INTERNATIONAL STANDARD

ISO 5599-3

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Pneumatic fluid power — Five-port directional control valves —

Part 3:
Code system for communication of valve functions

Transmissions pneumatiques — Distributeurs à cinq orifices principaux —

Partie 3: Codification de l'information sur les fonctions des distributeurs

Reference number
ISO 5599-3 : 1990 (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 approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 5599-3 was prepared by Technical Committee ISO/TC 131, *Fluid power systems.*

ISO 5599 consists of the following parts, under the general title *Pneumatic fluid power — Five-port directional control valves*:

— *Part 1: Mounting interface surfaces without electrical connector*

— *Part 2: Mounting interface surfaces with optional electrical connector*

— *Part 3: Code system for communication of valve functions*

Annex A of this part of ISO 5599 is for information only.

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Introduction

In pneumatic fluid power systems, power is transmitted and controlled through gas under pressure within an enclosed circuit.

The various devices for gas distribution and control can be either mounted directly onto the pipeline, or mounted on interface surfaces, allowing quicker dismantling and promoting equipment interchangeability.

Pneumatic directional control valves of the five-port, four-way type as used on mounting interface surfaces complying with the requirements of this International Standard control the flow of compressed gas.

When valve operators and interface sizes are published in the literature, it is convenient to refer to them by codes. This simplifies the descriptions and provides uniformity of valve function definitions.

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Pneumatic fluid power — Five-port directional control valves —

Part 3:
Code system for communication of valve functions

1 Scope

This part of ISO 5599 specifies the codification system to be used for communication purposes. It defines functions of valve operators used on the various sizes of mounting surfaces complying with the requirements of ISO 5599-1. This codification system is not to be applied directly to the product as it does not describe the many attributes which affect performance, interchangeability (for example pressure rating, electrical characteristics, flow rating, overall physical size).

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. Members of IEC and ISO maintain registers of currently valid International Standards.

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

ISO 5599-1 : 1989, *Pneumatic fluid power — Five-port directional control valves — Part 1: Mounting interface surfaces without electrical connector.*

ISO 5599-2 : 1989, *Pneumatic fluid power — Five-port directional control valves — Part 2: Mounting interface surfaces with electrical connector.*

3 Definitions

For the purposes of this part of ISO 5599, the definitions given in ISO 5598 apply.

4 Coding principle

4.1 The code of the size and valve function (in relation to the interface) comprises three digits, as follows:

Dimension	Function
n_1	$n_2 n_3$

n_1 denotes the size of the interface. The size coding specified in ISO 5599-1 and ISO 5599-2 shall be used.

$n_2 n_3$ denotes the valve function according to clause 5. If it is listed in this clause, the valve is allocated a code if no connections other than those shown in ISO 5599-1 or ISO 5599-2 are made to the sub-base and if the sub-base connections will fulfil the valve function.

Numbers 00 to 69 denote valve functions specified in ISO 5599-1 that do not have an electrical connection at the mounting interface.

Numbers 70 to 99 denote valve functions specified in ISO 5599-2 that have an electrical connection at the mounting interface.

Number 00 denotes a special function, i.e. a valve function not specified in this part of ISO 5599.

4.2 Numbers are grouped into the following categories of operations:

— Pilot-operated

— Mechanical, manually operated

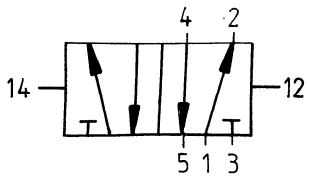
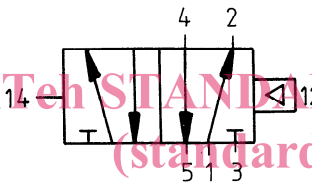
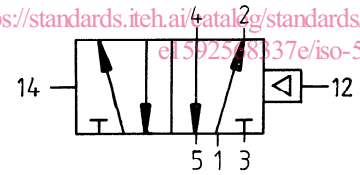
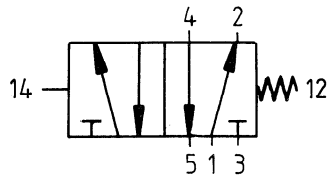
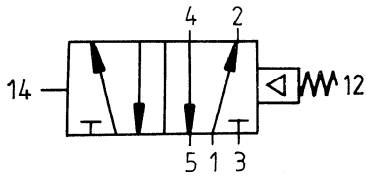
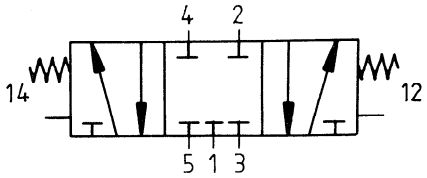
— Direct solenoid-operated

