Company Information

1926 SSP Fittings Corp. is founded in Cleveland, Ohio, U.S.A. SSP begins as a contract manufacturer of screw machine products in brass and carbon steel to general industry.

1940s World War II shifts the company's focus to production of fittings for tubing, pipe, and hose. Following the war, SSP's customers are able to satisfy their own requirements without relying on outside companies for production. SSP contracts.

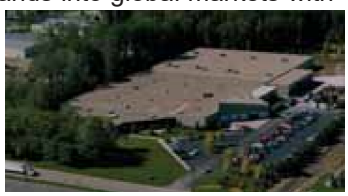
1970s New Focus. By the early 1970s, SSP embarks on a market & manufacturing driven strategy of producing quality fittings from difficult-to-machine alloys. The performance requirements of customers utilizing these materials in industries as diverse as marine, defense, offshore oil, and aerospace, drive SSP to establish both conformance quality standards, and service levels, which are significantly ahead of general industry at the time.

1980s The "Works". Things are really happening for SSP. The company establishes a product line and distribution channel for hydraulic fittings, which require significant investments in a new, state-of-the-art facility south of Cleveland. SSP builds a 165,000 sq. ft. facility to house our vertically-integrated "Works," including, by now, tool & die design & production, custom closed-die forging, machining, finishing operations, assembly and test. With over 200 work centers, SSP's Twinsburg "Works" is among the largest single-site facilities in the entire industry.

1990s Market Expansion. In response to continued customer requests for alternative product offerings in the Instrumentation fitting and valve marketplace, strategic plans were developed to design, manufacture and distribute American-manufactured, tube fittings and valves as direct alternatives to the registered trademark brands of Swagelok®, Parker CPI® and Hoke Gyrolok®.
SSP introduces fully-validated design alternatives under brand names Duolok®, Unilok®, Griplok® tube fittings; TruFit® pipe, weld, hose and adapter fittings; and FloLok® valves.

2000 The New Force. SSP becomes the fastest-growing specialty fitting manufacturer in the United States selling through independent distributors.

With an established, efficient US distribution network in place, SSP expands into global markets with additional fabricated products including tubular and hose assemblies.



Significant continued investments allow SSP to renew our commitment to providing customers with best value through time-based competitive advantage, maximum objectivity in our product recommendations based on mastery over an ever-increasing range of fluid system fitting designs, and a commitment to integrity and honesty in our business relationships.

How to Order Duolok Tube Fittings

Duolok brand tube fittings for metric tubing are ordered by specifying part numbers as listed in this catalog. The Duolok part numbers are easy to understand, and describe tube fittings that are completely assembled and ready to be installed. The following explains the part numbering system:

Example: ISSDM4MC2

ISS D M 4 MC 2

- **ISS** — Material Designator (See Chart #1)
- **D** — SSP Brand Designator D=Duolok double ferrule instrumentation quality tube fittings
- **M** — Metric
- **4** — Tube O.D.
- **MC** — Type of tube fitting designator (See Chart #2)
- **2** — 2nd end connection is required for a reduced size tube O.D. or a differing type of end connection such as MNPT, FNPT, etc.

For special application tees, a 3rd end connection is required for a reduced size tube O.D. or a differing type of end connection such as MNPT, FNPT, etc.

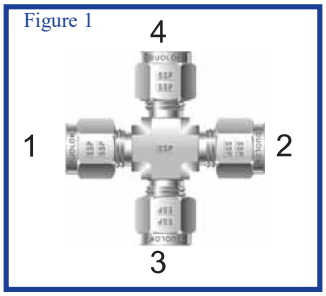
NOTES:

All Configurations: Only one size indicator is necessary when all of the connections are the same type and size.

Straights and Elbows: Specify the tube end first followed by the smaller tube end or differing type of connection (MNPT, FNPT,etc.)

Tees and Crosses: Tees are described by first sizing the run (1 to 2) and then the branch (3). Crosses are described by first sizing the run (1 to 2) and then the branch (3 to 4). See figure 1.

Figure 1



Specials: SSP Instrumentation manufactures a wide variety of special application tube fittings. Contact your local distributor for details regarding availability of special tube fitting configurations, materials and sizes.

CHART #1

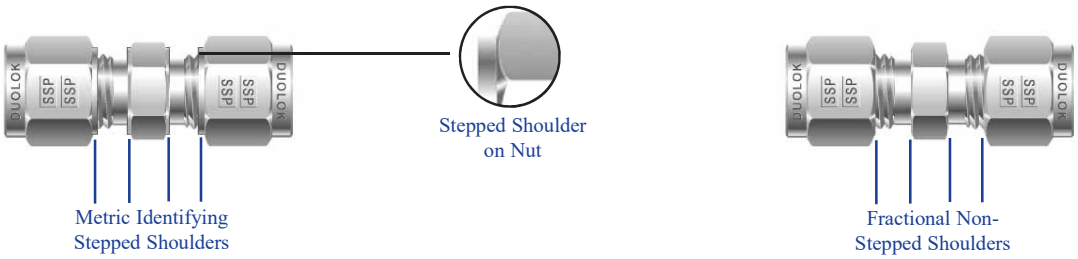
Instrumentation Materials Designator	Material
ISS	316 Stainless Steel

CHART #2

Type of Fitting Designator	Description of Griplok Tube Fitting Types
BU	Bulkhead Union
CP	Cap
FA	Female Adapter
FBT	Female Branch Tee
FC	Female Connector
FCRT	Female Connector to ISO Tapered
FE	Female Elbow
FRT	Female Run Tee
MA	Male Adapter
MBT	Male Branch Tee
MC	Male Connector
MCRS	Male Connector to ISO Parallel
MCRT	Male Connector to ISO Tapered
ME	Male Elbow
MERT	Male Elbow to ISO Tapered
MERS	Male Elbow to ISO Parallel
MPWC	Male Pipe Weld Connector
MRT	Male Run Tee
P	Plug
PC	Port Connector
R	Reducer/Adapter
RPC	Reducing Port Connector
RU	Reducing Union
U	Union
UCS	Union Cross
UE	Union Elbow
UT	Union Tee
COMPONENTS	
BF	Back Ferrule
FF	Front Ferrule
FS	Ferrule Set
N	Nut
TI	Tube Insert

Identifying Metric Duolok Fittings

Duolok metric tube fittings have a stepped shoulder on the body hex and the nut, shaped fittings have a stepped shoulder on the nut.



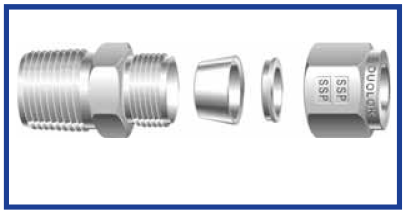
Monel® is a registered trademark of Huntington Alloy
Teflon® is a registered trademark of E.I. duPont de Nemours

Duolok Tube Fittings

DESIGN

Duolok tube fittings are designed and manufactured to provide a reliable, leak-proof connection in instrument and process tubing systems. **Duolok** tube fittings consist of four precision-machined components:

1) Body
2) Front Ferrule
3) Back Ferrule
4) Nut



During make-up, the controlled drive action of the ferrules compensates for variations in tubing materials, hardness, and thickness of the tube wall to provide leak-tight connections in an extensive range of applications.

Additionally, in fulfillment of the design criteria, all **Duolok** components are manufactured with stringent tolerances and superior surface finishes to rigorous quality control standards to assure the optimum performance of each component.

OPERATION

Through critical interaction of precision-machined fitting components with the process tube, a leak-tight seal is achieved.

The simple geometric rotation of the **Duolok** nut provides the axial thrust necessary to "coin" the ferrules to the outside diameter of the tube. To eliminate any potential stress on an existing system, the tube fittings have been designed to not transmit installation torque from the tube fittings to the tube.

During the rotary movement of the nut, the internal surface of the nut meets with the rear surface of the rear ferrule to axially move the rear ferrule forward against the back radius of the front ferrule.

Simultaneously, the front ferrule is driven forward into the angular section of the fitting body to form a primary metal-to-metal seal. The back ferrule roll-in locking action occurs on the outside diameter of the tube to complete the sealing action and secure the tube within the fitting.

The controlled ferrule drive prevents body distortion and helps compensate for exposure to system variables such as vibration, pressure pulsation and thermal expansion or contraction.

QUALITY

SSP's Quality System has been certified to conform to the **ISO 9001:2000 Quality Standard**. Achievement of this prestigious status further confirms SSP's continuing commitment to quality which is reflected throughout the company in its personnel, policies, equipment, products and service.

In addition, all **Duolok** tube fittings are manufactured to the technical design specifications and rigid quality control standards of the SSP Instrumentation Division.

Statistical Process Control techniques are employed within the manufacturing process to assure timely, meaningful feedback to the production team. Attention to detail, through continual process monitoring and control, provides the necessary manufacturing quality for the **Duolok** instrumentation tube fittings.

PACKAGING

Duolok tube fittings are individually bagged to assure the highest levels of quality, safety and cleanliness. The protective bags eliminate contamination (tubing burrs, dirt, etc.) from entering the fitting prior to its use, and help to retain the integrity of the factory assembled body, nut, and ferrules.

As long as a **Duolok** tube fitting is in its original protective bag, it is identified as "factory new," completely assembled and ready for installation.

The individually bagged **Duolok** tube fittings are packaged in convenient, small-lot quantities for easy procurement and handling. Additionally, for efficient product identification and storage, the boxes are color-coded to the tube fittings' material of construction and have pictorial labels which include the part number, product description and box quantity.

MATERIALS

316 STAINLESS STEEL

Duolok straight configuration tube fittings are machined from type 316 stainless steel cold-finished bar stock in accordance with ASTM A-276 and ASTM A-479. Shaped bodies are machined from close-grained 316 stainless steel forgings in accordance with ASTM A-182. All 316 stainless steel **Duolok** components are heat code traceable with certified material test reports (CMTRs) available.

PRESSURE RATINGS

Generally, **Duolok** tube fittings are rated for pressures equal to the maximum allowable working pressures of the tubing recommended for use with the fittings. However, it is important to note that many specially designed fittings, bored-through fittings and fittings having AN, O-Seal and SAE/MS integral ends may have lower pressure ratings than that of the tubing. (See SSP's Selection Guide for Instrumentation Fittings and Tubing on pages 34-36 or contact your local Authorized Distributor for more information regarding tubing and fitting pressure ratings.)

TEMPERATURE FACTORS

Duolok tube fittings function reliably in applications ranging from cryogenic temperatures to high temperature bake out with the tube fitting material as the limiting factor. It is important to note that elevated temperatures may affect the maximum working pressure capability of the tubing system. (For more information regarding the effects of temperature on tubing pressure ratings, consult Table 5 regarding temperature stress factors in SSP's Selection Guide for Instrumentation Fittings and Tubing on pages 34-36.)

INTERCHANGEABILITY

Duolok tube fittings are designed, manufactured, quality controlled and distributed to be totally "interchangeable" with the Swagelok® brand of tube fittings. Component by component examination plainly shows the two brands as completely "component-intermixable". The precision manufacturing of both products to stringent tolerances under rigid quality control procedures ensures the safety, performance and reliability of service whenever Swagelok and **Duolok** component parts are mixed and used in accordance with published installation and service recommendations.

LIFETIME WARRANTY

Duolok tube fittings are covered by a published lifetime warranty as printed on the inside back cover of this catalog.

TUBE SELECTION

Careful selection and specification of tubing is essential to the performance of a tubing system. When choosing the appropriate tubing material, size and wall thickness, consideration must be given to the system's environment, pressures, temperatures and flows. (For more information on tube selection, please refer to SSP's Selection Guide for Instrumentation Fittings and Tubing on pages 34-36.)

Duolok Swagelok

Installation Instructions

INITIAL INSTALLATION

1. **Duolok** tube fittings come individually bagged and completely assembled for immediate use. There is no need for disassembly prior to use. Simply remove the tube fitting from it's bag, insert the tube* until it bottoms in the **Duolok** tube fitting body and then hand tighten the **Duolok** nut. (See figure #1)

Figure #1

**Tubing ends should be cut as straight as possible with all O.D. and I.D. burrs removed. Use of a tubing cutter or guide blocks with a hacksaw is recommended.*

[NOTE: For extreme system applications using high pressures or requiring an extra factor of safety, it may be desirable to use a "common make up starting point" to alleviate the inherent variations in tubing diameters. Installation should begin from a snug position, which is achieved by wrench tightening the **Duolok** nut until the inserted tubing will not move by hand (approximately 1/8 turn). From this new "snug" starting point, continue with the recommended installation instructions.]

2. While holding the fitting body stable with a back-up wrench, scribe the nut for a reference point and wrench tighten the nut 1-1/4 turns for sizes 6mm-25mm and 3/4 turn for sizes 2mm-5mm. (See Figures #2 and #3.)

