














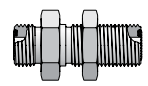

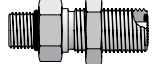



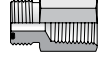
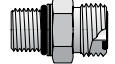

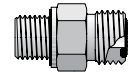


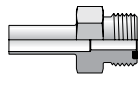

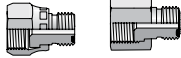

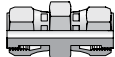
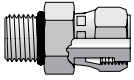
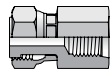
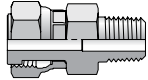
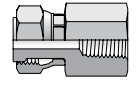
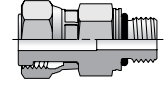
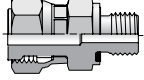
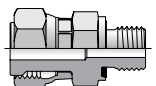

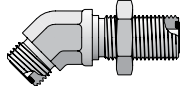
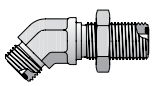
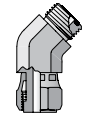
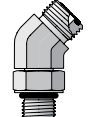
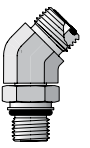
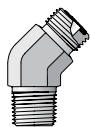
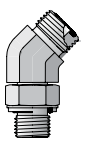





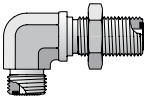
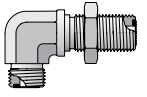
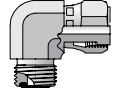
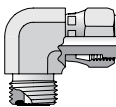
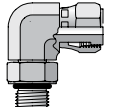
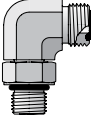
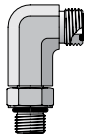

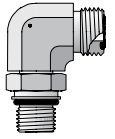
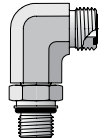
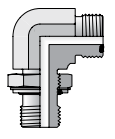
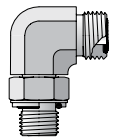
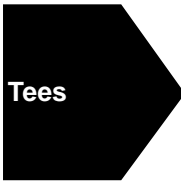
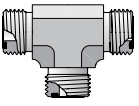
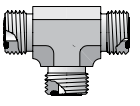
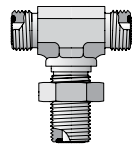
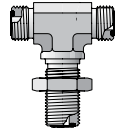
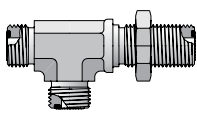
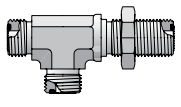
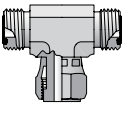
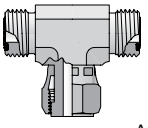
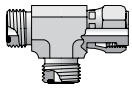
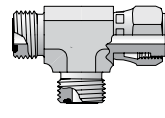
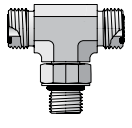
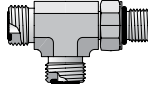
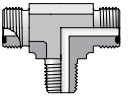
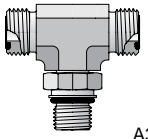
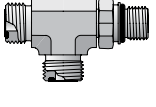
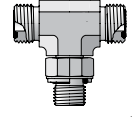
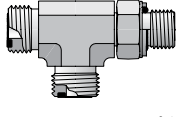
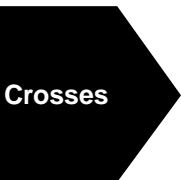
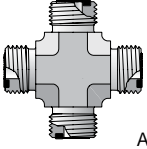







Seal-Lok™ O-Ring Face Seal Tube Fittings

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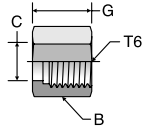
<p>Nuts, Sleeves, Locknuts</p> 	<p>BL Tube Nut</p>  <p>A9</p>	<p>BML Tube Nut - mm Hex</p>  <p>A9</p>	<p>TPLS (Metric) Parflange Sleeve</p>  <p>A9</p>	<p>TPL (Inch) Parflange Sleeve</p>  <p>A9</p>	<p>TL (Inch) Braze Reducer Sleeve</p>  <p>A10</p>
<p>TLS (Metric) Braze Reducer Sleeve</p>  <p>A10</p>	<p>SBR (Inch and Metric) Braze Ring</p>  <p>A11</p>	<p>WLNL Bulkhead Locknut</p>  <p>A11</p>	<p>WLNML Blkhd Locknut - mm Hex</p>  <p>A11</p>	<p>Straights</p> 	<p>HLO Union</p>  <p>A12</p>
<p>HMLO Union - mm Hex</p>  <p>A12</p>	<p>WLO Bulkhead Union</p>  <p>A12</p>	<p>WMLO Bulkhead Union - mm Hex</p>  <p>A13</p>	<p>WF5OLO ORFS Blkhd / SAE-ORB</p>  <p>A13</p>	<p>F5OLO ORFS / SAE-ORB</p>  <p>A14</p>	<p>FF5OLO ORFS - Long / SAE-ORB</p>  <p>A14</p>
<p>FLO ORFS / NPTF</p>  <p>A14</p>	<p>GLO ORFS / NPTF</p>  <p>A15</p>	<p>F87OMLO ORFS / ISO 6149</p>  <p>A15</p>	<p>F82EDMLO ORFS / Metric-ED</p>  <p>A15</p>	<p>F42EDMLO ORFS / BSPP-ED</p>  <p>A15</p>	<p>LOHB3 ORFS / Braze Socket</p>  <p>A16</p>
<p>MMLOHB3 ORFS / Braze - mm Hex</p>  <p>A16</p>	<p>LOHT3 ORFS / Tube Weld</p>  <p>A16</p>	<p>Straight Swivels</p> 	<p>TRLON Tube End Reducer</p>  <p>A17</p>	<p>LOHL6 Extender and Expander</p>  <p>A17</p>	<p>HL6 ORFS Swivel Union</p>  <p>A17</p>
<p>F65OL ORFS Swivel / SAE-ORB</p>  <p>A18</p>	<p>G65L ORFS Swivel / SAE-ORB</p>  <p>A18</p>	<p>F6L ORFS Swivel / NPTF</p>  <p>A18</p>	<p>G6L ORFS Swivel / NPTF</p>  <p>A18</p>	<p>F687OML ORFS Swivel / ISO 6149</p>  <p>A19</p>	<p>F682EDML ORFS Swivel / Metric-ED</p>  <p>A19</p>
<p>F642EDML ORFS Swivel / BSPP-ED</p>  <p>A19</p>	<p>45° Elbows</p> 	<p>WNLO Bulkhead Union</p>  <p>A19</p>	<p>WNLMO Bulkhead Union - mm Hex</p>  <p>A20</p>	<p>V6LO ORFS Swivel Elbow</p>  <p>A20</p>	<p>V5OLO ORFS / SAE-ORB</p>  <p>A20</p>
<p>V87OMLO ORFS / ISO 6149</p>  <p>A20</p>	<p>VLO ORFS / NPTF</p>  <p>A21</p>	<p>V40MLO ORFS / BSPP-ORR</p>  <p>A21</p>	<p>90° Elbows</p> 	<p>ELO Union Elbow</p>  <p>A21</p>	<p>EMLO Union Elbow - mm Hex</p>  <p>A21</p>

<p>WELO Bulkhead Union</p>  <p>A22</p>	<p>WEMLO Bulkhead Union - mm Hex</p>  <p>A22</p>	<p>C6LO ORFS Swivel Elbow</p>  <p>A23</p>	<p>C6MLO Swivel Elbow - mm Hex</p>  <p>A23</p>	<p>AOEL6 ORFS Swivel / SAE-ORB</p>  <p>A23</p>	<p>C5OLO ORFS / SAE-ORB</p>  <p>A23</p>
<p>CC5OLO ORFS / SAE-ORB - Long</p>  <p>A24</p>	<p>CLO ORFS / NPTF</p>  <p>A24</p>	<p>C87OMLO ORFS / ISO 6149</p>  <p>A24</p>	<p>CC87OMLO ORFS / ISO 6149 - Long</p>  <p>A25</p>	<p>C8OMLO ORFS / Metric-ORR</p>  <p>A25</p>	<p>C4OMLO ORFS / BSPP-ORR</p>  <p>A26</p>
<p>Tees</p> 	<p>JLO Union Tee</p>  <p>A26</p>	<p>JMLO Union Tee - mm Hex</p>  <p>A26</p>	<p>WJLO Bulkhead Branch</p>  <p>A26</p>	<p>WJMLO Blkhd Branch - mm Hex</p>  <p>A27</p>	<p>WJJLO Bulkhead Run</p>  <p>A27</p>
<p>WJMJLO Bulkhead Run - mm Hex</p>  <p>A28</p>	<p>S6LO ORFS Swivel Branch</p>  <p>A28</p>	<p>S6MLO Swivel Branch - mm Hex</p>  <p>A28</p>	<p>R6LO ORFS Swivel Run</p>  <p>A29</p>	<p>R6MLO Swivel Run - mm Hex</p>  <p>A29</p>	<p>S5OLO SAE-ORB Branch Tee</p>  <p>A29</p>
<p>R5OLO SAE-ORB Run Tee</p>  <p>A30</p>	<p>SLO NPTF Branch Tee</p>  <p>A30</p>	<p>S87OMLO ISO 6149 Branch Tee</p>  <p>A30</p>	<p>R87OMLO ISO 6149 Run Tee</p>  <p>A31</p>	<p>S4OMLO BSPP-ORR Branch Tee</p>  <p>A31</p>	<p>R4OMLO BSPP-ORR Run Tee</p>  <p>A32</p>
<p>Crosses</p> 	<p>KLO Union Cross</p>  <p>A32</p>	<p>Plugs, Caps and Bleed Adapters</p> 	<p>PNLO ORFS Plug</p>  <p>A33</p>	<p>PNMLO ORFS Plug - mm Hex</p>  <p>A33</p>	<p>FNL ORFS Cap</p>  <p>A33</p>
<p>FNML ORFS Cap - mm Hex</p>  <p>A33</p>	<p>UPTC Nut Assembly</p> 	<p>UPTC Nut Assembly</p>  <p>A34</p>			

BL

Tube Nut
ORFS

SAE 520110



TUBE FITTING PART #	END SIZE (in.)	T6 UNF/UNF-2B	B HEX (in.)	C (in.)	G (in.)	Material	
						-S	-SS
4 BL	1/4	9/16 - 18	11/16	0.410	0.59	•	•
5 BL	5/16	5/8 - 18	3/4	0.470	0.63	•	•
6 BL	3/8	11/16 - 18	13/16	0.530	0.67	•	•
8 BL	1/2	13/16 - 16	15/16	0.650	0.79	•	•
10 BL	5/8	1 - 14	1 1/8	0.830	0.94	•	•
12 BL	3/4	1 3/16 - 12	1 3/8	0.950	1.04	•	•
12-14 BL	7/8	1 3/16 - 12	1 3/8	0.990	1.20	•	•
14 BL	7/8	1 5/16 - 12	1 1/2	1.075	1.04	•	•
16 BL	1	1 7/16 - 12	1 5/8	1.150	1.08	•	•
20 BL	1 1/4	1 11/16 - 12	1 7/8	1.420	1.08	•	•
24 BL	1 1/2	2 - 12	2 1/4	1.730	1.08	•	•
32 BL*	2	2 1/2 - 12	2 7/8	2.220	1.30	•	•

* Sizes 14 and 32 are not included in SAE J1453.

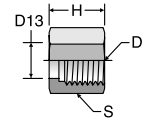
** These tube nuts should not be exposed to annealing temperatures, such as furnace brazing. Contact the Tube Fittings Division for information on special nuts.

• Stainless steel tube nuts are prelubricated for ease of assembly.

BML

Tube Nut – mm Hex
ORFS

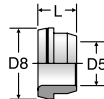
ISO 8434-3 NA
SAE 52M0110A



TUBE FITTING PART #	END SIZE		D THREAD UN/UNF-2B	D13 DRILL (mm)	H (mm)	S HEX (mm)	Material	
	(mm)	(in.)					-S	-SS
4BML	6	1/4	9/16 - 18	10.50	15.0	17	•	•
6BML	8,10	3/8	11/16 - 16	13.55	17.5	22	•	•
8BML	12	1/2	13/16 - 16	16.60	20.0	24	•	•
10BML	14,15,16	5/8	1 - 14	21.10	24.0	30	•	•
12BML	18,20	3/4	1 3/16 - 12	24.15	26.5	36	•	•
16BML	22,25	1	1 7/16 - 12	29.10	27.5	41	•	•
20BML	28,30,32	1 1/4	1 11/16 - 12	36.00	27.5	50	•	•
24BML	35,38	1 1/2	2 - 12	44.00	27.5	60	•	•

TPLS (Metric)

Parflange Sleeve for
Metric Tubing
ORFS Mechanically
Attachable Sleeve



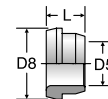
TUBE FITTING PART #	USED WITH FITTING SIZE	D5 END SIZE (mm)	D8 DIA (mm)	L (mm)	Material	
					-S	-SS
TPLS6	-4	6	12.75	7.5	•	•
TPLS8	-6	8	15.75	8.5	•	•
TPLS10	-6	10	15.75	8.5	•	•
TPLS12	-8	12	18.90	10.5	•	•
TPLS14	-10	14	23.50	10.5	•	•
TPLS15	-10	15	23.50	10.5	•	•
TPLS16	-10	16	23.50	10.5	•	•
TPLS18	-12	18	27.80	12.0	•	•
TPLS20	-12	20	27.80	12.0	•	•
TPLS25	-16	25	34.00	13.5	•	•
TPLS30	-20	30	40.50	13.0	•	•
TPLS32	-20	32	40.50	13.0	•	•
TPLS35	-24	35	48.50	12.5	•	•
TPLS38	-24	38	48.50	12.5	•	•

• Must be mechanically attached using Parflange system.

• Additional -S not required, TPLS6 is complete part number.

TPL (Inch)

Parflange Sleeve
for Inch Tubing
ORFS Mechanically
Attachable Sleeve



TUBE FITTING PART #	D5 END SIZE (in.)	D8 DIA (in.)	L (in.)	Material	
				-S	-SS
4 TPL	1/4	0.50	0.30	•	•
6 TPL	3/8	0.62	0.34	•	•
8 TPL	1/2	0.74	0.42	•	•
10 TPL	5/8	0.92	0.42	•	•
12 TPL	3/4	1.09	0.47	•	•
16 TPL	1	1.34	0.53	•	•
20 TPL	1 1/4	1.59	0.51	•	•
24 TPL	1 1/2	1.91	0.49	•	•
32 TPL	2	2.39	0.54	•	•

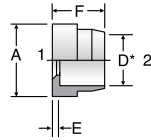
• Must be mechanically attached using Parflange system.

Dimensions and pressures for reference only, subject to change.

TL (Inch)

Braze Sleeve for Inch Tubing
ORFS Silver Braze Sleeve Reducer

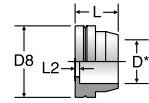
SAE 520115



TLS (Metric)

Braze Sleeve for Metric Tubing
ORFS Silver Braze Sleeve

ISO 8434-3 BRSL
SAE 5201M15



TUBE FITTING PART #	END SIZE		A (in.)	D* (in.)	E (in.)	F (in.)	Material	
	1 (in.)	2 (in.)					-S	-SS
4 TL	1/4		0.50	0.26	0.04	0.37	•	•
6 TL	3/8		0.62	0.38	0.04	0.37	•	•
6-4 TL	3/8	1/4	0.62	0.26	0.08	0.41	•	•
8 TL	1/2		0.75	0.51	0.04	0.37	•	•
8-4 TL	1/2	1/4	0.75	0.26	0.14	0.47	•	•
8-6 TL	1/2	3/8	0.75	0.38	0.14	0.47	•	•
10 TL	5/8		0.92	0.63	0.06	0.41	•	•
10-4 TL	5/8	1/4	0.92	0.26	0.20	0.53	•	•
10-6 TL	5/8	3/8	0.92	0.38	0.20	0.53	•	•
10-8 TL	5/8	1/2	0.92	0.51	0.20	0.53	•	•
12 TL	3/4		1.10	0.76	0.06	0.55	•	•
12-4 TL	3/4	1/4	1.10	0.26	0.24	0.57	•	•
12-6 TL	3/4	3/8	1.10	0.38	0.24	0.57	•	•
12-8 TL	3/4	1/2	1.10	0.51	0.24	0.57	•	•
12-10 TL	3/4	5/8	1.10	0.63	0.22	0.57	•	•
12-14 TL**	3/4	7/8	1.10	0.88	0.06	0.65	•	•
14 TL***	7/8		1.22	0.88	0.06	0.55	•	•
16 TL	1		1.35	1.01	0.06	0.61	•	•
16-8 TL	1	1/2	1.35	0.51	0.28	0.61	•	•
16-10 TL	1	5/8	1.35	0.63	0.26	0.61	•	•
16-12 TL	1	3/4	1.35	0.76	0.18	0.67	•	•
16-14 TL	1	7/8	1.35	0.88	0.18	0.67	•	•
20 TL	1 1/4		1.60	1.26	0.06	0.61	•	•
20-12 TL	1 1/4	3/4	1.60	0.76	0.28	0.77	•	•
20-16 TL	1 1/4	1	1.60	1.01	0.28	0.83	•	•
24 TL	1 1/2		1.91	1.51	0.06	0.61	•	•
24-16 TL	1 1/2	1	1.91	1.01	0.28	0.83	•	•
24-20 TL	1 1/2	1 1/4	1.91	1.26	0.28	0.83	•	•
32 TL***	2		2.41	2.01	0.06	0.65	•	•

Unplated part, oil dipped for corrosion protection.

