

SVENSK STANDARD

SS-ISO 11926-2:2019



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**Hydraulik och pneumatik – Anslutningar för allmän användning
– Portar och anslutningsändar med gänga enligt ISO 263 UN och
UNF och O-ringstättning –
Del 2: Anslutningsändar för hög belastning
(ISO 11926-2:1995, IDT)**

**Connections for general use and fluid power – Ports and stud
ends with ISO 263 threads and O-ring sealing –
Part 2 : Heavy-duty (S series) stud ends (ISO 11926-2:1995, IDT)**

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Den internationella standarden ISO 11926-2:1995 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av ISO 11926-2:1995.

The International Standard ISO 11926-2:1995 has the status of a Swedish Standard. This document contains the official English version of ISO 11926-2:1995.

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Information about the content of the standard is available from the Swedish Standards Institute (SIS), telephone +46 8 555 520 00. Standards may be ordered from SIS, who can also provide general information about Swedish and foreign standards.

Denna standard är framtagen av kommittén för Hydraulik och pneumatik, SIS/TK 106.

Har du synpunkter på innehållet i den här standarden, vill du delta i ett kommande revideringsarbete eller vara med och ta fram andra standarder inom området? Gå in på www.sis.se - där hittar du mer information.

Contents

Page

Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Definitions	2
4 Dimensions	2
5 Requirements	2
5.1 Working pressure	2
5.2 Performance.....	2
5.3 Flatness and fit of adjustable stud end washers	2
6 O-rings	2
7 Test methods	2
7.1 Burst pressure test.....	3
7.1.1 Principle.....	3
7.1.2 Materials	3
7.1.3 Procedure	3
7.1.4 Test report.....	3
7.2 Cyclic endurance (impulse) test.....	3
7.2.1 Principle.....	3
7.2.2 Materials	3
7.2.3 Procedure	3
7.2.4 Requirements.....	4
7.2.5 Test report.....	4
8 Designation of stud ends	4
9 Identification statement (Reference to this part of ISO 11926)	4
Annex A (normative) Test data form for ISO 11926-1 ports and ISO 11926-2 stud ends	10
Annex B (informative) Bibliography	11

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.

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 bar 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 between 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 ISO 48. O-rings shall conform to the dimensions given in [table 4](#) and shall meet or exceed the quality requirement grade N of ISO 3601-3.

7.1.3 Procedure

7.1.3.1 Thread lubrication

For testing only, threads and contact surfaces shall be lubricated with hydraulic oil with a viscosity of VG 32 in accordance with ISO 3448 prior to the application of torque.

7.1.3.2 Stud end torque

Test stud ends after application of the torques given in [table 5](#). Apply adjustable stud end locknut torques after the stud end has been backed out one full turn from finger-tight position, to test correctly the worst possible actual assembly conditions.

7.1.3.3 Pressure rise rate

During the burst test, the rate of pressure rise shall not exceed 138 MPa/min (1 380 bar/min).

7.1.4 Test report

Test results and conditions shall be reported on the test data form given in [annex A](#).

7.2 Cyclic endurance (impulse) test

7.2.1 Principle

Test six samples at their respective impulse pressures.

7.2.2 Materials

Use the same materials as those given in [7.1.2](#).

7.2.3 Procedure

7.2.3.1 Thread lubrication

Apply lubricant as specified in [7.1.3.1](#).

SS-ISO 11926-2:2019 (E)

7.2.3.2 Stud end torques

Apply torque as specified in [7.1.3.2](#).

7.2.3.3 Cycle and pressure rise rate

The cycle rate shall be uniform between 0,5 Hz and 1,3 Hz and shall conform to the wave pattern shown in ISO 6803, except that the pressure rise rate shall be adjusted accordingly.

7.2.4 Requirements

The six samples tested shall pass a cyclic endurance test of 1 000 000 cycles.

7.2.5 Test report

Test results and conditions shall be reported on the test data form given in [annex A](#).

8 Designation of stud ends

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

- a) "Stud end";
- b) reference to this part of ISO 11926, i.e. ISO 11926-2;
- c) thread size (d_1) and number of threads per inch (n), separated by a hyphen, without indicating the fine thread series (UNF) or the constant-pitch series (UN) and the thread class symbol (2A).

EXAMPLE **Stud end ISO 11926-2 - 1/2 - 20**

9 Identification statement (Reference to this part of ISO 11926)

Use the following statement in test reports, catalogues and sales literature when electing to comply with this part of ISO 11926:

"Heavy-duty (S series) stud ends conform to ISO 11926-2:1995, *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.*"

