

Fluid Systems—Connector Tubes—General Specification and Part Standard

1. Scope—This SAE Standard identifies the material and dimensional requirements for component connector tubes and related items for use in fluid power components. Connector tubes are also identified as quills, ferrules or transfer tubes. Connector tubes are used to connect fluid passages within a component or to connect one component to another; for example, connecting control valves to subplates. Related items include plugs, undrilled connector tubes and connector tubes for internal check valves and restrictors.

1.1 Field of Application—While used in many high-pressure hydraulic component applications, connector tubes are suitable for use in a wide application of fluid system components. Connector tubes and related components covered in this document are considered suitable for maximum operating pressures of 21 MPa (3045 psi). (See 5.3)

2. References

2.1 Applicable Publications—The latest issue of the documents shall be used except in those cases where an invitation for bid or procurement contract specifically identifies the issues in effect on a particular date. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence.

2.1.1 SAE PUBLICATIONS—Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001. Web site: www.sae.org Telephone: (724)-776-4970.

AMS-QQ-P-35—Passivation Treatments for Corrosion-Resistant Steel

AMS-QQ-A-200/8—Aluminum Alloy 6061, Bar Rod, Shapes; Tube and Wire, Extruded

AMS-QQ-A-225/8—Aluminum Alloy 6061, Bar, Rod, Wire, and Special Shapes; Rolled, Drawn, or Cold Finished

AMS-QQ-S-763—Steel Bars, Wire, Shapes, and Forgings; Corrosion Resistant

AMS 4928—Titanium Alloy Bars, Wire Forgings, and Rings, 6 Al – 4V, Annealed

AMS 2470—Anodic Treatment of Aluminum Alloys, Chromic Acid Process

AMS 5647—Steel, Corrosion Resistant, Bars, Wire, Forgings, Tubing, and Rings, 19Cr – 9.5Ni Solution Heat Treated

AS 478—Identification Marking Methods

AS 568—Aerospace Size Standard for O-rings

AS 4716—Gland Design, O-Ring Packings, And Other Elastomeric Seals

HS-1086—Metals & Alloys in the Unified Numbering System

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- 2.1.2 ASTM PUBLICATIONS—Available from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959. Web site: www.astm.org Telephone: (610)-832-4585

ASTM A 582/A 582 M—Standard Specification for Free-Machining Steel Bars

- 2.1.3 ASME PUBLICATIONS—Available from the American Society of Mechanical Engineers, 22 Law Drive, Box 2300, Fairfield, NJ 07007-2300. Web site: www.asme.org Telephone: 1-800-843-2763 or 973-882-1167

ASME Y14.5—Dimensioning and Tolerancing for Engineering Drawings

ASME H35.1—Alloy and Temper Designation Systems for Aluminum

ASME B46.1—Surface Texture (Surface Roughness, Waviness, and Lay)

- 2.1.4 ASQ PUBLICATIONS—Available from the American Society for Quality Control, P.O. Box 3005, Milwaukee, WI 53201-3005.

ASQ Z1.4—Sampling Procedures and Tables for Inspection by Attributes (ANSI Z1.4)

- 2.1.5 MILITARY PUBLICATIONS—Available from DODSSP, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094. Web site: <http://assist.daps.mil> or <http://stinet.dtic.mil/>

MIL-A-8625—Anodic Coatings for Aluminum and Aluminum Alloys

MIL-C-24714—Connector Tubes, Hydraulic Component, General Specification for

MIL-C-24714/1—Connector Tubes, Preferred Sizes, Valves and Subplates

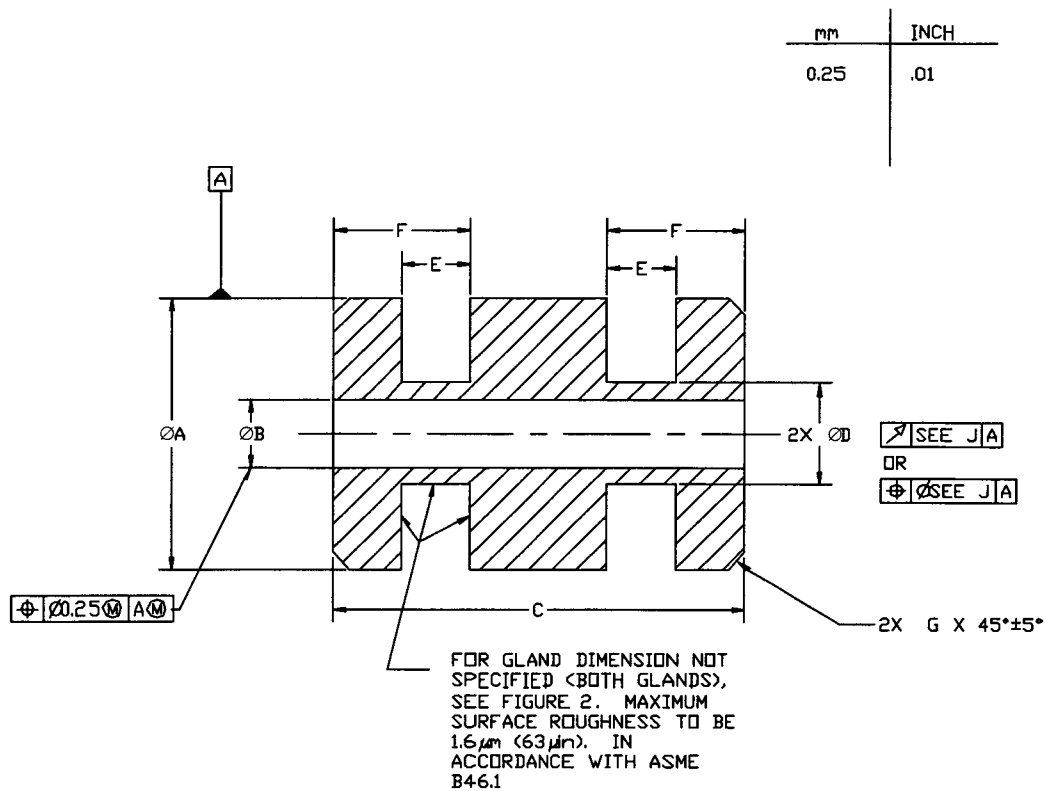
MIL-T-81556—Titanium and Titanium Alloys, Extruded Bars and Shapes

