

SVENSK STANDARD

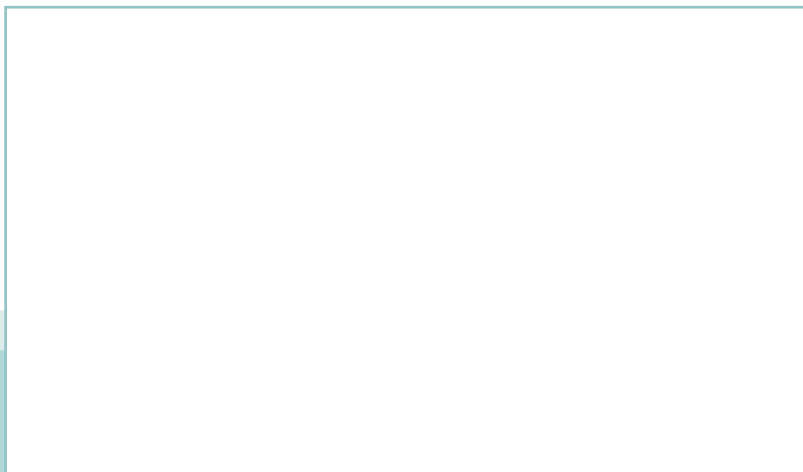
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**Hydraulik och pneumatik – Anslutningar för allmän användning –
Portar och anslutningsändar med gänga enligt ISO 261 och
O-ringstättning –
Del 3: Mått, utförande, provningsmetoder och krav för lätt drift
(serie L) (ISO 6149-3:2006)**

**Connections for hydraulic fluid power and general use – Ports
and stud ends with ISO 261 metric threads and O-ring sealing –
Part 3: Dimensions, design, test methods and requirements for
light-duty (L series) stud ends (ISO 6149-3:2006)**



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Denna standard ersätter SS-ISO 6149-3:2006, utgåva 2.

The European Standard EN ISO 6149-3:2007 has the status of a Swedish Standard. This document contains the official English version of EN ISO 6149-3:2007.

This standard supersedes the Swedish Standard SS-ISO 6149-3:2006, edition 2.

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EUROPEAN STANDARD

EN ISO 6149-3

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2007

ICS 23.100.40

English Version

Connections for hydraulic fluid power and general use - Ports and stud ends with ISO 261 metric threads and O-ring sealing - Part 3: Dimensions, design, test methods and requirements for light-duty (L series) stud ends (ISO 6149-3:2006)

Raccordements pour transmissions hydrauliques et applications générales - Orifices et éléments mâles à filetage métrique ISO 261 et joint torique - Partie 3: Dimensions, conception, méthodes d'essai et exigences des éléments mâles de série légère (série L) (ISO 6149-3:2006)

Leitungsanschlüsse für Fluidtechnik und allgemeine Anwendung - Einschraubblöcher und Einschraubzapfen mit metrischem Gewinde nach ISO 261 und O-Ring-Abdichtung - Teil 3: Maße, Konstruktion, Prüfverfahren und Anforderungen für Einschraubzapfen, leichte Reihe (L-Reihe) (ISO 6149-3:2006)

This European Standard was approved by CEN on 4 February 2007.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

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Foreword

The text of ISO 6149-3:2006 has been prepared by Technical Committee ISO/TC 131 "Fluid power systems" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 6149-3:2007 by Technical Committee ECISS/TC 29 "Steel tubes and fittings for steel tubes", the secretariat of which is held by UNI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2007, and conflicting national standards shall be withdrawn at the latest by August 2007.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Endorsement notice

The text of ISO 6149-3:2006 has been approved by CEN as EN ISO 6149-3:2007 without any modifications.

Introduction

In hydraulic fluid power systems, power is transmitted and controlled through a liquid under pressure within an enclosed circuit. In general applications, a fluid (liquid or gas) may be conveyed under pressure.

Components are connected through their threaded ports by stud ends on fluid conductor connectors to tubes and pipes or to hose connectors 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 subcommittee 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 hydraulic fluid power and general use — Ports and stud ends with ISO 261 metric threads and O-ring sealing —

Part 3: Dimensions, design, test methods and requirements for light-duty (L series) stud ends

1 Scope

This part of ISO 6149 specifies dimensions, performance requirements and test procedures for metric adjustable and non-adjustable light-duty (L series) stud ends and O-rings.

