

Cavities for hydraulic fluid power cartridge valves —

Part 1: Specification for two-port slip-in valves

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Machinery and Components Standards Policy Committee (MCE/-) to Technical Committee MCE/18, upon which the following bodies were represented:

- Advanced Manufacturing Technology Research Institute
- Association of British Mining Equipment Companies
- Bath University Library
- British Compressed Air Society
- British Fluid Power Association
- British Steel Industry
- Department of Trade and Industry
- National Engineering Laboratory
- Electricity Supply Industry in England and Wales
- Health and Safety Executive
- Institution of Mechanical Engineers
- Ministry of Defence

The following body was also represented in the drafting of the standard, through a sub-committee:

- British Steel plc

This British Standard, having been prepared under the direction of the Machinery and Components Standards Policy Committee, was published under the authority of the Board of BSI and comes into effect on 29 June 1990

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National foreword

This Part of BS 7296 has been prepared under the direction of the Machinery and Components Standards Policy Committee. It is identical with ISO 7368:1989 “*Hydraulic fluid power — Two-port slip-in cartridge valves — Cavities*” published by the International Organization for Standardization (ISO).

Cross-references

International Standard	Corresponding British Standard
ISO 129:1985	BS 308 <i>Engineering drawing practice</i> Part 2:1985 <i>Recommendations for dimensioning and tolerancing of size</i> (Technically equivalent) BS 4500 <i>ISO limits and fits</i>
ISO 286-1:1988	Section 1.1:1990 <i>Specification for bases of tolerances, deviations and fits</i> (Technically equivalent)
ISO 286-2:1988	Section 1.2:1990 <i>Tables of commonly used tolerance and grades and limit deviations for holes and shafts</i> (Identical)
ISO 965-1:1980	BS 3643 <i>ISO metric screw threads</i> Part 1:1981 <i>Principles and basic data</i> (Technically equivalent)
ISO 1302:1978	BS 308 <i>Engineering drawing practice</i> Part 2:1985 <i>Recommendations for dimensioning and tolerancing of size</i> (Technically equivalent)

The Technical Committee has reviewed the provisions of ISO 468:1982, ISO 1101:1983, ISO 5598 and ISO 5783 to which reference is made in the text, and has decided that they are acceptable for use in conjunction with this standard.

A related British Standard to ISO 468:1982 is BS 1134 “*Assessment of surface texture*” Part 1:1988 “*Methods and instrumentation*”, and Part 2:1972 “*General information and guidance*”.

A related British Standard to ISO 1101:1983 is BS 308 “*Engineering drawing practice*” Part 3:1972 “*Geometrical tolerancing*”.

There are no corresponding British Standards for ISO 5598 and ISO 5783.

Additional information. For the purposes of this British Standard the identification statement specified in clause 8 should be read as follows: “Cavity dimensions conform to BS 7296-1:1990”.

It is anticipated that further parts of this British Standard will be published, e.g. two-port, three-port, and four-port screw-in valves.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 18, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This International Standard specifies the dimensions and other data relating to cavities in which two-port hydraulic slip-in cartridge valves are mounted in order to ensure interchangeability. It applies to cavities for two-port hydraulic slip-in cartridge valves which are generally applicable to industrial equipment.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard 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 468:1982, *Surface roughness — Parameters, their values and general rules for specifying requirements*.

ISO 1101:1983, *Technical drawings — Geometrical tolerancing — Tolerancing of form, orientation, location and run-out — Generalities, definitions, symbols, indications on drawings*.

ISO 1302:1978, *Technical drawings — Method of indicating surface texture on drawings*.

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

ISO 5783:1981, *Hydraulic fluid power — Code for identification of valve mounting surfaces*.

3 Definitions

For the purposes of this International Standard, the definitions given in ISO 5598 apply.

4 Symbols

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

- a) A, B, X, Y, Z₁ and Z₂ identify ports the operational usage of which, in some cases, may be different from that given in the following example:

Example of usage:

A: inlet, service, return corresponding to the placing in the hydraulic circuit

B: inlet, service, return corresponding to the placing in the hydraulic circuit

X: pilot, inlet

Y: pilot, return

Z₁: supplementary pilot, inlet

Z₂: supplementary pilot, return;

b) F₁, F₂, F₃, F₄, F₅, F₆, F₇ and F₈ identify threaded holes for fixing bolts;

c) G identifies the location of pin holes;

d) D identifies the fixing bolt diameter;

e) r_{max} identifies the mounting surface edge radius.

