



SURFACE VEHICLE STANDARD	J512™	NOV2025
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Automotive Tube Fittings		

RATIONALE

This document has been revised to update the clarity of Figure 15.

1. SCOPE

This SAE Standard covers complete general and dimensional specifications for the various types of tube fittings intended for general application in the automotive, appliance, and allied fields. Refer to SAE J1131 for the performance requirements of reusable (push to connect) fittings intended for use in automotive air brake systems.

Flare-type fittings shall be as specified in Figures 1 to 4 and Tables 3 to 5.

NOTE: For sizes 3/16 to 3/8 and 1/2 to 3/4, the flare-type fittings depicted in Figures 1A to 3C are identical with the corresponding refrigeration tube fittings specified in SAE J513. Special size combination fittings 3/16 to 3/8 and 1/2 to 3/4 shall be as specified in SAE J513.

Inverted flared-type fittings shall be as specified in Figures 5 to 11 and Tables 3, 6, 7, 8, and 9. Gauges and gauging procedures pertaining to inverted flared tube fittings are given in Appendix A.

NOTE: The seat dimensions specified in Table 6 are predicated on practical threading limitations in steel fittings and use of these fittings with double flared tubing. Therefore, wherever purchasers contemplate using these fittings with single flared tubing, it is recommended that the optional inverted flare nut (see Figure 9A) be used.

Tapered sleeve compression-type fittings intended for general use with annealed copper alloy tubings shall be as specified in Figures 12 to 17 and Tables 3, 10, 11, and 12. To assure satisfactory performance, spherical sleeve compression-type fitting components (refer to SAE J246) should not be intermixed with tapered sleeve compression-type fitting components when assembling connections in areas where both types are available.

Dimensions of single and double 45-degree flares on tubing to be used in conjunction with flared and inverted flared fittings are given in Figure 2 and Table 3 of SAE J533.

The following general specifications supplement the dimensional data for all types of fittings contained in Tables 3 to 13 with respect to all unspecified detail.

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2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (U.S. and Canada only) or +1 724-776-4970 (Outside U.S. and Canada), www.sae.org.

SAE J246	Spherical and Flanged Sleeve (Compression) Tube Fittings
SAE J476	Dryseal Pipe Threads
SAE J513	Refrigeration Tube Fittings - General Specifications
SAE J533	Flares for Tubing
SAE J846	Coding Systems for Identification of Fluid Conductors and Connectors
SAE J1131	Performance Requirements for SAE J844 Nonmetallic Air Brake Tubing and SAE J246 Compression Fitting Assemblies Used in Vehicular Air Brake Systems

2.1.2 ANSI Publications

Copies of these documents are available online at <https://webstore.ansi.org>.

ANSI B1.1	Screw Threads
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2.1.3 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9500, www.astm.org.

ASTM B117	Method of Salt Spray (Fog) Testing
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3. GENERAL SPECIFICATIONS

3.1 Size Designations

Fitting sizes are designated by the corresponding outside diameter of the tubing for the various types of tube ends and by the corresponding standard nominal pipe size for pipe thread ends.

3.2 Dimensions and Tolerances

Except for nominal sizes and thread specifications, dimensions and tolerances are given in both SI units and U.S. customary units as designated. Tabulated dimensions shall apply to the finished parts, plated or otherwise processed, as specified by the purchaser. Unless otherwise specified, the maximum and minimum across flats dimensions shall be within the commercial tolerance of bar or extruded stock from which the fittings are produced. The minimum across corners dimensions of hexagons shall be 1.092 times the nominal width across flats but shall not result in a side flat width less than 0.43 times the nominal width across flats.

Unless otherwise specified, tolerance on hole diameters designated drill in the dimensional tables shall be as tabulated in Table 1.

