

INTERNATIONAL
STANDARD

ISO
6149-1

First edition
1993-11-01

**Connections for fluid power and general
use — Ports and stud ends with ISO 261
threads and O-ring sealing —**

iTeh STANDARD PREVIEW

Part 1:

(Ports with O-ring seal in truncated housing)

ISO 6149-1:1993

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Raccordements pour transmissions hydrauliques et pneumatiques et applications générales — Orifices et éléments mâles à filetage ISO 261 et joint torique —

Partie 1: Orifices à joint torique dans un logement tronconique



Reference number
ISO 6149-1:1993(E)

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 6149-1 was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Sub-Committee SC 4, *Connectors and similar products and components*.

This first edition of ISO 6149-1 cancels and replaces ISO 6149:1980, which has been technically revised.

ISO 6149 consists of the following parts, under the general title *Connections for fluid power and general use — Ports and stud ends with ISO 261 threads and O-ring sealing*:

- Part 1: *Ports with O-ring seal in truncated housing*
- Part 2: *Heavy-duty (S series) stud ends — Dimensions, design, test methods and requirements*
- Part 3: *Light-duty (L series) stud ends — Dimensions, design, test methods and requirements*

Annex A of this part of ISO 6149 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 fluid connector fittings to tubes and pipes or to hose fittings and hoses.

Ports are an integral part of fluid power components, such as pumps, motors, valves, cylinders, etc.

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Connections for fluid power and general use — Ports and stud ends with ISO 261 threads and O-ring sealing —

Part 1:

Ports with O-ring seal in truncated housing

1 Scope

This part of ISO 6149 specifies dimensions for metric ports for use with the adjustable and non-adjustable stud ends detailed in ISO 6149-2 and ISO 6149-3.

Ports in accordance with this part of ISO 6149 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 port size, materials, design, working conditions, application, etc.

NOTE 1 Users of this part of ISO 6149 should ensure that there is sufficient material around the port to maintain the pressure.

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 and ISO 11926 are not to be used for new designs in hydraulic fluid power applications.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 6149. 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 6149 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 261:—²⁾, *ISO general-purpose metric screw threads — General plan.*

ISO 965-1:1980, *ISO general purpose metric screw threads — Tolerances — Part 1: Principles and basic data.*

ISO 2306:1972, *Drills for use prior to tapping screw threads.*

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

ISO 6149-2:1993, *Connections for fluid power and general use — Ports and stud ends with ISO 261 threads and O-ring sealing — Part 2: Heavy-duty (S series) stud ends — Dimensions, design, test methods and requirements.*

ISO 6149-3:1993, *Connections for fluid power and general use — Ports and stud ends with ISO 261 threads and O-ring sealing — Part 3: Light-duty (L series) stud ends — Dimensions, design, test methods and requirements.*

ISO 7789:—³⁾, *Hydraulic fluid power — Two-, three- and four-port screw-in cartridge valves — Cavities.*

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

2) To be published. (Revision of ISO 261:1973)

3) To be published.

3 Definitions

For the purposes of this part of ISO 6149, the definitions given in ISO 5598 apply.

4 Dimensions

Ports shall conform to the dimensions shown in figure 1 and given in table 1.

5 Test methods

Ports shall be tested along with stud ends in accordance with the test methods and requirements given in ISO 6149-2 and ISO 6149-3.

6 Designation of ports

The ports shall be designated by

- a) "Port";
- b) reference to this part of ISO 6149, i.e. ISO 6149-1;

c) thread size ($d_1 \times P$).

EXAMPLE

Port ISO 6149-1 - M18 × 1,5

7 Identification

Each port in accordance with this part of ISO 6149 shall be identified by a raised ring conforming to the dimensions given in figure 2 and table 2, or by permanently marking "metric" next to the port, or by a permanent identification label on the component to read "ISO 6149-1 metric".

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

Use the following statement in test reports, catalogues and sales literature when electing to comply with this part of ISO 6149:

"Ports conform to ISO 6149-1:1993, Connections for fluid power and general use — Ports and stud ends with ISO 261 threads and O-ring sealing — Part 1: Ports with O-ring seal in truncated housing."

