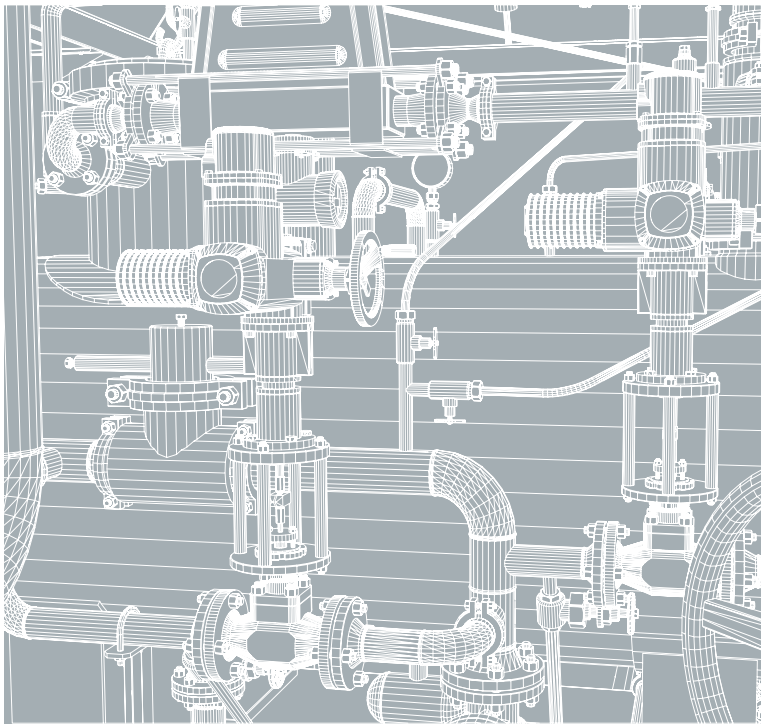
Master-LOK

TUBE FITTINGS & VALVES









INFORMATION

Master-LOK is a leading tube fitting manufacturer with productuion facilities equipped with the most modern technology available today.
We provide affordable high-quality products for industires worldwide who have interests in marine vessels, nuclear power plants, process plants, pulp and paper mills, and offshore oil production.

QUALITY ASSURANCE

Our policy is to provide excellent customer support and service while being dedicated to manufacturing and affordable high quality product.
Through every process, from manufacturing to techincal support, each team member strives to maintain our quality standards.

WORLDWIDE DISTRIBUTION

• Marine Vessels

Hyundai Heavy Co., Ltd. | Daewoo Shipbuilding & Heavy machinery, Ltd.
Samsung Shipbuilding & Heavy Ind, Co., Ltd. | Dalian Shipyard Goa Shipyard, Ltd.
Mitsui Zosen Garden Reach Shipbuilders & Engineers, Ltd.

• Offshore

Texaco | Union Oil | Agip | San miguel | Brown & Root | O.N.G.C | Lombo | General Electric
Westinghouse | A.E.C.L | Bechtel | LG Petrochemical | Hyundai Engineering & Construction. | etc.

• Marne Vessels

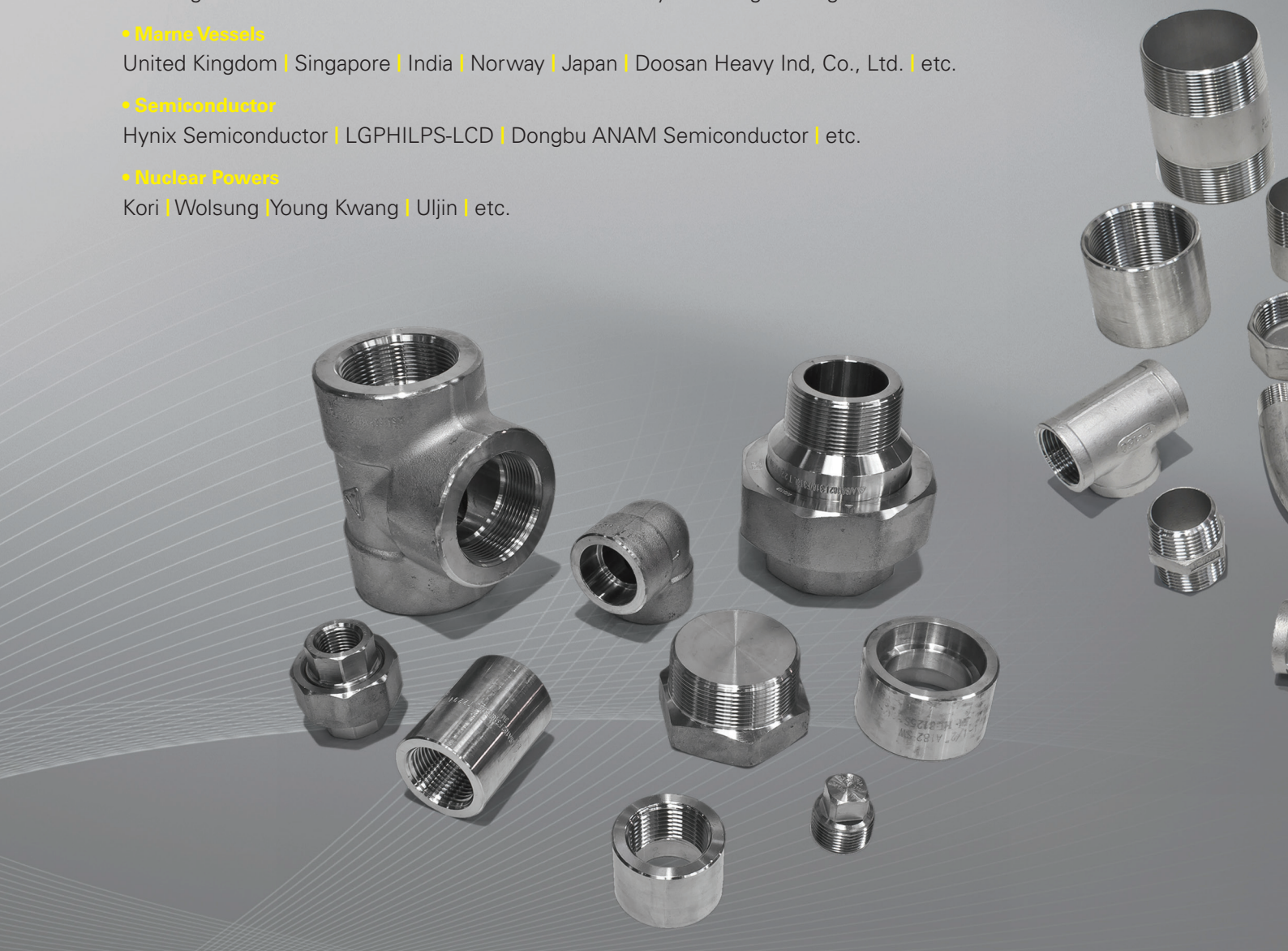
United Kingdom | Singapore | India | Norway | Japan | Doosan Heavy Ind, Co., Ltd. | etc.

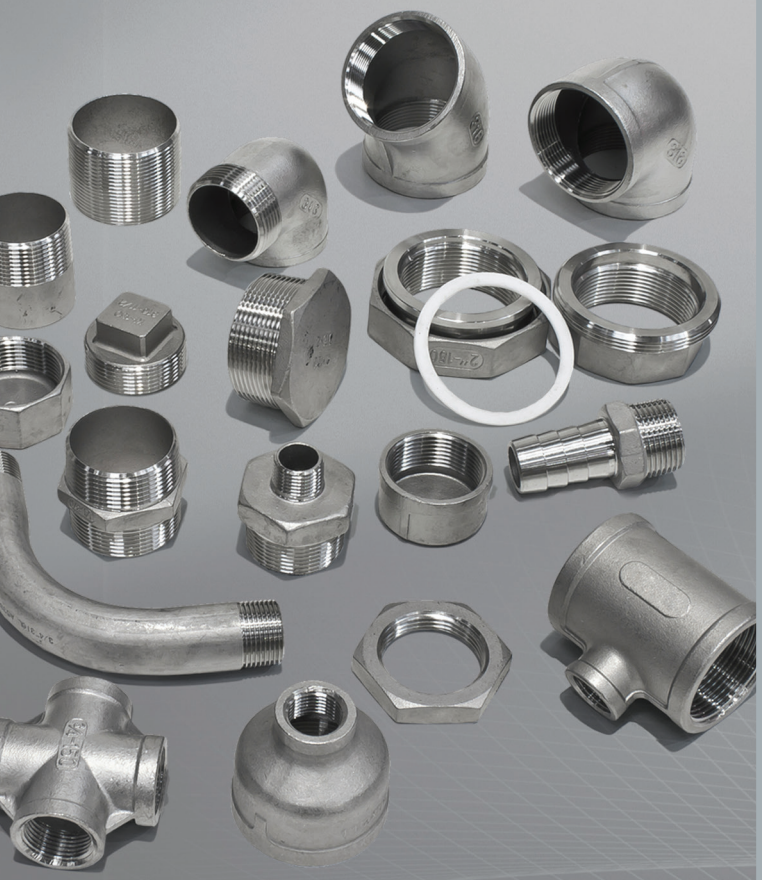
• Semiconductor

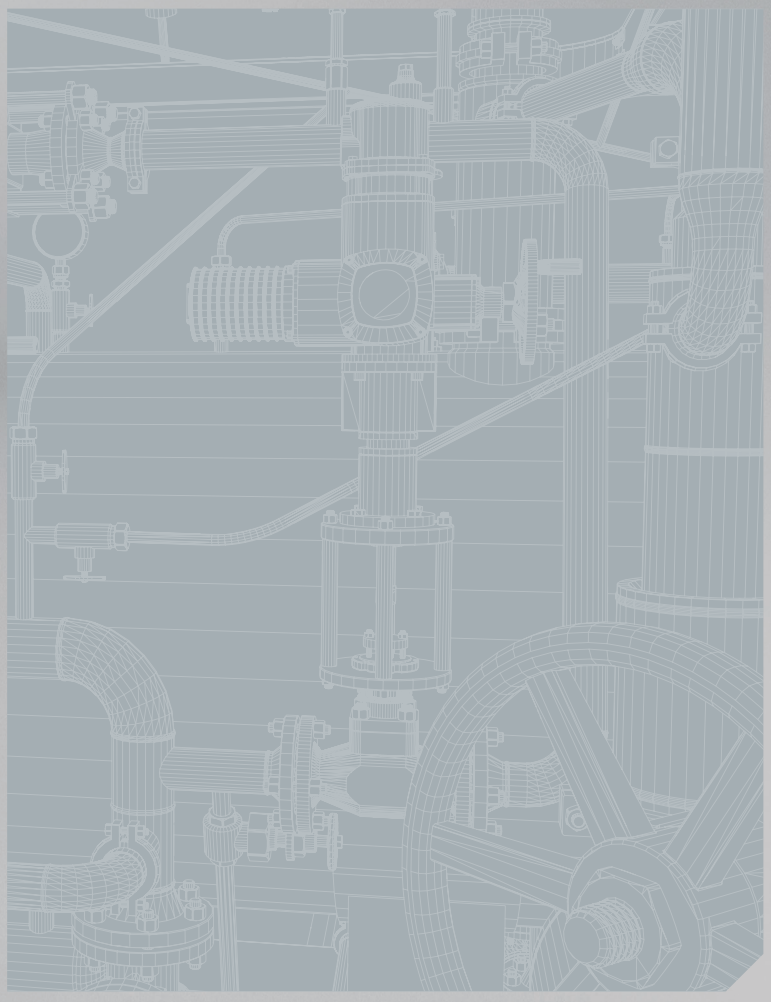
Hynix Semiconductor | LGPHILPS-LCD | Dongbu ANAM Semiconductor | etc.

• Nuclear Powers

Kori | Wolsung |Young Kwang | Uljin | etc.







Contents

HARDNESS INFORMATION

In general, Metal tubing should be fully annealed to work properly with Master-LOK tube fittings. While most stainless steel tuning is restricted to a maximum ROCKWELL HARDNESS of Rb90, many users specify that this hardness be further restricted to Rb80.
Such tubing lowers the installed cost because it is more easily bent and installed.
While Master-LOK stainless steel tube fittings may be used on stainless steel tubing with a hardness of Rb90 maximum, we suggest that whenever possible, specify a maximum hardness of Rb80. Refer to table 1 on this page for working pressures of tuning by material and size.

INTERCHANGEABILITY

Master-LOK Tube fittings are manufactured to be completely interchangeable with other leading tube fitting manufactures.
Testing and the exceptional quality of the products assure 100% reliability when intermixing component parts of compatible makes and brands.

CORROSION RESISTANCE

Master-LOK Tube fittings are performed by repeated tests & already apporoved by many kinds of inductries.
Our ferrules have the strongest corrosion resistence by the special hardening process technology.

INSPECTION & REALIABILITY TEST

All products Master-LOK, we have been producing outstanding capacity for design and exact production process, strict quality control system.
Also, We have been widely using where the gas & liquid flows due to its reliability as well as punctual delivery.
We, Master-LOK do our best to meet all customers requirements with the best quality & services as well as have done.

WALL THICKNESS

The wall tickness selection should be based on the operation pressure, temperature, and shock conditions.

TUBE SELECTION

Proper tubing selection is essential to the performance of a tubing system. Consider a systems pressure, flow, temperature, environment, and compatibility with the process fluids when choosing the tubing material, size, and wall thickness.

Master-LOK

Tube Fittings for Inches

TUBE FITTINGS & VALVES
Master LOK

Master-LOK Tube Fitting System

INSPECTION AND TESTING

At Master-LOK, we supply throughly inspected and tested high quality products to meet the needs of our clients. All tests are performed in accoordance to the specifications provided by our clients as well as the American Society for Testing and Materials (ASTM)

LINITED LIFETIME WARRANTY

Master-LOK warrants to the purchaser that Master-LOK tube fittings are free from defects in material and workmanship and will perform substantially in accordance with the product specifications. This warranty is extended to individual components as well as complete assembblies; provided they are in compliance with product installation and operation instructions. Defects resulting from operator in compliance with product installation and operation insturctions. Defects resulting from operator abuse, negligence, misapplication; failure to install, adjust, and operate according to manufacturer instructions will not be covered.
If the products should become defective during the warranty period, Master-LOK will replace it free of charge, provided the defective component is returned along with date of purchase and statement of defect. Master-LOK liability is limited to this written warranty. No other warranty is expressed or implied, nor does this warranty cover so-called incidental or consequential damages.

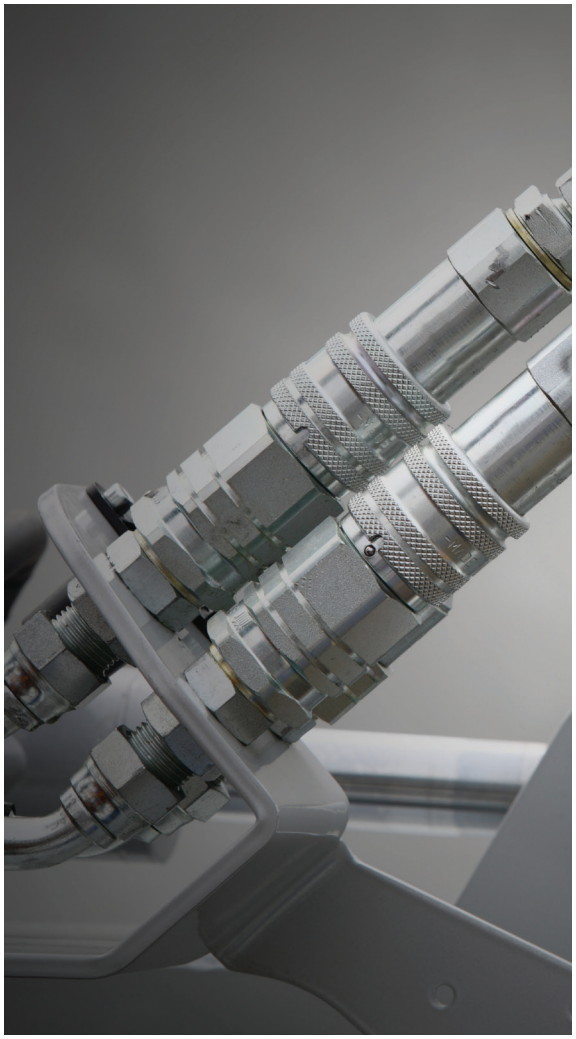


TABLE 1.

Maximum Allowable Working Pressure AT Various Temperatures.
Using Allowable Stess Factors Table 1.

℉	℃	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
1,000	538	-	0.69	0.76	-
1,200	649	-	0.30	0.37	-

To determine maximum allowable working pressure at elevated temperatures, multiply working pressure form tables 2,3 and 4 by factor shown in table 1.

EXAMPLE :
Type 316SS 3/8" O.D. x 0.035"
wall at 1,200 ℉ 3,300 psi x 0.37 = 1,221 psi

Allowable working pressure for
3/8" O.D. x 0.035" wall type 316ss tubing
is therefore 1,221psi at 1,200 ℉

TABLE 2. COPPER TUBING

High quality soft annealed seamless copper tubing ASTM B-75 or equibalent.

Tube O.D (Millimeters)	Tube Wall Thickness (Millimeters)							
	0.028	0.035	0.049	0.065	0.083	0.095	0.109	0.120
3	2,700	3,600						
4	1,800	2,300	3,400					
6	1,300	1,600	2,500	3,500				
8		1,300	1,900	2,700				
10		1,000	1,600	2,200				
12		800	1,100	1,600	2,100			
14			900	1,200	1,600	1,900		
16			700	1,000	1,300	1,500	1,800	
18			600	800	1,100	1,300	1,500	
22			500	700	900	1,100	1,300	1,500

Allowable Stess = 6,500 psi between -20 ℉ and 100 ℉

※ working pressure (psi)

Safety Factor = 5 (considering tensile strength to be 30,000 psi at room temperature)

TABLE 3. STAINLESS STEEL TUBING

Fully annealed high quality (Type 340, 316, etc.) (seamless or welded)

Stainless steel hydraulic tubing ASTM A-269 or A-213 or equivalent.

Hardness = Rb80 or less

Tubing free of scratches, suitable for bending and flaring

Tube O.D (Millimeters)	Tube Wall Thickness (inches)												
	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
3	5,600	6,800	8,100	9,400	12,000								
4						8,500	10,900			For Seamless Tubing			
6						8,400	7,000	10,200					
8						4,000	5,100	7,500	10,200				
10							4,000	5,800	8,000				
12							3,300	4,800	6,500				
16							2,400	3,500	4,700	6,200			
18								2,900	4,000	5,200	6,000		
20								2,400	3,300	4,200	4,900	5,800	
22								2,000	2,800	3,600	4,200	4,800	
25									2,400	3,100	3,600	4,200	4,700

Allowable Stess = 19,500 psi between -20 ℉ and 100 ℉

※ working pressure (psi)

Safety Factor = 4 (considering tensile strength to be 75,000 psi at room temperature)

TABLE 4. MONEL TUBING

Fully annealed quality seamless MONEL400 hydraulic tubing ASTM B-165 or equivalent.

Hardness = Rb75

Tubing free of scratches, suitable for bending and flaring

Tube O.D (inche)	Tube Wall Thickness (Millimeters)							
	0.028	0.035	0.049	0.065	0.083	0.095	0.109	0.120
1/8	7,900	10,100						
1/4	3,700	4,800	7,000	9,500				
3/8		3,100	4,400	6,100				
1/2		2,300	3,200	4,400				
3/4			2,200	3,000	4,400	4,600		
1				2,200	2,900	3,400	3,900	4,300

Allowable Stess = 19,500 psi between -20 ℉ and 100 ℉

※ working pressure (psi)

Safety Factor = 4 (considering tensile strength to be 75,000 psi at room temperature)

Master-LOK Tube Fitting System

FEATURES

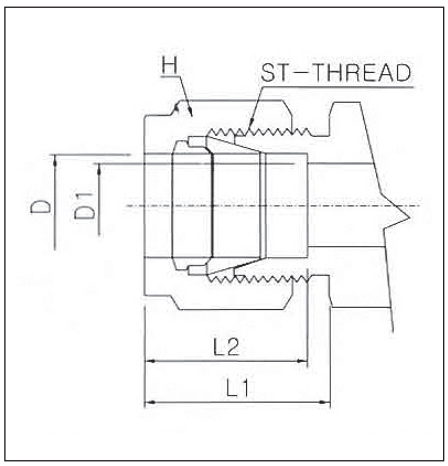
Master-LOK tube fittings have been specifically designed for use on instrumentation, process and control systems, equipment employed in chemical, petroleum, nuclear power generation,and plup and paper plants. The Master-LOK tube fittings has also found extensive application in other fields where a very high quality tube fitting is required.

CONSTRUCTION AND MATERIALS

Master-LOK tube fittings are sequential phase-controlled action, sealing and gripping devices. superior design, rigid manufacturing tolerances, and strict quality assurance programs produce an all-metal sealing, and holding device which performs leak-free when properly installed.

Master-LOK tube fittings consist of a body, a nut, and ferules and are constructed of one of the following materials, brass, 316/304 stainless steel, steel, nickel alloy, monel, or inconel. Straight fittings are machined from cold finished bar stock and shaped bodies are machined from close grain forgings.

The materials used, fully conform to the chemical requirements of one or more of the specifications listed in table 5 on this page. Nut internals are supplied standard with silver plating. For nuclear and other critical applications, stainless steel Master-LOK tube fittings are readily available with documented heat code traceability.



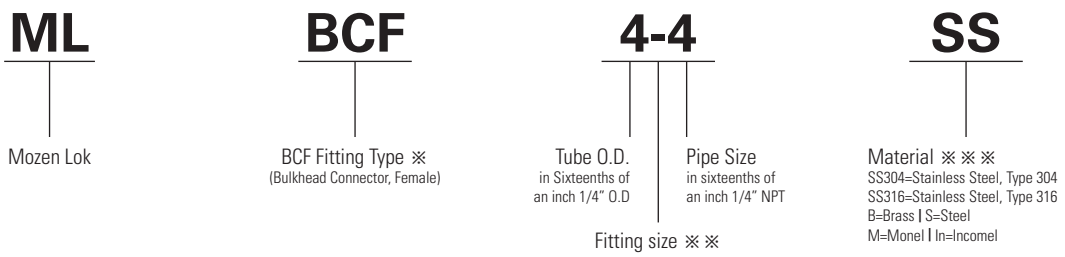
Tube End Dimensional Data						
Size	Tube O.D	Staright Theread	Minimum Opening	Tube Insertion Depth	Finger-Tight	Hexagonal
NO	D	ST	D1	L1	L2	H
1	1/16	10-321	0.05	0.34	0.43	5/16
2	1/8	5/16-20	0.09	0.50	0.60	7/16
3	3/16	3/8-20	0.12	0.54	0.63	1/2
4	1/4	7/16-20	0.19	0.60	0.70	9/16
5	5/16	1/2-20	0.28	0.64	0.73	5/8
6	3/8	9/16-20	0.28	0.66	0.76	11/16
8	1/2	3/4-20	0.41	0.90	0.86	7/8
10	5/8	7/8-20	0.50	0.96	0.86	1
12	3/4	1-20	0.62	0.96	0.86	1.1/8
14	7/8	1.1/8-20	0.72	1.02	0.86	1.1/4
16	1	1.5/16-20	0.88	1.23	1.04	1.1/2

Typical Raw Material Specifications — Table5

Type of Material	Bar Stock	Forging	Tyve SPecification
Brass	ASTM B16	ASTM B124	ASTM B75
	ASTM B453	• ALLOY 377	ASME SB75
	• ALLOY 360		
	• ALLOY 345		
	JIS H3250 C3604	JIS H3250 C3771	JIS H3300
Stainless Steel	ASTM A479	ASTM A182	ASTM A213
	ASME SA479, ASTM A276	ASME SA182	ASME SA213
	• ALLOY S30400(304)	• F304	ASTM A249
	• ALLOY S30403(304L)	• F304L	ASTM A269
	• ALLOY S31600(316)	• F316	NUK T 8504
	• ALLOY S31603(316L)	• F316L	MIL T8506
	JIS G4303	JIS G3214	JIS G3459
	• SUS 304	• SUS 304	
	• SUS 304L	• SUS 304L	
	• SUS 316	• SUS 316	
	• SUS 316L	• SUS 316L	
Steel	ASTM A108	ASTM A576	SAE J524B
			SAE J525B
			ASTM A179
	JIS G4051	JIS G3201	JIS G3452
Nickel Alloy	ASTM B164	ASTM B164	ASTM B165
Monel	ASTM B166	ASTM B564	ASTM B163
Inconel	ASTM SB166		

HOW TO ORDER

NOMENCLATURE



※See Table 7. for fitting type designators.	※※See Table 6. for fitting type designators.	※※※See Table 5. for fitting type designators.

Master-LOK tube fittings listed in this catalog are ordered by part number. The Master-LOK part numbering system consists of indentifiers representing size and style of the fitting and materials used. The part number describes fittings that are completely assembled; with reference to the tubing outside diameter (O.D) first, then fllowed by the pipe size. in the largest end is indicated first.

