

INTERNATIONAL STANDARD

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Connections for general use and fluid power — Ports and stud ends with ISO 725 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 ISO 725 et joint
torique —*

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



Reference number
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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.

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.

International Standard ISO 11926-2 was prepared jointly by Technical Committees 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*.

ISO 11926 consists of the following parts, under the general title *Connections for general use and fluid power — Ports and stud ends with ISO 725 threads and O-ring sealing*:

- *Part 1: Ports with O-ring seal in truncated housing*
- *Part 2: Heavy-duty (S series) stud ends*
- *Part 3: Light-duty (L series) stud ends*

Annex A forms an integral part of this part of ISO 11926. Annex B is for information only.

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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 conductor fittings to tubes and pipes or to hose fittings and hoses.

Connections for general use and fluid power — Ports and stud ends with ISO 725 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 complying with ISO 725 and for their related O-rings, for general use and fluid power 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 bar¹⁾) 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.

For threaded ports and stud ends specified in new designs in hydraulic fluid power applications, only ISO 6149 is to be used. Threaded ports and stud ends in accordance with ISO 1179, ISO 9974 and ISO 11926 are not to be used for new designs in hydraulic fluid power applications.

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 40 years has confirmed the performance requirements of ports complying with

ISO 11926-1 and of stud ends complying with this part of ISO 11926; the latter are identical to those complying with SAE J 1453.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 11926. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 11926 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 48:1994, *Rubber, vulcanized or thermoplastic — Determination of hardness (hardness between 10 IRHD and 100 IRHD)*.

ISO 725:1978, *ISO inch screw threads — Basic dimensions*.

ISO 3448:1992, *Industrial liquid lubricants — ISO viscosity classification*.

ISO 3601-3:1987, *Fluid systems — Sealing devices — O-rings — Part 3: Quality acceptance criteria*.

ISO 4759-1:1978, *Tolerances for fasteners — Part 1: Bolts, screws and nuts with thread diameters be-*

1) 1 bar = 0,1 MPa = 10⁵ Pa; 1 MPa = 1 N/mm²

tween 1,6 (inclusive) and 150 mm (inclusive) and product grades A, B and C.

ISO 5598:1985, *Fluid power systems and components — Vocabulary*.

ISO 5864:1993, *ISO inch screw threads — Allowances and tolerances*.

ISO 6508:1986, *Metallic materials — Hardness test — Rockwell test (scales A - B - C - D - E - F - G - H - K)*.

ISO 6803:1994, *Rubber or plastics hoses and hose assemblies — Hydraulic-pressure impulse test without flexing*.

ISO 11926-1:1995, *Connections for general use and fluid power — Ports and stud ends with ISO 725 threads and O-ring sealing — Part 1: Ports with O-ring seal in truncated housing*.

3 Definitions

For the purposes of this part of ISO 11926, the definitions given in ISO 5598 and the following definitions apply.

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

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 fittings.

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 impulse pressures given in table 2, when tested in accordance with clause 7.

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

Parts used for the cyclic endurance or burst test shall not be tested further, used or returned to stock.

7.1 Burst pressure test

7.1.1 Principle

Test three samples to confirm that heavy-duty (S series) stud ends meet or exceed a ratio of 4:1 between the burst and working pressures.

7.1.2 Materials

7.1.2.1 Test block and stud ends

Test blocks shall be unplated and hardened to 50 HRC to 55 HRC (see ISO 6508). Stud ends shall be made from low carbon steel and shall be plated.

7.1.2.2 Test O-rings

Unless otherwise specified, O-rings shall be made from nitrile (NBR) rubber with a hardness of $(90 \pm 0,5)$ IRHD when measured in accordance with