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Dimensions in millimetres,
surface roughness in micrometres

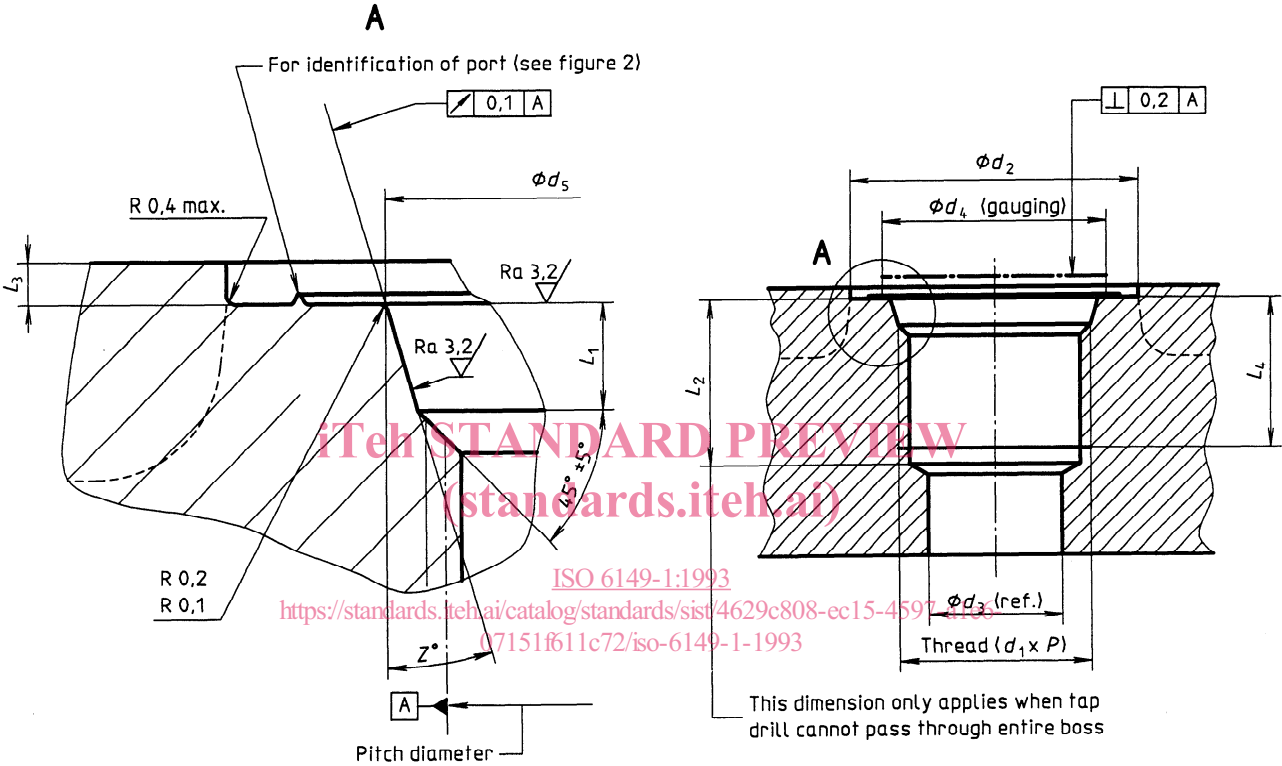


Figure 1 — Port

Table 1 — Port dimensions

Dimensions in millimetres

Thread ¹⁾ ($d_1 \times P$)	d_2		d_3 ²⁾ ref.	d_4	d_5 $\begin{matrix} +0,1 \\ 0 \end{matrix}$	L_1 $\begin{matrix} +0,4 \\ 0 \end{matrix}$	L_2 ³⁾ min.	L_3 max.	L_4 min.	Z° $\pm 1^\circ$
	4) min.	5) min.								
M8 × 1	17	14	3	12,5	9,1	1,6	11,5	1	10	12°
M10 × 1	20	16	4,5	14,5	11,1	1,6	11,5	1	10	12°
M12 × 1,5	23	19	6	17,5	13,8	2,4	14	1,5	11,5	15°
M14 × 1,5 ⁶⁾	25	21	7,5	19,5	15,8	2,4	14	1,5	11,5	15°
M16 × 1,5	28	24	9	22,5	17,8	2,4	15,5	1,5	13	15°
M18 × 1,5	30	26	11	24,5	19,8	2,4	17	2	14,5	15°
M20 × 1,5 ⁷⁾	32	27	—	25,5	21,8	2,4	—	2	14,5	15°
M22 × 1,5	34	29	14	27,5	23,8	2,4	18	2	15,5	15°
M27 × 2	40	34	18	32,5	29,4	3,1	22	2	19	15°
M33 × 2	49	43	23	41,5	35,4	3,1	22	2,5	19	15°
M42 × 2	60	52	30	50,5	44,4	3,1	22,5	2,5	19,5	15°
M48 × 2	66	57	36	55,5	50,4	3,1	25	2,5	22	15°
M60 × 2	76	67	44	65,5	62,4	3,1	27,5	2,5	24,5	15°