Stud ends in accordance with this part of ISO 6149 may be used at working pressures up to 40 MPa [400 bar¹] for non-adjustable stud ends and 31,5 MPa (315 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 6149 does not guarantee rated performance. Each manufacturer should perform testing according to the specification contained in this part of ISO 6149 to assure that components comply with the performance ratings.

NOTE 1 A significant number of tests have been conducted to confirm the performance requirements of connection ends made from carbon steel.

NOTE 2 This part of ISO 6149 applies to connectors detailed in ISO 8434-1 and ISO 8434-2 (see ISO 12151-4 for related hose fitting specification).

NOTE 3 The Introduction of this part of ISO 6149 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 261, *ISO general purpose metric screw threads — General plan*

ISO 965-1, *ISO general purpose metric screw threads — Tolerances — Part 1: Principles and basic data*

ISO 3601-3:2005, *Fluid power systems — O-rings — Part 3: Quality acceptance criteria*

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

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

ISO 5598²⁾, *Fluid power systems and components — Vocabulary*

ISO 6149-2, *Connections for hydraulic fluid power and general use — Ports and stud ends with ISO 261 metric threads and O-ring sealing — Part 2: Dimensions, design, test methods and requirements for heavy-duty (S series) stud ends*

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 part of ISO 6149, 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

NOTE This type of stud end is typically used on shaped connectors (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 connectors

4 Dimensions

Light-duty (L series) stud ends shall conform to the dimensions given 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

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

5.2 Performance

Light-duty (L series) stud ends made of low carbon steel shall meet or exceed the burst and impulse pressures given in Table 2, when submitted to burst and cyclic endurance (impulse) tests conducted in accordance with Clause 7 and assembled using the torques in Table 5.

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.

2) To be published. (Revision of 5598:1985)

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 light-duty (L series) stud ends shall conform to the dimensions shown in Figure 3 and given in Table 4.

Unless otherwise specified, for use with petroleum base hydraulic fluids at the pressure and temperature requirements in Clause 5 and Table 2 and for testing, the O-rings shall be made of NBR (nitrile) with a hardness of (90 ± 5) IRHD, measured per ISO 48, and shall conform to the dimensions given in Table 4 and shall meet or exceed the O-ring quality acceptance criteria for grade N of ISO 3601-3. In those cases where the pressure and temperature requirements of this part of ISO 6149 and/or the hydraulic fluid used in the system differ from those specified in Clause 5 and Table 2, the connector manufacturer shall be consulted to ensure that an appropriate O-ring material is selected.

7 Test methods

Burst and cyclic endurance (impulse) tests shall be conducted in accordance with ISO 19879.

8 Designation of stud ends

Light-duty (L series) stud ends shall be designated by

- “Stud end”;
- reference to this part of ISO 6149; i.e. ISO 6149-3;
- thread size ($d_1 \times P$).

EXAMPLE A stud end in accordance with this part of ISO 6149, with a thread M18× 1,5 is designated as follows:

Stud end ISO 6149-3 - M18 × 1,5

9 Identification

Light-duty (L series) stud ends shall be identified as shown in Figures 1 and 2 and in accordance with the dimensions given in Table 1. Non-adjustable (straight) stud ends shall be identified by a cylindrical machining of diameter d_2 and length L_5 , adjacent to thread d_1 , and a notch on diameter d_2 . Adjustable stud ends shall be identified by only a cylindrical machining of diameter d_2 and length L_{10} , on the end of the locknut that is adjacent to the washer. In addition to this identification, for both the non-adjustable and adjustable stud ends, the manufacturer may mark the stud ends with the word “metric”.

10 Identification statement (reference to this part of ISO 6149)

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:

“Light-duty (L series) stud ends conform to ISO 6149-3:2006, *Connections for hydraulic fluid power and general use — Ports and stud ends with ISO 261 metric threads and O-ring sealing — Part 3: Dimensions, design, test methods and requirements for light-duty (L series) stud ends.*”