Fitting Sizes — Table 6

Indentifier	Tube O.D	P-NPT or TUBE O.D
1-2	1/16	1/16
2-2	1/8	1/8
2-4	198	1/4
3-2	3/16	1/8
3-4	3/16	1/4
4-2	1/4	1/8
4-4	1/4	1/4
4-6	1/4	3/8
4-8	1/4	1/2
5-2	5/16	1/8
5-4	5/16	1/4
6-2	3/8	1/8
6-4	3/8	1/4
6-6	3/8	3/8
6-8	3/8	1/2
8-4	1/2	1/4
8-6	1/2	3/8
8-8	1/2	1/2
8-12	1/2	3/4
10-6	5/8	3/8
10-8	5/8	1/2
10-12	5/8	3/4
12-8	3/4	1/2
12-12	3/4	3/4
14-12	7/8	3/4
14-16	7/8	1
16-12	1	3/4
16-16	1	1

Fitting Type Designator — Table 7

Indentifier	Description
MLAA	Adaptor, AN
MLAF	Adaptor, Female
MLAM	Adaptor, Male
MLBTF	Branch Tee, Female
MLBTM	Branch Tee, Male
MLBA	Bulkhead Adaptor
MLBCF	Bulkhead Connector, Female
MLBCM	Bulkhead Connector, Male
MLBU	Bulkhead Union
MLBUA	Bulkhead Union, AN
MLC	Cap
MLCB	Connector, Buttweld
MLCF	Connector, Male
MLCM	Connector, Male
MLCW	Connector, Socketweld
MLCOM	Connector, 'O' Seal Pipe Thread, Male
MLCOS	Connector, 'O' Seal Straight Thread
MLEB	Elbow, Buttweld
MLEF	Elbow, Female
MLEM	Elbow, Male
MLE 45M	Elbow, 45 Degree, Male
MLEW	Elbow, Socketweld
MLFB	Ferrule, Back
MLFF	Ferrule, Front
MLFS	Ferrule, Set
MLN	Nut
MLP	Plug
MLPC	Port Connector
MLR	Reducer
MLRU	Reducing Union
MLRTF	Run Tee, Female
MLRTM	Run Tee, Male
MLU	Union
MLUA	Union, AN
MLUC	Union Cross
MLUE	Union Elbow
MLUT	Union Tee

Master-LOK Tube Fitting System

VISUAL INDEX

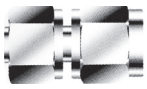
Union

Male Thread

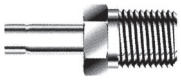
Female Thread

Adaptor

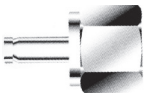
Adaptor, AN **| 22 |**
MLAA



Adaptor, Male **| 22 |**
MLAM



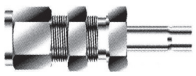
Adaptor, Female **| 23 |**
MLAF



Port Connector **| 23 |**
MLPC

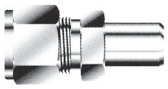
Reducer **| 24 |**
MLR

Bulkhead Adaptor **| 25 |**
MLBA

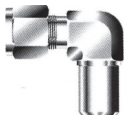


Socket and Butt Weld Fitting

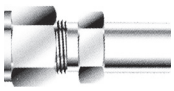
Connector, Bitt Weld **| 25 |**
MLCB



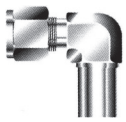
Elbow, Butt Weld **| 26 |**
MLEB



Connector, Socket Weld **| 26 |**
MLCW

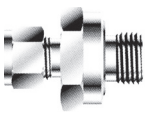


Elbow, Socket Weld **| 26 |**
MLEW

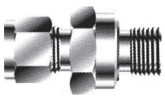


"O" Seal(Straight Thread)

Connector, Pipe Thread, Male **| 27 |**
MLCOM

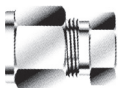


Connector, Straight Thread, Male **| 27 |**
MLCOS



Plug and Cap

Cap **| 28 |**
MLC



Plug **| 28 |**
MLP

Spare Part

Ferrule, Set **| 29 |**
MLFS

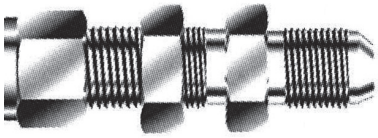
Nut **| 29 |**
MLN

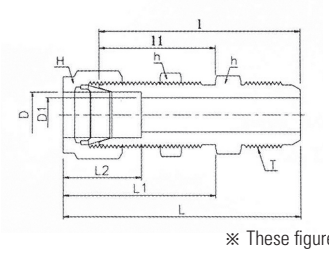
Ferrule, Back **| 30 |**
MLFB

Ferrule, Front **| 30 |**
MLFF

Master-LOK Tube Fitting System

Bulkhead Union, AN | MLBUA

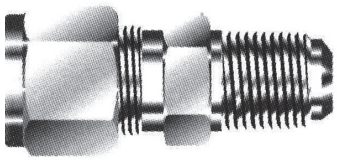


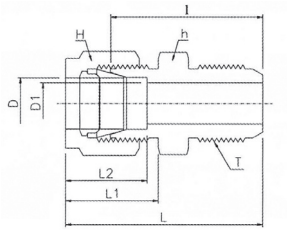


※ These figures are for reference purpose only.

Part No.	Tube O.D D		AN Tube Flare Size		Stright Thread T(U)	D1 Min	Width across flat				L2	I	I1	L	L1	Panel Hole Drill Size	Panel Max Thick-ness
							h		H								
	in	mm	in	mm			in	mm	in	mm							
MLBUA4-4	1/4	6.35	1/4	6.35	7/16-20	4.31	5/8	15.87	9/16	14.28	15.24	46.48	26.16	53.84	33.52	11.50	10.16
MLBUA6-6	3/8	9.52	3/8	9.52	9/16-18	7.11	3/4	19.05	11/16	17.46	16.76	49.78	29.46	57.15	36.83	14.68	11.17
MLBUA8-8	1/2	12.70	1/2	12.70	3/4-16	9.90	5/16	23.81	7/8	22.22	22.86	55.62	31.75	65.78	41.91	19.44	12.7
MLBUA12-12	3/4	19.05	3/4	19.05	1-1/16-12	15.49	1-3/16	30.16	1-1/8	28.57	24.38	68.83	37.33	78.99	47.49	25.79	16.76
MLBUA16-16	1	25.40	1	25.40	1-5/16-12	21.33	1-5/8	41.27	1-1/2	38.10	31.24	80.26	45.21	92.45	57.40	33.73	19.05

Union, AN | MLUA

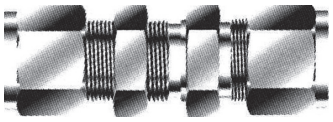


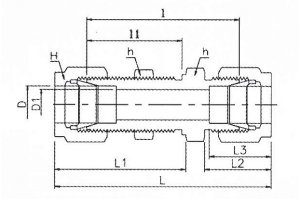


※ These figures are for reference purpose only.

Part No.	Tube O.D D		AN Tube Flare Size		Stright Thread T(U)	D1 Min	Width across flat				L2	L1	I	L
							h		H					
	in	mm	in	mm			in	mm	in	mm				
MLUA2-2	1/8	3.17	1/8	3.17	5/16-24	1.52	7/16	11.11	7/16	11.11	12.70	15.24	24.89	31.49
MLUA2-4	1/8	3.17	1/4	6.35	7/16-20	2.28	1/2	12.70	7/16	11.11	12.70	15.24	28.44	35.05
MLUA4-4	1/4	6.35	1/4	6.35	7-16/20	4.31	1/2	12.70	9/16	14.28	15.24	17.78	30.22	37.59
MLUA5-5	5/16	7.93	5/16	7.93	1/2-20	5.84	9/16	14.28	5/8	15.87	16.25	18.54	30.98	38.35
MLUA6-4	3/8	9.52	1/4	6.35	7/16-20	4.31	5/8	15.87	11/16	17.46	16.76	19.30	32.25	39.62
MLUA6-6	3/8	9.52	3/8	9.52	9/16-18	7.11	5/8	15.87	11/16	17.46	16.76	19.30	32.25	39.62
MLUA8-8	1/2	12.70	1/2	12.70	3/4-16	9.90	13/16	20.63	7/8	22.22	22.86	21.84	35.81	45.97
MLUA12-12	394	19.05	3/4	19.05	1-1/16-12	15.49	1-1/8	28.57	1-1/8	28.57	24.38	21.84	43.18	53.34
MLUA16-16	1	25.40	1	25.40	1-5/16-12	21.33	1-3/8	34.92	1-1/2	38.10	31.24	26.41	49.27	61.46

Bulkhead Union | MLBU

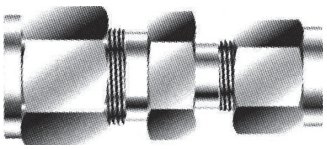


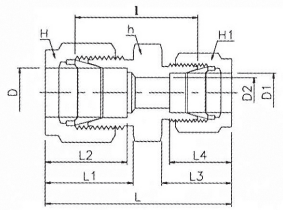


※ These figures are for reference purpose only.

Part No.	Tube O.D D		D1 Min	Width across flat				L3	L2	I	I1	L	L1	Panel Hole Drill Size	Panel Max Thick-ness
				h		H									
	in	mm		in	mm	in	mm								
MLBU-2	1/8	3.17	2.28	1/2	12.70	7/16	11.11	12.70	15.24	38.10	24.63	51.30	31.24	8.33	12.70
MLBU-3	3/16	4.76	3.04	9/16	14.28	1/2	12.70	13.71	16.00	40.38	25.40	53.59	32.00	9.92	12.70
MLBU-4	1/4	6.35	4.82	5/8	15.87	9/16	14.28	15.24	17.78	42.92	26.16	57.65	33.52	11.50	10.16
MLBU-5	5/16	7.93	6.35	11/16	17.46	5/8	15.87	16.25	18.54	45.97	28.44	60.70	35.81	13.09	11.17
MLBU-6	3/8	9.52	7.11	3/4	19.05	11/16	17.46	16.76	19.30	47.49	29.46	62.23	36.83	14.68	11.17
MLBU-8	1/2	12.70	10.41	15/16	23.81	7/8	22.22	22.86	21.84	50.80	31.75	71.12	41.91	19.44	12.70
MLBU-10	5/8	15.87	12.70	1-1/16	26.98	1	25.40	24.38	21.84	52.32	32.51	72.64	42.67	22.62	12.70
MLBU-12	3/4	19.05	15.74	1-3/16	30.16	1-1/8	28.57	24.38	21.84	58.67	37.33	78.99	47.49	25.79	16.76
MLBU-14	7/8	22.22	18.28	1-3/8	34.92	1-1/4	31.75	25.90	21.84	64.26	42.92	84.58	53.08	28.97	19.05
MLBU-16	1	25.40	22.35	1-5/8	41.27	1-1/2	38.10	31.24	26.41	71.37	45.21	95.75	57.40	33.73	19.05

Reducing Union | MLRU



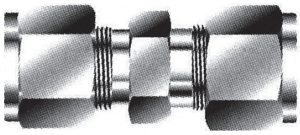


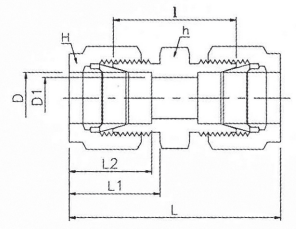
※ These figures are for reference purpose only.

Part No.	Tube O.D				D2 Min	Width across flat						L2	L4	L1	L3	I	L
	D		D1			h		H		H1							
	in	mm	in	mm		in	mm	in	mm	in	mm						
MLRU-3-2	3/16	4/76	1/8	3.17	2.28	7/16	11.11	1/2	12.70	7/16	11.11	13.71	12.70	16.00	15.24	23.36	36.57
MLRU-4-2	1/4	6.35	1/8	3.17	2.28	1/2	12.70	9/16	14.28	7/16	11.11	15.24	12.70	17.78	15.24	24.63	38.60
MLRU-4-3	1/4	6.35	3/16	4.76	3.04	1/2	12.70	9/16	14.28	1/2	12.70	15.24	13.71	17.78	16.00	25.40	39.37
MLRU-5-2	5/16	7.93	1/8	3.17	2.28	9/16	14.28	5/8	15.87	7/16	11.11	16.25	12.70	18.54	15.24	25.90	39.87
MLRU-5-4	5/16	7.93	1/4	6.35	4.82	9/16	14.28	5/8	15.87	9/16	14.28	16.25	15.24	18.54	17.78	27.43	42.16
MLRU-6-2	3/8	9.52	1/8	3.17	2.28	5/8	15.87	11/16	17.46	7/16	11.11	16.76	12.70	19.30	15.24	26.92	40.89
MLRU-6-4	3/8	9.52	1/4	6.35	4.82	5/8	15.87	11/16	17.46	9/16	14.28	16.76	15.24	19.30	17.78	28.44	43.18
MLRU-6-5	3/8	9.52	5/16	7.93	6.35	5/8	15.87	11/16	17.46	5/8	15.87	16.76	16.25	19.30	18.54	19.46	44.19
MLRU-8-2	1/2	12.70	1/8	3.17	2.28	13/16	20.63	7/8	22.22	7/16	11.11	22.86	12.70	21.84	15.24	28.44	45.21
MLRU-8-4	1/2	12.70	1/4	6.35	4.82	13/16	20.63	7/8	22.22	9/16	14.28	22.86	15.24	21.84	17.78	29.46	46.99
MLRU-8-6	1/2	12.70	3/8	9.52	7.11	13/16	20.63	7/8	22.22	11/16	17.46	22.86	16.76	17.78	19.30	30.89	48.51
MLRU-10-6	5/8	15.87	3/8	9.52	7.11	15/16	23.81	1	25.40	11/16	17.46	24.38	16.76	21.84	19.30	31.75	49.27
MLRU-10-8	5/8	15.87	1/2	12.70	10.41	15/16	23.81	1	25.40	7/8	22.22	24.38	22.86	21.84	21.84	31.75	52.07
MLRU-12-4	3/4	19.05	1/4	6.35	4.82	1-1/16	26.98	1-1/8	28.57	9/16	14.48	24.38	15.24	21.84	17.78	31.75	49.27
MLRU-12-6	3/4	19.05	3/8	9.52	7.11	1-1/16	26.98	1-1/8	28.57	11/16	17.46	24.38	16.76	21.84	19.30	33.27	50.80
MLRU-12-8	3/4	19.05	1/2	12.70	10.41	1-1/16	26.98	1-1/8	28.57	7/8	22.22	24.38	22.86	21.84	21.84	33.27	53.59
MLRU-12-10	3/4	19.05	5/8	15.87	12.70	1-1/16	26.98	1-1/8	28.57	1	25.40	24.38	24.38	21.84	21.84	33.27	53.59
MLRU-16-8	1	25.40	1/2	12.70	10.41	1-3/8	34.92	1-1/2	38.10	7/8	22.22	31.24	22.86	26.41	21.84	40.89	63.24
MLRU-16-12	1	25.40	3/4	19.05	15.74	1-3/8	34.92	1-1/2	38.10	1-1/8	28.57	31.24	24.38	26.41	21.84	40.38	62.73

Master-LOK Tube Fitting System

Union | MLU

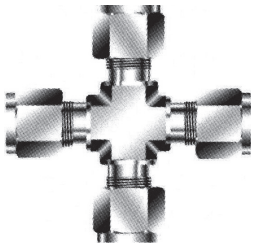


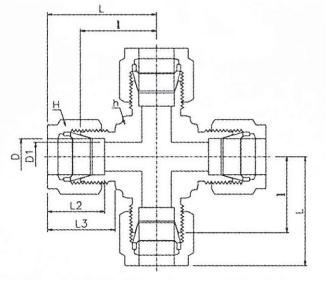


※ These figures are for reference purpose only.

Part No.	Tube O.D D		D1 Min	Width across flat				L2	L1	I	L
				h		H					
	in	mm		in	mm	in	mm				
MLU-2	1/8	3.17	2.28	7/16	11.11	7/16	11.11	12.70	15.24	22.35	35.56
MLU-3	3/16	4.76	3.04	7/16	11.11	1/2	12.70	13.71	16.00	24.13	37.33
MLU-4	1/4	6.35	4.82	1/2	12.70	9/16	14.28	15.24	17.78	26.16	40.89
MLU-5	5/16	7.93	6.35	9/16	14.28	5/8	15.87	16.25	18.54	28.19	42.92
MLU-6	3/8	9.52	7.11	5/8	15.87	11/16	17.46	16.76	19.30	30.22	44.95
MLU-8	1/2	12.70	10.41	13/16	20.63	7/8	22.22	22.86	21.84	30.98	51.30
MLU-10	5/8	15.87	12.70	15/16	23.81	1	25.40	24.38	21.84	31.75	52.07
MLU-12	3/4	19.05	15.74	1-1/16	26.98	1-1/8	28.57	24.38	21.84	33.27	53.59
MLU-14	7/8	22.22	18.28	1-3/17	30.16	1-1/4	31.75	25.90	21.84	35.05	55.37
MLU-16	1	25.40	22.35	1/3-8	34.92	1-1/2	38.10	31.24	26.41	40.38	64.77

Union Cross | MLUC

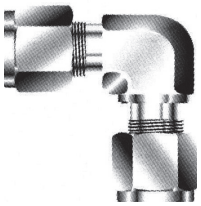


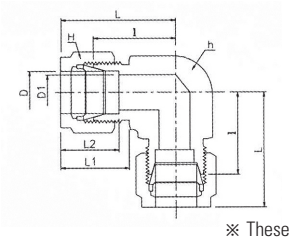


※ These figures are for reference purpose only.

Part No.	Tube O.D D		D1 Min	Width across flat				L2	L3	I	L
				h		H					
	in	mm		in	mm	in	mm				
MLUC-1	1/16	1.59	1.27	3/8	9.52	5/16	7.93	8.63	10.92	14.00	17.88
MLUC-2	1/8	3.17	2.28	3/8	11.11	7/16	11.11	12.70	15.24	15.74	22.35
MLUC-3	3/16	4.76	3.04	1/2	11.11	1/2	12.70	13.71	16.00	17.78	24.38
MLUC-4	1/4	6.35	4.82	1/2	12.70	9/16	14.28	15.24	17.78	19.55	26.92
MLUC-5	5/16	7.93	6.35	9/16	14.28	5/8	15.87	16.25	18.54	21.33	28.70
MLUC-6	3/8	9.52	7.11	5/8	15.87	11/16	17.46	16.76	19.30	23.11	30.48
MLUC-8	1/2	12.70	10.41	13/16	20.63	7/8	22.22	22.86	21.84	25.90	36.06
MLUC-10	5/8	15.87	12.70	15/16	23.81	1	25.40	24.38	21.84	28.70	38.80
MLUC-12	3/4	19.05	15.74	`1-1/16	26.98	`1-1/8	28.57	24.38	21.84	29.71	39.87
MLUC-14	7/8	22.22	18.28	`1-1/4	30.16	`1-1/4	31.75	25.90	21.84	34.54	44.70
MLUC-16	1	25.40	22.35	`1-27-64	34.92	`1-1/2	38.10	31.24	26.41	36.83	49.02

Union Elbow | MLUE

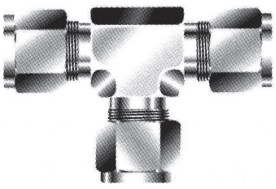


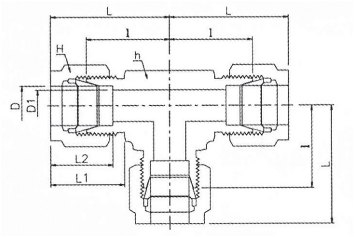


※ These figures are for reference purpose only.

Part No.	Tube O.D D		D1 Min	Width across flat				L2	L1	I	L
				h		H					
	in	mm		in	mm	in	mm				
MLUE-2	1/8	3.17	2.28	3/8	9.52	7/16	11.11	12.70	15.24	15.74	22.35
MLUE-3	3/16	4.76	3.04	1/2	12.70	1/2	12.70	13.71	16.00	17.78	24.38
MLUE-4	1/4	6.35	4.82	1/2	12.70	9/16	14.28	15.24	17.78	19.55	26.92
MLUE-5	5/16	7.93	6.35	9/16	14.28	5/8	15.87	16.25	18.54	21.33	28.70
MLUE-6	3/8	9.52	7.11	5/8	15.87	11/16	17.46	16.76	19.30	23.11	30.48
MLUE-8	1/2	12.70	10.41	13/16	20.63	7/8	22.22	22.86	21.84	25.90	36.06
MLUE-10	5/8	15.87	12.70	15/16	23.80	1	25.40	24.38	21.84	28.70	38.80
MLUE-12	3/4	19.05	15.74	`1-1/16	26.98	`1-1/8	28.57	24.38	21.84	29.71	39.87
MLUE-14	7/8	22.22	18.28	`1-1/4	31.75	`1-1/4	31.75	25.90	21.84	34.54	44.70
MLUE-16	1	25.40	22.35	`1/3-8	34.92	`1-1/2	38.10	31.24	26.41	36.83	49.02

Union Tee | MLUT



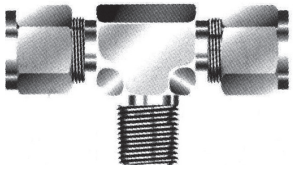


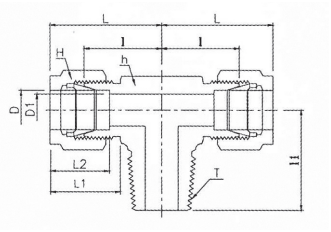
※ These figures are for reference purpose only.

Part No.	Tube O.D D		D1 Min	Width across flat				L2	L1	I	L
				h		H					
	in	mm		in	mm	in	mm				
MLUT-2	1/8	3.17	2.28	3/8	9.52	7/16	11.11	12.70	15.24	15.74	22.35
MLUT-3	3/16	4.76	3.04	1/2	12.70	1/2	12.70	13.71	16.00	17.78	24.38
MLUT-4	1/4	6.35	4.82	1/2	12.70	9/16	14.28	15.24	17.78	19.55	26.92
MLUT-5	5/16	7.93	6.35	9/16	14.28	5/8	15.87	16.25	18.54	21.33	28.70
MLUT-6	3/8	9.52	7.11	5/8	15.87	11/16	17.46	16.76	19.30	23.11	30.48
MLUT-8	1/2	12.70	10.41	13/16	20.63	7/8	22.22	22.86	21.84	25.90	36.06
MLUT-10	5/8	15.87	12.70	15/16	23.80	1	25.40	24.38	21.84	28.70	38.80
MLUT-12	3/4	19.05	15.74	`1-1/16	26.98	`1-1/8	28.57	24.38	21.84	29.71	39.87
MLUT-14	7/8	22.22	18.28	`1-1/4	31.75	`1-1/4	31.75	25.90	21.84	34.54	44.70
MLUT-16	1	25.40	22.35	`1/3-8	34.92	`1-1/2	38.10	31.24	26.41	36.83	49.02

Master-LOK Tube Fitting System

Branch Tee, Male | MLBTM

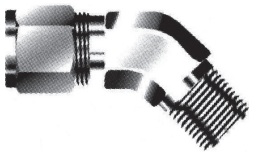


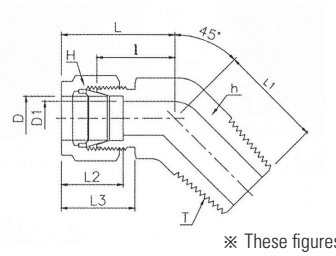


※ These figures are for reference purpose only.

Part No.	Tube O.D D		T(NPT)	D1 Min	Width across flat				L2	L1	l	L	l1
					h		H						
	in	mm			in	mm	in	mm					
MLBTM2-2N	1/8	3.17	1/8	2.28	1/2	12.70	7/16	11.11	12.70	15.24	18.30	24.91	18.90
MLBTM2-4N	1/8	3.17	1/4	2.28	1/2	12.70	7/16	11.11	12.70	15.24	18.30	24.91	23.36
MLBTM3-2N	3/16	4.76	1/8	3.04	1/2	12.70	1/2	12.70	13.71	16.00	17.78	24.38	17.78
MLBTM4-2N	1/4	6.35	1/8	4.82	1/2	12.70	9/16	14.28	15.24	17.78	19.55	26.92	18.79
MLBTM4-4N	1/4	6.35	1/4	4.82	1/2	12.70	9/16	14.28	15.24	17.78	19.71	27.08	23.87
MLBTM5-2N	5/16	7.93	1/8	4.82	9/16	14.28	5/8	15.87	16.25	18.54	22.35	29.71	20.82
MLBTM6-4N	3/8	9.52	1/4	7.11	5/8	15.87	11/16	17.46	16.76	19.30	23.11	30.48	25.40
MLBTM6-6N	3/8	9.52	3/8	7.11	11/16	17.46	11/16	17.46	16.76	19.30	23.87	31.24	26.20
MLBTM8-6N	1/2	12.70	3/8	10.41	13/16	20.63	7/8	22.22	22.86	21.84	25.90	36.06	28.19
MLBTM8-8N	1/2	12.70	1/2	10.41	13/16	20.63	7/8	22.22	22.86	21.84	25.90	36.06	33.02
MLBTM5-8N	5/8	15.87	1/2	11.93	15/16	23.8	1	25.4	24.38	21.84	27.94	38.10	35.05
MLBTM12-12N	3/4	19.05	3/4	15.74	`1-1/16	26.98	`1/1/8	28.57	24.38	21.84	28.19	38.35	35.30

Elbow, 45 Degree, Male | MLE45M

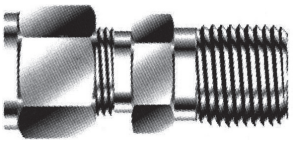


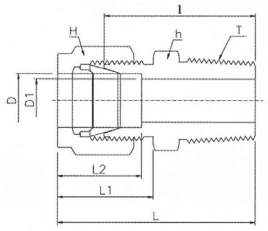


※ These figures are for reference purpose only.

