



# SURFACE VEHICLE STANDARD

J518™-2

APR2017

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Superseding J518-2 JAN2013

(R) Hydraulic Flanged Tube, Pipe, and Hose Connections, 4-Screw Flange  
Connection  
Part 2: 42 MPa (Code 62)

## RATIONALE

The DN 63 (-40) and DN 76 (-48) pad sizes existed for many years as special items in the field. Flange clamps were not available and the pads were used with pipe fittings. A couple of years ago, Italy proposed a clamp and supplied test data to support the design. The type 1 (metric screw) version has been approved at the ISO level. This SAE revision adds the -40 and -48 sizes and adds the inch screw sizes that have been used for years in the field. Finally, an identification groove was added to the flanged head. The groove had been approved many years ago, but never made it into the standard.

## FOREWORD

In an effort to standardize within a global market and to ensure companies can remain competitive in an international market it is the intent to convert to metric units and material sizes which will:

- lead to one global system
- guide users to preferred system
- reduce complexity
- eliminate duplications
- reduce confusion

This SAE J518 standard has been split into parts:

Part 1: 3.5 to 35 MPa (Code 61)  
Part 2: 42 MPa (Code 62)

## 1. SCOPE

This SAE Standard covers general and dimensional specifications for the Code 62 metric (type 1) and inch (type 2) flanged heads, flange clamps (FC and FCM), and split flange clamps (FCS and FCSM) applicable to four-screw flange type tube, pipe, and hose connections. Also included are the recommended port dimensions and port design considerations. Type 2 (inch) flange clamps and split flanges are not for new design.

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The flanged heads specified are incorporated into fittings having suitable means for attachment of tubes, pipes, or hoses to provide connection ends. These connections are intended for application in hydraulic systems, on industrial and commercial products, where it is desired to avoid the use of threaded connections.

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 INTERCHANGEABLE WITH ISO 6162-2 AND CONNECTORS TO EITHER STANDARD CAN BE SUPPLIED WITH THE EXCEPTION OF THE -40 AND -48 TYPE 2 CONNECTIONS THAT ARE INCLUDED IN J518-2, BUT NOT ISO 6162-2.

## 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.

#### 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](http://www.sae.org).

SAE J429 Mechanical and Material Requirements for Externally Threaded Fasteners

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](http://www.asme.org).

ASME B18.21.1 Washers: Helical, Spring-lock, Tooth Lock, and Plain Washers (Inch Series)

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

#### 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](http://www.astm.org).

ASTM B117 Standard Practice for Operating Salt Spray (Fog) Apparatus

ASTM A574 Standard Specification for Alloy Steel Socket-Head Cap Screws

## 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 and B
ISO 4762	Hexagon socket head cap screws
ISO 6162-2	Hydraulic fluid power - Flange connectors with split or one-piece flange clamps and metric or inch screws - Part 2: Flange connectors for use at pressures of 42 MPa (420 bar), DN 13 to DN 73
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