Figure #2

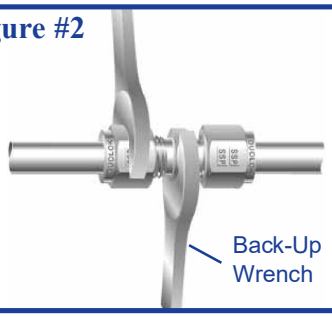
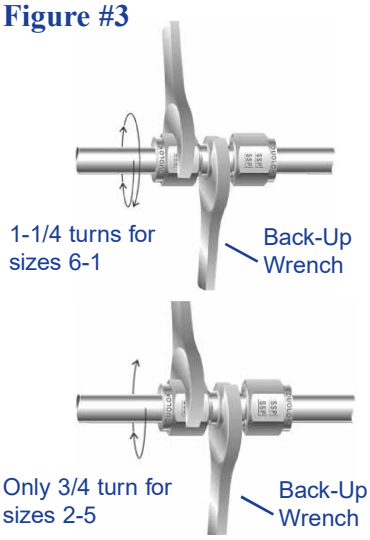


Figure #3



[NOTE: For all sizes, tighten plugs (P), machined ferrule end of port connector (PC) and the **Duolok** end of the Female AN adapter (ANF) only ¼ of a turn. Tube fittings in sizes over 1" require thw use of teh SSP Instrumentation Hydraulic Swaging Tool for installation. Contact your local SSP Distributor for more information]

REASSEMBLY INSTRUCTIONS

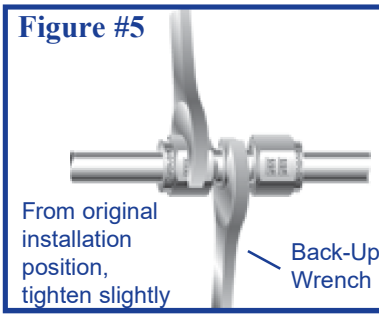
1. To reassemble a **Duolok** tube fitting connection, simply insert the tubing with the previously coined ferrules and **Duolok** nut into the fitting body until the front ferrule seats within the fitting body, and then tighten the nut by hand. (See Figure #4.)

Figure #4

[NOTE: By following proper reassembly procedures, **Duolok** tube fitting connections may be disconnected and reconnected repeatedly.]

2. While holding the fitting body stable with a back up wrench, use a wrench to rotate the **Duolok** nut to the fitting's original installation position (approximately ¼ turn from the hand-tight, snug position) then continue to tighten the **Duolok** nut slightly. (See Figure #5.)

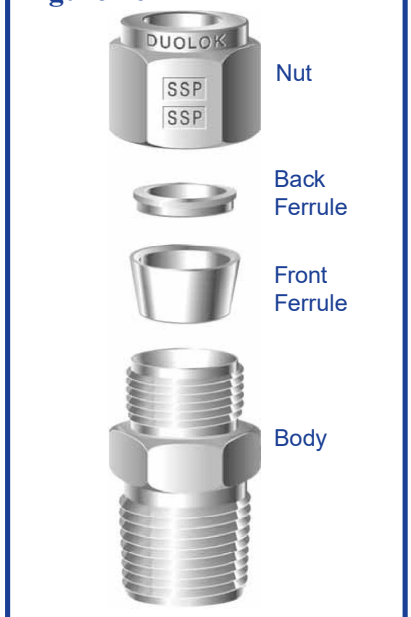
Figure #5



COMPONENT ASSEMBLY

Should individual component assembly of a **Duolok** tube fitting ever be required, careful attention must be given to the proper sequence and direction of the **Duolok** components. (See Figure #6.)

Figure #6



Pre-Setting Tool

The **Duolok** pre-setting tool is used to pre-set the ferrules on the tubing for subsequent installation in a fitting body. The pre-setting tool can be especially helpful when an installation must be made in a tight space or hard-to-work area. The presetting tool allows the major portion of the installation work to occur in a more favorable work setting with only the completion of the installation in the hard-to-work area.

PRE-SETTING INSTRUCTIONS

1. Secure the pre-setting tool in a vise.

2. Remove the protective nut, and assemble the **Duolok** nut and ferrules loosely to the pre-setting tool. Insert the tubing through the nut and ferrules until it bottoms in the pre-setting tool, and then follow the standard **Duolok** tube fitting installation instructions from page 6. (See Figures #7A and #7B.)

Figure #7A

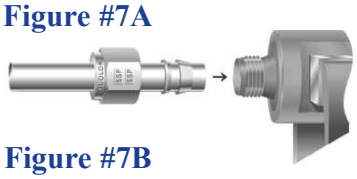
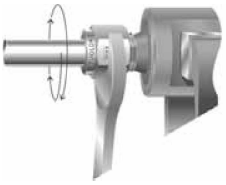


Figure #7B



3. Loosen the nut and remove the tubing with the pre-set **Duolok** ferrules and nut from the pre-setting tool. (See Figure #8.)

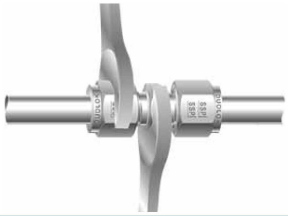
Figure #8

4. Installation of the tubing, with the pre-set **Duolok** ferrules and nut in the appropriate fitting body can now be made by following the standard reassembly instructions from page 6. (See Figures #9A and #9B.)

5. Return the protective nut to the presetting tool.

Figure #9A

Figure #9B



[NOTE: To extend the life of a pre-setting tool, lubricate the tool with a lubricant compatible with the system's tubing material, environment and media. Also, at times an oversized or very soft tubing may tend to stick in the presetting tool after make up. To remove the tubing, gently rock the tubing back and forth. Never turn the tube with pliers or another tool as such action may damage the sealing surfaces.]

DUOLOK GAP GAGE INSTRUCTIONS

1. Follow proper installation instructions (as supplied with the fittings, or published in the **Duolok** catalog).

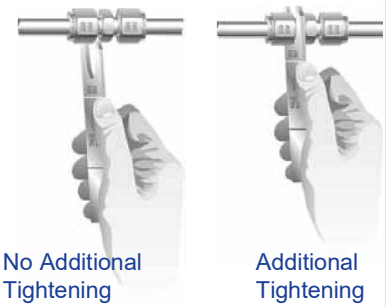
2. After completion of the installation instructions and prior to pressuring the system, choose the proper size Gap Gage and try to insert it between the fitting's nut and body hex. (See Figure #10).

3. If the Gap Gage will not enter between the fitting's nut and body hex, no additional tightening is required.

3. If the Gap Gage will enter between the fitting's nut and body hex, additional tightening is required.

[NOTE: Swagelok Gap Inspection Gages may also be utilized effectively with Duolok tube fittings.]

Figure #10



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Tube to Tube Union

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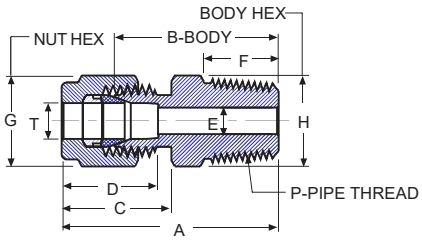
Components

Tube to Male Pipe

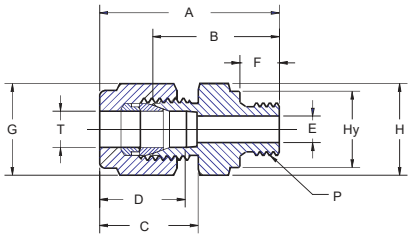


Male Connector (*MC)*

Duolok Part#	T TUBE O.D.	P-NPT MALE PIPE SIZE	A	B	C	D	E Minimum Opening	F	G	H
DM2MC2	2	1/8	30.5	23.9	15.3	12.9	1.7	9.7	12	12
DM3MC2	3	1/8	30.5	23.9	15.3	12.9	2.4	9.7	12	12
DM3MC4	3	1/4	35.6	29.0	15.3	12.9	2.4	14.2	12	14
DM4CMC2	4	1/8	31.2	24.6	16.1	13.7	2.4	9.7	12	12
DM4MC4	4	1/4	36.3	29.7	16.1	13.7	2.4	14.2	12	14
DM6MC2	6	1/8	32.8	25.4	17.7	15.3	4.8	9.7	14	14
DM6MC4	6	1/4	37.9	30.5	17.7	15.3	4.8	14.2	14	14
DM6MC6	6	3/8	38.4	31.0	17.7	15.3	4.8	14.2	14	18
DM6MC8	6	1/2	44.7	37.3	17.7	15.3	4.8	19.0	14	22
DM8MC2	8	1/8	34.2	26.7	18.6	16.2	4.8	9.7	16	15
DM8CM4	8	1/4	38.7	31.2	18.6	16.2	6.4	14.2	16	15
DM8MC6	8	3/8	39.3	31.8	18.6	16.2	6.4	14.2	16	18
DM8MC8	8	1/2	45.6	38.1	18.6	16.2	6.4	19.0	16	22
DM10MC2	10	1/8	36.3	28.7	19.5	17.2	4.8	9.7	19	18
DM10MC4	10	1/4	40.9	33.3	19.5	17.2	7.1	14.2	19	18
DM10MC6	10	3/8	40.9	33.3	19.5	17.2	7.9	14.2	19	18
DM10MC8	10	1/2	46.5	38.9	19.5	17.2	7.9	19.0	19	22
DM10MC12	10	3/4	48.0	40.4	19.5	17.2	7.9	19.0	19	27
DM12MC2	12	1/8	38.8	28.7	22.0	22.8	4.8	9.7	22	22
DM12MC4	12	1/4	43.4	33.3	22.0	22.8	7.1	14.2	22	22
DM12MC6	12	3/8	43.4	33.3	22.0	22.8	9.5	14.2	22	22
DM12MC8	12	1/2	49.0	38.9	22.0	22.8	9.5	19.0	22	22
DM12MC12	12	3/4	50.5	40.4	22.0	22.8	9.5	19.0	22	27
DM14MC4	14	1/4	44.1	34.0	22.0	24.4	7.1	14.2	25	24
DM14MC6	14	3/8	44.1	34.0	22.0	24.4	9.5	14.2	25	24
DM14MC8	14	1/2	49.0	38.9	22.0	24.4	11.1	19.0	25	24
DM15MC8	15	1/2	49.0	38.9	22.0	24.4	11.9	19.0	25	24
DM16MC6	16	3/8	44.1	34.0	22.0	24.4	9.5	14.2	25	24
DM16MC8	16	1/2	49.0	38.9	22.0	24.4	11.9	19.0	25	24
DM16MC12	16	3/4	50.5	40.4	22.0	24.4	12.7	19.0	25	27
DM18MC8	18	1/2	50.5	40.4	22.0	24.4	11.9	19.0	30	27
DM18MC12	18	3/4	50.5	40.4	22.0	24.4	15.1	19.0	30	27
DM20MC8	20	1/2	52.3	42.2	22.0	26.0	11.9	19.0	32	30
DM20MC12	20	3/4	52.3	42.2	22.0	26.0	15.9	19.0	32	30
DM22MC12	22	3/4	52.3	42.2	22.0	26.0	15.9	19.0	32	30
DM22MC16	22	1	57.1	47.0	22.0	26.0	18.3	23.9	32	35
DM25MC8	25	1/2	57.5	45.2	26.5	31.3	11.9	19.0	38	35
DM25MC12	25	3/4	57.5	45.2	26.5	31.3	15.9	19.0	38	35
DM25MC16	25	1	62.3	50.0	26.5	31.3	21.8	23.9	38	35

Finger-tight assembly dimensions (shown in mm unless specified) are for reference only and subject to change.
When ordering specify material designator with part number (see page 3 for complete ordering information).
Visit www.sspfittings.com for the controlled version of data.

Fractional Tube to ISO Thread Fittings



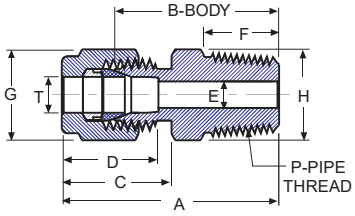
Male Connector - ISO Parallel *(MCRS)*

Duolok Part #	T TUBE O.D.	P ISO MALE PIPE	A	F	C	D	E Minimum Opening	H Hex Flat	Hy	G	B Body
DM2MCRS2	2	1/8	33.3	7.1	15.3	12.9	1.7	14	13.8	12	23.4
DM3MCRS2	3	1/8	33.3	7.1	15.3	12.9	2.4	14	13.8	12	23.4
DM3MCRS4	3	1/4	38.1	11.2	15.3	12.9	2.4	19	18.0	12	28.7
DM4MCRS2	4	1/8	34.0	7.1	16.1	13.7	2.4	14	13.8	12	24.1
DM6MCRS2	6	1/8	35.6	7.1	17.7	15.3	4.0	14	13.8	14	24.9
DM6MCRS4	6	1/4	40.4	11.2	17.7	15.3	4.8	19	18.0	14	30.2
DM6MCRS6	6	3/8	41.1	11.2	17.7	15.3	4.8	22	21.8	14	31.5
DM6MCRS8	6	1/2	43.2	14.2	17.7	15.3	4.8	27	26.0	14	37.3
DM8MCRS2	8	1/8	36.6	7.1	18.6	16.2	4.0	15	13.8	16	25.7
DM8MCRS4	8	1/4	41.4	11.2	18.6	16.2	6.4	19	18.0	16	31.0
DM8MCRS6	8	3/8	42.2	11.2	18.6	16.2	6.4	22	21.8	16	32.3
DM8MCRS8	8	1/2	44.2	14.2	18.6	16.2	6.4	27	26.0	16	38.1
DM10MCRS4	10	1/4	42.2	11.2	19.5	17.2	5.9	19	18.0	19	31.8
DM10MCRS6	10	3/8	42.9	11.2	19.5	17.2	7.9	22	21.8	19	33.0
DM10MCRS8	10	1/2	45.0	14.2	19.5	17.2	7.9	27	26.0	19	38.9
DM12MCRS4	12	1/4	44.5	11.2	22.0	22.8	5.9	22	18.0	22	32.5
DM12MCRS6	12	3/8	45.5	11.2	22.0	22.8	7.9	22	21.8	22	33.0
DM12MCRS8	12	1/2	47.5	14.2	22.0	22.8	9.5	27	26.0	22	38.9
DM12MCRS12	12	3/4	52.1	15.7	22.0	22.8	9.5	35	32.0	22	42.7
DM16MCRS6	16	3/8	45.5	11.2	22.0	24.4	7.9	24	21.8	25	33.8
DM16MCRS8	16	1/2	47.5	14.2	22.0	24.4	11.9	27	26.0	25	38.9
DM18MCRS8	18	1/2	48.8	14.2	22.0	24.4	11.9	27	26.0	30	38.9
DM18MCRS12	18	3/4	52.1	15.7	22.0	24.4	15.1	35	32.0	30	42.7
DM20MCRS8	20	1/2	50.5	14.2	22.0	26.0	11.9	30	26.0	32	40.4
DM20MCRS12	20	3/4	52.6	15.7	22.0	26.0	15.9	35	32.0	32	42.7
DM22MCRS12	22	3/4	52.6	15.7	22.0	26.0	15.9	35	32.0	32	42.7
DM22MCRS16	22	1	54.9	18.3	22.0	26.0	18.3	41	39.0	32	45.2
DM25MCRS12	25	3/4	57.7	15.7	26.5	31.3	15.9	35	32.0	38	45.2
DM25MCRS16	25	1	59.7	18.3	26.5	31.3	19.8	41	39.0	38	47.8

NOTE: RS threaded fittings conform to ISO (International Standards Organization) standards 228/1. The standard gasket for RS fittings is a composite gasket. This gasket features a 300 series stainless steel outer ring with a Buna inner ring bonded to it.

