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Connections for general use and fluid power — Ports and stud ends with ISO 263 inch threads and O-ring sealing —

Part 2: Heavy-duty (S series) stud ends

Raccordements pour applications générales et transmissions hydrauliques et pneumatiques — Orifices et éléments mâles à filetage UN et UNF ISO 263, et joint torique —

Partie 2: Éléments mâles de série lourde (série S)

[Revision of first edition (ISO 11926-2:1995)]

ICS 23.100.40

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Pour accélérer la distribution, le présent document est distribué tel qu'il est parvenu du secrétariat du comité. Le travail de rédaction et de composition de texte sera effectué au Secrétariat central de l'ISO au stade de publication.

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 11926-2 was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 4, *Connectors and similar products and components*, and ISO/TC 5, *Ferrous metal pipes and metallic fittings*.

This second edition cancels and replaces the first edition (ISO 11926-2:1995), which has been technically revised.

ISO 11926 consists of the following parts, under the general title *Connections for fluid power and general use — Ports and stud ends with ISO 263 inch threads and O-ring sealing*:

— *Part 1: Ports with truncated housing for O-ring seal*

— *Part 2: Heavy-duty (S series) stud ends*

— *Part 3: Light-duty (L series) stud ends*

Introduction

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 and pipes or to hose fittings and hoses.

For threaded ports and stud ends specified in new designs in hydraulic fluid power applications, ISO/TC 131/SC 4 recommends that the ISO 6149 series be used because these International Standards specify ports and stud ends with metric threads and O-ring sealing and because the sub-committee would like to help users by recommending one preferred system. ISO/TC 131/SC 4 further recommends that threaded ports and stud ends in accordance with the ISO 1179 series, ISO 9974 series and ISO 11926 series not be used for new designs in hydraulic fluid power applications; these International Standards will be maintained because they specify ports and stud ends that are currently used in hydraulic systems worldwide.

Connections for general use and fluid power — Ports and stud ends with ISO 263 inch threads and O-ring sealing —

Part 2:
Heavy-duty (S series) stud ends

1 Scope

This part of ISO 11926 specifies dimensions, performance requirements and test procedures for adjustable and non-adjustable heavy-duty (S series) stud ends with ISO 263 inch threads and for their related O-rings, for fluid power and general use applications. It also specifies the designation of these stud ends.

Stud ends in accordance with this part of ISO 11926 may be used at working pressures up to 63 MPa (630 bar[1)]) for non-adjustable stud ends, and 40 MPa (400 bar) for adjustable stud ends. The permissible working pressure depends upon the stud end size, materials, design, working conditions, application, etc.

Conformance to the dimensional information in this part of ISO 11926 does not guarantee rated performance. Each manufacturer should perform testing according to the specification contained in this part of ISO 11926 to assure that components comply with the performance ratings.

NOTE 1 Significant testing over 25 years has confirmed the performance requirements of ports conforming to ISO 11926-1 and of stud ends conforming to this part of ISO 11926; the latter are identical to those conforming to SAE J1453-3.

NOTE 2 The introduction of this part of ISO 11926 gives recommendations for ports and stud ends to be used for new designs in hydraulic fluid power applications.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 48, *Rubber, vulcanized or thermoplastic — Determination of hardness (hardness between 10 IRHD and 100 IRHD)*

ISO 68-2, *ISO general-purpose screw threads — Basic profile — Part 2: Inch screw threads*

ISO 263, *ISO inch screw threads — General plan and selection for screws, bolts and nuts — Diameter range 0.06 to 6 in*

ISO 4759-1, *Tolerances for fasteners — Part 1: Bolts, screws, studs and nuts — Product grades A, B and C*

ISO 5598, *Fluid power systems and components – Vocabulary*

ISO 5864, *ISO inch screw threads – Allowances and tolerances*

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1) 1 bar = 0,1 MPa = 10^5 Pa; 1 MPa = 1 N/mm^2

ISO 8434-3:2005, *Metallic tube connections for fluid power and general use — Part 3: O-ring face seal connectors*

ISO 11926-1:200X[2)], *Connections for fluid power and general use — Ports and stud ends with ISO 263 inch threads and O-ring sealing — Part 1: Ports with O-ring seal in truncated housing*

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

3 Terms and definitions

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

3.1
adjustable stud end
stud end connector that allows for connector orientation through final tightening of the locknut to complete the connection. This type of stud end is typically used on shaped connectors (e.g., tees, crosses and elbows).

[ISO 5598]

3.2
non-adjustable stud end
stud end connector that does not require specific orientation before final tightening of the connection because it is only used on straight connectors.

[ISO 5598]

4 Dimensions

Heavy-duty (S series) stud ends shall conform to the dimensions shown in Figures 1 and 2 and given in Table 1. Hex tolerances across flats shall be in accordance with ISO 4759-1, product grade C.

5 Requirements

5.1 Working pressure

Heavy-duty (S series) stud ends made of low carbon steel shall be designed for use at the working pressures given in Table 2.

5.2 Performance

Heavy-duty (S series) stud ends made of low carbon steel shall meet at least the burst and cyclic endurance (impulse) pressures given in Table 2, when tested in accordance with Clause 7.

2) To be published (revision of ISO 11926-1:1995)

5.3 Flatness and fit of adjustable stud end washers

The washer shall be clinched to the stud end with a tight slip fit to an interference fit. The slip fit shall be tight enough so that the washer cannot be shaken loose to cause it to drop from its uppermost position by its own weight. The locknut torque needed to move the washer at the maximum washer interference fit shall not exceed the torques given in Table 3.

Any washer surface that is out of flatness shall be uniform (i.e. not wavy) and concave with respect to the stud end and shall conform to the allowances given in Table 3.

6 O-rings

O-rings for use with heavy-duty (S series) stud ends complying with this part of ISO 11926 shall conform to the dimensions shown in Figure 3 and given in Table 4.

7 Test methods

Burst and cyclic endurance (impulse) tests shall be conducted in accordance with ISO 19879 after the assembly torques given in Table 5 have been applied.

8 Designation

Heavy-duty (S series) stud ends shall be designated by

— “Stud end”;

— reference to this part of ISO 11926, i.e. ISO 11926-2, followed by a spaced hyphen;

— thread size (d_1) and number of threads per inch (n), separated by a spaced hyphen, without indicating the fine thread series (UNF) or the constant-pitch series (UN) and the thread class symbol (2A).

EXAMPLE A stud end in accordance with this part of ISO 11926, with a 1/2 - 20 thread is designated as follows:

Stud end ISO 11926-2 - 1/2 – 20

9 Stud ends on smaller ends of reducing connectors

For reducing connectors where the hex size of the end that connects to the tube or hose is larger than the stud end hex (dimension s_2 in Table 1), a shoulder on the stud end hex shall be turned to an appropriate diameter and length to avoid interference with the port’s spot face (dimension d_2 in ISO 11926-1:200X). For details, see the relevant International Standard for the connector.

10 Assembly

To assure a leak-free connection, connectors with stud ends conforming to this part of ISO 11926 shall be assembled in accordance with Annex F of ISO 8434-3:2005.

11 Identification statement (reference to this part of ISO 11926)

It is strongly recommended to manufacturers who have chosen to conform to this International Standard that the following statement be used in test reports, catalogues and sales literature: