

Company Profile

■ Company

Sanko Kogyo Co., Ltd. Founded at Oct. 10, 1957.

■ Company Activities

DESIGN, MANUFACTURING, and MARKETING of safe and cost-effective UHP fittings of gas delivery systems for the SEMICONDUCTOR and ULTRA HIGH VACUUM industries.

■ President and CEO

Naoya Miyashita

■ Head Office

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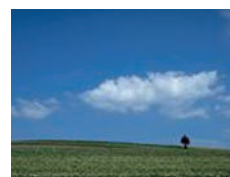
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■ USA Office

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Company History

- 1942 To be incorporated Tsuge Electric in Tokyo, Japan.
- 1957 To be renamed as Sanko Kogyo.
- 1974 To become a sub-contractor of Do-Wa Kogyo Co., Ltd. Mainly for automotive parts manufacturing.
- 1984 Capital injection to 7 million YEN and was restructured to a limited liability company.
To start to develop UHP fittings for the SEMICONDUCTOR industry.
- 1986 To introduce JSK fittings to the market.
- 1987 "JSK" was patented in USA, UK, and Korea.
- 1987 "JSK" fittings were recognized by HITACHI Co., Ltd.
- 1991 To form an alliance with Toyoko Kagaku Co., Ltd. for SEMICONDUCTOR TECHNOLOGY improvement and further development.
Capital injection to 10 million Yen. Mainly for the manufacturing of UHP fitting.
- 1995 To set up a branch office in California USA. Certified as MAB-482-N-II by MITI (Ministry of International Trade and Industry) of Japan Government.
- 1997 To introduce "JSK" fittings to Taiwan market.
- 1999 Cylinder connector trademark "NEJIREN" has been designated by many famous semiconductor manufacturers and gas engineering companies ever since.

Patents Japan, USA, UK, Canada, Taiwan, Korea, Germany, France, Holland



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CGA Fittings



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TOM-LOK TUBE Fittings



TOM-LOK[®] **TUBE FITTINGS**



SANKO KOGYO CO., LTD.

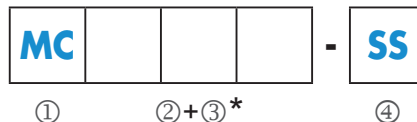
<http://www.jsk-sanko.co.jp>



TOM-LOK TUBE FITTINGS

Components are ordered by product code as listed in this catalogue

DESIGNATIONS PART NUMBER SYSTEM



* : ②+③ may be up to 3 digits. Please refer to actual part numbers of inner pages.

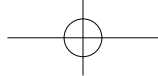
① Type of Fitting <small>(Only certain portions are listed. For all acronyms please refer to P39~40)</small>	UN	Union	URT	Union Reducing Tee
	RU	Reducing Union	MRT	Male Run Tee
	BHU	Bulkhead Union	FBT	Female Branch Tee
	MC	Male Connector	UC	Union Cross
	FC	Female Connector	RC	Reducer
	UE	Union Elbow	MPWC	Male Pipe Weld Connector
	ME	Male Elbow	PG	Plug
	FE	Female Elbow	CP	Cap
	UT	Union Tee	FS	Ferrule Set

② Size of Fitting	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
		Identify	1	2	3	4	5	6	8	10	12	14	16
	Metric Tube	O.D(mm)	2	3	4	6	8	10	12	16	20	22	25
		Identify	2M	3M	4M	6M	8M	10M	12M	16M	20M	22M	25M

③ Pipe Thread Size or tube size	SIZE (INCH)	1/8	1/4	3/8	1/2	3/4	1	
	ISO TAPERED	2R	4R	6R	8R	12R	16R	JIS B0203(PT), DIN2999, BSPT
	NPT	2N	4N	6N	8N	12N	16N	ANSI B2.1
	ISO PARALLEL	2G	4G	6G	8G	12G	16G	JIS B0202(PF), ISO 228/1, BS PL
	UNIFIED SCREW	2U	4U	6U	8U	12U	16U	AMERICAN STANDARD UNIFIED SCREW THREAD

④ Material	Stainless Steel	SS
	Carbon Steel	C
	Brass and Copper	B
	Aluminum	A
	Monel Alloy 400	M

TOM-LOK TUBE Fittings



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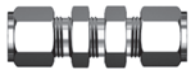
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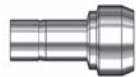
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Back Ferrule
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Ferrule Set
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IT

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TOM-LOK
TUBE
Fittings



Features of TOM-LOK Tube Fitting



Thank you for choosing TOM-LOK tube fitting which is a mature product produced by a very strict control of the material, product design and manufacturing.

TOM-LOK tube fitting is tightly assembled during manufacturing and leakage free entirely while experiencing shock, impact and high tension forces. Also, the well-treated interior surface allowing a smooth fluid flow and exterior structure having a high strength is providing a high confidence level that ensures the security, productivity and cost benefit to the end users.

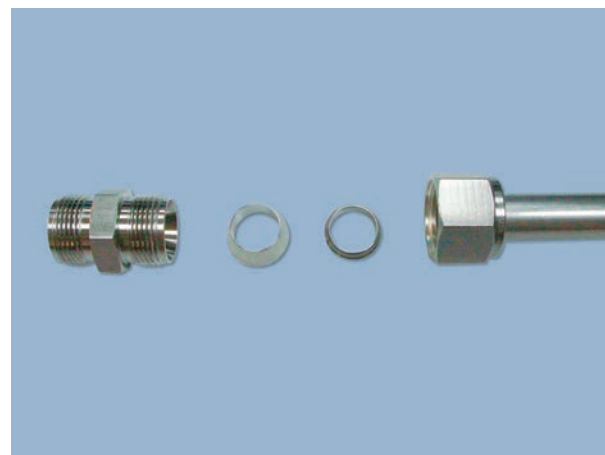
TOM-LOK tube fitting can be easily assembled without any special tools and is provided with an excellent quality/reliability that could be 100% interchangeable with other brands' fittings. However, if poor quality tubes were used instead of high quality ones, fittings' performance might be deteriorated.

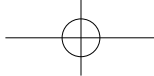
Structure of TOM-LOK Tube Fitting

Although TOM-LOK tube fitting is provided with a high reliability, while setting up systems, the performance level of the whole system should be considered so that there is no problem to secure a reliable safety.

TOM-LOK tube fitting consists of 4 precisely made parts: Body, Nut, Front and Back ferrule. These parts are all

being manufactured and assembled by a very strict process control from raw material to final products. In this kind of strict process control, all variable factors affecting the quality of products are eliminated and meeting the requirement of the severe environmental conditions and various customers' needs. With precise process control for maintaining parts quality, TOM-LOK tube fitting could be easily achieving leakage free by normal assembly process. Therefore, the TOM-LOK tube fitting could improve customers' processing quality and reduce production and maintenance cost.





Quality and Process Control

To assure the best quality of products, TOM-LOK tube fitting is experiencing various statistical process controls (SPC), parts examination and performance tests before being shipped out.

Warranty of Quality and Exchange

TOM-LOK tube fitting is manufactured with material under strict incoming quality control (IQC) and equipments under optimized maintenance, and TOM-LOK warrants its products, which are made under production processes confirmed complying to international standards, could provide a reliable working reliability at normal applications. However, if there is a customer claim and the defect is found not caused by product itself but due to user's recklessness or not following proper assembly processes, JSK will not compensate the damage caused. In case that leakage happens in standard operation processes, all the defect fittings shall be replaced immediately.

TOM-LOK tube fitting acknowledges this leaflet as warranty instead of issuing other format of warranties.

TOM-LOK tube fitting Installation Instruction

1. Installation under 1 inch or 25MM

Before delivery to customers, TOM-LOK tube fitting has already been completely assembled and ready for finger-tightening with tubeing (Please note that using poor quality tubing may cause leakage or performance deterioration).Below shows the easy 4 steps to install TOM-LOK tube fitting:

Step 1:

Prepare the tube with a clear cut state and the burs should be completely removed already (Fig. 1).

Step 2:

Insert the tube into a TOM-LOK tube fitting and make sure that the tube is completely inserted and contacted with the shoulder or the bottom of the fitting and then finger-tighten the nut (Please do not turn the body).

After tightening, double check whether it is completely tightened.

Step 3:

Before further tightening the TOM-LOK tube fitting with a wrench, mark the nut and body at the starting point of turning at the 6 o'clock position (as shown in Fig. 2).

Step 4:

Hold the fitting body safely with a backup wrench and tighten the nut to the correct position as indicated below (Fig. 3).

Tubing of 1/16"~3/16"(or 2~4mm): 3/4 turn to the position of 3 o'clock (270°)

Tubing of 1/4"~1"(or 6~25mm): 1-1/4 turns to the position of 9 o'clock (450°)

When the tightening process is completed, make sure whether it is sufficiently tightened by using a gap inspection gauge.

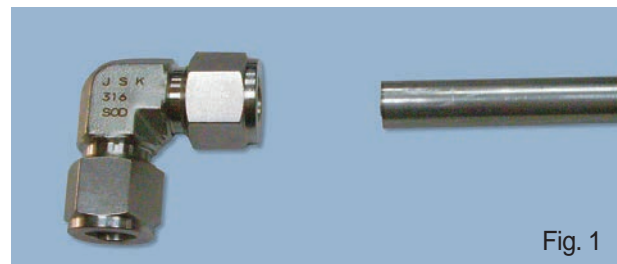


Fig. 1

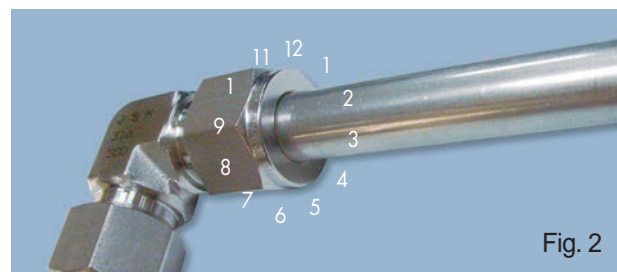


Fig. 2

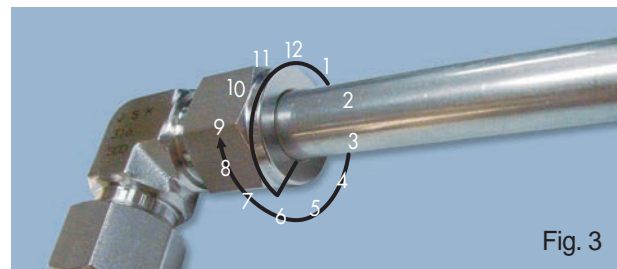
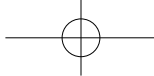


Fig. 3

TOM-LOK
TUBE
Fittings



2. Installation at the high pressure or the high safety systems

Due to variation of tube diameters, a common starting point is preferable. Therefore, firstly finger-tighten the nut until the tubing will not turn or move freely along the axial direction. Mark the nut at the 6 o'clock position and then follow the steps 3 to 4 described above to further turn 3/4 turn or 1-1/4 turns by wrench. (In the situation that fitting cannot be rotated from the common position, please only tighten the nut approximately 1/8 turn from the finger-tight position)

Safety Considerations on Installations for High Pressure Systems

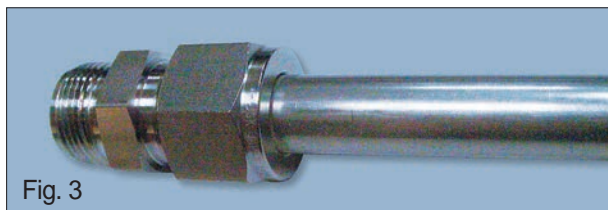
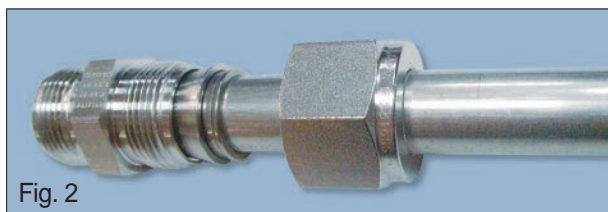
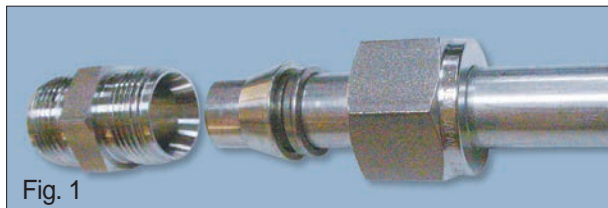
(Also applies to the installation of general systems)

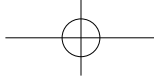
1. Double check the working spec of the tubing to be used (Tube thickness, pressure limit, material, temperature...etc). Also note that the hardness of tubing shall be less than the fitting.
2. Do not try to adjust the fitting when the system is pressurized.
3. Please be noticed that when assemble a straight tube to a pair of fixed fitting, since the ends of the tubing cannot completely contact on both sides of fittings' shoulders so there shall be a leakage risk caused by the deformation resulted by high temperature and high pressure useage.

4. Do not adjust the fitting body after it is completely assembled.

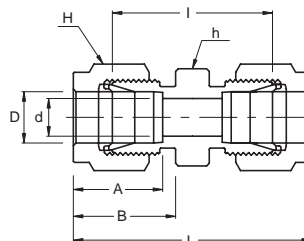
3. Re-tightening Instruction

1. Insert tubing with preswaged ferrules into the fitting body until the front ferrule seats (Fig. 1 & Fig. 2).
2. Finger-tighten and then rotate the nut with a wrench to the original position; at this original position, a significant increase in resistance will be predictable.
3. Furthermore tighten slightly the nut then the job is done (Fig. 3).





UN Union



For Fractional Tubes

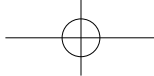
Part No.	Tube O.D. D (inch)	d Min	Width Across Flat		A	B	I	L
			h (inch)	H (inch)				
UN 1	1/16	1.27	5/16	5/16	8.63	10.92	17.52	25.15
UN 2	1/8	2.28	7/16	7/16	12.70	15.24	22.35	35.56
UN 3	3/16	3.04	7/16	1/2	13.71	16.00	24.13	37.33
UN 4	1/4	4.82	1/2	9/16	15.24	17.78	26.16	40.89
UN 5	5/16	6.35	9/16	5/8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

For Metric Tubes

Part No.	Tube O.D. D	d Min	Width Across Flat		A	B	I	L
			h	H				
UN 2M	2	1.7	12	12	12.9	15.3	22.4	35.6
UN 3M	3	2.4	12	12	12.9	15.3	22.1	35.3
UN 4M	4	2.4	12	12	13.7	16.1	24.1	37.3
UN 6M	6	4.8	14	14	15.3	17.7	26.2	41.0
UN 8M	8	6.4	15	16	16.2	18.6	28.2	43.2
UN 10M	10	7.9	18	19	17.2	19.5	31.0	46.2
UN 12M	12	9.5	22	22	22.8	22.0	31.0	51.2
UN 15M	15	11.9	24	25	24.4	22.0	31.8	52.0
UN 16M	16	12.7	24	25	24.4	22.0	31.8	52.0
UN 18M	18	15.1	27	30	24.4	22.0	33.3	53.5
UN 20M	20	15.9	30	32	26.0	22.0	34.8	55.0
UN 22M	22	18.3	30	32	26.0	22.0	34.8	55.0
UN 25M	25	21.8	35	38	31.3	26.5	40.4	65.0

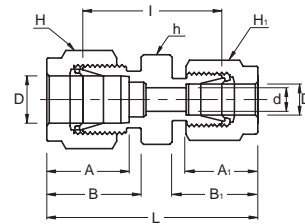
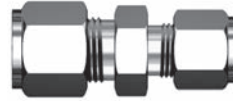
TOM-LOK
TUBE
Fittings

• Dimensions are in millimeters unless specified as "inch"



RU

Reducing Union



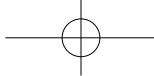
For Fractional Tubes

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)						
RU 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
RU 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
RU 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
RU 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
RU 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
RU 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
RU 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
RU 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
RU 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
RU 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
RU 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
RU 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
RU 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
RU 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
RU 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
RU 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
RU 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
RU 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
RU 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
RU 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

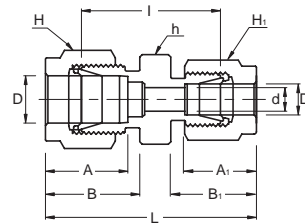
For Metric Tubes

Part No.	Tube O.D.		d Min	Width Across Flat			A	A ₁	B	B ₁	I	L
	D	D ₁		h	H	H ₁						
RU 6M- 3M	6	3	2.4	14	14	12	15.3	12.9	17.7	15.3	24.6	38.6
RU 6M- 4M	6	4	2.4	14	14	12	15.3	13.7	17.7	16.1	25.4	39.4
RU 8M- 6M	8	6	4.8	15	16	14	16.2	15.3	18.6	17.7	27.4	42.3
RU 10M- 6M	10	6	4.8	18	19	14	17.2	15.3	19.5	17.7	29.5	44.5
RU 10M- 8M	10	8	6.4	18	19	16	17.2	16.2	19.5	18.6	30.0	45.1
RU 12M- 6M	12	6	4.8	22	22	14	22.8	15.3	22.0	17.7	29.5	47.0
RU 12M- 8M	12	8	6.4	22	22	16	22.8	16.2	22.0	18.6	30.2	47.8
RU 12M- 10M	12	10	7.9	22	22	19	22.8	17.2	22.0	19.5	31.0	48.7
RU 16M- 12M	16	12	9.5	24	25	22	24.4	22.8	22.0	22.0	31.8	52.0
RU 25M- 18M	25	18	15.1	35	38	30	31.3	24.4	26.5	22.0	38.6	61.0
RU 25M- 20M	25	20	15.9	35	38	32	31.3	26.0	26.5	22.0	39.9	62.3

• Dimensions are in millimeters unless specified as "inch"



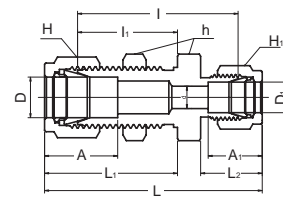
RU Reducing Union



For Metric Tubes Connecting To Fractional Tubes

Part No.	Tube O.D.		d Min	Width Across Flat			A	A ₁	B	B ₁	I	L
	D	D ₁ (inch)		h	H	H ₁						
RU 3M - 2	3	1/8	2.4	12	12	11.1	12.9	12.8	15.3	15.2	22.1	35.2
RU 4M - 2	4	1/8	2.4	12	12	11.1	13.7	12.8	16.1	15.2	23.4	36.5
RU 4M - 4	4	1/4	2.4	14	12	14.3	13.7	15.3	16.1	17.7	25.4	39.4
RU 6M - 2	6	1/8	2.4	14	14	11.1	15.3	12.8	17.7	15.2	24.6	38.5
RU 6M - 4	6	1/4	4.8	14	14	14.3	15.3	15.3	17.7	17.7	26.2	41.0
RU 6M - 5	6	5/16	4.8	14	14	15.9	15.3	16.2	17.7	18.6	27.4	42.3
RU 8M - 4	8	1/4	4.8	15	16	14.3	16.2	15.3	18.6	17.7	27.4	42.3
RU 10M - 2	10	1/8	2.4	18	19	11.1	17.2	12.8	19.5	15.2	27.7	41.8
RU 10M - 4	10	1/4	4.8	18	19	14.3	17.2	15.3	19.5	17.7	29.5	44.5
RU 10M - 5	10	5/16	6.4	18	19	15.9	17.2	16.2	19.5	18.6	30.0	45.1
RU 10M - 6	10	3/8	7.1	18	19	17.5	17.2	16.9	19.5	19.2	31.0	45.9
RU 12M - 5	12	5/16	6.4	22	22	15.9	22.8	16.2	22.0	18.6	30.2	47.8
RU 12M - 6	12	3/8	7.1	22	22	17.5	22.8	16.9	22.0	19.2	31.0	48.4
RU 12M - 8	12	1/2	9.5	22	22	22.2	22.8	22.8	22.0	22.0	31.0	51.2
RU 15M - 8	15	1/2	10.3	24	25	22.2	24.4	22.8	22.0	22.0	31.8	52.0
RU 16M - 10	16	5/8	12.7	24	25	25.4	24.4	24.4	22.0	22.0	31.8	52.0
RU 18M - 12	18	3/4	15.1	27	30	28.6	24.4	24.4	22.0	22.0	33.3	53.5
RU 20M - 12	20	3/4	15.9	30	32	28.6	26.0	24.4	22.0	22.0	34.8	54.9
RU 20M - 16	20	1	15.9	35	32	38.1	26.0	31.2	22.0	26.4	40.4	62.8
RU 25M - 16	25	1	21.8	35	38	38.1	31.3	31.3	26.5	26.5	40.4	65.0

BHRU Bulkhead Reducing Union



For 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	Panel Max. Thickness
	D (inch)	D ₁ (inch)		h (inch)	H (inch)	H ₁ (inch)									
BHRU 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	10.16
BHRU 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	11.17
BHRU 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	12.70

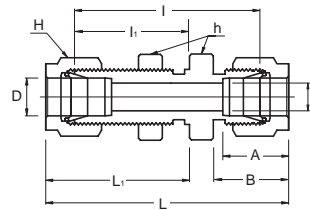
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TUBE
Fittings

• Dimensions are in millimeters unless specified as "inch"



BHU

Bulkhead Union



For Fractional Tubes

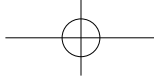
Part No.	Tube O.D. D (inch)	d Min	Width Across Flat		A	B	I	I ₁	L	L ₁	Panel Hole Drill Size	Panel Max. Thickness
			h (inch)	H (inch)								
BHU 1	1/16	1.27	5/16	5/16	8.63	10.92	23.87	13.46	31.50	17.27	5.16	3.05
BHU 2	1/8	2.28	1/2	7/16	12.70	15.24	38.10	24.63	51.30	31.24	8.33	12.70
BHU 3	3/16	3.04	9/16	1/2	13.71	16.00	40.38	25.40	53.59	32.00	9.92	12.70
BHU 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
BHU 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
BHU 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
BHU 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
BHU 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
BHU 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
BHU 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
BHU 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

For Metric Tubes

Part No.	Tube O.D. D	d Min	Width Across Flat			A	B	I	I ₁	L	L ₁	Panel Hole Drill Size	Panel Max. Thickness
			h	h ₁ *	H								
BHU 3M	3	2.4	14	12.7	12	12.9	15.3	38.1	24.6	51.3	31.2	8.3	12.7
BHU 4M	4	2.4	14	14.3	12	13.7	16.1	40.4	25.4	53.6	32.0	9.9	12.7
BHU 6M	6	4.8	16	15.9	14	15.3	17.7	42.9	26.2	57.7	33.6	11.5	10.2
BHU 8M	8	6.4	18	17.5	16	16.2	18.6	46.0	28.6	61.0	36.1	13.1	11.2
BHU 10M	10	7.9	22	22.0	19	17.2	19.5	48.5	29.4	63.7	37.0	16.2	11.2
BHU 12M	12	9.5	24	23.8	22	22.8	22.0	50.8	31.8	71.0	41.9	19.5	12.7
BHU 15M	15	11.9	27	27.0	25	24.4	22.0	52.3	32.5	72.5	42.6	22.8	12.7
BHU 16M	16	12.7	27	27.0	25	24.4	22.0	52.3	32.5	72.5	42.6	22.8	12.7
BHU 18M	18	15.1	30	30.0	30	24.4	22.0	58.7	37.3	78.9	47.4	26.0	16.8
BHU 20M	20	15.9	35	35.0	32	26.0	22.0	64.3	42.9	84.5	53.0	29.0	17.0
BHU 22M	22	18.3	35	35.0	32	26.0	22.0	64.3	42.9	84.5	53.0	29.0	19.1
BHU 25M	25	21.8	41.3	41.3	38	31.3	26.5	71.4	45.2	95.9	57.5	33.7	19.1

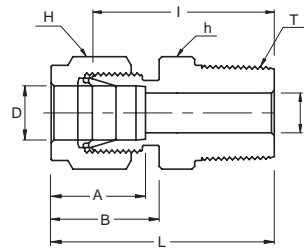
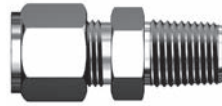
h1*: Only applicable to Metric Tubes Bulkhead Hexagon.

• Dimensions are in millimeters unless specified as "inch"



MC

Male Connector



For Fractional Tubes Connecting 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)				
MC 1 - 1N	1/16	1/16	1.27	5/16	5/16	8.63	10.92	20.00	23.83
MC 1 - 2N	1/16	1/8	1.27	7/16	7/16	8.63	10.92	22.35	26.23
MC 2 - 2N	1/8	1/8	2.28	7/16	7/16	12.70	15.24	23.87	30.48
MC 2 - 4N	1/8	1/4	2.28	9/16	7/16	12.70	15.24	28.95	35.56
MC 2 - 6N	1/8	3/8	2.28	11/16	7/16	12.70	15.24	29.21	35.81
MC 2 - 8N	1/8	1/2	2.28	7/8	7/16	12.70	15.24	35.56	42.16
MC 3 - 2N	3/16	1/8	3.04	7/16	1/2	13.71	16.00	24.63	31.24
MC 3 - 4N	3/16	1/4	3.04	9/16	1/2	13.71	16.00	29.71	36.32
MC 4 - 2N	1/4	1/8	4.82	1/2	9/16	15.24	17.78	25.40	32.76
MC 4 - 4N	1/4	1/4	4.82	9/16	9/16	15.24	17.78	30.48	37.84
MC 4 - 6N	1/4	3/8	4.82	11/16	9/16	15.24	17.78	30.98	38.35
MC 4 - 8N	1/4	1/2	4.82	7/8	9/16	15.24	17.78	37.33	44.70
MC 4 - 12N	1/4	3/4	4.82	1-1/16	9/16	15.24	17.78	38.86	46.22
MC 5 - 2N	5/16	1/8	4.82	9/16	5/8	16.25	18.54	26.67	34.03
MC 5 - 4N	5/16	1/4	6.35	9/16	5/8	16.25	18.54	31.24	38.60
MC 5 - 6N	5/16	3/8	6.35	11/16	5/8	16.25	18.54	31.75	39.11
MC 6 - 2N	3/8	1/8	4.82	5/8	11/16	16.76	19.30	27.94	35.30
MC 6 - 4N	3/8	1/4	7.11	5/8	11/16	16.76	19.30	32.51	39.87
MC 6 - 6N	3/8	3/8	7.11	11/16	11/16	16.76	19.30	32.51	39.87
MC 6 - 8N	3/8	1/2	7.11	7/8	11/16	16.76	19.30	38.86	46.22
MC 6 - 12N	3/8	3/4	7.11	1-1/16	11/16	16.76	19.30	40.38	47.75
MC 8 - 2N	1/2	1/8	4.82	13/16	7/8	22.86	21.84	28.70	38.86
MC 8 - 4N	1/2	1/4	7.11	13/16	7/8	22.86	21.84	33.27	43.43
MC 8 - 6N	1/2	3/8	9.65	13/16	7/8	22.86	21.84	33.27	43.43
MC 8 - 8N	1/2	1/2	10.41	7/8	7/8	22.86	21.84	38.86	49.02
MC 8 - 12N	1/2	3/4	10.41	1-1/16	7/8	22.86	21.84	40.38	50.54
MC 8 - 16N	1/2	1	10.41	1-3/8	7/8	22.86	21.84	46.99	57.15
MC 10 - 6N	5/8	3/8	9.65	15/16	1	24.38	21.84	34.03	44.19
MC 10 - 8N	5/8	1/2	11.93	15/16	1	24.38	21.84	38.86	49.02
MC 10 - 12N	5/8	3/4	12.70	1-1/16	1	24.38	21.84	40.38	50.54
MC 12 - 8N	3/4	1/2	11.93	1-1/16	1-1/8	24.38	21.84	40.38	50.54
MC 12 - 12N	3/4	3/4	15.74	1-1/16	1-1/8	24.38	21.84	40.38	50.54
MC 12 - 16N	3/4	1	15.74	1-3/8	1-1/8	24.38	21.84	46.99	57.15
MC 14 - 12N	7/8	3/4	15.74	1-3/16	1-1/4	25.90	21.84	40.38	50.54
MC 14 - 16N	7/8	1	18.28	1-3/8	1-1/4	25.90	21.84	46.99	57.15
MC 16 - 8N	1	1/2	11.93	1-3/8	1-1/2	31.24	26.41	45.21	57.40
MC 16 - 12N	1	3/4	15.74	1-3/8	1-1/2	31.24	26.41	45.21	57.40
MC 16 - 16N	1	1	22.35	1-3/8	1-1/2	31.24	26.41	50.03	62.23

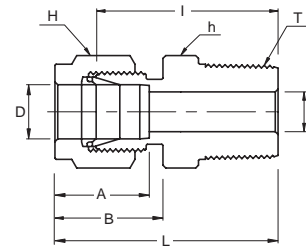
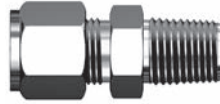
• Dimensions are in millimeters unless specified as "inch"

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TUBE
Fittings



MC

Male Connector



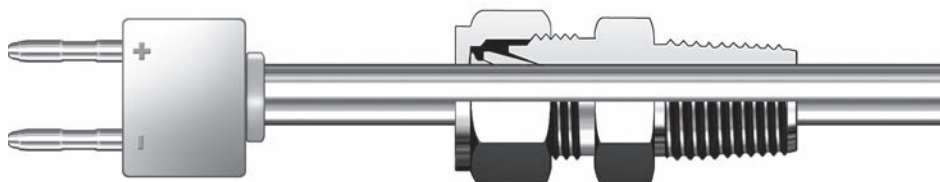
For Fractional Tubes Connecting To Female ISO Tapered Thread

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

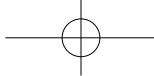
Bored-Through Fittings for Thermocouples

TOM-LOK Bored-Through MALE CONNECTORS accommodate thermocouples or dip tubes
To order, use "BT" as a suffix to the desired Male Connector ordering number.

Note : The root diameter of the pipe thread end of male connectors makes it impractical to bore through all male connectors.

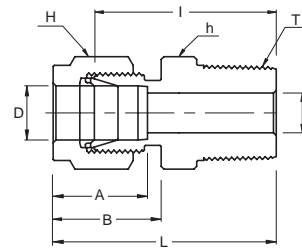
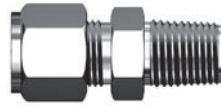


• Dimensions are in millimeters unless specified as "inch"



MC

Male Connector



For Metric Tubes Connecting To Female NPT Thread

Part No.	Tube O.D. D	T (NPT)	d Min	Width Across Flat		A	B	I	L
				h	H				
MC 2M - 2N	2	1/8	1.7	12	12	12.9	15.3	23.9	30.5
MC 3M - 2N	3	1/8	2.4	12	12	12.9	15.3	23.9	30.5
MC 3M - 4N	3	1/4	2.4	14	12	12.9	15.3	29.0	35.6
MC 4M - 2N	4	1/8	2.4	12	12	13.7	16.1	24.6	31.2
MC 4M - 4N	4	1/4	2.4	14	12	13.7	16.1	29.7	36.3
MC 6M - 2N	6	1/8	4.8	14	14	15.3	17.7	25.4	32.8
MC 6M - 4N	6	1/4	4.8	14	14	15.3	17.7	30.5	37.9
MC 6M - 6N	6	3/8	4.8	18	14	15.3	17.7	31.0	38.4
MC 6M - 8N	6	1/2	4.8	22	14	15.3	17.7	37.3	44.7
MC 8M - 2N	8	1/8	4.8	15	16	16.2	18.6	26.7	34.2
MC 8M - 4N	8	1/4	6.4	15	16	16.2	18.6	31.2	38.7
MC 8M - 6N	8	3/8	6.4	18	16	16.2	18.6	31.8	39.3
MC 8M - 8N	8	1/2	6.4	22	16	16.2	18.6	38.1	45.6
MC 10M - 2N	10	1/8	4.8	18	19	17.2	19.5	28.7	36.3
MC 10M - 4N	10	1/4	7.9	18	19	17.2	19.5	33.3	40.9
MC 10M - 6N	10	3/8	7.9	18	19	17.2	19.5	33.3	40.9
MC 10M - 8N	10	1/2	7.9	22	19	17.2	19.5	38.9	46.5
MC 12M - 2N	12	1/8	4.8	22	22	22.8	22.0	28.7	38.8
MC 12M - 4N	12	1/4	7.1	22	22	22.8	22.0	33.3	43.4
MC 12M - 6N	12	3/8	9.5	22	22	22.8	22.0	33.3	43.4
MC 12M - 8N	12	1/2	9.5	22	22	22.8	22.0	38.9	49.0
MC 12M - 12N	12	3/4	9.5	27	22	22.8	22.0	40.4	50.5
MC 14M - 4N	14	1/4	7.1	24	25	24.4	22.0	34.0	44.1
MC 14M - 6N	14	3/8	9.5	24	25	24.4	22.0	34.0	44.1
MC 14M - 8N	14	1/2	11.1	24	25	24.4	22.0	38.9	49.0
MC 16M - 6N	16	3/8	9.5	24	25	24.4	22.0	34.0	44.1
MC 16M - 8N	16	1/2	11.9	24	25	24.4	22.0	38.9	49.0
MC 16M - 12N	16	3/4	12.7	27	25	24.4	22.0	40.4	50.5
MC 18M - 8N	18	1/2	11.9	27	30	24.4	22.0	40.4	50.5
MC 18M - 12N	18	3/4	15.1	27	30	24.4	22.0	40.4	50.5
MC 20M - 8N	20	1/2	11.9	30	32	26.0	22.0	42.2	52.3
MC 20M - 12N	20	3/4	15.9	30	32	26.0	22.0	42.2	52.3
MC 22M - 12N	22	3/4	15.9	30	32	26.0	22.0	42.2	52.3
MC 22M - 16N	22	1	18.3	35	32	26.0	22.0	47.0	57.1
MC 25M - 12N	25	3/4	15.9	35	38	31.3	26.5	45.2	57.5
MC 25M - 16N	25	1	21.8	35	38	31.3	26.5	50.0	62.3

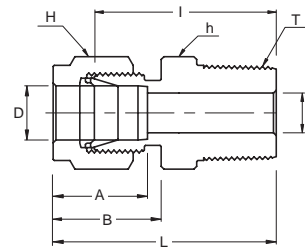
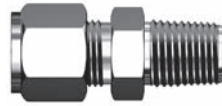
TOM-LOK
TUBE
Fittings

• Dimensions are in millimeters unless specified as "inch"



MC

Male Connector



For Metric Tubes Connecting To Female ISO Tapered Thread

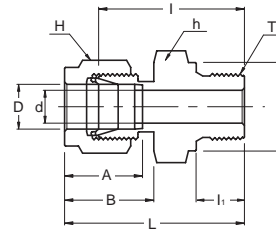
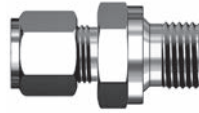
Part No.	Tube O.D. D	T R (PT)	d Min	Width Across Flat		A	B	I	L
				h	H				
MC 2M - 2R	2	1/8	1.7	12	12	12.9	15.3	23.9	30.5
MC 3M - 2R	3	1/8	2.4	12	12	12.9	15.3	23.9	30.5
MC 3M - 4R	3	1/4	2.4	14	12	12.9	15.3	29.0	35.6
MC 4M - 2R	4	1/8	2.4	12	12	13.7	16.1	24.6	31.2
MC 4M - 4R	4	1/4	2.4	14	12	13.7	16.1	29.7	36.3
MC 6M - 2R	6	1/8	4.8	14	14	15.3	17.7	25.4	32.8
MC 6M - 4R	6	1/4	4.8	14	14	15.3	17.7	30.5	37.9
MC 6M - 6R	6	3/8	4.8	18	14	15.3	17.7	31.0	38.4
MC 6M - 8R	6	1/2	4.8	22	14	15.3	17.7	37.3	44.7
MC 8M - 2R	8	1/8	4.8	15	16	16.2	18.6	26.7	34.2
MC 8M - 4R	8	1/4	6.4	15	16	16.2	18.6	31.2	38.7
MC 8M - 6R	8	3/8	6.4	18	16	16.2	18.6	31.8	39.3
MC 8M - 8R	8	1/2	6.4	22	16	16.2	18.6	38.1	45.6
MC 10M - 2R	10	1/8	4.8	18	19	17.2	19.5	28.7	36.3
MC 10M - 4R	10	1/4	7.9	18	19	17.2	19.5	33.3	40.9
MC 10M - 6R	10	3/8	7.9	18	19	17.2	19.5	33.3	40.9
MC 10M - 8R	10	1/2	7.9	22	19	17.2	19.5	38.9	46.5
MC 12M - 4R	12	1/4	7.1	22	22	22.8	22.0	33.3	43.4
MC 12M - 6R	12	3/8	9.5	22	22	22.8	22.0	33.3	43.4
MC 12M - 8R	12	1/2	9.5	22	22	22.8	22.0	38.9	49.0
MC 12M - 12R	12	3/4	9.5	27	22	22.8	22.0	40.4	50.5
MC 15M - 8R	15	1/2	11.9	24	25	24.4	22.0	38.9	49.0
MC 16M - 4R	16	1/4	7.1	24	25	24.4	22.0	34.0	44.1
MC 16M - 6R	16	3/8	9.5	24	25	24.4	22.0	34.0	44.1
MC 16M - 8R	16	1/2	11.9	24	25	24.4	22.0	38.9	49.0
MC 16M - 12R	16	3/4	12.7	27	25	24.4	22.0	40.4	50.5
MC 18M - 8R	18	1/2	11.9	27	30	24.4	22.0	40.4	50.5
MC 18M - 12R	18	3/4	15.1	27	30	24.4	22.0	40.4	50.5
MC 20M - 8R	20	1/2	11.9	30	32	26.0	22.0	42.2	52.3
MC 20M - 12R	20	3/4	15.9	30	32	26.0	22.0	42.2	52.3
MC 22M - 12R	22	3/4	15.9	30	32	26.0	22.0	42.2	52.3
MC 22M - 16R	22	1	18.3	35	32	26.0	22.0	47.0	57.1
MC 25M - 12R	25	3/4	15.9	35	38	31.3	26.5	45.2	57.5
MC 25M - 16R	25	1	21.8	35	38	31.3	26.5	50.0	62.3

• Dimensions are in millimeters unless specified as "inch"



MCB

Male Connector For Bonded Washer Seal



For Metric Tubes Connecting To Female ISO Parallel Thread

Part No.	Tube O.D. D	T G (PF)	d Min	Width Across Flat		A	B	I	I ₁	L	K
				h	H						
MCB 3M - 2G	3	1/8	2.4	14	12	12.9	15.3	23.4	7.1	30.0	13.8
MCB 3M - 4G	3	1/4	2.4	19	12	12.9	15.3	28.7	11.2	35.3	18.0
MCB 4M - 2G	4	1/8	2.4	14	12	13.7	16.1	24.1	7.1	30.7	13.8
MCB 6M - 2G	6	1/8	4.0	14	14	15.3	17.7	24.9	7.1	32.3	13.8
MCB 6M - 4G	6	1/4	4.8	19	14	15.3	17.7	30.2	11.2	37.6	18.0
MCB 6M - 6G	6	3/8	4.8	22	14	15.3	17.7	31.5	11.2	38.9	21.8
MCB 6M - 8G	6	1/2	4.8	27	14	15.3	17.7	37.3	14.2	44.7	26.0
MCB 8M - 2G	8	1/8	4.0	15	16	16.2	18.6	25.7	7.1	33.2	13.8
MCB 8M - 4G	8	1/4	6.4	19	16	16.2	18.6	31.0	11.2	38.5	18.0
MCB 8M - 6G	8	3/8	6.4	22	16	16.2	18.6	32.3	11.2	39.8	21.8
MCB 8M - 8G	8	1/2	6.4	27	16	16.2	18.6	38.1	14.2	45.6	26.0
MCB 10M - 4G	10	1/4	5.9	19	19	17.2	19.5	31.8	11.2	39.4	18.0
MCB 10M - 6G	10	3/8	7.9	22	19	17.2	19.5	33.0	11.2	40.6	21.8
MCB 10M - 8G	10	1/2	7.9	27	19	17.2	19.5	38.9	14.2	46.5	26.0
MCB 12M - 4G	12	1/4	5.9	22	22	22.8	22.0	32.5	11.2	42.6	18.0
MCB 12M - 6G	12	3/8	7.9	22	22	22.8	22.0	33.0	11.2	43.1	21.8
MCB 12M - 8G	12	1/2	9.5	27	22	22.8	22.0	38.9	14.2	49.0	26.0
MCB 12M - 12G	12	3/4	9.5	35	22	22.8	22.0	42.7	15.7	52.8	32.0
MCB 16M - 6G	16	3/8	7.9	24	25	24.4	22.0	33.8	11.2	43.9	21.8
MCB 16M - 8G	16	1/2	11.9	27	25	24.4	22.0	38.9	14.2	49.0	26.0
MCB 18M - 8G	18	1/2	11.9	27	30	24.4	22.0	38.9	14.2	49.0	26.0
MCB 18M - 12G	18	3/4	15.1	35	30	24.4	22.0	42.7	15.7	52.8	32.0
MCB 20M - 8G	20	1/2	11.9	30	32	26.0	22.0	40.4	14.2	50.5	26.0
MCB 20M - 12G	20	3/4	15.9	35	32	26.0	22.0	42.7	15.7	52.8	32.0
MCB 22M - 12G	22	3/4	15.9	35	32	26.0	22.0	42.7	15.7	52.8	32.0
MCB 22M - 16G	22	1	18.3	41	32	26.0	22.0	45.2	18.3	55.3	39.0
MCB 25M - 12G	25	3/4	15.9	35	38	31.3	26.5	45.2	15.7	57.5	32.0
MCB 25M - 16G	25	1	19.8	41	38	31.3	26.5	47.8	18.3	60.1	39.0

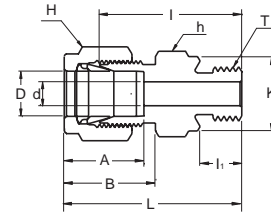
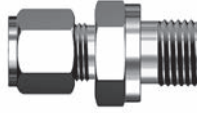
* See page 90 for Explanation of ISO Pipe Thread.

