SURFACE VEHICLE STANDARD

J2337-1	JUN2014

Issued 2002-10
Stabilized 2014-06

Superseding J2337-1 AUG2009

Connections for Fluid Power and High Pressure Use—Ports, Stud Ends, and Plugs with ISO 261 Threads and O-Ring Sealing—Part 1: Ports with Recessed Conical Seat Requirements, Dimensions, Design, and Test Methods

RATIONALE

The technical report covers technology, products, or processes for which technical expertise no longer resides in the owning committee.

STABILIZED NOTICE

This document has been declared "Stabilized" by the SAE Hydraulic Tube Fittings Committee and will no longer be subjected to periodic reviews for currency. Users are responsible for verifying references and continued suitability of technical requirements. Newer technology may exist.

SAENORM.COM : Click to view the full PDF of j2337_1_201406

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2014 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: **http://www.sae.org**

SAE values your input. To provide feedback on this Technical Report, please visit
http://www.sae.org/technical/standards/J2337/1_201406

FOREWORD

This part defines requirements, dimensions, and design for eight metric ports for the **port connection system for hydraulic applications**.

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 stud ends on fluid connectors to tubes or to hose connectors and hoses. Test procedures for **metric ports, stud ends (connectors), and plugs** are in accordance with ISO19879 and may be used at working pressures shown in Table 1.

1. SCOPE

1.1 Purpose

This part of SAE J2337 specifies dimensions, design, and performance requirements for eight ports using a conical seal to insure leak proof performance with a design factor of 4 to 1.

1.2 Field of Application

These connectors are intended for general and hydraulic systems on industrial equipment and commercial products, where elastomeric seals are acceptable to overcome leakage and variations in assembly procedures. These connectors are capable of providing leak proof full flow connections in hydraulic systems operating from 95 kPa vacuum to the working pressures shown in Table 1. Since many factors influence the pressure at which hydraulic systems will or will not perform satisfactorily, these values should not be construed as guaranteed minimums. For any application, it is recommended that sufficient testing be conducted and reviewed by both the user and manufacturer to ensure that the required performance levels are met.

CAUTION: For use of these connectors in conditions outside the pressure and temperature limits specified, contact the manufacturer.

SAENORM.COM : Click to view the full PDF of j2337_1_201406

2. REFERENCES

2.1 Applicable Publications

The following standards contain information, which through reference in this text, constitute provisions of this document. All standards are subject to revision, and parties to agreements based on this document shall apply the most recent of the standards. Members of IEC and ISO maintain registers of currently valid International Standards. Unless otherwise indicated, the latest version of SAE publications shall apply.

2.1.1 ISO Publications

Available from ANSI, 25 West 43rd Street, New York, NY 10036-8002, Tel: 212-642-4900, www.ansi.org.

ISO 261 ISO general-purpose metric screw threads—General plan

ISO 5598 Fluid power systems and components—Vocabulary

ISO 19879 Metallic tube connections for fluid power and general use—Test methods for hydraulic fluid power connections

2.2 Related Publications

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

2.2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

SAE J515 Specification for Hydraulic O-Ring Materials, Properties, and Sizes for Metric and Inch Stud Ends, Face Seal Fitting and Four-Screw Flange Tube Connections

SAE J2337-2 Connections for Fluid Power and High Pressure Use—Ports, Stud Ends, and Plugs with ISO 261 Threads and O-Rings Sealing—Part 2: Stud End Requirements, Dimensions, Design, and Test Methods

SAE J2337-3 Connections for Fluid Power and High Pressure Use—Ports, Stud Ends, and Plugs with ISO 261 Threads and O-Rings Sealing—Part 3: Port Plug Requirements, Dimensions, Design, and Test Methods

2.2.2 ISO Publications

Available from ANSI, 25 West 43rd Street, New York, NY 10036-8002, Tel: 212-642-4900, www.ansi.org.

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

ISO 3448 Industrial liquid lubricants—ISO viscosity classifications

ISO 4759-1 Tolerances for fasteners—Part 1: Bolts, screws, and nuts with thread diameters 1.6 (inclusive) and 150 mm (inclusive) and product grades A, B, and C

2.2.3 ASME Publication

Available from American Society of Mechanical Engineers, 22 Law Drive, P.O. Box 2900, Fairfield, NJ 07007-2900, Tel: 973-882-1170, www.asme.org.

ASME B 46.1 Surface Texture (Surface Roughness, Waviness, and Lay)

SAENORM.COM : Click to view the full PDF of j2337_1_201406

2.2.4 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM B 117 Method of Salt Spray (Fog) Test

ASTM B 633 Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel

3. DEFINITIONS

For the purpose of this standard, the definitions given in ISO 5598 and the following shall apply:

3.1 Fluid Power

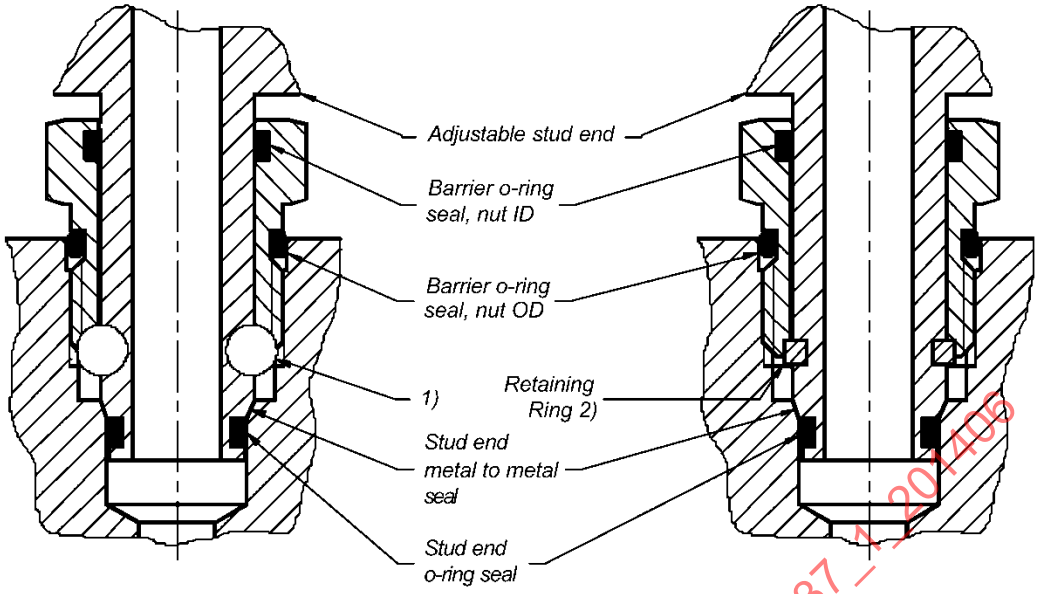
(From ISO 5598) Means by which energy is transmitted, controlled, and distributed using a pressurized fluid as the medium.

3.2 Connector

(From ISO 5598) Leak proof device to connect pipelines (conductors) to one another, or to equipment.

3.3 A typical port and connector assembly is shown in Figure 1.

SAENORM.COM : Click to view the full PDF of j2337_1_201406



1) Method of nut attachment to be determined by Manufacturer, but must meet the design performance requirements.

2) Method of nut attachment shown here is one of the options

FIGURE 1 - TYPICAL PORT AND CONNECTOR ASSEMBLY

4. REQUIREMENTS

4.1 Material

4.1.1 Ports

Ports shall be manufactured from carbon steel that will provide the minimum pressure/temperature requirements specified for each component or assembly. They shall have characteristics that make them suitable for use with fluid to be conveyed and to provide an effective joint.

CAUTION: For materials other than steel, contact the manufacturer.

SAENORM.COM : Click to view the full PDF of j2337_1_201406

4.2 Performance

Ports shall meet the pressure performance for Stud Ends and/or Plugs with a design factor of 4 to 1 as shown in Table 1.

TABLE 1 - PERFORMANCE REQUIREMENTS

Nom Tube OD mm	Inch Nom Tube Dash Size	d Thread Size	Working Pressure MPa	Proof Pressure MPa	Burst Pressure MPa	Impulse Pressure MPa	Qualification Test Torque N·m +10% –0%	Over Torque Test N·m
6	–4	M14 X 1.5	80	160	320	106	24	35
10	–6	M18 X 1.5	80	160	320	106	34	51
12	–8	M22 X 1.5	80	160	320	106	70	105
16	–10	M27 X 2	80	160	320	106	120	180
20	–12	M30 X 2	63	126	252	84	182	273
25	–16	M39 X 2	63	126	252	84	275	413
30	–20	M45 X 2	50	100	200	67	320	480
38	–24	M50 X 2	40	80	160	53	400	600

4.3 Design

See Figure 2 and Table 2 for Dimensions.

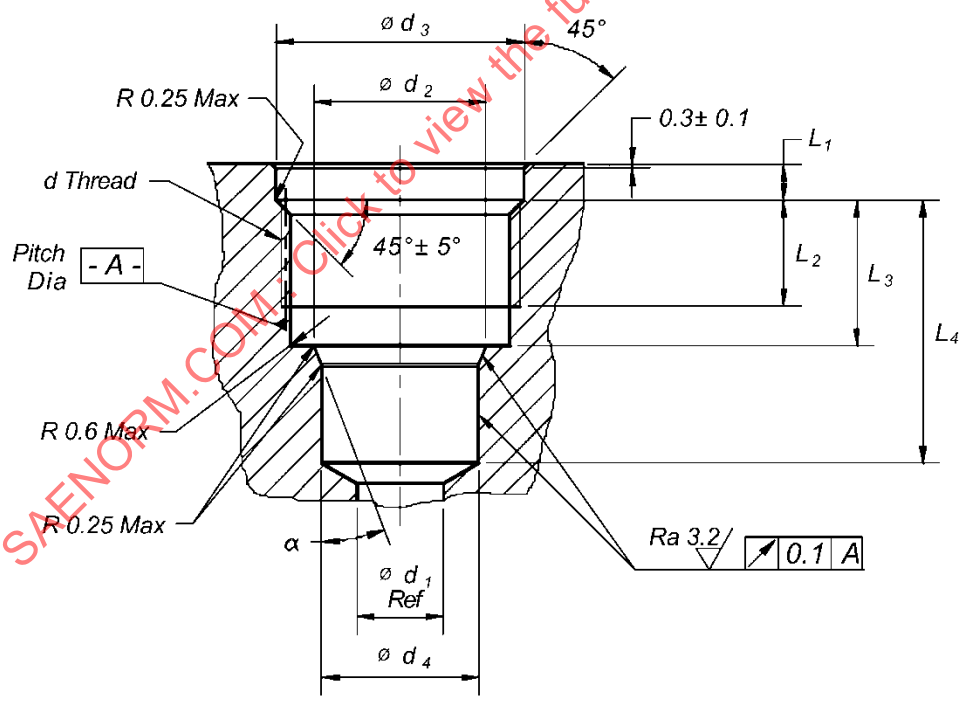


FIGURE 2 - PORT

SAENORM.COM : Click to view the full PDF of j2337_1_201406