NOTE Symbols to be used on cavities and valves will be dealt with in a future addendum.

4.2 The code system used in this International Standard is defined in ISO 5783.

5 Tolerances

5.1 The following values shall be applied to the mounting surface part of the cavities, i.e. that area within the chain thick lines:

— Surface roughness, R_a: as indicated on the figures (see ISO 468 and ISO 1302)

— Surface flatness: 0,01 mm over a distance of 100 mm (see ISO 1101)

— Locating pin hole, tolerance for diameters: H13

5.2 The following tolerances shall be complied with along the x, y and z axes with respect to the origin:

— Pin holes : ± 0,2 mm

— Bolt holes: ± 0,2 mm

— Port holes: ± 0,2 mm

As for other dimensions, see the figures.

6 Dimensions

6.1 Cavity dimensions for hydraulic slip-in cartridge valves with two main ports shall be selected from the figures and tables specified in 6.2 to 6.15.

6.2 Cavity dimensions for all types of valves, except main system pressure-relief valves, with main ports of 16 mm nominal diameter (size 06) (code ISO 7368 — BA-06-2-A) are given in Figure 1.

6.3 Cavity dimensions for main system pressure-relief valves with main ports of 16 mm nominal diameter (size 06) (code ISO 7368 — BA-06-2-B) are given in Figure 2.

6.4 Cavity dimensions for all types of valves, except main system pressure-relief valves, with main ports of 25 mm nominal diameter (size 08) (code ISO 7368 — BB-08-2-A) are given in Figure 3.

6.5 Cavity dimensions for main system pressure-relief valves with main ports of 25 mm nominal diameter (size 08) (code ISO 7368 — BB-08-2-B) are given in Figure 4.

6.6 Cavity dimensions for all types of valves, except main system pressure-relief valves, with main ports of 31,5 mm nominal diameter (size 09) (code ISO 7368 — BC-09-2-A) are given in Figure 5.

6.7 Cavity dimensions for main system pressure-relief valves with main ports of 31,5 mm nominal diameter (size 09) (code ISO 7368 — BC-09-2-B) are given in Figure 6.

6.8 Cavity dimensions for all types of valves, except main system pressure-relief valves, with main ports of 40 mm nominal diameter (size 10) (code ISO 7368 — BD-10-2-A) are given in Figure 7.

6.9 Cavity dimensions for main system pressure-relief valves with main ports of 40 mm nominal diameter (size 10) (code ISO 7368 — BD-10-2-B) are given in Figure 8.

6.10 Cavity dimensions for all types of valves, except main system pressure-relief valves with main ports of 50 mm nominal diameter (size 11) (code ISO 7368 — BE-11-2-A) are given in Figure 9.

6.11 Cavity dimensions for main system pressure-relief valves with main ports of 50 mm nominal diameter (size 11) (code ISO 7368 — BE-11-2-B) are given in Figure 10.

6.12 Cavity dimensions for all types of valves, except main system pressure-relief valves, with main ports of 63 mm nominal diameter (size 12) (code ISO 7368 — BF-12-2-A) are given in Figure 11.

6.13 Cavity dimensions for main system pressure-relief valves with main ports of 63 mm nominal diameter (size 12) (code ISO 7368 — BF-12-2-B) are given in Figure 12.

6.14 Cavity dimensions for all types of valves with main ports of 80 mm nominal diameter (size 13) (code ISO 7368 — BG-13-2-A) are given in Figure 13.

6.15 Cavity dimensions for all types of valves with main ports of 100 mm nominal diameter (size 14) (code ISO 7368 — BH-14-2-A) are given in Figure 14.

7 Working pressure

For the indication of the maximum limit of the working pressure, see note 8 to the figures.

8 Identification statement (Reference of this International Standard)

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

“Cavity dimensions conform to ISO 7368, *Hydraulic fluid power — Two-port slip-in cartridge valves — Cavities.*”