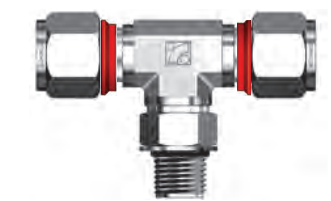
Connects Fractional Tubes to Female NPT Thread*

| Part No. | Tube O.D. D (inch) | T* (NPT) | d Min | Width Across Flat | | | A | B | I | L | L ₁ |
|------------------|--------------------|----------|-------|-------------------|----------|--|-------|-------|-------|-------|----------------|
| | | | | h (inch) | H (inch) | | | | | | |
| SMBT - 2 - 2N | 1/8 | 1/8 | 2.28 | 1/2 | 7/16 | | 12.70 | 15.24 | 18.30 | 24.91 | 18.90 |
| SMBT - 2 - 4N | 1/8 | 1/4 | 2.28 | 1/2 | 7/16 | | 12.70 | 15.24 | 18.03 | 24.63 | 23.36 |
| SMBT - 3 - 2N | 3/16 | 1/8 | 3.04 | 1/2 | 1/2 | | 13.71 | 16.00 | 17.78 | 25.40 | 18.79 |
| SMBTI - 4 - 2N | 1/4 | 1/8 | 4.82 | 1/2 | 9/16 | | 15.24 | 17.78 | 19.55 | 26.92 | 18.79 |
| SMBTI - 4 - 4N | 1/4 | 1/4 | 4.82 | 1/2 | 9/16 | | 15.24 | 17.78 | 19.55 | 26.92 | 23.36 |
| SMBT - 5 - 2N | 5/16 | 1/8 | 4.82 | 5/8 | 5/8 | | 16.25 | 18.54 | 22.35 | 29.71 | 20.82 |
| SMBTI - 6 - 4N | 3/8 | 1/4 | 7.11 | 5/8 | 11/16 | | 16.76 | 19.30 | 23.11 | 30.48 | 25.40 |
| SMBTI - 6 - 6N | 3/8 | 3/8 | 7.11 | 5/8 | 11/16 | | 16.76 | 19.30 | 23.10 | 30.48 | 28.19 |
| SMBTI - 8 - 6N | 1/2 | 3/8 | 9.65 | 13/16 | 7/8 | | 22.86 | 21.84 | 25.90 | 36.06 | 28.19 |
| SMBTI - 8 - 8N | 1/2 | 1/2 | 10.41 | 13/16 | 7/8 | | 22.86 | 21.84 | 25.90 | 36.06 | 33.02 |
| SMBTI - 10 - 8N | 5/8 | 1/2 | 11.93 | 1 | 1 | | 24.38 | 21.84 | 28.70 | 38.86 | 35.81 |
| SMBTI - 12 - 12N | 3/4 | 3/4 | 15.74 | 1-1/16 | 1-1/8 | | 24.38 | 21.84 | 29.71 | 39.87 | 36.83 |

* ISO Tapered Threads are available upon request

SPMBTI

Positionable Male Branch Tee

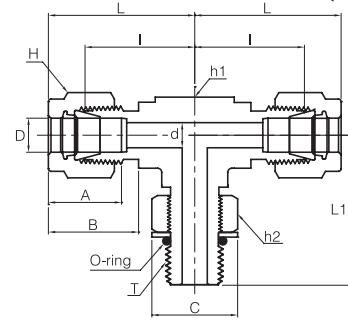
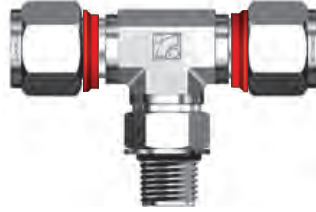


Connects Fractional Tubes to Female ISO Parallel Thread

| Part No. | Tube O.D. D (inch) | T (PF) | d Min | Width Across Flat | | | A | B | I | L | L ₁ | C |
|-------------------|--------------------|--------|-------|-------------------|-----------|----------|-------|-------|-------|-------|----------------|-------|
| | | | | h1 (inch) | h2 (inch) | H (inch) | | | | | | |
| SPMBTI - 4 - 2G | 1/4 | 1/8 | 4.06 | 1/2 | 9/16 | 9/16 | 15.24 | 17.78 | 19.56 | 26.92 | 26.42 | 17.27 |
| SPMBTI - 4 - 4G | 1/4 | 1/4 | 4.83 | 5/8 | 3/4 | 9/16 | 15.24 | 17.78 | 21.59 | 28.96 | 32.26 | 22.86 |
| SPMBTI - 6 - 4G | 3/8 | 1/4 | 5.08 | 5/8 | 3/4 | 11/16 | 15.24 | 19.30 | 23.11 | 30.48 | 32.26 | 22.86 |
| SPMBTI - 8 - 6G | 3/8 | 3/8 | 7.87 | 13/16 | 7/8 | 7/8 | 22.86 | 21.84 | 25.91 | 36.07 | 37.08 | 26.42 |
| SPMBTI - 8 - 8G | 1/2 | 1/2 | 10.41 | 15/16 | 1-1/16 | 7/8 | 22.86 | 21.84 | 27.94 | 38.10 | 43.43 | 32.00 |
| SPMBT - 10 - 8G | 5/8 | 1/2 | 11.94 | 15/16 | 1-1/16 | 1 | 24.38 | 21.84 | 27.94 | 38.10 | 43.43 | 32.00 |
| SPMBTI - 12 - 8G | 3/4 | 1/2 | 11.94 | 1-1/16 | 1-1/16 | 1-1/8 | 24.38 | 21.84 | 29.72 | 39.88 | 45.21 | 32.00 |
| SPMBTI - 12 - 12G | 3/4 | 3/4 | 15.75 | 1-1/16 | 1-3/8 | 1-1/8 | 24.38 | 21.84 | 29.72 | 39.88 | 48.77 | 41.15 |
| SPMBTI - 16 - 16G | 1 | 1 | 19.81 | 1-3/8 | 1-5/8 | 1-1/2 | 31.24 | 26.42 | 36.83 | 49.02 | 53.59 | 48.51 |

All dimensions in millimeters unless specified as "inch" • Dimensions are for reference only, subject to change.

SPMBTI
Positionable
Male Branch Tee

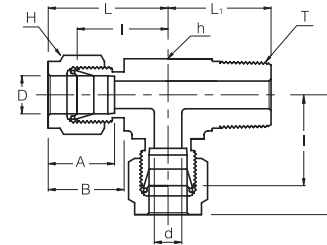


Connects Fractional Tubes to SAE/MS Straight Thread Boss

| Part No. | Tube O.D. D (inch) | Straight Thread T(U) | d Min | Width Across Flat | | | A | B | I | L | L1 | C |
|-------------------|-----------------------|----------------------------|----------|-------------------|-----------|----------|-------|-------|-------|--------|-------|-------|
| | | | | h1 (inch) | h2 (inch) | H (inch) | | | | | | |
| SPMBTI - 4 - 4U | 1/4 | 7/16-20 | 4.83 | 1/2 | 9/16 | 9/16 | 15.24 | 17.78 | 21.08 | 28.45 | 28.45 | 16.51 |
| SPMBTI - 6 - 6U | 3/8 | 9/16-18 | 7.11 | 5/8 | 11/16 | 11/16 | 16.76 | 19.30 | 24.64 | 32.00 | 32.26 | 20.07 |
| SPMBTI - 8 - 8U | 1/2 | 3/4-16 | 10.41 | 13/16 | 7/8 | 7/8 | 22.86 | 21.84 | 27.43 | 37.59 | 37.85 | 25.65 |
| SPMBTI - 12 - 12U | 3/4 | 1-1/16-12 | 15.75 | 1-1/16 | 1-1/4 | 1-1/8 | 24.38 | 21.84 | 31.24 | 41.40 | 48.77 | 36.58 |
| SPMBTI - 16 - 16U | 1 | 1-5/8-12 | 22.35 | 1-3/8 | 1-1/2 | 1-1/2 | 31.24 | 26.42 | 38.35 | 50.55 | 53.59 | 43.94 |
| SPMBT - 20 - 20U | 1-1/4 | 1-5/8-12 | 27.69 | 1-11/16 | 1-7/8 | 1-7/8 | 41.15 | 38.86 | 45.72 | 67.82 | 58.17 | 54.86 |
| SPMBT - 24 - 24U | 1-1/2 | 1-7/8-12 | 34.04 | 2 | 2-1/8 | 2-1/4 | 50.04 | 45.21 | 50.80 | 77.98 | 60.45 | 62.23 |
| SPMBT - 32 - 32U | 2 | 2-1/2-12 | 45.97 | 2-3/4 | 2-3/4 | 3 | 67.56 | 62.74 | 69.85 | 107.19 | 71.63 | 80.26 |

All dimensions in millimeters unless specified as "inch" • Dimensions are for reference only, subject to change.

SMRTI
Male Run Tee

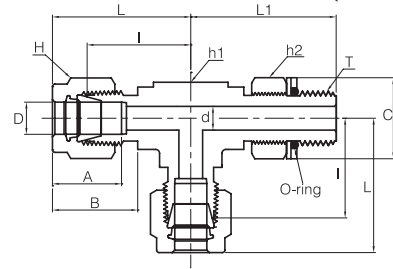


Connects Fractional Tubes to Female NPT Thread*

| Part No. | Tube O.D. D (inch) | T* (NPT) | d Min | Width Across Flat | | A | B | I | L | L1 |
|------------------|-----------------------|-------------|----------|-------------------|----------|-------|-------|-------|-------|-------|
| | | | | h (inch) | H (inch) | | | | | |
| SMRT - 2 - 2N | 1/8 | 1/8 | 2.28 | 1/2 | 7/16 | 12.70 | 15.24 | 18.30 | 24.91 | 18.90 |
| SMRT - 2 - 4N | 1/8 | 1/4 | 2.28 | 1/2 | 7/16 | 12.70 | 15.24 | 18.03 | 24.63 | 23.36 |
| SMRT - 3 - 2N | 3/16 | 1/8 | 3.04 | 1/2 | 1/2 | 13.71 | 16.00 | 17.78 | 25.40 | 18.79 |
| SMRTI - 4 - 2N | 1/4 | 1/8 | 4.82 | 1/2 | 9/16 | 15.24 | 17.78 | 19.55 | 26.92 | 18.79 |
| SMRTI - 4 - 4N | 1/4 | 1/4 | 4.82 | 1/2 | 9/16 | 15.24 | 17.78 | 19.55 | 26.92 | 23.36 |
| SMRT - 5 - 2N | 5/16 | 1/8 | 4.82 | 5/8 | 5/8 | 16.25 | 18.54 | 22.35 | 29.71 | 20.82 |
| SMRTI - 6 - 4N | 3/8 | 1/4 | 7.11 | 5/8 | 11/16 | 16.76 | 19.30 | 23.11 | 30.48 | 25.40 |
| SMRTI - 6 - 6N | 3/8 | 3/8 | 7.11 | 5/8 | 11/16 | 16.76 | 19.30 | 23.10 | 30.48 | 28.19 |
| SMRTI - 8 - 6N | 1/2 | 3/8 | 9.65 | 13/16 | 7/8 | 22.86 | 21.84 | 25.90 | 36.06 | 28.19 |
| SMRTI - 8 - 8N | 1/2 | 1/2 | 10.41 | 13/16 | 7/8 | 22.86 | 21.84 | 25.90 | 36.06 | 33.02 |
| SMRT - 10 - 8N | 5/8 | 1/2 | 11.93 | 1 | 1 | 24.38 | 21.84 | 28.70 | 38.86 | 35.81 |
| SMRTI - 12 - 12N | 3/4 | 3/4 | 15.74 | 1-1/16 | 1-1/8 | 24.38 | 21.84 | 29.71 | 39.87 | 36.83 |

*ISO Tapered Threads are available upon request

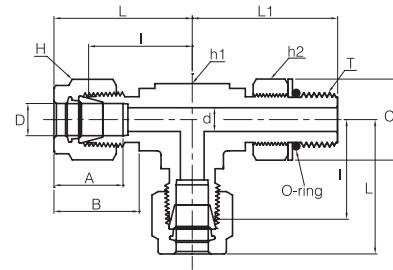
SPMRTI
Positionable
Male Run Tee



Connects Fractional Tubes to Female ISO Parallel Thread

| Part No. | Tube O.D. D (inch) | T (PF) | d Min | Width Across Flat | | | A | B | I | L | L1 | C |
|-------------------|-----------------------|-----------|----------|-------------------|-----------|----------|-------|-------|-------|-------|-------|-------|
| | | | | h1 (inch) | h2 (inch) | H (inch) | | | | | | |
| SPMRTI - 4 - 2G | 1/4 | 1/8 | 4.06 | 1/2 | 9/16 | 9/16 | 15.24 | 17.78 | 19.56 | 26.92 | 26.42 | 17.27 |
| SPMRTI - 4 - 4G | 1/4 | 1/4 | 4.83 | 5/8 | 3/4 | 9/16 | 15.24 | 17.78 | 21.59 | 28.96 | 32.26 | 22.86 |
| SPMRTI - 6 - 4G | 3/8 | 1/4 | 5.84 | 5/8 | 3/4 | 11/16 | 16.76 | 19.30 | 23.11 | 30.48 | 32.26 | 22.86 |
| SPMRTI - 8 - 6G | 1/2 | 3/8 | 7.87 | 13/16 | 7/8 | 7/8 | 22.86 | 21.84 | 25.91 | 36.07 | 37.08 | 26.42 |
| SPMRTI - 8 - 8G | 3/8 | 1/2 | 10.41 | 15/16 | 1-1/16 | 7/8 | 22.86 | 21.84 | 27.94 | 38.10 | 43.43 | 32.00 |
| SPMRT - 10 - 8G | 5/8 | 1/2 | 11.94 | 15/16 | 1-1/16 | 1 | 24.38 | 21.84 | 27.94 | 38.10 | 43.43 | 32.00 |
| SPMRTI - 12 - 8G | 3/4 | 1/2 | 11.94 | 1-1/16 | 1-1/16 | 1-1/8 | 24.38 | 21.84 | 29.72 | 39.88 | 45.21 | 32.00 |
| SPMRTI - 12 - 12G | 3/4 | 3/4 | 15.75 | 1-1/16 | 1-3/8 | 1-1/8 | 24.38 | 21.84 | 29.72 | 39.88 | 48.77 | 41.15 |
| SPMRTI - 16 - 16G | 1 | 1 | 19.81 | 1-3/8 | 1-5/8 | 1-1/2 | 31.24 | 26.42 | 36.83 | 49.02 | 53.59 | 48.51 |

SPMRTI
Positionable
Male Run Tee

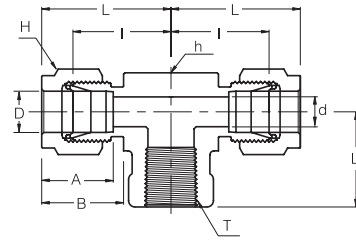
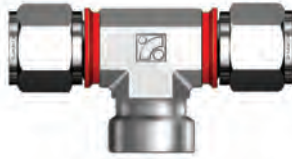


Connects Fractional Tubes to SAE/MS Straight Thread

| Part No. | Tube O.D. D (inch) | Straight Thread T(U) | d Min | Width Across Flat | | | A | B | I | L | L1 | C |
|-------------------|-----------------------|----------------------------|----------|-------------------|-----------|----------|-------|-------|-------|--------|-------|-------|
| | | | | h1 (inch) | h2 (inch) | H (inch) | | | | | | |
| SPMRTI - 4 - 4U | 1/4 | 7/16-20 | 4.83 | 1/2 | 9/16 | 9/16 | 15.24 | 17.78 | 21.08 | 28.45 | 28.45 | 16.51 |
| SPMRTI - 6 - 6U | 3/8 | 9/16-18 | 7.11 | 5/8 | 11/16 | 11/16 | 16.76 | 19.30 | 24.64 | 32.00 | 32.26 | 20.07 |
| SPMRTI - 8 - 8U | 1/2 | 3/4-16 | 10.41 | 13/16 | 7/8 | 7/8 | 22.86 | 21.84 | 27.43 | 37.59 | 37.85 | 25.65 |
| SPMRTI - 12 - 12U | 3/4 | 1-1/16-12 | 15.75 | 1-1/16 | 1-1/4 | 1-1/8 | 24.38 | 21.84 | 31.24 | 41.40 | 48.77 | 36.58 |
| SPMRTI - 16 - 16U | 1 | 1-5/16-12 | 22.35 | 1-3/8 | 1-1/2 | 1-1/2 | 31.24 | 26.42 | 38.35 | 50.55 | 53.59 | 43.94 |
| SPMRT - 20 - 20U | 1-1/4 | 1-5/8-12 | 27.69 | 1-11/16 | 1-7/8 | 1-7/8 | 41.15 | 38.86 | 45.72 | 67.82 | 58.17 | 54.86 |
| SPMRT - 24 - 24U | 1-1/2 | 1-7/8-12 | 34.04 | 2 | 2-1/8 | 2-1/4 | 50.04 | 45.21 | 50.80 | 77.98 | 60.45 | 62.23 |
| SPMRT - 32 - 32U | 2 | 2-1/2-12 | 45.97 | 2-3/4 | 2-3/4 | 3 | 67.56 | 62.74 | 69.85 | 107.19 | 71.63 | 80.26 |

All dimensions in millimeters unless specified as "inch" • Dimensions are for reference only, subject to change.

SFBTI Female Branch Tee

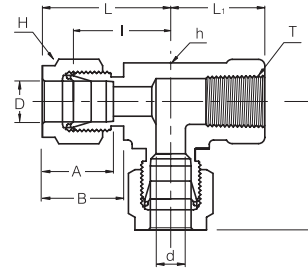
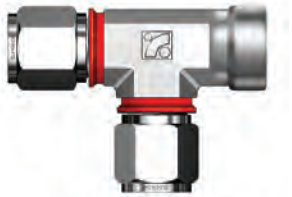


Connects Fractional Tubes to Male NPT Thread*

| Part No. | Tube O.D. D (inch) | T* (NPT) | d Min | Width Across Flat | | A | B | I | L | L ₁ |
|------------------|-----------------------|-------------|----------|-------------------|----------|-------|-------|-------|-------|----------------|
| | | | | h (inch) | H (inch) | | | | | |
| SFBT - 2 - 2N | 1/8 | 1/8 | 2.28 | 1/2 | 7/16 | 12.70 | 15.24 | 18.03 | 24.63 | 19.05 |
| SFBTI - 4 - 2N | 1/4 | 1/8 | 4.82 | 1/2 | 9/16 | 15.24 | 17.78 | 19.55 | 26.92 | 19.05 |
| SFBTI - 4 - 4N | 1/4 | 1/4 | 4.82 | 11/16 | 9/16 | 15.24 | 17.78 | 22.35 | 29.71 | 22.35 |
| SFBTI - 6 - 4N | 3/8 | 1/4 | 7.11 | 11/16 | 11/16 | 16.76 | 19.30 | 23.87 | 31.24 | 22.35 |
| SFBTI - 6 - 6N | 3/8 | 3/8 | 7.11 | 13/16 | 11/16 | 16.76 | 19.30 | 25.90 | 33.27 | 22.35 |
| SFBTI - 6 - 8N | 3/8 | 1/2 | 7.11 | 1 | 11/16 | 16.76 | 19.30 | 28.70 | 36.07 | 28.45 |
| SFBTI - 8 - 4N | 1/2 | 1/4 | 10.41 | 13/16 | 7/8 | 22.86 | 21.84 | 25.90 | 36.06 | 22.35 |
| SFBTI - 8 - 6N | 1/2 | 3/8 | 10.41 | 13/16 | 7/8 | 22.86 | 21.84 | 25.90 | 36.06 | 22.35 |
| SFBTI - 8 - 8N | 1/2 | 1/2 | 10.41 | 1 | 7/8 | 22.86 | 21.84 | 28.70 | 38.86 | 28.44 |
| SFBT - 10 - 8N | 5/8 | 1/2 | 12.70 | 1 | 1 | 24.38 | 21.84 | 28.70 | 38.86 | 28.44 |
| SFBTI - 12 - 12N | 3/4 | 3/4 | 15.74 | 1-3/8 | 1-1/8 | 24.38 | 21.84 | 34.54 | 44.70 | 31.75 |
| SFBTI - 16 - 12N | 1 | 3/4 | 22.35 | 1-3/8 | 1-1/2 | 31.24 | 26.41 | 36.83 | 49.02 | 31.75 |
| SFBTI - 16 - 16N | 1 | 1 | 22.35 | 1-11/16 | 1-1/2 | 31.24 | 26.41 | 41.40 | 53.59 | 38.10 |

All dimensions in millimeters unless specified as "inch" • Dimensions are for reference only, subject to change.

SFRTI Female Run Tee

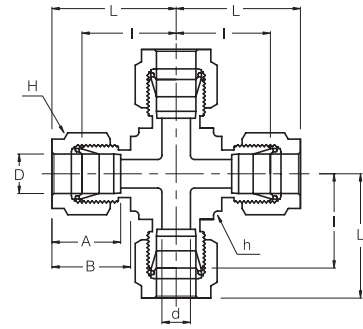


Connects Fractional Tubes to Male NPT Thread*

| Part No. | Tube O.D. D (inch) | T* (NPT) | d Min | Width Across Flat | | A | B | I | L | L ₁ |
|------------------|-----------------------|-------------|----------|-------------------|----------|-------|-------|-------|-------|----------------|
| | | | | h (inch) | H (inch) | | | | | |
| SFRT - 2 - 2N | 1/8 | 1/8 | 2.28 | 1/2 | 7/16 | 12.70 | 15.24 | 18.03 | 24.63 | 19.05 |
| SFRTI - 4 - 2N | 1/4 | 1/8 | 4.82 | 1/2 | 9/16 | 15.24 | 17.78 | 19.55 | 26.92 | 19.05 |
| SFRTI - 4 - 4N | 1/4 | 1/4 | 4.82 | 11/16 | 9/16 | 15.24 | 17.78 | 22.35 | 29.71 | 22.35 |
| SFRTI - 6 - 4N | 3/8 | 1/4 | 7.11 | 11/16 | 11/16 | 16.76 | 19.30 | 23.87 | 31.24 | 22.35 |
| SFRTI - 8 - 6N | 1/2 | 3/8 | 10.41 | 13/16 | 7/8 | 22.86 | 21.84 | 25.90 | 36.06 | 22.35 |
| SFRTI - 8 - 8N | 1/2 | 1/2 | 10.41 | 1 | 7/8 | 22.86 | 21.84 | 28.70 | 39.87 | 28.44 |
| SFRTI - 12 - 12N | 3/4 | 3/4 | 15.74 | 1-3/8 | 1-1/8 | 24.38 | 21.84 | 34.54 | 44.70 | 31.75 |
| SFRTI - 16 - 12N | 1 | 3/4 | 22.35 | 1-3/8 | 1-1/2 | 31.24 | 26.41 | 36.83 | 49.02 | 31.75 |
| SFRTI - 16 - 16N | 1 | 1 | 22.35 | 1-11/16 | 1-1/2 | 31.24 | 26.41 | 41.40 | 53.59 | 38.10 |

* ISO Tapered Threads are available upon request

SUCI
Union Cross

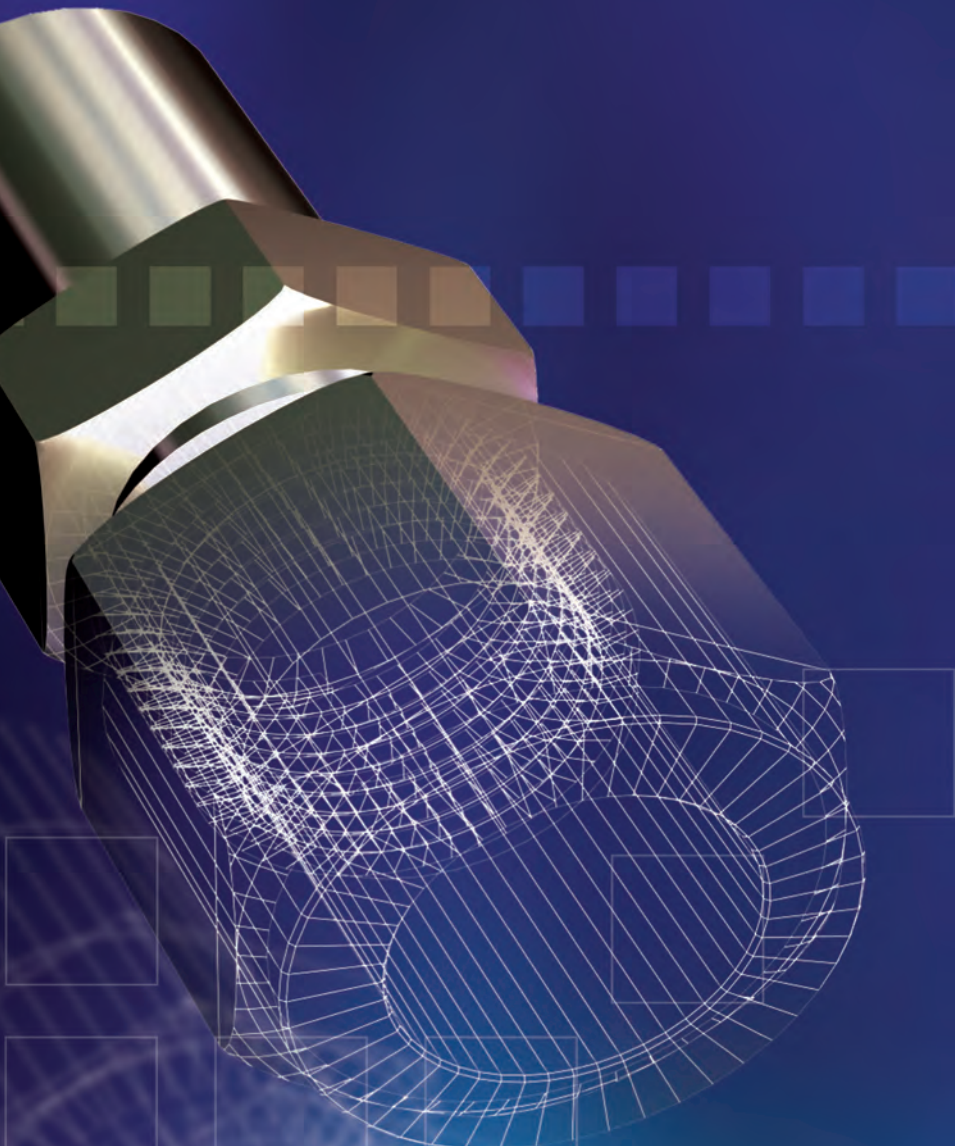


Connects Fractional Tubes








| Part No. | Tube O.D. D (inch) | d Min | Width Across Flat | | A | B | I | L |
|-----------|-----------------------|----------|-------------------|----------|-------|-------|-------|-------|
| | | | h (inch) | H (inch) | | | | |
| SUC - 1 | 1/16 | 1.27 | 3/8 | 5/16 | 8.63 | 10.92 | 14.00 | 18.03 |
| SUC - 2 | 1/8 | 2.28 | 3/8 | 7/16 | 12.70 | 15.24 | 15.74 | 22.35 |
| SUC - 3 | 3/16 | 3.04 | 1/2 | 1/2 | 13.71 | 16.00 | 18.54 | 25.14 |
| SUCI - 4 | 1/4 | 4.82 | 1/2 | 9/16 | 15.24 | 17.78 | 19.55 | 26.92 |
| SUC - 5 | 5/16 | 6.35 | 5/8 | 5/8 | 16.25 | 18.54 | 22.35 | 29.71 |
| SUCI - 6 | 3/8 | 7.11 | 5/8 | 11/16 | 16.76 | 19.30 | 23.11 | 30.48 |
| SUCI - 8 | 1/2 | 10.41 | 13/16 | 7/8 | 22.86 | 21.84 | 25.90 | 36.06 |
| SUC - 10 | 5/8 | 12.70 | 15/16 | 1 | 24.38 | 21.84 | 28.70 | 38.80 |
| SUCI - 12 | 3/4 | 15.74 | 1 | 1-1/8 | 24.38 | 21.84 | 29.71 | 39.87 |
| SUC - 14 | 7/8 | 18.28 | 1-3/8 | 1-1/4 | 25.90 | 21.84 | 34.54 | 44.70 |
| SUCI - 16 | 1 | 22.35 | 1-3/8 | 1-1/2 | 31.24 | 26.41 | 36.83 | 49.02 |

All dimensions in millimeters unless specified as "inch" • Dimensions are for reference only, subject to change.




Stub Tube Connector, AN Tube & O-Ring Seal






STUB TUBE CONNECTOR

| | |
|--|---|
| SRI Reducer page 30 |  |
| SBHR Bulkhead Reducer page 31 |  |
| SMA Male Adapter page 31 |  |
| SFA Female Adapter page 32 |  |
| SPC Port Connector page 32 |  |
| SRPC Reducing Port Connector page 33 |  |
| SFTC Flange Lapped Tubes Connector page 34 |  |

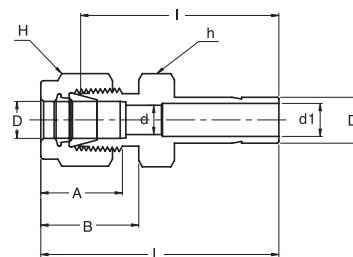
AN TUBE

| | |
|-------------------------------------|---|
| SAF An Flare page 34 |  |
| SAUI An Union page 35 |  |
| SAA An Adapter page 35 |  |

O-RING SEAL

| | |
|--|---|
| SOSCI O-Seal Straight Thread Connector page 36 |  |
| SOPCI O-Seal Pipe Thread Connector page 36 |  |
| SSMCI SAE/MS Male Connector page 37 |  |

SRI
Reducer



Connects Fractional Tubes to Fractional SUPERLOK® Port

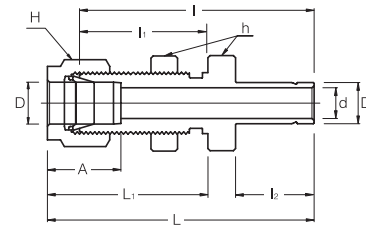
| Part No. | Tube O.D. | | d Min | d1 Min | Width Across Flat | | A | B | I | L |
|---------------|-----------|-----------------------|-------|--------|-------------------|----------|-------|-------|-------|-------|
| | D (inch) | D ₁ (inch) | | | h (inch) | H (inch) | | | | |
| SR - 2 - 1 | 1/8 | 1/16 | 2.28 | 0.8 | 7/16 | 7/16 | 12.70 | 15.24 | 22.35 | 28.95 |
| SR - 2 - 2 | 1/8 | 1/8 | 2.28 | 2.1 | 7/16 | 7/16 | 12.70 | 15.24 | 26.92 | 33.52 |
| SR - 2 - 3 | 1/8 | 3/16 | 2.28 | 3.0 | 7/16 | 7/16 | 12.70 | 15.24 | 27.68 | 34.29 |
| SR - 2 - 4 | 1/8 | 1/16 | 2.28 | 4.4 | 7/16 | 7/16 | 12.70 | 15.24 | 29.46 | 36.06 |
| SR - 2 - 6 | 1/8 | 1/16 | 2.28 | 6.9 | 7/16 | 7/16 | 12.70 | 15.24 | 30.98 | 37.59 |
| SR - 2 - 8 | 1/8 | 1/2 | 2.28 | 9.4 | 9/16 | 7/16 | 12.70 | 15.24 | 37.59 | 44.19 |
| SR - 3 - 2 | 3/16 | 1/8 | 3.04 | 2.1 | 7/16 | 1/2 | 13.71 | 16.00 | 28.19 | 34.79 |
| SR - 3 - 4 | 3/16 | 1/4 | 3.04 | 4.4 | 7/16 | 1/2 | 13.71 | 16.00 | 30.48 | 37.08 |
| SRI - 4 - 2 | 1/4 | 1/8 | 4.83 | 2.1 | 1/2 | 9/16 | 15.24 | 17.78 | 29.46 | 36.83 |
| SRI - 4 - 3 | 1/4 | 3/16 | 4.83 | 3.0 | 1/2 | 9/16 | 15.24 | 17.78 | 30.22 | 37.59 |
| SRI - 4 - 4 | 1/4 | 1/4 | 4.83 | 4.4 | 1/2 | 9/16 | 15.24 | 17.78 | 31.75 | 39.11 |
| SRI - 4 - 5 | 1/4 | 5/16 | 4.83 | 5.6 | 1/2 | 9/16 | 15.24 | 17.78 | 32.51 | 39.87 |
| SRI - 4 - 6 | 1/4 | 3/8 | 4.83 | 6.9 | 1/2 | 9/16 | 15.24 | 17.78 | 33.27 | 40.64 |
| SRI - 4 - 8 | 1/4 | 1/2 | 4.83 | 9.4 | 9/16 | 9/16 | 15.24 | 17.78 | 38.86 | 46.22 |
| SRI - 4 - 10 | 1/4 | 5/8 | 4.83 | 12.0 | 11/16 | 9/16 | 15.24 | 17.78 | 40.64 | 48.00 |
| SRI - 4 - 12 | 1/4 | 3/4 | 4.83 | 14.8 | 13/16 | 9/16 | 15.24 | 17.78 | 41.40 | 47.75 |
| SR - 5 - 6 | 5/16 | 3/8 | 6.35 | 6.9 | 9/16 | 5/8 | 16.25 | 18.54 | 34.54 | 41.91 |
| SR - 5 - 8 | 5/16 | 1/2 | 6.35 | 9.4 | 9/16 | 5/8 | 16.25 | 18.54 | 40.13 | 47.49 |
| SRI - 6 - 4 | 3/8 | 1/4 | 7.11 | 4.4 | 5/8 | 11/16 | 16.76 | 19.30 | 34.03 | 41.40 |
| SRI - 6 - 6 | 3/8 | 3/8 | 7.11 | 6.9 | 5/8 | 11/16 | 16.76 | 19.30 | 35.81 | 43.18 |
| SRI - 6 - 8 | 3/8 | 1/2 | 7.11 | 9.4 | 5/8 | 11/16 | 16.76 | 19.30 | 41.14 | 48.51 |
| SRI - 6 - 10 | 3/8 | 5/8 | 7.11 | 12.0 | 11/16 | 11/16 | 16.76 | 19.30 | 42.92 | 50.29 |
| SRI - 6 - 12 | 3/8 | 3/4 | 7.11 | 14.8 | 13/16 | 11/16 | 16.76 | 19.30 | 42.92 | 50.29 |
| SRI - 8 - 4 | 1/2 | 1/4 | 10.41 | 4.4 | 13/16 | 7/8 | 22.86 | 21.84 | 34.79 | 44.95 |
| SRI - 8 - 6 | 1/2 | 3/8 | 10.41 | 6.9 | 13/16 | 7/8 | 22.86 | 21.84 | 36.57 | 46.73 |
| SRI - 8 - 8 | 1/2 | 1/2 | 10.41 | 9.4 | 13/16 | 7/8 | 22.86 | 21.84 | 42.16 | 52.32 |
| SRI - 8 - 10 | 1/2 | 5/8 | 10.41 | 12.0 | 13/16 | 7/8 | 22.86 | 21.84 | 43.68 | 53.84 |
| SRI - 8 - 12 | 1/2 | 3/4 | 10.41 | 14.8 | 13/16 | 7/8 | 22.86 | 21.84 | 43.68 | 53.84 |
| SRI - 8 - 16 | 1/2 | 1 | 10.41 | 20.4 | 1-1/16 | 7/8 | 22.86 | 21.84 | 50.03 | 60.19 |
| SR - 10 - 12 | 5/8 | 3/4 | 12.70 | 14.8 | 15/16 | 1 | 24.38 | 21.84 | 44.45 | 54.61 |
| SR - 10 - 14 | 5/8 | 7/8 | 12.70 | 17.0 | 15/16 | 1 | 24.38 | 21.84 | 45.97 | 56.13 |
| SR - 10 - 16 | 5/8 | 1 | 12.70 | 20.4 | 1-1/16 | 1 | 24.38 | 21.84 | 50.80 | 60.96 |
| SRI - 12 - 8 | 3/4 | 1/2 | 15.74 | 9.4 | 1-1/16 | 1-1/8 | 24.38 | 21.84 | 44.45 | 54.61 |
| SRI - 12 - 16 | 3/4 | 1 | 15.74 | 20.4 | 1-1/16 | 1-1/8 | 24.38 | 21.84 | 52.32 | 62.48 |

All dimensions in millimeters unless specified as "inch" • Dimensions are for reference only, subject to change.

* Fractional Tube to Metric SUPERLOK® port are available upon request

SBHR

Bulkhead Reducer



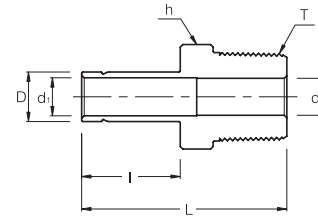
Connects Fractional Tubes to Fractional **SUPERLOK®** Port

| Part No. | Tube O.D. D (inch) | d Min | Width Across Flat | | A | I | I ₁ | I ₂ | L | L ₁ | Panel Hole Drill Size | Panel Max. Thickness |
|---------------|--------------------|-------|-------------------|----------|-------|-------|----------------|----------------|--------|----------------|-----------------------|----------------------|
| | | | h (inch) | H (inch) | | | | | | | | |
| SRB - 2 - 2 | 1/8 | 2.1 | 1/2 | 7/16 | 12.70 | 42.92 | 24.63 | 13.46 | 49.53 | 31.24 | 8.33 | 12.70 |
| SRB - 4 - 4 | 1/4 | 4.4 | 5/8 | 9/16 | 15.24 | 48.51 | 26.16 | 15.74 | 55.88 | 33.52 | 11.50 | 10.16 |
| SRB - 6 - 6 | 3/8 | 6.9 | 3/4 | 11/16 | 16.76 | 53.84 | 29.46 | 17.52 | 61.21 | 36.83 | 14.68 | 11.17 |
| SRB - 8 - 8 | 1/2 | 9.4 | 15/16 | 7/8 | 22.86 | 62.73 | 31.75 | 23.11 | 72.89 | 41.91 | 19.44 | 12.70 |
| SRB - 10 - 10 | 5/8 | 12.0 | 1-1/16 | 1 | 24.38 | 65.02 | 32.51 | 24.70 | 75.18 | 42.67 | 22.62 | 12.70 |
| SRB - 16 - 16 | 1 | 20.4 | 1-5/8 | 1-1/2 | 31.24 | 88.13 | 45.21 | 31.70 | 100.33 | 57.40 | 33.73 | 19.05 |

All dimensions in millimeters unless specified as "inch" • Dimensions are for reference only, subject to change.

SMA

Male Adapter



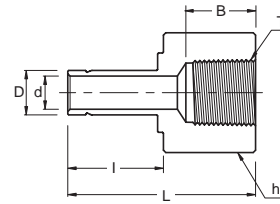
Connects Fractional **SUPERLOK®** Port to Female NPT Thread*

| Part No. | Tube O.D. D (inch) | T* (NPT) | d (Min) | d ₁ | Width Across Flat h (inch) | I | L |
|----------------|--------------------|----------|---------|----------------|----------------------------|-------|-------|
| SMA - 2 - 2N | 1/8 | 1/8 | 4.82 | 2.10 | 7/16 | 13.45 | 29.50 |
| SMA - 2 - 4N | 1/8 | 1/4 | 7.11 | 2.10 | 9/16 | 13.45 | 34.80 |
| SMA - 3 - 2N | 3/16 | 1/8 | 4.82 | 3.04 | 7/16 | 14.20 | 30.22 |
| SMA - 3 - 4N | 3/16 | 1/4 | 7.11 | 3.04 | 9/16 | 14.20 | 35.56 |
| SMA - 4 - 2N | 1/4 | 1/8 | 4.40 | 4.40 | 7/16 | 15.75 | 31.80 |
| SMA - 4 - 4N | 1/4 | 1/4 | 4.40 | 4.40 | 9/16 | 15.75 | 37.08 |
| SMA - 4 - 6N | 1/4 | 3/8 | 4.40 | 4.40 | 11/16 | 15.75 | 37.84 |
| SMA - 4 - 8N | 1/4 | 1/2 | 4.40 | 4.40 | 7/8 | 15.75 | 43.43 |
| SMA - 5 - 2N | 5/16 | 1/8 | 4.82 | 5.60 | 7/16 | 16.80 | 32.76 |
| SMA - 5 - 4N | 5/16 | 1/4 | 6.35 | 5.60 | 9/16 | 16.80 | 38.10 |
| SMA - 6 - 2N | 3/8 | 1/8 | 4.82 | 6.90 | 7/16 | 17.50 | 33.50 |
| SMA - 6 - 4N | 3/8 | 1/4 | 6.90 | 6.90 | 9/16 | 17.50 | 38.90 |
| SMA - 6 - 6N | 3/8 | 3/8 | 6.90 | 6.90 | 11/16 | 17.50 | 39.60 |
| SMA - 6 - 8N | 3/8 | 1/2 | 6.90 | 6.90 | 7/8 | 17.50 | 45.20 |
| SMA - 8 - 4N | 1/2 | 1/4 | 7.11 | 9.40 | 9/16 | 23.20 | 44.50 |
| SMA - 8 - 6N | 1/2 | 3/8 | 9.40 | 9.40 | 11/16 | 23.20 | 45.20 |
| SMA - 8 - 8N | 1/2 | 1/2 | 9.40 | 9.40 | 7/8 | 23.20 | 50.80 |
| SMA - 10 - 6N | 5/8 | 3/8 | 9.90 | 12.00 | 11/16 | 24.70 | 47.40 |
| SMA - 10 - 8N | 5/8 | 1/2 | 12.00 | 12.00 | 7/8 | 24.70 | 52.30 |
| SMA - 10 - 12N | 5/8 | 3/4 | 14.98 | 12.00 | 1-1/16 | 24.70 | 52.30 |
| SMA - 12 - 8N | 3/4 | 1/2 | 11.94 | 14.80 | 7/8 | 24.70 | 52.30 |
| SMA - 12 - 12N | 3/4 | 3/4 | 14.80 | 14.80 | 1-1/16 | 24.70 | 52.30 |
| SMA - 12 - 16N | 3/4 | 1 | 20.32 | 14.80 | 1-3/8 | 24.70 | 57.91 |
| SMA - 14 - 12N | 7/8 | 3/4 | 14.98 | 17.27 | 1-1/16 | 26.70 | 54.30 |
| SMA - 16 - 12N | 1 | 3/4 | 15.74 | 20.40 | 1-1/16 | 31.70 | 58.70 |
| SMA - 16 - 16N | 1 | 1 | 20.40 | 20.40 | 1-3/8 | 31.70 | 66.00 |