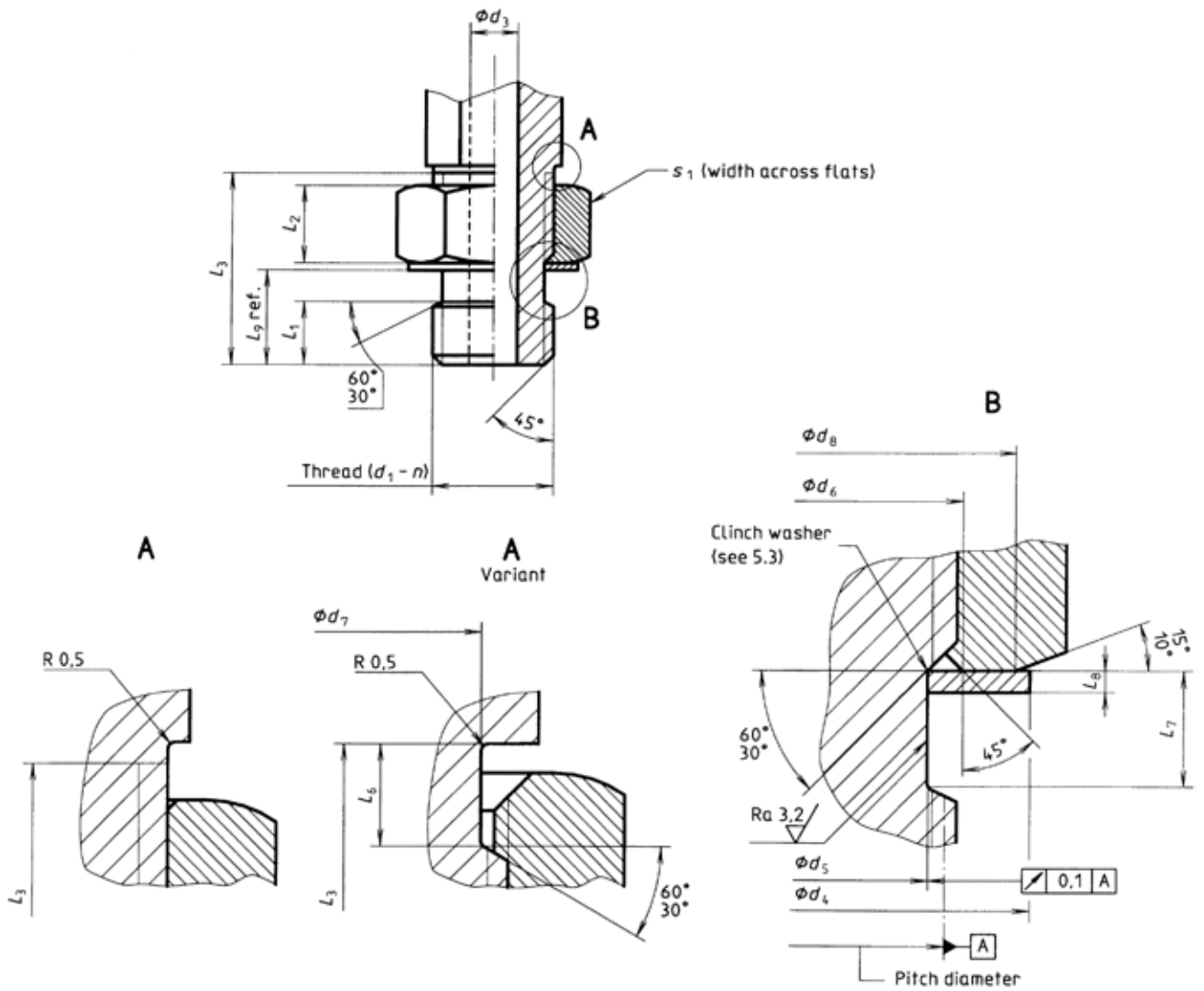


Figure 1 — Adjustable heavy-duty (S series) stud end

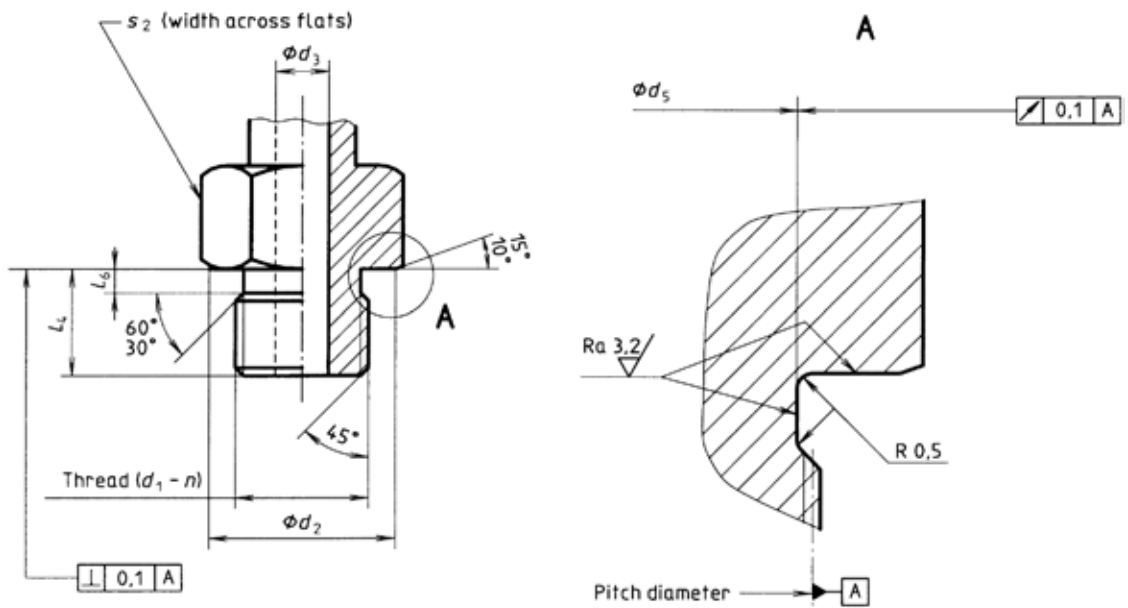


Figure 2 — Non-adjustable heavy-duty (S series) stud end