Part No.	Tube O.D D		T(NPT)	D1 Min	Width across flat				L2	L3	l	L	l1
					h		H						
	in	mm			in	mm	in	mm					
MLE45M4-2N	1/4	6.35	1/8	4.82	1/2	12.70	9/16	14.28	15.24	17.78	17.27	24.63	16.51
MLE45M4-4N	1/4	6.35	1/4	4.82	1/2	12.70	9/16	14.28	15.24	17.78	17.27	24.63	21.08
MLE45M6-2N	3/8	9.52	1/8	4.82	5/8	15.87	11/16	17.46	16.76	19.30	20.57	27.94	18.28
MLE45M6-4N	3/8	9.52	1/4	7.11	5/8	15.87	11/16	17.46	16.76	21.84	20.57	27.94	22.86
MLE45M6-6N	3/8	9.52	3/8	7.11	13/16	20.63	11/16	17.46	16.76	21.84	21.84	29.21	24.13
MLE45M8-6N	1/2	12.70	3/8	9.65	13/16	20.63	7/8	22.22	22.86	21.84	21.84	32.00	24.13

Connector, Male | MLCM



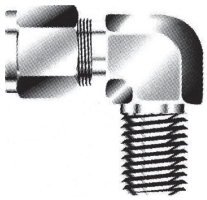


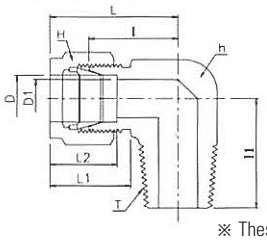
※ These figures are for reference purpose only.

Part No.	Tube O.D D		T(NPT)	D1 Min	Width across flat				L2	L1	I	L
					h		H					
	in	mm			in	mm	in	mm				
MLCM2-2N	1/8	3.17	1/8	2.28	7/16	11.11	7/16	11.11	12.70	15.24	23.87	30.48
MLCM2-4N	1/8	3.17	1/4	2.28	9/16	14.58	7/16	11.11	12.70	15.24	28.95	35.56
MLCM2-6N	1/8	3.17	3/8	2.28	11/16	17.46	7/16	11.11	12.70	15.24	29.21	35.81
MLCM2-8N	1/8	3.17	1/2	2.28	7/8	22.22	7/16	11.11	12.70	15.24	35.56	42.16
MLCM3-2N	3/16	4.76	1/8	3.04	7/16	11.11	1/2	12.70	13.71	16.00	24.63	31.24
MLCM3-4N	3/16	4.76	1/4	3.04	9/16	14.28	1/2	12.70	13.70	16.00	29.71	36.32
MLCM4-2N	1/4	6.35	1/8	4.82	1/2	12.70	9/16	14.28	15.24	17.78	25.40	32.76
MLCM4-4N	1/4	6.35	1/4	4.82	9/16	14.28	9/16	14.28	15.24	17.78	30.48	37.84
MLCM4-6N	1/4	6.35	3/8	4.82	11/16	17.46	9/16	14.28	15.24	17.78	30.98	38.35
MLCM4-8N	1/4	6.35	1/2	4.82	7/8	22.22	9/16	14.28	15.24	17.78	37.33	44.70
MLCM4-12N	1/4	6.35	3/4	4.82	1-1/16	26.98	9/16	14.28	15.24	17.78	38.86	46.22
MLCM5-2N	5/16	7.93	1/8	4.82	9/16	14.28	5/8	15.87	16.25	18.54	26.67	34.03
MLCM5-4N	5/16	7.93	1/4	6.35	9/16	14.28	5/8	15.87	16.25	18.54	31.24	38.60
MLCM5-6N	5/16	7.93	3/8	6.35	11/16	17.46	5/8	15.87	16.25	18.54	31.75	39.11
MLCM6-2N	3/8	9.52	1/8	4.82	5/8	15.87	11/16	17.46	16.76	19.30	2,794.00	35.30
MLCM6-4N	3/8	9.52	1/4	7.11	5/8	15.87	11/16	17.46	16.76	19.30	32.51	39.87
MLCM6-6N	3/8	9.52	3/8	7.11	11/16	17.46	11/16	17.46	16.76	19.30	32.51	39.87
MLCM6-8N	3/8	9.52	1/2	7.11	7/8	22.22	11/16	17.46	16.76	19.30	38.86	46.22
MLCM6-12N	3/8	9.52	3/4	7.11	`1-1/16	26.98	11/16	17.46	16.76	19.30	40.38	47.75
MLCM8-2N	1/2	12.70	1/8	4.82	13/16	20.63	7/8	22.22	22.86	21.84	28.70	38.86
MLCM8-4N	1/2	12.70	1/4	7.11	13/16	20.63	7/8	22.22	22.86	21.84	33.27	4.43
MLCM8-6N	1/2	12.70	3/8	9.65	13/16	20.63	7/8	22.22	22.86	21.84	33.27	43.43
MLCM8-8N	1/2	12.70	1/2	10.41	7/8	22.22	7/8	22.22	22.86	21.84	38.86	49.02
MLCM8-12N	1/2	12.70	3/4	10.41	1-1/16	26.98	7/8	22.22	22.86	21.84	40.38	50.54
MLCM8-16N	1/2	12.70	1	10.41	1-3/16	34.92	7/8	22.22	22.86	21.84	46.99	57.15
MLCM10-6N	5/8	15.87	3/8	9.65	15/16	23.81	1	25.40	24.38	21.84	34.03	44.19
MLCM10-8N	5/8	15.87	1/2	11.93	15/16	23.81	1	25.40	24.38	21.84	38.86	49.02
MLCM10-12N	5/8	15.87	3/4	12.70	1-1/16	26.98	1	25.40	24.38	21.84	40.38	50.54
MLCM12-8N	3/4	19.05	1/2	11.93	1-1/16	26.98	1-1/8	28.57	24.38	21.84	40.38	50.54
MLCM12-12N	3/4	19.05	3/4	15.74	1-1/16	26.98	1-1/8	28.57	24.38	21.84	40.38	50.54
MLCM12-16N	3/4	19.05	1	15.74	1-3/8	34.92	1-1/8	28.57	24.38	21.84	16.99	57.15
MLCM14-12N	7/8	22.22	3/4	15.74	1-3/16	30.16	1-1/4	31.75	25.90	21.84	40.38	50.54
MLCM14-16N	7/8	22.22	1	18.28	1-3/8	34.92	1-1/4	31.75	25.90	21.84	46.99	57.15
MLCM16-8N	1	25.40	1/2	11.93	1-3/8	34.92	1-1/2	38.10	31.24	26.41	45.21	57.40
MLCM16-12N	1	25.40	3/4	15.74	1-3/8	34.92	1-1/2	38.10	31.24	26.41	45.21	57.40
MLCM16-16N	1	25.40	1	22.34	1-3/8	34.92	1-1/2	38.10	31.24	26.41	50.03	62.23

Master-LOK Tube Fitting System

Elbow, Male | MLEM

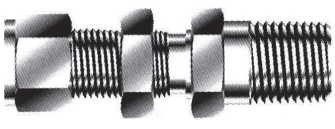


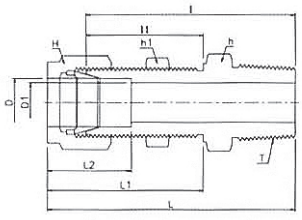


※ These figures are for reference purpose only.

Part No.	Tube O.D D		T(NPT)	D1 Min	Width across flat				L2	L1	I	L	I1
					h		H						
	in	mm			in	mm	in	mm					
MLEM2-2N	1/8	3.17	1/8	2.28	1/2	12.70	7/16	11.11	12.70	15.24	18.30	24.91	18.90
MLEM2-4N	1/8	3.17	1/4	2.28	1/2	12.70	7/16	11.11	12.70	15.24	18.30	24.91	23.36
MLEM3-2N	3/16	4.76	1/8	3.04	1/2	12.70	1/2	12.70	13.71	16.00	18.79	25.40	18.79
MLEM3-4N	3/16	4.76	1/4	3.04	1/2	12.70	1/2	12.70	13.71	16.00	18.79	25.40	23.36
MLEM4-2N	1/4	6.35	1/8	4.82	1/2	12.70	9/16	14.28	15.24	17.78	19.10	26.17	19.10
MLEM4-4N	1/4	6.35	1/4	4.82	1/2	12.70	9/16	14.28	15.24	17.78	19.81	27.18	23.87
MLEM4-6N	1/4	6.35	3/8	4.82	11/16	17.46	9/16	14.28	I 5.24	17.78	22.35	29.71	28.·10
MLEM4-8N	1/4	6.35	1/2	4.82	13/16	20.63	9/16	14.28	15.24	17.78	24.60	31.97	35.10
MLEM5-2N	5/16	7.93	1/8	4.82	9/16	14.28	5/8	15.87	16.25	18.54	21.33	28.70	19.81
MLEM5-4N	5/16	7.93	1/4	6.35	9/16	14.28	5/8	15.87	16.25	18.54	22.40	29.77	24.50
MLEM5-6N	5/16	7.93	3/8	6.35	11/16	17.46	5/8	15.87	16.25	18.54	23.11	30.48	28.40
MLEM6-2N	3/8	9.52	1/8	4.82	5/8	15.87	11/16	17.46	16.76	19.30	23. 11	30.48	20.60
MLEM6-4N	3/8	9.52	1/4	7.11	5/8	15.87	11/16	17.46	16.76	19.30	23. 11	30.48	25.40
MLEM6-6N	3/8	9.52	3/8	7.11	11/16	17.46	11/16	17.46	16.76	19.30	23.87	31.24	28.44
MLEM6-8N	3/8	9.52	1/13	7.11	13/16	20.63	11/16	17.46	16.76	19.30	23.80	31.42	33.02
MLEM6-12N	3/8	9.52	1/14	7.11	1-1/16	26.98	11/16	17.46	16.76	19.30	29.71	37.08	36.83
MLEM8-4N	1/2	12.70	1/15	7.11	13/16	20.63	7/8	22.22	22.86	2 1.84	25.90	36.06	28.30
MLEM8-6N	1/2	12.70	1/16	9.65	13/16	20.63	7/8	22.22	22.86	2 1.84	25.90	36.06	28.30
MLEM8-8N	1/2	12.70	1/17	10.41	13/16	20.63	7/8	22.22	22.86	2 1.84	25.90	36.06	33.02
MLEM8-12N	1/2	12.70	1/18	10.41	1-1/16	26.98	7/8	22.22	22.86	2 1.84	29.71	39.87	36.83
MLEM10-6N	5/8	15.87	1/19	9.65	15/16	23.80	1	25.40	2·1.38	2 1.84	26.90	37.06	29.40
MLEM10-8N	5/8	15.87	1/20	11.93	15/16	23.80	1	25.40	24.38	2 1.84	26.90	37.06	34.00
MLEM10-12N	5/8	15.87	1/21	12.70	1-1/16	26.98	1	25.40	24.38	2 1.84	29.71	39.87	36.83
MLEM12-8N	3/4	19.05	1/22	11.93	1-1/16	26.98	1-1/8	28.57	24.38	2 1.84	29.71	39.87	37.00
MLEM12-12N	3/4	19.05	1/23	15.74	1-1/16	26.98	1-1/8	28.57	2·1.38	2 1.81	29.71	39.87	36.83
MLEM14-12N	7/8	22.22	1/24	15.74	1-1/4	31.75	1-1/4	31.75	25.90	2 1.84	34.54	44.70	41.65
MLEM16-12N	1	25.40	1/25	15.74	1-27-64	36.00	1-1/2	38. 10	31.24	26.41	36.83	49.02	42.20
MLEM16-16N	1	25.40	1/26	22.35	1-27-64	36.00	1-1/2	38. 10	31.24	26.41	36.83	49.02	46.70

Bulkhead Connector, Male | MLBCM

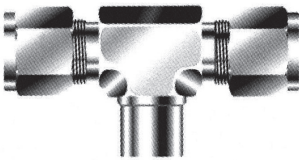


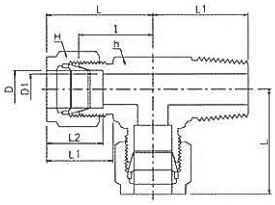


※ These figures are for reference purpose only.

Part No.	Tube O.D D		T(NPT)	D1 Min	Width across flat						L2	I	I1	L	L1	Panel Hole Drill Size	Panel Max Thick-ness
					h		R1		H								
	in	mm			in	mm	in	mm	in	mm							
MLBCN2-2N	1/8	3.17	1.8	4.82	1/2	12.70	9/16	14.28	7/16	11 .11	12.70	39.87	24.63	46.48	31.24	8.33	12.70
MLBCN4-2N	1/4	6.35	1.8	4.82	1/2	12.70	9/16	14.28	9/16	14.28	15.24	42.16	26.16	49.53	33.52	11.50	10.16
MLBCN4-4N	1/4	6.35	1.4	4.82	5/8	15.87	11/16	17.46	9/16	14.28	15.24	45.97	26.16	53.34	33.52	11.50	10.16
MLBCN6-4N	3/8	9.52	1.4	7.11	5/8	15.87	11/16	17.46	11/16	17.46	16.76	50.03	29.46	57.40	36.83	14.68	11.17
MLBCN8-6N	1/2	12.70	3.8	7.11	13/16	20.63	11/16	17.46	7/8	22.86	22.86	53.08	31.75	63.24	41.91	19.44	12.70
MLBCN8-8N	1/2	12.70	1.2	9.65	13/16	20.63	7/8	22.22	7/8	22.86	22.86	58.67	31.75	68.83	41.91	19.44	12.70

Run Tee, Male | MLRTM

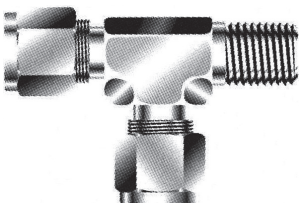


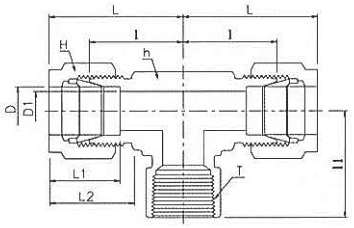


※ These figures are for reference purpose only.

Part No.	Tube O.D D		T(NPT)	D1 Min	Width across flat				L2	L1	I	L	L1
					h		H						
	in	mm			in	mm	in	mm					
MLRTM2-2N	1/8	3.17	1/8	2.28	1/2	12.70	7/16	11.11	12.70	15.24	18.30	24.91	18.90
MLRTM2-4N	1/8	3.17	1/4	2.28	1/2	12.70	7/16	11.11	12.70	15.24	18.30	24.91	23.36
MLRTM3-2N	3/16	4.76	1/8	3.04	1/2	12.70	1/2	12.70	13.71	16.00	17.78	24.38	17.78
MLRTM4-2N	1/4	6.35	1/8	4.82	1/2	12.70	9/16	14.28	15.24	17.78	19.55	26.92	18.79
MLRTM4-4N	1/4	6.35	1/4	4.82	1/2	12.70	9/16	14.28	15.24	17.78	19.71	27.08	23.87
MLRTM5-2N	5/16	7.93	1/8	4.82	9/ 16	14.28	5/8	15.87	16.25	18.54	22.35	29.71	20.82
MLRTM6-4N	3/8	9.52	1/4	7.11	5/8	15.8	1/16	17.46	16.76	19.30	23.11	30.48	25.40
MLRTM6-6N	3/8	9.52	3/8	7.11	11/ 16	17.46	11/16	17.46	16.76	19.30	23.87	31.24	26.20
MLRTM8-6N	1/2	12.70	3/8	9.65	13/ lo	20.63	7/8	22.22	22.86	21.84	25.90	36.06	28.19
MLRTM8-8N	1/2	12.70	1/2	10.41	13/ 16	20.63	7/8	22.22	22.86	21.84	25.90	36.06	33.02
MLRTM10-8N	5/8	15.87	1/2	11.93	15/ 16	23.80	1	25.40	24.38	21.84	27.94	38.10	35.05
MLRTM12-12N	3/4	19.05	3/4	15.74	1-1/ 16	26.98	1-1/8	28.57	24.38	21.84	28.19	38.35	35.30

Branch Tee, Female | MLBTF



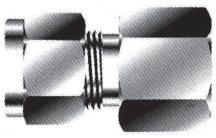


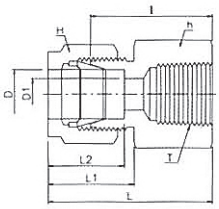
※ These figures are for reference purpose only.

Part No.	Tube O.D D		T(NPT)	D1 Min	Width across flat				L1	L2	I	L	I1
					h		H						
	in	mm			in	mm	in	mm					
MLBTF2-2N	1/8	3.17	1/8	2.28	1/2	12.70	7/16	11.11	12.70	15.24	18.03	24.38	19.05
MLBTF4-2N	1/4	6.35	1/8	4.82	1/2	12.70	9/16	14.28	15.24	17.78	19.55	26.92	19.05
MLBTF4-4N	1/4	6.35	1/4	4.82	11/16	17.46	9/16	14.28	15.24	17.78	22.35	29.71	22.35
MLBTF6-4N	3/8	9.52	1/4	7.11	11/16	17.46	11/16	17.46	16.76	19.30	23.87	31.24	22.35
MLBTF8-4N	1/2	12.70	1/4	10.41	13/16	20.63	7/8	22.22	22.86	21.81	25.90	36.06	22.35
MLBTF8-6N	1/2	12.70	3/8	10.41	13/16	20.63	7/8	22.22	22.86	21.84	25.90	36.06	22.35
MLBTF8-8N	1/2	12.70	1/2	10.4 l	1	25.40	7/8	22.22	22.86	21.84	28.70	38.86	28.44
MLBTF8-8N	5/8	15.87	1/2	12.70	1	25.40	1	25.40	24.38	21.84	28.70	38.86	28.44
MLBTF12-12N	3/4	19.05	3/4	15.74	1-1/4	31.75	1-1/8	28.57	24.38	21.84	34.51	44.70	31.75
MLBTF16- 12N	1	25.40	3/4	22.35	1-27/64	36.00	1-1/2	38.10	31.24	26.41	36.83	49.02	31.75
MLBTF16-16N	1	25.40	1	22.35	1-11/16	42.86	1-1/2	38.10	31.24	26.41	44.20	53.59	38.10

Master-LOK Tube Fitting System

Connector, Female | MLCF

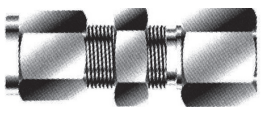


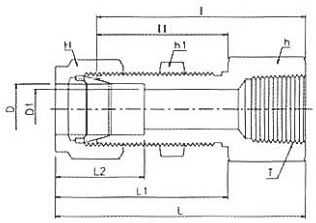


※ These figures are for reference purpose only.

Part No.	Tube O.D D		T(NPT)	D1 Min	Width across flat				L2	L1	I	L
					h		H					
	in	mm			in	mm	in	mm				
MLCF2-2N	1/8	.3.17	1/8	2.28	9/16	14.28	7/ 16	11.11	12.70	15.24	22.09	28.70
MLCF2-4N	1/8	3. 17	1/4	2.28	3/4	19.05	7/ 16	11.11	12.70	15.24	26.92	33.52
MLCF3-2N	3/16	4.76	1/8	3.04	9/16	14.28	I 2	12.70	13.71	16.00	23.11	29.71
MLCF4-2N	1/4	6.35	1/8	4.82	9/16	14.28	9/16	14.28	15.24	17.78	23.87	31.24
MLCF4-4N	1/4	6.35	1/4	4.82	3/4	19.05	9/16	14.28	15.24	17.78	28.44	35.81
MLCF4-6N	1/4	6.35	3/8	4.82	7/8	22.22	9/16	14.28	15.24	I7.78	30.22	37.59
MLCF4-8N	1/4	6.35	1/2	4.82	1- 1/16	26.98	9/16	14.28	15.24	17.78	35.05	42.41
MLCF5-2N	5/16	7.93	1/8	6.35	9/16	14.28	5/8	15.87	16.25	18.54	24.63	32.00
MLCF5-4N	5/16	7.93	1/4	6.35	3/4	19.05	5/8	15.87	16.25	18.54	29.46	36.83
MLCF6-2N	3/8	9.52	1/8	7. 11	5/8	15.87	11/16	17.46	16.76	19.30	25.40	32.76
MLCF6-4N	3/8	9.52	1/4	7.11	3/4	19.05	11/16	17.46	16.76	19.30	30.22	37.59
MLCF6-6N	3/8	9.52	3/8	7.11	7/8	22.22	11/16	17.46	16.76	19.30	31.75	39. 11
MLCF6-8N	3/8	9.52	1/2	7. 11	1- 1/ 16	26.98	11/16	17.46	16.76	19.30	36.57	4.3.94
MLCF6-12N	3/8	9.52	3/4	7. 11	1-5/ 16	33.33	11/16	17.46	16.76	19.30	40.38	47.75
MLCF8-4N	1/2	12.70	1/4	10.41	1-3/ 16	20.63	7/8	22.22	22.86	21.84	30.22	40.38
MLCF8-6N	1/2	12.70	3/8	10.41	7/8	22.22	7/8	22.22	22.86	21.84	31.75	41.91
MLCF8-8N	1/2	12.70	1/2	10.41	1-1/16	26.98	7/8	22.22	22.86	21.84	36.57	'16.-3
MLCF8-12N	1/2	12.70	3/4	10.41	1-5/16	33.33	7/8	22.22	22.86	21.84	38.10	48.26
MLCF10-6N	5/8	15.87	3/8	12.70	15/16	23.80	1	25.40	22.86	21.84	31.75	41.91
MLCF10-8N	5/8	15.87	1/2	12.70	1-1/16	26.98	1	25.40	24.38	21.84	36.57	46.73
MLCF12-8N	3/4	19.05	1/2	15.74	1- 1/16	26.98	1-1/8	28.57	24.38	21.84	36.57	46.73
MLCF12-12N	3/4	19.05	3/4	15.74	1-5/16	33.33	1-1/8	28.57	24.38	21.84	38.10	48.26
MLCF14-12N	7/8	22.22	3/4	18.28	1-5/16	33.33	1-1/4	31.75	25.90	21.84	39.62	49.78
MLCF16-12N	1	25.40	3/4	22.35	1-3/8	34.92	1-1/2	38.10	31.24	26.41	41.14	53.34
MLCF16-16N	1	25.40	1	22.35	1-5/8	41.27	1-1 2	38.10	31.24	26.41	50.03	62.23

Bulkhead Connector, Female | MLBCF

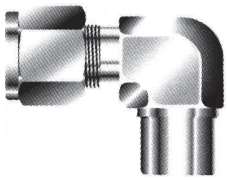


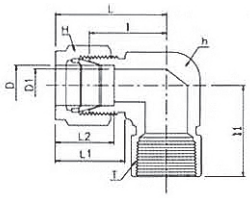


※ These figures are for reference purpose only.

Part No.	Tube O.D D		T(NPT)	D1 Min	Width across flat						L2	I	I1	L	L1	Panel Hole Drill Size	Panel Max Thick-ness
					h		h1		H1								
	in	mm			in	mm	in	mm	in	mm							
MLBCF2-2N	1/8	3.17	1/8	2.28	9/16	14.28	1/2	12.70	7/16	11.11	12.70	38.10	24.63	44.70	31.24	8.33	12.70
MLBCF4-2N	1/4	6.35	1/8	4.82	5/8	15.87	5/8	15.87	9/16	14.28	15.24	39.62	26.16	46.99	33.52	11.50	10.16
MLBCF4-4N	1/4	6.35	1/4	4.82	3/4	19.05	5/8	15.87	9/16	14.28	15.24	44.45	26.16	51.81	33.52	11.50	10.16
MLBCF6-4N	3/8	9.52	1/4	7.11	3/4	19.05	3/4	19.05	11/16	17.46	16.76	47.75	29.46	55.11	36.83	14.68	11.17
MLBCF8-4N	1/2	12.70	3/8	10.41	15/16	23.81	15/16	23.81	7/8	22.22	22.86	51.56	31.75	61.72	41.91	19.44	12.70
MLBCF8-8N	1/2	12.70	1/2	10.41	1-1/16	26.98	15/16	23.81	7/8	22.22	22.86	56.38	31.75	66.54	41.91	19.44	12.70
MLBCF12-12N	3/4	19.05	3/4	15.74	1-1/4	31.75	1-3/16	30.16	1-1/8	28.57	24.38	63.60	38.30	73.51	47.21	25.79	16.76

Elbow, Female | MLEF

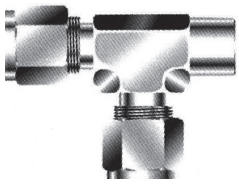


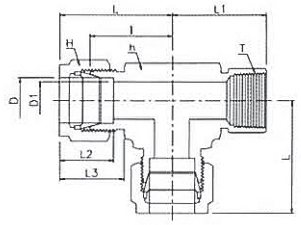


※ These figures are for reference purpose only.

