

**(R) CONNECTIONS FOR GENERAL USE AND FLUID POWER—PORTS AND STUD ENDS WITH
ISO 725 THREADS AND O-RING SEALING—
PART 1: THREADED PORT WITH O-RING SEAL IN TRUNCATED HOUSING**

Foreword—SAE J1926 consists of the following parts, under the general title:

Connections for general use and fluid power Ports and stud ends with ISO 725 threads and O-ring sealing:

—Part 1: Port With O-Ring Seal in Truncated Housing

—Part 2: Heavy-Duty (S Series) Stud Ends

—Part 3: Light-Duty (L Series) Stud Ends

These standards define performance requirements, dimensions, and designs for port and stud end connections for heavy-duty in Part 2 and light-duty in Part 3. Significant testing through 40 years of use has confirmed the performance requirements of these ports and stud ends. Stud ends in conformance with ISO 11926-2 are identical to those in conformance with SAE J1453, and stud ends in conformance with ISO 11926-3 are identical to those in conformance with SAE J514. Stud ends in conformance with SAE J1926-3 (ISO 11926-3) are used on fittings in ISO 8434-2.

In fluid power systems, power is transmitted and controlled through a fluid (liquid or gas) under pressure within an enclosed circuit. In general applications, a fluid may be conveyed under pressure. Components are connected through their threaded ports by fluid conductor fittings to tubes and pipes, or to hose fittings and hoses.

Ports are an integral part of fluid power components such as pumps, motors, valves, cylinders, etc.

1. **Scope**—This part of SAE J1926 specifies dimensions for fluid power and general use ports with inch threads to ISO 725 for use with adjustable and nonadjustable stud ends shown in SAE J1926-2 and SAE J1926-3.

Ports in accordance with this part of SAE J1926 may be used at working pressures up to 63 MPa for nonadjustable stud ends up to 40 MPa for adjustable stud ends. The permissible working pressure depends upon materials, design, working conditions, application, etc.

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For threaded ports and stud ends specified in new designs for hydraulic fluid power applications, only SAE J2244 (ISO 6149) shall be used. Threaded ports and stud ends in accordance with ISO 1179, ISO 9974, and ISO 11926 shall not be used for new design in hydraulic fluid power applications.

Appendix A of this document is informative.

2. References

2.1 Applicable Publications—The following standards contain provisions which, through reference in this text, constitute provisions of this document. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this document are encouraged to investigate the possibility of applying the most recent edition of the standards indicated as follows. Members of IEC and ISO maintain registers of currently valid International Standards.

2.1.1 SAE PUBLICATIONS—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

SAE J514—Hydraulic Tube Fittings

SAE J1453—Fitting—O-ring Face Seal

SAE J1644—Metallic Tube Connections for Fluid Power and General Use—Test Methods for Threaded Hydraulic Fluid Power Connectors

SAE J2244/1—Connections for Fluid Power and General Use—Parts and Stud Ends With ISO 261 Threads and O-ring Sealing—Part 1: Port With O-ring Seal in Truncated Housing

2.1.2 ISO PUBLICATIONS—Available from ANSI, 11 West 42nd Street, New York, NY 10036-8002.

ISO 263:1973—ISO inch screw threads—General plan and selection for screws, bolts and nuts—Diameter range 0,06 to 6 in

ISO 1101:1983—Technical drawings—Tolerancing of form, orientation, location and run-out—Generalities, definitions, symbols, indications on drawings

ISO 1302:1978—Technical drawings—Method of indicating surface texture on drawings

2.2 Related Publications—The following publications are provided for information purposes only and are not a required part of this document.

ISO 725:1978—ISO inch screw threads—Basic dimensions

ISO 1179-1:—¹—Connections for general use and fluid power—Ports and stud ends with ISO 228-1 threads with elastomeric and metal-to-metal sealing—Part 1: Threaded port

ISO 1179-2:—¹—Connections for general use and fluid power—Ports and stud ends with ISO 228-1 threads with elastomeric and metal-to-metal sealing—Part 2: Heavy duty (S series) and light duty (L series) stud ends with elastomeric sealing (type E)

ISO 1179-3:—¹—Connections for general use and fluid power—Ports and stud ends with ISO 228-1 threads with elastomeric and metal-to-metal sealing—Part 3: Light duty (L series) stud end with sealing by O-ring with retaining ring (types G and H)

ISO 1179-4:—¹—Connections for general use and fluid power—Ports and stud ends with ISO 228-1 threads with elastomeric and metal-to-metal sealing—Part 4: Stud end for general use only with metal-to-metal sealing (type B)

ISO 2306:1972—Drills for use prior to tapping screw threads

ISO 5598:1985—Fluid power systems and components—Vocabulary

ISO 6149-1:—¹—Connections for fluid power and general use—Ports and stud ends with ISO 261 threads and O-ring sealing—Part 1: Port with O-ring seal in truncated housing