Table 1 - Dimensions and tolerances

Drill Size Range Millimeters	Drill Size Range Inches	Tolerance on Hole Diameter Plus Millimeters	Tolerance on Hole Diameter Plus Inches	Tolerance on Hole Diameter Minus Millimeters	Tolerance on Hole Diameter Minus Inches
0.343 thru 4.699	0.0135 thru 0.1850	0.08	0.003	0.05	0.002
4.762 thru 6.299	0.1875 thru 0.2480	0.10	0.004	0.05	0.002
6.350 thru 19.050	0.2500 thru 0.7500	0.15	0.006	0.08	0.003
19.251 thru 25.400	0.7579 thru 1.0000	0.18	0.007	0.10	0.004

Tolerance on all dimensions not otherwise limited shall be 0.25 mm (± 0.010 inch). Angular tolerance on axis of ends on elbows, tees, and crosses shall be ± 2.50 degrees for sizes up to and including 3/8 inch, and ± 1.50 degrees for sizes larger than 3/8 inch.

Integral internal seats in inverted flared tube fittings shall be concentric with straight thread pitch diameters within 0.13 mm (0.005 inch) full indicator reading (FIR). Unless otherwise specified, fitting seats shall be concentric with straight thread pitch diameters within 0.25 mm (0.010 inch) FIR.

Where so illustrated and not otherwise specified, hexagon corners shall be chamfered 30 degrees ± 5 degrees to a diameter equal to the nominal width across flats, with a tolerance of -0.41 mm (-0.016 inch); or 0.41 where design permits, corners may be chamfered to the diameter of the abutting surface provided the length of chamfer does not exceed that produced by the 30-degree chamfer previously described.

3.3 Passages

Where passages in straight fittings are machined from opposite ends, the offset at the meeting point shall not exceed 0.38 mm (0.015 inch). The cross-sectional area at the junction of passages in angle fittings shall not be less than that of the smallest passage. Where the passage is specified as a maximum, or as tap drill diameter or less, the minimum shall be no less than the minimum diameter of the smallest passage in the fitting.

3.4 Wall Thickness

Unless otherwise designated, the wall thickness at any point on fittings shall not be less than the thickness established by the specified dimensions, tolerances, and eccentricities for inner and outer surfaces.

3.5 Contour

Details of contour shall be optional with the manufacturer, provided the tabulated dimensions are maintained and serviceability of the fittings is not impaired. Wrench flats on elbows and tees shall be optional. Where extruded or forged shapes are reduced to conserve material, the wall thickness, unless otherwise specified, shall not be less than the respective minimum values tabulated in Table 2.

Table 2 - Wall thickness

Nom Tube OD Inches	Wall Thickness Min Extruded Shape ^(a) Millimeters	Wall Thickness Min Extruded Shape ^(a) Inches	Wall Thickness Min Forged Shape Millimeters	Wall Thickness Min Forged Shape Inches
1/8	1.0	0.04	1.52	0.060
3/16	1.0	0.04	1.78	0.070
1/4	1.0	0.04	1.90	0.075
5/16	1.3	0.05	1.90	0.075
3/8	1.3	0.05	2.29	0.090
7/16	1.5	0.06	2.29	0.090
1/2	1.5	0.06	2.29	0.090
9/16	1.5	0.06	2.29	0.090
5/8	2.0	0.08	2.54	0.100
3/4	2.0	0.08	2.54	0.100
7/8	2.0	0.08	3.05	0.120
1	2.0	0.08	3.05	0.120

^(a) Applies to reduction to one plane of shape only.

3.6 Straight Threads

Unified Standard Class 2A external threads and Class 2B internal threads with minor diameters, where specified, modified to Class 3B limits, shall apply to plain finish (unplated) fittings of all types. For externally threaded parts with additive finish, the maximum diameters of Class 2A may be exceeded by the amount of the allowance; that is, the basic diameters (Class 2A maximum diameters plus the allowance) shall apply to an externally threaded part after plating. For internally threaded parts with additive finish, the Class 2B diameters and modified minor diameters shall apply after plating.

The pitch diameter tolerance shall be the same as the corresponding diameter-pitch combination and the class of the Unified coarse and fine thread series or for special diameter-pitch combinations shall be based on diameter, pitch, and a length of engagement of nine times the pitch. Refer to ANSI B1.1.

Where external threads are produced by roll threading and the body is not undercut, the unthreaded portion of body adjacent to the shoulder may be reduced to the minimum pitch diameter.