• Dimensions are in millimeters unless specified as "inch"



MCM

Male Connector For Metal Gasket Seal

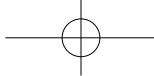


For Metric Tubes Connecting To Female ISO Parallel Thread

Part No.	Tube O.D. D	T G (PF)	d Min	Width Across Flat		A	B	I	I ₁	L	K
				h	H						
MCM 3M - 2G	3	1/8	2.4	14	12	12.9	15.3	23.4	7.1	30.0	13.8
MCM 3M - 4G	3	1/4	2.4	19	12	12.9	15.3	28.7	11.2	35.3	18.0
MCM 4M - 2G	4	1/8	2.4	14	12	13.7	16.1	24.1	7.1	30.7	13.8
MCM 6M - 2G	6	1/8	4.0	14	14	15.3	17.7	24.9	7.1	32.3	13.8
MCM 6M - 4G	6	1/4	4.8	19	14	15.3	17.7	30.2	11.2	37.6	18.0
MCM 6M - 6G	6	3/8	4.8	22	14	15.3	17.7	31.5	11.2	38.9	21.8
MCM 6M - 8G	6	1/2	4.8	27	14	15.3	17.7	37.3	14.2	44.7	26.0
MCM 8M - 2G	8	1/8	4.0	15	16	16.2	18.6	25.7	7.1	33.2	13.8
MCM 8M - 4G	8	1/4	6.4	19	16	16.2	18.6	31.0	11.2	38.5	18.0
MCM 8M - 6G	8	3/8	6.4	22	16	16.2	18.6	32.3	11.2	39.8	21.8
MCM 8M - 8G	8	1/2	6.4	27	16	16.2	18.6	38.1	14.2	45.6	26.0
MCM 10M - 4G	10	1/4	5.9	19	19	17.2	19.5	31.8	11.2	39.4	18.0
MCM 10M - 6G	10	3/8	7.9	22	19	17.2	19.5	33.0	11.2	40.6	21.8
MCM 10M - 8G	10	1/2	7.9	27	19	17.2	19.5	38.9	14.2	46.5	26.0
MCM 12M - 4G	12	1/4	5.9	22	22	22.8	22.0	32.5	11.2	42.6	18.0
MCM 12M - 6G	12	3/8	7.9	22	22	22.8	22.0	33.0	11.2	43.1	21.8
MCM 12M - 8G	12	1/2	9.5	27	22	22.8	22.0	38.9	14.2	49.0	26.0
MCM 12M - 12G	12	3/4	9.5	35	22	22.8	22.0	42.7	15.7	52.8	32.0
MCM 15M - 8G	15	1/2	11.9	27	25	24.4	22.0	38.9	14.2	49.0	26.0
MCM 16M - 6G	16	3/8	7.9	24	25	24.4	22.0	33.8	11.2	43.9	21.8
MCM 16M - 8G	16	1/2	11.9	27	25	24.4	22.0	38.9	14.2	49.0	26.0
MCM 18M - 8G	18	1/2	11.9	27	30	24.4	22.0	38.9	14.2	49.0	26.0
MCM 18M - 12G	18	3/4	15.1	35	30	24.4	22.0	42.7	15.7	52.8	32.0
MCM 20M - 8G	20	1/2	11.9	30	32	26.0	22.0	40.4	14.2	50.5	26.0
MCM 20M - 12G	20	3/4	15.9	35	32	26.0	22.0	42.7	15.7	52.8	32.0
MCM 22M - 12G	22	3/4	15.9	35	32	26.0	22.0	42.7	15.7	52.8	32.0
MCM 22M - 16G	22	1	18.3	41	32	26.0	22.0	45.2	18.3	55.3	39.0
MCM 25M - 12G	25	3/4	15.9	35	38	31.3	26.5	45.2	15.7	57.5	32.0
MCM 25M - 16G	25	1	19.8	41	38	31.3	26.5	47.8	18.3	60.1	39.0

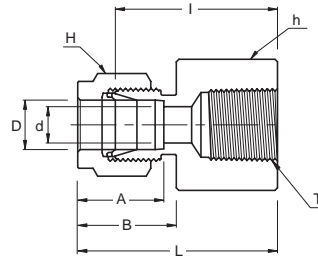
* See page 90 for Explanation of ISO Pipe Thread.

• Dimensions are in millimeters unless specified as "inch"



FC

Female Connector



For Fractional Tubes Connecting 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)				
FC 2 - 2N	1/8	1/8	2.28	9/16	7/16	12.70	15.24	22.09	28.70
FC 2 - 4N	1/8	1/4	2.28	3/4	7/16	12.70	15.24	26.92	33.52
FC 3 - 2N	3/16	1/8	3.04	9/16	1/2	13.71	16.00	23.11	29.71
FC 4 - 2N	1/4	1/8	4.82	9/16	9/16	15.24	17.78	23.87	31.24
FC 4 - 4N	1/4	1/4	4.82	3/4	9/16	15.24	17.78	28.44	35.81
FC 4 - 6N	1/4	3/8	4.82	7/8	9/16	15.24	17.78	30.22	37.59
FC 4 - 8N	1/4	1/2	4.82	1-1/16	9/16	15.24	17.78	35.05	42.41
FC 5 - 2N	5/16	1/8	6.35	9/16	5/8	16.25	18.54	24.63	32.00
FC 5 - 4N	5/16	1/4	6.35	3/4	5/8	16.25	18.54	29.46	36.83
FC 6 - 2N	3/8	1/8	7.11	5/8	11/16	16.76	19.30	25.40	32.76
FC 6 - 4N	3/8	1/4	7.11	3/4	11/16	16.76	19.30	30.22	37.59
FC 6 - 6N	3/8	3/8	7.11	7/8	11/16	16.76	19.30	31.75	39.11
FC 6 - 8N	3/8	1/2	7.11	1-1/16	11/16	16.76	19.30	36.57	43.94
FC 6 - 12N	3/8	3/4	7.11	1-5/16	11/16	16.76	19.30	40.38	47.75
FC 8 - 4N	1/2	1/4	10.41	13/16	7/8	22.86	21.84	30.22	40.38
FC 8 - 6N	1/2	3/8	10.41	7/8	7/8	22.86	21.84	31.75	41.91
FC 8 - 8N	1/2	1/2	10.41	1-1/16	7/8	22.86	21.84	36.57	46.73
FC 8 - 12N	1/2	3/4	10.41	1-5/16	7/8	22.86	21.84	38.10	48.26
FC 10 - 6N	5/8	3/8	12.70	15/16	1	24.38	21.84	31.75	41.91
FC 10 - 8N	5/8	1/2	12.70	1-1/16	1	24.38	21.84	36.57	46.73
FC 12 - 8N	3/4	1/2	15.74	1-1/16	1-1/8	24.38	21.84	36.57	46.73
FC 12 - 12N	3/4	3/4	15.74	1-5/16	1-1/8	24.38	21.84	38.10	48.26
FC 14 - 12N	7/8	3/4	18.28	1-5/16	1-1/4	25.90	21.84	39.62	49.78
FC 16 - 12N	1	3/4	22.35	1-3/8	1-1/2	31.24	26.41	41.14	53.34
FC 16 - 16N	1	1	22.35	1-5/8	1-1/2	31.24	26.41	50.03	62.23

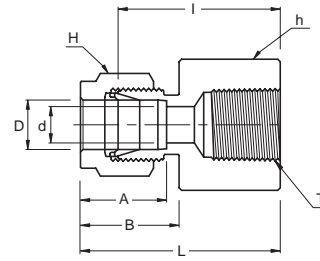
• Dimensions are in millimeters unless specified as "inch"

TOM-LOK
TUBE
Fittings



FC

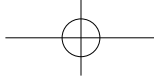
Female Connector



For Metric Tubes Connecting To Male ISO Tapered Thread

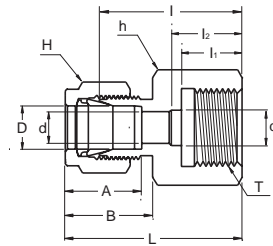
Part No.	Tube O.D. D	T* R (PT)	d Min	Width Across Flat		A	B	I	L
				h	H				
FC 3M - 2R	3	1/8	2.4	14	12	12.9	15.3	22.1	28.7
FC 3M - 4R	3	1/4	2.4	19	12	12.9	15.3	26.9	33.5
FC 4M - 2R	4	1/8	2.4	14	12	13.7	16.1	23.1	29.7
FC 6M - 2R	6	1/8	4.8	14	14	15.3	17.7	23.9	31.3
FC 6M - 4R	6	1/4	4.8	19	14	15.3	17.7	28.4	35.8
FC 6M - 6R	6	3/8	4.8	22	14	15.3	17.7	30.2	37.6
FC 6M - 8R	6	1/2	4.8	27	14	15.3	17.7	35.1	42.5
FC 8M - 2R	8	1/8	6.4	15	16	16.2	18.6	24.6	32.1
FC 8M - 4R	8	1/4	6.4	19	16	16.2	18.6	29.5	37.0
FC 8M - 6R	8	3/8	6.4	22	16	16.2	18.6	31.0	38.5
FC 8M - 8R	8	1/2	6.4	27	16	16.2	18.6	35.8	43.3
FC 10M - 2R	10	1/8	7.9	18	19	17.2	19.5	25.4	33.0
FC 10M - 4R	10	1/4	7.9	19	19	17.2	19.5	30.2	37.8
FC 10M - 6R	10	3/8	7.9	22	19	17.2	19.5	31.8	39.4
FC 10M - 8R	10	1/2	7.9	27	19	17.2	19.5	36.6	44.2
FC 12M - 2R	12	1/8	8.3	22	22	22.8	22.0	25.4	35.5
FC 12M - 4R	12	1/4	9.5	22	22	22.8	22.0	30.2	40.3
FC 12M - 6R	12	3/8	9.5	22	22	22.8	22.0	31.8	41.9
FC 12M - 8R	12	1/2	9.5	27	22	22.8	22.0	36.6	46.7
FC 12M - 12R	12	3/4	9.5	35	22	22.8	22.0	38.9	49.0
FC 15M - 8R	15	1/2	11.9	27	25	24.4	22.0	36.6	46.7
FC 16M - 8R	16	1/2	12.7	27	25	24.4	22.0	36.8	46.9
FC 20M - 8R	20	1/2	15.9	30	32	26.0	22.0	37.8	47.9
FC 20M - 12R	20	3/4	15.9	35	32	26.0	22.0	39.6	49.7
FC 22M - 12R	22	3/4	18.3	35	32	26.0	22.0	39.6	49.7
FC 22M - 16R	22	1	18.3	41	32	26.0	22.0	47.8	57.9
FC 25M - 12R	25	3/4	21.8	35	38	31.3	26.5	41.1	53.4
FC 25M - 16R	25	1	21.8	41	38	31.3	26.5	50.0	62.3

* Dimensions are in millimeters unless specified as "inch"



GC

Gauge Connector



For Fractional Tubes Connecting To ISO Parallel Thread

Part No.	Tube O.D. D (inch)	T G (PF)	d Min	d ₁	Width Across Flat		A	B	I	I ₁	I ₂	L
					h (inch)	H (inch)						
GC 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
GC 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
GC 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
GC 5 - 4G	5/16	1/4	5.58	-	3/4	5/8	16.25	18.54	30.98	13.00	-	38.35
GC 5 - 8G	5/16	1/2	7.11	-	1-1/16	5/8	16.25	18.54	33.53	18.80	-	40.89
GC 6 - 4G	3/8	1/4	5.58	-	3/4	11/16	16.76	19.30	31.75	13.00	-	39.12
GC 6 - 6G	3/8	3/8	6.60	-	15/16	11/16	16.76	19.30	31.24	14.20	-	38.61
GC 6 - 8G	3/8	1/2	7.11	-	1-1/16	11/16	16.76	19.30	34.54	18.80	-	41.91
GC 8 - 4G	1/2	1/4	5.58	-	7/8	7/8	22.86	21.84	31.80	13.00	-	41.95
GC 8 - 6G	1/2	3/8	6.60	-	15/16	7/8	22.86	21.84	34.29	14.20	-	44.45
GC 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

For Metric Tubes Connecting To ISO Parallel Thread

Part No.	Tube O.D. D	T G (PF)	d Min	d ₁	Width Across Flat		A	B	I	I ₁	I ₂	L
					h	H						
GC 3M - 4G	3	1/4	2.4	5.5	19	12	12.9	15.3	28.7	13	17	35.3
GC 6M - 4G	6	1/4	4.8	5.5	19	14	15.3	17.7	30.2	13	17	37.6
GC 6M - 6G	6	3/8	4.8	6.5	24	14	15.3	17.7	30.2	14	20	37.6
GC 6M - 8G	6	1/2	4.8	7.0	27	14	15.3	17.7	36.1	19	25	43.5
GC 8M - 4G	8	1/4	5.5	5.5	19	16	16.2	18.6	31.0	13	-	38.5
GC 8M - 6G	8	3/8	6.5	6.5	24	16	16.2	18.6	28.7	14	-	36.2
GC 8M - 8G	8	1/2	7.0	7.0	27	16	16.2	18.6	33.5	19	-	41.0
GC 10M - 4G	10	1/4	5.5	5.5	19	19	17.2	19.5	31.8	13	-	39.4
GC 10M - 6G	10	3/8	6.5	6.5	24	19	17.2	19.5	31.2	14	-	38.8
GC 10M - 8G	10	1/2	7.0	7.0	27	19	17.2	19.5	34.5	19	-	42.1
GC 12M - 4G	12	1/4	5.5	5.5	22	22	22.8	22.0	31.8	13	-	41.9
GC 12M - 6G	12	3/8	6.5	6.5	24	22	22.8	22.0	34.3	14	-	44.4
GC 12M - 8G	12	1/2	7.0	7.0	27	22	22.8	22.0	38.1	19	-	48.2
GC 20M - 8G	20	1/2	7.0	7.0	30	32	26.0	22.0	44.2	19	-	54.3
GC 22M - 8G	22	1/2	7.0	7.0	30	32	26.0	22.0	44.2	19	-	54.3

* See page 90 for Explanation of ISO Pipe Thread.

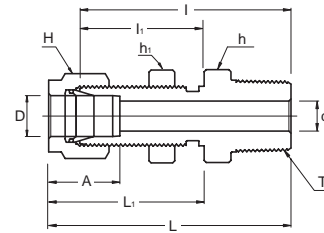
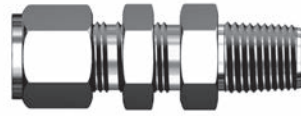
TOM-LOK
TUBE
Fittings

• Dimensions are in millimeters unless specified as "inch"



BMC

Bulkhead Male Connector

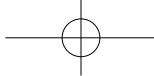


For Fractional Tubes Connecting To Female NPT Thread

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)							
BMC 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
BMC 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
BMC 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
BMC 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
BMC 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
BMC 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
BMC 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
BMC 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
BMC 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
BMC 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

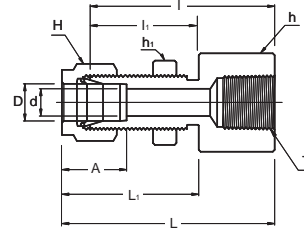
* ISO Tapered Threads are available upon request

• Dimensions are in millimeters unless specified as "inch"



BFC

Bulkhead Female Connector



For Fractional Tubes Connecting 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)							
BFC 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
BFC 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
BFC 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
BFC 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
BFC 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
BFC 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
BFC 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

* ISO Tapered Threads are available upon request

For Metric Tubes Connecting To Male NPT Thread

Part No.	Tube O.D. D	T* (NPT)	d Min	Width Across Flat			A	I	I ₁	L	L ₁	Panel Hole Drill Size	Panel Max. Thickness
				h	h ₁	H							
BFC 6M - 2N	6	1/8	4.8	15.8	15.8	14	15.3	39.6	27.7	46.90	35.00	11.5	10.2
BFC 6M - 4N	6	1/4	4.8	19.0	16.0	14	15.3	44.4	26.2	51.80	33.60	11.5	10.2
BFC 8M - 4N	8	1/4	6.3	19.0	17.4	16	16.2	46.7	28.4	53.85	35.55	13.1	11.2
BFC 12M - 8N	12	1/2	9.5	27.0	24.0	22	22.8	56.4	31.8	66.50	41.90	19.5	12.7

* ISO Tapered Threads are available upon request

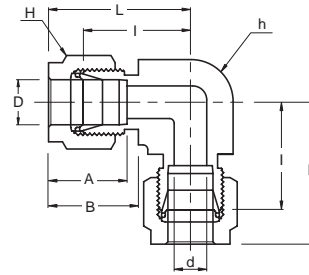
TOM-LOK
TUBE
Fittings

• Dimensions are in millimeters unless specified as "inch"



UE

Union Elbow



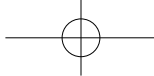
For Fractional Tubes

Part No.	Tube O.D. D (inch)	d Min	Width Across Flat		A	B	I	L
			h (inch)	H (inch)				
UE 1	1/16	1.27	3/8	5/16	8.63	10.92	14.00	18.03
UE 2	1/8	2.28	3/8	7/16	12.70	15.24	15.74	22.35
UE 3	3/16	3.04	1/2	1/2	13.71	16.00	18.54	25.14
UE 4	1/4	4.82	1/2	9/16	15.24	17.78	20.10	27.40
UE 5	5/16	6.35	5/8	5/8	16.25	18.54	22.35	29.71
UE 6	3/8	7.11	5/8	11/16	16.76	19.30	23.11	30.48
UE 8	1/2	10.41	13/16	7/8	22.86	21.84	25.90	36.06
UE 10	5/8	12.70	15/16	1	24.38	21.84	27.94	38.10
UE 12	3/4	15.74	1-1/16	1-1/8	24.38	21.84	29.71	39.87
UE 14	7/8	18.28	1-3/8	1-1/4	25.90	21.84	34.54	44.70
UE 16	1	22.35	1-3/8	1-1/2	31.24	26.41	36.83	49.02