*ISO Tapered Threads are available upon request

SFA

Female Adapter



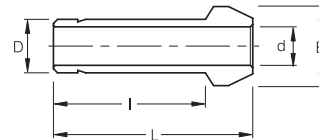
Connects Fractional **SUPERLOK®** Port to Male NPT Thread*

| Part No. | Tube O.D. D (inch) | T* (NPT) | d (Min) | Width Across Flat h (inch) | I | L |
|----------------|--------------------|----------|---------|----------------------------|-------|-------|
| SFA - 2 - 2N | 1/8 | 1/8 | 2.10 | 9/16 | 13.45 | 31.50 |
| SFA - 2 - 4N | 1/8 | 1/4 | 2.10 | 3/4 | 13.45 | 35.30 |
| SFA - 3 - 2N | 3/16 | 1/8 | 3.04 | 9/16 | 14.20 | 32.00 |
| SFA - 3 - 4N | 3/16 | 1/4 | 3.04 | 3/4 | 14.20 | 35.81 |
| SFA - 4 - 2N | 1/4 | 1/8 | 4.40 | 9/16 | 15.75 | 33.02 |
| SFA - 4 - 4N | 1/4 | 1/4 | 4.40 | 3/4 | 15.75 | 37.10 |
| SFA - 4 - 6N | 1/4 | 3/8 | 4.40 | 7/8 | 15.75 | 39.37 |
| SFA - 4 - 8N | 1/4 | 1/2 | 4.40 | 1-1/16 | 15.75 | 45.50 |
| SFA - 5 - 2N | 5/16 | 1/8 | 5.60 | 9/16 | 16.80 | 34.29 |
| SFA - 5 - 4N | 5/16 | 1/4 | 5.60 | 3/4 | 16.80 | 37.59 |
| SFA - 6 - 2N | 3/8 | 1/8 | 6.90 | 9/16 | 17.50 | 34.29 |
| SFA - 6 - 4N | 3/8 | 1/4 | 6.90 | 3/4 | 17.50 | 38.10 |
| SFA - 6 - 6N | 3/8 | 3/8 | 6.90 | 7/8 | 17.50 | 40.38 |
| SFA - 6 - 8N | 3/8 | 1/2 | 6.90 | 1-1/16 | 17.50 | 46.73 |
| SFA - 8 - 4N | 1/2 | 1/4 | 9.40 | 3/4 | 23.20 | 43.43 |
| SFA - 8 - 6N | 1/2 | 3/8 | 9.40 | 7/8 | 23.20 | 45.46 |
| SFA - 8 - 8N | 1/2 | 1/2 | 9.40 | 1-1/16 | 23.20 | 51.80 |
| SFA - 10 - 6N | 5/8 | 3/8 | 12.00 | 7/8 | 24.70 | 48.26 |
| SFA - 10 - 8N | 5/8 | 1/2 | 12.00 | 1-1/16 | 24.70 | 53.08 |
| SFA - 12 - 8N | 3/4 | 1/2 | 14.80 | 1-1/16 | 24.70 | 52.83 |
| SFA - 12 - 12N | 3/4 | 3/4 | 14.80 | 1-5/16 | 24.70 | 54.86 |
| SFA - 12 - 16N | 3/4 | 1 | 14.80 | 1-5/8 | 24.70 | 58.42 |
| SFA - 14 - 12N | 7/8 | 3/4 | 17.27 | 1-5/16 | 26.70 | 57.15 |
| SFA - 16 - 12N | 1 | 3/4 | 20.40 | 1-5/16 | 31.70 | 60.70 |
| SFA - 16 - 16N | 1 | 1 | 20.40 | 1-5/8 | 31.70 | 64.26 |

*ISO Tapered Threads are available upon request

SPC

Port Connector



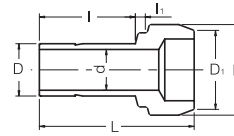
Connects Fractional **SUPERLOK®** Ports

| Part No. | Tube O.D.(D) (inch) | d (Min) | E | I | L |
|----------|---------------------|---------|-------|-------|-------|
| SPC - 2 | 1/8 | 2.1 | 6.09 | 15.75 | 22.35 |
| SPC - 4 | 1/4 | 4.4 | 9.39 | 18.79 | 24.63 |
| SPC - 5 | 5/16 | 5.6 | 10.92 | 20.06 | 25.90 |
| SPC - 6 | 3/8 | 6.9 | 12.70 | 20.32 | 26.16 |
| SPC - 8 | 1/2 | 9.4 | 15.74 | 25.90 | 35.81 |
| SPC - 12 | 3/4 | 14.8 | 22.09 | 27.68 | 37.33 |
| SPC - 16 | 1 | 20.4 | 28.44 | 34.54 | 48.00 |

All dimensions in millimeters unless specified as "inch" • Dimensions are for reference only, subject to change.

SRPC

Reducing Port Connector



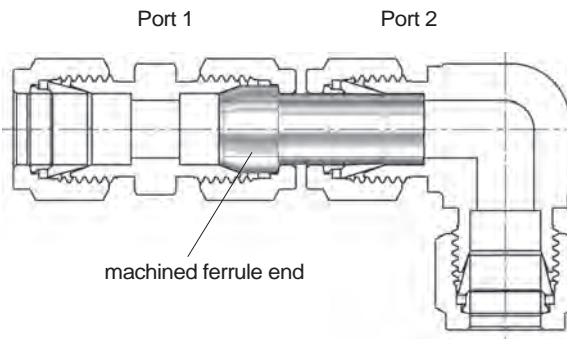
Connects Fractional **SUPERLOK®** Port to Male AN

| Part No. | Tube O.D. D ₁ (inch) | Reduced Tube O.D. D (inch) | d | E | I | h | L |
|----------------|---------------------------------|----------------------------|-------|-------|-------|------|-------|
| SRPC - 2 - 1 | 1/8 | 1/16 | 0.76 | 6.09 | 8.63 | 2.03 | 17.27 |
| SRPC - 4 - 1 | 1/4 | 1/16 | 0.76 | 9.39 | 8.63 | 3.55 | 18.03 |
| SRPC - 4 - 2 | 1/4 | 1/8 | 2.10 | 9.39 | 13.46 | 3.30 | 22.60 |
| SRPC - 6 - 2 | 3/8 | 1/8 | 2.10 | 12.70 | 13.46 | 3.81 | 23.11 |
| SRPC - 6 - 4 | 3/8 | 1/4 | 4.40 | 12.70 | 15.74 | 3.30 | 24.89 |
| SRPC - 8 - 4 | 1/2 | 1/4 | 4.40 | 15.74 | 15.74 | 3.81 | 29.21 |
| SRPC - 8 - 6 | 1/2 | 3/8 | 6.90 | 15.74 | 17.52 | 3.30 | 30.48 |
| SRPC - 12 - 8 | 3/4 | 1/2 | 9.40 | 22.09 | 24.38 | 3.81 | 37.84 |
| SRPC - 16 - 8 | 1 | 1/2 | 9.40 | 28.44 | 24.38 | 4.82 | 42.67 |
| SRPC - 16 - 12 | 1 | 3/4 | 14.80 | 28.44 | 25.90 | 4.06 | 43.43 |

All dimensions in millimeters unless specified as "inch" • Dimensions are for reference only, subject to change.

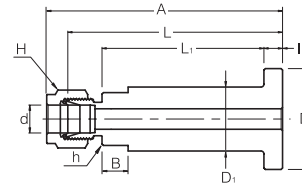
Installation Instructions

Port Connector



- Remove nut and ferrules from the first of two **SUPERLOK®** ports to be connected.
- Slip nut (no ferrules) over machined ferrule end of port connector.
- Insert port connector into **SUPERLOK®** port 1 and snug by hand.
Tighten with wrench 1/4 turn only. For 1/8, 3/16 in., 2, 3, and 4mm tube fittings, tighten only 1/8 turn. Subsequent connections are made by tightening slightly with a wrench after snugging the nut by hand.
- Insert other end of port connector into **SUPERLOK®** port 2 and tighten nut 1 1/4 turns from finger-tight.
For 1/16, 1/8, 3/16 in., 2, 3, and 4mm tube fittings, only 3/4 turn from finger-tight is necessary.

SFTC Lap Joint Flange Tubes Connector



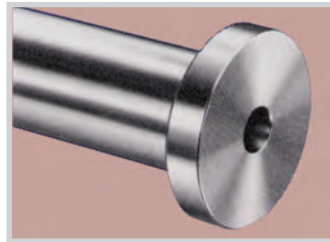
Connects Fractional Tubes

| Part No. | Tube Size (inch) | Flange Seat | Dimensions | | | | | | | | | |
|---------------|------------------|-------------|------------|-----|----------------|------|-----|----------|----------|------|----------------|---------|
| | | | A | B | L ₁ | L | I | h (inch) | H (inch) | D | D ₁ | d (Min) |
| SFTC - 4 - SM | 1/4 | SM | 80.8 | 8.9 | 56.5 | 74.9 | 6.5 | 11/16 | 9/16 | 34.5 | 21.1 | 4.8 |
| SFTC - 4 - SR | 1/4 | SR | 80.8 | 8.9 | 56.5 | 74.9 | 6.5 | 11/16 | 9/16 | 34.5 | 21.1 | 4.8 |
| SFTC - 6 - SM | 3/8 | SM | 82.3 | 8.9 | 56.5 | 74.9 | 6.5 | 11/16 | 11/16 | 34.5 | 21.1 | 7.1 |
| SFTC - 6 - SR | 3/8 | SR | 82.3 | 8.9 | 56.5 | 74.9 | 6.5 | 11/16 | 11/16 | 34.5 | 21.1 | 7.1 |
| SFTC - 8 - SM | 1/2 | SM | 85.1 | 8.9 | 56.5 | 74.9 | 6.5 | 3/4 | 7/8 | 34.5 | 21.1 | 10.4 |
| SFTC - 8 - SR | 1/2 | SR | 85.1 | 8.9 | 56.5 | 74.9 | 6.5 | 3/4 | 7/8 | 34.5 | 21.1 | 10.4 |

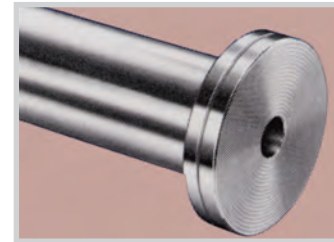
Lap joint flange tube connector provides easy joint between process lines and instruments designed for use with 1/2in Lap joint flanges to ANSI B 16.5 or BS 1560

Flange Seal Finish

Two surface finishes, smooth or serrated, are available on the sealing surface of the stub end.



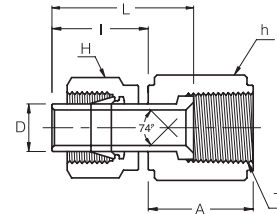
Smooth Identifier : SM
Ra 3.2 ~ 6.3 micrometer



Serrated Identifier : SR
Ra 6.3 ~ 12.5 micrometer

*Note : GROOVE identifies serrated surface finish

SAF An Flare



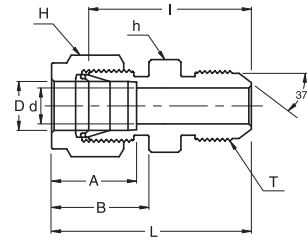
Connects Fractional SUPERLOK® Port to Male AN

| Part No. | Tube O.D. D (inch) | AN Tube Flare Size (inch) | Straight Thread T (U) | Width Across Flat | | A | I | L |
|--------------|--------------------|---------------------------|-----------------------|-------------------|----------|-------|-------|-------|
| | | | | h (inch) | H (inch) | | | |
| SAF - 2 - 2U | 1/8 | 1/8 | 5/16-24 | 3/8 | 7/16 | 13.71 | 13.46 | 18.54 |
| SAF - 2 - 4U | 1/8 | 1/4 | 7/16-20 | 9/16 | 7/16 | 15.74 | 13.46 | 19.05 |
| SAF - 4 - 4U | 1/4 | 1/4 | 7/16-20 | 9/16 | 9/16 | 15.74 | 15.74 | 21.33 |
| SAF - 6 - 6U | 3/8 | 3/8 | 9/16-18 | 11/16 | 11/16 | 18.28 | 17.52 | 24.89 |
| SAF - 8 - 8U | 1/2 | 1/2 | 3/4-16 | 7/8 | 7/8 | 21.59 | 23.11 | 31.75 |

All dimensions in millimeters unless specified as "inch" • Dimensions are for reference only, subject to change.

SAUI

An Union

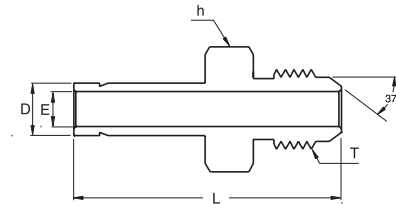


Connects Fractional Tubes to AN Flared Tubes

| Part No. | Tube O.D. D (inch) | AN Tube Flare Size (inch) | Straight Thread T (U) | d Min | Width Across Flat | | A | B | I | L |
|-----------------|--------------------|---------------------------|-----------------------|-------|-------------------|----------|-------|-------|-------|-------|
| | | | | | h (inch) | H (inch) | | | | |
| SAU - 2 - 2U | 1/8 | 1/8 | 5/16-24 | 1.52 | 7/16 | 7/16 | 12.70 | 15.24 | 25.65 | 32.25 |
| SAU - 2 - 4U | 1/8 | 1/4 | 7/16-20 | 2.28 | 1/2 | 7/16 | 12.70 | 15.24 | 28.44 | 35.05 |
| SAUI - 4 - 4U | 1/4 | 1/4 | 7/16-20 | 4.31 | 1/2 | 9/16 | 15.24 | 17.78 | 30.22 | 37.59 |
| SAU - 5 - 5U | 5/16 | 5/16 | 1/2-20 | 5.84 | 9/16 | 5/8 | 16.25 | 18.54 | 30.98 | 38.35 |
| SAUI - 6 - 4U | 3/8 | 1/4 | 7/16-20 | 4.31 | 5/8 | 11/16 | 16.76 | 19.30 | 32.25 | 39.62 |
| SAUI - 6 - 6U | 3/8 | 3/8 | 9/16-18 | 7.11 | 5/8 | 11/16 | 16.76 | 19.30 | 32.25 | 39.62 |
| SAUI - 8 - 8U | 1/2 | 1/2 | 3/4-16 | 9.90 | 13/16 | 7/8 | 22.86 | 21.84 | 35.81 | 45.97 |
| SAUI - 12 - 12U | 3/4 | 3/4 | 1-1/16-12 | 15.49 | 1-1/8 | 1-1/8 | 24.38 | 21.84 | 43.18 | 53.34 |
| SAUI - 16 - 16U | 1 | 1 | 1-5/16-12 | 21.33 | 1-3/8 | 1-1/2 | 31.24 | 26.41 | 49.27 | 61.46 |

SAA

An Adapter



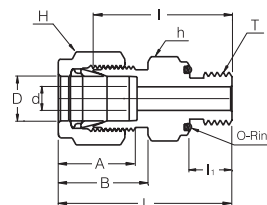
Connects Fractional SUPERLOK® Port to AN Flared Tubes

| Part No. | Tube O.D. D (inch) | AN Tube Flare Size (inch) | Straight Thread T (U) | Width Across Flat h (inch) | E | L |
|----------------|--------------------|---------------------------|-----------------------|----------------------------|-------|-------|
| SAA - 4 - 4U | 1/4 | 1/4 | 7/16-20 | 1/2 | 4.40 | 37.08 |
| SAA - 6 - 4U | 3/8 | 1/4 | 7/16-20 | 1/2 | 6.90 | 38.86 |
| SAA - 6 - 6U | 3/8 | 3/8 | 9/16-18 | 5/8 | 6.90 | 39.62 |
| SAA - 8 - 8U | 1/2 | 1/2 | 3/4-16 | 13/16 | 9.40 | 48.51 |
| SAA - 12 - 12U | 3/4 | 3/4 | 1-1/16-12 | 1-1/8 | 14.80 | 56.13 |
| SAA - 16 - 16U | 1 | 1 | 1-5/16-12 | 1-3/8 | 20.40 | 65.53 |

All dimensions in millimeters unless specified as "inch" • Dimensions are for reference only, subject to change.

SOSCI

O-Seal Straight Thread Connector

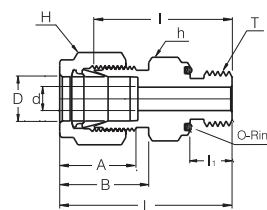


Connects Fractional Tube to Female Straight Thread

| Part No. | Tube O.D. D (inch) | Straight Thread T (U) | d Min | Width Across Flat | | A | B | I | I ₁ | L | O-Ring Uniform Size Number |
|------------------|--------------------|-----------------------|-------|-------------------|----------|-------|-------|-------|----------------|-------|----------------------------|
| | | | | h (inch) | H (inch) | | | | | | |
| SOSCI - 2 - 2U | 1/8 | 5/16-24 | 2.28 | 9/16 | 7/16 | 12.70 | 15.24 | 26.16 | 8.63 | 32.76 | -011 |
| SOSCI - 3 - 3U | 3/16 | 3/8-24 | 3.05 | 5/8 | 1/2 | 13.71 | 16.00 | 27.68 | 9.65 | 34.29 | -012 |
| SOSCI - 4 - 4U | 1/4 | 7/16-20 | 4.82 | 3/4 | 9/16 | 15.24 | 17.78 | 30.98 | 10.41 | 38.35 | -111 |
| SOSCI - 5 - 5U | 5/16 | 1/2-20 | 6.35 | 7/8 | 5/8 | 16.25 | 18.54 | 33.27 | 11.17 | 40.64 | -112 |
| SOSCI - 6 - 6U | 3/8 | 9/16-18 | 7.11 | 15/16 | 11/16 | 16.76 | 19.30 | 35.05 | 11.93 | 42.41 | -114 |
| SOSCI - 8 - 8U | 1/2 | 3/4-16 | 10.41 | 1-1/8 | 7/8 | 22.86 | 21.84 | 35.81 | 11.93 | 45.97 | -116 |
| SOSCI - 12 - 12U | 3/4 | 1-1/16-12 | 15.75 | 1-1/2 | 1-1/8 | 24.38 | 21.84 | 42.16 | 14.22 | 52.32 | -215 |
| SOSCI - 16 - 16U | 1 | 1-5/16-12 | 22.35 | 1-3/4 | 1-1/2 | 31.24 | 26.41 | 45.97 | 14.22 | 58.16 | -219 |

SOPCI

O-Seal Pipe Thread Connector

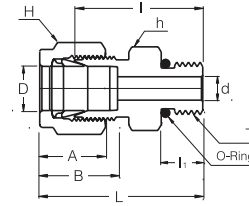


Connects Fractional Tube to Female NPT Thread

| Part No. | Tube O.D. D (inch) | T* (NPT) | d Min | Width Across Flat | | A | B | I | I ₁ | L | O-Ring Uniform Size Number |
|----------------|--------------------|----------|-------|-------------------|----------|-------|-------|-------|----------------|-------|----------------------------|
| | | | | h (inch) | H (inch) | | | | | | |
| SOPCI - 2 - 2N | 1/8 | 1/8 | 2.28 | 3/4 | 7/16 | 12.70 | 15.24 | 26.16 | 7.11 | 32.76 | -111 |
| SOPCI - 4 - 2N | 1/4 | 1/8 | 4.82 | 3/4 | 9/16 | 15.24 | 17.78 | 27.68 | 7.11 | 35.05 | -111 |
| SOPCI - 4 - 4N | 1/4 | 1/4 | 4.82 | 15/16 | 9/16 | 15.24 | 17.78 | 30.98 | 9.65 | 38.35 | -113 |
| SOPCI - 6 - 4N | 3/8 | 1/4 | 7.11 | 15/16 | 11/16 | 16.76 | 19.30 | 32.51 | 9.65 | 39.87 | -113 |
| SOPCI - 6 - 6N | 3/8 | 3/8 | 7.11 | 1-1/8 | 11/16 | 16.76 | 19.30 | 34.03 | 10.41 | 41.40 | -116 |
| SOPCI - 6 - 8N | 3/8 | 1/2 | 7.11 | 1-5/16 | 11/16 | 16.76 | 19.30 | 39.62 | 13.46 | 46.99 | -212 |
| SOPCI - 8 - 8N | 1/2 | 1/2 | 10.41 | 1-5/16 | 7/8 | 22.86 | 21.84 | 39.62 | 13.46 | 49.78 | -212 |

All dimensions in millimeters unless specified as "inch" • Dimensions are for reference only, subject to change.

SSMCI
SAE/MS Male Connector



Connects Fractional Tubes to SAE/MS Straight Thread Boss

| Part No. | Tube O.D. D (inch) | Straight Thread T (U) | d Min | Width Across Flat | | A | B | I | I ₁ | L | O-Ring Uniform Size Number |
|------------------|--------------------|-----------------------|-------|-------------------|----------|-------|-------|-------|----------------|-------|----------------------------|
| | | | | h (inch) | H (inch) | | | | | | |
| SSMC - 2 - 2U | 1/8 | 5/16-24 | 2.28 | 7/16 | 7/16 | 12.70 | 15.24 | 23.36 | 7.62 | 29.97 | 3-902 |
| SSMCI - 4 - 4U | 1/4 | 7/16-20 | 4.82 | 9/16 | 9/16 | 15.24 | 17.78 | 26.67 | 9.14 | 34.03 | 3-904 |
| SSMCI - 4 - 6U | 1/4 | 9/16-18 | 4.82 | 11/16 | 9/16 | 15.24 | 17.78 | 28.19 | 9.90 | 35.56 | 3-906 |
| SSMCI - 4 - 8U | 1/4 | 3/4-16 | 4.82 | 7/8 | 9/16 | 15.24 | 17.78 | 30.22 | 11.17 | 37.59 | 3-908 |
| SSMCI - 4 - 10U | 1/4 | 7/8-14 | 4.82 | 1 | 9/16 | 15.24 | 17.78 | 33.27 | 12.70 | 40.64 | 3-910 |
| SSMC - 5 - 5U | 5/16 | 1/2-20 | 6.35 | 5/8 | 5/8 | 16.25 | 18.54 | 27.43 | 9.14 | 34.79 | 3-905 |
| SSMCI - 6 - 4U | 3/8 | 7/16-20 | 5.08 | 5/8 | 11/16 | 16.76 | 19.30 | 28.19 | 9.14 | 35.56 | 3-904 |
| SSMCI - 6 - 6U | 3/8 | 9/16-18 | 7.11 | 11/16 | 11/16 | 16.76 | 19.30 | 29.71 | 9.90 | 37.08 | 3-906 |
| SSMCI - 6 - 8U | 3/8 | 3/4-16 | 7.11 | 7/8 | 11/16 | 16.76 | 19.30 | 31.75 | 11.17 | 39.11 | 3-908 |
| SSMCI - 6 - 10U | 3/8 | 7/8-14 | 7.11 | 1 | 11/16 | 16.76 | 19.30 | 34.79 | 12.70 | 42.16 | 3-910 |
| SSMCI - 8 - 6U | 1/2 | 9/16-18 | 7.11 | 13/16 | 7/8 | 22.86 | 21.84 | 28.95 | 9.90 | 39.11 | 3-906 |
| SSMCI - 8 - 8U | 1/2 | 3/4-16 | 10.41 | 7/8 | 7/8 | 22.86 | 21.84 | 31.75 | 11.17 | 41.91 | 3-908 |
| SSMCI - 8 - 10U | 1/2 | 7/8-14 | 10.41 | 1 | 7/8 | 22.86 | 21.84 | 34.79 | 12.70 | 44.95 | 3-910 |
| SSMCI - 8 - 12U | 1/2 | 1-1/16-12 | 10.41 | 1-1/4 | 7/8 | 22.86 | 21.84 | 38.86 | 14.98 | 49.02 | 3-912 |
| SSMC - 10 - 8U | 5/8 | 3/4-16 | 10.66 | 15/16 | 1 | 24.38 | 21.84 | 31.75 | 11.17 | 41.91 | 3-908 |
| SSMC - 10 - 10U | 5/8 | 7/8-14 | 12.70 | 1 | 1 | 24.38 | 21.84 | 35.05 | 12.70 | 45.21 | 3-910 |
| SSMCI - 12 - 8U | 3/4 | 3/4-16 | 10.66 | 1-1/16 | 1-1/8 | 24.38 | 21.84 | 35.81 | 11.17 | 45.97 | 3-908 |
| SSMCI - 12 - 12U | 3/4 | 1-1/16-12 | 15.74 | 1-1/4 | 1-1/8 | 24.38 | 21.84 | 38.86 | 14.98 | 49.02 | 3-912 |
| SSMC - 14 - 14U | 7/8 | 1-3/16-12 | 18.28 | 1-3/8 | 1-1/4 | 25.90 | 21.84 | 38.86 | 14.98 | 49.02 | 3-914 |
| SSMCI - 16 - 12U | 1 | 1-1/16-12 | 16.76 | 1-3/8 | 1-1/2 | 31.24 | 26.41 | 41.14 | 14.98 | 53.34 | 3-912 |
| SSMCI - 16 - 16U | 1 | 1-5/16-12 | 22.35 | 1-1/2 | 1-1/2 | 31.24 | 26.41 | 42.16 | 14.98 | 54.35 | 3-916 |

All dimensions in millimeters unless specified as "inch" • Dimensions are for reference only, subject to change.

Mounting Dimensions for O-Seal Connectors

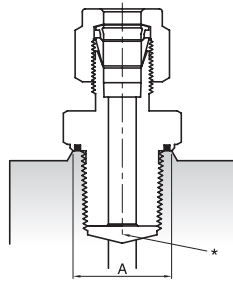


Figure 1

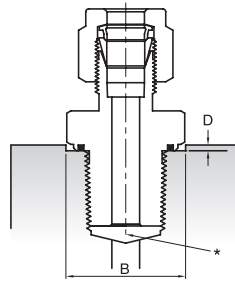


Figure 2

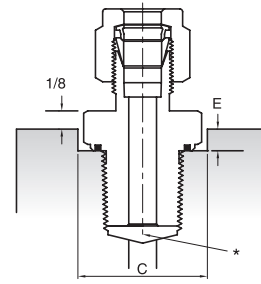


Figure 3

*ALLOW CLEARANCE FOR FULL THREAD

■ Installation Instruction

In order to prevent the leakage with **SUPERLOK®** O-Seal Fittings, the surface perpendicular to the axis of the thread should be flat. When installing an O-Seal fitting, turn it until finger-tight. (The squeeze on O-Ring can be felt during the last 1/4 turn). After finger-tight installation, snug lightly with a wrench.

When connecting the tubing to the **SUPERLOK®** connector, always use a back-up wrench on the O-Seal fitting hex so it does not turn while the nut is being tightened. Also use a back-up wrench when disconnecting a tubing connection.

For a raised surface, such as Figure 1, it is recommended that the flat surface have a diameter at least as large as dimension “A” for the various size O-Seal fittings. This diameter is sufficient to allow metal-to-metal contact outside of the O-Ring sealing diameter and to prevent O-Ring extrusion at high pressure.

Figure 2 is an O-Seal fitting using with a counter bored or recessed hole. In this case, the diameter “B” is sufficient to allow the round shoulder of the O-seal to clear for proper installation. “D” gives the maximum depth that can be used with this diameter.