Finger-tight assembly dimensions (shown in mm unless specified) are for reference only and subject to change.
When ordering specify material designator with part number (see page 3 for complete ordering information).
Visit www.sspfittings.com for the controlled version of data.

Fractional Tube to ISO Thread Fittings



Male Connector - ISO Tapered *(MCRT)*

Duolok Part #	T TUBE O.D.	P ISO MALE PIPE	A	F	C	D	E Minimum Opening	H Hex Flat	G Hex Flat	B Body
DM2MCRT2	2	1/8	30.5	9.7	15.3	12.9	1.7	12	12	23.9
DM2MCRT2	3	1/8	30.5	9.7	15.3	12.9	2.4	12	12	23.9
DM2MCRT4	3	1/4	35.6	14.2	15.3	12.9	2.4	14	14	29.0
DM4MCRT2	4	1/8	31.2	9.7	16.1	13.7	2.4	12	12	24.6
DM4MCRT4	4	1/4	36.3	14.2	16.1	13.7	2.4	14	14	29.7
DM6MCRT2	6	1/8	32.8	9.7	17.7	15.3	4.8	14	14	25.4
DM6MCRT4	6	1/4	37.9	14.2	17.7	15.3	4.8	14	14	30.5
DM6MCRT6	6	3/8	38.4	14.2	17.7	15.3	4.8	18	18	31.0
DM6MCRT8	6	1/2	44.7	19.0	17.7	15.3	4.8	22	22	37.3
DM8MCRT2	8	1/8	34.2	9.7	18.6	16.2	4.8	15	15	26.7
DM8MCRT4	8	1/4	38.7	14.2	18.6	16.2	6.4	15	15	31.2
DM8MCRT6	8	3/8	39.2	14.2	18.6	16.2	6.4	18	18	31.8
DM8MCRT8	8	1/2	54.6	19.0	18.6	16.2	6.4	22	22	38.1
DM10MCRT2	10	1/8	36.3	9.7	19.5	17.2	4.8	18	18	28.7
DM10MCRT4	10	1/4	40.9	14.2	19.5	17.2	7.1	18	18	33.3
DM10MCRT6	10	3/8	40.9	14.2	19.5	17.2	7.9	18	18	33.3
DM10MCRT8	10	1/2	46.5	19.0	19.5	17.2	7.9	22	22	38.9
DM12MCRT4	12	1/4	43.4	14.2	22.0	22.8	7.1	22	22	33.3
DM12MCRT6	12	3/8	43.4	14.2	22.0	22.8	9.5	22	22	33.3
DM12MCRT8	12	1/2	49.0	19.0	22.0	22.8	9.5	22	22	38.9
DM12MCRT12	12	3/4	50.5	19.0	22.0	22.8	9.5	27	27	40.4
DM15MCRT8	15	1/2	49.0	19.0	22.0	24.4	11.9	24	24	38.9
DM16MCRT4	16	1/4	44.1	14.2	22.0	24.4	7.1	24	24	34.0
DM16MCRT6	16	3/8	44.1	14.2	22.0	24.4	9.5	24	24	34.0
DM16MCRT8	16	1/2	49.0	19.0	22.0	24.4	11.9	24	24	38.9
DM16MCRT12	16	3/4	50.5	19.0	22.0	24.4	12.7	27	27	40.4
DM18MCRT8	18	1/2	50.5	19.0	22.0	24.4	11.9	27	27	40.4
DM18MCRT12	18	3/4	50.5	19.0	22.0	24.4	15.1	27	27	40.4
DM20MCRT8	20	1/2	52.3	19.0	22.0	26.0	11.9	30	30	42.2
DM20MCRT12	20	3/4	52.3	19.0	22.0	26.0	15.9	30	30	42.2
DM22MCRT12	22	3/4	52.3	19.0	22.0	26.0	15.9	30	30	42.2
DM22MCRT16	22	1	57.1	23.9	22.0	26.0	18.3	35	35	47.0
DM25MCRT12	25	3/4	57.5	19.0	26.5	31.3	15.9	35	35	45.2
DM25MCRT16	25	1	62.3	23.9	26.5	31.3	21.8	35	35	50.0

NOTE: RT threaded fittings conform to ISO (International Standards Organization) standards 7/1.

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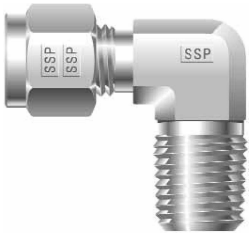

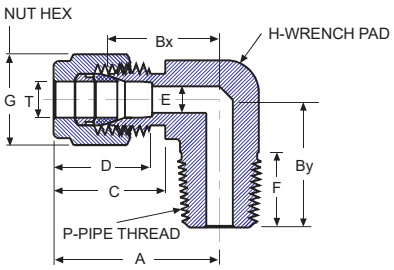

Male Elbow *(ME)*

Duolok Part #	T TUBE O.D.	P NPT MALE PIPE	A	Bx	By	C	D	E Minimum Opening	F Min.	H (inch)
DM3ME2	3	1/8	23.6	17.0	17.8	15.3	12.9	2.4	9.7	7/16
DM3ME4	3	1/4	24.6	18.0	23.4	15.3	12.9	2.4	14.2	1/2
DM4ME2	4	1/8	25.4	18.8	18.8	16.1	13.7	2.4	9.7	1/2
DM4ME4	4	1/4	25.4	18.8	23.4	16.1	13.7	2.4	14.2	1/2
DM6ME2	6	1/8	27.0	19.6	18.8	17.7	15.3	4.8	9.7	1/2
DM6ME4	6	1/4	27.0	19.6	23.4	17.7	15.3	4.8	14.2	1/2
DM6ME6	6	3/8	29.8	22.4	26.2	17.7	15.3	4.8	14.2	11/16
DM6ME8	6	1/2	31.8	22.4	33.0	17.7	15.3	4.8	19.0	13/16
DM8ME2	8	1/8	28.8	21.3	19.8	18.6	16.2	4.8	9.7	9/16
DM8ME4	8	1/4	28.8	21.3	24.4	18.6	16.2	6.4	14.2	9/16
DM8ME6	8	3/8	30.6	23.1	26.2	18.6	16.2	6.4	14.2	11/16
DM8ME8	8	1/2	32.6	25.1	33.0	18.6	16.2	6.4	19.0	13/16
DM10ME2	10	1/8	31.5	23.9	21.6	19.5	17.2	4.8	9.7	11/16
DM10ME4	10	1/4	31.5	23.9	26.2	19.5	17.2	7.1	14.2	11/16
DM10ME6	10	3/8	31.5	23.9	26.2	19.5	17.2	7.9	14.2	11/16
DM10ME8	10	1/2	33.5	25.9	33.0	19.5	17.2	7.9	19.0	13/16
DM12ME4	12	1/4	36.0	25.9	28.2	22.0	22.8	7.1	14.2	13/16
DM12ME6	12	3/8	36.0	25.9	28.2	22.0	22.8	9.5	14.2	13/16
DM12ME8	12	1/2	36.0	25.9	33.0	22.0	22.8	9.5	19.0	13/16
DM12ME12	12	3/4	39.8	29.7	36.8	22.0	22.8	9.5	19.0	1-1/16
DM15ME8	15	1/2	38.0	27.9	35.1	22.0	24.4	11.9	19.0	15/16
DM16ME6	16	3/8	38.0	27.9	30.2	22.0	24.4	9.5	14.2	15/16
DM16ME8	16	1/2	38.0	27.9	35.1	22.0	24.4	11.9	19.0	15/16
DM16ME12	16	3/4	39.8	29.7	36.8	22.0	24.4	12.7	19.0	1-1/16
DM18ME8	18	1/2	39.8	29.7	36.8	22.0	24.4	11.9	19.0	1-1/16
DM18ME12	18	3/4	39.8	29.7	36.8	22.0	24.4	15.1	19.0	1-1/16
DM20ME8	20	1/2	44.6	34.5	41.7	22.0	26.0	11.9	19.0	1-3/8
DM20ME12	20	3/4	44.6	34.5	41.7	22.0	26.0	15.9	19.0	1-3/8
DM22ME12	22	3/4	44.6	34.5	41.7	22.0	26.0	15.9	19.0	1-3/8
DM22ME16	22	1	44.6	34.5	46.5	22.0	26.0	18.3	23.9	1-3/8
DM25ME12	25	3/4	49.1	36.8	41.7	26.5	31.3	15.9	19.0	1-3/8
DM25ME16	25	1	49.1	36.8	46.5	26.5	31.3	21.8	23.9	1-3/8

Finger-tight assembly dimensions (shown in mm unless specified) are for reference only and subject to change.
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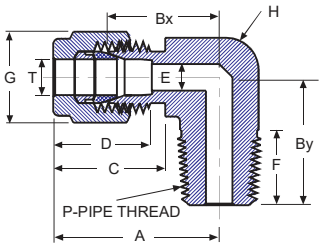
Fractional Tube to ISO Thread Fittings



Male Elbow - ISO Tapered *(MERT)*

Duolok Part #	T Tube O.D.	P ISO MALE PIPE	A	F	C	D	E Minimum Opening	H Wrench Pad (inch)	G Hex Flat	Bx	By
DM3MERT2	3	1/8	23.6	9.7	15.3	12.9	2.4	7/16	12	17.0	17.8
DM3MERT4	3	1/4	24.6	14.2	15.3	12.9	2.4	1/2	12	18.0	23.4
DM4MERT2	4	1/8	25.4	9.7	16.1	13.7	2.4	1/2	12	18.8	18.8
DM4MERT4	4	1/4	25.4	14.2	16.1	13.7	2.4	1/2	12	18.8	23.4
DM6MERT2	6	1/8	27.0	9.7	17.7	15.3	4.8	1/2	14	19.6	18.8
DM6MERT4	6	1/4	27.0	14.2	17.7	15.3	4.8	1/2	14	19.6	23.4
DM6MERT6	6	3/8	29.8	14.2	17.7	15.3	4.8	11/16	14	22.4	26.2
DM6MERT8	6	1/2	31.8	19.0	17.7	15.3	4.8	13/16	14	24.4	33.0
DM8MERT2	8	1/8	28.8	9.7	18.6	16.2	4.8	9/16	16	21.3	19.8
DM8MERT4	8	1/4	28.8	14.2	18.6	16.2	6.4	9/16	16	21.3	24.4
DM8MERT6	8	3/8	30.6	14.2	18.6	16.2	6.4	11/16	16	23.1	26.2
DM8MERT8	8	1/2	32.6	19.0	18.6	16.2	6.4	13/16	16	25.1	33.0
DM10MERT4	10	1/4	31.5	14.2	19.5	17.2	7.1	11/16	19	23.9	26.2
DM10MERT6	10	3/8	31.5	14.2	19.5	17.2	7.9	11/16	19	23.9	26.2
DM10MERT8	10	1/2	33.5	19.0	19.5	17.2	7.9	13/16	19	25.9	33.0
DM12MERT2	12	1/8	36.0	9.7	22.0	22.8	4.8	13/16	22	25.9	23.6
DM12MERT4	12	1/4	36.0	14.2	22.0	22.8	7.1	13/16	22	25.9	28.2
DM12MERT6	12	3/8	36.0	14.2	22.0	22.8	9.5	13/16	22	25.9	28.2
DM12MERT8	12	1/2	36.0	19.0	22.0	22.8	9.5	13/16	22	25.9	33.0
DM12MERT12	12	3/4	39.8	19.0	22.0	22.8	9.5	1-1/16	22	29.7	36.8
DM16MERT6	16	3/8	38.0	14.2	22.0	24.4	9.5	15/16	25	27.9	30.2
DM16MERT8	16	1/2	38.0	19.0	22.0	24.2	11.9	15/16	25	27.9	35.1
DM18MERT8	18	1/2	39.8	19.0	22.0	24.4	11.9	1-1/16	30	29.7	36.8
DM18MERT12	18	3/4	39.8	19.0	22.0	24.4	15.1	1-1/16	30	29.7	36.8
DM20MERT8	20	1/2	44.6	19.0	22.0	26.0	11.9	1-3/8	32	34.5	41.7
DM20MERT12	20	3/4	44.6	19.0	22.0	26.0	15.9	1-3/8	32	34.5	41.7
DM22MERT12	22	3/4	44.6	19.0	22.0	26.0	15.9	1-3/8	32	34.5	41.7
DM22MERT16	22	1	44.6	23.9	22.0	26.0	18.3	1-3/8	32	34.5	46.5
DM25MERT12	25	3/4	49.1	19.0	26.5	31.3	15.9	1-3/8	38	36.8	41.7
DM25MERT16	25	1	49.1	23.9	26.5	31.3	21.8	1-3/8	38	36.8	46.5

NOTE: RT threaded fittings conform to ISO (International Standards Organization) standards 7/1.

Finger-tight assembly dimensions (shown in mm unless specified) are for reference only and subject to change.
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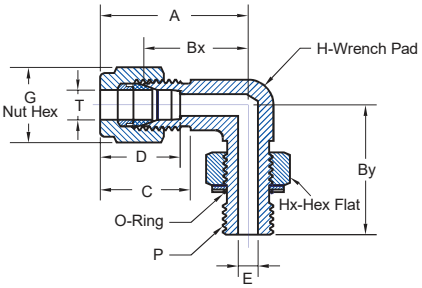

Male Elbow ISO Parallel *(MERS)*

Duolok Part #	T TUBE O.D.	P ISO MALE PIPE	A	Bx	By	C	D	E	F	G	H (inch)	Hx (inch)
DM6MERS2	6	1/8	27.0	19.6	26.4	17.7	15.3	4	8.1	14	1/2	9/16
DM6MERS4	6	1/4	29.0	21.6	32.3	17.7	15.3	4.8	9.1	14	5/8	3/4
DM8MERS2	8	1/8	28.8	21.3	27.4	18.6	16.2	4	8.1	16	9/16	9/16
DM8MERS4	8	1/4	29.9	22.4	32.2	18.6	16.2	5.9	9.1	16	5/8	3/4
DM10MERS4	10	1/4	33.5	25.9	35.0	19.5	17.2	5.9	9.1	19	13/16	3/4
DM10MERS6	10	3/8	33.5	25.9	37.1	19.5	17.2	7.9	9.4	19	13/16	7/8
DM12MERS4	12	1/4	36.0	25.9	35.0	22.0	22.8	5.9	9.1	22	13/16	3/4
DM12MERS6	12	3/8	36.0	25.9	37.1	22.0	22.8	7.9	9.4	22	13/16	7/8
DM12MERS8	12	1/2	38.0	27.9	43.4	22.0	22.8	9.5	13.0	22	15/16	1-1/16
DM12MERS12	12	3/4	39.8	29.7	48.8	22.0	22.8	9.5	13.0	22	1-1/16	1-3/8

NOTE: RS threaded fittings conform to ISO (International Standards Organization) standards 228/1. The standard gasket for RS fittings is a composite gasket. This gasket features a 300 series stainless steel outer ring with a Buna inner ring bonded to it.

Finger-tight assembly dimensions (shown in mm unless specified) are for reference only and subject to change.
When ordering specify material designator with part number (see page 3 for complete ordering information).
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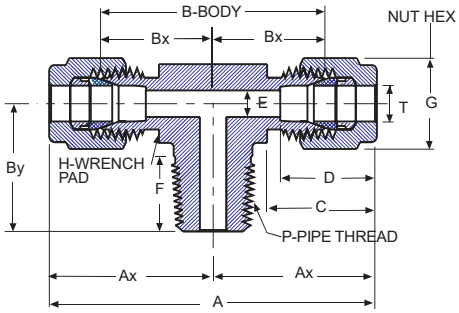
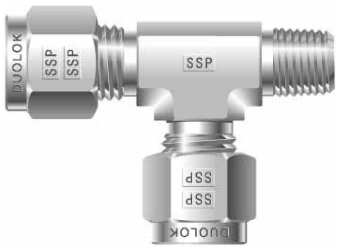
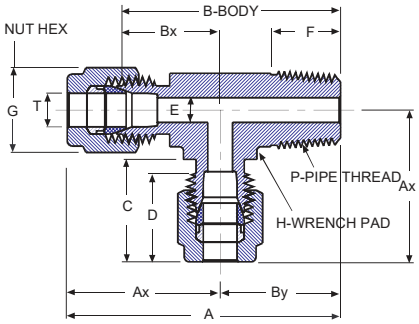
Tube to Female Pipe



Male Branch Tee *(MBT)*

Duolok Part #	T TUBE O.D.	P NPT MALE PIPE	A	Ax	B	Bx	By	C	D	E Minimum Opening	F Min	G	H (inch)
DM6MBT2	6	1/8	53.9	27.0	39.1	19.6	18.8	17.7	15.3	4.8	9.7	14	1/2
DM6MBT4	6	1/4	53.9	27.0	39.1	19.6	23.4	17.7	15.3	4.8	14.2	14	1/2
DM8MBT2	8	1/8	59.7	29.9	44.7	22.4	20.8	18.6	16.2	4.8	9.7	16	5/8
DM8MBT4	8	1/4	59.7	29.9	44.7	22.4	25.4	18.6	16.2	6.4	14.2	16	5/8
DM10MBT4	10	1/4	67.0	33.5	51.8	25.9	26.2	19.5	17.2	7.1	14.2	19	13/16
DM12MBT4	12	1/4	72.0	36.0	51.8	25.9	28.2	22.0	22.8	7.1	14.2	22	13/16
DM12MBT6	12	3/8	72.0	36.0	51.8	25.9	28.2	22.0	22.8	9.5	14.2	22	13/16
DM12MBT8	12	1/2	72.0	36.0	51.8	25.9	33.0	22.0	22.8	9.5	19.0	22	13/16
DM16MBT8	16	1/2	77.6	38.8	57.4	28.7	35.8	22.0	24.4	11.9	19.0	25	1





Male Run Tee *(MRT)*

Duolok Part #	T TUBE O.D.	P NPT MALE PIPE	A	AX	B	Bx	By	C	D	E Minimum Opening	F Min.	G	H (inch)
DM6MRT2	6	1/8	45.8	27.0	38.4	19.6	18.0	17.7	15.3	4.8	9.7	14	1/2
DM6MRT4	6	1/4	50.3	27.0	42.9	19.6	23.4	17.7	15.3	4.8	14.2	14	1/2
DM8MRT4	8	1/4	55.3	29.9	47.8	22.4	25.4	18.6	16.2	6.4	14.2	16	5/8
DM12MRT4	12	1/4	64.2	36.0	54.1	25.9	28.2	22.0	22.8	7.1	14.2	22	13/16
DM12MRT8	12	1/2	69.0	36.0	58.9	25.9	33.0	22.0	22.8	9.5	19.0	22	13/16
DM16MRT8	16	1/2	73.1	38.0	63.0	27.9	35.0	22.0	24.4	11.9	19.0	25	15/16

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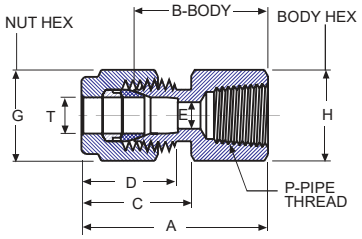
Visit www.sspfittings.com for the controlled version of data.



Female Connector *(FC)*

Duolok Part #	T TUBE O.D.	P NPT FEMALE PIPE	A	B	C	D	E Minimum Opening	G	H
DM3FC2	3	1/8	28.7	22.1	15.3	12.9	2.4	12	14
DM3FC4	3	1/4	33.5	26.9	15.3	12.9	2.4	12	19
DM4FC2	4	1/8	29.7	23.1	16.1	13.7	2.4	12	14
DM6FC2	6	1/8	31.3	23.9	17.7	15.3	4.8	14	14
DM6FC4	6	1/4	35.8	28.4	17.7	15.3	4.8	14	19
DM6FC6	6	3/8	37.6	30.2	17.7	15.3	4.8	14	22
DM6FC8	6	1/2	42.5	35.1	17.7	15.3	4.8	14	27
DM8FC2	8	1/8	32.1	24.6	18.6	16.2	6.4	16	15
DM8FC4	8	1/4	37.0	29.5	18.6	16.2	6.4	16	19
DM8FC6	8	3/8	38.5	31.0	18.6	16.2	6.4	16	22
DM8FC8	8	1/2	43.3	35.8	18.6	16.2	6.4	16	27
DM10FC4	10	1/4	37.8	30.2	19.5	17.2	7.9	19	19
DM10FC6	10	3/8	39.4	31.8	19.5	17.2	7.9	19	22
DM10FC8	10	1/2	44.2	36.6	19.5	17.2	7.9	19	27
DM12FC4	12	1/4	40.3	30.2	22.0	22.8	9.5	22	22
DM12FC6	12	3/8	41.9	31.8	22.0	22.8	9.5	22	22
DM12FC8	12	1/2	46.7	36.6	22.0	22.8	9.5	22	27
DM15FC8	15	1/2	46.7	36.6	22.0	24.4	11.9	25	27
DM16FC8	16	1/2	46.9	36.8	22.0	24.4	12.7	25	27
DM20FC8	20	1/2	47.9	37.8	22.0	26.0	15.9	32	30
DM20FC12	20	3/4	49.7	39.6	22.0	26.0	15.9	32	35
DM22FC12	22	3/4	49.7	39.6	22.0	26.0	18.3	32	35
DM22FC16	22	1	57.9	47.8	22.0	26.0	18.3	32	41
DM25FC12	25	3/4	53.4	41.1	26.5	31.3	21.8	38	35
DM25FC16	25	1	62.3	50.0	26.5	31.3	21.8	38	41

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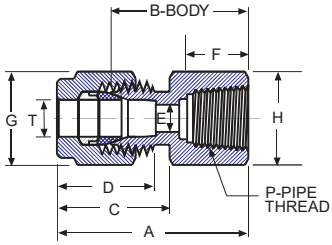
Tube to Female Pipe



Female Connector ISO Tapered *(FCRT)*

Duolok Part #	T TUBE O.D.	P ISO FEMALE PIPE	A	B	C	D	E Minimum Opening	F	G	H
DM3FCRT2	3	1/8	28.7	22.1	15.3	12.9	2.4	10.4	12	14
DM6FCRT2	6	1/8	31.3	23.9	17.7	15.3	4.8	10.4	14	14
DM6FCRT4	6	1/4	35.8	28.4	17.7	15.3	4.8	15.0	14	19
DM6FCRT6	6	3/8	37.6	30.2	17.7	15.3	4.8	15.0	14	22
DM6FCRT8	6	1/2	42.5	35.1	17.7	15.3	4.8	19.8	14	27
DM8FCRT2	8	1/8	32.1	24.6	18.6	16.2	6.4	10.4	16	15
DM8FCRT4	8	1/4	37.0	29.5	18.6	16.2	6.4	15.0	16	19
DM8FCRT6	8	3/8	38.5	31.0	18.6	16.2	6.4	15.0	16	22
DM8FCRT8	8	1/2	43.3	35.8	18.6	16.2	6.4	19.8	16	27
DM10FCRT2	10	1/8	33.0	25.4	19.5	17.2	7.9	10.4	19	18
DM10FCRT4	10	1/4	37.8	30.2	19.5	17.2	7.9	15.0	19	19
DM10FCRT6	10	3/8	39.4	31.8	19.5	17.2	7.9	19.5	19	22
DM10FCRT8	10	1/2	44.2	36.6	19.5	17.2	7.9	19.8	19	27
DM12FCRT2	12	1/8	35.5	25.4	22.0	22.8	8.3	10.4	22	22
DM12FCRT4	12	1/4	40.3	30.2	22.0	22.8	9.5	15.0	22	22
DM12FCRT6	12	3/8	41.9	31.8	22.0	22.8	9.5	15.0	22	22
DM12FCRT8	12	1/2	46.7	36.6	22.0	22.8	9.5	19.8	22	27
DM12FCRT12	12	3/4	49.0	38.9	22.0	22.8	9.5	20.6	22	35
DM15FCRT6	15	3/8	41.9	31.8	22.0	24.4	11.9	15.0	25	24
DM15FCRT8	15	1/2	46.7	36.6	22.0	24.4	11.9	19.8	25	27
DM20FCRT8	20	1/2	47.9	37.8	22.0	26.0	15.9	19.8	32	30
DM20FCRT12	20	3/4	49.7	39.6	22.0	26.0	15.9	20.6	32	35
DM22FCRT12	22	3/4	49.7	39.6	22.0	26.0	18.3	20.6	32	35
DM22FCRT16	22	1	57.9	47.8	22.0	26.0	18.3	25.4	32	41
DM25FCRT12	25	3/4	53.4	41.1	26.5	31.3	21.8	20.6	38	35
DM25FCRT16	25	1	62.3	50.0	26.5	31.3	21.8	25.4	38	41

NOTE: RT threaded fittings conform to ISO (International Standards Organization) standards 7/1.