* D is for silver brazing.

** 12-14 TL must be assembled with 12-14 BL.

*** Sizes 14 and 32 are not included in SAE J1453.

• Uses SBR silver braze rings

TUBE FITTING PART #	USED WITH FITTING SIZE	D* END SIZE (mm)	D8 DIA (mm)	L (mm)	L2 (mm)	Material	
						S	SS
TLS6	-4	6	12.8	9.5	1.0	•	•
TLS8	-6	8	15.8	9.5	1.0	•	•
TLS10	-6	10	15.8	9.5	1.0	•	•
TLS12	-8	12	18.9	9.5	1.0	•	•
TLS16	-10	16	23.5	10.5	1.5	•	•
TLS20	-12	20	27.9	14.0	1.5	•	•
TLS25	-16	25	34.2	15.5	1.5	•	•
TLS30	-20	30	40.6	15.5	1.5	•	•
TLS38	-24	38	48.5	15.5	1.5	•	•

Unplated part, oil dipped for corrosion protection.

* D is for silver brazing.

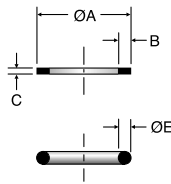
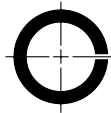
• Uses SBR (metric) silver braze rings

• Stainless steel part number example: TLSS10

Dimensions and pressures for reference only, subject to change.

SBR (Inch)

Silver Braze Ring for Inch Tubing

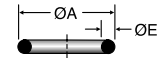
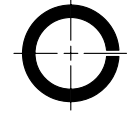


TUBE FITTING PART #	END SIZE (in.)	A DIA (in.)	B (in.)	C (in.)	E (in.)
4 SBR	1/4	0.260	—	—	0.05
6 SBR	3/8	0.390	0.07	0.03	—
8 SBR	1/2	0.515	0.07	0.03	—
10 SBR	5/8	0.640	0.07	0.03	—
12 SBR	3/4	0.765	0.08	0.04	—
14 SBR	7/8	0.890	—	—	0.06
16 SBR	1	1.015	0.08	0.04	—
20 SBR	1 1/4	1.265	0.08	0.04	—
24 SBR	1 1/2	1.515	0.08	0.04	—
32 SBR	2	2.015	—	—	0.09

SBR recommended for steel or copper tubing. -S not required.
 SBR-SS recommended for stainless tubing, but can be used on steel tubing.
 Contact the Tube Fittings Division for braze rings used in marine or special applications.

SBR (Metric)

Silver Braze Ring for Metric Tubing



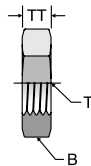
TUBE FITTING PART #	END SIZE (mm)	A DIA (mm)	E (mm)
SBR 6mm	6	6.4	1.2
SBR 8mm	8	8.4	1.2
SBR 10mm	10	10.4	1.2
SBR 12mm	12	12.4	1.2
SBR 16mm	16	16.4	1.2
SBR 20mm	20	20.4	1.6
SBR 25mm	25	25.4	1.6
SBR 30mm	30	30.4	1.6
SBR 38mm	38	38.4	1.6

SBR recommended for steel or copper tubing.
 SBR-SS recommended for stainless tubing, but can be used on steel tubing.
 Contact the Tube Fittings Division for braze rings used in marine or special applications.

WLNL

Bulkhead Locknut

SAE 520118



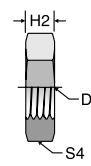
TUBE FITTING PART #	END SIZE (in.)	T TUBE END UN/UNF-2A	B HEX (in.)	TT (in.)	Material
					-S
4 WLNL	1/4	9/16 - 18	13/16	0.27	•
6 WLNL	3/8	11/16 - 16	1	0.31	•
8 WLNL	1/2	13/16 - 16	1 1/8	0.35	•
10 WLNL	5/8	1 - 14	1 5/16	0.41	•
12 WLNL	3/4	1 3/16 - 12	1 1/2	0.41	•
14 WLNL*	7/8	1 5/16 - 12	1 5/8	0.41	•
16 WLNL	1	1 7/16 - 12	1 3/4	0.41	•
20 WLNL	1 1/4	1 11/16 - 12	2	0.41	•
24 WLNL	1 1/2	2 - 12	2 3/8	0.41	•

* Size 14 is not included in SAE J1453.

WLNML

Bulkhead Locknut – mm Hex

ISO 8434-3 BHLN
 SAE 52M0118



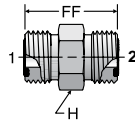
TUBE FITTING PART #	END SIZE		D TUBE END UN/UNF-2B	H2 (mm)	S4 HEX (mm)	Material
	(mm)	(in.)				S
4WLNML	6	1/4	9/16 - 18	7.0	22	•
6WLNML	8,10	3/8	11/16 - 16	8.0	27	•
8WLNML	12	1/2	13/16 - 16	9.0	30	•
10WLNML	14,15,16	5/8	1 - 14	10.5	36	•
12WLNML	18,20	3/4	1 3/16 - 12	10.5	41	•
16WLNML	22,25	1	1 7/16 - 12	10.5	46	•
20WLNML	28,30,32	1 1/4	1 11/16 - 12	10.5	50	•
24WLNML	35,38	1 1/2	2 - 12	10.5	60	•

Dimensions and pressures for reference only, subject to change.

HLO

Union
ORFS / ORFS

SAE 520101



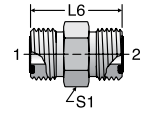
TUBE FITTING PART #	END SIZE		FF (in.)	H HEX (in.)	Dynamic Pressure (x 1,000 PSI)		
	1 (in.)	2 (in.)			-S	-SS	D
	4 HLO	1/4					
6 HLO	3/8	3/8	1.22	3/4	9.2	9.2	4.0
6-4 HLO	3/8	1/4	1.18	3/4	9.2	9.2	4.0
8 HLO	1/2	1/2	1.40	7/8	9.2	9.2	4.0
8-6 HLO	1/2	3/8	1.32	7/8	9.2	9.2	4.0
10 HLO	5/8	5/8	1.67	1 1/16	6.0	6.0	3.0
10-8 HLO	5/8	1/2	1.57	1 1/16	6.0	6.0	3.0
12 HLO	3/4	3/4	1.85	1 1/4	6.0	6.0	3.0
12-8 HLO	3/4	1/2	1.69	1 1/4	6.0	6.0	3.0
12-10 HLO	3/4	5/8	1.79	1 1/4	6.0	6.0	3.0
16 HLO	1	1	1.95	1 1/2	6.0	6.0	3.0
16-12 HLO	1	3/4	1.93	1 1/2	6.0	6.0	3.0
20 HLO	1 1/4	1 1/4	2.03	1 3/4	6.0	6.0	3.0
20-16 HLO	1 1/4	1	2.03	1 3/4	6.0	6.0	3.0
24 HLO	1 1/2	1 1/2	2.09	2 1/8	5.0	5.0	2.5
32 HLO*	2	2	2.48	2 3/4	3.0	3.0	1.5

* Size 32 is not included in SAE J1453.

HMLO

Union – mm Hex
ORFS / ORFS

ISO 8434-3 S
SAE 52M0101

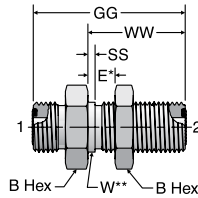


TUBE FITTING PART #	END SIZE 1 & 2		L6 (mm)	S1 HEX (mm)	Dynamic Pressure (x 1,000 PSI)	
	(mm)	(in.)			S	SS
	4HMLO	6				
6HMLO	8,10	3/8	31.0	19	9.2	9.2
8HMLO	12	1/2	35.5	22	9.2	9.2
10HMLO	14,15,16	5/8	42.5	27	6.0	6.0
12HMLO	18,20	3/4	47.0	32	6.0	6.0
16HMLO	22,25	1	49.5	41	6.0	6.0
20HMLO	28,30,32	1 1/4	51.5	46	6.0	6.0
24HMLO	35,38	1 1/2	53.0	55	5.0	5.0

WLO

Bulkhead Union
ORFS / ORFS

SAE 520601
WLO-WLNL Body with Locknut
(See page A11 for WLNL)



TUBE FITTING PART #	END SIZE (in.)	B HEX (in.)	E MAX (in.)	GG (in.)	SS	W DIA (in.)	WW (in.)	Dynamic Pressure (x 1,000 PSI)	
								-S	-SS
								4 WLO	1/4
6 WLO	3/8	1	0.55	2.09	0.06	0.69	1.34	9.2	9.2
8 WLO	1/2	1 1/8	0.55	2.30	0.06	0.81	1.44	9.2	9.2
10 WLO	5/8	1 5/16	0.55	2.62	0.06	1.00	1.59	6.0	6.0
12 WLO	3/4	1 1/2	0.55	2.72	0.06	1.19	1.63	6.0	6.0
16 WLO	1	1 3/4	0.55	2.76	0.06	1.44	1.65	6.0	6.0
20 WLO	1 1/4	2	0.55	2.76	0.06	1.69	1.65	6.0	6.0
24 WLO	1 1/2	2 3/8	0.55	2.76	0.06	2.00	1.65	5.0	5.0

** W – Bulkhead pilot diameter. Recommended clearance hole is W + 0.015".

Dimensions and pressures for reference only, subject to change.

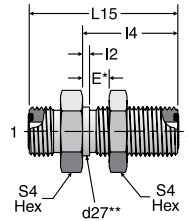


WMLO

Bulkhead Union – mm Hex
ORFS / ORFS

ISO 8434-3 BHS
SAE 52M0601

WMLO-WLNML - Body with Locknut
(See page A11 for WLNML)



TUBE FITTING PART #	END SIZE		d27** (mm)	E (mm)	I4 (mm)	I2 (mm)	L15 (mm)	S4 HEX (mm)	Dynamic Pressure (x 1,000 PSI)	
	1 & 2								S	SS
	(mm)	(in.)								
4WMLO	6	1/4	14.3	14	31.5	1.5	48.0	22	9.2	9.2
6WMLO	8,10	3/8	17.5	14	34.0	1.5	53.0	27	9.2	9.2
8WMLO	12	1/2	20.6	14	36.5	1.5	58.5	30	9.2	9.2
10WMLO	14,15,16	5/8	25.4	14	40.5	1.5	66.5	36	6.0	6.0
12WMLO	18,20	3/4	30.2	14	41.5	1.5	69.0	41	6.0	6.0
16WMLO	22,25	1	36.5	14	42.0	1.5	70.0	46	6.0	6.0
20WMLO	28,30,32	1 1/4	42.9	14	42.0	1.5	70.0	50	6.0	6.0
24WMLO	35,38	1 1/2	50.8	14	42.0	1.5	70.0	60	5.0	5.0

* E – Maximum bulkhead thickness.

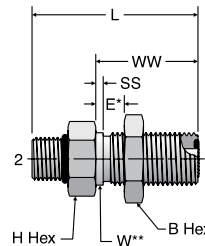
**d27 – Bulkhead pilot diameter. Recommended clearance hole is d27 + 0.4 mm

WF5OLO

Straight Thread Bulkhead Connector

ORFS / SAE-ORB

WF5OLO-WLNL - Body with Locknut
(See page A11 for WLNL)



TUBE FITTING PART #	END SIZE		B HEX (in.)	E MAX (in.)	H HEX (in.)	L (in.)	SS (in.)	W DIA (in.)	WW (in.)	Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 UN/UNF-2A								-S	-SS
	4 WF5OLO	1/4									
6 WF5OLO	3/8	9/16 - 18	1	0.55	1	2.31	0.06	0.69	1.34	9.2	9.2
8 WF5OLO	1/2	3/4 - 16	1 1/8	0.55	1 1/8	2.60	0.06	0.81	1.44	9.2	9.2
10 WF5OLO	5/8	7/8 - 14	1 5/16	0.55	1 5/16	2.69	0.06	1.00	1.60	6.0	6.0
12 WF5OLO	3/4	1 1/16 - 12	1 1/2	0.55	1 1/2	2.89	0.06	1.19	1.64	6.0	6.0
16 WF5OLO	1	1 5/16 - 12	1 3/4	0.55	1 3/4	2.95	0.20	1.58	1.66	6.0	6.0

* E – Maximum bulkhead thickness.

** W – Bulkhead pilot diameter. Recommended clearance hole is W + 0.015".

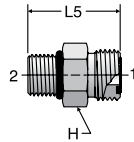
Dimensions and pressures for reference only, subject to change.



F5OLO

Straight Thread Connector
ORFS / SAE-ORB

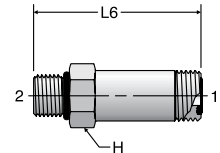
SAE 520120



FF5OLO

Long Straight Thread Connector
ORFS-Long / SAE-ORB

SAE 521720 (previously 520122)

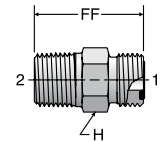


TUBE FITTING PART #	END SIZE		H HEX (in.)	L5 (in.)	Dynamic Pressure (x 1,000 PSI)		
	1 (in.)	2 UN/UNF-2A			-S	-SS	D
4-5 F5OLO	1/4	1/2 - 20	5/8	1.16	9.2	9.2	4.0
4-6 F5OLO	1/4	9/16 - 18	3/4	1.20	9.2	9.2	4.0
4-8 F5OLO	1/4	3/4 - 16	7/8	1.32	9.2	9.2	4.0
6 F5OLO	3/8	9/16 - 18	3/4	1.26	9.2	9.2	4.0
6-4 F5OLO	3/8	7/16 - 20	3/4	1.34	9.2	9.2	4.0
6-5 F5OLO	3/8	1/2 - 20	3/4	1.22	9.2	9.2	4.0
6-8 F5OLO	3/8	3/4 - 16	7/8	1.38	9.2	9.2	4.0
6-10 F5OLO	3/8	7/8 - 14	1	1.52	9.2	9.2	4.0
8-12 F5OLO	3/8	1 1/16 - 12	1 1/4	1.67	9.2	9.2	4.0
8 F5OLO	1/2	3/4 - 16	7/8	1.44	9.2	9.2	4.0
8-4 F5OLO	1/2	7/16 - 20	7/8	1.44	9.2	9.2	4.0
8-6 F5OLO	1/2	9/16 - 18	7/8	1.48	6.0	6.0	3.0
8-10 F5OLO	1/2	7/8 - 14	1	1.59	6.0	6.0	3.0
8-12 F5OLO	1/2	1 1/16 - 12	1 1/4	1.75	6.0	6.0	3.0
8-16 F5OLO	1/2	1 5/16 - 12	1 1/2	1.79	6.0	6.0	3.0
10 F5OLO	5/8	7/8 - 14	1 1/16	1.69	6.0	6.0	3.0
10-6 F5OLO	5/8	9/16 - 18	1 1/16	1.63	6.0	6.0	3.0
10-8 F5OLO	5/8	3/4 - 16	1 1/16	1.77	6.0	6.0	3.0
10-12 F5OLO	5/8	1 1/16 - 12	1 1/4	1.85	6.0	6.0	3.0
10-16 F5OLO	5/8	1 5/16 - 12	1 1/2	1.89	6.0	6.0	3.0
12 F5OLO	3/4	1 1/16 - 12	1 1/4	1.91	6.0	6.0	3.0
12-6 F5OLO	3/4	9/16 - 16	1 1/4	1.77	6.0	6.0	3.0
12-8 F5OLO	3/4	3/4 - 16	1 1/4	1.91	6.0	6.0	3.0
12-10 F5OLO	3/4	7/8 - 14	1 1/4	1.99	6.0	6.0	3.0
12-16 F5OLO	3/4	1 5/16 - 12	1 1/2	1.95	6.0	6.0	3.0
14 F5OLO	7/8	1 3/16 - 12	1 3/8	1.91	6.0	6.0	6.0
16 F5OLO	1	1 5/16 - 12	1 1/2	1.97	6.0	6.0	3.0
16-8 F5OLO	1	3/4 - 16	1 1/2	1.96	6.0	6.0	3.0
16-10 F5OLO	1	7/8 - 14	1 1/2	2.05	6.0	6.0	3.0
16-12 F5OLO	1	1 1/16 - 12	1 1/2	2.15	6.0	6.0	3.0
16-20 F5OLO	1	1 5/8 - 12	1 7/8	2.07	6.0	6.0	3.0
16-24 F5OLO	1	1 7/8 - 12	2 1/8	2.13	6.0	6.0	3.0
20 F5OLO	1 1/4	1 5/8 - 12	1 7/8	2.07	6.0	6.0	3.0
20-16 F5OLO	1 1/4	1 5/16 - 12	1 7/8	2.28	6.0	6.0	3.0
20-24 F5OLO	1 1/4	1 7/8 - 12	2 1/8	2.13	5.0	5.0	2.5
24 F5OLO	1 1/2	1 7/8 - 12	2 1/8	2.13	5.0	5.0	2.5
24-20 F5OLO	1 1/2	1 5/8 - 12	2 1/8	2.34	5.0	5.0	2.5
32 F5OLO*	2	2 1/2 - 12	2 3/4	2.32	3.0	3.0	1.5