External threads shall be chamfered to the diameter of abutting surfaces, or to the diameters specified, to produce a length of chamfered or partial thread equivalent to 3/4 to 1-1/4 times the pitch (rounded to a three-place decimal).

Internal threads shall be countersunk 90 degrees, included angle, to the diameters specified to the dimensional tables.

3.7 Thread Eccentricity Tolerances

The various thread elements of Class 2A external and Class 2B, modified, internal threads on tube fittings shall be concentric within the following limitations:

3.8 External Thread (Screw)

- 3.8.1 Where screw pitch diameter is maximum and screw major diameter is maximum, these two thread elements must be concentric. However, if the screw major diameter is out-of-round, undersize, these two thread elements may be eccentric at the point of out-of-roundness, a full indicator reading amount equal to the screw major diameter tolerance.
- 3.8.2 Where screw pitch diameter is minimum and screw major diameter is maximum, these two thread elements may be eccentric, a full indicator reading amount equal to the screw pitch diameter tolerance.
- 3.8.3 Where screw pitch diameter is maximum and screw major diameter is minimum, these two thread elements may be eccentric, a full indicator reading amount equal to the screw major diameter tolerance.
- 3.8.4 Where screw pitch diameter is minimum and screw major diameter is minimum, these two thread elements may be eccentric, a full indicator reading amount equal to the sum of the screw pitch diameter tolerance and the screw major diameter tolerance.

3.9 Internal Thread (Nut)

- 3.9.1 Where nut pitch diameter is minimum and nut minor diameter is minimum, these two thread elements must be concentric. However, if the nut minor diameter is out-of-round, oversize, the two thread elements may be eccentric at the point of out-of-roundness, a full indicator reading amount equal to the nut minor diameter tolerance.
- 3.9.2 Where nut pitch diameter is maximum and nut minor diameter is minimum, these two thread elements may be eccentric, a full indicator reading amount equal to the nut pitch diameter tolerance.
- 3.9.3 Where nut pitch diameter is minimum and nut minor diameter is maximum, these two thread elements may be eccentric, a full indicator reading amount equal to the nut minor diameter tolerance.
- 3.9.4 Where nut pitch diameter is maximum and nut minor diameter is maximum, these two thread elements may be eccentric, a full indicator reading amount equal to the sum of the nut pitch diameter tolerance and the nut minor diameter tolerance.

3.10 Pipe Threads

Pipe threads, unless there is specific authorization to the contrary, shall conform to the Dryseal American Standard Taper Pipe Thread (NPTF). At the purchaser's option, the pipe thread on automotive tube fittings may be shortened in conformity with the SAE Short Dryseal Taper Pipe Thread (PTF-SAE Short). Specifications for pipe threads are given in detail in SAE J476.

The length of full-form external thread shall not be shorter than L_2 , plus one pitch (thread) for Dryseal NPTF and L_2 , for Dryseal PTF-SAE Short, except that where thread is cut through into a relieved body or undercut on the fitting, the minimum full thread length may be reduced by one pitch (thread).

Where external pipe threads are produced by roll threading, the diameter of the unthreaded portion of shank adjacent to shoulder may be reduced to the E, basic diameter.

The tube fitting dimensions tabulated herein are based on length of the Dryseal American Standard Taper Pipe Thread (NPTF), it being the consensus of manufacturers and users that trouble-free assembly cannot be assured unless a full length is used. However, the tap drill depths and overall lengths specified in the tables for fittings with internal taper pipe threads are not consistent with the tap drill depths and overall thread lengths of the Dryseal American Standard Taper Pipe Threads (NPTF) given in Table A2, Appendix A, of SAE J476. The full-length Dryseal American Standard Taper Pipe Taps specified in Table B2 of SAE J476 cannot be used, as the tap drill depths and overall lengths of the fittings have been reduced to the minimum required by bottoming taps to produce standard full-length thread. The deviations described previously are peculiar to these tube fittings and, as special tooling is required, caution should be exercised in specifying such deviations for any other products.