For Metric Tubes

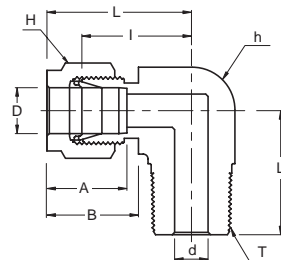
Part No.	Tube O.D. D	d Min	Width Across Flat		A	B	I	L
			h	H				
UE 2M	2	1.7	9.5	12	12.9	15.3	15.7	22.3
UE 3M	3	2.4	9.5	12	12.9	15.3	15.7	22.3
UE 4M	4	2.4	12.7	12	13.7	16.1	18.8	25.4
UE 6M	6	4.8	12.7	14	15.3	17.7	19.6	27.0
UE 8M	8	6.4	15.9	16	16.2	18.6	22.4	29.9
UE 10M	10	7.9	17.5	19	17.2	19.5	23.9	31.5
UE 12M	12	9.5	20.6	22	22.8	22.0	25.9	36.0
UE 15M	15	11.9	23.8	25	24.4	22.0	27.9	38.8
UE 16M	16	12.7	23.8	25	24.4	22.0	27.9	38.0
UE 18M	18	15.1	27.0	30	24.4	22.0	29.7	39.8
UE 20M	20	15.9	34.9	32	26.0	22.0	34.5	44.6
UE 22M	22	18.3	34.9	32	26.0	22.0	34.5	44.6
UE 25M	25	21.8	34.9	38	31.3	26.5	36.8	49.1

• Dimensions are in millimeters unless specified as "inch"



ME

Male Elbow

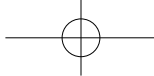


For Metric Tubes Connecting To Female NPT Thread

Part No.	Tube O.D. D	T (NPT)	d Min	Width Across Flat		A	B	I	L	Li
				h	H					
ME 3M - 2N	3	1/8	2.4	12.7	12	12.9	15.3	17.0	23.6	17.8
ME 3M - 4N	3	1/4	2.4	12.7	12	12.9	15.3	18.0	24.6	23.4
ME 4M - 2N	4	1/8	2.4	12.7	12	13.7	16.1	18.8	25.4	18.8
ME 4M - 4N	4	1/4	2.4	12.7	12	13.7	16.1	18.8	25.4	23.4
ME 6M - 2N	6	1/8	4.8	12.7	14	15.3	17.7	19.6	27.0	18.8
ME 6M - 4N	6	1/4	4.8	12.7	14	15.3	17.7	19.6	27.0	23.4
ME 6M - 6N	6	3/8	4.8	15.9	14	15.3	17.7	22.4	29.8	26.2
ME 6M - 8N	6	1/2	4.8	20.6	14	15.3	17.7	24.4	31.8	33.0
ME 8M - 2N	8	1/8	4.8	14.3	16	16.2	18.6	21.3	28.8	19.8
ME 8M - 4N	8	1/4	6.4	14.3	16	16.2	18.6	21.3	28.8	24.4
ME 8M - 6N	8	3/8	6.4	15.9	16	16.2	18.6	23.1	30.6	26.2
ME 8M - 8N	8	1/2	6.4	20.6	16	16.2	18.6	25.1	32.6	33.0
ME 10M - 2N	10	1/8	4.8	17.5	19	17.2	19.5	23.9	31.5	21.6
ME 10M - 4N	10	1/4	7.1	17.5	19	17.2	19.5	23.9	31.5	26.2
ME 10M - 6N	10	3/8	7.9	17.5	19	17.2	19.5	23.9	31.5	26.2
ME 10M - 8N	10	1/2	7.9	20.6	19	17.2	19.5	25.9	33.5	33.0
ME 12M - 4N	12	1/4	7.1	20.6	22	22.8	22.0	25.9	36.0	28.2
ME 12M - 6N	12	3/8	9.5	20.6	22	22.8	22.0	25.9	36.0	28.2
ME 12M - 8N	12	1/2	9.5	20.6	22	22.8	22.0	25.9	36.0	33.0
ME 12M - 12N	12	3/4	9.5	27.0	22	22.8	22.0	29.7	39.8	36.8
ME 16M - 6N	16	3/8	9.5	23.8	25	24.4	22.0	27.9	38.0	30.2
ME 16M - 8N	16	1/2	11.9	23.8	25	24.4	22.0	27.9	38.0	35.1
ME 16M - 12N	16	3/4	12.7	27.0	25	24.4	22.0	29.7	39.8	36.8
ME 18M - 8N	18	1/2	11.9	27.0	30	24.4	22.0	29.7	39.8	36.8
ME 18M - 12N	18	3/4	15.1	27.0	30	24.4	22.0	29.7	39.8	36.8
ME 20M - 8N	20	1/2	11.9	34.9	32	26.0	22.0	34.5	44.6	41.7
ME 20M - 12N	20	3/4	15.9	34.9	32	26.0	22.0	34.5	44.6	41.7
ME 22M - 12N	22	3/4	15.9	34.9	32	26.0	22.0	34.5	44.6	41.7
ME 22M - 16N	22	1	18.3	34.9	32	26.0	22.0	34.5	44.6	46.5
ME 25M - 12N	25	3/4	15.9	34.9	38	31.3	26.5	36.8	49.1	41.7
ME 25M - 16N	25	1	21.8	34.9	38	31.3	26.5	36.8	49.1	46.5

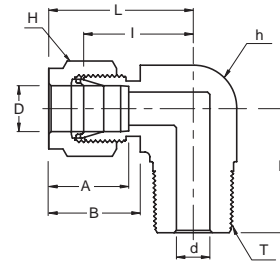
TOM-LOK
TUBE
Fittings

• Dimensions are in millimeters unless specified as "inch"



ME

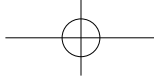
Male Elbow



For Metric Tubes Connecting To Female ISO Tapered Thread

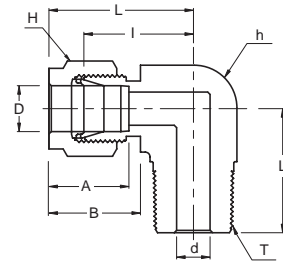
Part No.	Tube O.D. D	T R (PT)	d Min	Width Across Flat		A	B	I	L	L ₁
				h	H					
ME 3M - 2R	3	1/8	2.4	12.7	12	12.9	15.3	17.0	23.6	17.8
ME 3M - 4R	3	1/4	2.4	12.7	12	12.9	15.3	18.0	24.6	23.4
ME 4M - 2R	4	1/8	2.4	12.7	12	13.7	16.1	18.8	25.4	18.8
ME 4M - 4R	4	1/4	2.4	12.7	12	13.7	16.1	18.8	25.4	23.4
ME 6M - 2R	6	1/8	4.8	12.7	14	15.3	17.7	19.6	27.0	18.8
ME 6M - 4R	6	1/4	4.8	12.7	14	15.3	17.7	19.6	27.0	23.4
ME 6M - 6R	6	3/8	4.8	15.9	14	15.3	17.7	22.4	29.8	26.2
ME 6M - 8R	6	1/2	4.8	20.6	14	15.3	17.7	24.4	31.8	33.0
ME 8M - 2R	8	1/8	4.8	14.3	16	16.2	18.6	21.3	28.8	19.8
ME 8M - 4R	8	1/4	6.4	14.3	16	16.2	18.6	21.3	28.8	24.4
ME 8M - 6R	8	3/8	6.4	15.9	16	16.2	18.6	23.1	30.6	26.2
ME 8M - 8R	8	1/2	6.4	20.6	16	16.2	18.6	25.1	32.6	33.0
ME 10M - 4R	10	1/4	7.1	17.5	19	17.2	19.5	23.9	31.5	26.2
ME 10M - 6R	10	3/8	7.9	17.5	19	17.2	19.5	23.9	31.5	26.2
ME 10M - 8R	10	1/2	7.9	20.6	19	17.2	19.5	25.9	33.5	33.0
ME 12M - 2R	12	1/8	4.8	20.6	22	22.8	22.0	25.9	36.0	23.6
ME 12M - 4R	12	1/4	7.1	20.6	22	22.8	22.0	25.9	36.0	28.2
ME 12M - 6R	12	3/8	9.5	20.6	22	22.8	22.0	25.9	36.0	28.2
ME 12M - 8R	12	1/2	9.5	20.6	22	22.8	22.0	25.9	36.0	33.0
ME 12M - 12R	12	3/4	9.5	27.0	22	22.8	22.0	29.7	39.8	36.8
ME 16M - 6R	16	3/8	9.5	23.8	25	24.4	22.0	27.9	38.0	30.2
ME 16M - 8R	16	1/2	11.9	23.8	25	24.4	22.0	27.9	38.0	35.1
ME 18M - 8R	18	1/2	11.9	27.0	30	24.4	22.0	29.7	39.8	36.8
ME 18M - 12R	18	3/4	15.1	27.0	30	24.4	22.0	29.7	39.8	36.8
ME 20M - 8R	20	1/2	11.9	34.9	32	26.0	22.0	34.5	44.6	41.7
ME 20M - 12R	20	3/4	15.9	34.9	32	26.0	22.0	34.5	44.6	41.7
ME 22M - 12R	22	3/4	15.9	34.9	32	26.0	22.0	34.5	44.6	41.7
ME 22M - 16R	22	1	18.3	34.9	32	26.0	22.0	34.5	44.6	46.5
ME 25M - 12R	25	3/4	15.9	34.9	38	31.3	26.5	36.8	49.1	41.7
ME 25M - 16R	25	1	21.8	34.9	38	31.3	26.5	36.8	49.1	46.5

• Dimensions are in millimeters unless specified as "inch"



ME

Male Elbow



For Fractional Tubes Connecting To Female NPT Thread

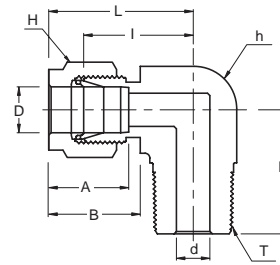
Part No.	Tube O.D. D (inch)	T (NPT)	d Min	Width Across Flat		A	B	I	L	L ₁
				h (inch)	H (inch)					
ME 2 - 2N	1/8	1/8	2.28	1/2	7/16	12.70	15.24	18.00	24.30	18.80
ME 2 - 4N	1/8	1/4	2.28	1/2	7/16	12.70	15.24	18.00	24.30	23.36
ME 3 - 2N	3/16	1/8	3.04	1/2	1/2	13.71	16.00	18.79	25.40	18.79
ME 3 - 4N	3/16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

• Dimensions are in millimeters unless specified as "inch"



ME

Male Elbow

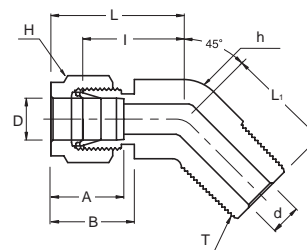


For Fractional Tubes Connecting To Female ISO Tapered Thread

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

MEF

45° Male Elbow

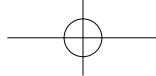


For Fractional Tubes Connecting To Female NPT Thread

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

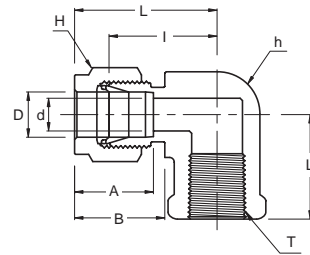
* ISO Tapered Threads are available upon request

• Dimensions are in millimeters unless specified as "inch"



FE

Female Elbow



For Fractional Tubes Connecting 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)					
FE 2 - 2N	1/8	1/8	2.28	1/2	7/16	12.70	15.24	18.03	24.63	19.05
FE 2 - 4N	1/8	1/4	2.28	11/16	7/16	12.70	15.24	20.82	27.43	22.35
FE 3 - 2N	3/16	1/8	3.04	1/2	1/2	13.71	16.00	18.79	25.40	19.05
FE 4 - 2N	1/4	1/8	4.82	1/2	9/16	15.24	17.78	19.55	26.92	19.05
FE 4 - 4N	1/4	1/4	4.82	11/16	9/16	15.24	17.78	22.35	29.71	22.35
FE 4 - 6N	1/4	3/8	4.82	13/16	9/16	15.24	17.78	24.38	31.75	22.35
FE 4 - 8N	1/4	1/2	4.82	1	9/16	15.24	17.78	27.17	34.54	28.44
FE 5 - 2N	5/16	1/8	6.35	9/16	5/8	16.25	18.54	21.33	28.70	19.05
FE 5 - 4N	5/16	1/4	6.35	11/16	5/8	16.25	18.54	23.11	30.48	22.35
FE 6 - 2N	3/8	1/8	7.11	5/8	11/16	16.76	19.30	23.11	30.48	19.05
FE 6 - 4N	3/8	1/4	7.11	11/16	11/16	16.76	19.30	23.87	31.24	22.35
FE 6 - 6N	3/8	3/8	7.11	13/16	11/16	16.76	19.30	25.90	33.27	22.35
FE 6 - 8N	3/8	1/2	7.11	1	11/16	16.76	19.30	28.70	36.06	28.44
FE 8 - 4N	1/2	1/4	10.41	13/16	7/8	22.86	21.84	25.90	36.06	22.35
FE 8 - 6N	1/2	3/8	10.41	13/16	7/8	22.86	21.84	25.90	36.06	22.35
FE 8 - 8N	1/2	1/2	10.41	1	7/8	22.86	21.84	28.70	38.86	28.44
FE 10 - 6N	5/8	3/8	12.70	15/16	1	24.38	21.84	27.94	38.10	22.35
FE 10 - 8N	5/8	1/2	12.70	1-1/16	1	24.38	21.84	29.71	39.87	28.44
FE 12 - 8N	3/4	1/2	15.74	1-1/16	1-1/8	24.38	21.84	29.71	39.87	28.44
FE 12 - 12N	3/4	3/4	15.74	1-3/8	1-1/8	24.38	21.84	34.54	44.70	31.75
FE 14 - 12N	7/8	3/4	18.28	1-3/8	1-1/4	25.90	21.84	34.54	44.70	31.75
FE 16 - 12N	1	3/4	22.35	1-3/8	1-1/2	31.24	26.41	36.83	49.02	31.75
FE 16 - 16N	1	1	22.35	1-11/16	1-1/2	31.24	26.41	41.40	53.59	38.10

For Metric Tubes Connecting To Male NPT Thread

Part No.	Tube O.D. D	T* (NPT)	d Min	Width Across Flat		A	B	I	L	L ₁
				h	H					
FE 6M - 4N	6	1/4	4.8	17.46	14	15.3	17.7	22.4	29.8	22.40
FE 6M - 6N	6	3/8	4.8	20.63	14	15.3	17.7	24.4	31.7	22.40
FE 6M - 8N	6	1/2	4.8	25.40	14	15.3	17.7	27.2	34.6	28.40
FE 8M - 4N	8	1/4	6.4	17.46	16	16.2	18.6	23.1	30.6	22.40
FE 8M - 8N	8	1/2	6.4	20.63	16	16.2	18.6	28.0	35.2	28.40
FE 10M - 4N	10	1/4	7.9	17.46	19	17.2	19.5	25.9	33.5	22.40
FE 10M - 6N	10	3/8	7.9	20.63	19	17.2	19.5	25.9	33.5	22.40
FE 10M - 8N	10	1/2	7.9	25.40	19	17.2	19.5	28.7	36.1	28.40
FE 12M - 6N	12	3/8	9.5	20.63	22	22.8	22.0	25.9	36.2	22.35
FE 12M - 8N	12	1/2	9.5	25.40	22	22.8	22.0	28.7	38.8	28.40

* ISO Tapered Threads are available upon request

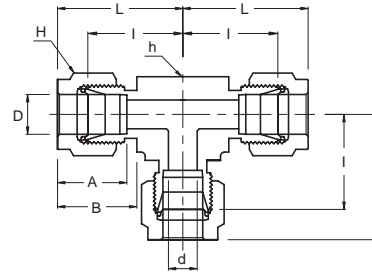
• Dimensions are in millimeters unless specified as "inch"

TOM-LOK
TUBE
Fittings



UT

Union Tee



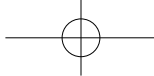
For Fractional Tubes

Part No.	Tube O.D. D (inch)	d Min	Width Across Flat		A	B	I	L
			h (inch)	H (inch)				
UT 1	1/16	1.27	3/8	5/16	8.63	10.92	14.00	18.03
UT 2	1/8	2.28	3/8	7/16	12.70	15.24	15.80	22.35
UT 3	3/16	3.04	1/2	1/2	13.71	16.00	18.54	25.14
UT 4	1/4	4.82	1/2	9/16	15.24	17.78	20.10	27.40
UT 5	5/16	6.35	5/8	5/8	16.25	18.54	22.35	29.71
UT 6	3/8	7.11	5/8	11/16	16.76	19.30	23.11	30.48
UT 8	1/2	10.41	13/16	7/8	22.86	21.84	25.90	36.06
UT 10	5/8	12.70	1	1	24.38	21.84	28.70	38.86
UT 12	3/4	15.74	1-1/16	1-1/8	24.38	21.84	29.71	39.87
UT 14	7/8	18.28	1-3/8	1-1/4	25.90	21.84	34.54	44.70
UT 16	1	22.35	1-3/8	1-1/2	31.24	26.41	36.83	49.02

For Metric Tubes

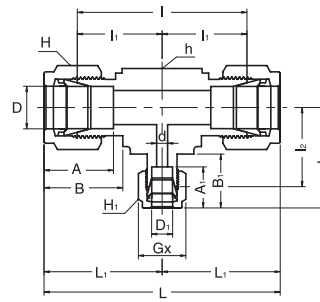
Part No.	Tube O.D. D	d Min	Width Across Flat		A	B	I	L
			h	H				
UT 2M	2	1.7	9.5	12	12.9	15.3	15.7	22.3
UT 3M	3	2.4	9.5	12	12.9	15.3	15.7	22.3
UT 4M	4	2.4	12.7	12	13.7	16.1	18.8	25.4
UT 6M	6	4.8	12.7	14	15.3	17.7	19.6	27.0
UT 8M	8	6.4	15.9	16	16.2	18.6	22.4	29.9
UT 10M	10	7.9	17.5	19	17.2	19.5	23.9	31.5
UT 12M	12	9.5	20.6	22	22.8	22.0	25.9	36.0
UT 15M	15	11.9	25.4	25	24.4	22.0	28.7	38.8
UT 16M	16	12.7	25.4	25	24.4	22.0	28.7	38.8
UT 18M	18	15.1	27.0	30	24.4	22.0	29.7	38.8
UT 20M	20	15.9	34.9	32	26.0	22.0	34.5	44.6
UT 22M	22	18.3	34.9	32	26.0	22.0	34.5	44.6
UT 25M	25	21.8	34.9	38	31.3	26.5	36.8	49.1

• Dimensions are in millimeters unless specified as "inch"



URT

Union Reducing Tee



For 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)										
URT 6 - 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
URT 8 - 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
URT 8 - 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
URT 10 - 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
URT 12 - 12 - 4	3/4	1/4	4.82	1 1/16	1 1/8	9/16	24.38	15.24	21.84	17.78	59.43	29.71	29.71	79.75	39.87	35.56
URT 12 - 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
URT 12 - 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
URT 16 - 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
URT 16 - 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
URT 16 - 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

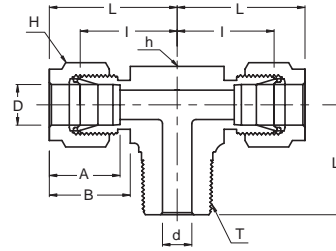
• Dimensions are in millimeters unless specified as "inch"

TOM-LOK
TUBE
Fittings



MBT

Male Branch Tee



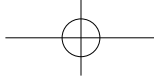
For Fractional Tubes Connecting To Female NPT Thread