Figure 3 shows the usage at deeper grooved or concaved area and “E” is the maximum depth that will allow a thin wrench (1/8”) to hold the O-Seal fitting while the **SUPERLOK®** connection is made to the tubing. The diameter “C” is sufficient to allow the hex of the fitting to turn in the recessed hole.

| Basic Ordering Number | Straight Thread | Pipe Thread | A Min. Dia. | B Min. Dia. | C Min. Dia. | D Max Depth | E Max Depth |
|-----------------------|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|
| SOSC - 1 - 2U | 5/16-24 | - | 12.7 | 15.0 | 16.8 | 2.3 | 4.1 |
| SOSC - 2 - 2U | 5/16-24 | - | 12.7 | 15.0 | 16.8 | 2.3 | 5.6 |
| SOPC - 2 - 2N | - | 1/8 NPT | 17.5 | 19.8 | 22.4 | 4.1 | 7.1 |
| SOSC - 3 - 3U | 3/8-24 | - | 14.2 | 16.8 | 19.1 | 2.3 | 5.6 |
| SOSC - 4 - 4U | 7/16-20 | - | 17.5 | 19.8 | 22.4 | 4.1 | 7.1 |
| SOPC - 4 - 2N | - | 1/8 NPT | 17.5 | 19.8 | 22.4 | 4.1 | 7.1 |
| SOPC - 4 - 4N | - | 1/4 NPT | 22.1 | 24.6 | 27.7 | 4.1 | 7.9 |
| SOSC - 5 - 5U | 1/2-20 | - | 19.1 | 23.1 | 26.2 | 4.1 | 7.9 |
| SOSC - 6 - 6U | 9/16-18 | - | 20.6 | 24.6 | 27.7 | 4.1 | 7.9 |
| SOPC - 6 - 4N | - | 1/4 NPT | 22.1 | 24.6 | 27.7 | 4.1 | 7.9 |
| SOPC - 6 - 6N | - | 3/8 NPT | 25.4 | 29.5 | 33.3 | 4.1 | 8.6 |
| SOPC - 6 - 8N | - | 1/2 NPT | 31.0 | 34.0 | 38.9 | 5.6 | 11.2 |
| SOSC - 8 - 8U | 3/4-16 | - | 25.4 | 29.5 | 33.3 | 4.1 | 8.6 |
| SOPC - 8 - 8N | - | 1/2 NPT | 31.0 | 34.0 | 38.9 | 5.6 | 11.2 |
| SOSC - 12 - 12U | 1-1/16-12 | - | 35.8 | 38.9 | 44.5 | 5.6 | 12.7 |
| SOSC - 16 - 16U | 1-5/16-12 | - | 42.9 | 45.2 | 51.6 | 5.6 | 14.2 |

All dimensions in millimeters unless specified as “inch” • Dimensions are for reference only, subject to change.

SAE/MS Straight Thread Positionable Elbows and Tees

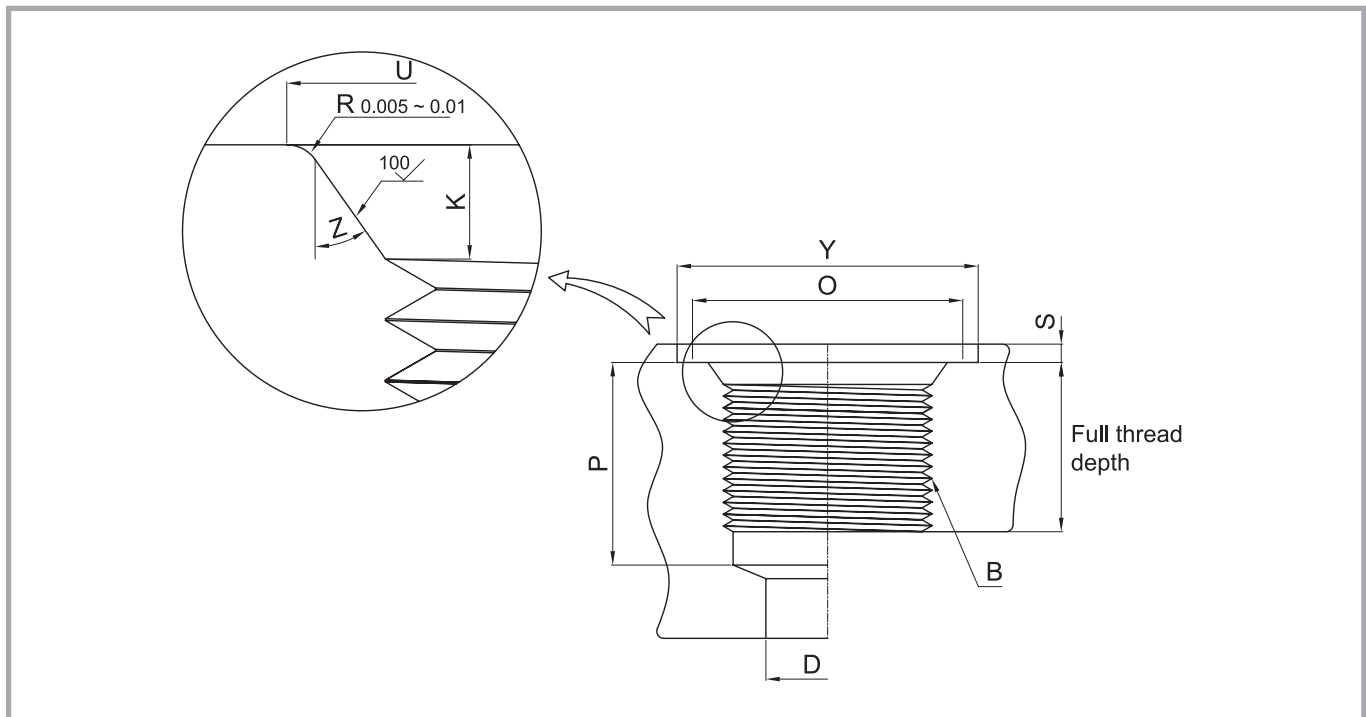
Installation Instructions

1. Lubricate O-Ring with the lubricant which is applicable for the system fluid, environment and O-Ring material.
(Standard O-Ring material is viton. Other O-Ring materials are also available).
2. Turn the fittings into the straight thread boss until the metal back-up washer contacts the face of the boss.
At this moment, O-Ring gets into inclined groove.
3. Until **SUPERLOK®**'s end is oriented in the proper direction, position the fittings by turning to counter clockwise.
(no more than 1 turning)
4. Until the washer contacts to the face of the bosses, tighten the fittings with wrench and back-up wrench.



■ Note: SAE/MS's POSITIONABLE TEE and ELBOWS shall be compatible with SAE J1926, MS16142, or O-Ring female straight thread for JIS boss.

SAE/MS Internal Straight Thread Boss



- O : This surface would be perpendicular to the thread pitch diameter within 0.010 F.I.R (Full Indicator Reading) when measured at "O" diameter.
- D : This dimension applies only when tap drill cannot pass through the entire boss.

Data for SAE/MS Straight Thread Boss

| Nom. Tube.O.D | Thread Size | B / Straight Thread | | | | D Dia | Full Thread Depth | K | O Dia | P ^④ | S ^{②③} | U ^② Dia | Y ^① Dia | Z |
|---------------|-------------|---------------------|--------|-----------|-------|-------|-------------------|-------|-------|----------------|-----------------|--------------------|--------------------|----|
| | | Pitch Dia | | Minor Dia | | | | | | | | | | |
| | | Min | Max | Min | Max | | | | | | | | | |
| 1/8 | 5/16 - 24 | 0.2854 | 0.2902 | 0.267 | 0.277 | 0.062 | 0.390 | 0.074 | 0.438 | 0.468 | 0.062 | 0.358 | 0.672 | 12 |
| 3/16 | 3/8 - 24 | 0.3479 | 0.3528 | 0.330 | 0.340 | 0.125 | 0.390 | 0.074 | 0.500 | 0.468 | 0.062 | 0.421 | 0.750 | 12 |
| 1/4 | 7/16 - 20 | 0.4050 | 0.4104 | 0.383 | 0.395 | 0.172 | 0.454 | 0.093 | 0.563 | 0.547 | 0.062 | 0.487 | 0.828 | 12 |
| 5/16 | 1/2 - 20 | 0.4675 | 0.4731 | 0.446 | 0.457 | 0.234 | 0.454 | 0.093 | 0.625 | 0.547 | 0.062 | 0.550 | 0.906 | 12 |
| 3/8 | 9/16 - 18 | 0.5624 | 0.5323 | 0.502 | 0.515 | 0.297 | 0.500 | 0.097 | 0.688 | 0.609 | 0.062 | 0.616 | 0.969 | 12 |
| 1/2 | 3/4 - 16 | 0.7094 | 0.7159 | 0.682 | 0.696 | 0.391 | 0.562 | 0.100 | 0.875 | 0.688 | 0.094 | 0.811 | 1.188 | 15 |
| 5/8 | 7/8 - 14 | 0.8286 | 0.8356 | 0.798 | 0.614 | 0.484 | 0.656 | 0.100 | 1.000 | 0.781 | 0.094 | 0.942 | 1.344 | 15 |
| 3/4 | 1 1/16 - 12 | 1.0084 | 1.0158 | 0.972 | 0.990 | 0.609 | 0.750 | 1.130 | 1.250 | 0.906 | 0.094 | 1.148 | 1.625 | 15 |
| 7/8 | 1 3/16 - 12 | 1.1334 | 1.1409 | 1.097 | 1.115 | 0.719 | 0.750 | 1.130 | 1.375 | 0.906 | 0.094 | 1.273 | 1.765 | 15 |
| 1 | 1 5/16 - 12 | 1.2584 | 1.2659 | 1.222 | 1.240 | 0.844 | 0.750 | 0.130 | 1.500 | 0.906 | 0.125 | 1.398 | 1.910 | 15 |
| 1 1/4 | 1 5/8 - 12 | 1.5709 | 1.5785 | 1.535 | 1.553 | 1.078 | 0.750 | 0.132 | 1.875 | 0.906 | 0.125 | 1.713 | 2.270 | 15 |
| 1 1/2 | 1 7/8 - 12 | 1.8209 | 1.8287 | 1.785 | 1.803 | 1.312 | 0.750 | 0.132 | 2.125 | 0.906 | 0.125 | 1.962 | 2.560 | 15 |
| 2 | 2 1/2 - 12 | 2.4459 | 2.4540 | 2.410 | 2.428 | 1.781 | 0.750 | 0.132 | 2.750 | 0.906 | 0.125 | 2.587 | 3.480 | 15 |

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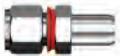











- ① Diameter U shall be concentric with thread pitch diameter within 0.005 full indicator reading (FIR) and shall be free from longitudinal and spiral tool marks. Annular tool marks shall be less than 100 micro inches.
- ② This is the maximum recommended spotface depth to permit sufficient wrench grip for proper tightening of the fitting or locknut
- ③ If the surface of boss surface is machined, dimensions Y and S does not need to be applied.
- ④ Bottoming tap shall be used to satisfy the tap drill depth. Where standard taps are used, the drill depths must be increased accordingly.

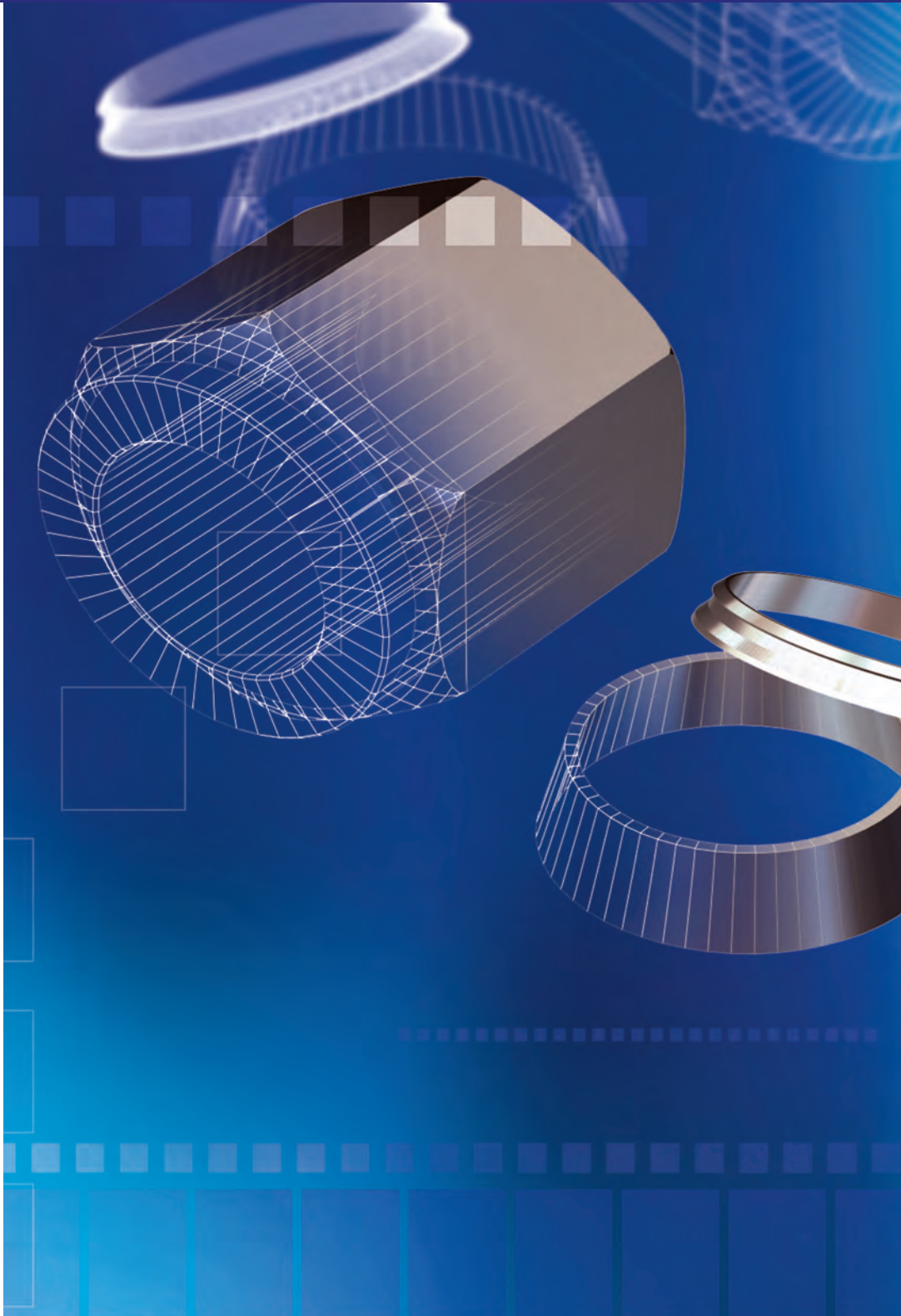
O-Ring for SAE/MS Fittings Bosses

| Thread size | Inside Dimension (mm) | Cross Section (mm) | O-Ring Size No. | Thread size | Inside Dimension (mm) | Cross Section (mm) | O-Ring Size No. |
|-------------|-----------------------|--------------------|-----------------|-------------|-----------------------|--------------------|-----------------|
| 5/16 - 24 | 6.07 | 1.63 | 3-902 | 3/4 - 16 | 16.36 | 2.21 | 3-908 |
| 3/8 - 24 | 7.65 | 1.63 | 3-903 | 7/8 - 14 | 19.18 | 2.46 | 3-910 |
| 7/16 - 20 | 8.92 | 1.83 | 3-904 | 1-1/16 - 12 | 23.47 | 2.95 | 3-912 |
| 1/2 - 20 | 10.52 | 1.83 | 3-905 | 1-3/16 - 12 | 26.59 | 2.95 | 3-914 |
| 9/16 - 18 | 11.89 | 1.98 | 3-906 | 1-5/16 - 12 | 29.74 | 2.95 | 3-916 |