1) Conforming to ISO 261, tolerance grade 6H in accordance with ISO 965-1. Tap drills in accordance with ISO 2306, class 6H.

2) For reference only. Connecting hole application may require a different size.

3) The tap drill depths given require the use of a bottoming tap to produce the specified full thread lengths. Where standard taps are used, the tap drill depths shall be increased accordingly.

4) Spotface diameter with identification ridge.

5) Spotface diameter without identification ridge.

6) Preferred for diagnostic port applications.

7) For cartridge valve cavity applications only (see ISO 7789).

Dimensions in millimetres

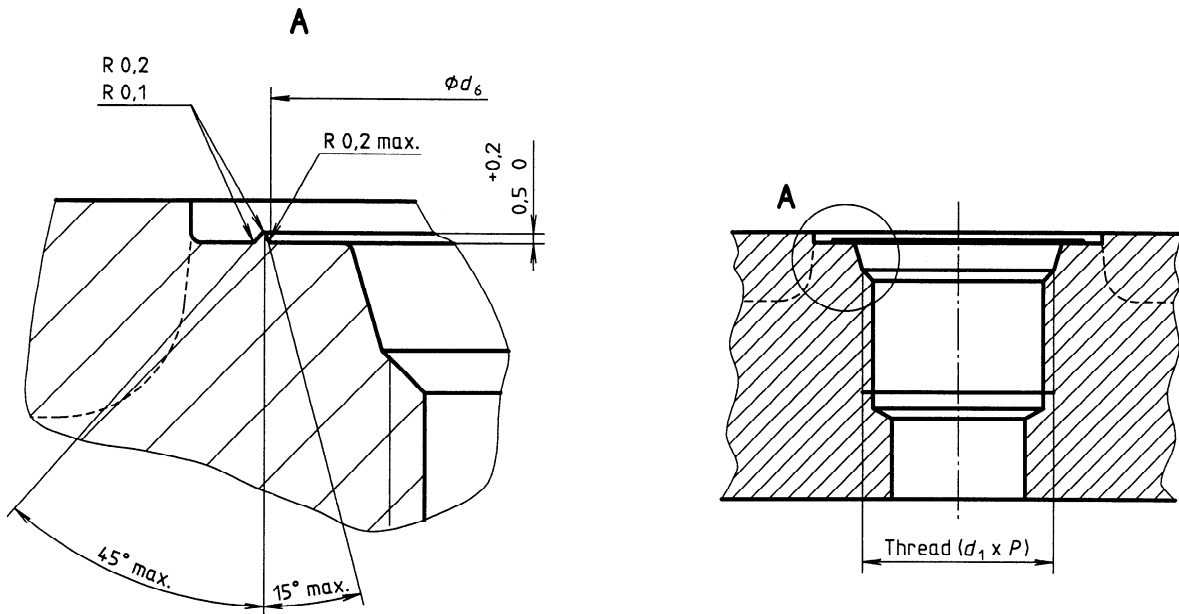


Figure 2 — Port identification

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Table 2 — Port identification

Dimensions in millimetres

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Thread ($d_1 \times P$)	d_6 +0,5 0
M8 × 1	14
M10 × 1	16
M12 × 1,5	19
M14 × 1,5	21
M16 × 1,5	24
M18 × 1,5	26
M20 × 1,5 ¹⁾	27
M22 × 1,5	29
M27 × 2	34
M33 × 2	43
M42 × 2	52
M48 × 2	57
M60 × 2	67

1) For cartridge valve cavities only (see ISO 7789).