Part No.	Tube O.D D		T(NPT)	D1 Min	Width across flat				L2	L1	I	L	L1
					h		H						
	in	mm			in	mm	in	mm					
MLEF2-2N	1/8	3.17	1/8	2.28	1/2	12.70	7/16	11 .11	12.70	15.24	18.03	24.63	19.05
MLEF2-4N	1/8	3.17	1/4	2.28	11/16	17.46	7/16	11.11	12.70	15.24	20.82	27.43	22.35
MLEF3-2N	3/16	4.76	1/8	3.04	1/2	12.70	1/2	12.70	13.71	16.00	18.79	25.40	19.05
MLEF4-2N	1/4	6.35	1/8	4.82	I / 2	12.70	9/16	14.28	15.24	17.78	19.55	26.92	19.05
MLEF4-4N	1/4	6.35	1/4	4.82	11/16	17.46	9/16	14.28	15.24	17.78	22.35	29.71	22.35
MLEF4-6N	1/4	6.35	3/8	4.82	13/16	20.63	9/16	14.28	15.24	17.78	24.38	31.75	22.35
MLEF4-8N	1/4	6.35	1/2	4.82	1	25.40	9/16	14.28	15.24	17.78	27.17	34.54	28.44
MLEF5-2N	5/16	7.93	1/8	6.35	9/16	14.28	5/8	15.87	16.25	18.54	21.33	28.70	19.05
MLEF5-4N	5/16	7.93	1/4	6.35	11/16	17.46	5/8	15.87	16.25	18.51	23.11	30.48	22.35
MLEF6-2N	3/8	9.52	1/8	7.11	5/8	15.87	11/16	17.46	16.76	19.30	23.11	30.48	19.05
MLEF6-4N	3/8	9.52	1/4	7.11	11/16	17.46	11/16	17.46	16.76	19.30	23.87	31.24	22.35
MLEF6-6N	3/8	9.52	3/8	7.11	13/16	20.63	11/16	17.46	16.76	19.30	25.90	33.27	22.35
MLEF6-8N	3/8	9.52	1/2	7.11	1	25.40	11/16	17.46	16.76	19.30	28.70	36.06	28.44
MLEF8-4N	1/2	12.70	1/4	10.41	13/16	20.63	7/8	22.22	22.86	21.84	25.90	36.06	22.35
MLEF8-6N	I 2	12.70	3/8	10.41	13/16	20.63	78	22.22	22.86	21.84	25.90	36.06	22.35
MLEF8-8N	1/2	12.70	1/2	10.41	1	25.40	7/8	22.22	22.86	21.84	28.70	38.86	28.44
MLEF10-6N	5/8	15.87	3/8	12.70	15/16	23.80	1	25.40	24.38	21.84	27.91	38.10	22.35
MLEF10-8N	5/8	15.87	1/2	12.70	1	25.40	1	25.40	24.38	21.84	29.71	39.87	28.44
MLEF12-8N	3/4	19.05	1/2	15.74	1-1/16	26.98	1-1/8	28.57	24 .38	21.84	29.71	39.87	28.44
MLEF12-12N	3/4	19.05	3/4	15.74	1-1/4	31.75	1-1/8	28.57	24.38	21.84	34.54	44.70	31.75
MLEF14-12N	7/8	22.22	3/4	18.28	1- 1/4	31.75	1-1/4	31.75	25 .90	21.84	31.54	44.70	31.75
MLEF16-12N	1	25.40	3/4	22.35	1-27/64	36.00	1-1/2	38.10	31.24	26.41	36.83	49.02	31.75
MLEF16-16N	1	25.40	1	22.35	1-1/16	42.86	1- 1/2	38.10	31.24	26.41	38.10	50.29	38.10

Run Tee, Female | MLRTF



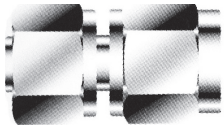


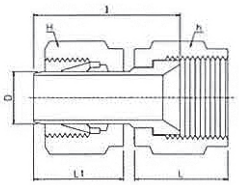
※ These figures are for reference purpose only.

Part No.	Tube O.D D		T(NPT)	D1 Min	Width across flat				L2	L3	I	L	L1
					h		H						
	in	mm			in	mm	in	mm					
MLRTF2-2N	1/8	3.17	1/8	2.28	1/2	12.70	7/16	11.11	12.70	15.24	18.03	24.38	19.05
MLRTF4-2N	1/8	6.35	1/8	4.82	1/2	12.70	9/16	14.28	15.24	17.78	19.55	26.92	19.05
MLRTF4-4N	1/4	6.35	1/4	4.82	11/16	17.46	9/16	14.28	15.24	17.78	22.86	29.71	22.35
MLRTF6-4N	3/8	9.52	1/4	7.11	11/16	17.46	11/16	17.46	16.76	19.30	23.87	31.24	22.35
MLRTF8-6N	1/2	12.70	3/8	10.41	13/16	20.63	7/8	22.22	22.86	21.84	25.90	26.06	22.35
MLRTF8-8N	1/2	12.70	1/2	10.4 I	1	25.40	7/8	22.22	22.86	21.84	29.71	39.87	28.44
MLRTF12-12N	3/4	19.05	3/4	15.74	1-1/4	31.75	1-1/8	28.57	24.38	21.84	34.54	44.70	31.75

Master-LOK Tube Fitting System

Adaptor, AN | MLAA

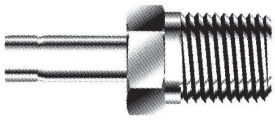


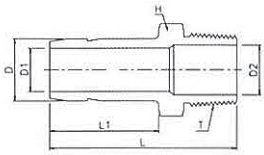


※ These figures are for reference purpose only.

Part No.	Tube O.D D		AN Tube Flare Size		Stright Thread T(U)	Width across flat				L	L1	I
						h		H				
	in	mm	in	mm		in	mm	in	mm			
MLAA2-2	1/8	3.17	1/8	3.17	5/16-24	3/8	9.52	7/16	11.11	13.71	13.'l6	18.54
MLAA2-4	1/8	3.17	1/4	6.35	7/16-20	9/16	14.28	7/16	11.11	15.74	13.46	19.05
MLAA4-4	1/4	6.35	1/4	6.35	7/16-20	9/16	14.28	9/16	14.28	15.74	15.74	21.33
MLAA6-6	3/8	9.52	3/8	9.52	9/16-18	11/16	17.46	11/16	17.46	18.28	17.52	24.89
MLAA8-8	1/2	12.70	1/2	12.70	3/4-16	7/8	22.22	7/8	22.22	21.59	23.11	31.75

Adaptor, Male | MLAM

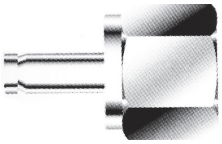


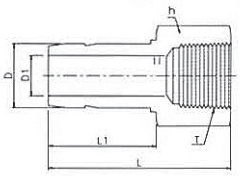


※ These figures are for reference purpose only.

Part No.	Tube O.D D		T(NPT)	D2 Min	D1	Width across flat		L1	L
						h			
	in	mm				in	mm		
MLAM2-2N	1/8	3.17	1/8	4.57	1.77	7/16	11.11	13.45	29.50
MLAM2-4N	1/8	3.17	1/4	7.11	1.77	9/16	14.28	13.45	34.80
MLAM3-2N	3/16	4.76	1/8	4.57	3.04	7/16	11.11	14.20	30.22
MLAM3-4N	3/16	4.76	1/4	7.11	3.04	9/16	14.28	14.20	35.56
MLAM4-2N	1/4	6.35	1/8	4.57	4.57	7/16	11.11	15.75	31.80
MLAM4-4N	1/4	6.35	1/4	7.11	4.57	9/ 16	14.28	15.75	37.08
MLAM4-6N	1/4	6.35	3/8	10.41	4.57	11/16	17.46	15.75	37.84
MLAM4-8N	1/4	6.35	1/2	12.70	4.57	7/8	22.22	15.75	43.43
MLAM5-2N	5/16	7.93	1/8	4.57	6.35	7/16	11.11	16.80	32.76
MLAM5-4N	5/16	7.93	1/4	7.11	6.35	9/16	14.28	16.80	38.10
MLAM6-2N	3/8	9.52	1/8	4.57	7.11	7/16	11.11	17.50	33.50
MLAM6-4N	3/8	9.52	1/4	7.11	7.11	9/16	14.28	17.50	38.90
MLAM6-6N	3/8	9.52	3/8	10.41	7.11	11/ 16	17.46	17.50	39.60
MLAM6-8N	3/8	9.52	1/2	12.70	7.11	7/8	22.22	17.50	45.20
MLAM8-4N	1/2	12.70	1/4	7.11	9.90	9/16	14.28	23.20	44 .50
MLAM8-6N	1/2	12.70	3/8	10.41	9.90	11/16	17.46	23.20	45.20
MLAM8-8N	1/2	12.70	1/2	12.70	9.90	7/8	22.22	23.20	50.50
MLAM10-6N	5/8	15.87	3/8	10.41	12.70	11/16	17.46	24.70	47.40
MLAM10-8N	5/8	15.87	1/2	12.70	12.70	7/8	22.22	24.70	52.30
MLAM10-12N	5/8	15.87	3/4	18.28	12.70	1-1/16	26.98	24.70	52.30
MLAM12-8N	3/4	19.05	1/2	12.70	14.98	7/8	22.22	24.70	52.30
MLAM12-12N	3/4	19.05	3/4	18.28	14.98	1-1/16	26.98	24.70	52.30
MLAM12-16N	3/4	19.05	1	22.35	14.98	1-3/8	34 .92	24.70	57.91
MLAM14-12N	7/8	22.22	3/4	18.28	17.27	1-1/16	26.98	26.70	54.30
MLAM16-12N	1	25.40	3/4	18.28	20.06	1-1/16	26.98	31.70	58.70
MLAM16-16N	1	25.40	1	22.35	20.06	1-3/8	34.92	31.70	66.00

Adaptor, Female | MLAF

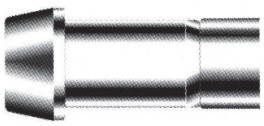


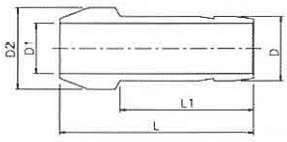


※ These figures are for reference purpose only.

Part No.	Tube O.D D		T(NPT)	D1 Min	Width across flat h		L1	L
	in	mm			in	mm		
MLAF2-2N	1/8	3.17	1/8	1.77	9/16	14.28	13.45	31.50
MLAF2-4N	1/8	3.17	1/4	1.77	3/4	19.05	13.45	35.30
MLAF3-2N	3/16	4.76	1/8	3.04	9/16	14.28	14.20	32.00
MLAF3-4N	3/16	4.76	1/4	3.04	3/4	19.05	14.20	35.81
MLAF4-2N	1/4	6.35	1/8	4.57	9/16	14.28	15.75	33.02
MLAF4-4N	1/4	6.35	1/4	4.57	3/4	19.05	15.75	37.10
MLAF4-6N	1/4	6.35	3/8	4.57	7/8	22.22	15.75	39.37
MLAF4-8N	1/4	6.35	1/2	4.57	1-1/16	26.98	15.75	45.50
MLAF5-2N	5/16	7.93	1/8	6.35	9/16	14.28	16.80	34.29
MLAF5-4N	5/16	7.93	1/4	6.35	3/4	19.05	16.80	37.59
MLAF6-2N	3/8	9.52	1/8	7.11	9/16	14.28	17.50	34.29
MLAF6-4N	3/8	9.52	1/4	7.11	3/4	19.05	17.50	38.10
MLAF6-6N	3/8	9.52	3/8	7.11	7/8	22.22	17.50	40.38
MLAF6-8N	3/8	9.52	1/2	7.11	1-1/16	26.98	17.50	46.73
MLAF8-4N	1/2	12.70	1/4	9.90	3/4	19.05	23.20	43.43
MLAF8-6N	1/2	12.70	3/8	9.90	7/8	22.22	23.20	45.46
MLAF8-8N	1/2	12.70	1/2	9.90	1-1/16	26.98	23.20	51.80
MLAF10-6N	5/8	15.87	3/8	12.70	7/8	22.22	24.70	48.26
MLAF10-8N	5/8	15.87	1/2	12.70	1-1/16	26.98	24.70	53.84
MLAF10-12N	5/8	15.87	3/4	12.70	1-1/4	31.75	24.70	55.37
MLAF12-8N	3/4	19.05	1/2	14.98	1-1/16	26.98	24.70	52.83
MLAF12-12N	3/4	19.05	3/4	14.98	1-1/4	31.75	24.70	54.86
MLAF12-16N	3/4	19.05	1	14.98	1-5/8	4 1.27	24.70	58.42
MLAF14-12N	7/8	22.22	3/4	17.27	1-1/4	31.75	26.70	57.15
MLAF16-12N	1	25.40	3/4	20.06	1-1/4	31.75	31.70	60.70
MLAF16-16N	1	25.40	1	20.06	1-5/8	41.27	31.70	64.26

Port Connector | MLPC



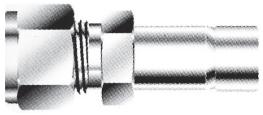


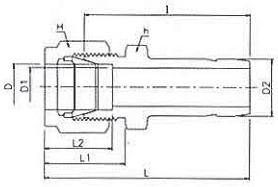
※ These figures are for reference purpose only.

Part No.	Tube O.D D		D1 Min	D2	L	L1
	in	mm				
MLPC-2	1/8	3.17	1.77	6.09	15.75	22.35
MLPC-4	1/4	6.35	4.57	9.39	18.79	24.63
MLPC-5	5/16	7.93	6.35	10.92	20.06	25.90
MLPC-6	3/8	9.52	7.11	12.70	20.32	26.16
MLPC-8	1/2	12.70	9.90	15.74	25.90	35.81
MLPC-12	3/4	19.05	14.98	22.09	27.68	37.33
MLPC-16	1	25.40	20.06	28.44	34.54	48.26

Master-LOK Tube Fitting System

Reducer | MLR

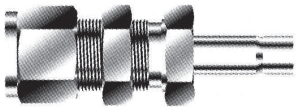


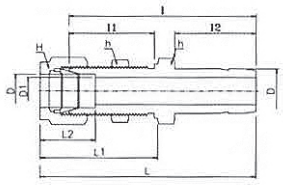


※ These figures are for reference purpose only.

Part No.	Tube O.D				D1 Min	Width across flat				L2	L1	I	L
	D		D2			h		H					
	in	mm	in	mm		in	mm	in	mm				
MLR2-2	1/8	3.17	1/8	3.17	2.03	7/16	11.11	7/16	11.11	12.70	15.24	26.92	33.52
MLR2-3	1/8	3.17	3/16	4.76	2.28	7/16	11.11	7/16	11.11	12.70	15.24	27.68	34.29
MLR2-4	1/8	3.17	1/4	6.35	2.28	7/16	11.11	7/16	11.11	12.70	15.24	29.46	36.06
MLR2-6	1/8	3.17	3/8	9.52	2.28	7/16	11.11	7/16	11.11	12.70	15.24	30.98	37.59
MLR2-8	1/8	3.17	1/2	12.70	2.28	9/16	14.28	7/16	11.11	12.70	15.24	37.59	44.19
MLR3-2	3/16	4.76	1/8	3.17	2.03	7/16	11.11	1/2	12.70	13.71	16.00	28.19	34.79
MLR3-4	3/16	1.76	1/4	6.35	3.01	7/16	11.11	1/2	12.70	13.71	16.00	30.48	37.08
MLR4-2	1/4	6.35	1/8	3.17	2.03	1/2	12.70	9/16	14.28	15.24	17.78	29.46	36.83
MLR4-3	1/4	6.35	3/16	4.76	3.04	1/2	12.70	9/16	14.28	15.24	17.78	30.22	37.59
MLR4-4	1/4	6.35	1/4	6.35	4.82	1/2	12.70	9/16	14.28	15.24	17.78	31.75	39.11
MLR4-5	1/4	6.35	5/16	7.93	4.82	1/2	12.70	9/16	14.28	15.24	17.78	32.51	36.87
MLR4-6	1/4	6.35	3/8	9.52	4.82	1/2	12.70	9/16	14.28	15.24	17.78	33.27	40.64
MLR4-8	1/4	6.35	1/2	12.70	4.82	9/16	14.28	9/16	14.28	15.24	17.78	38.86	46.22
MLR4-10	1/4	6.35	5/8	15.87	4.82	11/16	17.46	9/16	14.28	15.24	17.78	40.64	48.00
MLR4-12	1/4	6.35	3/4	19.05	4.82	13/16	20.63	9/16	14.28	15.24	17.78	40.38	47.75
MLR5-6	5/16	7.93	3/8	9.52	6.35	9/16	14.28	5/8	15.87	16.25	18.54	34.54	41.91
MLR-8	S/16	7.93	1/2	12.70	6.35	9/16	14.28	5/8	15.87	16.25	18.54	40.13	47.79
MLR 6-4	3/8	9.52	1/4	6.35	4.82	5/8	15.87	11/16	17.46	16.76	19.30	34.03	41.40
MLR 6-6	38	9.52	3/8	9.52	7.11	5/8	15.87	11/16	17.46	16.76	19.30	35.81	43.18
MLR 6-8	3/8	9.52	1/2	12.70	7.11	5/8	15.87	11/16	17.46	16.76	19.30	41.16	48.51
MLR 6-10	3/8	9.52	5/88	15.87	7.11	11/16	17.16	11/16	17.46	16.76	19.30	42.92	50.29
MLR 6-12	3/8	9.52	3/4	19.05	7.11	13/16	20.63	11/16	17.46	16.76	19.30	42.92	50.29
MLR 8-4	1/2	12.70	1/4	6.35	4.82	13/16	20.63	7/8	22.22	22.86	21.84	34.79	44.95
MLR 8-6	1/2	12.70	3/8	9.52	7.11	13/16	20.63	7/8	22.22	22.86	21.84	36.57	46.73
MLR 8-8	1/2	12.70	1/2	12.70	9.90	13/16	20.63	7/8	22.22	22.86	21.84	42.16	52.32
MLR 8-10	1/2	12.70	5/8	15.87	10.41	13/16	20.63	7/8	22.22	22.86	21.84	43.68	53.84
MLR 8-12	1/2	12.70	3/4	19.05	10.41	13/16	20.63	7/8	22.22	22.86	21.84	43.68	53.84
MLR 8-16	1/2	12.70	1	25.40	10.41	1-1/16	26.98	7/8	22.22	22.86	21.84	50.03	60.19
MLR 10-12	5/8	15.87	3/4	19.05	12.70	15/16	23.81	1	25.40	24.38	21.84	44.45	54.16
MLR 10-14	5/8	15.87	7/8	22.22	12.70	15/16	23.81	1	25.40	24.38	21.84	45.97	56.13
MLR 10-16	5/8	15.87	1	25.40	12.70	1-1/ 16	26.98	1	25.40	24.38	21.84	50.80	60.96
MLR 12-8	3/4	19.05	1/2	12.70	9.90	1- 1/16	26.98	1-1/8	28.57	24.38	21.84	44.45	54.61
MLR 12-16	3/4	19.05	1	25.40	15.74	1- 1/16	26.98	1-1/8	28.57	24.38	21.84	52.32	62.48

Bulkhead Adaptor | MLBA

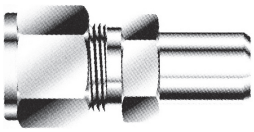


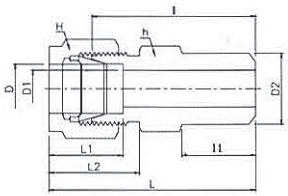


※ These figures are for reference purpose only.

Part No.	Tube O.D D		D1 Min	Width across flat				L2	I	I1	I2	L	L1	Panel Hole Drill Size	Panel Max Thick-ness
				h		H1									
	in	mm		in	mm	in	mm								
MLBA2-2	1/8	3.17	2.03	1/2	12.70	7/16	11.11	12.70	42.92	24.63	13.46	31.24	31.24	8.33	12.70
MLBA4-4	1/4	6.35	4.82	5/8	15.87	9/16	14.28	15.24	48.51	26.16	15.74	33.52	33.52	11.50	10.16
MLBA6-6	3/8	9.52	7.11	3/4	19.05	11/16	17.46	16.76	53.84	29.46	17.52	36.83	36.83	14.68	11.17
MLBA8-8	1/2	12.70	10.41	15/16	23.81	7/8	22.22	22.86	62.73	31.75	23.11	41.91	41.71	19.44	12.70

Connector Buttweld | MLCB



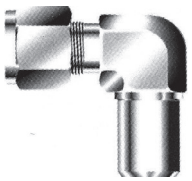


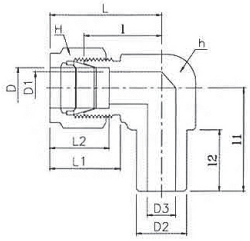
※ These figures are for reference purpose only.

Part No.	Tube O.D		Male Pipe Size		D1 Min	Width across flat				L1	L2	I	I1	L
	D		D2			h		H						
	in	mm	in	mm		in	mm	in	mm					
MLCB2-2P	1/8	3.17	1/8	10.30	2.28	7/ 16	11.11	7/16	11.11	12.70	15.24	23.87	9.65	31.24
MLCB3-2P	3/16	4.76	1/8	10.30	3.04	7/ 16	11.11	1/2	12.70	13.71	16.00	24.63	9.65	31.24
MLCB4-2P	1/4	6.35	1/8	10.30	4.82	1/2	12.70	9/16	14.28	15.24	17.78	25.40	9.65	32.76
MLCB4-4P	1/4	6.35	1/4	13.70	4.82	9/16	14.28	9/16	14.28	15.24	17.78	30.48	14.22	37.84
MLCB5-2P	5/16	7.93	1/8	10.30	5.08	9/16	14.28	5/8	15.87	16.25	18.54	26.67	9.65	34.03
MLCB5-4P	5/16	7.93	1/4	13.70	6.35	9/16	14.28	5/8	15.87	16.25	18.54	31.24	14.22	38.60
MLCB6-4P	3/8	9.52	1/4	13.70	7.11	4/7	15.87	11/16	17.46	16.76	19.30	32.51	14.22	39.87
MLCB6-6P	3/8	9.52	3/8	17.10	7.11	11/ 16	17.46	11/16	17.46	16.76	19.30	32.51	14.22	39.87
MLCB6-8P	3/8	9.52	1/2	21.30	7.11	7/8	22.22	11/16	17.46	16.76	19.30	38.86	11.05	43.23
MLCB8-6P	1/2	12.70	3/8	17.10	10.41	13/ 16	20.63	7/8	22.22	22.86	21.84	33.27	14.22	43.43
MLCB8-8P	1/2	12.70	1/2	21.30	10.41	7/8	22.22	7/8	22.22	22.86	21.84	38.86	19.05	49.02
MLCB8-12P	1/2	12.70	3/4	26.67	10.41	1-1/ 16	26.98	7/8	22.22	22.86	21.84	40.38	19.05	50.54
MLCB10-8P	5/8	15.87	1/2	21.30	12.70	15/16	23.81	1	25.40	24.38	21.84	38.86	19.05	49.02
MLCB12-12P	3/4	19.05	3/4	26.67	15.74	1-1/16	26.98	1-1/8	28.57	24.38	21.84	40.38	19.05	50.54
MLCB16-16P	1	25.40	1	33.40	22.35	1-3/8	34 .92	1-1/2	38.10	31.24	26.41	50.03	23.87	62.23

Master-LOK Tube Fitting System

Elbow, Buttweld | MLEB

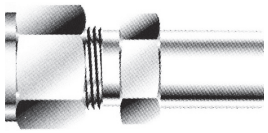


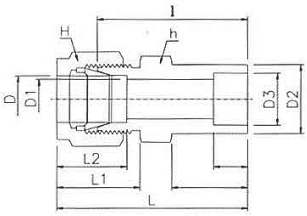


※ These figures are for reference purpose only.

Part No.	Tube O.D		Male Pipe Size		D1 Min	Width across flat				L2	L1	l	l2	L	l1
	D		D2			h		H							
	in	mm	in	mm		in	mm	in	mm						
MLEB2-21P	1/8	3.17	1/8	10.30	4.82	1/2	12.70	9/16	14.28	15.24	17.78	19.'55	9.65	26.92	18.79
MLEB4-4P	1/4	6.35	1/4	13.70	4.82	1/2	12.70	9/16	14.28	15.24	17.78	19.55	14.22	26.92	23.36
MLEB6-4P	3/8	9.52	1/4	I ,DO	7.11	5/8	15.87	11/16	17.46	16.76	19.30	23.11	14.22	30.48	25.40
MLEB8-8P	1/2	12.70	1/2	21.30	10.41	13/16	20.63	7/8	22.22	22.86	21.84	25.90	19.05	36.06	33.02
MLEB12-12P	3/4	19.05	3/4	26.67	15.74	1-1/16	36.98	1-1/8	25.87	24.38	21.84	29.71	19.05	39.87	36.83

Connector, Socketweld | MLCW

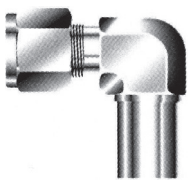


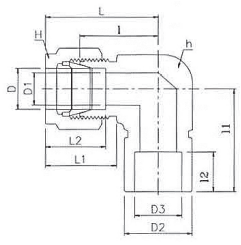


※ These figures are for reference purpose only.