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

For Metric Tubes Connecting To Female ISO Tapered Thread

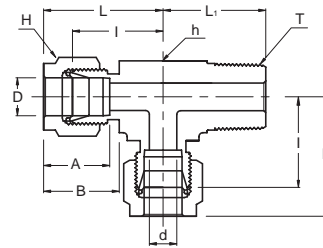
Part No.	Tube O.D. D	T* R (PT)	d Min	Width Across Flat		A	B	I	L	L ₁
				h	H					
MBT 3M - 2R	3	1/8	2.4	12.7	12	12.9	15.3	17.0	23.6	17.8
MBT 3M - 4R	3	1/4	2.4	12.7	12	12.9	15.3	18.0	24.6	23.4
MBT 4M - 2R	4	1/8	2.4	12.7	12	13.7	16.1	18.8	25.4	18.8
MBT 6M - 2R	6	1/8	4.8	12.7	14	15.3	17.7	19.6	27.0	18.8
MBT 6M - 4R	6	1/4	4.8	14.2	14	15.3	17.7	19.6	27.0	23.4
MBT 8M - 2R	8	1/8	4.8	14.3	16	16.2	18.6	21.3	28.8	19.8
MBT 8M - 4R	8	1/4	6.4	14.3	16	16.2	18.6	21.3	28.8	24.4
MBT 10M - 4R	10	1/4	7.1	17.5	19	17.2	19.5	23.9	31.5	28.2
MBT 10M - 6R	10	3/8	7.9	17.5	19	17.2	19.5	23.9	31.5	28.2
MBT 12M - 4R	12	1/4	7.1	20.6	22	22.8	22.0	25.9	36.0	28.2
MBT 12M - 6R	12	3/8	9.5	20.6	22	22.8	22.0	25.9	36.0	28.2
MBT 12M - 8R	12	1/2	9.5	20.6	22	22.8	22.0	25.9	36.0	33.0
MBT 16M - 6R	16	3/8	9.5	25.4	25	24.4	22.0	27.9	38.0	30.2
MBT 16M - 8R	16	1/2	11.9	25.4	25	24.4	22.0	27.9	38.0	35.1
MBT 20M - 12R	20	3/4	15.9	31.8	32	26.0	22.0	34.5	44.6	41.7

• Dimensions are in millimeters unless specified as "inch"



MRT

Male Run Tee



For Fractional Tubes Connecting 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)					
MRT 2 - 2N	1/8	1/8	2.28	1/2	7/16	12.70	15.24	18.30	24.91	18.90
MRT 2 - 4N	1/8	1/4	2.28	1/2	7/16	12.70	15.24	18.03	24.63	23.36
MRT 3 - 2N	3/16	1/8	3.04	1/2	1/2	13.71	16.00	17.78	25.40	18.79
MRT 4 - 2N	1/4	1/8	4.82	1/2	9/16	15.24	17.78	19.55	26.92	18.79
MRT 4 - 4N	1/4	1/4	4.82	1/2	9/16	15.24	17.78	19.55	26.92	23.36
MRT 5 - 2N	5/16	1/8	4.82	5/8	5/8	16.25	18.54	22.35	29.71	20.82
MRT 6 - 4N	3/8	1/4	7.11	5/8	11/16	16.76	19.30	23.11	30.48	25.40
MRT 6 - 6N	3/8	3/8	7.11	5/8	11/16	16.76	19.30	23.10	30.48	28.19
MRT 8 - 6N	1/2	3/8	9.65	13/16	7/8	22.86	21.84	25.90	36.06	28.19
MRT 8 - 8N	1/2	1/2	10.41	13/16	7/8	22.86	21.84	25.90	36.06	33.02
MRT 10 - 8N	5/8	1/2	11.93	1	1	24.38	21.84	28.70	38.86	35.81
MRT 12 - 12N	3/4	3/4	15.74	1-1/16	1-1/8	24.38	21.84	29.71	39.87	36.83

For Metric Tubes Connecting To Female ISO Tapered Thread

Part No.	Tube O.D. D	T* R (PT)	d Min	Width Across Flat		A	B	I	L	L ₁
				h	H					
MRT 3M - 2R	3	1/8	2.4	12.7	12	12.9	15.3	17.0	23.6	17.8
MRT 3M - 4R	3	1/4	2.4	12.7	12	12.9	15.3	18.0	24.6	23.4
MRT 4M - 2R	4	1/8	2.4	12.7	12	13.7	16.1	18.8	25.4	18.8
MRT 6M - 2R	6	1/8	4.8	12.7	14	15.3	17.7	19.6	27.0	18.8
MRT 6M - 4R	6	1/4	4.8	14.2	14	15.3	17.7	19.6	27.0	23.4
MRT 8M - 2R	8	1/8	4.8	14.3	16	16.2	18.6	21.3	28.8	19.8
MRT 8M - 4R	8	1/4	6.4	14.3	16	16.2	18.6	21.3	28.8	24.4
MRT 10M - 4R	10	1/4	7.1	17.5	19	17.2	19.5	23.9	31.5	28.2
MRT 10M - 6R	10	3/8	7.9	17.5	19	17.2	19.5	23.9	31.5	28.2
MRT 12M - 4R	12	1/4	7.1	20.6	22	22.8	22.0	25.9	36.0	28.2
MRT 12M - 6R	12	3/8	9.5	20.6	22	22.8	22.0	25.9	36.0	28.2
MRT 12M - 8R	12	1/2	9.5	20.6	22	22.8	22.0	25.9	36.0	33.0
MRT 16M - 6R	16	3/8	9.5	25.4	25	24.4	22.0	27.9	38.0	30.2
MRT 16M - 8R	16	1/2	11.9	25.4	25	24.4	22.0	27.9	38.0	35.1
MRT 20M - 12R	20	3/4	15.9	31.8	32	26.0	22.0	34.5	44.6	41.7

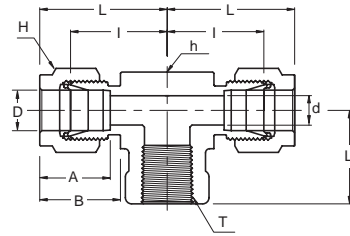
TOM-LOK
TUBE
Fittings

• Dimensions are in millimeters unless specified as "inch"



FBT

Female Branch Tee



For Fractional Tubes Connecting To Male NPT Thread

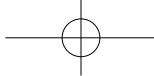
Part No.	Tube O.D. D (inch)	T* (NPT)	d Min	Width Across Flat		A	B	I	L	L ₁
				h (inch)	H (inch)					
FBT 2 - 2N	1/8	1/8	2.28	1/2	7/16	12.70	15.24	18.03	24.63	19.05
FBT 4 - 2N	1/4	1/8	4.82	1/2	9/16	15.24	17.78	19.55	26.92	19.05
FBT 4 - 4N	1/4	1/4	4.82	11/16	9/16	15.24	17.78	22.35	29.71	22.35
FBT 6 - 4N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

For Metric Tubes Connecting To Male NPT Thread

Part No.	Tube O.D. D	T* (NPT)	d Min	Width Across Flat		A	B	I	L	L ₁
				h	H					
FBT 6M - 2N	6	1/8	4.8	12.70	14	15.3	17.7	19.6	27.0	19.0
FBT 6M - 4N	6	1/4	4.8	17.46	14	15.3	17.7	22.4	29.8	22.4
FBT 6M - 6N	6	3/8	4.8	20.63	14	15.3	17.7	24.4	31.7	22.4
FBT 6M - 8N	6	1/2	4.8	25.40	14	15.3	17.7	27.2	34.5	28.4
FBT 8M - 2N	8	1/8	6.4	15.87	16	16.2	18.6	22.4	29.9	19.0
FBT 8M - 4N	8	1/4	6.4	17.46	16	16.2	18.6	23.1	30.6	22.4
FBT 8M - 6N	8	3/8	6.4	20.63	16	16.2	18.6	25.2	32.4	22.4
FBT 8M - 8N	8	1/2	6.4	25.40	16	16.2	18.6	28.0	35.2	28.4
FBT 10M - 4N	10	1/4	7.9	20.63	19	17.2	19.5	25.9	33.5	22.4
FBT 10M - 6N	10	3/8	7.9	20.63	19	17.2	19.5	25.9	33.3	22.4
FBT 10M - 8N	10	1/2	9.5	25.40	19	17.2	19.5	26.2	33.6	22.4
FBT 12M - 4N	12	1/4	9.5	20.63	22	22.8	22.0	25.9	36.0	22.4
FBT 12M - 6N	12	3/8	9.5	20.63	22	22.8	22.0	25.9	36.0	22.4
FBT 12M - 8N	12	1/2	9.5	25.40	22	22.8	22.0	29.7	40.0	28.4
FBT 16M - 8N	16	1/2	12.7	25.40	25	24.4	22.0	28.7	38.8	28.4

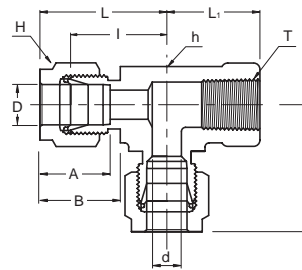
* ISO Tapered Threads are available upon request

• Dimensions are in millimeters unless specified as "inch"



FRT

Female Run Tee



For Fractional Tubes Connecting 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)					
FRT 2 - 2N	1/8	1/8	2.28	1/2	7/16	12.70	15.24	18.03	24.63	19.05
FRT 4 - 2N	1/4	1/8	4.82	1/2	9/16	15.24	17.78	19.55	26.92	19.05
FRT 4 - 4N	1/4	1/4	4.82	11/16	9/16	15.24	17.78	22.35	29.71	22.35
FRT 6 - 4N	3/8	1/4	7.11	11/16	11/16	16.76	19.30	23.87	31.24	22.35
FRT 8 - 6N	1/2	3/8	10.41	13/16	7/8	22.86	21.84	25.90	36.06	22.35
FRT 8 - 8N	1/2	1/2	10.41	1	7/8	22.86	21.84	28.70	39.87	28.44
FRT 12 - 12N	3/4	3/4	15.74	1-3/8	1-1/8	24.38	21.84	34.54	44.70	31.75
FRT 16 - 12N	1	3/4	22.35	1-3/8	1-1/2	31.24	26.41	36.83	49.02	31.75
FRT 16 - 16N	1	1	22.35	1-11/16	1-1/2	31.24	26.41	41.40	53.59	38.10

For Metric Tubes Connecting To Male NPT Thread

Part No.	Tube O.D. D	T* (NPT)	d Min	Width Across Flat		A	B	I	L	L ₁
				h	H					
FRT 6M - 2N	6	1/8	4.8	12.70	14	15.3	17.7	19.6	27.0	19.0
FRT 6M - 4N	6	1/4	4.8	17.46	14	15.3	17.7	22.4	29.8	22.4
FRT 6M - 8N	6	1/2	4.8	25.40	14	15.3	17.7	27.2	34.5	28.4
FRT 8M - 2N	8	1/8	6.4	15.87	16	16.2	18.6	22.4	29.9	19.0
FRT 8M - 4N	8	1/4	6.4	17.46	16	16.2	18.6	23.1	30.6	22.4
FRT 8M - 6N	8	3/8	6.4	20.63	16	16.2	18.6	25.2	32.4	22.4
FRT 8M - 8N	8	1/2	6.4	25.40	16	16.2	18.6	28.0	35.2	28.4
FRT 12M - 4N	12	1/4	9.5	20.63	22	22.8	22.0	25.9	33.5	22.4
FRT 12M - 6N	12	3/8	9.5	20.63	22	22.8	22.0	25.9	36.0	22.4
FRT 12M - 8N	12	1/2	9.5	26.98	22	22.8	22.0	29.7	40.0	28.4
FRT 16M - 8N	16	1/2	12.7	25.40	25	24.4	22.0	29.7	39.8	28.4

* ISO Tapered Threads are available upon request

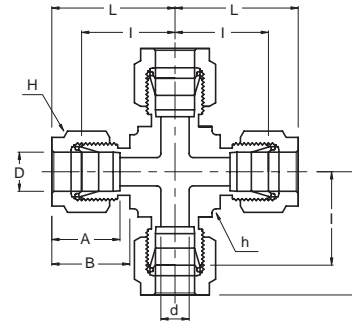
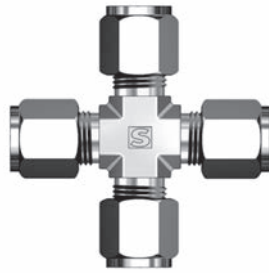
TOM-LOK
TUBE
Fittings

• Dimensions are in millimeters unless specified as "inch"



UC

Union Cross



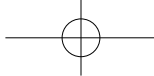
For Fractional Tubes

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

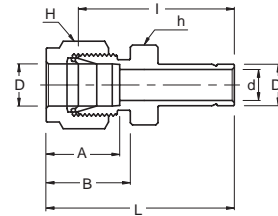
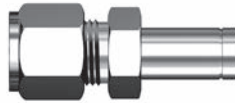
For Metric Tubes

Part No.	Tube O.D. D	d Min	Width Across Flat		A	B	I	L
			h	H				
UC 3M	3	2.4	9.5	12	12.9	15.3	15.7	22.3
UC 6M	6	4.8	12.7	14	15.3	17.7	19.6	27.0
UC 8M	8	6.4	15.9	16	16.2	18.6	22.4	29.9
UC 10M	10	7.9	20.6	19	17.2	19.5	25.9	33.5
UC 12M	12	9.5	20.6	22	22.8	22.0	25.9	36.0
UC 16M	16	12.7	23.8	25	24.4	22.0	26.9	37.0
UC 18M	18	15.1	27.0	30	24.4	22.0	28.2	38.3
UC 20M	20	15.9	34.9	32	26.0	22.0	34.5	44.6
UC 25M	25	21.8	34.9	38	31.3	26.5	36.8	49.1

• Dimensions are in millimeters unless specified as "inch"



RC Reducer



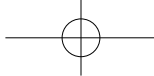
For Fractional Tubes Connecting To Fractional TOM-LOK Port

Part No.	Tube O.D.		d Min	Width Across Flat		A	B	I	L
	D (inch)	D ₁ (inch)		h (inch)	H (inch)				
RC 2 - 1	1/8	1/16	0.76	7/16	7/16	12.70	15.24	22.35	28.95
RC 2 - 2	1/8	1/8	2.03	7/16	7/16	12.70	15.24	26.92	33.52
RC 2 - 3	1/8	3/16	2.28	7/16	7/16	12.70	15.24	27.68	34.29
RC 2 - 4	1/8	1/4	2.28	7/16	7/16	12.70	15.24	29.46	36.06
RC 2 - 6	1/8	3/8	2.28	7/16	7/16	12.70	15.24	30.98	37.59
RC 2 - 8	1/8	1/2	2.28	9/16	7/16	12.70	15.24	37.59	44.19
RC 3 - 2	3/16	1/8	2.03	7/16	1/2	13.71	16.00	28.19	34.79
RC 3 - 4	3/16	1/4	3.04	7/16	1/2	13.71	16.00	30.48	37.08
RC 4 - 2	1/4	1/8	2.03	1/2	9/16	15.24	17.78	29.46	36.83
RC 4 - 3	1/4	3/16	3.04	1/2	9/16	15.24	17.78	30.22	37.59
RC 4 - 4	1/4	1/4	4.82	1/2	9/16	15.24	17.78	31.75	39.11
RC 4 - 5	1/4	5/16	4.82	1/2	9/16	15.24	17.78	32.51	39.87
RC 4 - 6	1/4	3/8	4.82	1/2	9/16	15.24	17.78	33.27	40.64
RC 4 - 8	1/4	1/2	4.82	9/16	9/16	15.24	17.78	38.86	46.22
RC 4 - 10	1/4	5/8	4.82	11/16	9/16	15.24	17.78	40.64	48.00
RC 4 - 12	1/4	3/4	4.82	13/16	9/16	15.24	17.78	41.40	47.75
RC 5 - 6	5/16	3/8	6.35	9/16	5/8	16.25	18.54	34.54	41.91
RC 5 - 8	5/16	1/2	6.35	9/16	5/8	16.25	18.54	40.13	47.49
RC 6 - 4	3/8	1/4	4.82	5/8	11/16	16.76	19.30	34.03	41.40
RC 6 - 6	3/8	3/8	7.11	5/8	11/16	16.76	19.30	35.81	43.18
RC 6 - 8	3/8	1/2	7.11	5/8	11/16	16.76	19.30	41.14	48.51
RC 6 - 10	3/8	5/8	7.11	11/16	11/16	16.76	19.30	42.92	50.29
RC 6 - 12	3/8	3/4	7.11	13/16	11/16	16.76	19.30	42.92	50.29
RC 8 - 4	1/2	1/4	4.82	13/16	7/8	22.86	21.84	34.79	44.95
RC 8 - 6	1/2	3/8	7.11	13/16	7/8	22.86	21.84	36.57	46.73
RC 8 - 8	1/2	1/2	9.90	13/16	7/8	22.86	21.84	42.16	52.32
RC 8 - 10	1/2	5/8	10.41	13/16	7/8	22.86	21.84	43.68	53.84
RC 8 - 12	1/2	3/4	10.41	13/16	7/8	22.86	21.84	43.68	53.84
RC 8 - 16	1/2	1	10.41	1-1/16	7/8	22.86	21.84	50.03	60.19
RC 10 - 12	5/8	3/4	12.70	15/16	1	24.38	21.84	44.45	54.61
RC 10 - 14	5/8	7/8	12.70	15/16	1	24.38	21.84	45.97	56.13
RC 10 - 16	5/8	1	12.70	1-1/16	1	24.38	21.84	50.80	60.96
RC 12 - 8	3/4	1/2	9.90	1-1/16	1-1/8	24.38	21.84	44.45	54.61
RC 12 - 16	3/4	1	15.74	1-1/16	1-1/8	24.38	21.84	52.32	62.48

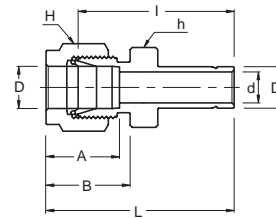
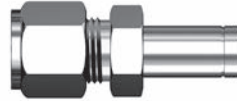
* Fractional Tube to Metric TOM-LOK port are available upon request

TOM-LOK
TUBE
Fittings

• Dimensions are in millimeters unless specified as "inch"



RC Reducer



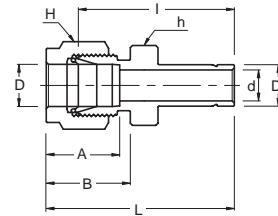
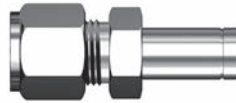
For Metric Tubes Connecting To Metric TOM-LOK Port

Part No.	Tube O.D.		d Min	Width Across Flat		A	B	I	L
	D	D ₁		h	H				
RC 3M - 4M	3	4	2.4	12	12	12.9	15.3	28.4	35.0
RC 3M - 6M	3	6	2.4	12	12	12.9	15.3	29.5	36.1
RC 3M - 10M	3	10	2.4	14	12	12.9	15.3	31.8	38.4
RC 4M - 6M	4	6	2.4	12	12	13.7	16.1	30.5	37.1
RC 6M - 3M	6	3	1.8	14	14	15.3	17.7	29.5	36.9
RC 6M - 8M	6	8	4.8	14	14	15.3	17.7	32.5	39.9
RC 6M - 10M	6	10	4.8	14	14	15.3	17.7	33.3	40.7
RC 6M - 12M	6	12	4.8	14	14	15.3	17.7	38.9	46.3
RC 8M - 6M	8	6	4.6	15	16	16.2	18.6	32.8	40.3
RC 8M - 10M	8	10	6.4	15	16	16.2	18.6	34.5	42.0
RC 8M - 12M	8	12	6.4	15	16	16.2	18.6	40.1	47.6
RC 10M - 6M	10	6	4.6	18	19	17.2	19.5	34.8	42.4
RC 10M - 8M	10	8	6.4	18	19	17.2	19.5	35.8	43.4
RC 10M - 12M	10	12	7.9	18	19	17.2	19.5	42.2	49.8
RC 10M - 15M	10	15	7.9	18	19	17.2	19.5	43.7	51.3
RC 10M - 18M	10	18	7.9	22	19	17.2	19.5	43.7	51.3
RC 12M - 6M	12	6	4.6	22	22	22.8	22.0	34.8	44.9
RC 12M - 8M	12	8	6.4	22	22	22.8	22.0	35.8	45.9
RC 12M - 10M	12	10	7.7	22	22	22.8	22.0	36.6	46.7
RC 12M - 16M	12	16	9.5	22	22	22.8	22.0	43.7	53.8
RC 12M - 18M	12	18	9.5	22	22	22.8	22.0	43.7	53.8
RC 12M - 20M	12	20	9.5	22	22	22.8	22.0	46.0	56.1
RC 12M - 22M	12	22	9.5	24	22	22.8	22.0	46.0	56.1
RC 12M - 25M	12	25	9.5	27	22	22.8	22.0	52.3	62.4
RC 16M - 12M	16	12	9.1	24	25	24.4	22.0	42.9	53.0
RC 18M - 12M	18	12	9.1	27	30	24.4	22.0	44.5	54.6
RC 18M - 16M	18	16	12.7	27	30	24.4	22.0	46.0	56.1
RC 18M - 20M	18	20	15.1	27	30	24.4	22.0	47.5	57.6
RC 18M - 22M	18	22	15.1	27	30	24.4	22.0	47.5	57.6
RC 18M - 25M	18	25	15.1	27	30	24.4	22.0	52.3	62.4
RC 20M - 16M	20	16	12.7	30	32	26.0	22.0	47.8	57.9
RC 20M - 18M	20	18	13.9	30	32	26.0	22.0	47.8	57.9
RC 20M - 22M	20	22	15.8	30	32	26.0	22.0	49.3	59.4
RC 20M - 25M	20	25	15.8	30	32	26.0	22.0	54.1	64.2
RC 22M - 18M	22	18	13.9	30	32	26.0	22.0	47.8	57.9
RC 22M - 20M	22	20	15.1	30	32	26.0	22.0	49.3	59.4
RC 22M - 25M	22	25	18.3	30	32	26.0	22.0	54.1	64.2
RC 25M - 18M	25	18	13.9	35	38	31.3	26.5	50.8	63.1
RC 25M - 20M	25	20	15.1	35	38	31.3	26.5	52.3	64.6

