



SURFACE VEHICLE STANDARD

J518™-3**AUG2021**Issued 2015-11
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Superseding J518-3 NOV2015

Hydraulic Flange Clamps, Two-Screw Flange Connection
to be Used with SAE J518-1 (Code 61)
Connections Where Only Low Pressure is Required

RATIONALE

Since this standard had been passed, the committee's standard language concerning corrosion protection has changed. The intent is to incorporate this change and then standardize this document. Minor grammatical changes have also been included.

FOREWORD

The hydraulic industry currently utilizes two-screw flange clamps in conjunction with SAE J518-1 (four-screw) connections, where only low pressure is required. This document will establish standard design criteria for this product category on future designs.

1. SCOPE

This SAE Standard outlines general and dimensional specifications for flange clamps for use in low pressure applications with SAE J518-1 connections. For port dimensions, port design considerations, and flange head dimensions, please refer to SAE J518-1.

The rated working pressure of an assembly shall not exceed the least of all the component working pressure rated values.

The following general specifications supplement the dimensional data contained in the tables with respect to all unspecified detail. Parts manufactured to this standard are also compatible with ISO 6162-1 port connections and flange heads.

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 J518_3_202108

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https://www.sae.org/standards/content/J518/3_202108

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 J429	Mechanical and Material Requirements for Externally Threaded Fasteners
SAE J518-1	Hydraulic Flanged Tube, Pipe, and Hose Connections, 4-Screw Flange Connection Part 1: 3.5 MPa to 35 MPa (Code 61)
SAE J846	Coding Systems for Identification of Fluid Conductors and Connectors
SAE J2593	Information Report for the Installation of Fluid Conductors and Connectors

2.1.2 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 B18.3	2003 Socket Cap, Shoulder, and Set Screws, Hex and Spline Keys (Inch Series)
ASME B18.22.1	Plain Washers

2.1.3 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 A574	Standard Specification for Alloy Steel Socket-Head Cap Screws
ASTM B117	Standard Practice for Operating Salt Spray (Fog) Apparatus

2.1.4 ISO Publications

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

ISO 48	Rubber, Vulcanized or Thermoplastic - Determination of Hardness (Hardness Between 10 IRHD and 100 IRHD)
ISO 261	ISO General Purpose Screw Metric Threads - General Plan
ISO 273	Fasteners - Clearance Holes for Bolts and Screws
ISO 724	ISO General Purpose Metric Screw Threads - Basic Dimensions
ISO 725	ISO General Purpose Inch Screw Threads - Basic Dimensions
ISO 898-1	Mechanical Properties of Fasteners Made of Carbon Steel and Alloy Steel - Part 1: Bolts, Screws, and Studs with Specified Property Classes - Coarse Thread and Fine Pitch Thread
ISO 1302	Geometrical Product Specification - Indications of Surface Texture in Technical Product Documentation
ISO 3601-1	Fluid Power Systems - O-Ring - Part 1: Inside Diameters, Cross Sections, Tolerances, and Designation Code
ISO 3601-3	Fluid Power Systems - O-Ring - Part 3: Quality Acceptance Criteria
ISO 4017	Hexagon Head Screws - Product Grades A & B

ISO 4762	Hexagon Socket Head Cap Screws
ISO 6162-1	Hydraulic Fluid Power - Flange Connections with Split or One-Piece Flange Clamps and Metric or Inch Screws - Part 1: Flange Connectors for Use at Pressures of 3.5 MPa (35 bar) to 35MPa (350 bar), DN 13 to DN 127
ISO 7089	Plain Washers - Normal Series - Product Grade A
ISO 9227	Corrosion Test in Artificial Atmospheres - Salt Spray Test
ISO 10763	Hydraulic Fluid Power - Plain-End, Seamless and Welded Precision Steel Tubes - Dimensions and Nominal Working Pressures
ISO 19879	Metallic Tube Connections for Fluid Power and General Use - Test Methods for Threaded 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 SAE Technical Report.

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 +1 724-776-4970 (outside USA), www.sae.org.

SAE J515	Specification for O-Ring Materials Used with Hydraulic Connectors
SAE J516	Hydraulic Hose Fittings
SAE J517	Hydraulic Hose

2.2.2 ISO Publications

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

ISO 22	Fasteners - Bolts, Screws, Studs and Nuts - Symbols and Designations of Dimensions.
ISO 68-1	ISO General Purpose Screw Threads - Basic Profile - Part 1: Metric Screw Threads
ISO 68-2	ISO General Purpose Screw Threads - Basic Profile - Part 2: Inch Screw Threads
ISO 2768-1	General Tolerances - Part 1: Tolerances for Linear and Angular Dimensions without Individual Tolerance Indications
ISO 5598	Fluid Power Systems and Components - Vocabulary
ISO 6162-2	Hydraulic Fluid Power - Flange Connections with Split or One-Piece Flange Clamps and Metric or Inch Screws - Part 2: Flange Connectors for Use at Pressures of 42 MPa (400 bar), DN 13 to DN 73

3. SIZE DESIGNATION

Two-screw flange connections sizes are designated by the nominal flange size that corresponds to the maximum inside diameter of the hole through the flanged head.