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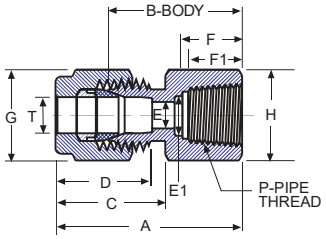

Female Connector ISO Parallel *(FCRG)*

Duolok Part #	T TUBE O.D.	P ISO FEMALE PIPE	A	B	C	D	E	E1	F	F1	G	H
DM3FCRG4	3	1/4	35.3	28.7	15.3	12.9	2.4	5.5	12.9	10.0	12	19
DM6FCRG4	6	1/4	37.6	30.2	17.7	15.3	4.8	5.5	12.9	10.0	14	22
DM6FCRG6	6	3/8	37.6	30.2	17.7	15.3	4.8	6.5	14.1	10.0	14	24
DM6FCRG8	6	1/2	43.5	36.1	17.7	15.3	4.8	7.0	18.9	14.5	14	27
DM8FCRG4	8	1/4	38.5	31.0	18.6	16.2	5.5	5.5	12.9	10.0	16	22
DM8FCRG6	8	3/8	36.2	28.7	18.6	16.2	6.5	6.5	14.1	10.0	16	24
DM8FCRG8	8	1/2	41.0	33.5	18.6	16.2	7.0	7.0	18.9	14.5	16	27
DM10FCRG4	10	1/4	39.4	31.8	19.5	17.2	5.5	5.5	12.9	10.0	19	22
DM10FCRG6	10	3/8	38.8	31.2	19.5	17.2	6.5	6.5	14.1	10.0	19	24
DM10FCRG8	10	1/2	42.1	34.5	19.5	17.2	7.0	7.0	18.9	14.5	19	27
DM12FCRG4	12	1/4	41.9	31.8	22.0	22.8	5.5	5.5	12.9	10.0	22	22
DM12FCRG6	12	3/8	44.4	34.3	22.0	22.8	6.5	6.5	14.1	10.0	22	24
DM12FCRG8	12	1/2	48.2	38.1	22.0	22.8	7.0	7.0	18.9	14.5	22	27
DM20FCRG8	20	1/2	54.3	44.2	22.0	26.0	7.0	7.0	18.9	14.5	32	30
DM22FCRG8	22	1/2	54.3	44.2	22.0	26.0	7.0	7.0	18.9	14.5	32	30

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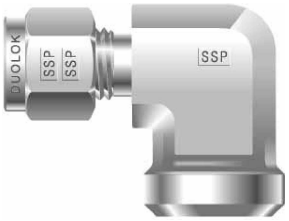
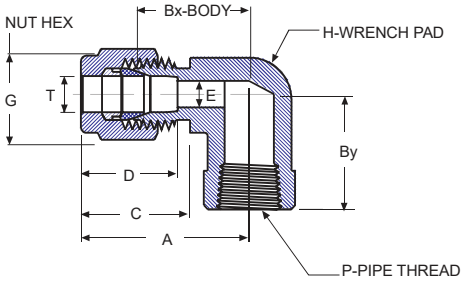
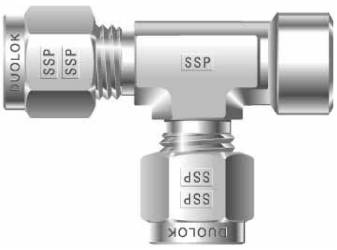
Tube to Female Pipe

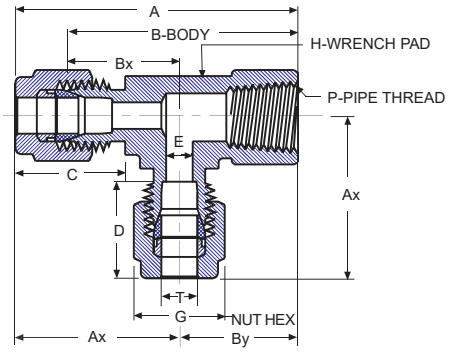




Female Elbow *(FE)*

Duolok Part #	T TUBE O.D.	P NPT FEMALE PIPE	A	Bx	By	C	D	E Minimum Opening	G	H (inch)
DM6FE2	6	1/8	27.0	19.6	19.0	17.7	15.3	4.8	14	1/2
DM6FE4	6	1/4	29.8	22.4	22.4	17.7	15.3	4.8	14	11/16
DM6FE8	6	1/2	34.6	27.2	28.4	17.7	15.3	4.8	14	1
DM8FE4	8	1/4	30.6	23.1	22.4	18.6	16.2	6.4	16	11/16
DM10FE2	10	1/8	31.5	23.9	19.0	19.5	17.2	7.9	19	11/16
DM10FE4	10	1/4	33.5	25.9	22.4	19.5	17.2	7.9	19	13/16
DM12FE4	12	1/4	36.0	25.9	22.4	22.0	22.8	9.5	22	13/16
DM12FE8	12	1/2	38.8	28.7	28.4	22.0	22.8	9.5	22	1
DM16FE8	16	1/2	39.5	29.7	28.4	22.0	24.4	12.7	25	1-1/16





Female Run Tee *(FRT)*

Duolok Part #	T TUBE O.D.	P NPT FEMALE PIPE	A	AX	B	Bx	By	C	D	E Minimum Opening	G	H (inch)
DM6FRT2	6	1/8	46.0	27.0	38.6	19.6	19.0	17.7	15.3	4.8	14	1/2
DM6FRT4	6	1/4	52.1	29.8	44.7	22.4	22.4	17.7	15.3	4.8	14	11/16
DM8FRT2	8	1/8	48.9	29.9	41.4	22.4	19.0	18.6	16.2	6.4	16	5/8
DM8FRT4	8	1/4	53.0	30.6	45.5	23.1	22.4	18.6	16.2	6.4	16	11/16
DM10FRT4	10	1/4	55.9	33.5	48.3	25.9	22.4	19.5	17.2	7.9	19	13/16
DM12FRT4	12	1/4	58.4	36.0	48.3	25.9	22.4	22.0	22.8	9.5	22	13/16
DM12FRT6	12	3/8	58.4	36.0	43.8	25.9	22.4	22.0	22.8	10.3	22	13/16
DM16FRT8	16	1/2	68.2	39.8	58.1	29.7	28.4	22.0	24.4	12.7	25	1-1/16

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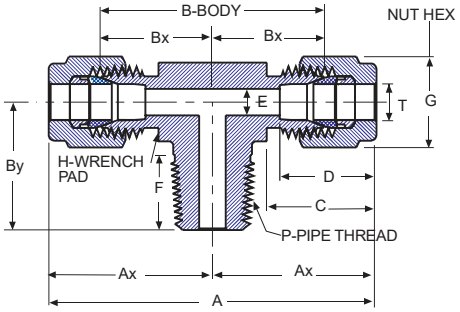
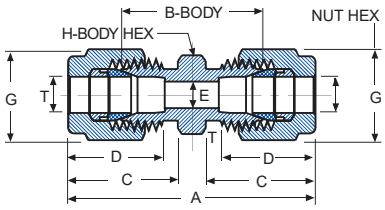
Tube to Female Pipe/Tube to Tube Union



Female Branch Tee *(FBT)*

Duolok Part #	T TUBE O.D.	P NPT FEMALE PIPE	A	Ax	B	Bx	By	C	D	E Minimum Opening	G	H (inch)
DM6FBT2	6	1/8	53.9	27	39.1	19.6	19.0	17.7	15.3	4.8	14	1/2
DM6FBT4	6	1/4	59.5	29.8	44.7	22.4	22.4	17.7	15.3	4.8	14	11/16
DM8FBT2	8	1/8	59.7	29.9	44.7	22.4	19.0	18.6	16.2	6.4	16	5/8
DM8FBT4	8	1/4	61.2	30.6	46.2	23.1	22.4	18.6	16.2	6.4	16	11/16
DM10FBT4	10	1/4	67.0	33.5	51.8	25.9	22.4	19.5	17.2	7.9	19	13/16
DM12FBT4	12	1/4	72.0	36.0	51.8	25.9	22.4	22.0	22.8	9.5	22	13/16
DM12FBT6	12	3/8	72.0	36.0	51.8	25.9	22.4	22.0	22.8	9.5	22	13/16
DM16FBT8	16	1/2	77.6	38.8	57.4	28.7	28.4	22.0	24.4	12.7	25	1



Union *(U)*

Duolok Part #	T TUBE O.D.	A	B	C	D	E Minimum Opening	G	H
DM2U	2	35.6	22.4	15.3	12.9	1.7	12	12
DM3U	3	35.3	22.1	15.3	12.9	2.4	12	12
DM4U	4	37.3	24.1	16.1	13.7	2.4	12	12
DM6U	6	41.0	26.2	17.7	15.3	4.8	14	14
DM8U	8	43.2	28.2	18.6	16.2	6.4	16	15
DM10U	10	46.2	31.0	19.5	17.2	7.9	19	18
DM12U	12	51.2	31.0	22.0	22.8	9.5	22	22
DM14U	14	52.0	31.8	22.0	24.4	11.1	25	24
DM15U	15	52.0	31.8	22.0	24.4	11.9	25	24
DM16U	16	52.0	31.8	22.0	24.4	12.7	25	24
DM18U	18	53.5	33.3	22.0	24.4	15.1	30	27
DM20U	20	55.0	34.8	22.0	26.0	15.9	32	30
DM22U	22	55.0	34.8	22.0	26.0	18.3	32	30
DM25U	25	65.0	40.4	26.5	31.3	21.8	38	35

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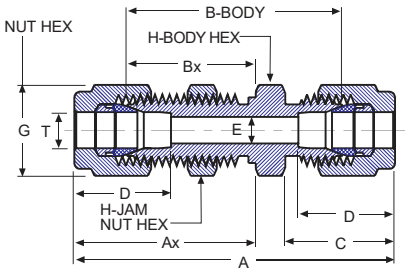
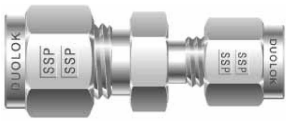
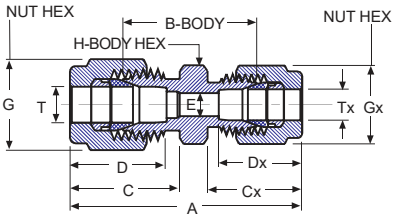
Tube to Tube Union



Bulkhead Union *(BU)*

Duolok Part #	T TUBE O.D.	A	Ax	B	Bx	C	D	E Minimum Opening	G	H	PANNEL HOLE DRILL SIZE	MAXIMUM PANNEL THICKNESS
DM3BU	3	51.3	31.2	31.8	24.6	15.3	12.9	2.4	12	14	8.3	12.7
DM4BU	4	53.6	32.0	40.4	25.4	16.1	13.7	2.4	12	14	9.9	12.7
DM6BU	6	57.7	33.6	42.9	26.2	17.7	15.3	4.8	14	16	11.5	10.2
DM8BU	8	61.0	36.1	46.0	28.6	18.6	16.2	6.4	16	18	13.1	11.2
DM10BU	10	63.7	37.0	48.5	29.4	19.5	17.2	7.9	19	22	16.3	11.2
DM12BU	12	71.0	41.9	50.8	31.8	22.0	22.8	9.5	22	24	19.5	12.7
DM14BU	14	72.5	42.6	52.3	32.5	22.0	24.4	11.1	26	27	22.5	12.7
DM15BU	15	72.5	42.6	52.3	32.5	22.0	24.4	11.9	26	27	22.8	12.7
DM16BU	16	72.5	42.6	52.3	32.5	22.0	24.4	12.7	26	27	22.8	12.7
DM18BU	18	78.9	47.4	58.7	37.3	22.0	24.4	15.1	30	30	26.0	16.8
DM20BU	20	84.5	53.0	64.3	42.9	22.0	26.0	15.9	32	35	29.0	19.0

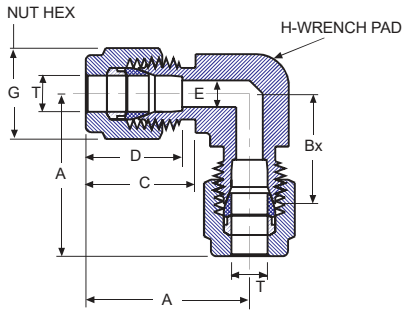




Reducing Union *(RU)*

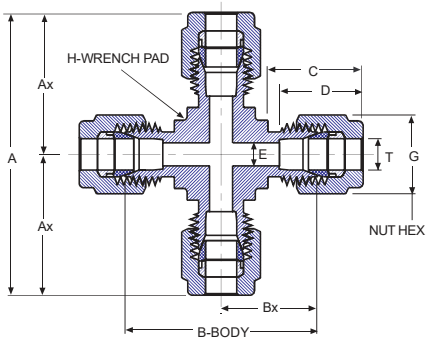
Duolok Part #	T TUBE O.D.	TX TUBE O.D.	A	B	C	Cx	D	Dx	E Minimum Opening	G	Gx	H
DM3RU2	3	2	35.3	22.1	15.3	15.3	12.9	12.9	1.7	12	12	12
DM6RU2	6	2	38.6	24.6	17.7	15.3	15.3	12.9	1.7	14	12	14
DM6RU3	6	3	38.6	24.6	17.7	15.3	15.3	12.9	2.4	14	12	14
DM6RU4	6	4	39.4	25.4	17.7	16.1	15.3	13.7	2.4	14	12	14
DM8RU6	8	6	42.3	27.4	18.6	17.7	16.2	15.3	4.8	16	14	15
DM10RU6	10	6	44.1	29.5	19.5	17.7	17.2	15.3	4.8	19	14	18
DM10RU8	10	8	45.1	30.0	19.5	18.6	17.2	16.2	6.4	19	16	18
DM12RU6	12	6	47.0	29.5	22.0	17.7	22.8	15.3	4.8	22	14	22
DM12RU8	12	8	47.8	30.2	22.0	18.6	22.8	16.2	6.4	22	16	22
DM12RU10	12	10	48.7	31.0	22.0	19.5	22.8	17.2	7.9	22	19	22
DM16RU10	16	10	45.9	31.8	22.0	19.5	24.4	17.2	7.9	25	19	24
DM16RU12	16	12	52.0	31.8	22.0	22.0	24.4	22.8	9.5	25	22	24
DM18RU12	18	12	53.5	33.3	22.0	22.0	24.4	22.8	9.5	30	22	27
DM25RU18	25	18	61.0	38.6	26.5	22.0	31.3	24.4	15.1	38	30	35
DM25RU20	25	20	62.3	39.9	26.5	22.0	31.3	26.0	15.9	38	32	35

Finger-tight assembly dimensions (shown in mm unless specified) are for reference only and subject to change.
When ordering specify material designator with part number (see page 3 for complete ordering information).
Visit www.sspfittings.com for the controlled version of data.



Union Elbow *(UE)*

Duolok Part #	T TUBE O.D.	A	Bx	C	D	E Minimum Opening	G	H (inch)
DM3UE	3	22.3	15.7	15.3	12.9	2.4	12	3/8
DM4UE	4	25.4	18.8	16.1	13.7	2.4	12	1/2
DM6UE	6	27.0	19.6	17.7	15.3	4.8	14	1/2
DM8UE	8	28.8	21.3	18.8	16.2	6.4	16	9/16
DM10UE	10	31.5	23.9	19.5	17.2	7.9	19	11/16
DM12UE	12	36.0	25.9	22.0	22.8	9.5	22	13/16
DM14UE	14	38.0	27.9	22.0	24.4	11.1	25	15/16
DM15UE	15	38.0	27.9	22.0	24.4	11.9	25	15/16
DM16UE	16	38.0	27.9	22.0	24.4	12.7	25	15/16
DM18UE	18	39.8	29.7	22.0	24.4	15.1	30	1-1/16
DM20UE	20	44.6	34.5	22.0	26.0	15.9	32	1 3/8
DM22UE	22	44.6	34.5	22.0	26.0	18.3	32	1 3/8
DM25UE	25	49.1	36.8	26.5	31.3	21.8	38	1 3/8



Union Cross *(UCS)*

Duolok Part #	T TUBE O.D.	A	Ax	B	Bx	C	D	E Minimum Opening	G	H (inch)
DM3UCS	3	44.7	22.3	31.5	15.7	15.3	12.9	2.4	12	3/8
DM6UCS	6	53.9	27.0	39.1	19.6	17.7	15.3	4.8	14	1/2
DM8UCS	8	59.7	29.9	44.7	22.4	18.6	16.2	6.4	16	5/8
DM10UCS	10	67.0	33.5	51.8	25.9	19.5	17.2	7.9	19	13/16
DM12UCS	12	72.0	36.0	51.8	25.9	22.0	22.8	9.5	22	13/16
DM16UCS	16	74.0	37.0	53.8	26.9	22.0	24.4	12.7	25	15/16
DM18UCS	18	76.6	38.3	56.4	28.2	22.0	24.4	15.1	30	1-1/16
DM20UCS	20	89.3	44.6	69.1	34.5	22.0	26.0	15.9	32	1-3/8
DM25UCS	25	98.3	49.1	73.7	36.8	26.5	31.3	21.8	38	1-3/8

Finger-tight assembly dimensions (shown in mm unless specified) are for reference only and subject to change.
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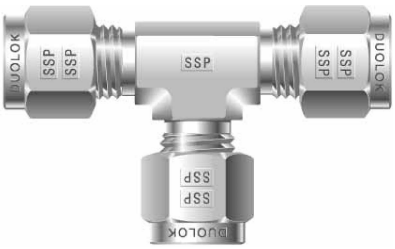
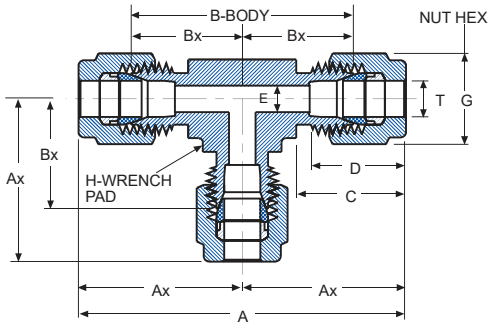
Tube to Tube Union



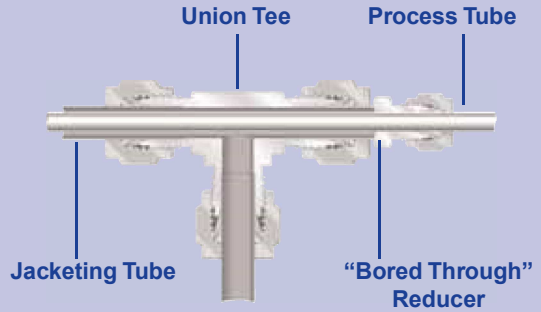


Union Tee *(UT)*

Duolok Part #	T TUBE O.D.	A	AX	B	Bx	C	D	E Minimum Opening	G	H (inch)
DM2UT	2	44.7	22.3	31.5	15.7	15.3	12.9	1.7	12	3/8
DM3UT	3	44.7	22.3	31.5	15.7	15.3	12.9	2.4	12	3/8
DM4UT	4	50.8	25.4	37.6	18.8	16.1	13.7	2.4	12	1/2
DM6UT	6	53.9	27.0	39.1	19.6	17.7	15.3	4.8	14	1/2
DM8UT	8	59.7	29.9	44.7	22.4	18.6	16.2	6.4	16	5/8
DM10UT	10	63.0	31.5	47.8	23.9	19.5	17.2	7.9	19	11/16
DM12UT	12	72.0	36.0	51.8	25.9	22.0	22.8	9.5	22	13/16
DM14UT	14	77.6	38.8	57.4	28.7	22.0	24.4	11.1	25	1
DM15UT	15	77.6	38.8	57.4	28.7	22.0	24.4	11.9	25	1
DM16UT	16	77.6	38.8	57.4	28.7	22.0	24.4	12.7	25	1
DM18UT	18	79.6	39.8	59.4	29.7	22.0	24.4	15.1	30	1-1/16
DM20UT	20	89.3	44.6	69.1	34.5	22.0	26.0	15.9	32	1-3/8
DM22UT	22	89.3	44.6	69.1	34.5	22.0	26.0	18.3	32	1-3/8
DM25UT	25	98.3	49.1	73.7	36.8	26.5	31.3	21.8	38	1-3/8

Heat Exchanger Tee

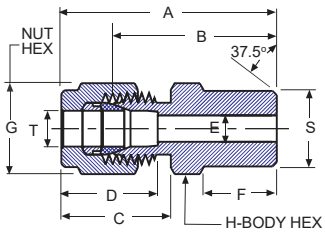
Custom configuration, forged heat exchanger tees can be designed and manufactured by SSP to customers' specific design criteria. Additionally, heat exchanger tees may be assembled by utilizing standard union tees (UT) combined with reducers that have been "bored through" (RBT fittings) to allow the process tube to be inserted into and through the jacketing tube.



Assembled Heat Exchanger Tee

NOTE: Pressure Ratings of "bored through" tube fittings are reduced. For additional information on a specific fitting's rating, contact your local distributor.

Finger-tight assembly dimensions (shown in mm unless specified) are for reference only and subject to change.
When ordering specify material designator with part number (see page 3 for complete ordering information).



Male Pipe Weld Connector *(MPWC)*

Duolok Part #	T TUBE O.D.	MALE PIPE WELD SIZE	A	B	C	D	E Minimum Opening	F	G	H	S
DM3MPWC2	3	1/8	30.5	23.9	15.3	12.9	2.4	9.7	12	12	10.3
DM4MPWC2	4	1/8	31.2	24.6	16.1	13.7	2.4	9.7	12	12	10.3
DM6MPWC2	6	1/8	32.8	25.4	17.7	15.3	4.8	9.7	14	14	10.3
DM6MPWC4	6	1/4	37.9	30.5	17.7	15.3	4.8	14.2	14	14	13.7
DM8MPWC2	8	1/8	34.2	26.7	18.6	16.2	5.4	9.7	16	15	10.3
DM8MPWC4	8	1/4	38.7	31.2	18.6	16.2	6.4	14.2	16	15	13.7
DM8MPWC8	8	1/2	45.6	38.1	18.6	16.2	6.4	19.0	16	22	21.3
DM10MPWC4	10	1/4	40.9	33.3	19.5	17.2	7.5	14.2	19	18	13.7
DM10MPWC6	10	3/8	40.9	33.3	19.5	17.2	7.9	14.2	19	18	17.1
DM10MPWC8	10	1/2	46.5	38.9	19.5	17.2	7.9	19.0	19	22	21.3
DM12MPWC4	12	1/4	43.4	33.3	22.0	22.8	7.5	14.2	22	22	13.7
DM12MPWC6	12	3/8	43.4	33.3	22.0	22.8	9.5	14.2	22	22	17.1
DM12MPWC8	12	1/2	49.0	38.9	22.0	22.8	9.5	19.0	22	22	21.3
DM14MPWC6	14	3/8	44.1	34.0	22.0	24.4	10.3	14.2	25	24	17.1
DM15MPWC8	15	1/2	49.0	38.9	22.0	24.4	11.9	19.0	25	24	21.3
DM16MPWC8	16	1/2	49.0	38.9	22.0	24.4	12.7	19.0	25	24	21.3
DM18MPWC8	18	1/2	50.5	40.4	22.0	24.4	13.9	19.0	30	27	21.3

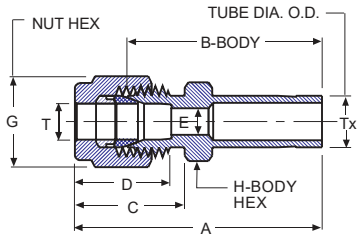
Duolok tube fittings with weld ends allow weld system connection to tubing with the advantage of a leak tight seal that can be disassembled in an otherwise permanently welded system. Weld ends conform to ANSI B31.1 and B31.3 piping codes.

Welding precautions: Prior to welding, remove the nut and ferrules. To protect the fitting body threads and seat, cover with a plug or another nut. Position a suitable heat sink to dissipate the heat. Insert the tube until bottomed out in the socket, then back out approximately 1/16” before welding.

Note: The welding of a bottomed tube may lead to stess cracking of the weld. To hold the fitting in proper alignment, tack weld the fitting in four places (90° apart) and then complete the weld. After welding, remove the protective plug or nut and replace with the nut and ferrules for tube installation following the instructions from page 6.

Finger-tight assembly dimensions (shown in mm unless specified) are for reference only and subject to change.
When ordering specify material designator with part number (see page 3 for complete ordering information).
Visit www.sspfittings.com for the controlled version of data.

Tube Stub Connectors/Adapters



Reducer/Adapter* *(R)*

Duolok Part #	T Tube O.D.	Tx Tube O.D.	A	B	C	D	E Minimum Opening	G	H
DM2R3	2	3	33.5	26.9	15.3	12.9	1.7	12	12
DM3R4	3	4	35.0	28.4	15.3	12.9	2.4	12	12
DM3R6	3	6	36.1	29.5	15.3	12.9	2.4	12	12
DM3R10	3	10	38.4	31.8	15.3	12.9	2.4	12	14
DM4R6	4	6	37.1	30.5	16.1	13.7	2.4	14	12
DM6R3	6	3	36.9	29.5	17.7	15.3	1.9	14	14
DM6R8	6	8	39.6	32.5	17.7	15.3	4.8	14	14
DM6R10	6	10	40.7	33.3	17.7	15.3	4.8	14	14
DM6R12	6	12	46.3	38.9	17.7	15.3	4.8	14	14
DM6R18	6	18	49.6	42.2	17.7	15.3	4.8	16	22
DM8R6	8	6	40.3	32.8	18.6	16.2	4.1	16	15
DM8R10	8	10	42.0	34.5	18.6	16.2	6.4	16	15
DM8R12	8	12	47.6	40.1	18.6	16.2	6.4	19	15
DM10R6	10	6	42.4	34.8	19.5	17.2	4.1	19	18
DM10R8	10	8	43.4	35.8	19.5	17.2	5.6	19	18
DM10R12	10	12	49.8	42.2	19.5	17.2	7.9	19	18
DM10R15	10	15	51.3	43.7	19.5	17.2	7.9	19	18
DM10R18	10	18	51.3	43.7	19.5	17.2	7.9	22	22
DM12R6	12	6	44.9	34.8	22.0	22.8	4.1	22	22
DM12R8	12	8	45.9	35.8	22.0	22.8	5.6	22	22
DM12R10	12	10	46.7	36.6	22.0	22.8	7.1	22	22
DM12R16	12	16	53.8	43.7	22.0	22.8	9.5	22	22
DM12R18	12	18	53.8	43.7	22.0	22.8	9.5	22	22
DM12R20	12	20	56.1	46.0	22.0	22.8	9.5	22	22
DM12R22	12	22	56.1	46.0	22.0	22.8	9.5	22	24
DM12R25	12	25	62.4	52.3	22.0	22.8	9.5	22	27
DM16R12	16	12	53.0	42.9	22.0	24.4	8.8	25	24
DM18R12	18	12	54.6	44.5	22.0	24.4	8.8	30	27
DM18R16	18	16	56.1	46.0	22.0	24.4	12.0	30	27
DM18R20	18	20	57.6	47.5	22.0	24.4	15.1	30	27
DM18R22	18	22	57.6	47.5	22.0	24.4	15.1	30	27
DM18R25	18	25	62.4	52.3	22.0	24.4	15.1	30	27
DM20R16	20	16	57.9	47.8	22.0	26.0	12.0	32	30
DM20R18	20	18	57.9	47.8	22.0	26.0	13.9	32	30
DM20R22	20	22	59.4	49.3	22.0	26.0	15.9	32	30
DM20R25	20	25	64.2	54.1	22.0	26.0	15.9	32	30
DM22R18	22	18	57.9	47.8	22.0	26.0	13.9	32	30
DM22R20	22	20	59.4	49.3	22.0	26.0	15.5	32	30
DM22R25	22	25	64.2	54.1	22.0	26.0	18.3	32	30
DM25R18	25	18	63.1	50.8	26.5	31.3	13.9	38	35
DM25R20	25	20	64.6	52.3	26.5	31.3	15.5	38	35

***NOTE:** For Heat Exchanger Tee applications (see page 25), certain Reducer/Adapter fittings can be “bored through” to accommodate a process tube’s insertion. Consult with the local distributor for further information on “bored through” Reducer/Adapter (RBT) fittings.