* Dimensions are in millimeters unless specified as "inch"



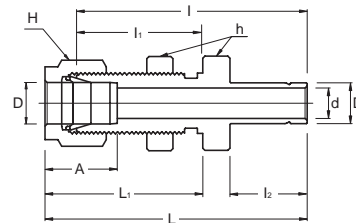
RC Reducer



For Metric Tubes Connecting To Fractional TOM-LOK Port

Part No.	Tube O.D.		d Min	Width Across Flat		A	B	I	L
	D	D ₁ (inch)		h	H				
RC 3M - 2	3	1/8	2.0	12	12	12.9	15.3	26.9	33.5
RC 3M - 4	3	1/4	2.4	12	12	12.9	15.3	29.5	36.1
RC 6M - 4	6	1/4	4.8	14	14	15.3	17.7	31.8	39.2
RC 6M - 5	6	5/16	4.8	14	14	15.3	17.7	32.5	39.9
RC 6M - 6	6	3/8	4.8	14	14	15.3	17.7	33.3	40.7
RC 6M - 8	6	1/2	4.8	14	14	15.3	17.7	38.9	46.3
RC 8M - 6	8	3/8	6.4	15	16	16.2	18.6	34.5	42.0
RC 8M - 8	8	1/2	6.4	15	16	16.2	18.6	40.1	47.6
RC 10M - 6	10	3/8	7.1	18	19	17.2	19.5	36.6	44.2
RC 10M - 8	10	1/2	7.9	18	19	17.2	19.5	42.2	49.8
RC 12M - 8	12	1/2	9.5	22	22	22.8	22.0	42.2	52.3
RC 12M - 12	12	3/4	9.5	22	22	22.8	22.0	43.7	53.8
RC 18M - 12	18	3/4	15.1	27	30	24.4	22.0	46.0	56.1
RC 18M - 16	18	1	15.1	27	30	24.4	22.0	52.3	62.4

BRC Bulkhead Reducer



For Fractional Tubes Connecting To Fractional TOM-LOK Port

Part No.	Tube O.D. D (inch)	d Min	Width Across Flat		A	I	l ₁	l ₂	L	L ₁	Panel Hole Drill Size	Panel Max. Thickness
			h (inch)	H (inch)								
BRC 2 - 2	1/8	2.03	1/2	7/16	12.70	42.92	24.63	13.46	49.53	31.24	8.33	12.70
BRC 4 - 4	1/4	4.82	5/8	9/16	15.24	48.51	26.16	15.74	55.88	33.52	11.50	10.16
BRC 6 - 6	3/8	7.11	3/4	11/16	16.76	53.84	29.46	17.52	61.21	36.83	14.68	11.17
BRC 8 - 8	1/2	10.41	15/16	7/8	22.86	62.73	31.75	23.11	72.89	41.91	19.44	12.70
BRC 10 - 10	5/8	12.70	1-1/16	1	24.38	65.02	32.51	24.70	75.18	42.67	22.62	12.70
BRC 16 - 16	1	20.32	1-5/8	1-1/2	31.24	88.13	45.21	31.70	100.33	57.40	33.73	19.05

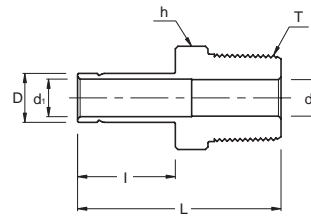
TOM-LOK
TUBE
Fittings

• Dimensions are in millimeters unless specified as "inch"



MA

Male Adapter



For Fractional TOM-LOK Port Connecting To Female NPT Thread

Part No.	Tube O.D. D (inch)	T* (NPT)	d (Min)	d _i	Width Across Flat h (inch)	l	L
MA 2 - 2N	1/8	1/8	4.82	2.28	7/16	13.45	29.50
MA 2 - 4N	1/8	1/4	7.11	2.28	9/16	13.45	34.80
MA 3 - 2N	3/16	1/8	4.82	3.04	7/16	14.20	30.22
MA 3 - 4N	3/16	1/4	7.11	3.04	9/16	14.20	35.56
MA 4 - 2N	1/4	1/8	4.82	4.82	7/16	15.75	31.80
MA 4 - 4N	1/4	1/4	4.82	4.82	9/16	15.75	37.08
MA 4 - 6N	1/4	3/8	4.82	4.82	11/16	15.75	37.84
MA 4 - 8N	1/4	1/2	4.82	4.82	7/8	15.75	43.43
MA 5 - 2N	5/16	1/8	4.82	6.35	7/16	16.80	32.76
MA 5 - 4N	5/16	1/4	6.35	6.35	9/16	16.80	38.10
MA 6 - 2N	3/8	1/8	4.82	7.11	7/16	17.50	33.50
MA 6 - 4N	3/8	1/4	7.11	7.11	9/16	17.50	38.90
MA 6 - 6N	3/8	3/8	7.11	7.11	11/16	17.50	39.60
MA 6 - 8N	3/8	1/2	7.11	7.11	7/8	17.50	45.20
MA 8 - 4N	1/2	1/4	7.11	9.90	9/16	23.20	44.50
MA 8 - 6N	1/2	3/8	9.90	9.90	11/16	23.20	45.20
MA 8 - 8N	1/2	1/2	9.90	9.90	7/8	23.20	50.80
MA 10 - 6N	5/8	3/8	9.90	12.70	11/16	24.70	47.40
MA 10 - 8N	5/8	1/2	11.94	12.70	7/8	24.70	52.30
MA 10 - 12N	5/8	3/4	14.98	12.70	1-1/16	24.70	52.30
MA 12 - 8N	3/4	1/2	11.94	14.98	7/8	24.70	52.30
MA 12 - 12N	3/4	3/4	14.98	14.98	1-1/16	24.70	52.30
MA 12 - 16N	3/4	1	20.32	14.98	1-3/8	24.70	57.91
MA 14 - 12N	7/8	3/4	14.98	17.27	1-1/16	26.70	54.30
MA 16 - 12N	1	3/4	15.74	20.32	1-1/16	31.70	58.70
MA 16 - 16N	1	1	20.32	20.32	1-3/8	31.70	66.00

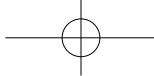
* ISO Tapered Threads are available upon request

For Metric TOM-LOK Port Connecting To Female NPT Thread

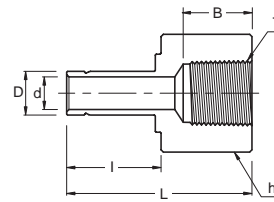
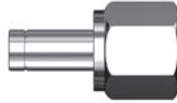
Part No.	Tube O.D. (D)	T* (NPT)	d (Min)	d _i	Width Across Flat (h)	l	L
MA 6M - 2N	6	1/8	4.6	4.6	12	15.75	32.8
MA 6M - 4N	6	1/4	4.6	4.6	14	15.75	38.1
MA 8M - 4N	8	1/4	6.3	6.3	14	16.50	39.1
MA 10M - 4N	10	1/4	7.7	7.7	14	17.50	39.9
MA 10M - 6N	10	3/8	7.7	7.7	18	17.50	40.6
MA 10M - 8N	10	1/2	11.9	7.7	22	17.50	46.2
MA 12M - 4N	12	1/4	7.1	9.1	16	23.50	46.5
MA 12M - 8N	12	1/2	11.9	9.1	22	23.50	52.0
MA 18M - 12N	18	3/4	15.9	13.9	27	24.90	54.8

* ISO Tapered Threads are available upon request

• Dimensions are in millimeters unless specified as "inch"



FA Female Adapter



For Fractional TOM-LOK Port Connecting To Male NPT Thread

Part No.	Tube O.D. D (inch)	T* (NPT)	d (Min)	Width Across Flat h (inch)	I	L
FA 2 - 2N	1/8	1/8	2.28	9/16	13.45	31.50
FA 2 - 4N	1/8	1/4	2.28	3/4	13.45	35.30
FA 3 - 2N	3/16	1/8	3.04	9/16	14.20	32.00
FA 3 - 4N	3/16	1/4	3.04	3/4	14.20	35.81
FA 4 - 2N	1/4	1/8	4.82	9/16	15.75	33.02
FA 4 - 4N	1/4	1/4	4.82	3/4	15.75	37.10
FA 4 - 6N	1/4	3/8	4.82	7/8	15.75	39.37
FA 4 - 8N	1/4	1/2	4.82	1-1/16	15.75	45.50
FA 5 - 2N	5/16	1/8	6.35	9/16	16.80	34.29
FA 5 - 4N	5/16	1/4	6.35	3/4	16.80	37.59
FA 6 - 2N	3/8	1/8	7.11	9/16	17.50	34.29
FA 6 - 4N	3/8	1/4	7.11	3/4	17.50	38.10
FA 6 - 6N	3/8	3/8	7.11	7/8	17.50	40.38
FA 6 - 8N	3/8	1/2	7.11	1-1/16	17.50	46.73
FA 8 - 4N	1/2	1/4	9.90	3/4	23.20	43.43
FA 8 - 6N	1/2	3/8	9.90	7/8	23.20	45.46
FA 8 - 8N	1/2	1/2	9.90	1-1/16	23.20	51.80
FA 10 - 6N	5/8	3/8	12.70	7/8	24.70	48.26
FA 10 - 8N	5/8	1/2	12.70	1-1/16	24.70	53.08
FA 12 - 8N	3/4	1/2	14.98	1-1/16	24.70	52.83
FA 12 - 12N	3/4	3/4	14.98	1-5/16	24.70	54.86
FA 12 - 16N	3/4	1	14.98	1-5/8	24.70	58.42
FA 14 - 12N	7/8	3/4	17.27	1-5/16	26.70	57.15
FA 16 - 12N	1	3/4	20.32	1-5/16	31.70	60.70
FA 16 - 16N	1	1	20.32	1-5/8	31.70	64.26

* ISO Tapered Threads are available upon request

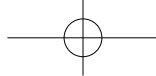
For Metric TOM-LOK Port Connecting To Male NPT Thread

Part No.	Tube O.D. (D)	T* (NPT)	d (Min)	Width Across Flat (h)	I	L
FA 3M - 2N	3	1/8	1.8	14	13.15	31.2
FA 6M - 2N	6	1/8	4.6	14	15.75	32.5
FA 6M - 4N	6	1/4	4.6	19	15.75	37.1
FA 8M - 4N	8	1/4	6.3	19	16.50	37.6
FA 10M - 4N	10	1/4	7.7	19	17.50	38.1
FA 10M - 6N	10	3/8	7.7	22	17.50	40.1
FA 10M - 8N	10	1/2	7.7	27	17.50	46.5
FA 12M - 4N	12	1/4	9.1	19	23.50	43.7
FA 12M - 6N	12	3/8	9.1	22	23.50	46.0
FA 12M - 8N	12	1/2	9.1	27	23.50	52.3
FA 18M - 12N	18	3/4	13.9	32	24.90	54.8

* ISO Tapered Threads are available upon request

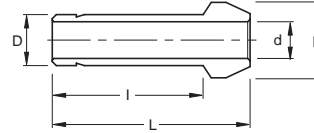
• Dimensions are in millimeters unless specified as "inch"

TOM-LOK
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Fittings



PC

Port Connector



For Fractional TOM-LOK Ports

Part No.	Tube O.D.(D) (inch)	d (Min)	E	I	L
PC 2	1/8	2.28	6.09	15.75	22.35
PC 4	1/4	4.82	9.39	18.79	24.63
PC 5	5/16	6.35	10.92	20.06	25.90
PC 6	3/8	7.11	12.70	20.32	26.16
PC 8	1/2	9.90	15.74	25.90	35.81
PC 12	3/4	14.98	22.09	27.68	37.33
PC 16	1	20.32	28.44	34.54	48.00

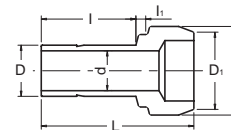
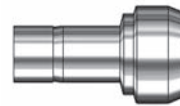
For Metric TOM-LOK Ports

Part No.	Tube O.D. (D)	d (Min)	E	I	L
PC 3M	3	2.1	6.0	15.7	22.2
PC 6M	6	4.4	9.0	18.7	24.6
PC 8M	8	6.3	11.0	20.0	25.9
PC 10M	10	8.2	13.1	20.2	26.1
PC 12M	12	9.1	15.0	26.0	35.8
PC 16M	16	12.7	19.0	27.6	37.4

• Dimensions are in millimeters unless specified as "inch"

RPC

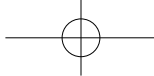
Reducing Port Connector



For Fractional TOM-LOK Port Connecting To Male AN

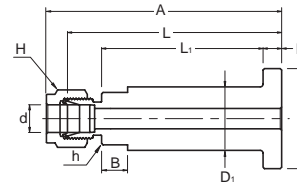
Part No.	Tube O.D. D ₁ (inch)	Reduced Tube O.D. D (inch)	d	E	I	I ₁	L
RPC 2 - 1	1/8	1/16	0.76	6.09	8.63	2.03	17.27
RPC 4 - 1	1/4	1/16	0.76	9.39	8.63	3.55	18.03
RPC 4 - 2	1/4	1/8	2.28	9.39	13.46	3.30	22.60
RPC 6 - 2	3/8	1/8	2.28	12.70	13.46	3.81	23.11
RPC 6 - 4	3/8	1/4	4.82	12.70	15.74	3.30	24.89
RPC 8 - 4	1/2	1/4	4.82	15.74	15.74	3.81	29.21
RPC 8 - 6	1/2	3/8	7.11	15.74	17.52	3.30	30.48
RPC 12 - 8	3/4	1/2	9.90	22.09	24.38	3.81	37.84
RPC 16 - 8	1	1/2	9.90	28.44	24.38	4.82	42.67
RPC 16 - 12	1	3/4	14.98	28.44	25.90	4.06	43.43

• Dimensions are in millimeters unless specified as "inch"



FTC

Flange Lapped Tubes Connector



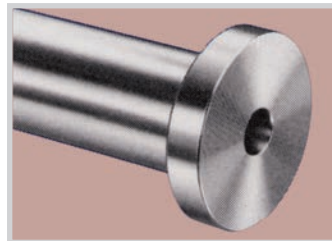
For Fractional Tubes

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

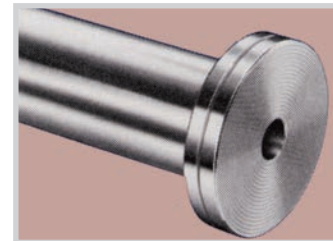
While jointing between process lines and instruments, use lap joint flanges based to ANSI B 16.5 or BS 1560 with flange lapped tube connector for a easy joint.

Flange Seal Finish

Two kinds of stub end seal surfaces "Smooth" and "Serrated" exist while using gasket sealing.



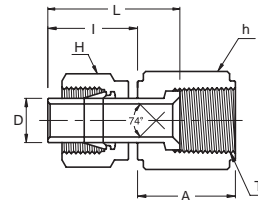
Smooth identification code: SF



Serrated identification code: RF

AF

AN Flare



For Fractional TOM-LOK Port Connecting To Male AN

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

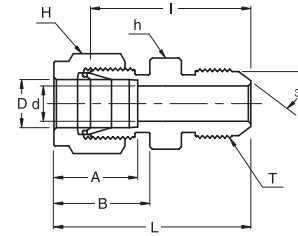
TOM-LOK
TUBE
Fittings

• Dimensions are in millimeters unless specified as "inch"



AU

AN Union

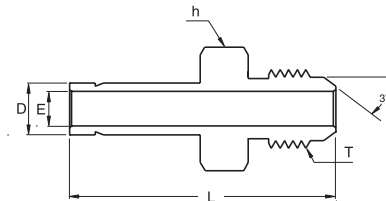
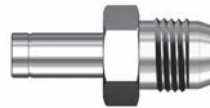


For Fractional Tubes Connecting To AN Flared Tubes

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)				
AU 2 - 2U	1/8	1/8	5/16-24	1.52	7/16	7/16	12.70	15.24	25.65	32.25
AU 2 - 4U	1/8	1/4	7/16-20	2.28	1/2	7/16	12.70	15.24	28.44	35.05
AU 4 - 4U	1/4	1/4	7/16-20	4.31	1/2	9/16	15.24	17.78	30.22	37.59
AU 5 - 5U	5/16	5/16	1/2-20	5.84	9/16	5/8	16.25	18.54	30.98	38.35
AU 6 - 4U	3/8	1/4	7/16-20	4.31	5/8	11/16	16.76	19.30	32.25	39.62
AU 6 - 6U	3/8	3/8	9/16-18	7.11	5/8	11/16	16.76	19.30	32.25	39.62
AU 8 - 8U	1/2	1/2	3/4-16	9.90	13/16	7/8	22.86	21.84	35.81	45.97
AU 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
AU 16 - 16U	1	1	1-5/16-12	21.33	1-3/8	1-1/2	31.24	26.41	49.27	61.46

AA

AN Adapter



For Fractional TOM-LOK Port Connecting To AN Flared Tubes

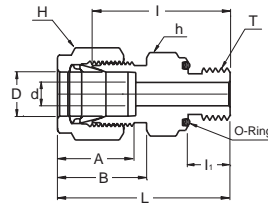
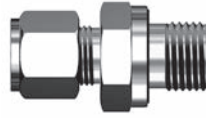
Part No.	Tube O.D. D (inch)	AN Tube Flare Size (inch)	Straight Thread T (U)	Width Across Flat h (inch)	E	L
AA 4 - 4U	1/4	1/4	7/16-20	1/2	4.82	37.08
AA 6 - 4U	3/8	1/4	7/16-20	1/2	7.11	38.86
AA 6 - 6U	3/8	3/8	9/16-18	5/8	7.11	39.62
AA 8 - 8U	1/2	1/2	3/4-16	13/16	9.90	48.51
AA 12 - 12U	3/4	3/4	1-1/16-12	1-1/8	14.98	56.13
AA 16 - 16U	1	1	1-5/16-12	1-3/8	20.32	65.53

• Dimensions are in millimeters unless specified as "inch"



OSTC

O-Seal Straight Thread Connector

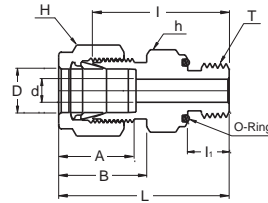
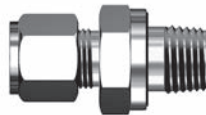


