TECHNICAL SPECIFICATION

ISO/TS 11686

First edition
2017-10

Connectors for fluid power and general use — Assembly instructions for connectors with adjustable stud ends and O-ring sealing

Raccordements pour applications générales et transmissions hydrauliques — Instructions d'assemblage pour des connecteurs avec des éléments mâles ajustables et joint torique

Reference number
ISO/TS 11686:2017(E)

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 4, *Connectors and similar products and components*.

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 may be connected through their ports by connections (connectors) and conductors (tubes and hoses). Tubes are rigid conductors while hoses are flexible conductors.

Connectors for fluid power and general use — Assembly instructions for connectors with adjustable stud ends and O-ring sealing

1 Scope

This document provides common installation instructions for all connectors that have adjustable stud ends and O-ring sealing. Conformance with the requirements of this document will result in a considerable reduction of leaks in hydraulic systems.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1179-1, *Connections for general use and fluid power — Ports and stud ends with ISO 228-1 threads with elastomeric or metal-to-metal sealing — Part 1: Threaded ports*

ISO 1179-2, *Connections for general use and fluid power — Ports and stud ends with ISO 228-1 threads with elastomeric or metal-to-metal sealing — Part 2: Heavy-duty (S series) and light-duty (L series) stud ends with elastomeric sealing (type E)*

ISO 1179-3, *Connections for general use and fluid power — Ports and stud ends with ISO 228-1 threads with elastomeric or metal-to-metal sealing — Part 3: Light-duty (L series) stud ends with sealing by O-ring with retaining ring (types G and H)*

ISO 1179-4, *Connections for general use and fluid power — Ports and stud ends with ISO 228-1 threads with elastomeric or metal-to-metal sealing — Part 4: Stud ends for general use only with metal-to-metal sealing (type B)*

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

ISO 6149-1, *Connections for hydraulic fluid power and general use — Ports and stud ends with ISO 261 metric threads and O-ring sealing — Part 1: Ports with truncated housing for O-ring seal*

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 6149-3, *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 6149-4, *Connections for hydraulic fluid power and general use – Ports and stud ends with ISO 261 metric threads and O-ring sealing – Part 4: Dimensions, design, test methods and requirements for external hex and internal hex port plugs*

ISO 9974-1, *Connections for general use and fluid power — Ports and stud ends with ISO 261 threads with elastomeric or metal-to-metal sealing — Part 1: Threaded ports*

ISO 9974-2, *Connections for general use and fluid power — Ports and stud ends with ISO 261 threads with elastomeric or metal-to-metal sealing — Part 2: Stud ends with elastomeric sealing (type E)*

ISO 9974-3, *Connections for general use and fluid power — Ports and stud ends with ISO 261 threads with elastomeric or metal-to-metal sealing — Part 3: Stud ends with metal-to-metal sealing (type B)*

ISO 9974-4, *Connections for general use and fluid power — Ports and stud ends with ISO 261 threads with elastomeric or metal-to-metal sealing — Part 4: Dimensions, design, test methods and requirements for external hex and internal hex port plugs*

ISO 11926-1, *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*

ISO 11926-2, *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*

ISO 11926-3, *Connections for general use and fluid power — Ports and stud ends with ISO 725 threads and O-ring sealing — Part 3: Light-duty (L series) stud ends*

ISO 11926-4, *Connections for general use and fluid power – Ports and stud ends with ISO 725 threads and O-ring sealing – Part 4: Dimensions, design, test methods and requirements for hexagon head screw port plugs and hexagon socket screw port plugs*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

4 Instructions for the assembly of connectors with adjustable stud ends and O-ring sealing

4.1 Preparation prior to assembly

4.1.1 To protect the sealing surfaces and prevent dirt and other contaminants from entering the system, protective caps and/or plugs shall not be removed until it is time to assemble the components.

4.1.2 Just prior to assembly, protective caps and/or plugs shall be removed, and the connector and the port shall be inspected to ensure that both mating parts are free of burrs, nicks, scratches or any foreign material.

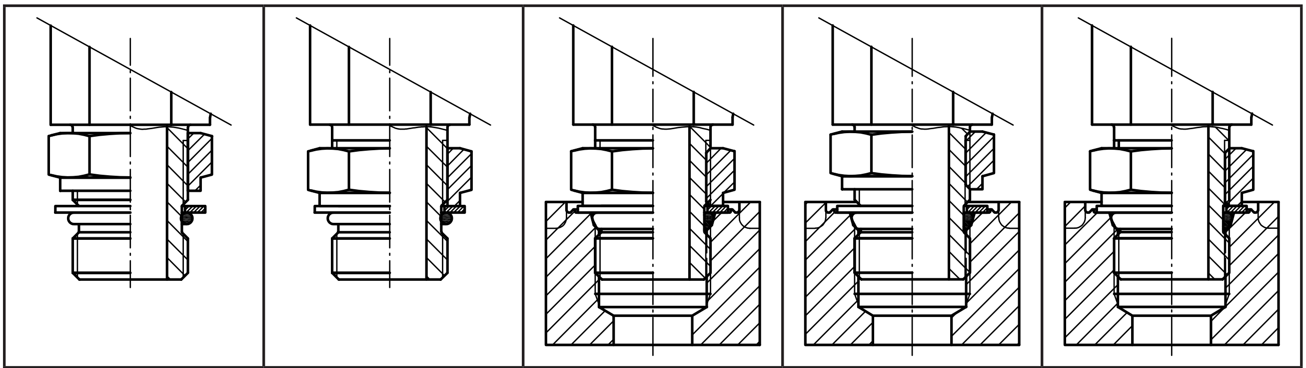
4.1.3 If an O-ring is not present, one shall be installed on the port end of the connector using a proper O-ring installation tool, taking care not to cut or nick the O-ring.

4.1.4 The O-ring shall be lubricated with a light coat of system fluid or compatible oil.

4.2 Assembly

4.2.1 Illustration

4.2.1.1 Figure 1 illustrates the steps specified in 4.2.2 to 4.2.6 and the final assembly.



Position 1	**Position 2**	**Position 3**	**Position 4**	**Position 5**
Locknut and washer backed off with O-ring in position (see 4.2.2)	Locknut in position to protect the backup washer from damage during installation into the port (see 4.2.3)	Hand tightened into port until backup washer contacts port face (see 4.2.4)	Connector backed off for alignment to mating connector, tube assembly or hose assembly (see 4.2.5)	Connector tightened to final position (see 4.2.6)

Figure 1 — Instructions for assembling connectors with adjustable stud ends and O-ring sealing

4.2.2 Location of O-ring (position 1 in Figure 1)

The O-ring should be located in the groove adjacent to the face of the backup washer. The washer and O-ring should be positioned at the extreme top end of the groove as shown in position 1 of Figure 1.

4.2.3 Positioning of locknut (position 2 in Figure 1)

Position the locknut to just touch the backup washer as shown in position 2 of Figure 1. Having the locknut in this position will eliminate potential damage to the backup washer during the next step (see 4.2.4).

4.2.4 Installation of connector into the port (position 3 in Figure 1)

Install the connector into the port until the backup washer contacts the face of the port as shown in position 3 of Figure 1.

CAUTION — Over tightening beyond contact can cause damage to the backup washer, if the washer is not supported by the locknut.

4.2.5 Connector adjustment (position 4 in Figure 1)

Adjust the connector to the proper position by turning it out, in a counter clockwise manner, up to a maximum of one turn as shown in position 4 of Figure 1, to provide proper alignment with the mating connector, tube assembly or hose assembly.