Part No.	Tube O.D		D1 Min	D2	Width across flat				L2	L1	l	l1	l2	L
	D				h		H							
	in	mm			in	mm	in	mm						
MLCW2-2	1/8	3.17	2.28	7.87	7/16	11.11	7/16	11.11	12.70	15.24	22.35	8.63	6.35	28.95
MLCW4-4	1/4	6.35	4.82	11.17	1/2	12.70	9/16	14.28	15.24	17.78	26.16	10.41	7.87	33.52
MLCW6-6	3/8	9.52	7.11	15.74	5/8	15.87	11/16	17.46	16.76	19.30	30.22	11.93	9.65	37.559
MLCW8-8	1/2	12.70	10.41	19.05	13/16	20.63	7/8	22.22	22.86	21.84	30.98	11.93	12.70	41.14
MLCW12-12	3/4	19.05	15.74	26.67	1- 1/16	26.98	1-1/8	28.57	24.38	21.84	33.27	11.93	14.22	43.43
MLCW16-16	1	25.40	22.35	33.27	1- 3/8	34.92	1-1/2	38.10	31.24	26.41	40.38	14.22	19.05	52.57

Elbow, Socketweld | MLEW

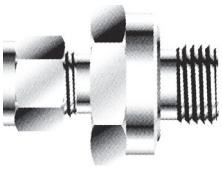


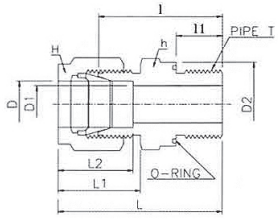


※ These figures are for reference purpose only.

Part No.	Tube O.D		D1 Min	D2	Width across flat				L2	L1	l	l2	L	l1
	D				h		H							
	in	mm			in	mm	in	mm						
MLEW4-4	1/4	6.35	4.82	12.70	1/2	12.70	9/16	14.28	15.24	17.78	19.55	7.87	26.92	19.55
MLEW6-6	3/8	9.52	7.11	15.74	5/8	15.87	11/16	17.46	16.76	19.30	23.11	9.65	30.48	23.11
MLEW8-8	1/2	12.70	10.41	20.57	13/16	20.63	7/8	22.22	22.86	21.84	25.90	12.70	36.06	25.90

Connector, '0' Seal Pipe Thread, Male | MLCOM

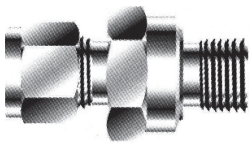


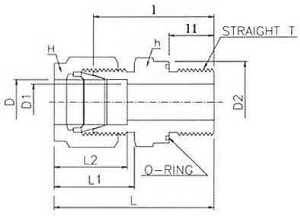


※ These figures are for reference purpose only.

Part No.	Tube O.D D		PIPE T	D1	h	H	L	L1	L2	I	I1	D2	O-RING
	in	mm											
MLCOM2-2N	1/8	3.17	1/8	2.28	3/4	7/16	32.76	15.24	12.70	26.16	7.11	18.8	-013
MLCOM4-2N	1/4	6.35	1/4	4.82	3/4	9/16	35.05	17.78	15.24	27.68	7.11	18.8	-013
MLCOM4-4N	1/4	6.35	1/4	4.82	15/16	9/16	38.35	17.78	15.24	30.98	9.65	23.62	-113
MLCOM6-4N	3/8	9.52	3/8	7.11	15/16	11/16	39.87	19.30	16.76	32.51	9.65	23.62	-113
MLCOM6-6N	3/8	9.52	3/8	7.11	1-1/8	11/16	41.40	19.30	16.76	34.03	10.41	28.45	-116
MLCOM6-8N	3/8	9.52	3/8	7.11	1-5/16	11/16	46.99	19.30	16.76	39.62	13.46	33.02	-118
MLCOM8-8N	1/2	12.70	1/2	10.41	1-5/16	7/8	49.78	21.84	22.86	39.62	13.46	33.02	-118

Connector, '0' Seal Straight Thread, Male | MLCOS



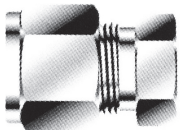


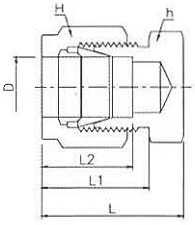
※ These figures are for reference purpose only.

Part No.	Tube O.D D		STRAIGHT T	D1	h	H	L	L1	L2	I	I1	D2	O-RING
	in	mm											
MLCOS2-2U	1/8	3.17	5/16-20	2.28	9/16	7/16	32.76	15.24	12.70	26.16	8.63	13.97	-011
MLCOS3-3U	3/16	4.76	3/8-24	3.04	5/8	1/2	34.29	16.00	13.71	27.68	9.65	15.75	-012
MLCOS4-4U	1/4	6.35	7/16-20	4.82	3/4	9/16	38.35	17.78	15.24	30.98	10.41	18.80	-113
MLCOS5-5U	5/16	7.93	1/2-20	6.35	7/8	5/8	40.64	18.54	16.25	33.27	11.17	21.85	-112
MLCOS6-6U	3/8	9.52	9/16-18	7.11	15/16	11/16	42.41	19.30	16.76	35.05	11.93	23.62	-113
MLCOS8-8U	1/2	12.7	3/4-16	10.41	1-1/8	7/8	45.97	21.84	22.86	35.81	11.93	28.45	-116
MLCOS12-12U	3/4	19.05	1-1/16-12	15.74	1-1/2	1-1/8	52.32	21.84	24.38	42.16	14.22	37.85	-121
MLCOS16-16U	1	25.40	1-5/16-12	22.25	1-3/4	1-1/2	58.16	26.41	31.24	45.97	14.22	44.20	-125

Master-LOK Tube Fitting System

Cap | MLC

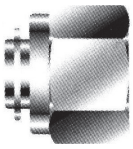


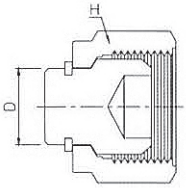


※ These figures are for reference purpose only.

Part No.	Tube O.D		Width across flat				L2	L1	I	L
	D		h		H					
	in	mm	in	mm	in	mm				
MLC-2	1/8	3.17	7/16	11.11	7/16	11.11	12.70	15.24	13.46	20.06
MLC-3	3/16	4.76	7/16	11.11	1/2	12.70	13.70	16.00	14.73	21.33
MLC-4	1/4	6.35	1/2	12.70	9/16	14.28	15.24	17.78	16.00	23.26
MLC-5	5/16	7.93	9/16	14.28	5/8	15.87	16.25	18.54	17.01	24.38
MLC-6	3/8	9.52	5/8	15.87	11/16	17.46	16.76	19.30	18.28	25.65
MLC-8	1/2	12.70	13/16	20.63	7/8	22.22	22.86	21.84	19.05	29.21
MLC-10	5/8	15.87	15/16	23.81	1	25.40	24.38	21.84	19.81	29.97
MLC-12	3/4	19.05	1-1/16	26.98	1-1/8	28.57	24.38	21.84	21.33	31.49
MLC-14	7/8	22.22	1-3/16	30.16	1-1/4	31.75	25.90	21.84	23.87	34.03
MLC-16	1	25.40	1-3/8	34.92	1-1/2	38.10	31.24	26.41	26.16	38.35

Plug | MLP

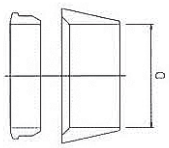




※ These figures are for reference purpose only.

Part No.	Tube O.D D		Width across flat h	
	in	mm	in	mm
MLP-2	1/8	3.17	7/16	11.11
MLP-3	3/16	4.76	1/2	12.70
MLP-4	1/4	6.35	9/16	14.28
MLP-5	5/16	7.93	5/8	15.87
MLP-6	3/8	9.52	11/16	17.46
MLP-8	1/2	12.70	7/8	22.22
MLP-10	5/8	15.87	1	25.40
MLP-12	3/4	19.05	1-1/8	28.57
MLP-14	7/8	22.22	1-1/4	31.75
MLP-16	1	25.40	1-1/2	38.10

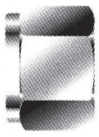
Ferrule, Set | MLFS

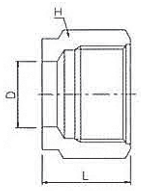


※ These figures are for reference purpose only.

Part No.	Tube O.D D	
	in	mm
MLFS-2	1/8	3.17
MLFS-3	3/16	4.76
MLFS-4	1/4	6.35
MLFS-5	5/16	7.93
MLFS-6	3/8	9.52
MLFS-8	1/2	12.70
MLFS-10	5/8	15.87
MLFS-12	3/4	19.05
MLFS-14	7/8	22.22
MLFS-16	1	25.40

Nut | MLN



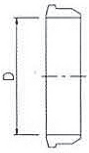


※ These figures are for reference purpose only.

Part No.	Tube O.D D		Width across flat h		L
	in	mm	in	mm	
MLN-2	1/8	3.17	7/16	11.11	11.93
MLN-3	3/16	4.76	1/2	12.70	11.93
MLN-4	1/4	6.35	9/16	14.28	12.70
MLN-5	5/16	7.93	5/8	15.87	13.46
MLN-6	3/8	9.52	11/16	17.46	14.22
MLN-8	1/2	12.70	7/8	22.22	17.52
MLN-10	5/8	15.87	1	25.40	17.52
MLN-12	3/4	19.05	1-1/8	28.57	17.52
MLN-14	7/8	22.22	1-1/4	31.75	17.52
MLN -16	1	25.40	1-1/2	38.10	20.57

Master-LOK Tube Fitting System

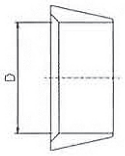
Ferrule, Back | MLFB



※ These figures are for reference purpose only.

Part No.	Tube O.D D	
	in	mm
MLFB-2	1/8	3.17
MLFB-3	3/16	4.76
MLFB-4	1/4	6.35
MLFB-5	5/16	7.93
MLFB-6	3/8	9.52
MLFB-8	1/2	12.70
MLFB-10	5/8	15.87
MLFB-12	3/4	19.05
MLFB-14	7/8	22.22
MLFB-16	1	25.40

Ferrule, Front | MLFF



※ These figures are for reference purpose only.

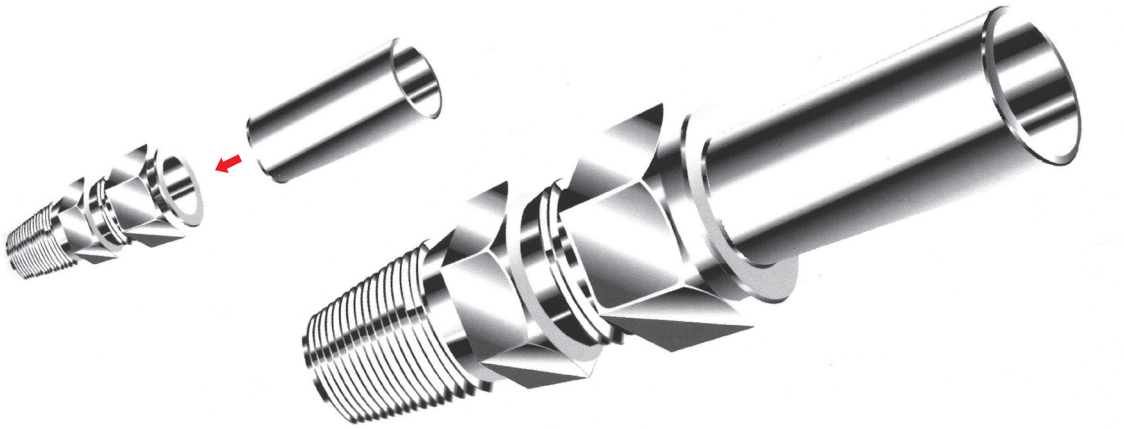
Part No.	Tube O.D D	
	in	mm
MLFF-2	1/8	3.17
MLFF-3	3/16	4.76
MLFF-4	1/4	6.35
MLFF-5	5/16	7.93
MLFF-6	3/8	9.52
MLFF-8	1/2	12.70
MLFF-10	5/8	15.87
MLFF-12	3/4	19.05
MLFF-14	7/8	22.22
MLFF-16	1	25.40

INSTALLATION

Assembly Instructions

Master-LOK tube fittings can be insta lled by using readily available wrenches.

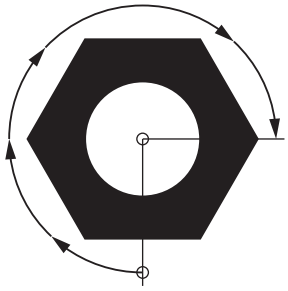
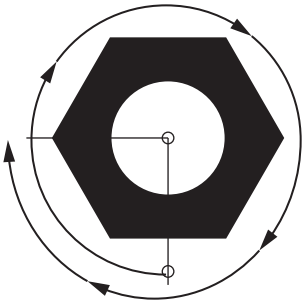
1. Insert the tubing into the Master-LOK fitting until the tubing sits on the shoulder of the body. Make sure the nut is finger-tight.
2. From the finger-tight position, rotate the nut 3/4 for sizes between 1/ 16-inch and 3-16-inch; and 1-1/ 14 turn for the sizes be tween 1/ 4-inch and 1-inch



REASSEMBLY INSTRUCTIONS

Master-LOK tube fittings can he assembled and disassembled repeatedly. The following instructions should be carried out to reassemble a fitting.

1. Insert the tubing with the previously set ferrules into the Master-LOK fitting until the tubing sits on the shoulder of the body. Make sure the nut is finger-tight.
2. Using a wrench, form the finger-tight position, rotate the nut 3/4 for sizes between 1/16-inch and 3/16-inch; and 1-1/4 turn for the size between 1/4-inch and 1-inch until snug, Then tighten a little more.

Size 1 thru (1/16" thru 3/16")	Size 4 thru 16 (1/4" thru 1")
	
Only 3/4 turn from finger-tight position	1-1/4 turn from finger- tight position

• MEMO •

Master-LOK

Tube Fittings for Metric

TUBE FITTINGS & VALVES
Master LOK

Master-LOK Tube Fitting System

INSPECTION AND TESTING

At Master-LOK, we supply throughly inspected and tested high quality products to meet the needs of our clients. All tests are performed in accoordance to the specifications provided by our clients as well as the American Society for Testing and Materials (ASTM)

LINITED LIFETIME WARRANTY

Master-LOK warrants to the purchaser that Master-LOK tube fittings are free from defects in material and workmanship and will perform substantially in accordance with the product specifications. This warranty is extended to individual components as well as complete assembblies; provided they are in compliance with product installation and operation instructions. Defects resulting from operator in compliance with product installation and operation insturctions. Defects resulting from operator abuse, negligence, misapplication; failure to install, adjust, and operate according to manufacturer instructions will not be covered.
If the products should become defective during the warranty period, Master-LOK will replace it free of charge, provided the defective component is returned along with date of purchase and statement of defect. Master-LOK liability is limited to this written warranty. No other warranty is expressed or implied, nor does this warranty cover so-called incidental or consequential damages.

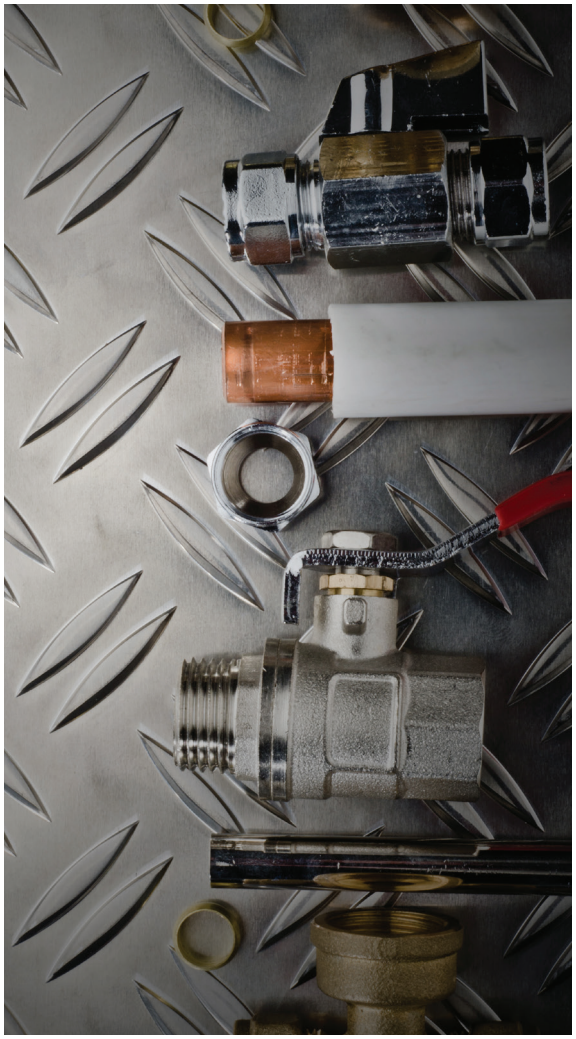


TABLE 1.

Maximum Allowable Working Pressure AT Various Temperatures.
Using Allowable Stess Factors Table 1.

℉	℃	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
1,000	538	-	0.69	0.76	-
1,200	649	-	0.30	0.37	-

To determine maximum allowable working pressure at elevated temperatures, multiply working pressure form tables 2,3 and 4 by factor shown in table 1.

EXAMPLE :
Type 316SS 3/8" O.D. x 0.035"
wall at 1,200 ℉ 3,300 psi x 0.37 = 1,221 psi

Allowable working pressure for
3/8" O.D. x 0.035" wall type 316ss tubing
is therefore 1,221psi at 1,200 ℉

TABLE 2. COPPER TUBING

High quality soft annealed seamless copper tunign ASTM B-75 or equibalent.

Tube O.D (Millimeters)	Tube Wall Thickness (Millimeters)							
	0.028	0.035	0.049	0.065	0.083	0.095	0.109	0.120
3	2,700	3,600						
4	1,800	2,300	3,400					
6	1,300	1,600	2,500	3,500				
8		1,300	1,900	2,700				
10		1,000	1,600	2,200				
12		800	1,100	1,600	2,100			
14			900	1,200	1,600	1,900		
16			700	1,000	1,300	1,500	1,800	
18			600	800	1,100	1,300	1,500	
22			500	700	900	1,100	1,300	1,500

※ working pressure (psi)

Allowable Stess = 6,500 psi between -20 ℉ and 100 ℉

Safety Factor = 5 (considering tensile strength to be 30,000 psi at room temperature)

TABLE 3. STAINLESS STEEL TUBING

Fully annealed high quality (Type 340, 316, etc.) (seamless or welded)

Stainless steel hydraulic tubing ASTM A-269 or A-213 or equivalent.

Hardness = Rb80 or less

Tubing free of scratches, suitable for bending and flaring

Tube O.D (Millimeters)	Tube Wall Thickness (inches)												
	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
3	5,600	6,800	8,100	9,400	12,000								
4						8,500	10,900			For Seamless Tubing			
6						8,400	7,000	10,200					
8						4,000	5,100	7,500	10,200				
10							4,000	5,800	8,000				
12							3,300	4,800	6,500				
16							2,400	3,500	4,700	6,200			
18								2,900	4,000	5,200	6,000		
20								2,400	3,300	4,200	4,900	5,800	
22								2,000	2,800	3,600	4,200	4,800	
25									2,400	3,100	3,600	4,200	4,700

※ working pressure (psi)

Allowable Stess = 19,500 psi between -20 ℉ and 100 ℉

Safety Factor = 4 (considering tensile strength to be 75,000 psi at room temperature)

Master-LOK Tube Fitting System

FEATURES

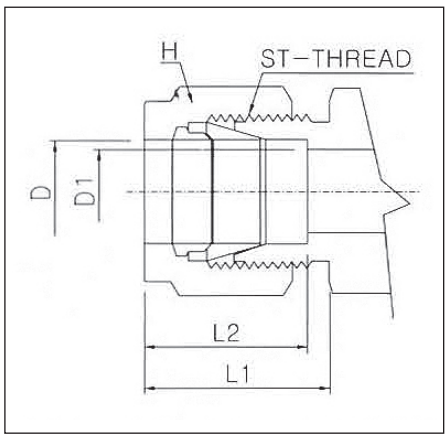
Master-LOK tube fittings have been specifically designed for use on instrumentation, process and control systems, equipment employed in chemical, petroleum, nuclear power generation,and plup and paper plants. The Master-LOK tube fittings has also found extensive application in other fields where a very high quality tube fitting is required.

CONSTRUCTION AND MATERIALS

Master-LOK tube fittings are sequential phase-controlled action, sealing and gripping devices. superior design, rigid manufacturing tolerances, and strict quality assurance programs produce an all-metal sealing, and holding device which performs leak-free when properly installed.

Master-LOK tube fittings consist of a body, a nut, and ferules and are constructed of one of the following materials, brass, 316/304 stainless steel, steel, nickel alloy, monel, or inconel. Straight fittings are machined from cold finished bar stock and shaped bodies are machined from close grain forgings.

The materials used, fully conform to the chemical requirements of one or more of the specifications listed in table 5 on this page. Nut internals are supplied standard with silver plating. For nuclear and other critical applications, stainless steel Master-LOK tube fittings are readily available with documented heat code traceability.



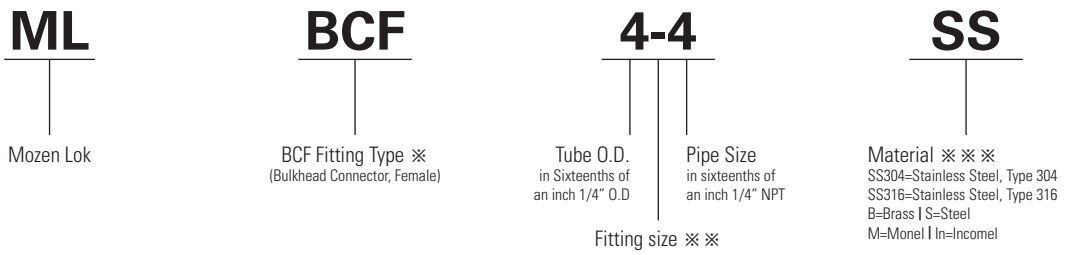
Size	Tube O.D	staright Theread	L1	L2	D1	HEX
M3	3	5/16-20UN	15.3	12.9	2.4	12
M4	4	3/8-20UN	16.1	13.7	2.4	12
M6	6	7/16-20UN	17.7	15.3	4.8	14
M8	8	1/2 20UN	18.6	16.2	6.4	16
MIO	10	5/8-20UN	19.5	17.2	7.9	19
M12	12	3/4 20UN	22.0	22.8	9.5	22
MIS	15	7/8-20UN	22.0	24.4	11.9	25
M16	16	7/8 20UN	22.0	24.4	12.7	25
M18	18	1-20UN	22.0	24.4	15.1	30
M20	20	1-1/8-20UN	22.0	26.0	15.9	32
M22	22	I-1/8-20UN	22.0	26.0	18.3	32
M25	25	1-5/16-20UN	26.5	31.3	21.8	38

Typical Raw Material Specifications — Table5

Type of Material	Bar Stock	Forging	Tyve SPecification
Brass	ASTM B16	ASTM B124	ASTM B75
	ASTM B453	• ALLOY 377	ASME SB75
	• ALLOY 360		
	• ALLOY 345		
	JIS H3250 C3604	JIS H3250 C3771	JIS H3300
Stainless Steel	ASTM A479	ASTM A182	ASTM A213
	ASME SA479, ASTM A276	ASME SA182	ASME SA213
	• ALLOY S30400(304)	• F304	ASTM A249
	• ALLOY S30403(304L)	• F304L	ASTM A269
	• ALLOY S31600(316)	• F316	NUK T 8504
	• ALLOY S31603(316L)	• F316L	MIL T8506
	JIS G4303	JIS G3214	JIS G3459
	• SUS 304	• SUS 304	
	• SUS 304L	• SUS 304L	
	• SUS 316	• SUS 316	
	• SUS 316L	• SUS 316L	
Steel	ASTM A108	ASTM A576	SAE J524B
			SAE J525B
			ASTM A179
	JIS G4051	JIS G3201	JIS G3452
Nickel Alloy	ASTM B164	ASTM B164	ASTM B165
Monel	ASTM B166	ASTM B564	ASTM B163
Inconel	ASTM SB166		

HOW TO ORDER

NOMENCLATURE



※See Table 7. for fitting type designators.	※※See Table 6. for fitting type designators.	※※※See Table 5. for fitting type designators.

Master-LOK tube fittings listed in this catalog are ordered by part number. The Master-LOK part numbering system consists of indentifiers representing size and style of the fitting and materials used. The part number describes fittings that are completely assembled; with reference to the tubing outside diameter (O.D) first, then fllowed by the pipe size. in the largest end is indicated first.