TUBE FITTING PART #	END SIZE		H HEX (in.)	L6 (in.)	Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 UN/UNF-2A			-S	-SS
6 FF5OLO	3/8	9/16 - 18	3/4	2.27	9.2	9.2
6-4 FF5OLO	3/8	7/16 - 20	3/4	2.39	9.2	9.2
8 FF5OLO	1/2	3/4 - 16	7/8	2.67	9.2	9.2
10 FF5OLO	5/8	7/8 - 14	1 1/16	3.14	6.0	6.0
12 FF5OLO	3/4	1 1/16 - 12	1 1/4	3.76	6.0	6.0
16 FF5OLO	1	1 5/16 - 12	1 1/2	4.14	6.0	6.0
20 FF5OLO	1 1/4	1 5/8 - 12	1 7/8	4.76	6.0	6.0
24 FF5OLO	1 1/2	1 7/8 - 12	2 1/8	5.26	5.0	5.0

FLO

Male Pipe Connector
ORFS / NPTF



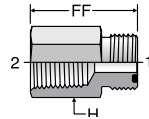
TUBE FITTING PART #	END SIZE		FF (in.)	H HEX (in.)	Dynamic Pressure (x 1,000 PSI)		
	1 (in.)	2 NPTF			-S	-SS	D
4-4 FLO	1/4	1/4 - 18	1.26	5/8	6.0	6.0	3.0
4-6 FLO	1/4	3/8 - 18	1.32	3/4	6.0	6.0	3.0
4-8 FLO	1/4	1/2 - 14	1.52	7/8	6.0	6.0	3.0
6 FLO	3/8	1/4 - 18	1.25	3/4	6.0	6.0	3.0
6-2 FLO	3/8	1/8 - 27	1.16	3/4	6.0	6.0	3.0
6-6 FLO	3/8	3/8 - 18	1.34	3/4	6.0	6.0	3.0
6-8 FLO	3/8	1/2 - 14	1.55	7/8	6.0	6.0	3.0
8 FLO	1/2	3/8 - 18	1.48	7/8	6.0	6.0	3.0
8-4 FLO	1/2	1/4 - 18	1.48	7/8	6.0	6.0	3.0
8-8 FLO	1/2	1/2 - 14	1.64	7/8	6.0	6.0	3.0
8-12 FLO	1/2	3/4 - 14	1.69	1 1/8	6.0	6.0	3.0
10 FLO	5/8	1/2 - 14	1.82	1 1/16	6.0	6.0	3.0
10-12 FLO	5/8	3/4 - 14	1.82	1 1/8	5.5	5.5	2.8
12 FLO	3/4	3/4 - 14	1.93	1 1/4	5.5	6.0	2.8
12-8 FLO	3/4	1/2 - 14	1.93	1 1/4	6.0	6.0	3.0
12-16 FLO	3/4	1 - 11 1/2	2.13	1 3/8	4.5	4.5	2.3
16 FLO	1	1 - 11 1/2	2.19	1 1/2	4.5	4.5	2.3
16-12 FLO	1	3/4 - 14	2.00	1 1/2	5.5	5.5	2.3
16-20 FLO	1	1 1/4 - 11 1/2	2.30	1 3/4	3.0	3.0	1.5
20 FLO	1 1/4	1 1/4 - 11 1/2	2.30	1 7/8	3.0	4.0	1.5
20-12 FLO	1 1/4	3/4 - 14	2.02	7/8	4.5	4.5	2.9
20-16 FLO	1 1/4	1 - 11 1/2	2.27	1 7/8	4.5	4.5	2.3
24 FLO	1 1/2	1 1/2 - 11 1/2	2.40	2 1/8	3.0	3.0	1.5

Dimensions and pressures for reference only, subject to change.



GLO

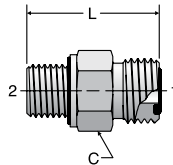
Female Pipe Connector
ORFS / Female Pipe



TUBE FITTING PART #	END SIZE		FF (in.)	H HEX (in.)	Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 NPTF			-S	-SS
	4 GLO	1/4				
4-4 GLO-S	1/4	1/4 - 18	1.25	3/4	6.0	6.0
6 GLO	3/8	1/4 - 18	1.30	3/4	6.0	6.0
6-6 GLO-S	3/8	3/8 - 18	1.34	7/8	6.0	6.0
8 GLO	1/2	3/8 - 18	1.34	7/8	6.0	6.0

F42EDMLO

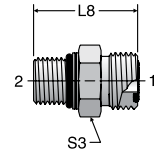
Male Connector – BSPP
(for ISO 1179-1 Port)
ORFS / BSPP-ED



TUBE FITTING PART #	END SIZE			C HEX (mm)	L (mm)	Dynamic Pressure (x 1,000 PSI)	
	1		2			S	SS
	(mm)	(in.)	BSPP				
4F42EDMLO	6	1/4	1/8 - 28	17	25.7	9.2	9.2
4-4F42EDMLO	6	1/4	1/4 - 19	19	30.5	9.2	9.2
4-6F42EDMLO	6	1/4	3/8 - 19	22	31.6	9.2	9.2
4-8F42EDMLO	6	1/4	1/2 - 14	27	35.4	6.0	6.0
6F42EDMLO	8,10	3/8	1/4 - 19	19	31.9	9.2	9.2
6-2F42EDMLO	8,10	3/8	1/8 - 28	19	31.1	9.2	9.2
6-6F42EDMLO	8,10	3/8	3/8 - 19	22	33.0	9.2	9.2
6-8F42EDMLO	8,10	3/8	1/2 - 14	27	36.5	6.0	6.0
6-12F42EDMLO	8,10	3/8	3/4 - 14	32	40.3	6.0	6.0
8F42EDMLO	12	1/2	3/8 - 19	22	34.6	9.2	9.2
8-4F42EDMLO	12	1/2	1/4 - 19	22	37.5	9.2	9.2
8-8F42EDMLO	12	1/2	1/2 - 14	27	38.4	6.0	6.0
8-12F42EDMLO	12	1/2	3/4 - 14	32	41.9	6.0	6.0
10F42EDMLO	14,15,16	5/8	1/2 - 14	27	41.1	6.0	6.0
10-6F42EDMLO	14,15,16	5/8	3/8 - 19	27	42.4	9.2	9.2
10-12F42EDMLO	14,15,16	5/8	3/4 - 14	32	44.3	6.0	6.0
12F42EDMLO	18,20	3/4	3/4 - 14	32	46.1	6.0	6.0
12-8F42EDMLO	18,20	3/4	1/2 - 14	32	48.5	6.0	6.0
12-16F42EDMLO	18,20	3/4	1 - 11	41	47.5	6.0	6.0
12-20F42EDMLO	18,19,20	3/4	1 1/4 - 11	50	53.0	6.0	6.0
16F42EDMLO	22,25	1	1 - 11	41	49.8	6.0	6.0
16-12F42EDMLO	22,25	1	3/4 - 14	38	50.3	6.0	6.0
16-20F42EDMLO	22,25	1	1 1/4 - 11	50	53.8	6.0	6.0
16-24F42EDMLO	22,25	1	1 1/2 - 11	55	57.5	5.0	5.0
20F42EDMLO	28,30,32	1 1/4	1 1/4 - 11	50	53.8	6.0	6.0
20-16F42EDMLO	28,30,32	1 1/4	1 - 11	48	55.9	6.0	6.0
20-24F42EDMLO	28,30,32	1 1/4	1 1/2 - 11	55	57.6	5.0	5.0
24F42EDMLO	38	1 1/2	1 1/2 - 11	55	57.6	5.0	5.0

F87OMLO

Metric Straight Thread Connector
ORFS / ISO 6149

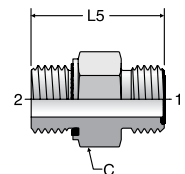


ISO 8434-3 SDS
SAE 52M0187

TUBE FITTING PART #	END SIZE			L8 (mm)	S3 HEX (mm)	Dynamic Pressure (x 1,000 PSI)	
	1		2			S	SS
	(mm)	(in.)	ISO 261				
4M12F87OMLO	6	1/4	M12X1.5	28.5	17	9.2	9.2
4M14F87OMLO	6	1/4	M14X1.5	29.5	19	9.2	9.2
6M12F87OMLO	8,10	3/8	M12X1.5	32.0	22	9.2	9.2
6M14F87OMLO	8,10	3/8	M14X1.5	32.0	22	9.2	9.2
6M16F87OMLO	8,10	3/8	M16X1.5	33.5	22	9.2	9.2
6M18F87OMLO	8,10	3/8	M18X1.5	36.1	24	9.2	9.2
8M14F87OMLO	12	1/2	M14X1.5	35.1	24	9.2	9.2
8M16F87OMLO	12	1/2	M16X1.5	36.6	24	9.2	9.2
8M18F87OMLO	12	1/2	M18X1.5	38.1	24	9.2	9.2
8M22F87OMLO	12	1/2	M22X1.5	39.6	27	6.0	6.0
8M27F87OMLO	12	1/2	M27X2.0	44.2	32	6.0	6.0
10M18F87OMLO	14,15,16	5/8	M18X1.5	41.0	27	6.0	6.0
10M22F87OMLO	14,15,16	5/8	M22X1.5	42.0	27	6.0	6.0
10M27F87OMLO	14,15,16	5/8	M27x2.0	47.0	32	6.0	6.0
12M22F87OMLO	18,20	3/4	M22X1.5	45.0	32	6.0	6.0
12M27F87OMLO	18,20	3/4	M27X2.0	48.5	32	6.0	6.0
12M33F87OMLO	18,20	3/4	M33X2.0	51.5	41	6.0	6.0
16M27F87OMLO	22,26	1	M27X2.0	33.6	41	6.0	6.0
16M33F87OMLO	22,25	1	M33X2.0	52.0	41	6.0	6.0
20M33F87OMLO	28,30,32	1 1/4	M33x2.0	35.1	46	5.0	5.0
20M42F87OMLO	28,30,32	1 1/4	M42X2.0	54.5	50	5.0	5.0
24M48F87OMLO	35,38	1 1/2	M48X2.0	57.0	55	5.0	5.0

F82EDMLO

Male Connector – Metric
(for ISO 9974-1 Port)
ORFS / Metric-ED



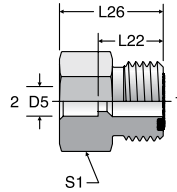
TUBE FITTING PART #	END SIZE			C HEX (mm)	L5 (mm)	Dynamic Pressure (x 1,000 PSI)	
	1		2			S	SS
	(mm)	(in.)	Metric				
4M12F82EDMLO	6	1/4	M12X1.5	17	29.7	9.2	9.2
4M14F82EDMLO	6	1/4	M14X1.5	19	30.5	9.2	9.2
6M14F82EDMLO	8,10	3/8	M14X1.5	22	31.9	9.2	9.2
6M16F82EDMLO	8,10	3/8	M16X1.5	22	31.9	9.2	9.2
8M16F82EDMLO	12	1/2	M16X1.5	22	32.0	9.2	9.2
8M18F82EDMLO	12	1/2	M18X1.5	24	34.6	9.2	9.2
10M22F82EDMLO	14,15,16	5/8	M22X1.5	27	41.1	6.0	6.0
12M22F82EDMLO	18,20	3/4	M22X1.5	32	42.7	6.0	6.0
12M27F82EDMLO	18,20	3/4	M27X2	32	46.1	6.0	6.0
16M33F82EDMLO	22,25	1	M33X2	41	49.8	6.0	6.0
20M42F82EDMLO	28,30,32	1 1/4	M42X2	50	54.0	5.0	5.0

Dimensions and pressures for reference only, subject to change.

MMLOHB3

Braze Connector
ORFS / Braze Socket

ISO 8434-3 BRS
SAE 52M0104



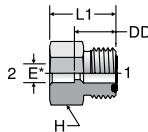
TUBE FITTING PART #	END SIZE		D5* TUBE SOCKET	L22 (mm)	L26 (mm)	S1 HEX	Dynamic Pressure (x 1,000 PSI)		
	1	2					S	SS	
	(mm)	(in.)							
4-6MMLOHB3	6	1/4	6	6.15	13.5	22.0	17	9.2	9.2
4-8MMLOHB3	6	1/4	8	8.15	13.5	22.0	17	9.2	9.2
6-10MMLOHB3	8, 10	3/8	10	10.15	14.5	23.0	19	9.2	9.2
8-12MMLOHB3	12	1/2	12	12.15	16.0	24.5	22	9.2	9.2
10-16MMLOHB3	14, 15, 16	5/8	16	16.15	19.0	27.5	27	6.0	6.0
12-20MMLOHB3	18, 20	3/4	20	20.18	21.0	33.5	32	6.0	6.0
16-25MMLOHB3	22, 25	1	25	25.18	24.5	38.5	41	6.0	6.0
20-30MMLOHB3	28, 30, 32	1 1/4	30	30.20	24.5	38.5	46	6.0	6.0
24-38MMLOHB3	35, 38	1 1/2	38	38.20	24.5	38.5	55	5.0	5.0

* D5 is for silver brazing. Standard steel parts are not recommended for welding.

LOHB3

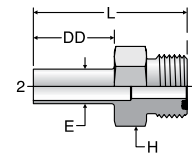
Braze Connector
ORFS / Braze Socket

SAE 520104



LOHT3

Tube Stub Connector
ORFS / Tube Weld



TUBE FITTING PART #	END SIZE		DD (in.)	E* DIA (in.)	H HEX (in.)	L1 (in.)	Dynamic Pressure (x 1,000 PSI)	
	1	2					-S	-SS
	(in.)	(in.)						
4 LOHB3	1/4	1/4	0.53	0.26	5/8	0.86	9.2	9.2
4-6 LOHB3	1/4	3/8	0.53	0.38	5/8	0.86	9.2	9.2
6 LOHB3	3/8	3/8	0.57	0.38	3/4	0.90	9.2	9.2
6-4 LOHB3	3/8	1/4	0.57	0.26	3/4	0.90	9.2	9.2
6-8 LOHB3	3/8	1/2	0.57	0.51	3/4	0.90	9.2	9.2
8 LOHB3	1/2	1/2	0.63	0.51	7/8	0.97	9.2	9.2
8-4 LOHB3**	1/2	1/4	0.64	0.26	7/8	0.97	9.2	9.2
8-6 LOHB3	1/2	3/8	0.63	0.38	7/8	0.97	9.2	9.2
8-10 LOHB3	1/2	5/8	0.63	0.63	7/8	0.97	6.0	6.0
8-12 LOHB3**	1/2	3/4	0.67	0.76	1 1/16	1.16	6.0	6.0
10 LOHB3	5/8	5/8	0.74	0.63	1 1/16	1.07	6.0	6.0
10-6 LOHB3	5/8	3/8	0.74	0.38	1 1/16	1.07	6.0	6.0
10-8 LOHB3	5/8	1/2	0.74	0.51	1 1/16	1.07	6.0	6.0
10-12 LOHB3	5/8	3/4	0.74	0.76	1 1/16	1.23	6.0	6.0
12 LOHB3	3/4	3/4	0.83	0.76	1 1/4	1.32	6.0	6.0
12-8 LOHB3	3/4	1/2	0.83	0.51	1 1/4	1.16	6.0	6.0
12-10 LOHB3	3/4	5/8	0.83	0.63	1 1/4	1.16	6.0	6.0
12-16 LOHB3	3/4	1	0.83	1.01	1 1/2	1.38	6.0	6.0
16 LOHB3	1	1	0.97	1.01	1 1/2	1.52	6.0	6.0
16-8 LOHB3**	1	1/2	0.97	0.51	1 1/2	1.30	6.0	6.0
16-12 LOHB3	1	3/4	0.97	0.76	1 1/2	1.46	6.0	6.0
16-20 LOHB3	1	1 1/4	0.96	1.26	1 3/4	1.52	6.0	6.0
20 LOHB3	1 1/4	1 1/4	0.97	1.26	1 3/4	1.52	6.0	6.0
20-16 LOHB3	1 1/4	1	0.97	1.01	1 3/4	1.52	6.0	6.0
20-24 LOHB3	1 1/4	1 1/2	0.97	1.51	2 1/8	1.52	5.0	5.0
24 LOHB3	1 1/2	1 1/2	0.97	1.51	2 1/8	1.52	5.0	5.0
24-20 LOHB3	1 1/2	1 1/4	0.97	1.26	2 1/8	1.52	5.0	5.0

* E is for silver brazing. Standard steel parts are not recommended for welding.