Finger-tight assembly dimensions (shown in mm unless specified) are for reference only and subject to change.
When ordering specify material designator with part number (see page 3 for complete ordering information).
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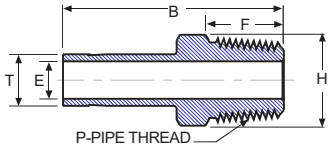
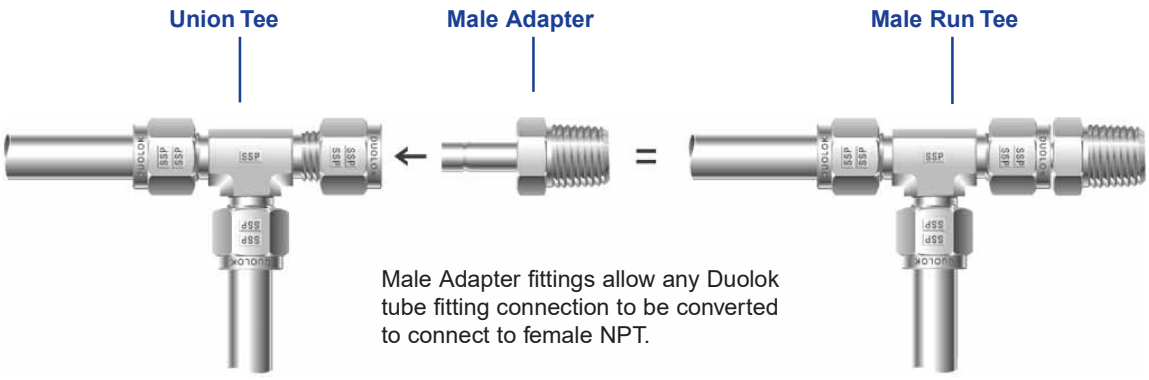


Male Adapter *(MA)*

Duolok Part #	T TUBE O.D.	P NPT MALE PIPE	B	E Minimum Opening	F	H
DM6MA2	6	1/8	32.8	4.1	9.7	12
DM6MA4	6	1/4	38.1	4.1	14.2	14
DM8MA4	8	1/4	39.1	5.6	14.2	14
DM10MA4	10	1/4	39.9	7.1	14.2	14
DM10MA6	10	3/8	40.6	7.1	14.2	18
DM10MA8	10	1/2	46.2	7.1	19.2	22
DM12MA4	12	1/4	46.5	7.1	14.2	16
DM12MA8	12	1/2	52.1	8.8	19.1	22



Finger-tight assembly dimensions (shown in mm unless specified) are for reference only and subject to change.
When ordering specify material designator with part number (see page 3 for complete ordering information).
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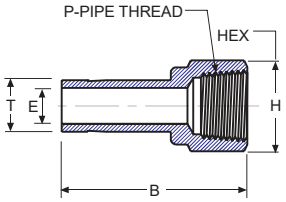
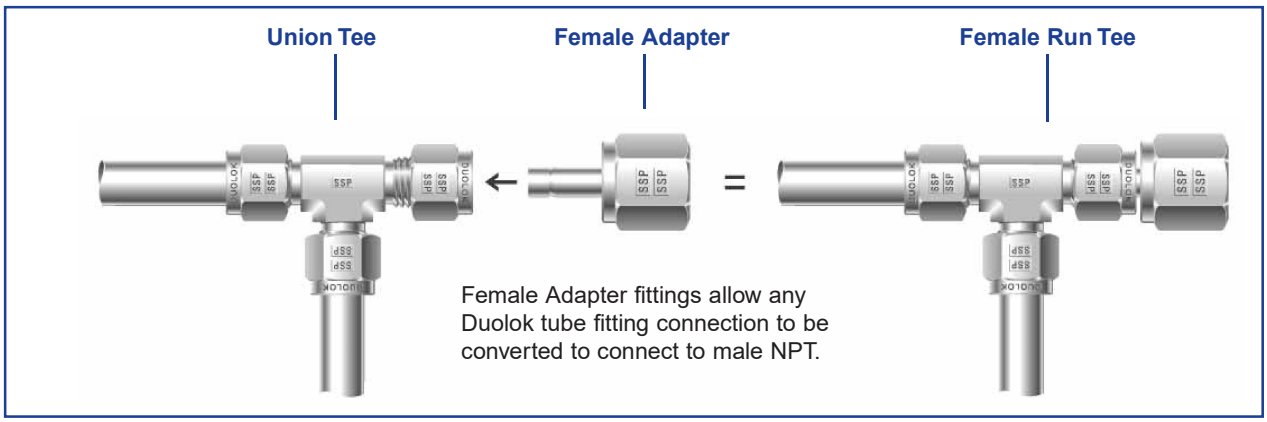
Tube Stub Connectors/Adapters



Female Adapter *(FA)*

Duolok Part #	T TUBE O.D.	P NPT FEMALE PIPE	B	E Minimum Opening	F	H
DM6FA2	6	1/8	32.5	4.1	9.9	14
DM6FA4	6	1/4	37.1	4.1	15.0	19
DM8FA4	8	1/4	37.6	5.6	15.0	19
DM10FA4	10	1/4	38.1	7.1	15.0	19
DM10FA6	10	3/8	40.1	7.1	15.0	22
DM10FA8	10	1/2	46.7	7.1	19.8	27
DM12FA4	12	1/4	43.7	8.8	15.0	19
DM12FA8	12	1/2	52.3	8.8	19.8	27



Finger-tight assembly dimensions (shown in mm unless specified) are for reference only and subject to change.
When ordering specify material designator with part number (see page 3 for complete ordering information).
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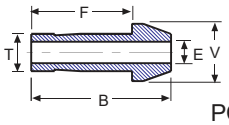
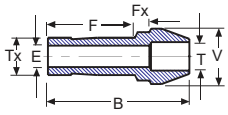
Tube Stub Connectors/Adapters



PC



RPC

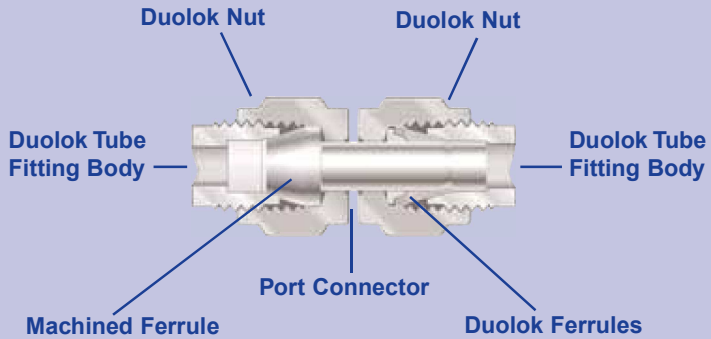
Port Connector *(PC)*

Duolok Part #	T TUBE O.D.	B	E Minimum Opening	F	V
DM3PC	3	22.2	1.9	15.7	6.0
DM6PC	6	25.0	4.1	18.7	9.0
DM8PC	8	26.0	5.6	20.0	11.0
DM10PC	10	27.1	7.1	20.2	13.1
DM12PC	12	36.2	8.8	26.0	15.0
DM15PC	15	37.8	11.2	27.6	19.0
DM16PC	16	37.8	12.0	27.6	19.0
DM18PC	18	37.8	13.9	27.6	21.0
DM20PC	20	39.4	15.5	29.2	23.0
DM25PC	25	49.3	19.9	34.5	28.0

Reducing Port Connector *(RPC)*

Duolok Part #	T TUBE O.D.	TX REDUCED TUBE O.D.	B	E Minimum Opening	F	Fx	V
DM6RPC3	6	3	22.9	1.9	13.5	3.2	9.0
DM8RPC6	8	6	25.4	4.1	15.7	3.1	11.0
DM10RPC6	10	6	25.8	4.1	15.7	3.4	13.1
DM10RPC8	10	8	26.3	5.6	17.0	3.1	13.1
DM12RPC6	12	6	29.6	4.1	15.7	3.6	15.0
DM12RPC8	12	8	30.1	5.6	16.8	3.4	15.0
DM12RPC10	12	10	30.6	7.1	17.5	3.1	15.0
DM16RPC12	16	12	37.5	8.8	23.1	3.4	19.0

Port Connectors are used to close connect two Duolok tube fitting ports.



Installation Instructions for Port Connectors

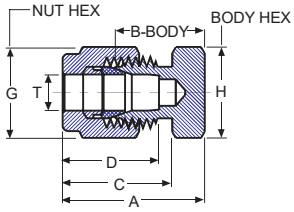
1A. Remove the Duolok nut and ferrules from the first of the Duolok tube fitting parts to be close connected.
1B. Slide the Duolok nut (no ferrules) over the machined ferrule end of the port connector.
1C. Insert the machined ferrule end of the port connector into the Duolok tube fitting port and hand tighten the Duolok nut.
1D. While holding the tube fitting body steady with a backup wrench, tighten the Duolok nut with a wrench 1/4 turn.
2. Insert opposite end of the port connector into the second tube fitting port, hand tighten the Duolok nut, and while holding the tube fitting body steady with a backup wrench; wrench tighten the Duolok nut 1-1/4 turns for all sizes.

Finger-tight assembly dimensions (shown in mm unless specified) are for reference only and subject to change.
When ordering specify material designator with part number (see page 3 for complete ordering information).
Visit www.sspfittings.com for the controlled version of data.

Cap and Plug

Cap *(CP)*

Duolok Part #	T TUBE O.D.	A	B	C	D	G	H
DM2CP	2	20.1	13.5	15.3	12.9	12	12
DM3CP	3	20.1	13.5	15.3	12.9	12	12
DM4CP	4	21.3	14.7	16.1	13.7	12	12
DM6CP	6	23.1	15.7	17.7	15.3	14	14
DM8CP	8	24.5	17.0	18.6	16.2	16	15
DM10CP	10	26.6	19.0	19.5	17.2	19	18
DM12CP	12	29.1	19.0	22.0	22.8	22	22
DM14CP	14	29.9	19.8	22.0	24.4	25	24
DM15CP	15	29.9	19.8	22.0	24.4	25	24
DM16CP	16	29.9	19.8	22.0	24.4	25	24
DM18CP	18	31.4	21.3	22.0	24.4	30	27
DM20CP	20	34.0	23.9	22.0	26.0	32	30
DM22CP	22	34.0	23.9	22.0	26.0	32	30
DM25CP	25	38.5	26.2	26.5	31.3	38	35

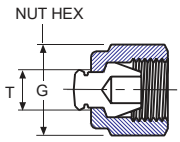


Caps are used for capping the end of a tubing run

Cap Installation Instructions
The standard Duolok tube fitting installation instructions apply for proper installation of caps (see page 6).

Plug *(P)*

Duolok Part #	T TUBE O.D.	G
DM2P	2	12
DM3P	3	12
DM4P	4	12
DM6P	6	14
DM8P	8	16
DM10P	10	19
DM12P	12	22
DM15P	15	25
DM16P	16	25
DM18P	18	30
DM20P	20	32
DM22P	22	32
DM25P	25	38



Plugs are used to plug an unused port of a Duolok tube fitting

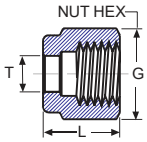
Plug Installation Instructions
1. Remove the nut and ferrules from the port of the tube fitting body to be plugged and replace with the Duolok plug.

2. Hand-tighten the Duolok plug and then while holing the tube fitting body steady with a back-up wrench, use a wrench to tighten the Duolok plug only 1/4 of a turn.

Finger-tight assembly dimensions (shown in mm unless specified) are for reference only and subject to change.
When ordering specify material designator with part number (see page 3 for complete ordering information).
Visit www.sspfittings.com for the controlled version of data.

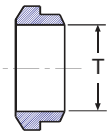
Nut *(N)*

Duolok Part #	T TUBE O.D.	G	L
DM2N	2	12	11.9
DM3N	3	12	11.9
DM4N	4	12	11.9
DM6N	6	14	12.7
DM8N	8	16	13.5
DM10N	10	19	15.1
DM12N	12	22	17.4
DM14N	14	25	17.4
DM15N	15	25	17.4
DM16N	16	25	17.4
DM18N	18	30	17.4
DM20N	20	32	17.4
DM22N	22	32	17.4
DM25N	25	38	20.6



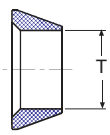
Back Ferrule *(BF)*

Duolok Part #	TUBE O.D.
DM2BF	2
DM3BF	3
DM4BF	4
DM6BF	6
DM8BF	8
DM10BF	10
DM12BF	12
DM14BF	14
DM15BF	15
DM16BF	16
DM18BF	18
DM20BF	20
DM22BF	22
DM25BF	25



Front Ferrule *(FF)*

Duolok Part #	TUBE O.D.
DM2FF	2
DM3FF	3
DM4FF	4
DM6FF	6
DM8FF	8
DM10FF	10
DM12FF	12
DM14FF	14
DM15FF	15
DM16FF	16
DM18FF	18
DM20FF	20
DM22FF	22
DM25FF	25



Finger-tight assembly dimensions (shown in mm unless specified) are for reference only and subject to change.
When ordering specify material designator with part number (see page 3 for complete ordering information).
Visit www.sspfittings.com for the controlled version of data.