Fitting Sizes — Table 6

Indentifier	Tube O.D	P-NPT or TUBE O.D
M3-2	3	1/8
M3-4	3	1/4
M4-2	4	1/8
M4-4	4	1/4
M 6-2	6	1/8
M 6-4	6	1/4
M &-6	6	3/8
M 6-8	6	1/2
M 8-2	8	1/8
M 8-4	8	1/4
M 8-6	8	3/8
M 8-8	8	1/2
M 10-2	10	1/8
M10-4	10	1/4
M10-6	10	3/8
M10-8	10	1/2
M12-4	12	1/4
M12-6	12	3/8
M12-8	12	1/2
M12-12	12	3/4
M12-8	12	1/2
M12-12	12	3/4
M15-8	15	1/2
M16-4	16	1/4
M16-6	16	3/8
M16-8	16	1/2
M16-12	16	3/4
M18-8	18	1/2
M18-12	18	3/4
M20-8	20	1/2
M20-12	20	3/4
M22-12	22	3/4
M22-16	22	1
M25-12	25	3/4
M25-16	25	1

Fitting Type Designator — Table 7

Indentifier	Description
MLAA	Adaptor, AN
MLAF	Adaptor, Female
MLAM	Adaptor, Male
MLBTF	Branch Tee, Female
MLBTM	Branch Tee, Male
MLBA	Bulkhead Adaptor
MLBCF	Bulkhead Connector, Female
MLBCM	Bulkhead Connector, Male
MLBU	Bulkhead Union
MLBUA	Bulkhead Union, AN
MLC	Cap
MLCB	Connector, Buttweld
MLCF	Connector, Male
MLCM	Connector, Male
MLCW	Connector, Socketweld
MLCOM	Connector, 'O' Seal Pipe Thread, Male
MLCOS	Connector, 'O' Seal Straight Thread
MLEB	Elbow, Buttweld
MLEF	Elbow, Female
MLEM	Elbow, Male
MLE 45M	Elbow, 45 Degree, Male
MLEW	Elbow, Socketweld
MLFB	Ferrule, Back
MLFF	Ferrule, Front
MLFS	Ferrule, Set
MLN	Nut
MLP	Plug
MLPC	Port Connector
MLR	Reducer
MLRU	Reducing Union
MLRTF	Run Tee, Female
MLRTM	Run Tee, Male
MLU	Union
MLUA	Union, AN

Master-LOK Tube Fitting System

VISUAL INDEX

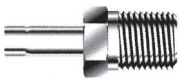
Union

Male Thread

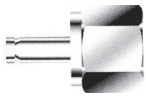
Female Thread

Adaptor

Adaptor, Male **| 49 |**
MLAM



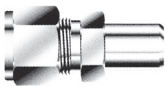
Adaptor, Female **| 49 |**
MLAF



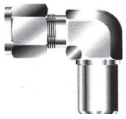
Port Connector **| 50 |**
MLPC

Socket and Butt Weld Fitting

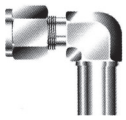
Connector, Bitt Weld **| 50 |**
MLCB



Elbow, Butt Weld **| 51 |**
MLEB

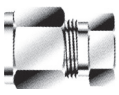


Elbow, Socket Weld **| 51 |**
MLEW



Plug and Cap

Cap **| 52 |**
MLC



Plug **| 52 |**
MLP

Spare Part

Ferrule, Set **| 53 |**
MLFS

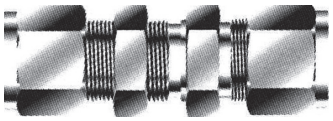
Nut **| 53 |**
MLN

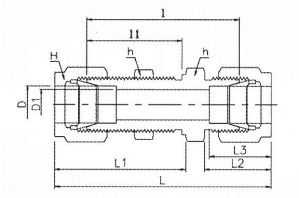
Ferrule, Back **| 54 |**
MLFB

Ferrule, Front **| 54 |**
MLFF

Master-LOK Tube Fitting System

Bulkhead Union | MLBU

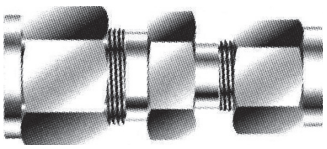


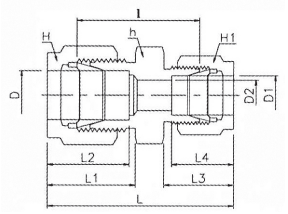


※ These figures are for reference purpose only.

Part No.	Tube O.D	D1 Min	Width across flat		L3	L2	I	I1	L	L1	Panel Hole Drill Size	Panel Max Thickness
	D		h	H								
MLBU-M3	3	2.4	14	12	12.9	15.3	38.1	21 .6	51.3	31.2	8.3	12.7
MLBU-M4	4	2.4	14	12	13.7	16.1	40.4	25.4	53.6	32.0	9.9	12.7
MLBU-M6	6	4.8	16	14	15.3	16. 1	42.9	26.2	57.7	33.6	11.5	10.2
MLBU-M8	8	6.4	18	16	16.2	17.7	46.0	28.6	61.0	36.1	13.1	11.2
MLBU-M10	10	7.9	22	19	17.2	18.6	48.5	29.1	63.7	37.0	16.2	11.2
MLBU-M12	12	9.5	24	22	22.8	19.5	50.8	31.8	71.0	41.9	19.5	12.7
MLBU-M15	15	11.9	27	25	24.4	22.0	52.3	32.5	72.5	42.6	22.8	12.7
MLBU-M16	16	12.7	27	25	24.4	22.0	52.3	32.5	72.5	42.6	22.8	12.7
MLBU-M18	18	15.1	30	30	24.4	22.0	58.7	37.3	78.9	47.4	26.0	16.8
MLBU-M20	20	15.9	35	32	26.0	22.0	64.3	42.9	84.5	53.0	29.0	17.0
MLBU-M22	22	18.3	3S	32	26.0	22.0	64.3	42.9	84.5	53.0	29.0	19.1
MLBU-M25	25	21.8	41.3	38	31.3	26.5	71.4	45.2	95.9	57.5	33.7	19.1

Reducing Union | MLRU

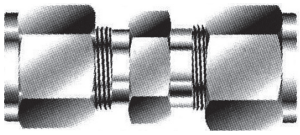


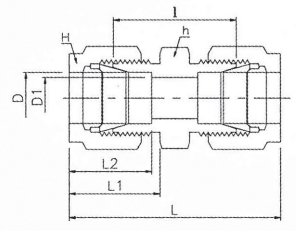


※ These figures are for reference purpose only.

Part No.	Tube O.D			D2 Min	Width across flat				L4	L1	L3	I	L
	D	D1			h	H	H1	L2					
		in	mm										
MLRU M3-2	3	1/8	3.17	2.4	12	12	11.1	12.9	12.8	15.3	15.2	22.1	35.2
MLRU M4-2	4	1/8	3.17	2.4	12	12	11.1	13.7	12.8	16.1	15.2	23.4	36.5
MLRU M4-4	4	1/4	6.35	2.4	14	12	14.3	13.7	15.3	16.1	17.7	25.4	39.4
MLRU M6-2	6	1/8	3.17	2.4	14	14	11.1	15.3	12.8	17.7	15.2	24.6	38.5
MLRU M6-4	6	1/4	6.35	4.8	14	14	14.3	15.3	15.8	17.7	17.7	26.2	41.0
MLRU M6-5	6	5/16	7.93	4.8	14	14	15.9	15.3	16.2	17.7	18.6	27.4	42.3
MLRU M8-4	8	1/4	6.35	48.	15	16	14.3	16.2	15.3	18.6	17.7	27.4	42.3
MLRU M10-2	10	1/8	3.17	2.4	18	19	11.1	17.2	12.8	19.5	15.2	27.7	41.8
MLRU M10-4	10	1/4	6.35	4.8	18	19	14.3	17.2	15.3	19.5	17.7	29.5	44.5
MLRU M10-5	10	5/16	7.93	6.4	18	19	15.9	17.2	16.2	19.5	18.6	30.3	45.1
MLRU M10-6	10	3/8	9.52	7.1	18	19	17.5	17.2	16.9	19.5	18.6	31.0	45.9
MLRU M12-5	12	5/16	7.93	6.4	22	22	15.9	22.8	16.2	22.0	18.6	30.2	47.8
MLRU M12-6	12	3/8	9.52	7.1	22	22	17.5	22.8	16.9	22.0	19.2	31.0	48.4
MLRU M12-8	12	1/2	12.70	9.5	22	22	22.2	22.8	22.8	22.0	22.0	31.0	51.2
MLRU M15-8	15	1/2	12.70	10.3	24	25	22.2	24.4	22.8	22.0	22.0	31.8	52.0
MLRU M16-10	16	5/8	15.87	12.7	24	25	5.4	24.4	24.4	22.0	22.0	31.8	52.0
MLRU M18-12	18	3/4	19.05	15.1	27	30	28.6	24.4	24.4	22.0	22.0	33.3	53.5
MLRU M20-12	20	3/4	19.05	15.9	30	32	28.3	26.0	24.4	22.0	22.0	34.8	54.9
MLRU M20-16	20	1	25.4	15.9	34.9	32	38.1	26.0	31.2	22.0	26.4	38.2	60.3
MLRU M22-16	22	1	25.4	18.3	34.9	32	38.1	26.0	31.2	22.0	26.4	38.2	60.3

Union | MLU

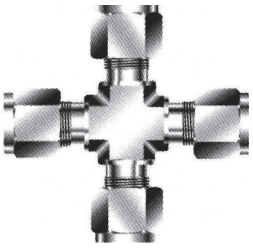


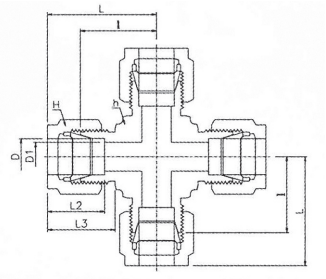


※ These figures are for reference purpose only.

Part No.	Tube O.D	D1 Min	Width across flat		L2	L1	l	L
	D		h	H				
MLU-M3	3	2.4	12	12	12.9	15.3	22.1	35.3
MLU-M4	4	2.4	12	12	13.7	16.1	24.1	37.3
MLU-M6	6	4.8	14	14	15.3	17.7	26.2	41.0
MLU-M8	8	6.4	15	16	16.2	18.6	28.2	43.2
MLU-M10	10	7.9	18	19	17.2	19.5	31.0	46.2
MLU-M12	12	9.5	22	22	22.8	22.0	31.0	51.2
MLU-M15	15	11.9	24	25	24.4	22.0	31.8	52.0
MLU-M16	16	12.7	24	25	24.4	22.0	31.8	52.0
MLU-M18	18	15.1	27	30	24.4	22.0	33.3	53.5
MLU-M20	20	15.9	30	32	26.0	22.0	34.8	55.0
MLU-M22	22	18.3	30	32	26.0	22.0	34.8	55.0
MLU-M25	25	21.8	35	38	31.3	26.5	40.4	65.0

Union Cross | MLUC

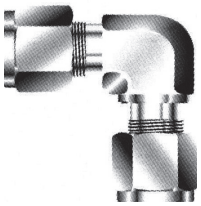


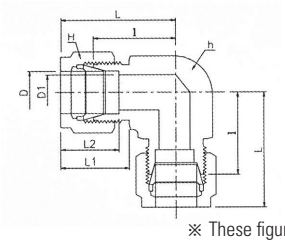


※ These figures are for reference purpose only.

Part No.	Tube O.D	D1 Min	Width across flat		L2	L1	l	L
	D		h	H				
MLUC-M3	3	2.4	9.5	12	12.9	15.3	15.7	22.3
MLUC-M4	4	2.4	12.7	12	13.7	16.1	18.8	25.4
MLUC-M6	6	4.8	12.7	14	15.3	17.7	19.6	27.0
MLUC-M8	8	6.4	14.3	16	16.2	18.6	21.3	28.8
MLUC-M10	10	7.9	17.5	19	17.2	19.5	23.9	31.5
MLUC-M12	12	9.5	20.6	22	22.8	22.0	259	36.0
MLUC-M15	15	11.9	25.4	25	24.4	22.0	28.7	38.8
MLUC-M16	16	12.7	25.4	25	24.4	22.0	28.7	38.8
MLUC-M18	18	15.1	27.0	30	24.4	22.0	29.7	39.8
MLUC-M20	20	15.9	31.8	32	26.0	22.0	32.5	42.6
MLUC-M22	22	18.3	31.8	32	26.0	22.0	325	426.
MLUC-M25	25	21.8	36.0	38	31.3	26.5	36.8	49.1

Union Elbow | MLUE

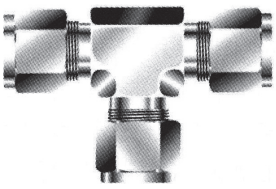


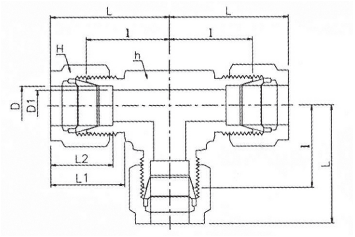


※ These figures are for reference purpose only.

Part No.	Tube O.D	D1 Min	Width across flat		L2	L1	I	L
	D		h	H				
MLUE-M3	3	2.4	9.5	12	12.9	15.3	15.7	22.3
MLUE-M4	4	2.4	12.7	12	13.7	16.4	18.8	25.4
MLUE-M6	6	4.8	12.7	14	15.3	17.7	19.6	27.0
MLUE-M8	8	6.4	14.3	16	16.2	18.6	21.3	28.8
MLUE-M10	10	7.9	17.5	19	17.2	19.5	23.9	31.5
MLUE-M12	12	9.5	20.6	22	22.8	22.0	25.9	36.0
MLUE-M15	15	11.9	25.4	25	24.4	22.0	28.7	38.8
MLUE-M16	16	12.7	25.4	25	24.4	22.0	28.7	38.8
MLUE-M18	18	15.1	27.0	30	24.4	22.0	29.7	39.8
MLUE-M20	20	15.9	31.8	32	26.0	22.0	32.5	42.6
MLUE-M22	22	18.3	31.8	32	26.0	22.0	32.5	42.6
MLUE-M25	25	21.8	36.0	38	31.3	26.5	36.8	49.1

Union Tee | MLUT

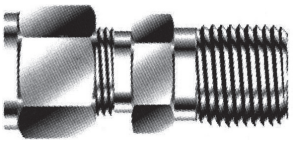


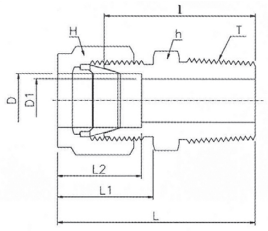


※ These figures are for reference purpose only.

Part No.	Tube O.D	D1 Min	Width across flat		L2	L1	I	L
	D		h	H				
MLUT-M3	3	2.4	9.5	12	12.9	15.3	15.7	22.3
MLUT-M4	4	2.4	12.7	12	13.7	16.4	18.8	25.4
MLUT-M6	6	4.8	12.7	14	15.3	17.7	19.6	27.0
MLUT-M8	8	6.4	14.3	16	16.2	18.6	21.3	28.8
MLUT-M10	10	7.9	17.5	19	17.2	19.5	23.9	31.5
MLUT-M12	12	9.5	20.6	22	22.8	22.0	25.9	36.0
MLUT-M15	15	11.9	25.4	25	24.4	22.0	28.7	38.8
MLUT-M16	16	12.7	25.4	25	24.4	22.0	28.7	38.8
MLUT-M18	18	15.1	27.0	30	24.4	22.0	29.7	39.8
MLUT-M20	20	15.9	31.8	32	26.0	22.0	32.5	42.6
MLUT-M22	22	18.3	31.8	32	26.0	22.0	32.5	42.6
MLUT-M25	25	21.8	36.0	38	31.3	26.5	36.8	49.1

Connector, Male | MLCM



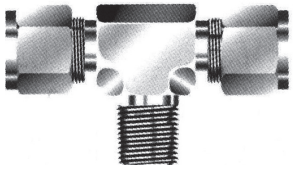


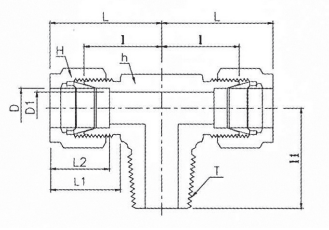
※ These figures are for reference purpose only.

Part No.	Tube O.D	T R(PT)	D1 Min	Width across flat		L2	L1	I	L
	D			h	H				
MLCM M3-2	3	1/8	2.4	12	12	12.9	15.3	23.1	29.7
MLCM M3-4	3	1/4	2.4	14	12	12.9	15.3	29.0	35.6
MLCM M4-2	4	1/8	2.4	12	12	13.7	16.1	24.6	31.2
MLCM M4-4	4	1/4	2.4	14	12	13.7	16.1	29.7	36.3
MLCM M6-2	6	1/8	4.8	14	14	15.3	17.7	25.4	32.8
MLCM M6-4	6	1/4	4.8	14	14	15.3	17.7	30.2	37.6
MLCM M6-6	6	3/8	4.8	17	14	15.3	17.7	31.0	38.4
MLCM M6-8	6	1/2	4.8	22	14	15.3	17.7	36.6	44.0
MLCM M8-2	8	1/8	4.8	15	16	16.2	18.6	26.7	34.2
MLCM M8-4	8	1/4	6.4	15	16	16.2	18.6	31.2	38.7
MLCM M8-6	8	3/8	6.4	17	16	16.2	18.6	31.8	39.2
MLCM M8-8	8	1/2	6.4	22	16	16.2	18.6	37.3	44.8
MLCM M10-2	10	1/8	4.8	18	19	17.2	19.5	28.7	36.3
MLCM M10-4	10	1/4	7.1	18	19	7.2	19.5	33.3	40.9
MLCM M10-6	10	3/8	7.9	18	19	17.2	19.5	33.3	40.9
MLCM M10-8	10	1/2	7.9	22	19	17.2	19.5	38.1	45.7
MLCM M12-4	12	1/4	7.1	22	22	22.8	22.0	33.3	43.4
MLCM M12-6	12	3/8	9.5	22	22	22.8	22.0	33.3	43.4
MLCM M12-8	12	1/2	9.5	22	22	22.8	22.0	38.1	48.2
MLCM M12-12	12	3/4	9.5	27	22	22.8	22.0	38.9	49.0
MLCM M15-8	15	1/2	11.9	24	25	24.4	22.0	38.9	49.0
MLCM M16-4	16	1/4	7.1	24	25	24.4	22.0	34.1	44.1
MLCM M16-6	16	3/8	9.5	24	25	24.4	22.0	34.0	44.1
MLCM M16-8	16	1/2	11.9	24	25	24.4	22.0	389.	49.0
MLCM M16-12	16	3/4	12.7	27	25	24.4	22.0	38.9	49.0
MLCM M18-8	18	1/2	11.9	27	30	24.4	22.0	40.4	50.5
MLCM M18-12	18	3/4	15.1	27	30	24.4	22.0	40.4	50.5
MLCM M20-8	20	1/2	11.9	30	32	26.0	22.0	42.2	52.3
MLCM M20-12	20	3/4	15.9	30	32	26.0	22.0	42.2	52.3
MLCM M22-12	22	3/4	15.9	30	32	26.0	22.0	42.2	52.3
MLCM M22-16	22	1	18.3	35	32	26.0	22.0	47.8	57.9
MLCM M25-12	25	3/4	15.9	35	38	31.3	26.5	45.2	57.5
MLCM M25-16	25	1	21.8	35	38	31.3	26.5	50.0	62.3

Master-LOK Tube Fitting System

Branch Tee, Male | MLBTM

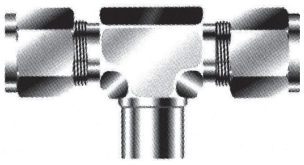


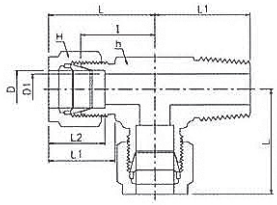


※ These figures are for reference purpose only.

Part No.	Tube O.D	T R(PT)	D1 Min	Width across flat		L2	L1	l	L	l1
	D			h	H					
MLBTM M3-2	3	1/8	2.4	12.7	12	12.9	15.3	17.0	23.6	17.8
MLBTM M3-4	3	1/4	2.4	12.7	12	12.9	15.3	18.0	24.6	23.4
MLBTM M4-2	4	1/8	2.4	12.7	12	13.7	16.1	18.8	25.4	18.8
MLBTM M6-2	6	1/8	4.8	12.7	14	15.3	17.7	19.6	27.0	18.8
MLBTM M6-4	6	1/4	4.8	14.2	14	15.3	17.7	19.6	27.0	23.4
MLBTM M8-2	8	1/8	4.8	14.3	16	16.2	18.6	21.3	28.8	19.8
MLBTM M8-4	8	1/4	6.4	14.3	16	16.2	18.6	21.3	28.8	24.4
MLBTM M10-4	10	1/4	7.1	17.5	19	17.2	19.5	23.9	31.5	28.2
MLBTM M10-6	10	3/8	7.9	17.5	19	17.2	19.5	23.9	31.5	28.2
MLBTM M12-4	12	1/4	7.1	20.6	22	22.8	22.0	25.9	36.0	28.2
MLBTM M12-6	12	3/8	9.5	20.6	22	22.8	22.0	25.9	36.0	28.2
MLBTM M12-8	12	1/2	9.5	20.6	22	22.8	22.0	25.9	36.0	33.0
MLBTM M16-6	16	3/8	9.5	25.4	25	24.4	22.0	27.9	38.	30.2
MLBTM M16-8	16	1/2	11.9	25.4	25	24.4	22.0	27.9	38.0	35.1
MLBTM M20-12	20	3/4	15.9	31.8	32	26.0	22.0	34.5	44.6	41.7

Run Tee, Male | MLRTM

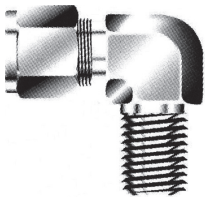


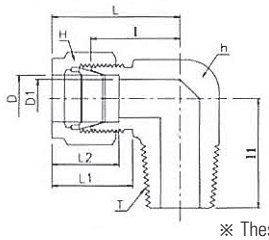


※ These figures are for reference purpose only.

Part No.	Tube O.D	T R(PT)	D1 Min	Width across flat		L2	L1	l	L	l1
	D			h	H					
MLRTM M3-2	3	1/8	2.4	12.7	12	12.9	15.3	17.0	23.6	17.8
MLRTM M3-4	3	1/4	2.4	12.7	12	12.9	15.3	18.0	24.6	23.4
MLRTM M4-2	4	1/8	2.4	12.7	12	13.7	16.1	18.8	25.4	18.8
MLRTM M6-2	6	1/8	4.8	12.7	14	15.3	17.7	19.6	27.0	18.8
MLRTM M6-4	6	1/4	4.8	14.2	14	15.3	17.7	19.6	27.0	23.4
MLRTM M8-2	8	1/8	4.8	14.3	16	16.2	18.6	21.3	28.8	19.8
MLRTM M8-4	8	1/4	6.4	14.3	16	16.2	18.6	21.3	28.8	24.4
MLRTM M10-4	10	1/4	7.1	17.5	19	17.2	19.5	23.9	31.5	28.2
MLRTM M10-6	10	3/8	7.9	17.5	19	17.2	19.5	23.9	31.5	28.2
MLRTM M12-4	12	1/4	7.1	20.6	22	22.8	22.0	25.9	36.0	28.2
MLRTM M12-6	12	3/8	9.5	20.6	22	22.8	22.0	25.9	36.0	28.2
MLRTM M12-8	12	1/2	9.5	20.6	22	22.8	22.0	25.9	36.0	33.0
MLRTM M16-6	16	3/8	9.5	25.4	25	24.4	22.0	27.9	38.	30.2
MLRTM M16-8	16	1/2	11.9	25.4	25	24.4	22.0	27.9	38.0	35.1
MLRTM M20-12	20	3/4	15.9	31.8	32	26.0	22.0	34.5	44.6	41.7

Elbow, Male | MLEM

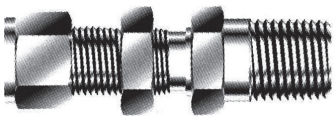


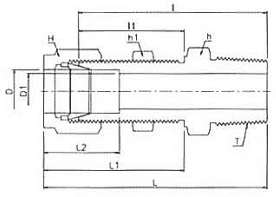


※ These figures are for reference purpose only.

Part No.	Tube O.D	T R(PT)	D1 Min	Width across flat		L2	L1	I	L	I1
	D			h	H					
MLEM M3-2	3	1/8	2.4	12.7	12	12.9	15.3	17.0	23.6	17.8
MLEM M3-4	3	1/4	2.4	12.7	12	12.9	15.3	18.0	24.6	23.4
MLEM M4-2	4	1/8	2.4	12.7	12	13.7	16.1	18.8	25.4	18.8
MLEM M4-4	4	1/4	2.4	12.7	12	13.7	16.1	18.8	25.4	23.4
MLEM M6-2	6	1/8	4.8	12.7	14	15.3	17.7	19.6	27.0	18.8
MLEM M6-4	6	1/4	4.8	12.7	14	15.3	17.7	19.6	27.0	23.4
MLEM M6-6	6	3/8	4.8	17.5	14	15.3	17.7	22.4	29.8	26.2
MLEM M6-8	6	1/2	4.8	20.6	14	15.3	17.7	24.4	31.8	33.
MLEM M8-2	8	1/8	4.8	14.3	16	16.2	18.6	21.3	28.8	19.8
MLEM M8-4	8	1/4	6.4	14.3	16	16.2	18.6	21.3	28.8	24.4
MLEM M8-6	8	3/8	6.4	17.5	16	16.2	18.6	23.9	31.4	28.5
MLEM M8-8	8	1/2	6.4	20.6	16	16.2	18.6	25.4	32.6	33.0
MLEM M10-2	10	1/8	4.8	17.5	19	17.2	19.5	23.9	31.5	23.6
MLEM M10-4	10	1/4	7.1	17.5	19	17.2	19.5	23.9	31.5	28.2
MLEM M10-6	10	3/8	7.9	17.5	19	17.2	19.5	23.9	31.5	28.2
MLEM M10-8	10	1/2	7.9	20.6	19	17.2	19.5	25.9	33.5	33.0
MLEM M12-2	12	1/8	4.8	20.6	22	22.8	22.0	25.9	36.0	23.6
MLEM M12-4	12	1/4	7.1	20.6	22	22.8	22.0	25.9	36.0	28.2
MLEM M12-6	12	3/8	9.5	20.6	22	22.8	22.0	25.9	36.0	28.2
MLEM M12-8	12	1/2	9.5	20.6	22	22.8	22.0	25.9	36.0	33.0
MLEM M12-12	12	3/4	9.5	27.0	22	22.8	22.0	29.7	39.8	36.8
MLEM M16-6	16	3/8	9.5	25.4	25	24.4	22.0	27.9	38.0	30.2
MLEM M16-8	16	1/2	11.9	25.4	25	24.4	22.0	27.9	38.0	35.1
MLEM M16-12	16	3/4	12.7	27.0	25	24.4	22.0	29.7	39.8	36.8
MLEM M18-8	18	1/2	11.98	27.0	30	24.4	22.0	29.7	39.8	36.8
MLEM M18-12	18	3/4	15.1	27.0	30	24.4	22.0	29.7	39.8	36.8
MLEM M20-8	20	1/2	11.9	31.8	32	26.0	22.0	34.5	44.6	41.7
MLEM M20-12	20	3/4	15.9	31.8	32	26.0	22.0	34.5	44.6	41.7
MLEM M22-12	22	3/4	15.9	31.8	32	26.0	22.0	34.5	44.6	41.7
MLEM M22-16	22	1	18.3	36.0	32	26.0	22.0	34.5	44.6	46.5
MLEM M25-12	25	3/4	15.9	36.0	38	31.3	26.5	36.8	49.1	41.7
MLEM M25-16	25	1	21.8	36.0	38	31.3	26.5	36.8	49.1	46.5

Bulkhead Connector, Male | MLBCM



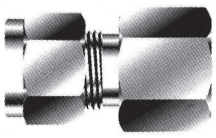


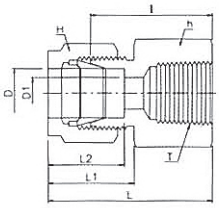
※ These figures are for reference purpose only.

Part No.	Tube O.D	T R(PT)	D1 Min	Width across flat		L	L1	L2	I	I1
	D			h	H					
MLBCM M6-2	6	1/8	4.8	16	14	48.65	33.6	15.3	41.75	26.2
MLBCM M6-4	6	1/4	4.8	16	14	53.22	33.6	15.3	46.32	26.2
MLBCM M8-4	8	1/4	6.4	18	16	56.12	36.1	16.2	49.02	28.6
MLBCM M10-4	10	1/4	7.9	22	19	57.92	37.0	17.2	50.72	29.4
MLBCM M10-6	10	3/8	7.9	22	19	57.92	37.0	17.2	50.72	29.4
MLBCM M10-8	10	1/2	7.9	22	19	62.75	37.0	17.2	55.55	29.4
MLBCM M12-6	12	3/8	9.5	24	22	62.7	41.9	22.8	53.0	31.8
MLBCM M12-8	12	1/2	9.5	24	22	67.53	41.9	22.8	57.89	31.8
MLBCM M15-6	15	3/8	11.9	27	25	64.7	32.4	24.4	54.5	32.5
MLBCM M15-8	15	1/2	11.9	27	25	69.53	32.4	24.4	59.33	32.5

Master-LOK Tube Fitting System

Connector, Female | MLCF

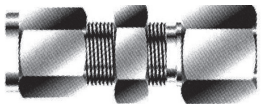


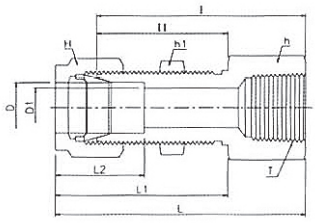


※ These figures are for reference purpose only.

Part No.	Tube O.D	T R(PT)	D1 Min	Width across flat		L2	L1	I	L
	D			h	H				
MLCF M3-2	3	1/8	2.4	14	12	12.9	15.3	22.1	28.7
MLCF M3-4	3	1/4	2.4	19	12	12.9	15.3	26.9	33.5
MLCF M4-2	4	1/8	2.4	14	12	13.7	16.1	23.1	39.7
MLCF M6-2	6	1/8	4.8	14	14	15.3	17.7	23.9	31.3
MLCF M6-4	6	1/4	4.8	19	14	15.3	17.7	28.4	35.8
MLCF M6-6	6	3/8	4.8	22	14	15.3	17.7	29.5	36.9
MLCF M6-8	6	1/2	4.8	27	14	15.3	17.7	35.1	42.5
MLCF M8-2	8	1/8	6.4	15	16	16.2	18.6	24.6	32.1
MLCF M8-4	8	1/4	6.4	19	16	16.2	18.6	29.5	37.0
MLCF M8-6	8	3/8	6.4	22	16	16.2	18.6	30.2	37.7
MLCF M8-8	8	1/2	6.4	27	16	16.2	18.6	35.8	43.3
MLCF M10-2	10	1/8	7.9	18	19	17.2	19.5	25.4	33.0
MLCF M10-4	10	1/4	7.9	19	19	17.2	19.5	30.2	37.8
MLCF M10-6	10	3/8	7.9	22	19	17.2	19.5	31.0	38.6
MLCF M10-8	10	1/2	7.8	27	19	17.2	19.5	36.6	44.2
MLCF M12-2	12	1/8	8.3	22	22	22.8	22.0	28.4	38.5
MLCF M12-4	12	1/4	9.5	22	22	22.8	22.0	30.2	40.3
MLCF M12-6	12	3/8	9.5	22	22	22.8	22.0	3.0	41.1
MLCF M12-8	12	1/2	9.5	27	22	22.8	22.0	36.6	46.7
MLCF M12-12	12	3/4	9.5	35	22	22.8	22.0	38.9	49.0
MLCF M15-8	15	1/2	11.9	27	25	24.4	22.0	36.6	46.7
MLCF M16-8	16	1/2	12.7	27	25	24.4	22.0	36.8	46.9
MLCF M20-8	20	1/2	15.9	30	32	26.0	22.0	37.8	47.9
MLCF M20-12	20	3/4	15.9	35	32	26.0	22.0	39.6	49.7
MLCF M22-12	22	3/4	18.3	35	32	26.0	22.0	39.6	49.7
MLCF M22-16	22	1	18.3	41	32	26.0	22.0	47.8	57.9
MLCF M25-12	25	3/4	21.8	35	38	31.3	26.5	41.1	53.4
MLCF M25-16	25	1	21.8	41	38	31.3	26.5	50.0	62.3

Bulkhead, Connector, Female | MLBCF

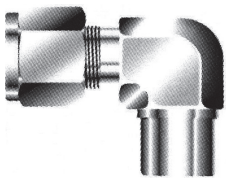


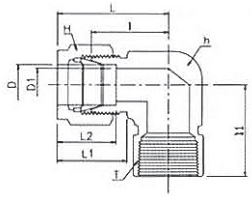


※ These figures are for reference purpose only.

Part No.	Tube O.D	T R(PT)	D1 Min	h	Width across flat		L2	I	I1	L	L1	Panel Hole Drill Size	Panel Max Thickness
	D				h	H							
MLBCF M6-2	6	1/8	4.8	15.8	15.8	14	15.3	39.6	26.2	46.90	33.6	11.5	10.2
MLBCF M6-4	6	1/4	4.8	19.0	16.0	14	15.3	44.4	26.2	51.80	33.6	11.5	10.2
MLBCF M8-4	8	1/4	6.3	19.0	17.4	16	16.2	46.7	28.6	53.85	36.1	13.1	11.2
MLBCF M12-8	12	1/2	9.5	27.0	24.0	22	22.8	56.4	31.8	66.50	41.9	19.5	12.7

Elbow, Female | MLEF

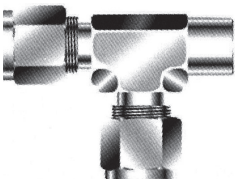


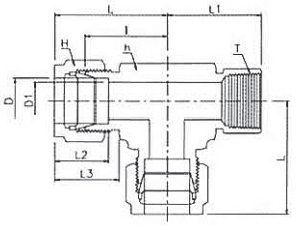


※ These figures are for reference purpose only.

Part No.	Tube O.D	T R(PT)	D1 Min	Width across flat		L2	L1	I	L	I1
	D			h	H					
MLEF M6-4	6	1/4	4.8	17.46	14	15.3	17.7	22.4	29.8	22.40
MLEF M6-6	6	3/8	4.8	20.63	14	15.3	17.7	24.4	31.7	22.40
MLEF M6-8	6	1/2	4.8	25.40	14	15.3	17.7	27.2	34.6	28.40
MLEF M8-4	8	1/4	6.4	17.46	16	16.2	18.6	23.1	30.6	22.40
MLEF M8-8	8	1/2	6.4	20.63	16	16.2	188.6	28.0	35.2	28.40
MLEF M10-4	10	1/4	7.9	17.46	19	17.2	19.5	25.9	33.5	22.35
MLEF M10-6	10	3/8	7.9	20.63	19	17.2	19.5	25.9	33.5	22.40
MLEF M10-8	10	1/2	7.9	25.40	19	17.2	19.5	28.7	36.1	28.40
MLEF M12-6	12	3/8	9.5	20.63	22	22.8	22.0	25.9	36.2	22.35
MLEF M12-8	12	1/2	9.5	25.40	22	22.8	22.0	28.7	38.8	28.40

Run Tee, Female | MLRTF

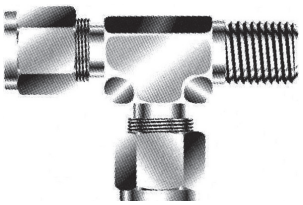


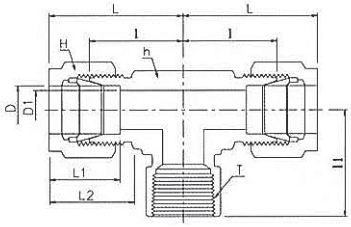


※ These figures are for reference purpose only.

Part No.	Tube O.D	T R(PT)	D1 Min	Width across flat		L2	L1	l	L	l1
	D			h	H					
MLRTF M6-2	6	1/8	4.8	12.70	14	15.3	17.7	22.1	46.0	19.00
MLRTF M6-4	6	1/4	4.8	17.46	14	15.3	17.7	26.9	52.1	22.40
MLRTF M6-8	6	1/2	4.8	25.40	14	15.3	17.7	23.1	34.5	28.40
MLRTF M8-2	8	1/8	6.4	15.87	16	16.2	18.6	23.9	48.9	19.00
MLRTF M8-4	8	1/4	6.4	17.46	16	16.2	18.6	28.4	53.0	22.40
MLRTF M8-6	8	3/8	6.4	20.63	16	16.2	18.6	29.5	32.4	22.40
MLRTF M8-8	8	1/2	6.4	25.40	16	16.2	18.6	36.8	35.2	28.40
MLRTF M12-4	12	1/4	9.5	20.63	22	22.8	22.0	37.8	58.4	22.40
MLRTF M12-6	12	3/8	9.5	20.63	22	22.8	22.0	39.6	58.4	22.40
MLRTF M12-8	12	1/2	9.5	26.98	22	22.8	22.0	41.1	40.0	28.40
MLRTF M16-8	16	1/2	12.7	25.40	25	24.4	22.0	50.0	39.9	28.40

Branch Tee, Female | MLBTF

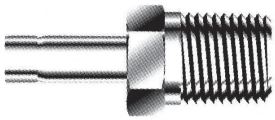


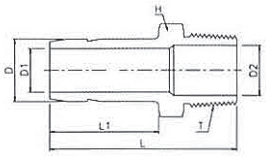


※ These figures are for reference purpose only.

Part No.	Tube O.D	T R(PT)	D1 Min	Width across flat		L1	L2	l	L	l1
	D			h	H					
MLBTF M6-2	6	1/8	4.8	12.70	14	15.3	17.7	19.6	27.0	19.00
MLBTF M6-4	6	1/4	4.8	17.46	14	15.3	17.7	22.4	29.8	22.40
MLBTF M6-6	6	3/8	4.8	20.63	14	15.3	17.7	24.4	31.7	22.40
MLBTF M6-8	6	1/2	4.8	25.40	14	15.3	17.7	27.2	34.5	28.40
MLBTF M8-2	8	1/8	6.4	15.87	16	16.2	18.6	23. 1	29.9	19.00
MLBTF M8-4	8	1/4	6.4	17.46	16	16.2	18.6	23.1	30.6	22.40
MLBTF M8-6	8	3/8	6.4	20.63	16	16.2	18.6	25.2	32.4	22.40
MLBTF M8-8	8	1/2	6.4	25.40	16	16.2	18.6	28.0	35.2	28.40
MLBTF M10-4	10	1/4	7.9	20.63	19	17.2	19.5	25.9	33.5	22.40
MLBTF M10-6	10	3/8	7.9	20.63	19	17.2	19.5	25.9	33.3	22.40
MLBTF M10-8	10	1/2	9.5	25.40	19	17.2	19.5	26.2	33.6	22.40
MLBTF M12-4	12	1/4	9.5	20.63	22	22.8	22.0	25.9	36.0	22.40
MLBTF M12-6	12	3/8	9.5	20.63	22	22.8	22.0	25.9	36.0	22.40
MLBTF M12-8	12	1/2	9.5	25.40	22	22.8	22.0	29.7	40.0	28.40
MLRTF M16-8	16	1/2	12.7	25.40	25	24.4	22.0	28.7	38.8	28.70

Adaptor, Male | MLAM

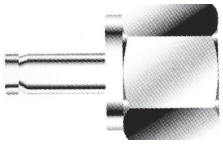


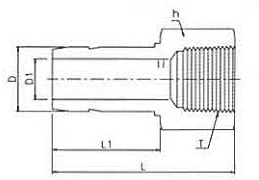


※ These figures are for reference purpose only.

Part No.	Tube O.D	T R(PT)	D1 Min	D2 Min	Width across flat	L1	L
	D				H		
MLAM M3-2	3	1/8	4.0	1.8	12	13.15	29.4
MLAM M6-2	6	1/8	4.6	4.6	12	15.75	32.8
MLAM M6-4	6	1/4	4.6	4.6	14	15.75	38.1
MLAM M8-4	8	1/4	6.3	6.3	14	16.50	39.1
MLAM M10-4	10	1/4	7.7	7.7	14	17.50	39.9
MLAM M10-6	10	3/8	7.7	7.7	17	17.50	40.6
MLAM M10-8	10	1/2	11.9	7.7	22	17.50	45.2
MLAM M12-4	12	1/4	7.1	9.1	14	23.50	46.5
MLAM M12-6	12	3/8	9.1	9.1	17	23.50	46.2
MLAM M12-8	12	1/2	11.9	9.1	22	23.50	51.8
MLAM M18-8	18	1/2	11.9	13.9	22	24.90	53.2
MLAM M18-12	18	3/4	15.9	13.9	27	24.90	53.2

Adaptor, Female | MLAF



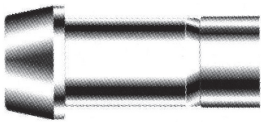


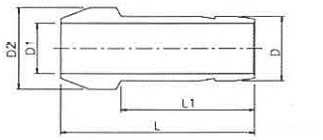
※ These figures are for reference purpose only.

Part No.	Tube O.D	T R(PT)	E Min	Width across flat	I	L
	D			H		
MLAF M3-2	3	1/8	1.8	14	13.15	31.15
MLAF M6-2	6	1/8	4.6	14	15.75	32.5
MLAF M6-4	6	1/4	4.6	19	15.75	37.1
MLAF M8-4	8	1/4	6.3	19	16.50	37.6
MLAF M10-4	10	1/4	7.7	19	17.50	38.1
MLAF M10-6	10	3/8	7.7	22	17.50	40.1
MLAF M10-8	10	1/2	7.7	27	17.50	46.5
MLAF M12-4	12	1/4	9.1	19	23.50	43.7
MLAF M12-6	12	3/8	9.1	22	23.50	46.0
MLAF M12-8	12	1/2	9.1	27	23.50	52.3
MLAF M18-12	18	3/4	13.9	32	24.90	54.8

Master-LOK Tube Fitting System

Port Connector | MLPC

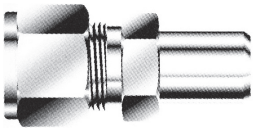


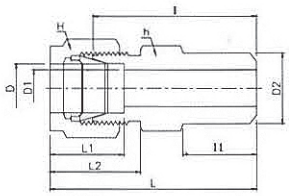


※ These figures are for reference purpose only.

Part No.	Tube O.D	D1 Min	D2	L2	L2
	D				
MLPC M3	3	2.1	6.0	15.7	22.2
MLPC M6	6	4.4	90.	18.7	24.6
MLPC M8	8	6.2	11.0	20.0	25.9
MLPC M10	10	8.2	13.1	20.2	26.1
MLPC M12	12	9.1	15.0	26.0	35.8
MLPC M16	16	12.7	19.0	27.6	37.4

Connecor Buttweld | MLCB

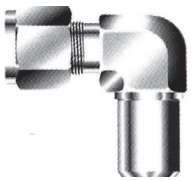


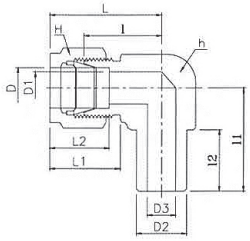


※ These figures are for reference purpose only.

Part No.	Tube O.D	Male Pipe Size		D1 Min	Width across flat		L1	L2	I	I1	L
		D2									
	D	nom.	O.D		h	H					
MLCB M3-2	3	1/8	10.3	2.4	12	12	12.9	15.3	23.1	9.7	29.7
MLCB M4-2	4	1/8	10.3	2.4	12	12	13.7	16.1	24.1	9.7	30.7
MLCB M6-2	6	1/8	10.3	4.8	14	14	15.3	17.7	25.4	9.7	32.8
MLCB M6-4	6	1/4	13.7	4.8	14	14	15.3	17.7	30.2	14.2	37.6
MLCB M8-2	8	1/8	10.3	5.1	15	16	16.2	18.6	26.7	9.7	34.2
MLCB M8-4	8	1/4	13.7	6.4	15	16	16.2	18.6	31.2	14.2	38.7
MLCB M8-8	8	1/2	21.3	6.4	22	16	16.2	18.6	37.3	19.0	44.8
MLCB M10-4	10	1/4	13.7	7.1	18	19	17.2	19.5	33.3	14.2	40.9
MLCB M10-6	10	3/8	17.1	7.9	18	19	17.2	19.5	32.5	14.2	40.1
MLCB M10-8	10	1/2	21.3	7.9	22	19	17.2	19.5	38.1	19.0	45.7
MLCB M12-4	12	1/4	13.7	7.1	22	22	22.8	22.0	33.3	14.2	43.4
MLCB M12-6	12	3/8	17.1	9.5	22	22	22.8	22.0	33.3	14.2	43.4
MLCB M12-8	12	1/2	21.3	9.5	22	22	22.8	22.0	38.1	19.0	48.2
MLCB M15-8	15	1/2	21.3	1.9	24	25	24.4	22.0	38.9	19.0	49.0
MLCB M16-8	16	1/2	21.3	12.7	24	25	24.4	22.0	38.9	19.0	49.0
MLCB M18-8	18	1/2	21.3	13.5	27	30	24.4	22.0	40.4	19.0	50.5

Elbow Buttweld | MLEB

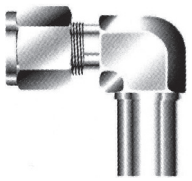


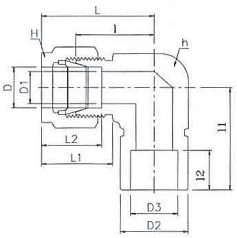


※ These figures are for reference purpose only.

Part No.	Male Pipe Size		D	D1	h	H	L	L1	L2	l	l1	l1
	NOM. D2	O.D D2										
MLEB M6-4	1/4	13.7	6	4.8	12.7	14	27.0	17.7	15.3	19.6	23.45	14.2
MLEB M8-4	1/4	13.7	8	6.4	14.3	16	28.8	18.6	16.2	21.3	24.4	14.2
MLEB M10-6	3/8	17.1	10	7.9	17.5	19	31.5	19.5	17.2	23.9	33.3	14.2
MLEB M12-8	1/2	21.3	12	9.5	20.6	22	36.0	22.0	22.8	25.9	32.15	19.0
MLEB M15-8	1/2	21.3	15	11.9	25.4	25	38.8	22.0	24.4	28.7	33.5	19.0
MLEB M16-8	1/2	21.3	16	12.7	25.4	25	38.8	22.0	24.4	28.7	33.5	19.0
MLEB M18-8	1/2	21.3	18	15.1	27.0	30	38.8	22.0	24.4	29.7	34.5	19.0

Elbow, Socketweld | MLEW



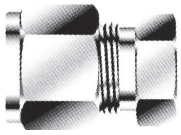


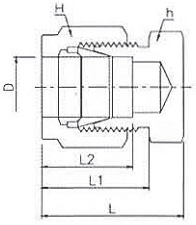
※ These figures are for reference purpose only.

Part No.	Tube O.D		D2	D3	h	H	L	L1	L2	l	l1
	D	D1									
MLEW M6-6	6	4.8	12.3	6.15	12.7	12	27.0	17.7	15.3	19.6	7.87
MLEW M8-8	8	6.4	14.35	8.15	14.3	16	28.8	18.6	16.2	21.3	8.76
MLEW M12-12	12	9.5	19.97	12.2	20.6	22	36.0	22.0	22.8	25.9	12.7

Master-LOK Tube Fitting System

Cap | MLC

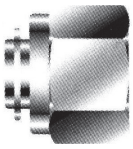


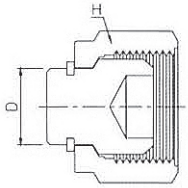


※ These figures are for reference purpose only.

Part No.	Tube O.D	Width across flat		L2	L1	I	L
	D	h	H				
MLC M3	3	12	12	12.9	15.3	13.5	20.1
MLC M4	4	12	12	13.7	16.1	14.7	21.3
MLC M6	6	14	14	15.3	17.7	15.7	23.1
MLC M8	8	15	16	16.2	18.6	17.0	24.5
MLC M10	10	18	19	17.2	19.3	19.0	26.6
MLC M12	12	22	22	22.8	22.0	19.0	29.1
MLC M15	15	24	25	24.4	22.0	19.8	29.9
MLC M16	16	24	25	24.4	22.0	19.8	29.9
MLC M18	18	27	30	24.4	22.0	21.3	31.4
MLC M20	20	30	32	26.0	22.0	23.9	34.0
MLC M22	22	30	32	26.0	22.0	23.9	34.0
MLC M25	25	35	38	31.3	26.5	26.2	38.5

Plug | MLP

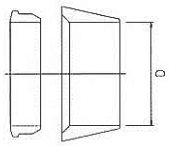




※ These figures are for reference purpose only.

Part No.	Tube O.D	H	Part No.	Tube O.D	L
	D			D	
MLP-M2	2	12	MLP-M16	16	25
MLP-M3	3	12	MLP-M18	18	30
MLP-M4	4	12	MLP-M20	20	32
MLP-M6	6	14	MLP-M22	22	32
MLP-M8	8	16	MLP-M25	25	38
MLP-M10	10	19	MLP-M28	28	46
MLP-M12	12	22	MLP-M32	32	50
MLP-M15	15	25	MLP-M38	38	60

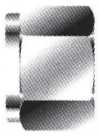
Ferrule, Set | MLFS

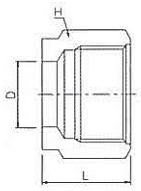


※ These figures are for reference purpose only.

Part No.	Tube
	D
MLFS-M2	2
MLFS-M3	3
MLFS-M4	4
MLFS-M6	6
MLFS-M8	8
MLFS-M10	10
MLFS-M12	12
MLFS-M15	15
MLFS-M16	16
MLFS-M18	18
MLFS-M20	20
MLFS-M22	22
MLFS-M25	25

Nut | MLN



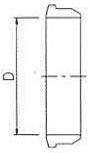


※ These figures are for reference purpose only.

Part No.	Tube O.D	Width across flat	D
	D	H	
MLN-M3	3	12	11.9
MLN-M4	4	12	11.9
MLN-M6	6	14	12.7
MLN-M8	8	16	13.5
MLN-M10	10	19	15.1
MLN-M12	12	22	17.4
MLN-M15	15	25	17.4
MLN-M16	16	25	17.4
MLN-M18	18	30	17.4
MLN-M20	20	32	17.4
MLN-M22	22	32	17.4
MLN-M25	25	38	20.6

Master-LOK Tube Fitting System

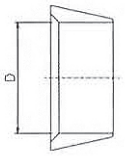
Ferrule, Back | MLFB



※ These figures are for reference purpose only.

Part No.	Tube	
	D	
	in	mm
MLFB-2	1/8	3.17
MLFB-3	3/16	4.76
MLFB-4	1/4	6.35
MLFB-5	5/16	7.93
MLFB-6	3/8	9.52
MLFB-8	1/2	12.70
MLFB-10	5/8	15.87
MLFB-12	3/4	19.05
MLFB-14	7/8	22.22
MLFB-16	1	25.40

Ferrule, Front | MLFF



※ These figures are for reference purpose only.