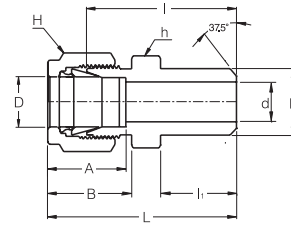
Weld End, Vent Protector, Plug & Cap, Spare Part

| WELD END | |
|--|---|
| SPWCI Male Pipe Weld Connector page 42 |  |
| SMPWEI Male Pipe Weld Elbow page 42 |  |
| SSWCI Socket Weld Connector page 43 |  |
| SSWEI Socket Weld Elbow page 43 |  |
| VENT PROTECTOR | |
| SVP Vent Protector page 43 |  |
| PLUG & CAP | |
| SP Plug page 44 |  |
| SCI Cap page 44 |  |
| SPARE PARTS | |
| SNI Nut page 44 |  |
| SFF Front Ferrule page 44 |  |
| SBF Back Ferrule page 45 |  |
| SFS Ferrule Set page 45 |  |
| SI Insert page 45 |  |



SPWCI

Male Pipe Weld Connector



Connects Fractional Tubes to Pipe

| Part No. | Tube O.D. D (inch) | Male Pipe Size P | | d Min | Width Across Flat | | A | B | I | I ₁ | L |
|------------------|-----------------------|---------------------|-------|----------|-------------------|----------|-------|-------|-------|----------------|-------|
| | | Nom. | O.D. | | h (inch) | H (inch) | | | | | |
| SPWC - 2 - 2P | 1/8 | 1/8 | 10.30 | 2.28 | 7/16 | 7/16 | 12.70 | 15.24 | 23.87 | 9.65 | 30.48 |
| SPWC - 3 - 2P | 3/16 | 1/8 | 10.30 | 3.04 | 7/16 | 1/2 | 13.71 | 16.00 | 24.63 | 9.65 | 31.24 |
| SPWCI - 4 - 2P | 1/4 | 1/8 | 10.30 | 4.82 | 1/2 | 9/16 | 15.24 | 17.78 | 25.40 | 9.65 | 32.76 |
| SPWCI - 4 - 4P | 1/4 | 1/4 | 13.70 | 4.82 | 9/16 | 9/16 | 15.24 | 17.78 | 30.48 | 14.22 | 37.84 |
| SPWC - 5 - 2P | 5/16 | 1/8 | 10.30 | 5.08 | 9/16 | 5/8 | 16.25 | 18.54 | 26.67 | 9.65 | 34.03 |
| SPWC - 5 - 4P | 5/16 | 1/4 | 13.70 | 6.35 | 9/16 | 5/8 | 16.25 | 18.54 | 31.24 | 14.22 | 38.60 |
| SPWCI - 6 - 4P | 3/8 | 1/4 | 13.70 | 7.11 | 5/8 | 11/16 | 16.76 | 19.30 | 32.51 | 14.22 | 39.87 |
| SPWCI - 6 - 6P | 3/8 | 3/8 | 17.10 | 7.11 | 11/16 | 11/16 | 16.76 | 19.30 | 32.51 | 14.22 | 39.87 |
| SPWCI - 6 - 8P | 3/8 | 1/2 | 21.30 | 7.11 | 7/8 | 11/16 | 16.76 | 19.30 | 38.86 | 19.05 | 46.22 |
| SPWCI - 8 - 6P | 1/2 | 3/8 | 17.10 | 10.41 | 13/16 | 7/8 | 22.86 | 21.84 | 33.27 | 14.22 | 43.43 |
| SPWCI - 8 - 8P | 1/2 | 1/2 | 21.30 | 10.41 | 7/8 | 7/8 | 22.86 | 21.84 | 38.86 | 19.05 | 49.02 |
| SPWCI - 8 - 12P | 1/2 | 3/4 | 26.67 | 10.41 | 1-1/16 | 7/8 | 22.86 | 21.84 | 40.38 | 19.05 | 50.54 |
| SPWC - 10 - 8P | 5/8 | 1/2 | 21.30 | 12.70 | 15/16 | 1 | 24.38 | 21.84 | 38.86 | 19.05 | 49.02 |
| SPWCI - 12 - 12P | 3/4 | 3/4 | 26.67 | 15.74 | 1-1/16 | 1-1/8 | 24.38 | 21.84 | 40.38 | 19.05 | 50.54 |
| SPWCI - 16 - 16P | 1 | 1 | 33.40 | 22.35 | 1-3/8 | 1-1/2 | 31.24 | 26.41 | 50.03 | 23.87 | 62.23 |

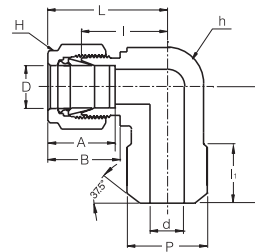
All dimensions in millimeters unless specified as "inch" • Dimensions are for reference only, subject to change.

Weld end SUPERLOK® Usage Informations:

- Do weld after removing nut and ferrules from body to protect them from weld heat.
- Do protect thread end or pot and seat area of **SUPERLOK®** body with another nut and plug (for easy disassembly just finger tighten it).
- Correct weld procedure is required during welding and after weld compilation. Suitable heat treatment must be carried out in accordance with industry or your own standard.

SMPWEI

Male Pipe Weld Elbow

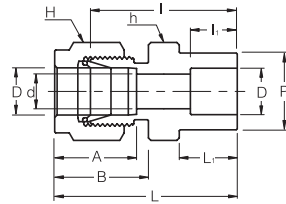


Connects Fractional Tubes to Pipe

| Part No. | Tube O.D. D (inch) | Pipe Size (P) | | d Min | Width Across Flat | | A | B | I | I ₁ | L | L ₁ |
|-----------------|-----------------------|---------------|-------|----------|-------------------|----------|-------|-------|-------|----------------|-------|----------------|
| | | Nom. (inch) | O.D. | | h (inch) | H (inch) | | | | | | |
| SMPWEI - 4 - 4P | 1/4 | 1/4 | 13.70 | 4.82 | 1/2 | 9/16 | 15.24 | 17.78 | 19.55 | 14.22 | 26.90 | 23.37 |
| SMPWEI - 6 - 4P | 3/8 | 1/4 | 13.70 | 7.11 | 5/8 | 11/16 | 16.76 | 19.30 | 23.11 | 14.22 | 30.48 | 25.40 |
| SMPWEI - 8 - 8P | 1/2 | 1/2 | 21.30 | 10.41 | 13/16 | 7/8 | 22.86 | 21.84 | 25.90 | 19.05 | 36.06 | 33.02 |

SSWC I

Tube Socket Weld Connector

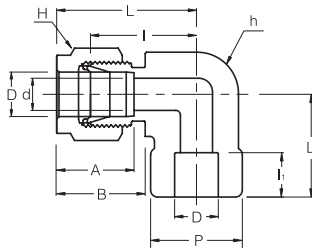


Connects Fractional Tubes

| Part No. | Tube O.D. D (inch) | d Min | P | Width Across Flat | | A | B | I | I ₁ | L | L ₁ |
|-------------|-----------------------|----------|-------|-------------------|----------|-------|-------|-------|----------------|-------|----------------|
| | | | | h (inch) | H (inch) | | | | | | |
| SSWC - 2 | 1/8 | 2.28 | 7.87 | 7/16 | 7/16 | 12.70 | 15.24 | 22.35 | 6.35 | 28.95 | 8.63 |
| SSWC I - 4 | 1/4 | 4.82 | 11.17 | 1/2 | 9/16 | 15.24 | 17.78 | 26.16 | 7.87 | 33.52 | 10.41 |
| SSWC I - 6 | 3/8 | 7.11 | 15.74 | 5/8 | 11/16 | 16.76 | 19.30 | 30.22 | 9.65 | 37.59 | 11.93 |
| SSWC I - 8 | 1/2 | 10.41 | 19.05 | 13/16 | 7/8 | 22.86 | 21.84 | 30.98 | 12.70 | 41.14 | 11.93 |
| SSWC I - 12 | 3/4 | 15.74 | 26.67 | 1-1/16 | 1-1/8 | 24.38 | 21.84 | 33.27 | 14.22 | 43.43 | 11.93 |
| SSWC I - 16 | 1 | 22.35 | 33.27 | 1-3/8 | 1-1/2 | 31.24 | 26.41 | 40.38 | 19.05 | 52.57 | 14.22 |

SSWE I

Tube Socket Weld Elbow

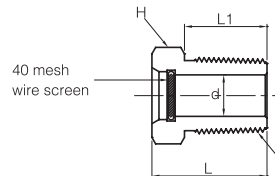


Connects Fractional Tubes

| Part No. | Tube O.D. D (inch) | d Min | P | Width Across Flat | | A | B | I | I ₁ | L | L ₁ |
|-------------|-----------------------|----------|-------|-------------------|----------|-------|-------|-------|----------------|-------|----------------|
| | | | | h (inch) | H (inch) | | | | | | |
| SSWE I - 4 | 1/4 | 4.82 | 12.70 | 1/2 | 9/16 | 15.24 | 17.78 | 19.55 | 7.87 | 26.92 | 19.55 |
| SSWE I - 6 | 3/8 | 7.11 | 15.75 | 5/8 | 11/16 | 16.76 | 19.30 | 23.11 | 9.65 | 30.48 | 23.11 |
| SSWE I - 8 | 1/2 | 10.41 | 20.57 | 13/16 | 7/8 | 22.86 | 21.84 | 25.90 | 12.70 | 36.06 | 25.90 |
| SSWE I - 12 | 3/4 | 15.74 | 26.92 | 1-1/16 | 1-1/8 | 24.38 | 21.84 | 29.71 | 14.22 | 39.87 | 29.71 |
| SSWE I - 16 | 1 | 22.35 | 35.05 | 1-3/8 | 1-1/2 | 31.24 | 26.41 | 36.83 | 19.05 | 49.02 | 36.83 |

SVP

Vent Protector



| Part No. | T (NPT) | L | L ₁ | d | H (inch) |
|-----------|------------|-------|----------------|-------|-------------|
| SVP - 4N | 1/4 | 19.81 | 14.22 | 7.11 | 9/16 |
| SVP - 6N | 3/8 | 20.57 | 14.22 | 10.41 | 11/16 |
| SVP - 8N | 1/2 | 26.16 | 19.05 | 12.70 | 7/8 |
| SVP - 12N | 3/4 | 26.92 | 19.05 | 18.29 | 1-1/16 |

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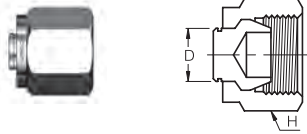
* ISO Tapered Threads are available upon request

SP Plug

Plugs Unused port of Metric **SUPERLOK®** fittings
Plug provides plugging fitting port

Installation instruction

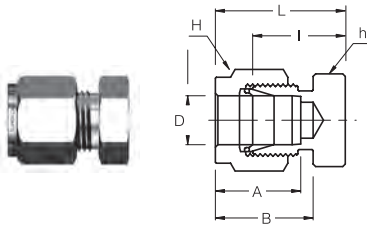
1. With wrench, 1/4 turn from finger-tight position.
(1/8 turn for 1/8", 3/16", 2, 3, 4 size plug)
2. Remove nut and ferrules from body



SCI Cap

Installation instruction

1. With wrench, 1-1/4 turn from finger-tight position.
(3/4 turn for 1/8", 3/16", 3mm, 4mm)
2. Insert tube end into cap



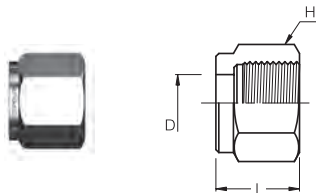
Fractional

| Part No. | Tube O.D. D (inch) | Width Across Flat H (inch) | Part No. | Tube O.D. D (inch) | Width Across Flat H (inch) |
|----------|--------------------|----------------------------|----------|--------------------|----------------------------|
| SP - 2 | 1/8 | 7/16 | SP - 8 | 1/2 | 7/8 |
| SP - 3 | 3/16 | 1/2 | SP - 10 | 5/8 | 1 |
| SP - 4 | 1/4 | 9/16 | SP - 12 | 3/4 | 1-1/8 |
| SP - 5 | 5/16 | 5/8 | SP - 14 | 7/8 | 1-1/4 |
| SP - 6 | 3/8 | 11/16 | SP - 16 | 1 | 1-1/2 |