** Size 14 is not included in SAE J1453.

TUBE FITTING PART #	END SIZE	DD (in.)	E DIA (in.)	H HEX (in.)	L (in.)	Dynamic Pressure (x 1,000 PSI)
	1 & 2 (in.)					
4-4X035 LOHT3	1/4	0.88	0.25	5/8	1.58	5.9
6-6X035 LOHT3	3/8	0.88	0.38	3/4	1.67	3.8
8-8X065 LOHT3	1/2	1.00	0.50	7/8	1.89	5.5
12-12X065 LOHT3	3/4	1.16	0.75	1 1/4	2.35	3/5
12-16X065 LOHT3	1	1.13	1.00	1 1/4	2.32	2.6
16-16X065 LOHT3	1	1.13	1.00	1 1/2	2.40	2.6

* Contact Tube Fittings Division for pressure ratings.

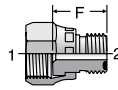
Dimensions and pressures for reference only, subject to change.



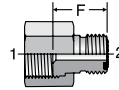
TRLON

Tube End Reducer
ORFS Swivel / ORFS Tube End

SAE 520123 (body only)
SAE 520123A (body with large nut)



* Assembled with Crimp Nut



** Assembled with Large BL Nut

TUBE FITTING PART #			END SIZE			Dynamic Pressure (x 1,000 PSI)		
TRLON	TRLON	TRLO						1 (in.)
*One Piece Design (With Crimp Nut)	**Two Piece Design (With Large Nut)	***Body Only (For Two-Piece Design Only)						
6-4 TRLON	—	—	3/8	1/4	0.77	9.2	9.2	
—	8-4 TRLON	8-4 TRLO	1/2	1/4	0.87	9.2	9.2	
8-6 TRLON	—	—	1/2	3/8	0.89	9.2	9.2	
—	10-4 TRLON	10-4 TRLO	5/8	1/4	0.91	6.0	6.0	
—	10-6 TRLON	10-6 TRLO	5/8	3/8	0.94	6.0	6.0	
—	10-8 TRLON	10-8 TRLO	5/8	1/2	1.00	6.0	6.0	
—	12-4 TRLON	12-4 TRLO	3/4	1/4	0.98	6.0	6.0	
—	12-6 TRLON	12-6 TRLO	3/4	3/8	1.02	6.0	6.0	
—	12-8 TRLON	12-8 TRLO	3/4	1/2	1.08	6.0	6.0	
12-10 TRLON	—	—	3/4	5/8	1.16	6.0	6.0	
—	16-8 TRLON	16-8 TRLO	1	1/2	1.14	6.0	6.0	
—	16-10 TRLON	16-10 TRLO	1	5/8	1.26	6.0	6.0	
16-12 TRLON	—	—	1	3/4	1.30	6.0	6.0	
—	20-12 TRLON	20-12 TRLO	1 1/4	3/4	1.32	5.0	5.0	
20-16 TRLON	—	—	1 1/4	1	1.34	5.0	5.0	
—	24-12 TRLON-S	—	1 1/2	3/4	1.32	4.0	4.0	
—	24-16 TRLON	24-16 TRLO	1 1/2	1	1.34	4.0	4.0	
—	24-20 TRLON	24-20 TRLO	1 1/2	1 1/4	1.34	4.0	4.0	
—	32-20 TRLON**	32-20 TRLO**	2	1 1/4	1.42	3.0	3.0	
—	32-24 TRLON**	32-24 TRLO**	2	1 1/2	1.42	3.0	3.0	

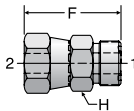
* Assembled with crimp nut.

** Assembled with large BL nut.

***To order reducer without large nut (body only) remove the "N" from the part number (i.e., TRLO).

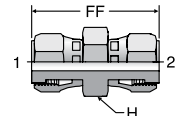
LOHL6

Tube End Extender / Expander
ORFS / ORFS Swivel



HL6

Swivel Nut Union
ORFS Swivel / ORFS Swivel



TUBE FITTING PART #	END SIZE			H HEX (in.)	Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 (in.)	F (in.)		-S	-SS
4 LOHL6	1/4	1/4	1.33	5/8	9.2	9.2
6 LOHL6	3/8	3/8	1.44	3/4	9.2	9.2
6-4 LOHL6	3/8	1/4	1.37	3/4	9.2	9.2
8 LOHL6	1/2	1/2	1.67	7/8	9.2	9.2
8-6 LOHL6	1/2	3/8	1.62	7/8	9.2	9.2
10-8 LOHL6	5/8	1/2	1.81	1 1/16	6.0	6.0
12-10 LOHL6	3/4	5/8	1.99	1 1/4	6.0	6.0
16-12 LOHL6	1	3/4	2.16	1 1/2	6.0	6.0
20-16 LOHL6	1 1/4	1	2.28	1 3/4	5.0	5.0
24-20 LOHL6	1 1/2	1 1/4	2.35	2 1/8	4.0	4.0

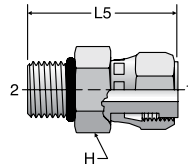
TUBE FITTING PART #	END SIZE			H HEX (in.)	Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 (in.)	FF (in.)		-S	-SS
4 HL6	1/4	1/4	1.59	5/8	9.2	9.2
6 HL6	3/8	3/8	1.77	3/4	9.2	9.2
8 HL6	1/2	1/2	2.12	7/8	9.2	9.2
10 HL6	5/8	5/8	2.42	1 1/16	6.0	6.0
12 HL6	3/4	3/4	2.74	1 1/4	6.0	6.0
16 HL6	1	1	2.95	1 7/16	6.0	6.0

Dimensions and pressures for reference only, subject to change.

F650L

Straight Thread Swivel Connector
ORFS Swivel / SAE-ORB

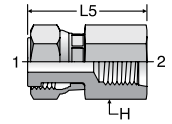
SAE 520181



TUBE FITTING PART #	END SIZE		H HEX (in.)	L5 (in.)	Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 UN/UNF-2A			-S	-SS
	4 F650L	1/4				
6 F650L	3/8	9/16 - 18	3/4	1.57	9.2	9.2
8 F650L	1/2	3/4 - 16	7/8	1.95	9.2	9.2
10 F650L	5/8	7/8 - 14	1 1/16	2.13	6.0	6.0
12 F650L	3/4	1 1/16 - 12	1 1/4	2.34	6.0	6.0
16 F650L	1	1 5/16 - 12	1 1/2	2.66	6.0	6.0
20 F650L	1 1/4	1 5/8 - 12	1 7/8	2.66	5.0	5.0

G65L

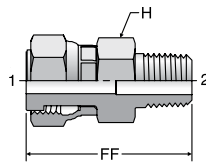
Straight Thread Swivel Female Connector
ORFS Swivel / SAE-ORB



TUBE FITTING PART #	END SIZE		H HEX (in.)	L5 (in.)	Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 UN/UNF-2B			-S	-SS
	4 G65L	1/4				
4-6 G65L	1/4	9/16 - 18	13/16	1.45	6.0	6.0
6-4 G65L	3/8	7/16 - 20	3/4	1.51	6.0	6.0
8-4 G65L	1/2	7/16 - 20	7/8	1.57	6.0	6.0

F6L

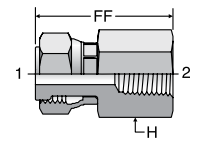
Pipe Thread Swivel Connector
ORFS Swivel / NPTF



TUBE FITTING PART #	END SIZE		FF (in.)	H HEX (in.)	Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 NPTF			-S	-SS
	4 F6L	1/4				
4-4 F6L	1/4	1/4 - 18	1.52	5/8	6.0	6.0
6 F6L	3/8	1/4 - 18	1.69	3/4	6.0	6.0
6-6 F6L	3/8	3/8 - 18	1.67	3/4	6.0	6.0
8 F6L	1/2	3/8 - 18	1.95	3/4	6.0	6.0
8-8 F6L	1/2	1/2 - 14	2.14	7/8	6.0	6.0
10 F6L	5/8	1/2 - 14	2.29	1 1/16	6.0	6.0
12 F6L	3/4	3/4 - 14	2.37	1 1/4	5.5	5.5
16 F6L	1	1 - 11 1/2	2.87	1 1/2	4.5	4.5

G6L

Female Pipe Thread Swivel Connector
ORFS Swivel / NPTF

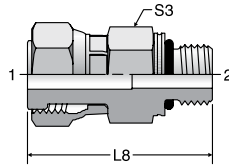


TUBE FITTING PART #	END SIZE		FF (in.)	H (in.)	Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 NPTF			-S	-SS
	4-4 G6L	1/4				
6 G6L	3/8	1/4 - 18	1.60	7/8	6.0	6.0
8-4 G6L	1/2	1/4 - 18	1.75	7/8	6.0	6.0

Dimensions and pressures for reference only, subject to change.

F687OML

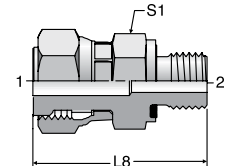
Swivel ISO 6149 Connector
ORFS Swivel / ISO 6149



TUBE FITTING PART #	END SIZE			L8 (mm)	S3 HEX (mm)	Dynamic Pressure (x 1,000 PSI)	
	1		2			S	SS
	(mm)	(in.)	ISO 261				
4M12F687OML	6	1/4	M12x1.5	37.0	17	9.2	9.2
6M12F687OML	8, 10	3/8	M12x1.5	39.0	17	9.2	9.2
6M14F687OML	8, 10	3/8	M14x1.5	38.0	19	9.2	9.2
6M16F687OML	8, 10	3/8	M16x1.5	43.5	22	9.2	9.2
8M16F687OML	12	1/2	M16x1.5	48.0	22	9.2	9.2
10M22F687OML	14, 15, 16	5/8	M22x1.5	53.0	27	6.0	6.0
10M27F687OML	14, 15, 16	5/8	M27x2	57.0	32	6.0	6.0
12M27F687OML	18, 20	3/4	M27x2	59.5	32	6.0	6.0
16M33F687OML	22, 25	1	M33x2	67.5	41	6.0	6.0

F682EDML

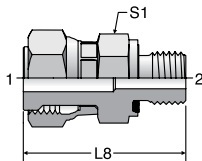
Swivel Metric Connector
ORFS Swivel / Metric-ED



TUBE FITTING PART #	END SIZE			L8 (mm)	S1 HEX (mm)	Dynamic Pressure (x 1,000 PSI)	
	1		2			S	SS
	(mm)	(in.)	Metric				
4M12F682EDML	6	1/4	M12x1.5	38.2	17	9.2	9.2
6M14F682EDML	8, 10	3/8	M14x1.5	40.2	19	9.2	9.2
8M16F682EDML	12	1/2	M16x1.5	47.3	22	9.2	9.2
10M22F682EDML	14, 15, 16	5/8	M22x1.5	51.8	27	6.0	6.0
12M27F682EDML	18, 20	3/4	M27x2	57.2	32	6.0	6.0
16M33F682EDML	22, 25	1	M33x2	67.0	41	6.0	6.0

F642EDML

Swivel BSPP Connector
ORFS Swivel / BSPP-ED

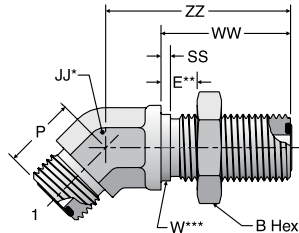


TUBE FITTING PART #	END SIZE			L8 (mm)	S1 HEX (mm)	Dynamic Pressure (x 1,000 PSI)	
	1		2			S	SS
	(mm)	(in.)	BSPP				
4F642EDML	6	1/4	1/8	34.0	14	7.2	7.2
6F642EDML	8, 10	3/8	1/4	40.2	19	9.2	9.2
8F642EDML	12	1/2	3/8	47.3	22	9.2	9.2
10F642EDML	14, 15, 16	5/8	1/2	51.8	27	6.0	6.0
12F642EDML	18, 20	3/4	3/4	57.2	32	6.0	6.0
16F642EDML	22, 25	1	1	67.0	46	6.0	6.0

WNLO

45° Bulkhead Union Elbow
ORFS / ORFS

SAE 520801
WNLO-WLNL - Body with Locknut
(See page A11 for WLNL)



TUBE FITTING PART #	END SIZE		B HEX (in.)	E MAX (in.)	JJ (in.)	P (in.)	SS (in.)	W DIA (in.)	WW (in.)	ZZ (in.)	Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 (in.)									-S	-SS
	4 WNLO	1/4									1/4	13/16
6 WNLO	3/8	3/8	1	0.55	3/4	0.75	0.06	0.69	1.34	1.91	9.2	9.2
8 WNLO	1/2	1/2	1 1/8	0.55	3/4	0.81	0.06	0.81	1.44	2.01	9.2	9.2
10 WNLO	5/8	5/8	1 5/16	0.55	1 1/16	0.93	0.06	1.00	1.59	2.22	6.0	6.0
12 WNLO	3/4	3/4	1 1/2	0.55	1 3/16	1.02	0.06	1.19	1.63	2.38	6.0	6.0
16 WNLO	1	1	1 3/4	0.55	1 7/16	1.18	0.06	1.44	1.65	2.56	6.0	6.0
20 WNLO	1 1/4	1 1/4	2	0.55	1 5/8	1.26	0.06	1.69	1.65	2.64	5.0	5.0
24 WNLO	1 1/2	1 1/2	2 3/8	0.55	1 7/8	1.46	0.06	2.00	1.65	2.64	4.0	4.0

* JJ – Across wrench flats.

** E – Maximum bulkhead thickness.

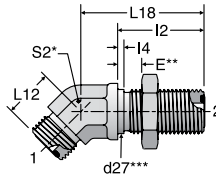
*** W – Bulkhead pilot diameter. Recommended clearance hole is W + 0.015".

Dimensions and pressures for reference only, subject to change.

WNMLO

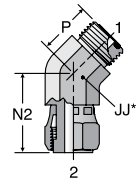
45° Bulkhead Union Elbow – mm Hex
ORFS / ORFS

ISO 8434-3 BHE45
SAE 52M0801
WNMLO-WLNML - Body with Locknut
(See page A11 for WLNML)



V6LO

45° Swivel Nut Elbow
ORFS / ORFS Swivel



* JJ – Across Wrench Flats

TUBE FITTING PART #	END SIZE		d27*** (mm)	E (mm)	I2 (mm)	I4 (mm)	L12 (mm)	L18 (mm)	S2 (mm)	Dynamic Pressure (x 1,000 PSI)	
	1 & 2									S	SS
	(mm)	(in.)									
4WNMLO	6	1/4	14.3	14	31.5	1.5	16.0	44.0	14	9.2	9.2
6WNMLO	8,10	3/8	17.5	14	34.0	1.5	19.0	48.5	19	9.2	9.2
8WNMLO	12	1/2	20.6	14	36.5	1.5	20.5	51.0	19	9.2	9.2
10WNMLO	14,15,16	5/8	25.4	14	40.5	1.5	23.5	56.5	27	6.0	6.0
12WNMLO	18,20	3/4	30.2	14	41.5	1.5	26.0	60.5	30	6.0	6.0
16WNMLO	22,25	1	36.5	14	42.0	1.5	30.0	65.0	36	6.0	6.0
20WNMLO	28,30,32	1 1/4	42.9	14	42.0	1.5	32.0	67.0	41	5.0	5.0
24WNMLO	35,38	1 1/2	50.8	14	42.0	1.5	37.0	67.0	50	4.0	4.0

TUBE FITTING PART #	END SIZE		JJ (in.)	N2 (in.)	P (in.)	Dynamic Pressure (x 1,000 PSI)	
	1 & 2					-S	-SS
	(in.)	(in.)					
4 V6LO	1/4	9/16	0.99	0.63	9.2	9.2	
6 V6LO	3/8	3/4	1.12	0.74	9.2	9.2	
8 V6LO	1/2	3/4	1.49	0.80	9.2	9.2	
10 V6LO	5/8	1 1/16	1.53	0.92	6.0	6.0	
12 V6LO	3/4	1 3/16	1.73	1.02	6.0	6.0	
16 V6LO	1	1 7/16	1.87	1.18	6.0	6.0	
20 V6LO	1 1/4	1 5/8	1.98	1.26	5.0	5.0	
24 V6LO	1 1/2	1 7/8	2.06	1.45	4.0	4.0	

* S2 – Across Wrench Flats.

