

Pneumatic fluid power valve mounting surfaces —

**Part 1: Specification for five-port
directional control valves
(without electrical connector)**

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)
- Institution of Mechanical Engineers
- Ministry of Defence

The following body was also represented in the drafting of the standard, through subcommittees and panels:

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 31 December 1990

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National foreword

This Part of BS 7389 has been prepared under the direction of the Machinery and Components Standards Policy Committee and is one of a series of standards specifying dimensions and tolerances for subplate surfaces upon which pneumatic control valves are mounted. It is identical with ISO 5599-1:1989 “*Pneumatic fluid power — Five-port directional control valves — Part 1: Mounting interface surfaces without electrical connector*”, 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 dimensions and tolerancing of size</i> (Technically equivalent)
ISO 1302:1978	
ISO 1219:1976	BS 2917:1977 <i>Specification for graphical symbols used on diagrams for fluid power systems and components</i> (Identical)
ISO 4400:1985	BS 6361 <i>Specification for three-pin connectors for electrically controlled fluid power equipment</i> (Technically equivalent)

The Technical Committee has reviewed ISO 5598, to which reference is made in Annex A, and has decided that it is an acceptable reference document. A related British Standard for ISO 468:1982 is BS 1134 “*Assessment of surface texture*” Part 1:1988 “*Methods and instrumentation*” and Part 2:1972 “*General information and guidance*”. Related British Standards for ISO 1101:1983 and ISO 4414:1982 are, respectively, BS 308 “*Engineering drawing practice*” Part 3:1972 “*Geometrical tolerancing*” and BS 4575 “*Fluid power transmission and control systems*” Part 2:1987 “*Code of practice for pneumatic equipment and systems*”.

Additional information. For the purposes of this British Standard the identification statement specified in clause 5 should read as follows: “Mounting interface dimensions conform to BS 7389-1:1990”.

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 and ii, pages 1 to 8, 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 part of ISO 5599 is applicable to mounting interface surfaces for five-port pneumatic directional control valves, for a maximum working pressure of 1,6 MPa [16 bar¹⁾]. It specifies

- dimensions and tolerances of the interface features;
- port identification;
- identification of the result of operator actuation.

It does not apply to the functional characteristics of interfaces.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 5599. 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 5599 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*.

3 Dimensional requirements and tolerances

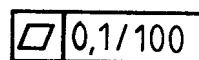
3.1 Dimensional requirements for sizes 1, 2 and 3 are shown in Figure 1 and given in Table 1.

3.2 Dimensional requirements for sizes 4, 5 and 6 are shown in Figure 2 and given in Table 2.

3.3 The main dimensions and tolerances of form and location of the interface features are shown in Figure 3 and Figure 4, and given in Table 3.

3.4 Tolerances on surface condition, within the continuous line, shall be as follows:

- Surface roughness: 1,6 μm (class N7) (see ISO 468 and ISO 1302)
- Surface flatness: 0,1 mm over a distance of 100 mm (see ISO 1101)



3.5 The mounting surface shall not include any orifices other than those shown on the figures. All passages shown in the interface shall be included, and connected to open ports in the sub-base.

4 Identification of ports and orifices

4.1 The flow path orifices in the mounting surface interface, and the ports serving these orifices, shall be designated as follows (see Figure 4):

- ports 1, 2, 3, 4 and 5 are the principal flow paths;
- ports 12 and 14 are the actuation orifices.

NOTE Port 14 is preferred for single-source external solenoid pilot supply.

4.2 For monostable valves, the mandatory stable position of the valve shall always be identical to the result of control by actuator 12, as shown in Figure 5.

4.3 When a positive pressure signal is applied to port 12, flow port 1 shall be connected with flow port 2 (and 4 with 5). When a positive signal is applied to port 14, flow port 1 shall be connected with flow port 4 (and 2 with 3). See Figure 6.

4.4 The orientation of operators 12 and 14 on the valve relative to flow ports 2, 3, 4 and 5 in the sub-base shall be as shown in Figure 5 and Figure 6.

5 Identification statement (Reference to this part of ISO 5599)

Use the following statement in test reports, catalogues and sales literature when electing to comply with this part of ISO 5599:

“Mounting interface dimensions conform to ISO 5599-1, *Pneumatic fluid power — Five-port directional control valves — Part 1: Mounting interface surfaces without electrical connector*.”

¹⁾ 1 bar = 0,1 MPa = 10⁵ N/m²