



SURFACE VEHICLE STANDARD

J1502™

MAY2022

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Superseding J1502 MAY2013

Connections for Fluid Power and General Use - Hydraulic Couplings - Diagnostic

RATIONALE

The figures have been updated to improve readability. Section 6 has been updated to clarify procurement recommendations.

FOREWORD

SAE J1502 has been revised to update the metric stud end specifications to the new dimensions specified in ISO 6149-2 and to more clearly specify the test and performance requirements.

1. SCOPE

SAE J1502 specifies dimensions, performance requirements, and test procedures for the male half of a diagnostic coupler with either a metric M14x1.5 or an inch 9/16-18 straight thread stud end. The coupler is designed for use with a mineral-based hydraulic fluid. It is used on machines specified in SAE J1116. It does not apply to the mating hydraulic quick action couplings not on the machine.

Diagnostic couplings in accordance with SAE J1502 may be used at a working pressure of 42 MPa. The permissible working pressure depends upon the materials, design, working conditions, application, etc.

Conformance to the dimensional information in this part of SAE J1502 does not guarantee rated performance. Each manufacturer should perform testing according to the specification contained in this document to ensure that components comply with the performance rating.

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.

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Full document details: SAE J1502_202205

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https://www.sae.org/standards/content/J1502_202205/

Documents

Document Sharing Hub

2.1.1 SAE Publications

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

SAE J515	Specification for O-Ring Materials Used with Hydraulic Connectors
SAE J1116	Categories of Off-Road Self-Propelled Work Machines
SAE J1298	Connections for Fluid Power and General Use - Hydraulic Couplings - Diagnostic Port Sizes and Locations
SAE J1926-2	Connections for General Use and Fluid Power - Ports and Stud Ends with ASME B1.1 Threads and O-Ring Sealing - Part 2: Heavy-Duty (S Series) Stud Ends

2.1.2 ISO Publications

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

ISO 261	ISO General-Purpose Metric Screw Threads - General Plan
ISO 4579-1	Tolerances for Fasteners - Part 1: Bolts, Screws and Nuts Product Grades A, B, and C
ISO 5598	Fluid Power Systems and Components - Vocabulary
ISO 6149-2	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 9227	Corrosion Tests in Artificial Atmosphere - Salt Spray Tests
ISO 11926-2	Connections for Fluid Power and General Use - Ports and Stud Ends with ISO 725 Threads and O-Ring Sealing - Part 2: Heavy Duty (S) Series Stud Ends - Dimensions, Design, Test Methods and Requirements (This document is technically equivalent to SAE J1926-2)
ISO 15171-1	Connections for Fluid Power and General Use - Hydraulic Couplings for Diagnostic Purposes - Part 1: Couplings Not for Connection Under Pressure
ISO 19879	Metallic Tube Connections for Fluid Power and General Use - Test Methods for Hydraulic Fluid Power Connections

2.1.3 ASME Publications

Available from ASME, P.O. Box 2900, 22 Law Drive, Fairfield, NJ 07007-2900, Tel: 800-843-2763 (U.S./Canada), 001-800-843-2763 (Mexico), 973-882-1170 (outside North America), www.asme.org.

ASME B1.1	Unified Inch Screw Threads
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2.1.4 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 B117	Method of Salt Spray (Fog) Test
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2.2 Related Publications

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

2.2.1 ISO Publications

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

ISO 725	ISO Inch Screw Threads - Basic Dimensions
ISO 965-1	ISO General Purpose Metric Screw Threads - Tolerances - Part 1: Principles and Basic Data
ISO 1302	Technical Drawings - Method of Indicating Surface Texture on Drawings
ISO 6508	Metallic Materials - Hardness Test - Rockwell Test (Scale A-B-C-D-E-F-G-H-K)

2.2.2 ASME Publications

Available from ASME, P.O. Box 2900, 22 Law Drive, Fairfield, NJ 07007-2900, Tel: 800-843-2763 (U.S./Canada), 001-800-843-2763 (Mexico), 973-882-1170 (outside North America), www.asme.org.

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

2.2.3 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 B633 Standard Specifications for Electrodeposited Coatings of Zinc on Iron and Steel

3. DEFINITIONS

For the purposes of this document, the definitions given in ISO 5598 and the following definition apply.

3.1 QUICK ACTION

The joining of two components in a fashion with only hands and without wrenches and other mechanical means.

4. REQUIREMENTS

4.1 Material

4.1.1 Coupler Construction

Diagnostic couplers shall be manufactured from carbon steel that will satisfy the minimum pressure/temperature requirements specified. Couplers may be made by forging, cold forming, or machined from bar stock.

4.2 Performance

Male couplers shall meet the following performance requirements when tested per Section 5.

4.2.1 Working Pressure

Diagnostic couplings made of low-carbon steel shall be designated for use at a working pressure of 42 MPa.

4.2.2 Rated Flow

The coupler shall be rated to handle a flow of 3 L/min at a maximum pressure drop of 500 kPa with a maximum flow without malfunction of 15 L/min.