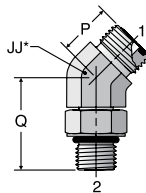
** E – Maximum bulkhead thickness.

***d27 – Bulkhead pilot diameter. Recommended clearance hole is d27 + 0.4 mm.

V5OLO

45° Straight Thread Elbow
ORFS / SAE-ORB

SAE 520320

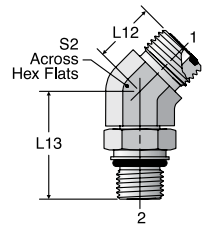


* JJ – Across Hex Flats

V87OMLO

45° Metric Straight Thread Elbow
ORFS / ISO 6149

ISO 8434-3 SDE45
SAE 52M0387



* S2 – Across Hex Flats

TUBE FITTING PART #	END SIZE		JJ (in.)	P (in.)	Q (in.)	Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 UNUNF-2A				-S	-SS
	4 V5OLO	1/4					
4-6 V5OLO	1/4	9/16 - 18	3/4	0.69	1.30	6.0	6.0
6 V5OLO	3/8	9/16 - 18	3/4	0.75	1.30	6.0	6.0
6-4 V5OLO	3/8	7/16 - 20	3/4	0.75	1.22	6.0	6.0
6-8 V5OLO	3/8	3/4 - 16	3/4	0.75	1.44	6.0	6.0
8 V5OLO	1/2	3/4 - 16	3/4	0.81	1.44	6.0	6.0
8-6 V5OLO	1/2	9/16 - 18	3/4	0.81	1.28	6.0	6.0
8-10 V5OLO	1/2	7/8 - 14	3/4	0.85	1.75	6.0	6.0
10 V5OLO	5/8	7/8 - 14	1 1/16	0.93	1.75	6.0	6.0
10-8 V5OLO	5/8	3/4 - 16	1 1/16	0.93	1.57	6.0	6.0
10-12 V5OLO	5/8	1 1/16 - 12	1 3/16	0.96	1.97	6.0	6.0
12 V5OLO	3/4	1 1/16 - 12	1 3/16	1.02	1.97	6.0	6.0
12-10 V5OLO	3/4	7/8 - 14	1 3/16	1.02	1.81	6.0	6.0
12-16 V5OLO	3/4	1 5/16 - 12	1 7/16	1.16	2.07	5.5	5.5
16 V5OLO	1	1 5/16 - 12	1 7/16	1.18	2.07	5.5	5.5
16-10 V5OLO	1	7/8 - 14	1 7/16	1.18	2.03	6.0	6.0
16-12 V5OLO	1	1 1/16 - 12	1 7/16	1.18	2.03	6.0	6.0
16-20 V5OLO	1	1 5/8 - 12	1 5/8	1.26	2.11	4.0	4.0
20 V5OLO	1 1/4	1 5/8 - 12	1 5/8	1.26	2.11	4.0	4.0
24 V5OLO	1 1/2	1 7/8 - 12	1 7/8	1.46	2.11	4.0	4.0

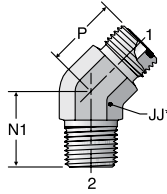
TUBE FITTING PART #	END SIZE			L12 (mm)	L13 (mm)	S2 (mm)	Dynamic Pressure (x 1,000 PSI)	
	1		2 ISO 261				S	SS
	(mm)	(in.)						
4M12V87OMLO	6	1/4	M12X1.5	16.0	30.0	14	6.0	6.0
4M14V87OMLO	6	1/4	M14X1.5	17.5	31.5	17	6.0	6.0
6M16V87OMLO	8,10	3/8	M16X1.5	19.0	33.5	17	6.0	6.0
8M18V87OMLO	12	1/2	M18X1.5	20.5	37.0	19	6.0	6.0
10M22V87OMLO	14,15,16	5/8	M22X1.5	23.5	44.0	27	6.0	6.0
12M27V87OMLO	18,20	3/4	M27X2	26.0	50.5	27	6.0	6.0
16M33V87OMLO	22,25	1	M33X2	30.0	52.5	36	5.0	5.0
20M42V87OMLO	28,30,32	1 1/4	M42X2	32.0	54.0	41	4.0	4.0
24M48V87OMLO	35,38	1 1/2	M48X2	37.0	56.5	50	4.0	4.0

Dimensions and pressures for reference only, subject to change.



VLO

45° Male Elbow
ORFS / NPTF

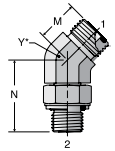


* JJ – Across Wrench Flats

TUBE FITTING PART #	END SIZE		JJ (in.)	N1 (in.)	P (in.)	Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 NPTF				-S	-SS
	4 VLO	1/4					
4-4 VLO	1/4	1/4 - 18	9/16	0.86	0.68	6.0	6.0
6 VLO	3/8	1/4 - 18	3/4	0.87	0.74	6.0	6.0
6-6 VLO	3/8	3/8 - 18	3/4	0.87	0.74	6.0	6.0
8 VLO	1/2	3/8 - 18	3/4	0.95	0.80	6.0	6.0
8-8 VLO	1/2	1/2 - 14	7/8	1.17	0.86	6.0	6.0
10 VLO	5/8	1/2 - 14	1 1/16	1.17	0.92	6.0	6.0
12 VLO	3/4	3/4 - 14	1 5/16	1.30	1.02	4.0	4.0
16 VLO	1	1 - 11 1/2	1 7/16	1.48	1.18	3.0	3.0
20 VLO	1 1/4	1 1/4 - 11 1/2	1 5/8	1.67	1.26	2.5	2.5

V40MLO

Male 45° Elbow – BSPP
(for ISO 1179-1 Port)
ORFS / BSPP-ORR



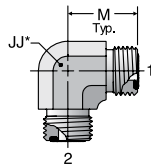
* Y – Across Hex Flats

TUBE FITTING PART #	END SIZE		M (mm)	N (mm)	Y (mm)	Dynamic Pressure (x 1,000 PSI)	
	1 (mm)	2 BSPP				S	SS
	4V40MLO	6					
4-4V40MLO	6	1/4 1/4 - 19	17.5	32.0	19	4.0	4.0
6V40MLO	8,10	3/8 1/4 - 19	19.0	32.0	19	4.0	4.0
6-6V40MLO	8,10	3/8 3/8 - 19	19.0	33.5	19	4.0	4.0
6-8V40MLO	8,10	3/8 1/2 - 14	19.5	43.5	27	4.0	4.0
8V40MLO	12	1/2 3/8 - 19	20.5	33.5	19	4.0	4.0
8-8V40MLO	12	1/2 1/2 - 14	21.0	43.5	27	4.0	4.0
10V40MLO	14,15,16	5/8 1/2 - 14	23.5	43.5	27	4.0	4.0
10-12V40MLO	14,15,16	5/8 3/4 - 14	24.5	46.5	30	4.0	4.0
12V40MLO	18,20	3/4 3/4 - 14	26.0	46.5	30	4.0	4.0
12-16V40MLO	18,20	3/4 1 - 11	26.0	51.0	37	4.0	4.0
16V40MLO	22,25	1 1 - 11	30.0	51.0	37	4.0	4.0

ELO

Union Elbow
ORFS / ORFS

SAE 520201



* JJ – Across Wrench Flats

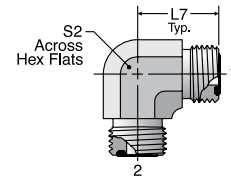
TUBE FITTING PART #	END SIZE		JJ (in.)	M (in.)	Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 (in.)			-S	-SS
	4 ELO	1/4				
6 ELO	3/8	3/8	3/4	0.98	9.2	9.2
8 ELO	1/2	1/2	3/4	1.10	9.2	9.2
10 ELO	5/8	5/8	1 1/16	1.32	6.0	6.0
12 ELO	3/4	3/4	1 3/16	1.48	6.0	6.0
16 ELO	1	1	1 7/16	1.63	6.0	6.0
20 ELO	1 1/4	1 1/4	1 5/8	1.75	5.0	5.0
24 ELO	1 1/2	1 1/2	1 7/8	1.93	4.0	4.0
32 ELO*	2	2	2 1/2	2.76	3.0	3.0

** Size 32 is not included in SAE J1453.

EMLO

Union Elbow – mm Hex
ORFS / ORFS

ISO 8434-3 E
SAE 52M0201



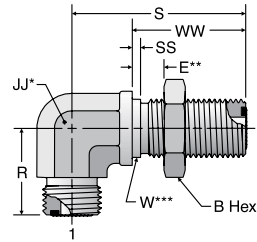
TUBE FITTING PART #	END SIZE		L7 (mm)	S2 (mm)	Dynamic Pressure (x 1,000 PSI)	
	1 & 2				S	SS
	(mm)	(in.)				
4EMLO	6	1/4	21.5	14	9.2	9.2
6EMLO	8,10	3/8	25.0	19	9.2	9.2
8EMLO	12	1/2	28.0	19	9.2	9.2
10EMLO	14,15,16	5/8	33.5	27	6.0	6.0
12EMLO	18,20	3/4	37.5	30	6.0	6.0
16EMLO	22,25	1	41.5	36	6.0	6.0
20EMLO	28,30,32	1 1/4	44.5	41	5.0	5.0
24EMLO	35,38	1 1/2	49.0	50	4.0	4.0

Dimensions and pressures for reference only, subject to change.

WELO

Bulkhead Union Elbow
ORFS / ORFS

SAE 520701
WELO-WLNL - Body with Locknut
(See page A11 for WLNL)



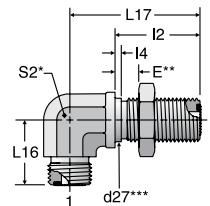
TUBE FITTING PART #	END SIZE		B HEX (in.)	E MAX (in.)	JJ (in.)	R (in.)	S (in.)	SS (in.)	W (in.)	WW (in.)	Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 (in.)									-S	-SS
4 WELO	1/4	1/4	13/16	0.55	9/16	0.89	1.85	0.06	0.56	1.24	9.2	9.2
6 WELO	3/8	3/8	1	0.55	3/4	1.02	2.05	0.06	0.69	1.34	9.2	9.2
8 WELO	1/2	1/2	1 1/8	0.55	3/4	1.14	2.19	0.06	0.81	1.44	9.2	9.2
10 WELO	5/8	5/8	1 5/16	0.55	1 1/16	1.36	2.48	0.06	1.00	1.59	6.0	6.0
12 WELO	3/4	3/4	1 1/2	0.55	1 3/16	1.52	2.64	0.06	1.19	1.63	6.0	6.0
16 WELO	1	1	1 3/4	0.55	1 7/16	1.67	2.80	0.06	1.44	1.65	6.0	6.0
20 WELO	1 1/4	1 1/4	2	0.55	1 5/8	1.79	2.97	0.06	1.69	1.65	5.0	5.0
24 WELO	1 1/2	1 1/2	2 3/8	0.55	1 7/8	1.95	3.13	0.06	2.00	1.65	4.0	4.0

* JJ – Across wrench flats.
 ** E – Maximum bulkhead thickness.
 *** W – Bulkhead pilot diameter. Recommended clearance hole is W + 0.015".

WEMLO

Bulkhead Union Elbow – mm Hex
ORFS / ORFS

ISO 8434-3 BHE
SAE 52M0701
WEMLOWLNL - Body with Locknut
(See page A11 for WLNL)



TUBE FITTING PART #	END SIZE		d27*** (mm)	E (mm)	I2 (mm)	I4 (mm)	L16 (mm)	L17 (mm)	S2 (mm)	Dynamic Pressure (x 1,000 PSI)	
	1 & 2 (mm)	(in.)								S	SS
4WEMLO	6	1/4	14.3	14	31.5	1.5	22.5	47.0	14	9.2	9.2
6WEMLO	8,10	3/8	17.5	14	34.0	1.5	26.0	52.0	19	9.2	9.2
8WEMLO	12	1/2	20.6	14	36.5	2.5	29.0	55.5	19	9.2	9.2
10WEMLO	14,15,16	5/8	25.4	14	40.5	2.5	34.5	63.0	27	6.0	6.0
12WEMLO	18,20	3/4	30.2	14	41.5	3.0	38.5	67.0	30	6.0	6.0
16WEMLO	22,25	1	36.5	14	42.0	3.0	42.5	71.0	36	6.0	6.0
20WEMLO	28,30,32	1 1/4	42.9	14	42.0	3.0	45.5	75.5	41	5.0	5.0
24WEMLO	35,38	1 1/2	50.8	14	42.0	3.0	49.5	79.5	50	4.0	4.0

* S2 – Across wrench flats.
 ** E – Maximum bulkhead thickness.
 ***d27 - Bulkhead pilot diameter. Recommended clearance is d27 + 0.4 mm.

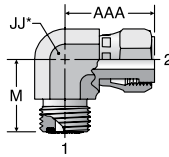
Dimensions and pressures for reference only, subject to change.



C6LO

Swivel Nut Elbow
ORFS / ORFS Swivel

SAE 520221



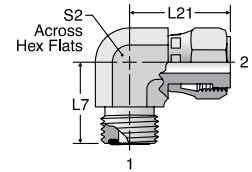
* JJ – Across Wrench Flats

TUBE FITTING PART #	END SIZE		AAA (in.)	JJ (in.)	M (in.)	Dynamic Pressure (x 1,000 PSI)		
	1 (in.)	2 (in.)				-S	-SS	D
	4 C6LO	1/4						
6 C6LO	3/8	3/8	1.17	3/4	0.98	9.2	9.2	4.0
8 C6LO	1/2	1/2	1.50	3/4	1.10	9.2	9.2	4.0
10 C6LO	5/8	5/8	1.61	1 1/16	1.32	6.0	6.0	3.0
12 C6LO	3/4	3/4	1.83	1 3/16	1.48	6.0	6.0	3.0
16 C6LO	1	1	2.11	1 7/16	1.64	6.0	6.0	3.0
20 C6LO	1 1/4	1 1/4	2.28	1 5/8	1.75	5.0	5.0	2.5
24 C6LO	1 1/2	1 1/2	2.41	1 7/8	1.92	4.0	4.0	2.0

C6MLO

Swivel Nut Elbow – mm Hex
ORFS / ORFS Swivel

ISO 8434-3 SWE
SAE 52M0221



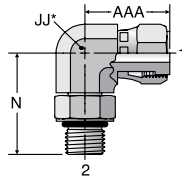
* S2 – Across Hex Flats

TUBE FITTING PART #	END SIZE		L7 (mm)	L21 (mm)	S2 (mm)	Dynamic Pressure (x 1,000 PSI)		
	1 (mm)	2 (in.)				S	SS	D
	4C6MLO	6						
6C6MLO	8,10	3/8	25.0	29.7	19	9.2	9.2	
8C6MLO	12	1/2	28.0	38.0	19	9.2	9.2	
10C6MLO	14,15,16	5/8	33.5	41.0	27	6.0	6.0	
12C6MLO	18,20	3/4	37.5	46.5	30	6.0	6.0	
16C6MLO	22,25	1	41.6	53.5	36	6.0	6.0	
20C6MLO	28,30,32	1 1/4	44.5	58.0	41	4.0	4.0	
24C6MLO	35,38	1 1/2	48.8	61.0	50	4.0	4.0	