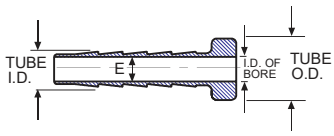
Ferrule Set *(FS)*

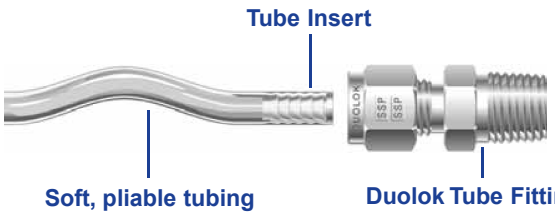
Duolok Part #	TUBE O.D.
DM6FS	6
DM8FS	8
DM10FS	10
DM12FS	12

A Ferrule Set (FS) consists of one front ferrule and one rear ferrule and is conveniently packaged and sold in multiples of ten sets per "holding tube" housing. *To order twenty (20) sets of the 1/4" 316 Stainless Steel front and back ferrules, specify: 20 pcs.* **ISSD4FS**

Tube Insert *(TI)*

Duolok Part #	TUBE O.D.	TUBE I.D.	I.D. OF BORE
DM6TI4	6	4	2.8
DM8TI6	8	6	4.4
DM10TI8	10	8	6.4
DM12TI8	12	8	6.4
DM12TI10	12	10	8.3

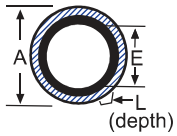




In general, Duolok tube fittings may be used with a variety of plastic tube materials without any special preparations. However, very soft-wall, pliable tubing such as Tygon® needs a tube insert for support prior to insertion in the Duolok tube fitting. The standard Duolok tube fitting installation instructions (see page 6) are then followed for proper make-up.

Bonded Washer *(DW)*

Duolok Part #	ISO PIPE SIZE	E	A	L
2DW-BSPP	1/8	10.4	16.0	2.0
4DW-BSPP	1/4	13.7	20.6	2.0
6DW-BSPP	3/8	17.3	23.9	2.0
8DW-BSPP	1/2	21.6	28.7	2.5
12DW-BSPP	3/4	26.9	35.1	2.5
16DW-BSPP	1	33.8	42.9	2.5



Comes standard as steel washer with Buna inner ring. Also available with Viton® ring or as a stainless steel washer with Viton® ring. Add -V for Viton® or -SS-V for stainless steel/ Viton®

Finger-tight assembly dimensions (shown in mm unless specified) are for reference only and subject to change.
When ordering specify material designator with part number (see page 3 for complete ordering information).
Visit www.sspfittings.com for the controlled version of data.

SSP flareless instrumentation quality tube fittings have been designed and manufactured to provide leak free connections in a wide variety of applications. The design characteristics of the tube fittings compensate for many of the field variables involved in the installation of the tube fittings and with the tolerances, wall thickness, finish and quality of the tubing. A reliable leak free tubing system will be achieved by combining the proper selection and handling of tubing with the proper tube fitting selection and installation. The following information is provided to assist in the tube selection process.

MATERIAL

The tubing material chosen must be compatible with the system‘s contained media, pressure and temperature, as well as with the environment in which it will be installed. Also, the tubing and tube fitting materials should be similar for optimum sealing action to occur (stainless fittings for stainless tube, brass fittings for copper tube, carbon steel fittings for carbon steel tube, etc.) The mixing and contact of dissimilar materials may leave the system susceptible to galvanic corrosion and/or not allow proper tube fitting make up to be achieved. Additionally, the tube fittings have been designed and manufactured to function within the hardness ranges allowed for similar tubing material by applicable ASTM specifications as referred to in Table 2.

PRESSURE AND FLOW

The size of the tube’s outside diameter (O.D.) and the necessary wall thickness are determined by the systems pressure and flow requirements. Table 1 details the suggested tubing sizes and wall thicknesses for use with instrument tube fittings. Additionally, the tables provide the maximum allowable working pressures for each size of tube recommended for use with instrument tube fittings. If no pressure is shown on the table for a particular size, the tube is not recommended for use with instrumentation tube fittings. The tubing system should not be utilized above the tube’s maximum allowable working pressure; however, instrument tube fittings have been tested as leak tight to the burst pressure of the tubing in all recommended sizes and wall thickness.

TEMPERATURE

The system’s operating temperature may effect the initial choice of tubing material and may also effect the maximum allowable working pressure for the given tube size (see Table 2 for temperature stress factors).

LIGHT GAS SERVICE

Light gasses such as hydrogen, helium, nitrogen, etc. have extremely small molecules which can be released through the smallest of leak paths including tubing surface imperfections or defects. To provide a successful connection for light gas service, the tubing must have a thick enough wall to provide resistance for the setup action of the ferrules to further compensate for the tube’s potential surface condition. Table 1 shows the tubing sizes and wall thicknesses recommended for light gas service.

HANDLING AND INSTALLATION

Surface scratches and gouges on tubing are a source of potential leaks. Some precaution when handling the tubing can help reduce surface scratches and maintain the surface finish as originally intended by the manufacturer. Tubing should never be dragged across rocks, blacktop, pavement or the tubing storage rack as scratches and gouges can occur. Sharp blades should always be used in the tube cutters or hacksaws used to cut the tubing as to provide a clean square cut. Dull cutting blades can cause internal and external hanging burrs, and cause the tubing to become oval and effect proper insertion within the fitting. As a good handling practice, tubing should always be deburred prior to tube fitting installation to help assure easy and complete tube insertion. Additionally, for bent tube assemblies, it is important to bend tubing prior to installing tube fittings, and to provide a sufficient straight length of tubing after the bend to allow the tube to be fully inserted into the fitting. See Figure A and Table 4 on page 36 for additional information. Also, to eliminate weight stress from the tubing upon the fitting and to provide additional system support for vibration and thermal shock resistance, the tubing should always be supported by tube hangers, clamps or trays.

Finger-tight assembly dimensions (shown in mm unless specified) are for reference only and subject to change.
When ordering specify material designator with part number (see page 3 for complete ordering information).
Visit www.sspfittings.com for the controlled version of data.

STAINLESS STEEL TUBING - TABLE 1 Maximum Allowable Working Pressure (bar)											
Tube O.D. Size (mm)	Wall Thickness of Tube (mm)										
	0.8	*1.0*	*1.2*	*1.5*	*1.8*	*2.0*	*2.2*	*2.5*	*2.8*	*3.0*	*3.5*
3	670										
6	310	420	540	710							
8		310	390	520					**Note:** For light gas service, use tubing with wall thickness outside of screened area.		
10		240	300	400	510	580					
12		200	250	330	410	470					
14		160	200	270	340	380	430				
15		150	190	250	310	360	400				
16			170	230	290	330	370	400			
18			150	200	260	290	320	370			
20			140	180	230	260	290	330	380		
22			140	160	200	230	260	300	340		
25					180	200	230	260	290	320	

Calculation Basis: Annealed, seamless 304 or 316 stainless steel tubing EN ISO 1127 or equivalent (from ASME B31.3). System temperatures between -20°F and 100°F with allowable stress of 1370 bar (20,000 psi). Ultimate tensile strength of 5170 bar (75,000 psi). Safety factor of 4.

Reference: ANSI B31.3 Code. (For more specific working pressure information regarding a particular tubing, consult with the actual manufacturer of the tubing.) Multiply stainless steel rating by 0.94 for working pressure in accordance with ASME B31.1.

Note: For welded and drawn tubing, a derating factor must be utilized. For double welded tube, multiply the above pressure rating by .85; and for single welded tube .80.

Suggested Tube Ordering Information: Specify the outside diameter and wall thickness of annealed, seamless or welded and drawn 316 or 304 stainless steel tubing of EN ISO 1127 or equivalent. Also specify high quality tubing to be free of scratches, and suited for bending with material hardness not to exceed Rb 90 (200 HV).

STRESS FACTORS FOR DETERMINING TUBING PRESSURE RATINGS AT ELEVATED TEMPERATURES - TABLE 1			
TEMPERATURE STRESS FACTORS			
Temperature		Stainless Steel	
°F	°C	304SS	316SS
100	38	1.00	1.00
200	93	1.00	1.00
300	149	1.00	1.00
400	204	.94	.97
500	260	.88	.90
600	316	.82	.85
700	371	.80	.82
800	427	.76*	.80*
900	482	.73*	.78*
1000	538	.69*	.73*
1200	649	.30*	.37*

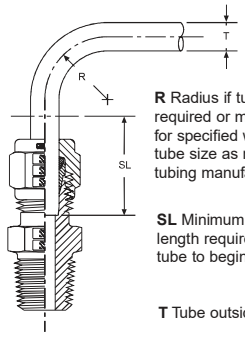
* The precipitation of chromium carbides potentially resulting in intergranular corrosion may occur when exposed to operating temperatures above 800°F. Consult the factory for further information.

Instructions: To determine maximum allowable working pressure for tubing at elevated temperatures, multiply the applicable tube's maximum allowable working pressure from Table 1 by the corresponding temperature stress factor from Table 2.

Finger-tight assembly dimensions (shown in mm unless specified) are for reference only and subject to change.
When ordering specify material designator with part number (see page 3 for complete ordering information).

SSP NPT PIPE END PRESSURE RATINGS, ANSI/ASME B 31.3 - TABLE 3						
			316 STAINLESS STEEL			
			Male		Female	
NPT/ISO Pipe Size	BSPT	Size	psig	bar	psig	bar
1/16"	1/16"	1	11,050	760	6,750	460
1/8"	1/8"	2	10,050	690	6,550	450
1/4"	1/4"	4	8,050	550	6,650	460
3/8"	3/8"	6	7,850	540	5,350	370
1/2"	1/2"	8	7,750	530	4,950	340
3/4"	3/4"	12	7,350	510	4,650	320
1"	1"	16	5,350	370	4,450	310
Reference: bar = .0695 X psig						
To obtain ANSI/ASME B 31.1 values, multiply ANSI/ASME B 31.3 values by .94.						

INSTALLING TUBE FITTINGS NEAR TUBE BENDS



R Radius if tubing bend as required or minimum allowed for specified wall thickness and tube size as recommended by tubing manufacturer.

SL Minimum straight tube length required from end of tube to beginning of bend.

T Tube outside diameter.

FIGURE A

When installing fittings near tube bends, it is important to **bend tubing prior to installing tube fittings** and there must be a sufficient straight length (SL) of tubing to allow the tube to be bottomed in the fitting. Note Table 4 for details.

TABLE 4

T = Tube O.D. (mm)	3	6	8	10	12	14	18	20	25
*SL= Minimum Straight Length of Tube (mm)	19	21	23	25	31	32	32	34	40
R	Radius of tube bend as recommended by bender manufacturer								

* Consult the factory on an application by application basis for variance.

WARNING

IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE PERSONAL INJURY AND PROPERTY DAMAGE.

It is the sole responsibility of the system designers and users to properly select and use products for their specific applications. This document has been printed for users with technical expertise as a reference for further investigation to determine specific product needs relative to design requirements.

Finger-tight assembly dimensions (shown in mm unless specified) are for reference only and subject to change.
When ordering specify material designator with part number (see page 3 for complete ordering information).
Visit www.sspfittings.com for the controlled version of data.

Safety Information/Warranty

Safety

To help ensure the safe and reliable performance of tube fitting products, complete system design must be considered prior to the installation of the tubing and tube fittings. Determinning the design compatibility of materials, media, flows, temperatures and pressures; as well as implementing proper installation, operation and maintenance of the system are the responsibility of the systems' owners, designers and users.

SSP Safety Reminders

All SSP products are designed and manufactured with safety in mind. The following is a limited list of general safety practices:

Do not install, tighten or loosen a tube fitting while the system is under pressure.

Do not loosen a tube fitting, nut or plug to relive or bleed system pressure.

Always use a back-up wrench to hold the tube fitting body steady when tightening or loosening tube fitting nuts.

There is no need to disassemble a new tube fitting prior to use.

Use proper thread lubricants and sealants on tapered pipe threads.

Very soft, pliable plastic tubing requires a tube insert.

Tube fitting and tubing material should be similar (stainless steel fittings on stainless stell tubing, brass fittings on copper tubing, etc.) with the tubing material being fully annealed. For more specific information, refer to the Selection Guide for Instrumentation Tubing on page 34-36.

Do not weld tube fittings that assembled. Prior to welding, remove the nut and ferrules and protect the seat and thread area of the tube fitting by covering with a plug or another nut.

Duolok® Tube Fittings
LIFETIME LIMITED WARRANTY

SSP guarantees all Duolok tube fittings and Duolok tube fitting components to be free from defects in materials and workmanship. Additionally, SSP guarantees Duolok product performance to the published catalog specifications when properly installed according to the catalog selection and installation instructions. To initiate a warranty claim, suspected defective product must be returned to SSP with the nature of potential defect documented for factory evaluation. Any product with a determined defect in material or workmanship will be replaced with an equivalent product at no charge.

This warranty comprises the sole and entire warranty pertaining to items provided hereunder. There is no other warranty, guarantee, express or implied representation of any kind whatsoever. All other warranties including, but not limited to, merchantability and fitness for purpose, whether express, implied, or arising by operation of law. Course of dealing, or trade usage are hereby disclaimed. There are no warranties which extend beyond the description on the face hereof; and this warranty does not apply in the case of abuse, mishandling, or normal use depreciation. In no event, whether alleged to arise from breech of contract, express or implied warranty, by operation of law, negligence or otherwise, will SSP be liable for any incidental, consequential, lost property, or other special damages of any kind what so ever. The exclusive only remedy under this warranty is the replacement of determined defective parts as set forth above.

Finger-tight assembly dimensions (shown in mm unless specified) are for reference only and subject to change.
When ordering specify material designator with part number (see page 3 for complete ordering information).
Visit www.sspfittings.com for the controlled version of data.

In addition to metric Duolok tube fittings, SSP offers fractional Duolok, Griplok and Unilok tube fittings, TruFit pipe, weld and adapter fittings, TruFit Hose assemblies, connectors, adapters and accessories and FloLok Valves. Contact your SSP Instrumentation Distributor for more information.

Finger-tight assembly dimensions (shown in mm unless specified) are for reference only and subject to change.
When ordering specify material designator with part number (see page 3 for complete ordering information).
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