External pipe threads shall be chamfered from the diameters shown in Table 13 to produce the specified length of chamfered or partial thread. Internal pipe threads shall be countersunk 90 degrees, included angle, to the diameters shown in Table 13.

3.11 Material and Manufacture

All types of automotive tube fittings shall be made from brass or steel as specified by the purchaser and, at the manufacturer's option and in accordance with their process of manufacture, may be milled from the bar or forged. Brass shall be UNS C36000 (half-hard), UNS C34500, or UNS C35000 for bar or extruded stock and UNS C37700 for forgings.

3.12 Finish

The external surfaces and threads of all carbon steel parts shall be plated or coated with a suitable material that passes a 72-hour salt spray test in accordance with ASTM B117. Any appearance of red rust during the 72-hour salt spray test shall be considered failure, except for the following:

- a. All internal fluid passages.
- b. Edges such as hex points, serrations, and crests of threads where there may be mechanical deformation of the plating or coating typical of mass-produced parts or shipping effects.
- c. Areas where there is mechanical deformation of the plating or coating caused by crimping, flaring, bending, and other post-plate metal forming operations.
- d. Areas where the parts are suspended or affixed in the test chamber where condensate can accumulate.

NOTE: Cadmium plating is not preferred due to environmental reasons. Parts manufactured to this standard after January 1, 1997, shall not be cadmium plated. Internal fluid passages shall be protected from corrosion during storage. Changes in plating may affect assembly torques and require requalification, when applicable.

3.13 Workmanship

Workmanship shall conform to the best commercial practice to produce high-quality fittings. Fittings shall be free from all hanging burrs, loose scale, and slivers that might become dislodged in usage and all other defects that might affect their serviceability. All sealing surfaces must be smooth except that annular tool marks up to 2.5 μm (100 μin) maximum shall be permissible.

3.14 Assembly Considerations

Where it is not objectionable from a function or production standpoint, the use of a compatible lubricant or sealant may be desirable in assembling Dryseal pipe threads on automotive tube fittings to minimize galling and effect a pressure-tight seal.

3.15 Wrenching Test

Steel nuts when assembled without tubing into mating brass fittings which are held securely by a suitable means, such as in a vise, shall be capable of being tightened by means of a standard open end wrench, having an opening as tabulated to the minimum torque values specified without failure (rounding) of the hexagon corner.

3.16 Inverted Flare Plugs

When assembling inverted flare plugs, it is recommended that a flare gasket (010113) be used to ensure sealing. Refer to SAE J513, Figure 38 for gasket details.

NOTE: The tabulated torque requirements should not in any case be misconstrued as being installation torques. They are intended solely for determining the adequacy of the hexagon corners (see Table 8A).