1. To be published.

- ISO 6149-2:—¹—Connections for fluid power and general use—Ports and stud ends with ISO 261 threads and O-ring sealing—Part 2: Heavy duty (S series) stud ends—Dimensions, design, test methods and requirements
- ISO 6149-3:—¹—Connections for fluid power and general use—Ports and stud ends with ISO 261 threads and O-ring sealing—Part 3: Light duty (L series) stud ends—Dimensions, design, test methods and requirements
- ISO 8434-2:—¹—Metallic tube fittings for fluid power and general use—Part 2: 37 ° flared fittings
- ISO 9974-1:—¹—Connections for general use and fluid power—Ports and stud ends with ISO 261 threads with elastomeric and metal-to-metal sealing—Part 1: Threaded port
- ISO 9974-2:—¹—Connections for general use and fluid power—Ports and stud ends with ISO 261 threads with elastomeric and metal-to-metal sealing—Part 2: Stud end with elastomeric sealing (type E)
- ISO 9974-3:—¹—Connections for general use and fluid power—Ports and stud ends with ISO 261 threads with elastomeric and metal-to-metal sealing—Part 3: Stud end with metal-to-metal sealing (type B)
- ISO 11926-1:—¹—Connections for general use and fluid power—Ports and stud ends with ISO 261 threads and O-ring sealing—Part 1: Threaded port with O-ring seal in truncated housing
- ISO 11926-2:—¹—Connections for general use and fluid power—Ports and stud ends with ISO 261 threads and O-ring sealing—Part 2: Heavy duty (S series) stud ends
- ISO 11926-3:—¹—Connections for general use and fluid power—Ports and stud ends with ISO 261 threads and O-ring sealing—Part 3: Light duty (L series) stud ends

3. **Definitions**—For the purpose of this part of SAE J1926, the definitions given in ISO 5598 shall apply.
4. **Port Size**—The ports shall be specified by SAE J1926-1 and the thread size (without UNF or UN and 2B designation), separated by a colon, for example SAE J1926/1.1/2-20.
5. **Dimensional Requirements**—Ports shall conform to the dimensions in Figure 1 and Table 1.
6. **Test Methods**—Ports shall be tested along with stud ends per the test methods and requirements in SAE J1644.
7. **Identification Statement**—Use the following statement in test reports, catalogues, and sales literature when electing to comply with this part of SAE J1926:

Port conforms to SAE J1926/1, Connections for fluid power and general use—Ports and stud ends with ISO 261 threads and O-ring sealing—Part 1: Threaded port with O-ring seal in truncated housing.