AOEL6

Straight Thread Swivel Elbow
ORFS Swivel / SAE-ORB

SAE 520281



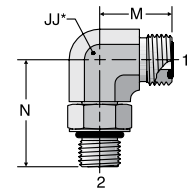
* JJ – Across Wrench Flats

TUBE FITTING PART #	END SIZE		AAA (in.)	JJ (in.)	N (in.)	Dynamic Pressure (x 1,000 PSI)		
	1 (in.)	2 UN/UNF-2A				-S	-SS	D
	4 AOEL6	1/4						
6 AOEL6	3/8	9/16 - 18	1.17	3/4	1.46	6.0	6.0	
8 AOEL6	1/2	3/4 - 16	1.50	3/4	1.59	6.0	6.0	
10 AOEL6	5/8	7/8 - 14	1.65	1 1/16	1.97	6.0	6.0	
12 AOEL6	3/4	1 1/16 - 12	1.79	1 1/16	2.17	6.0	6.0	
16 AOEL6	1	1 5/16 - 12	2.07	1 5/16	2.34	5.5	5.5	
20 AOEL6	1 1/4	1 5/8 - 12	2.28	1 5/8	2.44	4.0	4.0	
24 AOEL6	1 1/2	1 7/8 - 12	2.40	1 7/8	2.60	4.0	4.0	

C5OLO

Straight Thread Elbow
ORFS / SAE-ORB

SAE 520220



* JJ – Across Wrench Flats

TUBE FITTING PART #	END SIZE		JJ (in.)	M (in.)	N (in.)	Dynamic Pressure (x 1,000 PSI)		
	1 (in.)	2 UN/UNF-2A				-S	-SS	D
	4 C5OLO	1/4						
4-6 C5OLO***	1/4	9/16 - 18	9/16	0.93	1.46	6.0	6.0	3.0
4-8 C5OLO	1/4	3/4 - 16	3/4	0.98	1.59	6.0	6.0	3.0
6 C5OLO	3/8	9/16 - 18	3/4	0.98	1.46	6.0	6.0	3.0
6-4 C5OLO	3/8	7/16 - 20	3/4	0.98	1.38	6.0	6.0	3.0
6-5 C5OLO	3/8	1/2 - 20	3/4	0.98	1.38	6.0	6.0	3.0
6-8 C5OLO	3/8	3/4 - 16	3/4	1.04	1.59	6.0	6.0	3.0
6-10 C5OLO***	3/8	7/8 - 14	7/8	1.15	1.97	6.0	6.0	3.0
6-12 C5OLO	3/8	1 1/16 - 12	1 1/16	1.28	2.17	6.0	6.0	3.0
8 C5OLO	1/2	3/4 - 16	3/4	1.10	1.59	6.0	6.0	3.0
8-6 C5OLO	1/2	9/16 - 18	3/4	1.10	1.44	6.0	6.0	3.0
8-10 C5OLO***	1/2	7/8 - 14	7/8	1.21	1.97	6.0	6.0	3.0
8-12 C5OLO	1/2	1 1/16 - 12	1 3/16	1.32	2.17	6.0	6.0	3.0
10 C5OLO	5/8	7/8 - 14	1 1/16	1.32	1.97	6.0	6.0	3.0
10-8 C5OLO	5/8	3/4 - 16	1 1/16	1.32	1.81	6.0	6.0	3.0
10-12 C5OLO	5/8	1 1/16 - 12	1 3/16	1.42	2.17	6.0	6.0	3.0
12 C5OLO	3/4	1 1/16 - 12	1 3/16	1.48	2.17	6.0	6.0	3.0
12-8 C5OLO	3/4	3/4 - 16	1 3/16	1.48	1.83	6.0	6.0	3.0
12-10 C5OLO	3/4	7/8 - 14	1 3/16	1.48	2.01	6.0	6.0	3.0
12-16 C5OLO	3/4	1 5/16 - 12	1 7/16	1.61	2.34	5.5	5.5	2.8
16 C5OLO	1	1 5/16 - 12	1 7/16	1.63	2.34	5.5	5.5	2.8
16-12 C5OLO	1	1 1/16 - 12	1 7/16	1.63	2.30	6.0	6.0	3.0
16-20 C5OLO	1	1 5/8 - 12	1 5/8	1.75	2.44	4.0	4.0	2.0
20 C5OLO	1 1/4	1 5/8 - 12	1 5/8	1.75	2.44	4.0	4.0	2.0
20-16 C5OLO	1 1/4	1 5/16 - 12	1 5/8	1.75	2.44	4.0	4.0	2.0
20-24 C5OLO	1 1/4	1 7/8 - 12	1 7/8	1.93	2.60	4.0	4.0	2.0
24 C5OLO	1 1/2	1 7/8 - 12	1 7/8	1.93	2.60	4.0	4.0	2.0
24-20 C5OLO	1 1/2	1 5/8 - 12	1 7/8	1.93	2.60	4.0	4.0	2.0
32 C5OLO**	2	2 1/2 - 12	2 1/2	2.76	3.07	2.5	2.5	1.3

** Size 32 is not included in SAE J1453.

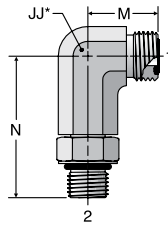
*** JJ for these parts does not conform to SAE.

Dimensions and pressures for reference only, subject to change.

CC5OLO

Long Straight Thread Elbow
ORFS-Long / SAE-ORB

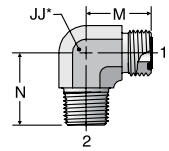
SAE 521520



* JJ – Across Wrench Flats

CLO

Male Pipe Elbow
ORFS / NPTF



* JJ – Across Wrench Flats

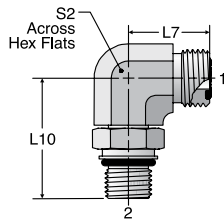
TUBE FITTING PART #	END SIZE		JJ (in.)	M (in.)	N (in.)	Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 UN-UNF-2A				-S	-SS
	4 CC5OLO	1/4					
6 CC5OLO	3/8	9/16 - 18	3/4	0.98	2.62	6.0	6.0
8 CC5OLO	1/2	3/4 - 16	3/4	1.10	2.95	6.0	6.0
10 CC5OLO	5/8	7/8 - 14	1 1/16	1.32	3.50	6.0	6.0
12 CC5OLO	3/4	1 1/16 - 12	1 3/16	1.48	3.98	6.0	6.0
16 CC5OLO	1	1 5/16 - 12	1 5/8	1.63	4.49	5.5	5.5

TUBE FITTING PART #	END SIZE		JJ (in.)	M (in.)	N (in.)	Dynamic Pressure (x 1,000 PSI)		
	1 (in.)	2 NPTF				-S	-SS	D
	4 CLO	1/4						
4-4 CLO	1/4	1/4 - 18	9/16	0.85	1.12	6.0	6.0	3.0
4-6 CLO	1/4	3/8 - 18	3/4	0.97	1.22	6.0	6.0	3.0
4-8 CLO	1/4	1/2 - 14	7/8	1.07	1.47	6.0	6.0	3.0
6 CLO	3/8	1/4 - 18	3/4	0.98	1.09	6.0	6.0	3.0
6-6 CLO	3/8	3/8 - 18	3/4	0.98	1.22	6.0	6.0	3.0
6-8 CLO	3/8	1/2 - 14	7/8	1.15	1.47	6.0	6.0	3.0
8 CLO	1/2	3/8 - 18	3/4	1.10	1.22	6.0	6.0	3.0
8-4 CLO	1/2	1/4 - 18	3/4	1.10	1.22	6.0	6.0	3.0
8-8 CLO	1/2	1/2 - 14	7/8	1.10	1.47	6.0	6.0	3.0
8-12 CLO	1/2	3/4 - 14	1 1/16	1.32	1.59	4.0	4.0	2.0
10 CLO	5/8	1/2 - 14	1 1/16	1.31	1.47	6.0	6.0	3.0
10-6 CLO	5/8	3/8 - 18	1 1/16	1.31	1.28	6.0	6.0	3.0
10-12 CLO	5/8	3/4 - 14	1 3/16	1.41	1.59	4.0	4.0	2.0
12 CLO	3/4	3/4 - 14	1 3/16	1.47	1.59	4.0	4.0	2.0
12-8 CLO	3/4	1/2 - 14	1 3/16	1.47	1.59	6.0	6.0	3.0
12-16 CLO	3/4	1 - 11 1/2	1 5/16	1.62	1.97	3.0	3.0	1.5
16 CLO	1	1 - 11 1/2	1 7/16	1.64	1.97	3.0	3.0	1.5
16-12 CLO	1	3/4 - 14	1 7/16	1.64	1.78	4.0	4.0	2.0
20 CLO	1 1/4	1 1/4 - 11 1/2	1 5/8	1.76	2.38	2.5	2.5	1.3
24 CLO	1 1/2	1 1/2 - 11 1/2	1 7/8	1.92	2.64	2.5	2.5	1.3
24-20 CLO	1 1/2	1 1/4 - 11 1/2	1 7/8	1.92	2.61	2.5	2.5	1.3

C87OMLO

90° Metric Straight Thread Elbow
ORFS / ISO 6149

ISO 8434-3 SDE
SAE 52M0287



TUBE FITTING PART #	END SIZE			L7 (mm)	L10 (mm)	S2 (mm)	Dynamic Pressure (x 1,000 PSI)	
	1		2				S	SS
	(mm)	(in.)	ISO 261					
4M12C87OMLO	6	1/4	M12X1.5	21.5	33.0	14	6.0	6.0
4M14C87OMLO	6	1/4	M14X1.5	23.5	35.5	17	6.0	6.0
6M12C87OMLO	8,10	3/8	M12X1.5	25.0	35.5	17	6.0	6.0
6M14C87OMLO	8,10	3/8	M14X1.5	25.0	35.5	17	6.0	6.0
6M16C87OMLO	8,10	3/8	M16X1.5	25.0	37.5	17	6.0	6.0
8M14C87OMLO	12	1/2	M14X1.5	28.0	36.0	19	6.0	6.0
8M18C87OMLO	12	1/2	M18X1.5	28.0	41.0	19	6.0	6.0
8M22C87OMLO	12	1/2	M22X1.5	31.0	49.0	27	6.0	6.0
10M18C87OMLO	14,15,16	5/8	M18X1.5	33.5	47.5	27	6.0	6.0
10M22C87OMLO	14,15,16	5/8	M22X1.5	33.5	49.0	27	6.0	6.0
12M22C87OMLO	18,20	3/4	M22X1.5	37.5	49.0	27	6.0	6.0
12M27C87OMLO	18,20	3/4	M27X2	37.5	55.5	27	6.0	6.0
16M33C87OMLO	22,25	1	M33X2	41.5	59.5	36	5.0	5.0
20M38C87OMLO*	28,30,32	1 1/4	M38X2	44.5	62.0	41	4.0	4.0
20M42C87OMLO	28,30,32	1 1/4	M42X2	44.5	63.0	41	4.0	4.0
24M48C87OMLO	35,38	1 1/2	M48X2	49.0	71.5	50	4.0	4.0

* For special M38x2 (ISO 6149-1 style) port. The current ISO 6149 does not include the M38 size.

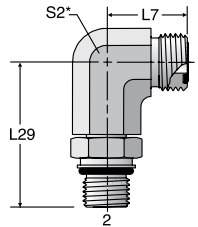
Dimensions and pressures for reference only, subject to change.



CC87OMLO

Long 90° Metric Straight Thread Elbow
ORFS-Long / ISO 6149

ISO 8434-3 SDEL
SAE 52M1587

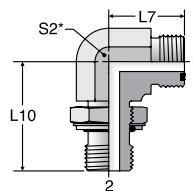


* S2 – Across Hex Flats

TUBE FITTING PART #	END SIZE			L7 (mm)	L29 (mm)	S2 (mm)	Dynamic Pressure (x 1,000 PSI)	
	1		2				S	SS
	(mm)	(in.)	ISO 261					
4M12CC87OMLO	6	1/4	M12X1.5	21.5	56.5	14	6.0	6.0
6M14CC87OMLO	8,10	3/8	M14X1.5	25.0	56.5	17	6.0	6.0
6M16CC87OMLO	8,10	3/8	M16X1.5	25.0	66.5	17	6.0	6.0
8M18CC87OMLO	12	1/2	M18X1.5	28.0	75.0	19	6.0	6.0
8M22CC87OMLO	12	1/2	M22X1.5	31.5	88.0	27	6.0	6.0
10M22CC87OMLO	14,15,16	5/8	M22X1.5	33.5	88.0	27	6.0	6.0
12M27CC87OMLO	18,20	3/4	M27X2	37.5	100.5	27	6.0	6.0
16M33CC87OMLO	22,25	1	M33X2	41.5	114.5	36	5.0	5.0
20M42CC87OMLO	28,30,32	1 1/4	M42X2	44.5	126.5	41	4.0	4.0

C8OMLO

Metric Straight Thread Elbow
ORFS / Metric-ORR



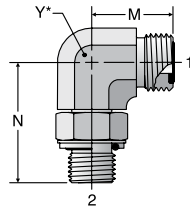
* S2 – Across Hex Flats

TUBE FITTING PART #	END SIZE			L7 (mm)	L10 (mm)	S2 (mm)	Dynamic Pressure (x 1,000 PSI)	
	1		2				S	SS
	(mm)	(in.)	ISO 261					
4M12C8OMLO	6	1/4	M12X1.5	21.5	33.0	14	3.6	3.6
6M12C8OMLO	8, 10	3/8	M12X1.5	25.0	35.5	17	3.6	3.6
6M14C8OMLO	8, 10	3/8	M14X1.5	25.0	35.5	17	3.6	3.6
6M16C8OMLO	8, 10	3/8	M16X1.5	25.0	37.5	17	3.6	3.6
8M14C8OMLO	12	1/2	M14X1.5	28.0	36.0	19	3.6	3.6
8M18C8OMLO	12	1/2	M18X1.5	28.0	41.0	19	3.6	3.6
8M22C8OMLO	12	1/2	M22X1.5	31.5	49.0	27	3.6	3.6
10M22C8OMLO	14, 15, 16	5/8	M22X1.5	33.5	49.0	27	3.6	3.6
12M27C8OMLO	18, 20	3/4	M27X2	37.5	55.5	30	3.6	3.6
16M33C8OMLO	22, 25	1	M33X2	41.5	59.5	36	2.5	2.5
20M38C8OMLO	28, 30, 32	1 1/4	M38X2	44.5	62.0	41	2.5	2.5
20M42C8OMLO	28, 30, 32	1 1/4	M42X2	44.5	63.0	41	2.5	2.5

Dimensions and pressures for reference only, subject to change.

C4OMLO

Male Elbow – BSPP
(for ISO 1179-1 Port)
ORFS / BSPP-ORR

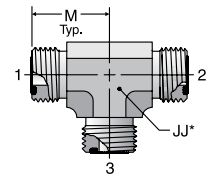


* Y – Across Wrench Flats

JLO

Union Tee
ORFS (all three ends)

SAE 520401



* JJ – Across Wrench Flats

TUBE FITTING PART #	END SIZE		BSPP	M (mm)	N (mm)	Y (mm)	Dynamic Pressure (x 1,000 PSI)	
	1						S	SS
	(mm)	(in.)						
4C4OMLO	6	1/4	1/8 - 28	21.5	30.0	14	4.0	4.0
4-4C4OMLO	6	1/4	1/4 - 19	23.5	36.0	19	4.0	4.0
4-6C4OMLO	6	1/4	3/8 - 19	24.5	38.0	19	4.0	4.0
6C4OMLO	8,10	3/8	1/4 - 19	25.0	36.0	19	4.0	4.0
6-6C4OMLO	8,10	3/8	3/8 - 19	26.5	38.0	19	4.0	4.0
8-4C4OMLO	12	1/2	1/4 - 19	28.0	35.5	19	4.0	4.0
8C4OMLO	12	1/2	3/8 - 19	28.0	38.0	19	4.0	4.0
8-8C4OMLO	12	1/2	1/2 - 14	31.0	48.5	27	4.0	4.0
8-12C4OMLO	12	1/2	3/4 - 14	33.5	51.5	30	4.0	4.0
10-6C4OMLO	14,15,16	5/8	3/8 - 19	33.5	40.5	27	4.0	4.0
10C4OMLO	14,15,16	5/8	1/2 - 14	33.5	48.5	27	4.0	4.0
10-12C4OMLO	14,15,16	5/8	3/4 - 14	36.0	51.5	30	4.0	4.0
10-16C4OMLO	14,15,16	5/8	1 - 11	39.5	58.5	36	4.0	4.0
12-8C4OMLO	18,20	3/4	1/2 - 14	37.5	49.5	30	4.0	4.0
12C4OMLO	18,20	3/4	3/4 - 14	37.5	51.5	30	4.0	4.0
12-16C4OMLO	18,20	3/4	1 - 11	41.0	58.5	36	4.0	4.0
16-12C4OMLO	22,25	1	3/4 - 14	41.5	56.0	36	4.0	4.0
16C4OMLO	22,25	1	1 - 11	41.5	58.5	36	4.0	4.0
16-20C4OMLO	22,25	1	1 1/4 - 11	44.5	61.0	41	3.0	3.0
20-16C4OMLO	28,30,32	1 1/4	1 - 11	44.5	61.0	41	4.0	4.0
20C4OMLO	28,30,32	1 1/4	1 1/4 - 11	44.5	61.0	41	2.0	2.0
20-24C4OMLO	28,30,32	1 1/4	1 1/2 - 11	49.0	64.5	50	2.0	2.0
24C4OMLO	35,38	1 1/2	1 1/2 - 11	49.0	64.5	50	2.0	2.0

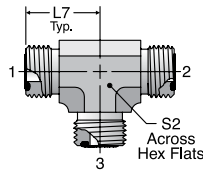
TUBE FITTING PART #	END SIZE		JJ (in.)	M (in.)	Dynamic Pressure (x 1,000 PSI)	
	1-3				-S	-SS
	(in.)					
4 JLO	1/4	9/16	0.85	9.2	9.2	
6 JLO	3/8	3/4	0.98	9.2	9.2	
8 JLO	1/2	3/4	1.10	9.2	9.2	
10 JLO	5/8	1 1/16	1.32	6.0	6.0	
12 JLO	3/4	1 3/16	1.48	6.0	6.0	
16 JLO	1	1 7/16	1.63	6.0	6.0	
20 JLO	1 1/4	1 5/8	1.75	5.0	5.0	
24 JLO	1 1/2	1 7/8	1.93	4.0	4.0	
32 JLO*	2	2 1/2	2.76	3.0	3.0	

* Size 32 is not included in SAE J1453.