Table 3 - Straight thread specification data, inches

Nominal Size	Series Designation	External Thread Pitch Diameter Max	External Thread Pitch Diameter Min	Internal Thread Pitch Diameter Max	Internal Thread Pitch Diameter Min ^(a)	Internal Thread Minor Diameter Max ^(b)	Internal Thread Minor Diameter Max ^(c)	Internal Thread Minor Diameter Min
5/16-24	UNF	0.2843	0.2806	0.2902	0.2854	0.2754	0.277	0.267
5/16-28	UN	0.2883	0.2849	0.2937	0.2893	0.2807	0.282	0.274
3/8-24	UNF	0.3468	0.3430	0.3528	0.3479	0.3372	0.340	0.330
7/16-20	UNF	0.4037	0.3995	0.4104	0.4050	0.3916	0.395	0.383
7/16-24	UNS	0.4093	0.4055	0.4153	0.4104	0.3994	0.402	0.392
1/2-20	UNF	0.4662	0.4619	0.4731	0.4675	0.4537	0.457	0.446
1/2-24	UNS	0.4717	0.4678	0.4780	0.4729	0.4619	0.465	0.455
9/16-24	UNEF	0.5342	0.5303	0.5354	0.5405	0.5244	0.527	0.517
5/8-18	UNF	0.5875	0.5828	0.5949	0.5889	0.5730	0.578	0.565
5/8-24	UNEF	0.5967	0.5927	0.6031	0.5979	0.5869	0.590	0.580
11/16-16	UN	0.6455	0.6407	0.6531	0.6469	0.6284	0.634	0.620
11/16-18	UNS	0.6500	0.6455	0.6573	0.6514	0.6335	0.640	0.627
11/16-20	UN	0.6537	0.6494	0.6606	0.6550	0.6412	0.645	0.633
3/4-16	UNF	0.7079	0.7029	0.7159	0.7094	0.6908	0.696	0.682
3/4-18	UNS	0.7125	0.7079	0.7199	0.7139	0.6980	0.703	0.690
13/16-18	UNS	0.7750	0.7704	0.7824	0.7764	0.7605	0.765	0.752
7/8-14	UNF	0.8270	0.8216	0.8356	0.8286	0.8068	0.814	0.798
7/8-18	UNS	0.8375	0.8239	0.8449	0.8389	0.8230	0.828	0.815
1-18	UNS	0.9625	0.9578	0.9701	0.9639	0.9480	0.953	0.940
1-1/16-14	UNS	1.0145	1.0092	1.0230	1.0161	0.9940	1.001	0.985
1-1/16-16	UN	1.0204	1.0154	1.0284	1.0219	1.0033	1.009	0.995
1-1/4-12	UNF	1.1941	1.1879	1.2039	1.1959	1.1698	1.178	1.160
1-3/8-12	UNF	1.3127	1.3190	1.3291	1.3209	1.2948	1.303	1.285

^(a) These values are also the basic pitch diameter.

^(b) Class 3B maximum minor diameter limits shall apply where so designated in respective dimensional tables.

^(c) Class 2B minor diameter limits shall apply unless otherwise designated.

Table 4 - Dimensions of connectors, unions, elbows, and tees (see Figures 1A to 3C)

Nom Tube OD Inches	B Dryseal Taper Thread NPTF ^(a) Inches	B Nom Thread Size Inches Class 2A Ext	C Nom Inches	C ₁ Nom Inches	C ₂ Nom Inches	D ^(e) Dia Drill Millimeters	D ^(e) Dia Drill Inches
1/8	1/8	5/16-24	7/16	5/16	9/16	1.98	0.078
3/16	1/8	3/8-24	7/16	3/8	9/16	3.18	0.125
1/4	1/8	7/16-20	7/16	7/16	9/16	4.78	0.188
5/16	1/8	1/2-20	1/2	1/2	9/16	5.56	0.219
3/8	1/4	5/8-18	5/8	5/8	11/16	7.14	0.281
7/16	1/4	11/16-16	11/16	11/16	11/16	7.92	0.312
1/2	3/8	3/4-16	3/4	3/4	13/16	10.31	0.406
5/8	1/2	7/8-14	7/8	7/8	1	12.70	0.500
3/4	1/2	1-1/16-14	1-1/16	1-1/16	1-1/16	15.88	0.625
7/8	3/4	1-1/4-12	1-1/4	1-1/4	1-1/4	19.05	0.750
1	1	1-3/8-12	1-3/8	1-3/8	1-1/2	22.22	0.875

Nom Tube OD Inches	D ₁ ^(e) Dia Drill Millimeters	D ₁ ^(e) Dia Drill Inches	E Dia Millimeters	E Dia Inches	F Dia Millimeters	F Dia Inches	G ^(d) Dia Millimeters +0.00 -0.25	G ^(d) Dia Inches +0.000 -0.010
1/8	5.56	0.219	2.77	0.109	5.94	0.234	6.35	0.250
3/16	5.56	0.219	3.96	0.156	7.54	0.297	--	--
1/4	5.56	0.219	5.56	0.219	8.74	0.344	--	--
5/16	5.56	0.219	6.35	0.250	10.31	0.406	--	--
3/8	7.92	0.312	7.92	0.312	13.49	0.531	--	--
7/16	7.92	0.312	8.74	0.344	14.63	0.578	15.14	0.596
1/2	10.31	0.406	11.13	0.438	16.28	0.641	16.74	0.659
5/8	14.27	0.562	13.49	0.531	19.05	0.750	19.56	0.770
3/4	14.27	0.562	18.26	0.719	23.83	0.938	24.33	0.958
7/8	19.05	0.750	20.24	0.797	28.58	1.125	28.65	1.128
1	23.82	0.938	23.83	0.938	31.75	1.250	31.83	1.253