For Fractional Tubes Connecting To Female Straight Thread

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)						
OSTC 2 - 2U	1/8	5/16-24	2.28	9/16	7/16	12.70	15.24	26.16	8.63	32.76	-011
OSTC 3 - 3U	3/16	3/8-24	3.05	5/8	1/2	13.71	16.00	27.68	9.65	34.29	-012
OSTC 4 - 4U	1/4	7/16-20	4.82	3/4	9/16	15.24	17.78	30.98	10.41	38.35	-111
OSTC 5 - 5U	5/16	1/2-20	6.35	7/8	5/8	16.25	18.54	33.27	11.17	40.64	-112
OSTC 6 - 6U	3/8	9/16-18	7.11	15/16	11/16	16.76	19.30	35.05	11.93	42.41	-114
OSTC 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
OSTC 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
OSTC 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

OPTC

O-Seal Pipe Thread Connector



For Fractional Tubes Connecting 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)						
OPTC 2 - 2N	1/8	1/8	2.28	3/4	7/16	12.70	15.24	26.16	7.11	32.76	-111
OPTC 4 - 2N	1/4	1/8	4.82	3/4	9/16	15.24	17.78	27.68	7.11	35.05	-111
OPTC 4 - 4N	1/4	1/4	4.82	15/16	9/16	15.24	17.78	30.98	9.65	38.35	-113
OPTC 6 - 4N	3/8	1/4	7.11	15/16	11/16	16.76	19.30	32.51	9.65	39.87	-113
OPTC 6 - 6N	3/8	3/8	7.11	1-1/8	11/16	16.76	19.30	34.03	10.41	41.40	-116
OPTC 6 - 8N	3/8	1/2	7.11	1-5/16	11/16	16.76	19.30	39.62	13.46	46.99	-212
OPTC 8 - 8N	1/2	1/2	10.41	1-5/16	7/8	22.86	21.84	39.62	13.46	49.78	-212

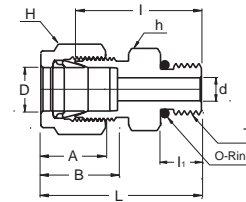
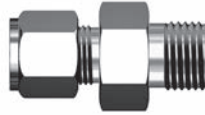
TOM-LOK
TUBE
Fittings

* Dimensions are in millimeters unless specified as "inch"



SMMC

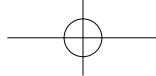
SAE/MS Male Connector



For Fractional Tubes Connecting 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	h	L	O-Ring Uniform Size Number
				h (inch)	H (inch)						
SMMC 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
SMMC 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
SMMC 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
SMMC 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
SMMC 4 - 10U	1/4	7/8-14	4.82	1	9/16	15.24	17.78	33.27	12.70	40.64	3-910
SMMC 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
SMMC 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
SMMC 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
SMMC 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
SMMC 6 - 10U	3/8	7/8-14	7.11	1	11/16	16.76	19.30	34.79	12.70	42.16	3-910
SMMC 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
SMMC 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
SMMC 8 - 10U	1/2	7/8-14	10.41	1	7/8	22.86	21.84	34.79	12.70	44.95	3-910
SMMC 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
SMMC 10 - 8U	5/8	3/4-16	10.66	15/16	1	24.38	21.84	31.75	11.17	41.91	3-908
SMMC 10 - 10U	5/8	7/8-14	12.70	1	1	24.38	21.84	35.05	12.70	45.21	3-910
SMMC 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
SMMC 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
SMMC 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
SMMC 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
SMMC 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

• Dimensions are in millimeters unless specified as "inch"



Mounting Dimensions for O-Seal Connectors

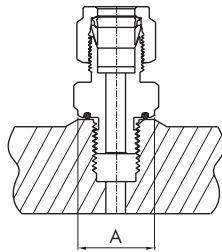


Fig. 1

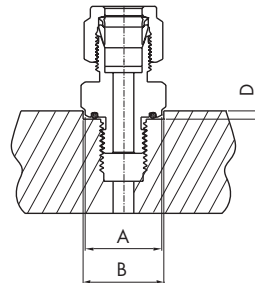


Fig. 2

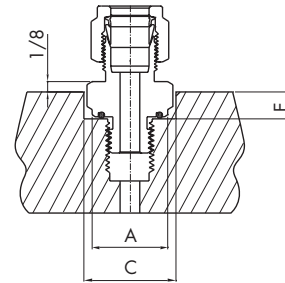


Fig. 3

*ALLOW CLEARANCE FOR FULL THREAD

Installation Instruction

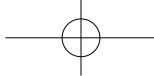
- Make sure the surface contacting with TOM-LOK O-Seal Fittings is flat to prevent possible leakage. During the installation of an O-Seal fitting, use finger-tight and you can feel the O-Ring squeezing during the last 1/4 turn. After that, a little bit more use the wrench-tight. Always use a back-up wrench to hold the O-Seal fitting hex so it does not turn freely while during the tightening. When disconnecting the tubing from the TOM-LOK tube fitting, also use a back-up wrench.
- For a raised surface, such as Fig. 1, the target flat surface should have a diameter as large as dimension "A" for a certain O-Seal fitting at least. This will make sure the maximum contact will happen outside the O-Ring sealing diameter and thereby the O-Ring is protected from damage at high pressure applications.
- Fig. 2 shows an O-Seal fitting used at a recessed or grooved area. In this case, the dimension "B" is sufficient to receive the O.D. of O-seal fitting and thus guaranteed a firm contact preventing leakage. D is depth that allowing the fitting be inserted to this recession.
- Fig. 3 shows a deeper recession area and E is the maximum depth that still allows a relatively thin wrench(1/8") used to hold the O-Seal fitting for connection. The diameter C must be sufficient to allow the hexagonal fitting to turn in to the recession.

Basic Ordering Number	Straight Thread	Pipe Thread	A Min. Dia.	B Min. Dia.	C Min. Dia.	D Min. Dia.	E Min. Dia.
OSTC 2 - 2U	5/16-24	-	12.7	15.0	16.7	2.3	5.6
OPTC 2 - 2N	-	1/8 NPT	17.5	19.8	22.4	4.1	7.1
OSTC 3 - 3U	3/8-24	-	14.2	16.8	19.1	2.3	5.6
OSTC 4 - 4U	7/16-20	-	17.5	19.8	22.4	4.1	7.1
OPTC 4 - 2N	-	1/8 NPT	17.5	19.8	22.4	4.1	7.1
OPTC 4 - 4N	-	1/4 NPT	22.1	24.6	27.7	4.1	7.9
OSTC 5 - 5U	1/2-20	-	19.1	23.1	26.2	4.1	7.9
OSTC 6 - 6U	9/16-18	-	23.1	24.6	27.7	4.1	7.9
OPTC 6 - 4N	-	1/4 NPT	22.1	24.6	27.7	4.1	7.9
OPTC 6 - 6N	-	3/8 NPT	25.4	29.5	33.3	4.1	8.6
OPTC 6 - 8N	-	1/2 NPT	31.0	34.0	38.9	5.6	11.2
OSTC 8 - 8U	3/4-16	-	25.4	29.5	33.3	4.1	8.6
OPTC 8 - 8N	-	1/2 NPT	31.0	34.0	38.9	5.6	11.2
OSTC 12 - 12U	1-1/16-12	-	35.8	38.9	44.5	5.6	12.7
OSTC 16 - 16U	1-5/16-12	-	42.9	45.2	51.6	5.6	14.2

Dimensions are for reference only and might be subjected to changes.

TOM-LOK
TUBE
Fittings

• Dimensions are in millimeters unless specified as "inch"



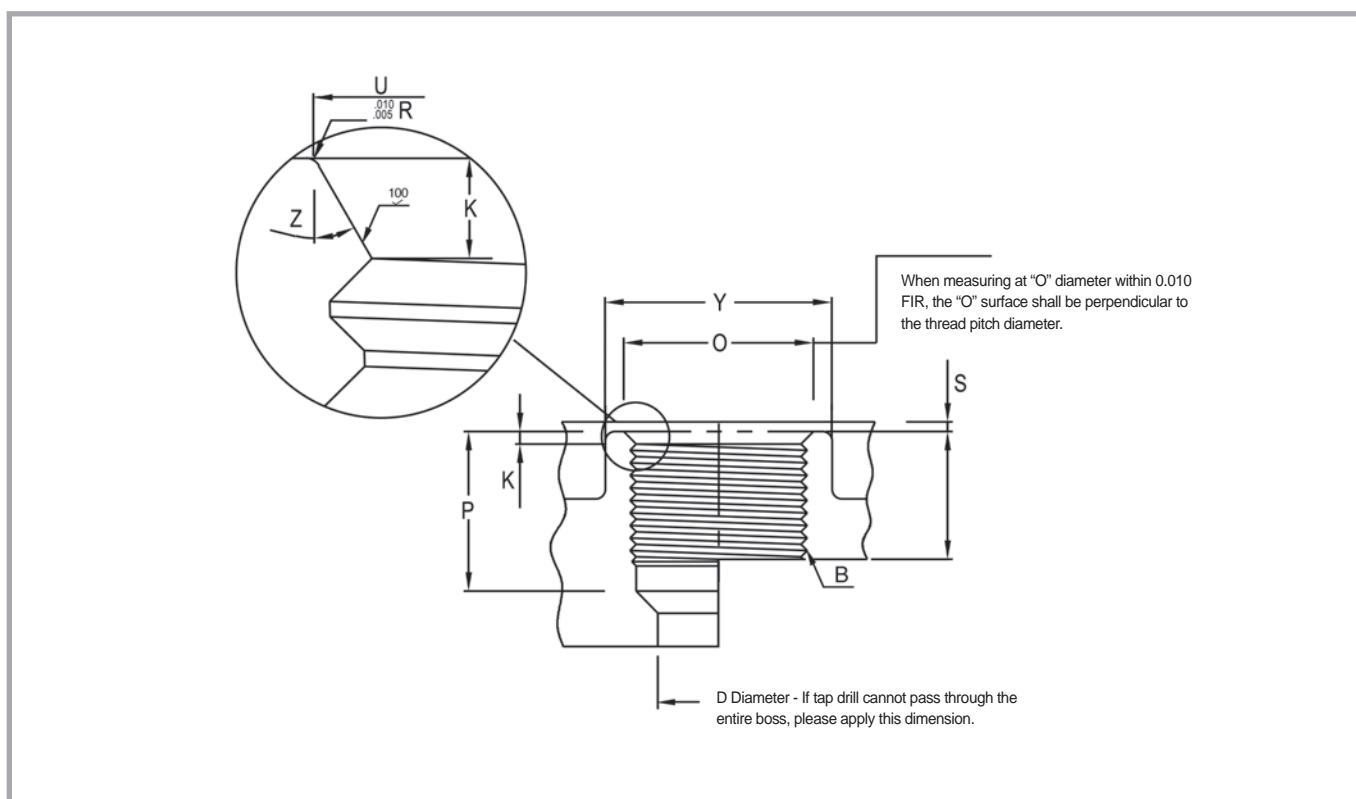
SAE/MS Straight Thread Positionable Elbows and Tees

Installation instructions

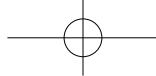
1. Lubricate the O-Ring with lubricants which is applicable for the O-Ring material, system fluid and environment.
(Standard O-Ring materials is viton. Please check the O-Ring materials before installation).
2. Turn the fittings into the target boss until the back- up washer contacts the face of the boss. At this moment, O-Ring should gets into the inclined groove.
3. Position the fittings by turning counterclockwise until JSK's end is facing the correct direction. (Please don't exceed 1 turn)
4. Tighten the fittings with a pair of wrench and back-up wrench until the washer fully contacts to the face of the bosses.

Note: SAE/MS's POSITIONABLE TEE and ELBOWS should be compatible with SAE J1926, MS16142, or O-Ring type JIS female straight thread bosses.

SAE/MS Internal Straight Thread Boss



- O: When measuring at "O" diameter within 0.010 FIR, the "O" surface shall be perpendicular to the thread pitch diameter.
- D: If tap drill cannot pass through the entire boss, please apply this dimension.



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 [Ⓞ]	S [Ⓢ]	U [Ⓤ] Dia	Y [Ⓨ] 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

- Ⓤ Diameter U shall be free of spiral and longitudinal tool marks and concentric with thread pitch diameter within 0.005 full indicator reading (FIR). If any annular tool marks, it shall be less than 100 micro inches.
- Ⓢ Maximum recommended spot face depth to allow sufficient wrench grip for suitable tightening of the fitting or locknut.
- Ⓨ In case with machined boss surfaces, dimension Y and S does not need to be applied.
- Ⓞ When standard taps are used, the drill depths shall be increased in accordance. Also, bottoming tap shall be used to satisfy the tap drill depth.

O-Ring for SAE/MS Fittings Bosses

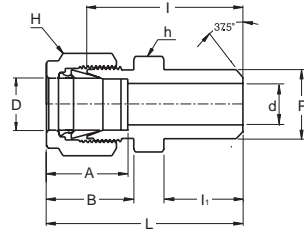
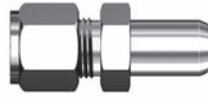
Thread size	Inside Dimension (mm)	Cross Section (mm)	O-Ring Size No.	Thread size	Inside Dimension (mm)	Cross Section (mm)	O-Ring Size No.
5/16-24	6.07	1.63	3-902	3/4-16	16.36	2.21	3-908
3/8-24	7.65	1.63	3-903	7/8-14	19.18	2.46	3-910
7/16-20	8.92	1.83	3-904	1-1/16-12	23.47	2.95	3-912
1/2-20	10.52	1.83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

TOM-LOK
TUBE
Fittings



MPWC

Male Pipe Weld Connector



For Fractional Tubes Connecting 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)					
MPWC 2 - 2P	1/8	1/8	10.30	2.28	7/16	7/16	12.70	15.24	23.87	9.65	30.48
MPWC 3 - 2P	3/16	1/8	10.30	3.04	7/16	1/2	13.71	16.00	24.63	9.65	31.24
MPWC 4 - 2P	1/4	1/8	10.30	4.82	1/2	9/16	15.24	17.78	25.40	9.65	32.76
MPWC 4 - 4P	1/4	1/4	13.70	4.82	9/16	9/16	15.24	17.78	30.48	14.22	37.84
MPWC 5 - 2P	5/16	1/8	10.30	5.08	9/16	5/8	16.25	18.54	26.67	9.65	34.03
MPWC 5 - 4P	5/16	1/4	13.70	6.35	9/16	5/8	16.25	18.54	31.24	14.22	38.60
MPWC 6 - 4P	3/8	1/4	13.70	7.11	5/8	11/16	16.76	19.30	32.51	14.22	39.87
MPWC 6 - 6P	3/8	3/8	17.10	7.11	11/16	11/16	16.76	19.30	32.51	14.22	39.87
MPWC 6 - 8P	3/8	1/2	21.30	7.11	7/8	11/16	16.76	19.30	38.86	19.05	46.22
MPWC 8 - 6P	1/2	3/8	17.10	10.41	13/16	7/8	22.86	21.84	33.27	14.22	43.43
MPWC 8 - 8P	1/2	1/2	21.30	10.41	7/8	7/8	22.86	21.84	38.86	19.05	49.02
MPWC 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
MPWC 10 - 8P	5/8	1/2	21.30	12.70	15/16	1	24.38	21.84	38.86	19.05	49.02
MPWC 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
MPWC 16 - 16P	1	1	33.40	22.35	1-3/8	1-1/2	31.24	26.41	50.03	23.87	62.23

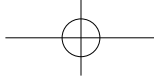
For Metric Tubes Connecting To Pipe

Part No.	Tube O.D. D	Male Pipe Size P		d Min	Width Across Flat		A	B	I	I ₁	L
		Nom.	O.D.		h	H					
MPWC 3M - 2P	3	1/8	10.3	2.4	12	12	12.9	15.3	23.9	9.7	30.5
MPWC 4M - 2P	4	1/8	10.3	2.4	12	12	13.7	16.1	24.6	9.7	31.2
MPWC 6M - 2P	6	1/8	10.3	4.8	14	14	15.3	17.7	25.4	9.7	32.8
MPWC 6M - 4P	6	1/4	13.7	4.8	14	14	15.3	17.7	30.5	14.2	37.9
MPWC 8M - 2P	8	1/8	10.3	5.1	15	16	16.2	18.6	26.7	9.7	34.2
MPWC 8M - 4P	8	1/4	13.7	6.4	15	16	16.2	18.6	31.2	14.2	38.7
MPWC 8M - 8P	8	1/2	21.3	6.4	22	16	16.2	18.6	38.1	19.0	45.6
MPWC 10M - 4P	10	1/4	13.7	7.1	18	19	17.2	19.5	33.3	14.2	40.9
MPWC 10M - 6P	10	3/8	17.1	7.9	18	19	17.2	19.5	33.3	14.2	40.9
MPWC 10M - 8P	10	1/2	21.3	7.9	22	19	17.2	19.5	38.9	19.0	46.5
MPWC 12M - 4P	12	1/4	13.7	7.1	22	22	22.8	22.0	33.3	14.2	43.4
MPWC 12M - 6P	12	3/8	17.1	9.5	22	22	22.8	22.0	33.3	14.2	43.4
MPWC 12M - 8P	12	1/2	21.3	9.5	22	22	22.8	22.0	38.9	19.0	49.0
MPWC 15M - 8P	15	1/2	21.3	11.9	24	25	24.4	22.0	38.9	19.0	49.0
MPWC 16M - 8P	16	1/2	21.3	12.7	24	25	24.4	22.0	38.9	19.0	49.0
MPWC 18M - 8P	18	1/2	21.3	13.5	27	30	24.4	22.0	40.4	19.0	50.5

Note : **TOM-LOK** weld ends are manufactured based on schedule 80 wall thickness or larger. Weld end based at ANSI B31.1 and B31.3.

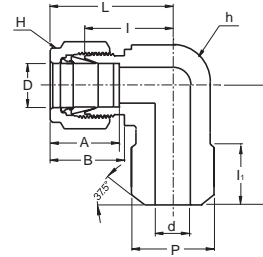
Information for weld end **TOM-LOK** :

- To protect from weld heat damage, please weld after removing nut and ferrules from the fitting body.
- Please protect thread end or pot and seat area of **TOM-LOK** body with another nut and plug. (Finger-tightening only is ok)
- Proper heat treatment must be carried out based on private or industry standard. Following welding procedure is a must through the whole process.
- Dimensions are in millimeters unless specified as "inch"



MPWE

Male Pipe Weld Elbow

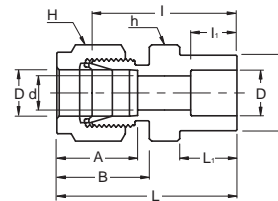


For Fractional Tubes Connecting To Pipe

Part No.	Tube O.D. D (inch)	Pipe Size (P)		d Min	Width Across Flat		A	B	I	I ₁	L	L ₁
		Nom.	O.D		h (inch)	H (inch)						
MPWE 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
MPWE 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
MPWE 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

SWC

Socket Weld Connector

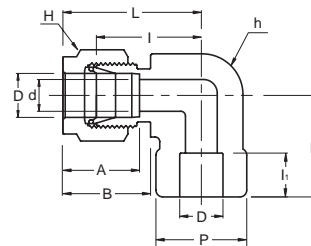


For Fractional Tubes Connecting To Pipe

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)						
SWC 2	1/8	2.28	7.87	7/16	7/16	12.70	15.24	22.35	6.35	28.95	8.63
SWC 4	1/4	4.82	11.17	1/2	9/16	15.24	17.78	26.16	7.87	33.52	10.41
SWC 6	3/8	7.11	15.74	5/8	11/16	16.76	19.30	30.22	9.65	37.59	11.93
SWC 8	1/2	10.41	19.05	13/16	7/8	22.86	21.84	30.98	12.70	41.14	11.93
SWC 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
SWC 16	1	22.35	33.27	1-3/8	1-1/2	31.24	26.41	40.38	19.05	52.57	14.22

SWE

Socket Weld Elbow



For Fractional Tubes Connecting To Pipe

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)						
SWE 4	1/4	4.82	12.70	1/2	9/16	15.24	17.78	19.55	7.87	26.92	19.55
SWE 6	3/8	7.11	15.75	5/8	11/16	16.76	19.30	23.11	9.65	30.48	23.11
SWE 8	1/2	10.41	20.57	13/16	7/8	22.86	21.84	25.90	12.70	36.06	25.90
SWE 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
SWE 16	1	22.35	35.05	1-3/8	1-1/2	31.24	26.41	36.83	19.05	49.02	36.83

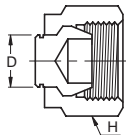
TOM-LOK
TUBE
Fittings

• Dimensions are in millimeters unless specified as "inch"



PG

Plug



TOM-LOK "Plug" parts provide plugging fitting

ports

Installation instruction

1. With a wrench, please apply 1/4 turn from the finger-tightened position. (1/8 turn for fractional 1/8", 3/16" and metric 2mm, 3mm, 4mm size plugs)
2. Please firstly remove nut and ferrules from a

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)
PG 2	1/8	7/16	PG 8	1/2	7/8
PG 3	3/16	1/2	PG 10	5/8	1
PG 4	1/4	9/16	PG 12	3/4	1-1/8
PG 5	5/16	5/8	PG 14	7/8	1-1/4
PG 6	3/8	11/16	PG 16	1	1-1/2

Please plug to the unused port of a Metric **TOM-LOK** fitting.