JMLO

Union Tee – mm Hex
ORFS (all three ends)

ISO 8434-3 T
SAE 52M0401

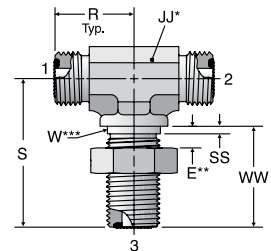


* S2 – Across Hex Flats

WJLO

Bulkhead Branch Tee
ORFS (all three ends)

SAE 520959
WJLO-WLNL - Body with Locknut
(See page A11 for WLNL)



TUBE FITTING PART #	END SIZE		L7 (mm)	S2 (mm)	Dynamic Pressure (x 1,000 PSI)	
	1-3				S	SS
	(mm)	(in.)				
4JMLO	6	1/4	21.5	14	9.2	9.2
6JMLO	8,10	3/8	25.0	19	9.2	9.2
8JMLO	12	1/2	28.0	19	9.2	9.2
10JMLO	14,15,16	5/8	33.5	27	6.0	6.0
12JMLO	18,20	3/4	37.5	30	6.0	6.0
16JMLO	22,25	1	41.5	36	6.0	6.0
20JMLO	28,30,32	1 1/4	44.5	41	5.0	5.0
24JMLO	35,38	1 1/2	49.0	50	4.0	4.0

TUBE FITTING PART #	END SIZE 1-3 (in.)	E MAX (in.)	JJ (in.)	R (in.)	S (in.)	SS (in.)	W DIA (in.)	WW (in.)	Dynamic Pressure (x 1,000 PSI)	
									-S	-SS
									4 WJLO	1/4
6 WJLO	3/8	0.55	3/4	1.02	2.05	0.06	0.69	1.34	9.2	9.2
8 WJLO	1/2	0.55	3/4	1.14	2.19	0.06	0.81	1.44	9.2	9.2
10 WJLO	5/8	0.55	1 1/16	1.36	2.48	0.06	1.00	1.59	6.0	6.0
12 WJLO	3/4	0.55	1 3/16	1.52	2.64	0.06	1.19	1.63	6.0	6.0
16 WJLO	1	0.55	1 7/16	1.67	2.80	0.06	1.44	1.65	6.0	6.0

* JJ – Across wrench flats.

** E – Maximum bulkhead thickness.

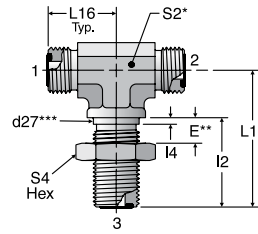
*** W – Bulkhead pilot diameter. Recommended clearance hole is W + 0.015".

Dimensions and pressures for reference only, subject to change.

WJMLO

Bulkhead Union Tee – mm Hex
ORFS (all three ends)

ISO 8434-3 BHBT
SAE 52M0959
WJMLOWLNML - Body with Locknut
(See page A11 for WLNML)



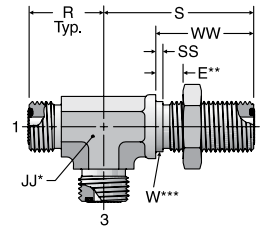
TUBE FITTING PART #	END SIZE		d27***	E	I2	I4	L16	L17	S2	S4 HEX (mm)	Dynamic Pressure (x 1,000 PSI)	
	1-3										S	SS
	(mm)	(in.)										
4WJMLO	6	1/4	14.3	14	31.5	1.5	22.5	47.0	14	22	9.2	9.2
6WJMLO	8,10	3/8	17.5	14	34.0	1.5	26.0	52.0	19	27	9.2	9.2
8WJMLO	12	1/2	20.6	14	36.5	2.5	29.0	55.5	19	30	9.2	9.2
10WJMLO	14,15,16	5/8	25.4	14	40.5	2.5	34.5	63.0	27	36	6.0	6.0
12WJMLO	18,20	3/4	30.2	14	41.5	3.0	38.5	67.0	30	41	6.0	6.0
16WJMLO	22,25	1	36.5	14	42.0	3.0	42.5	71.0	36	46	6.0	6.0
20WJMLO	28,30,32	1 1/4	42.9	14	42.0	3.0	45.5	75.5	41	50	5.0	5.0
24WJMLO	35,38	1 1/2	50.8	14	42.0	3.0	49.5	79.5	50	60	4.0	4.0

* S2 – Across wrench flats.
** E – Maximum bulkhead thickness.
***d27 - Bulkhead pilot diameter. Recommended clearance hole is d27 + 0.4 mm.

WJJLO

Bulkhead Run Tee
ORFS (all three ends)

SAE 520958
WJJLOWLNML - Body with Locknut
(See page A11 for WLNML)



TUBE FITTING PART #	END SIZE	E MAX	JJ	R	S	SS	W DIA	WW	Dynamic Pressure (x 1,000 PSI)	
									-S	-SS
4 WJJLO	1/4	0.55	9/16	0.89	1.85	0.06	0.56	1.24	9.2	9.2
6 WJJLO	3/8	0.55	3/4	1.02	2.05	0.06	0.69	1.34	9.2	9.2
8 WJJLO	1/2	0.55	3/4	1.14	2.19	0.06	0.81	1.44	9.2	9.2
10 WJJLO	5/8	0.55	1 1/16	1.36	2.48	0.06	1.00	1.59	6.0	6.0
12 WJJLO	3/4	0.55	1 3/16	1.52	2.64	0.06	1.19	1.63	6.0	6.0
16 WJJLO	1	0.55	1 7/16	1.67	2.80	0.06	1.44	1.65	6.0	6.0
20 WJJLO	1 1/4	0.55	1 5/8	1.79	2.79	0.06	1.69	1.65	5.0	5.0
24 WJJLO	1 1/2	0.55	1 7/8	1.95	3.13	0.06	2.00	1.65	4.0	4.0

* JJ – Across wrench flats.
** E – Maximum bulkhead thickness.
*** W – Bulkhead pilot diameter. Recommended clearance hole is W + 0.015".

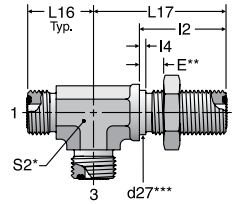
Dimensions and pressures for reference only, subject to change.



WJJMLO

Bulkhead Run Tee – mm Hex
ORFS (all three ends)

ISO 8434-3 BHRT
SAE 52M0958
WJJMLOWLNML - Body with Locknut
(See page A11 for WLNML)



TUBE FITTING PART #	END SIZE		d27*** (mm)	E (mm)	I2 (mm)	I4 (mm)	L16 (mm)	L17 (mm)	S2 (mm)	Dynamic Pressure (x 1,000 PSI)	
	1-3									S	SS
	(mm)	(in.)									
4WJJMLO	6	1/4	14.3	14	31.5	1.5	22.5	47.0	14	9.2	9.2
6WJJMLO	8,10	3/8	17.5	14	34.0	1.5	26.0	52.0	19	9.2	9.2
8WJJMLO	12	1/2	20.6	14	36.5	2.5	29.0	55.5	19	9.2	9.2
10WJJMLO	14,15,16	5/8	25.4	14	40.5	2.5	34.5	63.0	27	6.0	6.0
12WJJMLO	18,20	3/4	30.2	14	41.5	3.0	38.5	67.0	30	6.0	6.0
16WJJMLO	22,25	1	36.5	14	42.0	3.0	42.5	71.0	36	6.0	6.0
20WJJMLO	28,30,32	1 1/4	42.9	14	42.0	3.0	45.5	71.0	41	5.0	5.0
24WJJMLO	35,38	1 1/2	50.8	14	42.0	3.0	49.5	79.5	50	4.0	4.0

* S2 – Across wrench flats.

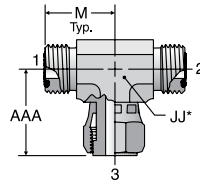
** E – Maximum bulkhead thickness.

***d27 - Bulkhead pilot diameter. Recommended clearance hole is d27 + 0.4 mm.

S6LO

Swivel Nut Branch Tee
ORFS / ORFS / ORFS Swivel

SAE 520433



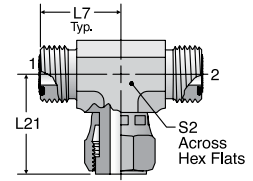
* JJ – Across Wrench Flats

TUBE FITTING PART #	END SIZE		AAA (in.)	JJ (in.)	M (in.)	Dynamic Pressure (x 1,000 PSI)	
	1-3					-S	-SS
	(in.)	(in.)					
4 S6LO	1/4	1.07	9/16	0.85	9.2	9.2	
6 S6LO	3/8	1.17	3/4	0.98	9.2	9.2	
8 S6LO	1/2	1.50	3/4	1.10	9.2	9.2	
10 S6LO	5/8	1.61	1 1/16	1.32	6.0	6.0	
12 S6LO	3/4	1.83	1 3/16	1.48	6.0	6.0	
16 S6LO	1	2.11	1 7/16	1.63	6.0	6.0	
20 S6LO	1 1/4	2.28	1 5/8	1.75	5.0	5.0	
24 S6LO	1 1/2	2.40	1 7/8	1.93	4.0	4.0	

S6MLO

Swivel Nut Branch Tee – mm Hex
ORFS / ORFS / ORFS Swivel

ISO 8434-3 SWBT
SAE 52M0433



* S2 – Across Wrench Flats

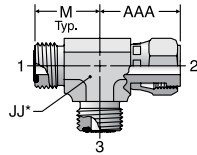
TUBE FITTING PART #	END SIZE		L7 (mm)	L21 (mm)	S2 (mm)	Dynamic Pressure (x 1,000 PSI)	
	1-3					S	SS
	(mm)	(in.)					
4S6MLO	6	1/4	21.5	27.2	14		
6S6MLO	8,10	3/8	25.0	29.7	19	9.2	9.2
8S6MLO	12	1/2	28.0	38.0	19	9.2	9.2
10S6MLO	14,15,16	5/8	33.5	41.0	27	6.0	6.0
12S6MLO	18,20	3/4	37.5	46.5	30	6.0	6.0
16S6MLO	22,25	1	41.5	53.5	36	6.0	6.0
20S6MLO	28,30,32	1 1/4	44.5	58.0	41	4.0	4.0
24S6MLO	35,38	1 1/2	49.0	61.0	50	4.0	4.0

Dimensions and pressures for reference only, subject to change.

R6LO

Swivel Nut Run Tee
ORFS / ORFS Swivel / ORFS

SAE 520432

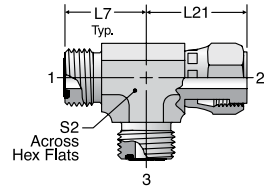


* JJ – Across Wrench Flats

R6MLO

Swivel Nut Run Tee – mm Hex
ORFS / ORFS Swivel / ORFS

ISO 8434-3 SWRT
SAE 52M0432



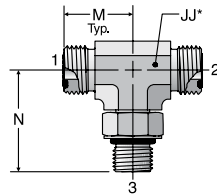
TUBE FITTING PART #	END SIZE		JJ (in.)	M (in.)	Dynamic Pressure (x 1,000 PSI)	
	1-3 (in.)	AAA (in.)			-S	-SS
6 R6LO	3/8	1.17	3/4	0.98	9.2	9.2
8 R6LO	1/2	1.50	3/4	1.10	9.2	9.2
10 R6LO	5/8	1.61	1 1/16	1.32	6.0	6.0
12 R6LO	3/4	1.83	1 3/16	1.48	6.0	6.0
16 R6LO	1	2.11	1 7/16	1.63	6.0	6.0
20 R6LO	1 1/4	2.28	1 5/8	1.75	5.0	5.0
24 R6LO	1 1/2	2.40	1 7/8	1.93	4.0	4.0

TUBE FITTING PART #	END SIZE		L7 (mm)	L21 (mm)	S2 (mm)	Dynamic Pressure (x 1,000 PSI)	
	1-3					-S	-SS
	(mm)	(in.)					
4R6MLO	6	1/4	21.5	27.2	14	9.2	9.2
6R6MLO	8,10	3/8	25.0	29.7	19	9.2	9.2
8R6MLO	12	1/2	28.0	38.0	19	9.2	9.2
10R6MLO	14,15,16	5/8	33.5	41.0	27	6.0	6.0
12R6MLO	18,20	3/4	37.5	46.5	30	6.0	6.0
16R6MLO	22,25	1	41.5	53.5	36	6.0	6.0
20R6MLO	28,30,32	1 1/4	44.5	58.0	41	4.0	4.0
24R6MLO	35,38	1 1/2	49.0	61.0	50	4.0	4.0

S5OLO

Straight Thread Branch Tee
ORFS / ORFS / SAE-ORB

SAE 520429



* JJ – Across Wrench Flats

TUBE FITTING PART #	END SIZE			JJ (in.)	M (in.)	N (in.)	Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 (in.)	3 UN/UNF-2A				-S	-SS
4-4-6 S5OLO	1/4	1/4	9/16 - 18	9/16	0.93	1.46	6.0	6.0
6 S5OLO	3/8	3/8	9/16 - 18	3/4	0.98	1.46	6.0	6.0
6-6-4 S5OLO	3/8	3/8	7/16 - 20	3/4	0.98	1.38	6.0	6.0
6-6-8 S5OLO	3/8	3/8	3/4 - 16	3/4	1.04	1.59	6.0	6.0
8 S5OLO	1/2	1/2	3/4 - 16	3/4	1.10	1.59	6.0	6.0
8-8-10 S5OLO	1/2	1/2	7/8 - 14	1 1/16	1.24	1.97	6.0	6.0
8-8-12 S5OLO	1/2	1/2	1 1/16 - 12	1 3/16	1.34	2.17	6.0	6.0
10 S5OLO	5/8	5/8	7/8 - 14	1 1/16	1.32	1.97	6.0	6.0
10-10-12 S5OLO	5/8	5/8	1 1/16 - 12	1 3/16	1.42	2.17	6.0	6.0
12 S5OLO	3/4	3/4	1 1/16 - 12	1 3/16	1.48	2.17	6.0	6.0
12-12-16 S5OLO	3/4	3/4	1 5/16 - 12	1 7/16	1.61	2.34	5.5	5.5
16 S5OLO	1	1	1 5/16 - 12	1 7/16	1.63	2.34	5.5	5.5
16-16-20 S5OLO	1	1	1 5/8 - 12	1 5/8	1.75	2.44	4.0	4.0
20 S5OLO	1 1/4	1 1/4	1 5/8 - 12	1 5/8	1.75	2.44	4.0	4.0
24 S5OLO	1 1/2	1 1/2	1 7/8 - 12	1 7/8	1.93	2.60	4.0	4.0

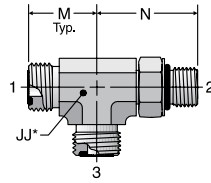
Dimensions and pressures for reference only, subject to change.