1. To be published.

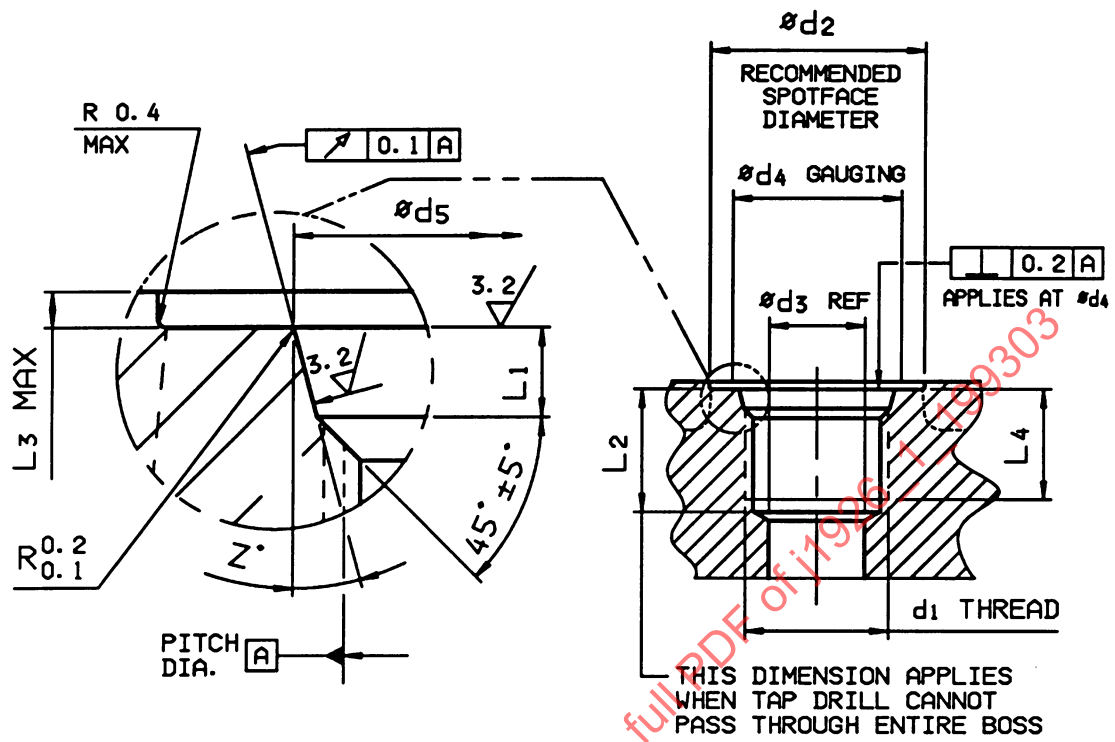


FIGURE 1—SAE J1926/1 PORT DETAIL

TABLE 1—SAE J1926/1 PORT DIMENSIONS

Nominal Tube OD or Hose ID Inch Tubing Dash Size	Nominal Tube OD or Hose ID Inch Tubing mm	Nominal Tube OD or Hose ID Inch Tubing mm	Nominal Tube OD or Hose ID Metric mm	d ₁ Thread Size, in	D ₂ ⁽¹⁾	d ₃ ⁽²⁾ Ref	d ₄ Min	d ₅ ± 0.05	L ₁ ± 0.2	L ₂ ⁽³⁾ Min	L ₃ ⁽⁴⁾ Max	L ₄ Min Full Thread	z° ± 1°
-2	3.18	0.125	4	5/16-24 UNF-2B	17	1.6	11	9.15	2.1	12	1.6	10	12°
-3	4.76	0.188	5	3/8-24 UNF-2B	19	3.5	13	10.75	2.1	12	1.6	10	12°
-4	6.35	0.250	6	7/16-20 UNF-2B	21	4.5	15	12.45	2.6	14	1.6	11.5	12°
-5	7.94	0.312	8	1/2-20 UNF-2B	23	6	16	14.05	2.6	14	1.6	11.5	12°
-6	9.52	0.375	10	9/16-18 UNF-2B	25	7.5	18	15.70	2.7	15.5	1.6	12.7	12°
-8	12.70	0.500	12	3/4-16 UNF-2B	30	10	22	20.65	2.7	17.5	2.4	14.3	15°
-10	15.88	0.625	16	7/8-14 UNF-2B	34	12.5	26	24	2.7	20	2.4	16.7	15°
-12	19.05	0.750	20	1-1/16-12 UN-2B	41	16	32	29.2	3.5	23	2.4	19	15°
-14	22.22	0.875	22	1-3/16-12 UN-2B	45	18	35	32.4	3.5	23	2.4	19	15°
-16	25.40	1.000	25	1-5/16-12 UN-2B	49	21	38	35.55	3.5	23	3.2	19	15°
-20	31.75	1.250	30	1-5/8-12 UN-2B	58	27	48	43.55	3.5	23	3.2	19	15°
-24	38.10	1.500	38	1-7/8-12 UN-2B	65	33	54	49.9	3.5	23	3.2	19	15°
-32	50.80	2.000	50	2-1/2-12 UN-2B	88	45	70	65.75	3.5	23	3.2	19	15°

1. If face of port is on a machined surface, dimensions d₂ and L₂ need not apply as long as R 0.2/0.1 is maintained to avoid damage to the O-ring during installation.

2. Reference only, connecting hole application may require a different size.

3. Tap drill depths given require use of a bottoming tap to produce the specified full thread lengths. Where standard taps are used, increase tap drill depths accordingly.

4. Maximum recommended spotface depth to permit sufficient wrench grip for proper tightening of the fitting or locknut.

8. Notes

8.1 Key Words—Fluid power, pipe fittings, standard connection, standard coupling, pipe joints, ports, stud ends, specifications, design, operating requirements, dimensions, designation, test methods, inch, straight thread, O-ring seal, high pressure

8.2 Marginal Indicia—The change bar (I) located in the left margin is for the convenience of the user in locating areas where technical revisions have been made to the previous issue of the report. An (R) symbol to the left of the document title indicates a complete revision of the report.

PREPARED BY THE SAE FLUID CONDUCTORS AND CONNECTORS TECHNICAL
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APPENDIX A

METRIC NUMBERS CONVERTED TO INCH DIMENSIONS

mm	in.	mm	in.	mm	in.
1.60	0.063	12.50	0.492	26.00	1.024
1.90	0.075	12.70	0.500	27.00	1.063
2.10	0.083	13.00	0.512	29.20	1.150
2.40	0.094	14.00	0.551	30.00	1.181
2.50	0.098	14.05	0.553	32.00	1.260
2.60	0.102	14.30	0.563	32.30	1.272
2.70	0.106	15.00	0.591	32.4	1.276
3.20	0.126	15.50	0.610	33.00	1.299
3.30	0.130	15.60	0.614	34.00	1.339
3.50	0.138	15.70	0.618	35.00	1.378
4.00	0.158	16.00	0.630	35.50	1.398
4.40	0.173	16.70	0.658	35.55	1.400
4.50	0.177	17.00	0.669	38.00	1.496
6.00	0.236	17.50	0.689	41.00	1.614
7.50	0.295	18.00	0.709	43.55	1.715
9.10	0.358	19.00	0.748	45.00	1.772
9.15	0.360	20.00	0.787	48.00	1.890
10.00	0.394	20.60	0.811	49.00	1.929
10.70	0.421	20.65	0.813	49.90	1.965
10.75	0.423	21.00	0.827	54.00	2.126
11.00	0.433	22.00	0.866	58.00	2.284
11.50	0.453	23.00	0.905	65.00	2.559
12.00	0.472	23.90	0.941	65.75	2.589
12.40	0.488	24.00	0.945	70.00	2.756
12.45	0.490	25.00	0.984	88.00	3.465

FIGURE A1—METRIC NUMBERS CONVERTED TO INCH DIMENSIONS