Nom Tube OD Inches	I Millimeters	I Inches	J ^(d) Full Thread Min Millimeters	J ^(d) Full Thread Min Inches	K Millimeters	K Inches	L ^(b) Millimeters ±0.08	L ^(b) Inches ±0.03
1/8	9.7	0.38	7.9	0.31	3.0	0.12	23.4	0.92
3/16	11.2	0.44	9.7	0.38	3.0	0.12	25.4	1.00
1/4	12.7	0.50	10.4	0.41	4.1	0.16	26.9	1.06
5/16	14.2	0.56	11.9	0.47	4.8	0.19	29.5	1.16
3/8	15.7	0.62	13.7	0.54	5.6	0.22	36.6	1.44
7/16	17.5	0.69	14.2	0.56	6.4	0.25	38.9	1.53
1/2	19.0	0.75	16.8	0.66	6.4	0.25	41.1	1.62
5/8	22.4	0.88	19.3	0.76	7.1	0.28	50.8	2.00
3/4	25.4	1.00	22.9	0.90	7.1	0.28	55.6	2.19
7/8	28.4	1.12	24.1	0.95	9.7	0.38	60.2	2.37
1	28.4	1.12	24.6	0.97	9.7	0.38	66.5	2.62

Nom Tube OD Inches	L ₁ Millimeters ±0.8	L ₁ Inches ±0.03	L ₂ ^{(b)(c)} Millimeters ±0.8	L ₂ ^{(b)(c)} Inches ±0.03	M Millimeters ±0.8	M Inches ±0.03	M ₁ Millimeters ±0.8	M ₁ Inches ±0.03
1/8	23.4	0.92	23.1	0.91	15.7	0.62	15.7	0.62
3/16	26.9	1.06	24.6	0.97	19.0	0.75	19.0	0.75
1/4	30.2	1.19	26.2	1.03	20.6	0.81	22.4	0.88
5/16	34.0	1.34	26.9	1.06	23.1	0.91	23.1	0.91
3/8	38.1	1.50	33.3	1.31	25.4	1.00	26.9	1.06
7/16	42.2	1.66	35.8	1.41	28.4	1.12	28.4	1.12
1/2	46.0	1.81	38.1	1.50	31.0	1.22	31.0	1.22
5/8	53.8	2.12	46.0	1.81	35.8	1.41	35.8	1.41
3/4	62.0	2.44	48.5	1.91	41.1	1.62	42.2	1.66
7/8	69.6	2.74	57.2	2.25	44.5	1.75	44.5	1.75
1	71.1	2.80	62.0	2.44	49.3	1.94	49.3	1.94

Nom Tube OD Inches	M ₂ Millimeters ±0.8	M ₂ Inches ±0.03	M ₃ Millimeters ±0.8	M ₃ Inches ±0.03	N ^(b) Millimeters ±0.8	N ^(b) Inches ±0.03	N ₁ ^{(b)(c)} Millimeters ±0.8	N ₁ ^{(b)(c)} Inches ±0.03
1/8	19.0	0.75	15.0	0.59	17.5	0.69	10.7	0.42
3/16	20.6	0.81	15.7	0.62	19.0	0.75	11.2	0.44
1/4	22.4	0.88	17.0	0.67	19.8	0.78	11.9	0.47
5/16	23.9	0.94	19.8	0.78	19.8	0.78	11.9	0.47
3/8	27.7	1.09	22.6	0.89	26.9	1.06	17.5	0.69
7/16	28.4	1.12	24.6	0.97	26.9	1.06	18.3	0.72
1/2	32.5	1.28	26.9	1.06	28.4	1.12	19.0	0.75
5/8	38.1	1.50	31.2	1.23	35.1	1.38	25.4	1.00
3/4	41.1	1.62	35.8	1.41	38.1	1.50	26.9	1.06
7/8	47.8	1.88	41.1	1.62	42.9	1.69	28.4	1.12
1	52.3	2.06	42.9	1.69	49.3	1.94	35.1	1.38