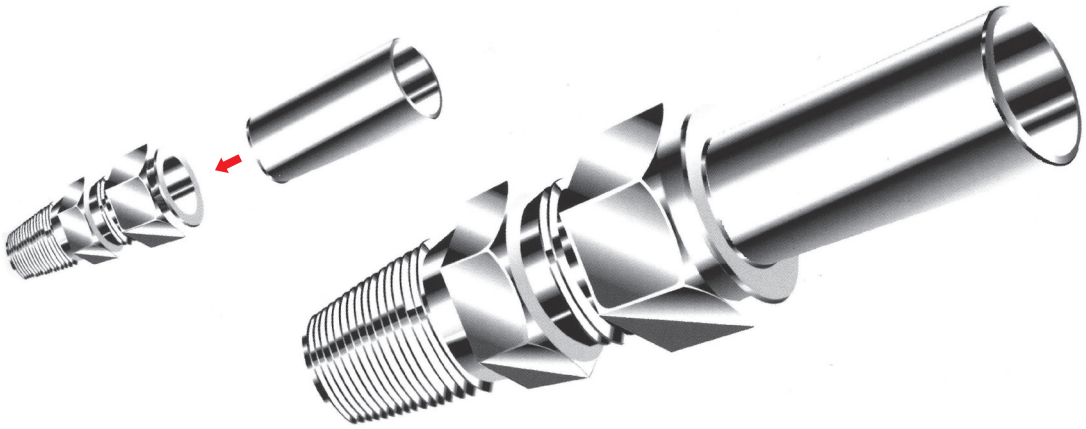
Part No.	Tube	
	D	
	in	mm
MLFF-2	1/8	3.17
MLFF-3	3/16	4.76
MLFF-4	1/4	6.35
MLFF-5	5/16	7.93
MLFF-6	3/8	9.52
MLFF-8	1/2	12.70
MLFF-10	5/8	15.87
MLFF-12	3/4	19.05
MLFF-14	7/8	22.22
MLFF-16	1	25.40

INSTALLATION

Assembly Instructions

Master-LOK tube fittings can be insta lled by using readily available wrenches.

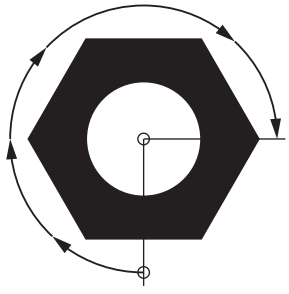
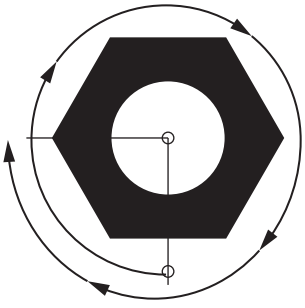
1. Insert the tubing into the Master-LOK fitting until the tubing sits on the shoulder of the body. Make sure the nut is finger-tight.
2. From the finger-tight position, rotate the nut 3/4 for sizes between 1/ 16-inch and 3-16-inch; and 1-1/ 14 turn for the sizes be tween 1/ 4-inch and 1-inch



REASSEMBLY INSTRUCTIONS

Master-LOK tube fittings can he assembled and disassembled repeatedly. The following instructions should be carried out to reassemble a fitting.

1. Insert the tubing with the previously set ferrules into the Master-LOK fitting until the tubing sits on the shoulder of the body. Make sure the nut is finger-tight.
2. Using a wrench, form the finger-tight position, rotate the nut 3/4 for sizes between 1/16-inch and 3/16-inch; and 1-1/4 turn for the size between 1/4-inch and 1-inch until snug, Then tighten a little more.

Size 1 thru (1/16" thru 3/16")	Size 4 thru 16 (1/4" thru 1")
	
Only 3/4 turn from finger-tight position	1-1/4 turn from finger- tight position

• MEMO •

Master-LOK

Instrument Thread Fittings

TUBE FITTINGS & VALVES

Master LOK

Master-LOK Instrument Thread Fittings

FEATURES

Master-LOK pipe fittings have been specifically designed for use on instrumentation, process and control systems, equipment employed in chemical, petroleum, unclear power generation, and pulp and paper plants.

The Master-LOK pipe fitting has also found extensive application in other fields where a very high quality pipe fitting is required.

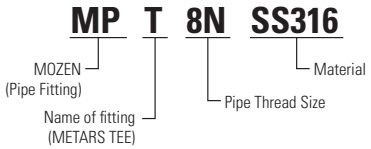
TEMPERATURE RATINGS

SS316	-325℉~ 1,200℉ (-198℃ ~ 648℃)
Brass	-325℉~ 400℉ (-198℃ ~ 204℃)
Carbon Steel	-20℉~ 350℉ (-29℃ ~ 176℃)

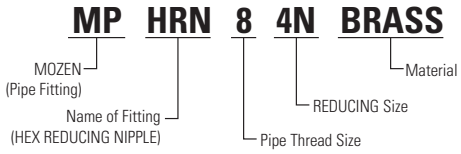
PTFE tape applie to male threads limits the maximum temperature +450℉ (232℃)

PART NUMBER EXAMPLE & HOW TO ORDER

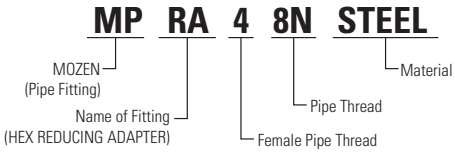
1) ALL PORTS BOTH ENDS TYPE



2) REDUCED TYPE



3) ADAPTER TYPE

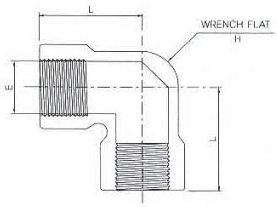


PRESSURE RATINGS

Size Designator	Pipe Size	316 Stainless Steel				Brass				Carbon Steelz			
		Male		Female		Male		Female		Male		Female	
		psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar
2	1/8	10,000	689	6,500	447	5,000	344	3,200	220	10,000	689	6,500	447
4	1/4	8,000	551	6,600	454	4,000	275	3,300	227	8,000	551	6,600	454
6	3/8	7,800	537	5,300	365	3,900	268	2,600	179	7,800	537	5,300	365
8	1/2	7,700	530	4,900	337	3,800	261	2,400	165	7,700	530	4,900	337
12	3/4	7,300	502	4,600	316	3,600	248	2,300	158	7,300	502	4,600	316
16	1	5,300	365	4,400	303	2,600	179	2,200	151	5,300	365	4,400	303

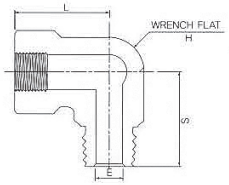
- Working pressures calculated are reference only
- Working pressures calculated as per process piping Code ANSI B31.3 with allowable stress 20,000 psi/SS316, 10,000 psi/Brass, 20,000 psi/Carbon Steel and for working pressure in accordance with power piping Code ANSI B 31.1 Simply calculate applying a factor of 94(94%) to above chart
- Due to larger outer diameter of female threads pressure ratings of female are lower than male threads
- To determine KPa, Multiply psig by 6.89
- Pressure ratings of Hex Bushing(H-SHB) are not covered with this rating table therefore indicatied in its dimensional table

ELBOW(MPE) - Female NPT both ends.



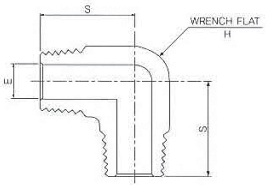
PART NO.	PIPE SIZE	L	E	WRENCH FLAT
MPE-2N	1/8	26.4	8.1	12.7
MPE-4N	1/4	28.9	10.6	17.46
MPE-6N	3/8	35.3	14.3	20.64
MPE-8N	1/2	38.8	17.5	25.4
MPE-12N	3/4	45.2	23.5	31.8
MPE-16N	1	48.52	29.7	42.9

REDUCING STREET ELBOW(MPRSE) - Female to male NPT.



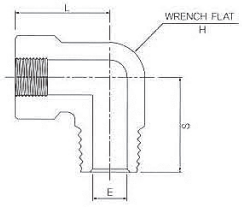
PART NO.	PIPE SIZE	MALE PIPE SIZE	L	S	E	WRENCH FLAT
MPRSE4-2N	1/4	1/8	29.0	22.4	4.8	17.46
MPRSE6-4N	3/8	1/4	34.5	28.2	7.1	20.64
MPRSE8-4N	1/2	1/4	37.0	30.5	7.1	25.4
MPRSE8-6N	1/2	3/8	37.0	30.5	9.6	25.4
MPRSE12-8N	3/4	1/2	46.5	39.6	11.9	31.8
MPRSE16-8N	1	1/2	48.8	44.5	11.9	42.9
MPRSE16-12N	1	3/4	48.8	44.5	15.7	42.9

MALE ELBOW(MPME) - Male NPT both ends.



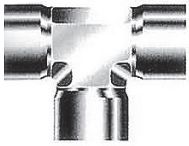
PART NO.	PIPE SIZE	S	E	WRENCH FLAT
MPME-2N	1/8	19.1	4.83	12.7
MPME-4N	1/4	27.0	7.11	15.8
MPME-6N	3/8	27.0	9.5	17.46
MPME-8N	1/2	34.2	11.9	20.64
MPME-12N	3/4	35.3	15.7	25.4
MPME-16N	1	44.5	22.4	31.8

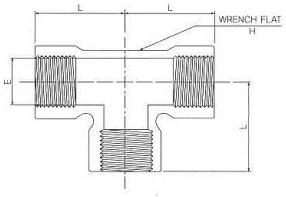
STREET ELBOW(MPSE) - Femalt to male NPT.



PART NO.	PIPE SIZE	L	S	E	WRENCH FLAT
MPSE-2N	1/8	26.4	19.8	4.8	12.7
MPSE-4N	1/4	28.9	28.9	7.11	17.46
MPSE-6N	3/8	35.3	33.0	9.46	20.64
MPSE-8N	1/2	38.8	35.3	11.94	25.4
MPSE-12N	3/4	45.2	42.8	15.7	31.8
MPSE-16N	1	48.5	49.3	22.4	42.9

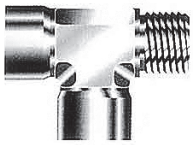
Master-LOK Instrument Thread Fittings

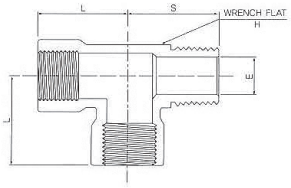




TEE(MPT) - Female NPT all ports

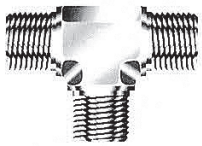
PART NO.	PIPE SIZE	L	E	WRENCH FLAT
MPT-2N	1/8	23.4	8.0	12.7
MPT-4N	1/4	28.9	10.6	17.46
MPT-6N	3/8	35.3	14.3	20.64
MPT-8N	1/2	35.8	17.4	25.4
MPT-12N	3/4	46.5	23.5	31.8
MPT-16N	1	48.5	29.7	42.9

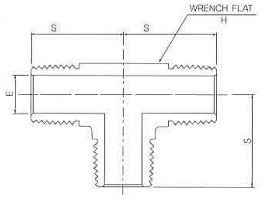




STREET TEE(MPST) - Female to male NPT.

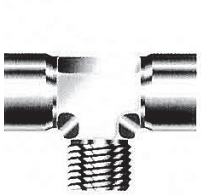
PART NO.	PIPE SIZE	L	S	E	WRENCH FLAT
MPST-2N	1/8	23.4	19.6	4.83	12.7
MPST-4N	1/4	28.9	28.9	7.11	17.46
MPST-6N	3/8	35.3	28.2	9.45	20.64
MPST-8N	1/2	35.8	35.3	11.94	25.4
MPST-12N	3/4	46.5	39.6	15.7	31.8
MPST-16N	1	48.8	49.3	22.4	42.9

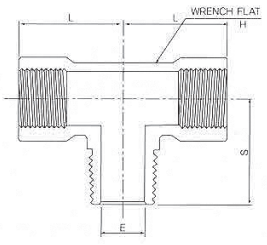




MALE TEE(MPTM) - Male NPT all port.

PART NO.	PIPE SIZE	S	E	WRENCH FLAT
MPTM-2N	1/8	19.1	4.83	12.7
MPTM-4N	1/4	25.4	7.11	15.8
MPTM-6N	3/8	26.7	9.65	17.46
MPTM-8N	1/2	33.3	11.9	20.64
MPTM-12N	3/4	35.3	15.7	25.4
MPTM-16N	1	44.5	22.4	31.8

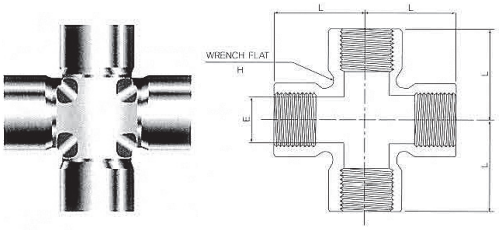




BRANCH TEE(MPBT) - Female to female to male NPT.

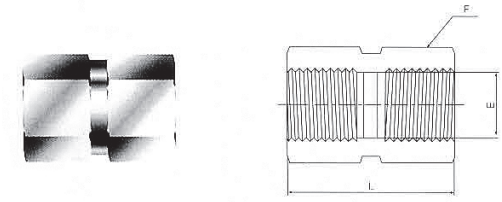
PART NO.	PIPE SIZE	L	S	E	WRENCH FLAT
MPBT-2N	1/8	23.4	19.6	4.86	12.7
MPBT-4N	1/4	288.9	28.9	7.11	17.46
MPBT-6N	3/8	35.3	30.2	9.4	20.64
MPBT-8N	1/2	35.8	35.3	11.94	25.4
MPBT-12N	3/4	46.5	39.6	15.7	31.8
MPBT	1	48.5	49.3	22.4	42.9

CROSS(MPCS) - Female NPT all ports.



PART NO.	PIPE SIZE	L	E	WRENCH FLAT
MPCS-2N	1/8	26.4	8.3	12.7
MPCS-4N	1/4	28.9	10.7	17.46
MPCS-6N	3/8	35.3	14.1	20.64
MPCS-8N	1/2	38.8	18.2	25.4
MPCS-12N	3/4	45.2	23.5	31.8
MPCS-16N	1	48.5	29.7	42.9

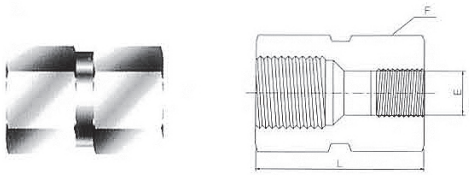
HEX COUPLING(MPHCG) - Female NPT both ends.



PART NO.	PIPE SIZE	L	E	F HEX
MPHCG-2N	1/8	20.3	8.6	14.28
MPHCG-4N	1/4	30.2	10.6	19.05
MPHCG-6N	3/8	33.2	14.3	22.22
MPHCG-8N	1/2	39.6	17.4	26.98
MPHCG-12N	3/4	41.1	22.7	31.75
MPHCG-16N	1	50.8	28.4	41.28

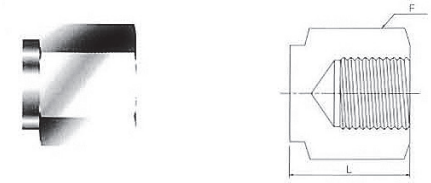
HEX REDUCING COUPLING(MPHRCG)

- Female NPT to reduced female NPT.



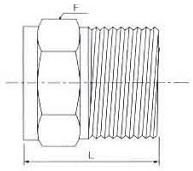
PART NO.	PIPE SIZE	REDUCED PIPE SIZE	L	E	F HEX
MPHRCG 4-2N	1/4	1/8	30.9	8.0	19.05
MPHRCG 6-4N	3/8	1/4	35.1	11.4	22.22
MPHRCG 8-2N	1/2	1/8	39.4	8.64	26.98
MPHRCG 8-4N	1/2	1/4	44.4	10.6	26.98
MPHRCG 8-6N	1/2	3/8	45.2	14.1	26.98
MPHRCG 12-4N	3/4	1/4	45.7	11.4	31.75
MPHRCG 12-8N	1	1/2	50.8	11.4	41.28
MPHRCG 16-4N	1	1/4	55.6	18.5	41.28
MPHRCG 16-8N	1	1/2	57.2	23.8	41.28

PIPE CAP(MPC) - Female NPT.



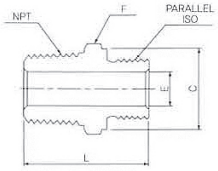
PART NO.	PIPE SIZE	L	F HEX
MPC-2N	1/8	19.1	14.28
MPC-4N	1/4	23.1	19.5
MPC-6N	3/8	26.2	22.22
MPC-8N	1/2	34.0	26.98
MPC-12N	3/4	36.6	31.8
MPC-16N	1	41.2	41.28

Master-LOK Instrument Thread Fittings



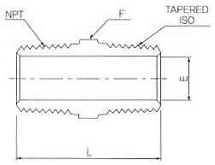
PIPE PLUG(MPP) - Female NPT.

PART NO.	PIPE SIZE	L	F HEX
MPP-2N	1/8	19.1	11.11
MPP-4N	1/4	24.4	14.28
MPP-6N	3/8	25.2	17.46
MPP-8N	1/2	30.7	22.22
MPP-12N	3/4	30.7	26.98
MPP-16N	1	38.1	34.92



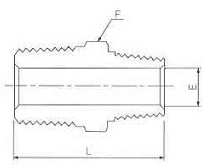
HEX NIPPLE(MPHN) - Male NPT to male ISO Parallel.

PART NO.	NPT THREAD SIZE	BSP/ISO THREAD SIZE	L	C	E	F HEX
MPHN-2NG	1/8	1/8-28 228/1	27.4	13.7	4.06	14.28
MPHN-4NG	1/4	1/4-19 228/1	36.8	18.5	5.8	19.05
MPHN-6NG	3/8	3/8-19 228/1	37.3	21.8	7.87	22.22
MPHN-8NG	1/2	1/2-14 228/1	46.7	26.7	11.9	26.98
MPHN-12NG	3/4	3/4-14 228/1	49.5	31.8	15.7	33.3
MPHN-16NG	1	1/11 228/1	57.9	39.6	19.8	41.28



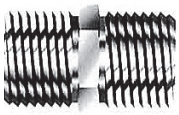
HEX NIPPLE(MPHN) - Male NPT to male ISO tapered.

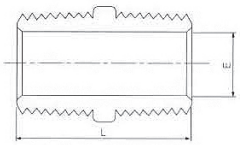
PART NO.	NPT THREAD SIZE	BSP/ISO THREAD SIZE	L	E	F HEX
MPHN-2NR	1/8	1/8-28 7/1	24.6	4.06	11.11
MPHN-4NR	1/4	1/4-19 7/1	35.3	7.11	14.28
MPHN-6NR	3/8	3/8-19 7/1	35.5	9.65	17.4
MPHN-8NR	1/2	1/2-14 7/1	46.7	11.9	22.22
MPHN-12NR	3/4	3/4-14 7/1	50.0	15.7	26.98
MPHN-16NR	1	1/11 7/1	58.7	22.4	34.92



HEX REDUCING NIPPLE(MPHRN) - Female NPT to reduced female NPT.

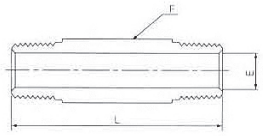
PART NO.	PIPE SIZE	REDUCED PIPE SIZE	L	E	F HEX
MPHRN 4-2N	1/4	1/8	30.9	4.83	14.28
MPHRN 6-2N	3/8	1/8	32.0	4.83	17.46
MPHRN 6-4N	3/8	1/4	35.7	7.11	17.46
MPHRN 8-2N	1/2	1/8	37.3	4.83	22.22
MPHRN 8-4N	1/2	1/4	41.3	7.11	22.22
MPHRN 8-6N	1/2	3/8	41.3	9.5	22.22
MPHRN 12-4N	3/4	1/4	46.4	7.11	26.98
MPHRN 12-8N	3/4	1/2	46.1	11.9	26.98
MPHRN 16-4N	1	1/4	49.3	7.11	34.92
MPHRN 16-8N	1	1/2	54.1	11.9	34.92
MPHRN 16-12N	1	3/4	54.1	15.7	34.92





CLOSE NIPPLE(MPCN) - Male NPT both ends.

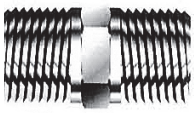
PART NO.	PIPE SIZE	L	E
MPCN-2N	1/8	19.1	4.83
MPCN-4N	1/4	28.5	7.11
MPCN-6N	3/8	28.5	9.65
MPCN-8N	1/2	31.8	11.9
MPCN-12N	3/4	31.8	15.7
MPCN-16N	1	47.8	22.4

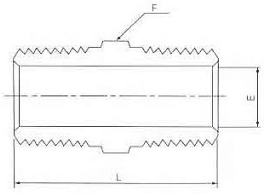


HEX LONG NIPPLE(MPHLN) - Male NPT both ends

PART NO.	PIPE SIZE	L	E	F HEX
MPHLN-2N	1/8		4.1	11.11
MPHLN-4N	1/4		7.11	14.28
MPHLN-6N	3/8		9.65	17.46
MPHLN-8N	1/2		11.9	22.22
MPHLN-12N	3/4		15.7	26.98
MPHLN-16N	1		22.4	34.92

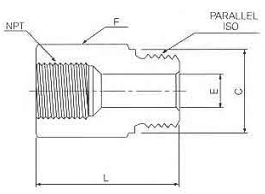
Specified length to be shown as last designator in art number.
Example : MPHLN-4N-2.00(2.00=2″ length)





HEX NIPPLE(MPHN) - Male NPT both ends.

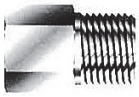
PART NO.	PIPE SIZE	L	E	F HEX
MPHN-2N	1/8	24.6	4.06	11.11
MPHN-4N	1/4	35.5	7.11	14.28
MPHN-6N	3/8	35.5	9.65	17.46
MPHN-8N	1/2	46.7	11.9	22.22
MPHN-12N	3/4	5.0	15.7	26.98
MPHN-16N	1	58.7	22.4	34.92

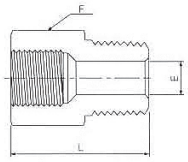


ADAPTER(MPA) - Female NPT to male ISO parallel.

PART NO.	NPT THREAD SIZE	BSP/ISO THREAD SIZE	L	C	E	F HEX
MPA-2GN	1/8	1/8-28 228/1	24.9	13.7	4.06	14.2
MPA-4GN	1/4	1/4-19 228/1	33.3	17.8	5.8	19.05
MPA-6GN	3/8	3/8-19 228/1	37.8	21.8	7.87	22.22
MPA-8GN	1/2	1/2-14 228/1	43.9	26.1	11.9	26.9
MPA-12GN	3/4	3/4-14 228/1	50.8	31.5	15.7	33.3
MPA-16GN	1	1/11 228/1	53.1	38.9	19.8	41.28

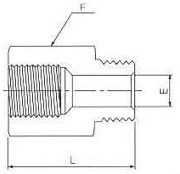
Master-LOK Instrument Thread Fittings





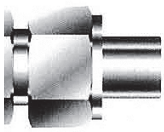
ADAPTER(MPA) - Female NPT tp same size male NPT.

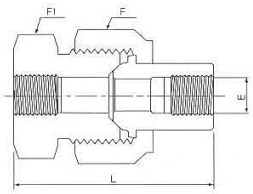
PART NO.	NPT THREAD SIZE	L	E	F HEX
MPA-2N	1/8	27.4	4.83	14.2
MPA-4N	1/4	35.6	7.11	19.05
MPA-6N	3/8	38.1	9.65	22.22
MPA-8N	1/2	49.3	11.4	26.9
MPA-12N	3/4	51.1	15.7	33.3
MPA-16N	1	57.9	22.4	41.28



REDUCING ADAPTER(MPRA) - Female NPT to reduced NPT.

PART NO.	FEMALE PIPE SIZE	MALE PIPE SIZE	L	E	F HEX
MPRA4-2N	1/4	1/8	30.9	3.05	19.05
MPRA6-2N	3/8	1/8	33.4	4.06	22.22
MPRA6-4N	3/8	1/4	38.1	7.11	22.22
MPRA8-2N	1/2	1/8	40.1	4.83	26.98
MPRA8-4N	1/2	1/4	44.7	7.11	26.98
MPRA8-6N	1/2	3/8	44.7	9.65	26.98
MPRA12-4N	3/4	1/4	46.1	7.11	33.33
MPRA12-6N	3/4	3/8	46.1	9.65	33.33
MPRA12-8N	3/4	1/2	50.8	11.4	33.33
MPRA16-4N	1	1/4	48.3	7.11	41.28
MPRA16-8N	1	1/2	53.1	11.4	41.28
MPRA16-12N	1	3/4	53.1	15.7	41.28





UNION BALL JOINT(MPUBT) - Female NPT both end.

PART NO.	PIPE SIZE	L	E	F HEX	F1 HEX
MPUBT-2N	1/8	45.7	6.86	1 1/8	15/16
MPUBT-4N	1/4	59.4	9.14	1 3/8	1 3/16
MPUBT-6N	3/8	63.5	13.2	1 1/2	1 5/16
MPUBT-8N	1/2	68.6	15.7	1 3/4	1 5/8
MPUBT-12N	3/4	79.2	22.4	2	1 7/8
MPUBT-16N	1	90.4	26.2	2 1/2	2 3/8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