INTERNATIONAL STANDARD

ISO 8434-2

Second edition
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Metallic tube connections for fluid power and general use —

Part 2:
37° flared connectors

Raccordements de tubes métalliques pour transmissions hydrauliques et pneumatiques et applications générales —

Partie 2: Connecteurs évasés à 37°

Reference number
ISO 8434-2:2007(E)

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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 8434-2 was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 4, *Connectors and similar products and components*.

This second edition cancels and replaces the first edition (ISO 8434-2:1994), which has been technically revised.

ISO 8434 consists of the following parts, under the general title *Metallic tube connections for fluid power and general use*:

- *Part 1: 24° cone connectors*
- *Part 2: 37° flared connectors*
- *Part 3: O-ring face seal connectors*
- *Part 4: 24° cone connectors with O-ring weld-on nipple*
- *Part 6: 60° cone connectors with or without O-ring sealing*

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), tubes and hoses. Tubes are rigid conductors; hoses are flexible conductors.

This part of ISO 8434 is based on the US standard ANSI/SAE J514 [1]. The threads for the 37° flared connection are unified inch threads in accordance with ISO 263. The inch threads were not changed to metric threads according to ISO 261 to allow connectors complying with this International Standard to be used in existing applications without requiring a change to tube or hose assemblies. Also, the thread-to-nut overtorque and seal performance have been extensively tested; to change to metric threads would require an extensive test program at considerable cost without providing any functional improvement. The threads are integral to themselves, connectors of this type match only to themselves and, other than having metric threads, no value in changing could be found. Major international companies that have used these connectors have adopted the design without noting any problems. All wrench flats specified in this part of ISO 8434 are dimensioned to be used with ISO standard metric wrenches.

INTERNATIONAL STANDARD **ISO 8434-2:2007(E)**

Metallic tube connections for fluid power and general use —

Part 2:
37° flared connectors

1 Scope

This part of ISO 8434 specifies general and dimensional requirements for the design and performance of 37° flared connectors that are suitable for use with ferrous and non-ferrous tubes with outside diameters from 6 mm to 50,8 mm, inclusive. These connectors are for use in fluid power and general applications within the limits of pressure and temperature specified in this part of ISO 8434.

They are intended for the connection of tubes and hose fittings to ports in accordance with ISO 6149-1, ISO 1179-1, ISO 9974-1 and ISO 11926-1. (See ISO 12151-5 for related hose fitting specification.)

These connectors provide full-flow connections with metal-to-metal sealing in hydraulic systems operating to the working pressures shown in Table 1. Because many factors influence the pressure at which a system performs satisfactorily, these values shall not be understood as guaranteed minimums. For every application, sufficient testing will need to be conducted and the results reviewed by both the user and manufacturer to ensure that required performance levels are met.

NOTE 1 For new designs in hydraulic fluid power applications, see the requirements given in 9.6. Where the requirements of the application allow for the use of elastomeric seals, connector designs that conform to International Standards and incorporate elastomeric sealing are preferred.

NOTE 2 For use under conditions outside the pressure and/or temperature limits specified, see 5.5.

Both metric and inch tubing can be accommodated by changing the sleeve (see Figure 7). In the past, these connectors have been used predominantly with inch tubing. For new and future designs, the use of metric tubing is preferred.

This part of ISO 8434 also specifies a performance and qualification test for 37° flared connectors.

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

ISO 228-1:2000, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation*

ISO 261, *ISO general purpose metric screw threads — General plan*

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

ISO 1127, *Stainless steel tubes — Dimensions, tolerances and conventional masses per unit length*

ISO 1179-1[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:—[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 2: Heavy-duty (S series) and light-duty (L series) stud ends with elastomeric sealing (type E)*

ISO 1179-3:—[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 3: Light-duty (L series) stud ends with sealing by O-ring with retaining ring (types G and H)*

ISO 1179-4:—[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 4: Stud ends for general use only with metal-to-metal sealing (type B)*

ISO 3304, *Plain end seamless precision steel tubes — Technical conditions for delivery*

ISO 3305, *Plain end welded precision steel tubes — Technical conditions for delivery*

ISO 4759-1:2000, *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 5864:1993, *ISO inch screw threads — Allowances and tolerances*

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: Port with truncated housing for O-ring seal*

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 9227, *Corrosion tests in artificial atmospheres — Salt spray tests*

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 9974-3:1996, *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 10763, *Hydraulic fluid power — Plain-end seamless and welded precision steel tubes — Dimensions and nominal working pressures*

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 11926-3:1995, *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*

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[1] To be published. (Revision of ISO 1179:1981)

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

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

3.3
fluid power
means whereby energy is transmitted, controlled and distributed using a pressurized fluid as the medium

[ISO 5598]

3.4
connector
connection
leakproof device to connect pipelines (conductors) to one another, or to equipment

3.5
fastening thread
terminal thread of a complete connector

3.6
run
two principal, axially aligned outlets of a tee or cross

3.7
branch
side outlet(s) of a tee or cross

3.8
chamfer
removal of a conical portion at the entrance of a thread to assist assembly and prevent damage to the start of the thread

3.9
assembly torque
torque to be applied in order to achieve a satisfactory final assembly

3.10
working pressure
pressure at which the apparatus is being operated in a given application

3.11
face-to-face dimension
distance between the two parallel faces of axially aligned outlets of a connector