
**Hydraulic fluid power — Four-port
modular stack valves and four-port
directional control valves, sizes 02,
03, 05, 07, 08 and 10 — Clamping
dimensions**

*Transmissions hydrauliques — Appareils empilables et
distributeurs à quatre orifices, de tailles 02, 03, 05, 07, 08 et 10 —
Dimensions de montage*



Reference number
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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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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 7790 was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 5, *Control products and components*.

This third edition cancels and replaces the second edition (ISO 7790:1997), which has been technically revised.

Introduction

In hydraulic fluid power systems, power is transmitted and controlled through a liquid under pressure within an enclosed circuit. Typical components found in such systems are hydraulic valves and hydraulic modular stack valves. These devices control flow direction, pressure, or flow rate of liquids in the enclosed circuit.

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Hydraulic fluid power — Four-port modular stack valves and four-port directional control valves, sizes 02, 03, 05, 07, 08 and 10 — Clamping dimensions

1 Scope

This International Standard specifies clamping dimensions of four-port modular stack valves and four-port directional control valves, sizes 02, 03, 05, 07, 08, and 10, on mounting surfaces. The dimensions and sizes conform to ISO 4401 so as to ensure interchangeability of these valves and to reduce the number of fixing devices to be used.

It applies to clamping dimensions of four-port modular stack valves and four-port directional control valves which represent current practice. They are generally applicable to industrial equipment.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4401, *Hydraulic fluid power — Four-port directional control valves — Mounting surfaces*

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

ISO 5783, *Hydraulic fluid power — Code for identification of valve mounting surfaces and cartridge valve cavities*

3 Terms and definitions

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

4 Symbols

For the purposes of this International Standard, the following letter symbols apply:

- a) H_1 identifies clamping length for the fixing devices on directional control valves;
- b) H_2 identifies overall heights of modular stack valves.

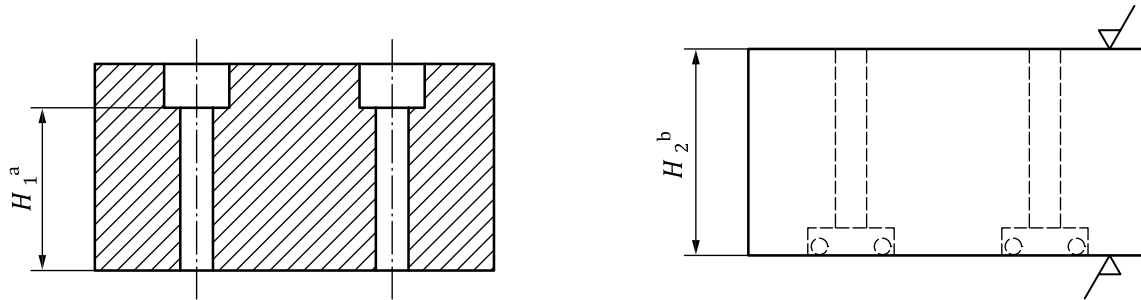
5 Tolerances

For tolerances and other data relating to the side of a modular stack valve on which another modular stack valve or a directional control valve is mounted, see ISO 4401.

6 Dimensions

Clamping dimensions for modular stack valves and directional control valves, sizes 02, 03, 05, 07, 08, and 10, in accordance with ISO 5783, with four service ports, are shown in [Figure 1](#) and given in [Tables 1](#) and [2](#). [Table 1](#) lists the preferred dimensions and should be used for new valve designs. [Table 2](#) lists

alternative non-preferred dimensions that are in current use but which should not be used for new valve designs. The mounting surface shall be in accordance with ISO 4401.



a) Directional control valve

b) Modular stack valve

- a Dimension H_1 is understood to be the mounting height (clamping length for fixing bolts) where fixing bolts with heads are used. Where studs are used, consult sales literature on valve heights before determining the length of these studs.
- b Dimension H_2 is understood to be the overall mounting height of a modular stack valve, including O-ring plate height, if necessary.

Figure 1 — Clamping dimensions for four-port directional control valves and modular stack valves, sizes 02, 03, 05, 07, 08, and 10 (mounting surface in accordance with ISO 4401)

Table 1 — Preferred clamping dimensions for four-port directional control valves and modular stack valves, sizes 02, 03, 05, 07, 08, and 10 (mounting surface in accordance with ISO 4401)

Dimensions in millimetres

Valve type	Dimension	Size 02	Size 03	Size 05	Size 07	Size 08	Size 10
Directional control valve	H_1	32_{-2}^0	22_{-2}^0	30_{-2}^0	34_{-2}^0	42_{-2}^0	49_{-2}^0
Modular stack valve	H_2^a	$30_{-0,5}^0$	$40_{-0,3}^0$	$50_{-0,3}^0$	$50_{-0,5}^0$	$60_{-0,5}^0$	$70_{-0,5}^0$

NOTE The supplier shall establish the maximum working pressure for valves, subplates, and the manifold blocks.

^a When dimension H_2 is not acceptable for design reasons, it shall be increased or decreased in increments of 10 mm.

Table 2 — Alternative non-preferred clamping dimensions for four-port directional control valves and modular stack valves, sizes 02, 03, 05, 07, 08, and 10 (mounting surface in accordance with ISO 4401)

Dimensions in millimetres

Valve type	Dimension	Size 02	Size 03	Size 05	Size 07	Size 08	Size 10
Directional control valve	H_1	None	42_{-2}^0	50_{-2}^0	43_{-2}^0	57_{-2}^0	37_{-2}^0
Modular stack valve	H_2	None	None	None	$55_{-0,5}^0$	$55_{-0,5}^0$ $85_{-0,5}^0$	None

NOTE The supplier shall establish the maximum working pressure for valves, subplates, and the manifold blocks.

7 Working pressure

For an indication of the maximum limit of the working pressure, see Note in [Table 1](#).

8 Identification statement (Reference to this International Standard)

Use the following statement in test reports, catalogues, and sales literature when electing to comply with this International Standard:

“Modular stack valves and directional control valves clamping dimensions conform to ISO 7790, Hydraulic fluid power — Four-port modular stack valves and four-port directional control valves, sizes 02, 03, 05, 07, 08 and 10 — Clamping dimensions.”

Bibliography

- [1] ISO 129-1, *Technical drawings — Indication of dimensions and tolerances — Part 1: General principles*
- [2] ISO 286-1, *Geometrical product specifications (GPS) — ISO code system for tolerances on linear sizes — Part 1: Basis of tolerances, deviations and fits*
- [3] ISO 965-1, *ISO general-purpose metric screw threads — Tolerances — Part 1: Principles and basic data*
- [4] ISO 1101, *Geometrical product specifications (GPS) — Geometrical tolerancing — Tolerances of form, orientation, location and run-out*
- [5] ISO 1302, *Geometrical Product Specifications (GPS) — Indication of surface texture in technical product documentation*

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