Nom Tube OD Inches	N ₂ ^(b) Millimeters ±0.8	N ₂ ^(b) Inches ±0.03	P ^{(b)(c)} Min Millimeters	P ^{(b)(c)} Min Inches	P ₁ ^{(b)(c)} Millimeters	P ₁ ^{(b)(c)} Inches	S ^{(b)(e)} Max Millimeters	S ^{(b)(e)} Max Inches	S ₁ ^{(b)(e)} Min Millimeters	S ₁ ^{(b)(e)} Min Inches
1/8	13.2	0.52	9.7	0.38	9.7	0.38	11.7	0.46	19.6	0.77
3/16	13.2	0.52	9.7	0.38	9.7	0.38	12.2	0.48	21.6	0.85
1/4	16.3	0.64	9.7	0.38	9.7	0.38	12.2	0.48	23.4	0.92
5/16	16.3	0.64	9.7	0.38	9.7	0.38	--	--	--	--
3/8	21.8	0.86	14.2	0.56	14.2	0.56	17.5	0.69	31.5	1.24
7/16	21.8	0.86	14.2	0.56	14.2	0.56	--	--	--	--
1/2	24.1	0.95	14.2	0.56	14.2	0.56	--	--	--	--
5/8	29.7	1.17	19.0	0.75	19.1	0.75	23.9	0.94	42.4	1.67
3/4	30.5	1.20	19.0	0.75	19.1	0.75	31.0	1.22	51.3	2.02
7/8	32.2	1.27	19.0	0.75	19.1	0.75	--	--	--	--
1	37.6	1.48	23.9	0.94	23.9	0.94	31.0	1.22	61.5	2.42

Nom Tube OD Inches	T ^(f) Ref Millimeters	T ^(f) Ref Inches	T ₁ Min Millimeters	T ₁ Min Inches	W ^(g) Dia Millimeters +0.0 -0.5	W ^(g) Dia Inches +0.00 -0.02
1/8	3.8	0.15	5.3	0.21	14.2	0.56
3/16	4.6	0.18	5.3	0.21	14.2	0.56
1/4	4.6	0.18	6.1	0.24	14.2	0.56
5/16	5.3	0.21	6.1	0.24	14.2	0.56
3/8	6.1	0.24	7.6	0.30	17.5	0.69
7/16	6.9	0.27	7.6	0.30	17.5	0.69
1/2	7.6	0.30	9.4	0.37	20.6	0.81
5/8	9.4	0.37	10.9	0.43	25.4	1.00
3/4	10.9	0.43	12.4	0.49	26.9	1.06
7/8	12.4	0.49	13.2	0.52	31.8	1.25
1	14.0	0.55	14.7	0.58	38.1	1.50

^(a) Dryseal American Standard Taper Pipe Thread. See general specifications.

^(b) Where SAE Short Pipe Thread is authorized by the purchaser, dimensions L, L₂, N, N₁, P, S, and S₁ are reduced in accordance with reduction of pipe thread length. Refer to SAE J476, Tables 3 and 4.

^(c) Tap drill depths given require use of bottoming taps to produce standard full thread length. For increased tap clearance, see Internal Taper Pipe Threads in the general specifications.

^(d) Where thread relief undercut is used, the last thread shall be chamfered 1/2 to 1 pitch long from G diameter and dimension 1 may be reduced by an amount equal to 1/2 pitch.

^(e) At the manufacturer's option, through passages in fittings shown in Figures 1A and 3C may conform with the smaller diameter specified or be counterbored to the larger diameter from the appropriate end for depths S or S₁, respectively.

^(f) Minimum design thickness, not subject to inspection.

^(g) Basic dimensions shown shall apply as minimum diameter or across flats for bosses. The -0.5 mm (-0.02 inch) tolerance shall apply only to chamber diameter on full hexagon versions of fitting in Figure 1C.