Connects Caps End of Fractional Tubes

| Part No. | Tube O.D. D (inch) | Width Across Flat | | A | B | I | L |
|----------|--------------------|-------------------|----------|-------|-------|-------|-------|
| | | h (inch) | H (inch) | | | | |
| SC - 1 | 1/16 | 5/16 | 5/16 | 8.63 | 10.92 | 11.20 | 14.98 |
| SC - 2 | 1/8 | 7/16 | 7/16 | 12.70 | 15.24 | 13.46 | 20.06 |
| SC - 3 | 3/16 | 7/16 | 1/2 | 13.71 | 16.00 | 14.73 | 21.33 |
| SC - 4 | 1/4 | 1/2 | 9/16 | 15.24 | 17.78 | 16.00 | 23.36 |
| SC - 5 | 5/16 | 9/16 | 5/8 | 16.25 | 18.54 | 17.01 | 24.38 |
| SC - 6 | 3/8 | 5/8 | 11/16 | 16.76 | 19.30 | 18.28 | 25.65 |
| SC - 8 | 1/2 | 13/16 | 7/8 | 22.86 | 21.84 | 19.05 | 29.21 |
| SC - 10 | 5/8 | 15/16 | 1 | 24.38 | 21.84 | 19.81 | 29.97 |
| SC - 12 | 3/4 | 1-1/16 | 1-1/8 | 24.38 | 21.84 | 23.33 | 33.49 |
| SC - 14 | 7/8 | 1-3/16 | 1-1/4 | 25.90 | 21.84 | 23.87 | 34.03 |
| SC - 16 | 1 | 1-3/8 | 1/1/2 | 31.24 | 26.41 | 26.16 | 38.35 |

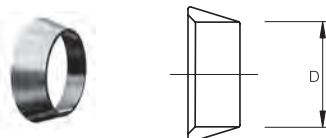
SNI Nut



Fractional

| Part No. | Tube O.D. D (inch) | Width Across Flat H (inch) | L | Part No. | Tube O.D. D (inch) | Width Across Flat H (inch) | L |
|----------|--------------------|----------------------------|-------|----------|--------------------|----------------------------|-------|
| SN - 1 | 1/16 | 5/16 | 7.90 | SN - 8 | 1/2 | 7/8 | 17.52 |
| SN - 2 | 1/8 | 7/16 | 11.93 | SN - 10 | 5/8 | 1 | 17.52 |
| SN - 3 | 3/16 | 1/2 | 11.93 | SN - 12 | 3/4 | 1-1/8 | 17.52 |
| SN - 4 | 1/4 | 9/16 | 12.70 | SN - 14 | 7/8 | 1-1/4 | 17.52 |
| SN - 5 | 5/16 | 5/8 | 13.46 | SN - 16 | 1 | 1-1/2 | 20.6 |
| SN - 6 | 3/8 | 11/16 | 14.22 | | | | |

SFF Front Ferrule

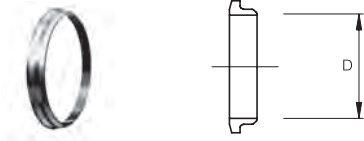


Fractional

| Part No. | Tube O.D. D (inch) | Part No. | Tube O.D. D (inch) |
|----------|--------------------|----------|--------------------|
| SFF - 1 | 1/16 | SFF - 8 | 1/2 |
| SFF - 2 | 1/8 | SFF - 10 | 5/8 |
| SFF - 3 | 3/16 | SFF - 12 | 3/4 |
| SFF - 4 | 1/4 | SFF - 14 | 7/8 |
| SFF - 5 | 5/16 | SFF - 16 | 1 |
| SFF - 6 | 3/8 | | |

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SBF Back Ferrule



Fractional

| Part No. | Tube O.D. D (inch) | Part No. | Tube O.D. D (inch) | Part No. | Tube O.D. D (inch) |
|----------|-----------------------|----------|-----------------------|----------|-----------------------|
| SBF - 1 | 1/16 | SBF - 5 | 5/16 | SBF - 12 | 3/4 |
| SBF - 2 | 1/8 | SBF - 6 | 3/8 | SBF - 14 | 7/8 |
| SBF - 3 | 3/16 | SBF - 8 | 1/2 | SBF - 16 | 1 |
| SBF - 4 | 1/4 | SBF - 10 | 5/8 | | |

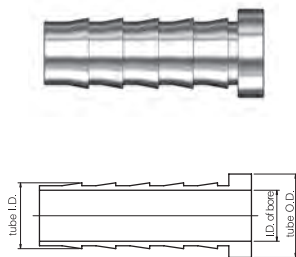
SFS Ferrule Set



Fractional

| Part No. | Tube O.D. D (inch) | Part No. | Tube O.D. D (inch) | Part No. | Tube O.D. D (inch) |
|----------|-----------------------|----------|-----------------------|----------|-----------------------|
| SFS - 1 | 1/16 | SFS - 5 | 5/16 | SFS - 12 | 3/4 |
| SFS - 2 | 1/8 | SFS - 6 | 3/8 | SFS - 14 | 7/8 |
| SFS - 3 | 3/16 | SFS - 8 | 1/2 | SFS - 16 | 1 |
| SFS - 4 | 1/4 | SFS - 10 | 5/8 | | |

SI Insert



Fractional

| Part No. | Tube O.D. (inch) | Tube I.D. (inch) | I.D. of Bore | Part No. | Tube O.D. (inch) | Tube I.D. (inch) | I.D. of Bore |
|------------|---------------------|---------------------|--------------|--------------|---------------------|---------------------|--------------|
| SI - 3 - 2 | 3/16 | 1/8 | 2.28 | SI - 8 - 4 | 1/2 | 1/4 | 4.82 |
| SI - 4 - 2 | 1/4 | 1/8 | 2.28 | SI - 8 - 6 | 1/2 | 3/8 | 7.87 |
| SI - 4 - 3 | 1/4 | 3/16 | 3.55 | SI - 10 - 6 | 5/8 | 3/8 | 7.87 |
| SI - 5 - 2 | 5/16 | 1/8 | 2.28 | SI - 10 - 8 | 5/8 | 1/2 | 11.17 |
| SI - 5 - 3 | 5/16 | 3/16 | 3.04 | SI - 12 - 8 | 3/4 | 1/2 | 11.17 |
| SI - 5 - 4 | 5/16 | 1/4 | 4.82 | SI - 12 - 10 | 3/4 | 5/8 | 14.22 |
| SI - 6 - 3 | 3/8 | 3/16 | 3.04 | SI - 16 - 12 | 1 | 3/4 | 17.52 |
| SI - 6 - 4 | 3/8 | 1/4 | 4.82 | | | | |

All dimensions in millimeters unless specified as "inch" • Dimensions are for reference only, subject to change.

Certifications

Superlok, BMT Co. & Mako Products

Superlok Quality Certifications

| DIVISION | PRODUCTS | CERT. NO | CERTIFYING AGENCY |
|------------------------------------|---|-----------------|---|
| Fittings & Valves | Bite type fitting for DIN2353 | 06-BK152666-PDA | ABS Cert. of Design Assessment |
| | SUPERLOK Tube Fitting | 06-BK150238-PDA | ABS Cert. of Design Assessment |
| | 37° Flared Tube Fittings for SAE J514 | 06-BK294147-PDA | ABS Cert. of Design Assessment |
| | SUPERLOK compression tube fitting | P-12285 | DNV Cert. of Type Approval |
| | Bite type compression tube fitting | P-12317 | DNV Cert. of Type Approval |
| | SAE 37° Flared Tube Fittings | P-12675 | DNV Cert. of Type Approval |
| | Bite Type Tube Fitting According to DIN2353 | 44879-07HH | Lloyd's Register Cert. of Type Approval |
| | SUPERLOK Tube Fittings | 44880-07HH | Lloyd's Register Cert. of Type Approval |
| | Superlok & Bite type (DIN2353) | 06/10006 | Lloyd's Register Cert. of Type Approval |
| | Superlok & Bite Type (JIS & KS) | TA09512M | NK |
| Superlok & Bite Type Tube Fittings | 20040/A0 BV | BV | |

Superlok Manufacturing Certifications

| NO. | TYPE | ISSUING BODY | SCOPE | CERTIFICATE NO. |
|-----|-------------------------|--------------|---|-----------------|
| 1 | ISO 9001 | HSB | Design and Manufacture of Fittings (High Pressure Forged, Super Clean, Tube & Pipe), Valves & Industrial Machinery Parts and Equipment and MCPD (Molded Case Power Distributor) For Distribution Switchboards | AP0379 |
| 2 | ASME N STAMP | ASME | Purchase, Construction, Fabrication, Manufacture, and Inspection of Class 1, 2, & 3 Products | N-3409 |
| 3 | ASME NPT STAMP | | | N-3410 |
| 4 | ASME NS | | | N-3411 |
| 5 | ASI 6D | API | Using Official API Monogram on Manufacturing Valves | 6D-0699 |
| 6 | API Q1 | API | Design & Manufacturing of Fittings & Valves | Q1-0375 |
| 7 | PED/97/23/EC (Module H) | HSB | Design, Manufacturing, Installation and service of Valves & Fittings | HSBI-10-07-074 |
| 8 | KEPIC-MN | KEA | Design & Manufacturing of Fittings & Valves for Class 1, 2, & 3 Grade | MN-288 |

Mako Products, LLC Return Policy & Disclaimer

ATTENTION: Please read carefully before using our products.

CONSUMERS MUST ABIDE BY THE SPECIFIC INSTALLATION GUIDES AND OPERATION PROCEDURES WITH THIS EQUIPMENT OR THEY WILL NOT BE CONSIDERED REPLACEABLE.

WARRANTIES

MAKO WARRANTY:

All products distributed from Mako Products, LLC are guaranteed to be free from manufacturing defects for a period of one year from the date of shipment. If the product is determined to be defective within that period, the product will be replaced at no charge to the buyer if it falls under one or more of these specific conditions: (1) product failure was a result of a manufacturing defect and not damaged from an accident, alteration, misuse, abuse or contact with corrosive fluids, (2) the product was installed with proper care and operating practices, (3) proper notice and description of defective product was recorded to Mako Products, LLC before the product was shipped back from the buyer. Shipping expenses should not be assumed until verification and authorization have been granted from Mako Products, LLC.

SUPERLOK WARRANTY:

BMT warrants that Superlok tube fittings shall be free from defects in material and workmanship for the life of the product. The purchaser's solution shall be limited to replacement and installation of any parts that fail through a defect in material or workmanship. Superlok tube fittings are manufactured to be 100% interchangeable with other tube fittings currently on the market. Superlok fully warrants the compatibility of its fittings with other manufacturers, provided the same strict manufacturing practices and tolerances are held by those manufacturers.



RETURN POLICY

RETURN POLICY:

- 1. ERRORS:** Regarding administrative or shorthand work - all quotations, orders, confirmations, invoices and other documents are subject to correction.
- 2. RETURNS:** Before products are returned, the correct form of authorization must be recorded to Mako Products, LLC. Buyers must acquire acknowledgement that an RMA (Return Merchandise Authorization) was created for the items being returned with the precise quantity for maximum assurance of returned credit. Shipping expenses should not be assumed unless they are verified from Mako Products, LLC. For guidelines on free returns, refer to ERRORS. Customer specified items are deemed non-returnable.
- 3. RESTOCKING FEE:** Returned products from customers may be subject to a restocking fee of 20%.
- 4. TRANSIT DAMAGE:** Notification to Mako Products, LLC is required if loss, damage or shortage of products via carrier should occur. All claims should be made as soon as possible and no later than five days after receipt of shipment. Loss or damage to materials is the responsibility of the carrier.
- 5. CANCELLATION:** Any regular stock item on back order is considered free of cancellation fee if the buyer wishes to waive the item. For special manufactured items, the cancellation charges may be up to 100%.



Additional Products Available



Instrument Fittings



High Pressure Fittings
20-60K PSI



Medium & High Pressure Needle Valve
20-60K PSI



Bar Stock Needle Valve



Check Valves



Relief Valves



Quick Connectors



Plug Valves



Integral & Union Bonnet Needle Valves



SBV210 Series
1K Compression Ball Valve



SBV120H Series
3K Compression Ball Valve



SBV360H Series
6K Compression Ball Valve



SBVF360 Series
6K Forged High Pressure Ball Valve



Swing-Out Ball Valves



**Instrumentation Manifolds,
Gauge Valves & Block & Bleeds**



Micron Inline & Tee Filter



Ultra Pure Fittings



JIC Fittings
37° Fittings



Threaded Check Valves
ICS6 Series



Threaded Needle Valves
Mini Valves, Angle Valves, Bleed Valves, Standard Valves, Gauge Valves



Threaded Ball Valves
Reduced Port SS & CS



Threaded Ball Valves
Full Port SS & CS

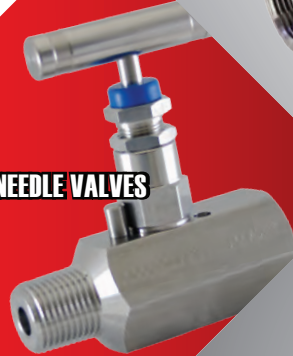


Stainless Tubing
316 or 304 Welded or Seamless, Stick & Coil

SUPERLOK® i-Fitting



SS & CS BALL VALVES



SS & CS NEEDLE VALVES



COIL & STICK TUBING



TUBE END BALL VALVES



INSTRUMENT FITTINGS



Tube Fittings, Instrument Fittings,
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Valve Series

- Ball Valves
- Integral Bonnet Needle Valves
- Union Bonnet Needle Valves
- Check Valves
- High Pressure Check Valves
- High Pressure Needle Valves
- Plug Valves
- Manifold Valves
- Double Block & Bleed Valves
- Swing-Out Ball Valves
- Toggle Valves
- Bleed & Purge Valves
- Quick Connectors
- High Pressure Ball Valves

- Hydraulic Ball Valves
- Trunnion Ball Valves
- Rising Plug Valves
- Relief Valves
- Cryogenic Needle Valves
- Cryogenic Ball Valves
- Micron In-Line Filters

Fitting Series

- Instrument Thread Fittings
- 37 Flared Tube Fittings (JIC)
- O-Ring Face Seal Fittings
- Hose Connectors
- Push-On Hose Fittings