R5OLO

Straight Thread Run Tee
ORFS / SAE-ORB / ORFS

SAE 520428

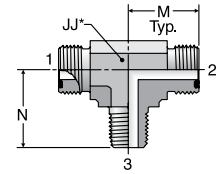


* JJ – Across Wrench Flats

SLO

Male Pipe Tee
ORFS / ORFS / NPTF

SAE 520425



* JJ – Across Wrench Flats

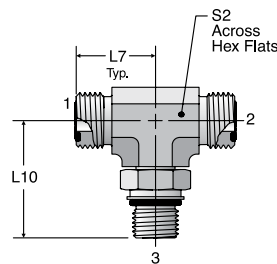
TUBE FITTING PART #	END SIZE			JJ (in.)	M (in.)	N (in.)	Dynamic Pressure (x 1,000 PSI)	
	1 (in.)	2 UN/UNF-2A	3 (in.)				-S	-SS
	4 R5OLO	1/4	7/16 - 20					
4-6-4 R5OLO	1/4	9/16 - 18	1/4	3/4	0.92	1.46	6.0	6.0
6 R5OLO	3/8	9/16 - 18	3/8	3/4	0.98	1.46	6.0	6.0
6-8-6 R5OLO	3/8	3/4 - 16	3/8	3/4	1.04	1.59	6.0	6.0
8 R5OLO	1/2	3/4 - 16	1/2	3/4	1.10	1.59	6.0	6.0
8-10 8 R5OLO	1/2	7/8 - 14	1/2	1 1/16	1.24	1.97	6.0	6.0
10 R5OLO	5/8	7/8 - 14	5/8	1 1/16	1.32	1.97	6.0	6.0
10-12-10 R5OLO	5/8	1 1/16 - 12	5/8	1 3/16	1.42	2.17	6.0	6.0
12 R5OLO	3/4	1 1/16 - 12	3/4	1 3/16	1.48	2.17	6.0	6.0
12-16-12 R5OLO	3/4	1 5/16 - 12	3/4	1 7/16	1.61	2.34	5.5	5.5
16 R5OLO	1	1 5/16 - 12	1	1 7/16	1.63	2.34	5.5	5.5
16-20-16 R5OLO	1	1 5/8 - 12	1	1 5/8	1.75	2.44	4.0	4.0
20 R5OLO	1 1/4	1 5/8 - 12	1 1/4	1 5/8	1.75	2.44	4.0	4.0
24 R5OLO	1 1/2	1 7/8 - 12	1 1/2	1 7/8	1.93	2.60	4.0	4.0

TUBE FITTING PART #	END SIZE		JJ (in.)	M (in.)	N (in.)	Dynamic Pressure (x 1,000 PSI)	
	1 & 2 (in.)	3 NPTF				-S	-SS
	4-4-4 SLO	1/4					
6 SLO	3/8	1/4 - 18	3/4	0.98	1.09	6.0	6.0
6-6-6 SLO	3/8	3/8 - 18	3/4	0.98	1.22	6.0	6.0
8 SLO	1/2	3/8 - 18	3/4	1.10	1.22	6.0	6.0
8-8-8 SLO	1/2	1/2 - 14	7/8	1.10	1.47	6.0	6.0
10 SLO	5/8	1/2 - 14	1 1/16	1.31	1.47	6.0	6.0
12 SLO	3/4	3/4 - 14	1 3/16	1.47	1.59	4.0	4.0
16 SLO	1	1 - 11 1/2	1 7/16	1.64	1.97	3.0	3.0
20 SLO	1 1/4	1 1/4 - 11 1/2	1 5/8	1.76	2.38	2.5	2.5

S87OMLO

Metric Straight Thread Branch Tee
ORFS / ORFS / ISO 6149

ISO 8434-3 SDBT
SAE 52M0489



* S2 – Across Hex Flats

TUBE FITTING PART #	END SIZE			L7 (mm)	L10 (mm)	S2 (mm)	Dynamic Pressure (x 1,000 PSI)	
	1 & 2 (mm)		3 ISO 261				S	SS
	4M12S87OMLO	6	1/4					
4M14S87OMLO	6	1/4	M14X1.5	23.5	35.5	19	6.0	6.0
6M14S87OMLO	8,10	3/8	M14X1.5	25.0	35.5	19	6.0	6.0
6M16S87OMLO	8,10	3/8	M16X1.5	25.0	37.5	19	6.0	6.0
8M14S87OMLO	12	1/2	M14X1.5	28.0	36.0	19	6.0	6.0
8M18S87OMLO	12	1/2	M18X1.5	28.0	41.0	19	6.0	6.0
8M22S87OMLO	12	1/2	M22X1.5	31.0	49.0	27	6.0	6.0
10M22S87OMLO	14,15,16	5/8	M22X1.5	33.5	49.0	27	6.0	6.0
12M27S87OMLO	18,20	3/4	M27X2	37.5	55.5	30	6.0	6.0
16M33S87OMLO	22,25	1	M33X2	41.5	59.5	36	5.1	5.1
20M42S87OMLO	28,30,32	1 1/4	M42X2	44.5	63.0	41	4.0	4.0
24M48S87OMLO	35,38	1 1/2	M48X2	49.0	71.5	50	4.0	4.0

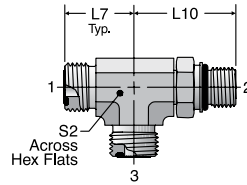
Dimensions and pressures for reference only, subject to change.



R87OMLO

Metric Straight Thread Run Tee
ORFS / ISO 6149 / ORFS

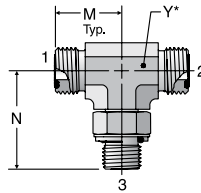
ISO 8434-3 SDRT
SAE 52M0488



TUBE FITTING PART #	END SIZE			L7 (mm)	L10 (mm)	S2 (mm)	Dynamic Pressure (x 1,000 PSI)	
	1 & 3		2				S	SS
	(mm)	(in.)	ISO 261					
4M12R87OMLO	6	1/4	M12X1.5	21.5	33.0	14	6.0	6.0
4M14R87OMLO	6	1/4	M14X1.5	23.5	35.5	19	6.0	6.0
6M14R87OMLO	8,10	3/8	M14X1.5	25.0	35.5	19	6.0	6.0
6M16R87OMLO	8,10	3/8	M16X1.5	25.0	37.5	19	6.0	6.0
8M14R87OMLO	12	1/2	M14X1.5	28.0	36.0	19	6.0	6.0
8M18R87OMLO	12	1/2	M18X1.5	28.0	41.0	19	6.0	6.0
8M22R87OMLO	12	1/2	M22X1.5	31.0	49.0	27	6.0	6.0
10M22R87OMLO	14,15,16	5/8	M22X1.5	33.5	49.0	27	6.0	6.0
12M27R87OMLO	18,20	3/4	M27X2	37.5	55.5	30	6.0	6.0
16M33R87OMLO	22,25	1	M33X2	41.5	59.5	36	4.0	4.0
20M42R87OMLO	28,30,32	1 1/4	M42X2	44.5	63.0	41	4.0	4.0
24M48R87OMLO	35,38	1 1/2	M48X2	49.0	71.5	50	4.0	4.0

S4OMLO

Branch Tee – BSPP
(for ISO 1179-1 Port)
ORFS / ORFS / BSPP-ORR



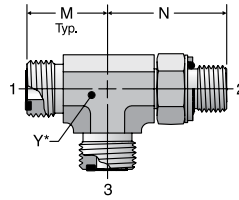
*Y – Across Wrench Flats

TUBE FITTING PART #	END SIZE			M (mm)	N (mm)	Y (mm)	Dynamic Pressure (x 1,000 PSI)	
	1 & 2		3				S	SS
	(mm)	(in.)	BSPP					
4S4OMLO	6	1/4	1/8 - 28	21.5	30.0	14	4.0	4.0
4-4-4S4OMLO	6	1/4	1/4 - 19	23.5	36.0	19	4.0	4.0
6S4OMLO	8,10	3/8	1/4 - 19	25.0	36.0	19	4.0	4.0
6-6-6S4OMLO	8,10	3/8	3/8 - 19	26.5	38.0	19	4.0	4.0
8S4OMLO	12	1/2	3/8 - 19	28.0	38.0	19	4.0	4.0
8-8-8S4OMLO	12	1/2	1/2 - 14	31.0	48.5	27	4.0	4.0
10S4OMLO	14,15,16	5/8	1/2 - 14	33.5	48.5	27	4.0	4.0
12S4OMLO	18,20	3/4	3/4 - 14	37.5	51.5	30	4.0	4.0
16S4OMLO	22,25	1	1 - 11	41.5	58.5	36	4.0	4.0

Dimensions and pressures for reference only, subject to change.

R4OMLO

Run Tee – BSPP
 (for ISO 1179-1 Port)
 ORFS / BSPP-ORR / ORFS



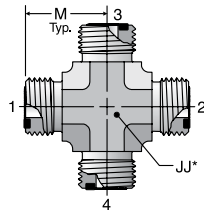
* Y – Across
Wrench Flats

TUBE FITTING PART #	END SIZE			M (mm)	N (mm)	Y (mm)	Dynamic Pressure (x 1,000 PSI)	
	1 & 3		2				S	SS
	(mm)	(in.)	BSPP					
4R4OMLO	6	1/4	1/8 - 28	21.5	30.0	14	4.0	4.0
4-4-4R4OMLO	6	1/4	1/4 - 19	23.5	36.0	19	4.0	4.0
6R4OMLO	8,10	3/8	1/4 - 19	25.0	36.0	19	4.0	4.0
6-6-6R4OMLO	8,10	3/8	3/8 - 19	26.5	38.0	19	4.0	4.0
8R4OMLO	12	1/2	3/8 - 19	28.0	38.0	19	4.0	4.0
8-8-8R4OMLO	12	1/2	1/2 - 14	31.0	48.5	27	4.0	4.0
10R4OMLO	14,15,16	5/8	1/2 - 14	33.5	45.2	27	4.0	4.0
12R4OMLO	18,20	3/4	3/4 - 14	37.5	51.5	30	4.0	4.0
16R4OMLO	22,25	1	1 - 11	41.5	58.5	37	4.0	4.0

KLO

Union Cross
 ORFS (all four ends)

SAE 520501



* JJ – Across
Wrench Flats

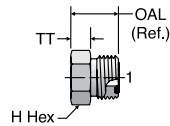
TUBE FITTING PART #	END SIZE	JJ (in.)	M (in.)	Dynamic Pressure (x 1,000 PSI)	
				-S	-SS
	1-4 (in.)				
4 KLO	1/4	9/16	0.85	9.2	9.2
6 KLO	3/8	3/4	0.98	9.2	9.2
8 KLO	1/2	3/4	1.10	9.2	9.2
10 KLO	5/8	1 1/16	1.32	6.0	6.0
12 KLO	3/4	1 3/16	1.48	6.0	6.0
16 KLO	1	1 7/16	1.63	6.0	6.0
20 KLO	1 1/4	1 5/8	1.75	5.0	5.0
24 KLO					

Dimensions and pressures for reference only, subject to change.

PNLO

Plug
ORFS

SAE 520109



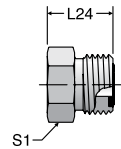
TUBE FITTING PART #	END SIZE	H HEX (in.)	OAL (REF) (in.)	TT (in.)	Dynamic Pressure (x 1,000 PSI)	
					-S	-SS
					1 (in.)	
4 PNLO	1/4	5/8	0.65	0.20	9.2	9.2
6 PNLO	3/8	3/4	0.75	0.32	9.2	9.2
8 PNLO	1/2	7/8	0.87	0.35	9.2	9.2
10 PNLO	5/8	1 1/16	1.02	0.41	6.0	6.0
12 PNLO	3/4	1 1/4	1.08	0.41	6.0	6.0
14 PNLO*	7/8	1 3/8	1.10	0.49	6.0	6.0
16 PNLO	1	1 1/2	1.10	0.41	6.0	6.0
20 PNLO	1 1/4	1 3/4	1.10	0.41	6.0	6.0
24 PNLO	1 1/2	2 1/8	1.10	0.41	5.0	5.0
32 PNLO*	2	2 3/4	1.40	0.50	3.0	3.0

* Sizes 14 and 32 are not included in SAE J1453.

PNMLO

Plug – mm Hex
ORFS

ISO 8434-3 PL
SAE 52M0109

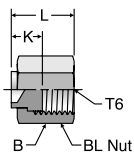


TUBE FITTING PART #	ORFS TUBE O.D.		L24 (mm)	S1 HEX (mm)	Dynamic Pressure (x 1,000 PSI)	
	(mm)	(in.)			S	SS
4PNMLO	6	1/4	16.5	17	9.2	9.2
6PNMLO	8,10	3/8	19.0	19	9.2	9.2
8PNMLO	12	1/2	22.0	22	9.2	9.2
10PNMLO	14,15,16	5/8	26.0	27	6.0	6.0
12PNMLO	18,20	3/4	27.5	32	6.0	6.0
16PNMLO	22,25	1	28.0	41	6.0	6.0
20PNMLO	28,30,32	1 1/4	28.0	46	6.0	6.0
24PNMLO	38	1 1/2	28.0	55	5.0	5.0

FNL

Cap
ORFS

SAE 520112

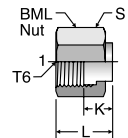


TUBE FITTING PART #	TUBE O.D. (in.)	T6 SWIVEL UN/UNF-2B	B HEX (in.)	K (in.)	L (in.)	Dynamic Pressure (x 1,000 PSI)	
						-S	-SS
4 FNL	1/4	9/16 - 18	11/16	0.35	0.66	9.2	9.2
6 FNL	3/8	11/16 - 16	13/16	0.41	0.74	9.2	9.2
8 FNL	1/2	13/16 - 16	15/16	0.47	0.87	9.2	9.2
10 FNL	5/8	1 - 14	1 1/8	0.53	1.02	6.0	6.0
12 FNL	3/4	1 3/16 - 12	1 3/8	0.59	1.12	6.0	6.0
14 FNL*	7/8	1 5/16 - 12	1 1/2	0.59	1.12	6.0	6.0
16 FNL	1	1 7/16 - 12	1 5/8	0.63	1.16	6.0	6.0
20 FNL	1 1/4	1 11/16 - 12	1 7/8	0.63	1.16	6.0	6.0
24 FNL	1 1/2	2 - 12	2 1/4	0.63	1.16	5.0	5.0
32 FNL*	2	2 1/2 - 12	2 7/8	0.79	1.46	3.0	3.0

* Sizes 14 and 32 are not included in SAE J1453.

FNML

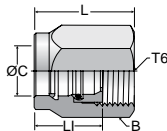
Cap
ORFS



TUBE FITTING PART #	TUBE O.D.		T6 SWIVEL UN/UNF-2B	K (mm)	L (mm)	S HEX (mm)	Dynamic Pressure (x 1,000 PSI)	
	(mm)	(in.)					S	SS
4FNML	6	1/4	9/16 - 18	9.0	16.8	17	9.2	9.2
6FNML	8, 10	3/8	11/16 - 16	10.5	18.8	22	9.2	9.2
8FNML	12	1/2	13/16 - 16	12.0	22.0	24	9.2	9.2
10FNML	14, 15, 16	5/8	1 - 14	13.5	26.0	30	6.0	6.0
12FNML	18, 20	3/4	1 3/16 - 12	15.0	28.6	36	6.0	6.0
16FNML	22, 25	1	1 7/16 - 12	16.0	29.5	41	6.0	6.0
20FNML	28, 30, 32	1 1/4	1 11/16 - 12	16.0	29.5	50	6.0	6.0
24FNML	35, 38	1 1/2	2 - 12	16.0	29.5	60	5.0	5.0

Dimensions and pressures for reference only, subject to change.

UPTC Nut Assembly



TUBE FITTING PART #	END SIZE (in.)	T6 UN/UNF-2B	B HEX (in.)	L (in.)	L1 (in.)	C	
						Nominal Nipple Size	
						(in.)	(mm)
4 UPTCL	1/4	9/16-18	11/16	0.97	0.68	0.31	8
6 UPTCL	3/8	11/16-16	13/16	1.06	0.74	0.47	12
8 UPTCL	1/2	13/16-16	15/16	1.19	0.81	0.59	15
10 UPTCL	5/8	1-14	1 1/8	1.34	0.87	0.71	18
12 UPTCL	3/4	1 3/16-12	1 3/8	1.38	0.86	0.87	22
16 UPTCL	1	1 7/16-12	1 5/8	1.48	0.94	0.98	25

To order as pre-torqued assembly on standard Seal-Lok adapters, see page A7.

Dimensions and pressures for reference only, subject to change.