3. Requirements

- 3.1 Configurations and Dimensional Requirements—For configurations and dimensional requirements see the applicable Figure and Table as listed as follows. Dimensions in figures are in accordance with ASME Y14.5.

- a. Standard Connector Tubes—Figure 1 and Table 1A and 1B
- b. Undrilled Connector Tubes—Figure 1 and Tables 1A and 1B
- c. Connector Tubes (R Size) for Longer Internal Valves—Figure 3 and Table 2 (See 5.4)
- d. Connector Tubes (W Size) for Shorter Internal Valves—Figure 3 and Table 2 (See 5.4)
- e. Connector Tubes (C Size) for Internal Valves—Figure 3 and Table 2 (See 5.4)
- f. Plug (one-half of undrilled tube)—Figure 4

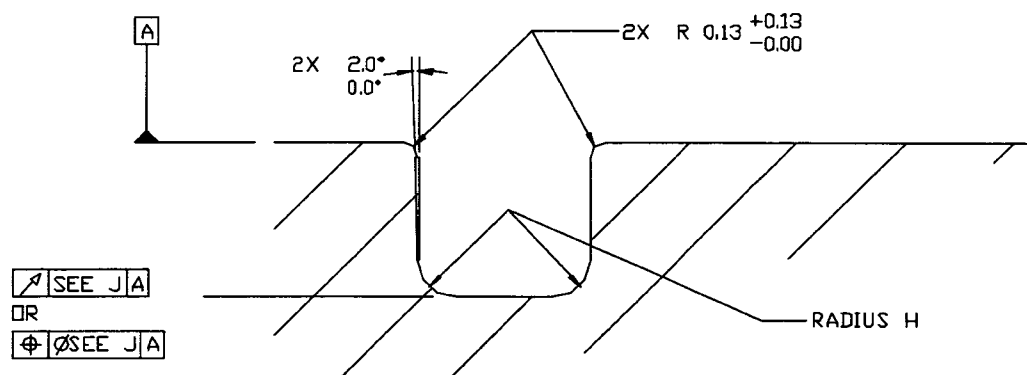
- 3.2 Part Identification Number (PIN)—Connector tubes shall be specified by part identification numbers as established in Figure 5. The part identification numbers described in Figure 5 provide a unique identification number for each connector tube that identifies size, body configuration, and material composition.



- NOTES: 1. SEE TABLE 1 FOR DIMENSIONS. SEE FIGURE 2 FOR GROOVE (GLAND) DETAILS.
 2. FOR UNDRILLED CONNECTOR TUBE, DIAMETER B DOES NOT APPLY.
 3. UNLESS OTHERWISE SPECIFIED, MAXIMUM SURFACE ROUGHNESS TO BE $3.2\mu\text{m}$ ($125\mu\text{in}$).

FIGURE 1—STANDARD CONNECTOR TUBE (S) AND UNDRILLED CONNECTOR TUBE (U)

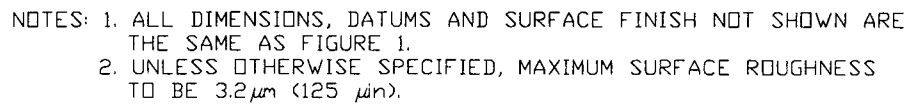
mm	INCH
0.13	.005



Eccentricity for Glands (J)		
Gland Dash No.	Maximum Eccentricity	
	mm	Inches
010-149	0.05	.002
210-247	0.08	.003
325-349	0.10	.004

NOTE: SEE FIGURE 1 AND TABLE 1 FOR DIMENSIONS NOT SHOWN.

FIGURE 2—GROOVE DETAIL



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