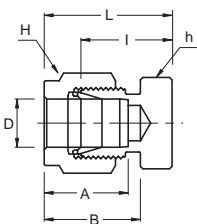
Metric

Part No.	Tube O.D. D	Width Across Flat H	Part No.	Tube O.D. D	Width Across Flat H
PG 2M	2	12	PG 15M	15	25
PG 3M	3	12	PG 16M	16	25
PG 4M	4	12	PG 18M	18	30
PG 6M	6	14	PG 20M	20	32
PG 8M	8	16	PG 22M	22	32
PG 10M	10	19	PG 25M	25	38
PG 12M	12	22			

Please plug to the unused port of a Fractional **TOM-LOK** fitting.

CP

Cap



Installation instruction

1. With a wrench, please apply 1-1/4 turn from the finger-tightened position. (3/4 turn for fractional 1/8", 3/16" and metric 3mm, 4mm size caps)
2. Please firstly insert the tube end into the cap.

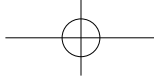
For Caps End of Fractional Tubes

Part No.	Tube O.D. D (inch)	Width Across Flat		A	B	I	L
		h (inch)	H (inch)				
CP 1	1/16	5/16	5/16	8.63	10.92	11.20	14.98
CP 2	1/8	7/16	7/16	12.70	15.24	13.46	20.06
CP 3	3/16	7/16	1/2	13.71	16.00	14.73	21.33
CP 4	1/4	1/2	9/16	15.24	17.78	16.00	23.36
CP 5	5/16	9/16	5/8	16.25	18.54	17.01	24.38
CP 6	3/8	5/8	11/16	16.76	19.30	18.28	25.65
CP 8	1/2	13/16	7/8	22.86	21.84	19.05	29.21
CP 10	5/8	15/16	1	24.38	21.84	19.81	29.97
CP 12	3/4	1-1/16	1-1/8	24.38	21.84	21.33	31.49
CP 14	7/8	1-3/16	1-1/4	25.90	21.84	23.87	34.03
CP 16	1	1-3/8	1/1/2	31.24	26.41	26.16	38.35

For Metric Tubes

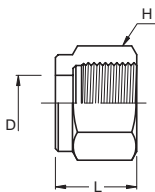
Part No.	Tube O.D. D	Width Across Flat		A	B	I	L	Part No.	Tube O.D. D	Width Across Flat		A	B	I	L
		h	H							h	H				
CP 2M	2	12	12	12.9	15.3	13.5	20.1	CP 15M	15	24	25	24.4	22.0	19.8	29.9
CP 3M	3	12	12	12.9	15.3	13.5	20.1	CP 16M	16	24	25	24.4	22.0	19.8	29.9
CP 4M	4	12	12	13.7	16.1	14.7	21.3	CP 18M	18	27	30	24.4	22.0	21.3	31.4
CP 6M	6	14	14	15.3	17.7	15.7	23.1	CP 20M	20	30	32	26.0	22.0	23.9	34.0
CP 8M	8	15	16	16.2	18.6	17.0	24.5	CP 22M	22	30	32	26.0	22.0	23.9	34.0
CP 10M	10	18	19	17.2	19.5	19.0	26.6	CP 25M	25	35	38	31.3	26.5	26.2	38.5
CP 12M	12	22	22	22.8	22.0	19.0	29.1								

• Dimensions are in millimeters unless specified as "inch"



NT

Nut



Fractional

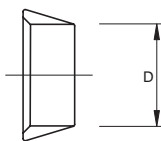
Part No.	Tube O.D. D (inch)	Width Across Flat H (inch)	L	Part No.	Tube O.D. D (inch)	Width Across Flat H (inch)	L
NT 1	1/16	5/16	7.90	NT 8	1/2	7/8	17.52
NT 2	1/8	7/16	11.93	NT 10	5/8	1	17.52
NT 3	3/16	1/2	11.93	NT 12	3/4	1-1/8	17.52
NT 4	1/4	9/16	12.70	NT 14	7/8	1-1/4	17.52
NT 5	5/16	5/8	13.46	NT 16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

Metric

Part No.	Tube O.D. D	Width Across Flat H	L	Part No.	Tube O.D. D	Width Across Flat H	L
NT 2M	2	12	11.9	NT 14M	14	25	17.4
NT 3M	3	12	11.9	NT 15M	15	25	17.4
NT 4M	4	12	11.9	NT 16M	16	25	17.4
NT 6M	6	14	12.7	NT 18M	18	30	17.4
NT 8M	8	16	13.5	NT 20M	20	32	17.4
NT 10M	10	19	15.1	NT 22M	22	32	17.4
NT 12M	12	22	17.4	NT 25M	25	38	20.6

FF

Front Ferrule



Fractional

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

Metric

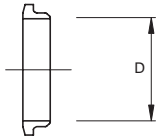
Part No.	Tube O.D. D	Part No.	Tube O.D. D
FF 2M	2	FF 14M	14
FF 3M	3	FF 15M	15
FF 4M	4	FF 16M	16
FF 6M	6	FF 18M	18
FF 8M	8	FF 20M	20
FF 10M	10	FF 22M	22
FF 12M	12	FF 25M	25

• Dimensions are in millimeters unless specified as "inch"



BF

Back Ferrule



Fractional

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

Metric

Part No.	Tube O.D. D	Part No.	Tube O.D. D	Part No.	Tube O.D. D
BF 2M	2	BF 10M	10	BF 18M	18
BF 3M	3	BF 12M	12	BF 20M	20
BF 4M	4	BF 14M	14	BF 22M	22
BF 6M	6	BF 15M	15	BF 25M	25
BF 8M	8	BF 16M	16		

FS

Ferrule Set



Fractional

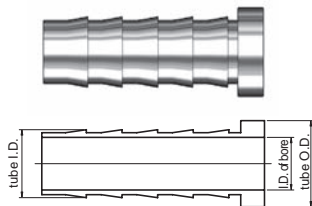
Part No.	Tube O.D. D (inch)	Part No.	Tube O.D. D (inch)	Part No.	Tube O.D. D (inch)
FS 1	1/16	FS 5	5/16	FS 12	3/4
FS 2	1/8	FS 6	3/8	FS 14	7/8
FS 3	3/16	FS 8	1/2	FS 16	1
FS 4	1/4	FS 10	5/8		

Metric

Part No.	Tube O.D. D	Part No.	Tube O.D. D	Part No.	Tube O.D. D
FS 2M	2	FS 10M	10	FS 20M	20
FS 3M	3	FS 12M	12	FS 22M	22
FS 4M	4	FS 15M	15	FS 25M	25
FS 6M	6	FS 16M	16		
FS 8M	8	FS 18M	18		

IT

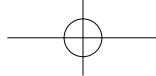
Insert



Fractional

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

• Dimensions are in millimeters unless specified as "inch"



Technical Information

Hardness Selection Recommendation

Generally speaking, a lot of users use tubing that has less hardness value than that could be used properly with TOM-LOK tube fitting. Although the hardness of stainless steel tubing is generally about HRb90, but, the hardness of normally used stainless steel tubing is less than HRb80. Thus it is recommended to use tubing of lower hardness for ease of assembly processes which also brings convenience and still perfect leakage prevention to the customer.

Applicable Gas Systems

TOM-LOK tube fitting works perfectly with the standard gas system. To prevent potential leakage, customers should follow the standards as below.

Tubing standard in gas systems (Applicable to installation of general systems)

1. Refer to table 2, 3, 4 and 5 for tubing choice of suitable gas system.
2. Surface of tubing must be free from scars, defect, containmanation...etc. Tubing shall be flexible and expansible.
3. Especially the shape of ending portion of tubing should not be deformed. (For example, the ending part of tubing should not be an oval.)
4. The cut plane of an end of tubing must be perpendicular to the center line of tubing and be completely deburred. For this reason, tube cutting machine must have a sharp blade and deburring tools should be used.
5. The hardness of tubing shall be less than those of fitting.
6. Do not bend tubing after inserting tubing into the fitting.
7. Firm connection shall be done. Insufficient connection is the main reason of leakage and failure of a system.
8. Use minimum wall thickness of below table in order to secure maximum safety in gas system.
9. Do follow the working procedures of operation suggested by JSK.

Compatibility

TOM-LOK tube fitting is manufactured in order to be 100% compatible in tolerance and hardness with other brands' tube fittings. However, if possible, we still suggest customers to use only TOM-LOK tube fitting in a specific system fabrication.

Application to Cryogenic and High Temperature Systems

TOM-LOK tube fitting has been tested again and again under all kinds of usage conditions thus is reliable for vacuum system, high pressure, cryogenic and high temperature environments.

Maximum Temperature by Materials

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

If necessary, please also check ASME B31.3-1993 for the maximum & minimum temperature spec of various materials.

THREADS

1. NPT (National Pipe Thread)

- Thread angle 60°
- Tapered angle 1°47'
- Made according to the standard of ANSI B2.1

2. ISO 7/1 TAPERED THREAD

- Thread angle 55°
- Tapered angle 1°47'
- Made according to the standard of DIN2999
- BS21 (BSPT) and JIS B0203 (PT).

3. ISO 228/1 PARALLEL THREAD

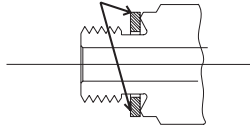
- Thread angle 55°
- Made according to the standard of BS 2779 (BSPP), JIS B0202 (PF).
- Since the thread based from ISO 228/1 cannot be sealed completely, the sealing shall be strengthened by using a gasket or O-Ring to seal as followings.

TOM-LOK
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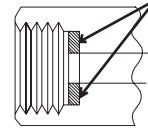
① Metal Gasket Seal

A metal gasket (generally copper) should be inlaid between the male thread body and the female thread surface.



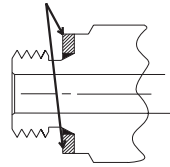
③ Metal Gasket Seal

The sealing shall be completed by squeezing the gasket inserted into the flat surface of thread's inside by male thread surface.



② Bonded Washer Seal

Place a washer composed of metal and elastic material at the center of tapered surface as shown and seal by contacting the tapered surface of the hex body of male thread to the surface of the female thread.

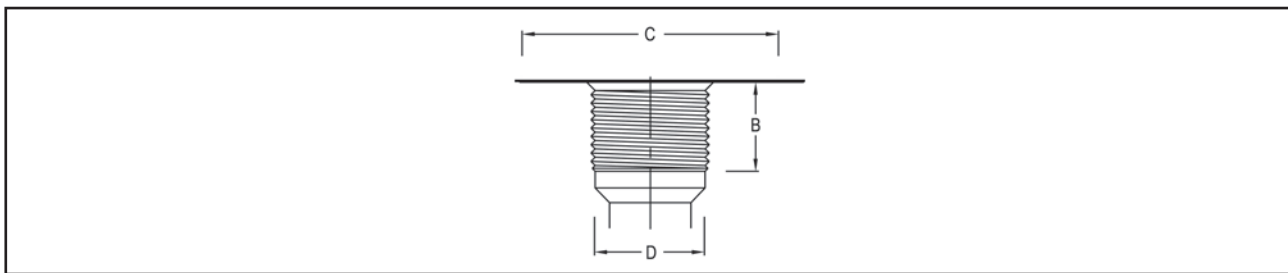


4. UNF Thread

- Thread angle 60°
- UN, UNC and UNF, 3 kinds of standards which are classified by the diameter of thread and the number of threads per inch are available.

ISO Internal parallel pipe Thread

TOM-LOK Designator	ISO Female Parallel Pipe Size(inch)	Minimum Full Thread Depth B(inch)	Thread Minor Diameter D(inch)	Minimum Flat Diameter for ① & ② C(inch)
2G	1/8	0.31	0.337/0.348	0.59
4G	1/4	0.47	0.450/0.468	0.75
6G	3/8	0.47	0.586/0.606	0.91
8G	1/2	0.55	0.733/0.755	1.06
12G	3/4	0.63	0.949/0.971	1.30
16G	1	0.71	1.193/1.218	1.57



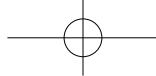
Tube Standard Information

Tube Selection

Selecting tubing material, size and wall thickness is essential to the performance of the total tubing system. Customers should consider at least the following factors while choosing tubes: pressure, flux (flow), temperature, environment and compatibility of the whole system.

Consideration facts at the selection of tube

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



Tube Bending

When bending tubing near a TOM-LOK tube fitting, if no enough linear distance left from bending point to the fittings then it could be a reason of leakage. (see the below table for leaving a recommended distance). The required straight line length must be longer than tube diameter of itself. For more information, please contact JSK engineers.

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 annealed, seamless and of high quality. Oil pressure use type is required.
- Max hardness: HRb72.
- Tubing must be free from scars or any damage. Also bending and expansion workability is required.

Copper tubing

- ASTM B65, B75 or equivalent.
- Copper tubing annealed, seamless and of high quality is required.

Stainless steel tubing

- ASTM A213, A269 or A632 or equivalent.
- Stainless steel tubing annealed, seamless and of high quality. Oil pressure use type is required. (316, 304, 321, etc.)
- Max hardness: HRb 80.
- Tubing must be free from scars or any damage. Also bending and expansion workability is required.

Monel tubing

- ASTM B165 or equivalent.
- 400 alloy tubing annealed, seamless and of high quality. Max hardness: HRb 75.
- Tubing must be free from scars or any damage. Also bending and expansion workability is required.

A pressure Grade Coefficient of Tubing owing to Temperature Change.

Table 1: Pressure Grade Coefficient

°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 specified working pressure shown in Table 2 & 3 by the coefficient shown in Table 1 to decide a suitable pressure under high temperature working environment. (See page 93)

Example

Calculating applicable working pressure of SUS316 tubing with dimensions of 3/8" O.D. and 0.035" wall thickness at 1000°F

Coefficient of SUS316 at 1000°F is: 0.76

Reference working pressure of tubing with 3/8" O.D. and 0.035" wall thickness is: 3300 (psi)

3300 (psi) X 0.76 = 2508 psi

Thus the applicable working pressure of SUS316 tubing of 3/8" O.D. and 0.035" wall thickness will be 2508 psi at 1000°F.

TOM-LOK
TUBE
Fittings



Technological Data

Reference Working Pressure of Stainless Steel Tubing

Stainless steel tubing fully annealed, seamless(or welded) and of high quality (304, 316, 316L...etc), ASTM A269, A213 or equivalent.

Table 2: REFERENCE WORKING PRESSURE OF 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

Shaded area: Tubing working pressure (psi)

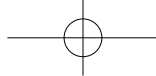
Table 3: REFERENCE WORKING PRESSURE OF STAINLESS STEEL METRIC TUBE

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

Shaded area: 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 are based on the minimum wall thickness and the maximum O. D. defined by the standard of ASTM A269.
- The dimensions considered should be free of erosion or corrosion.



Pressure Unit Conversion Table

	mmHg	in.Hg	in.H ₂ O	ft.H ₂ O	atm	lb/in ²	kg/cm ²	KPa	bar
mmHg	1	0.03937	0.5353	0.04461	0.00132	0.01934	0.00136	0.1333	0.0013
in.Hg	25.4	1	13.60	1.133	0.03342	0.4912	0.03453	3.387	0.0339
in.H ₂ O	1.868	0.07355	1	0.08333	0.00246	0.03612	0.00254	0.2490	0.0025
ft.H ₂ O	22.42	0.8826	12	1	0.2950	0.4334	0.03048	2.988	0.0299
atm	760	29.92	406.8	33.90	1	14.70	1.033	101.3	1.013
lb/in ²	51.71	2.036	27.69	2.307	0.06805	1	0.07031	6.895	0.0689
kg/cm ²	735.6	28.96	393.7	32.81	0.9678	14.22	1	98.05	0.981
KPa	7.5	0.2953	4.016	0.3347	0.00987	0.1451	0.0102	1	0.01
bar	750	29.53	401.6	33.47	0.987	14.51	1.20	100	1

PSI = lb/in²

Fractional, Decimal, Metric Conversion Table

8ths			32nds			64ths					
Fractional	Decimal	mm	Fractional	Decimal	mm	Fractional	Decimal	mm	Fractional	Decimal	mm
1/8	0.125	3.175	1/32	0.03125	0.79	1/64	0.015625	0.397	33/64	0.515625	13.097
1/4	0.250	6.350	3/32	0.09375	2.38	3/64	0.046875	1.191	35/64	0.546875	13.891
3/8	0.375	9.525	5/32	0.15625	3.97	5/64	0.078125	1.984	37/64	0.578125	14.684
1/2	0.500	12.700	7/32	0.21875	5.56	7/64	0.109375	2.778	39/64	0.609375	15.478
5/8	0.625	15.875	9/32	0.28125	7.14	9/64	0.140625	3.572	41/64	0.640625	16.272
3/4	0.750	19.050	11/32	0.34375	8.73	11/64	0.171875	4.366	43/64	0.671875	17.066
7/8	0.875	22.220	13/32	0.40625	10.32	13/64	0.203125	5.159	45/64	0.703125	17.859
16ths			15/32	0.46875	11.91	15/64	0.234375	5.953	47/64	0.734375	18.653
1/16	0.0625	1.59	17/32	0.53125	13.49	17/64	0.265625	6.747	49/64	0.765625	19.447
3/16	0.1875	4.76	19/32	0.59375	15.08	19/64	0.296875	7.541	51/64	0.796875	20.241
5/16	0.3125	7.94	21/32	0.65625	16.67	21/64	0.328125	8.334	53/64	0.828125	21.034
7/16	0.4375	11.11	23/32	0.71875	18.26	23/64	0.359375	9.128	55/64	0.859375	21.828
9/16	0.5625	14.29	25/32	0.78125	19.84	25/64	0.390625	9.922	57/64	0.890625	22.622
11/16	0.6875	17.46	27/32	0.84375	21.43	27/64	0.421875	10.716	59/64	0.921875	23.416
13/16	0.8125	20.64	29/32	0.90625	23.02	29/64	0.453125	11.509	61/64	0.953125	24.209
15/16	0.9375	23.81	31/32	0.96875	24.61	31/64	0.484375	12.303	63/64	0.984375	25.003

Inch/mm Conversion Table

inch	mm	inch	mm
1/16	1.59	11/16	17.46
1/8	3.17	3/4	19.05
3/16	4.76	13/16	20.64
1/4	6.35	7/8	22.22
5/16	7.94	15/16	23.81
3/8	9.52	1	25.40
7/16	11.11	1-1/4	31.75
1/2	12.70	1-1/2	38.10
9/16	14.29	2	50.80
5/8	15.87		

mm/Inch Conversion Table

mm	inch	mm	inch
1	0.039	14	0.551
2	0.079	15	0.590
3	0.118	16	0.630
4	0.157	17	0.669
5	0.197	18	0.709
6	0.236	19	0.748
7	0.276	20	0.787
8	0.315	21	0.827
9	0.354	22	0.866
10	0.394	23	0.905
11	0.433	24	0.944
12	0.472	25	0.984
13	0.512	25.4	1

TOM-LOK
TUBE
Fittings