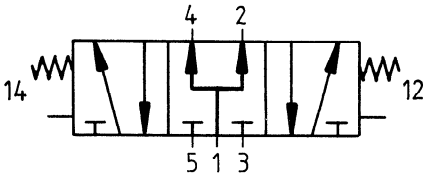
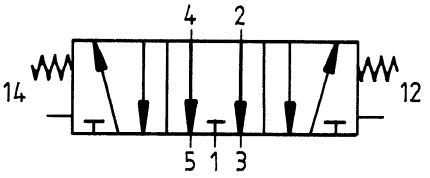
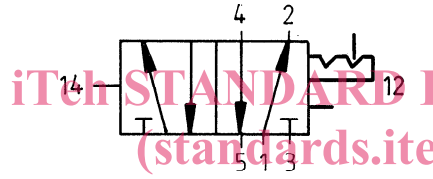
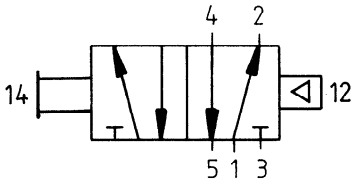
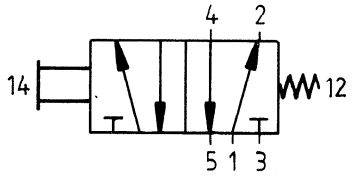
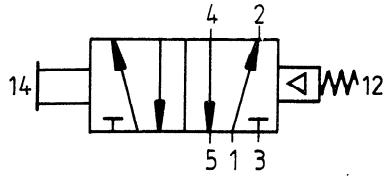
— Solenoid pilot-operated

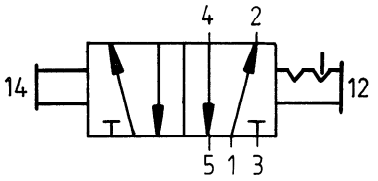
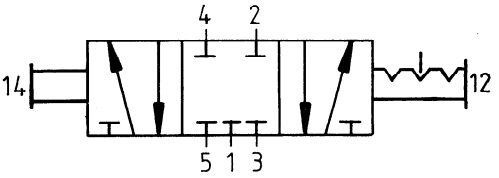
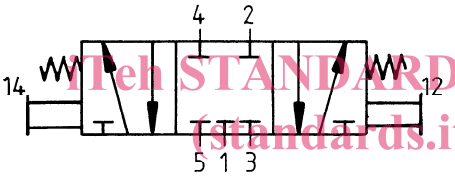
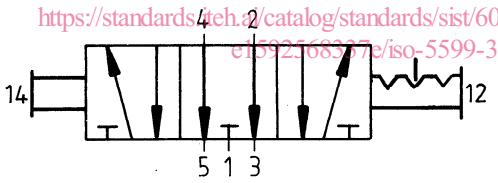
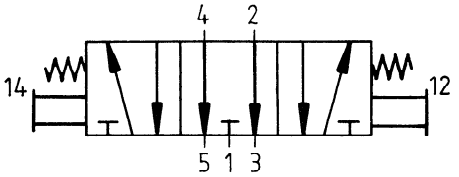
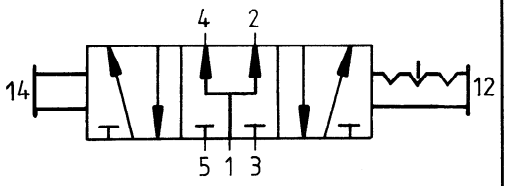
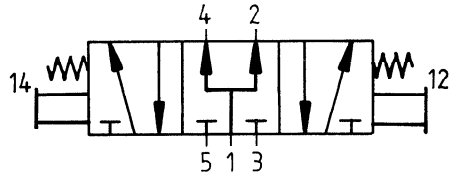
5 Valve function symbols

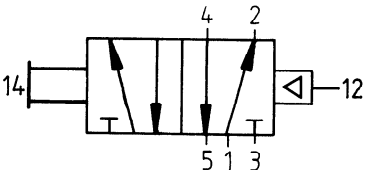
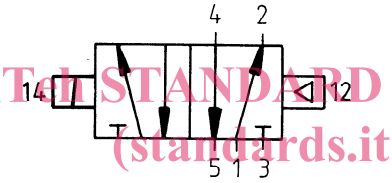
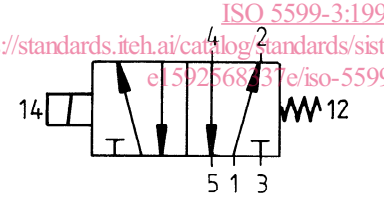
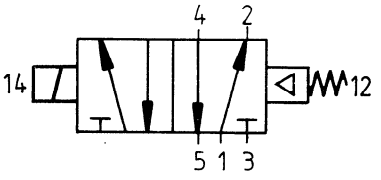
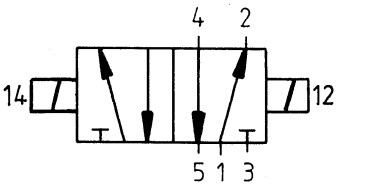
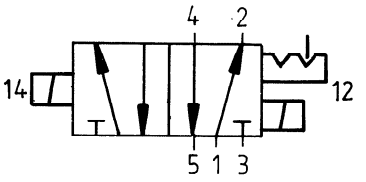
5.1 The valve function symbols associated with the code numbers in the following figures correspond to the shown position for operators and flow directions.

5.2 Different operator positions or flow directions are not specified in this part of ISO 5599.

Function code		Valve function symbol	Remarks
Without electrical connection at mounting interface	With electrical connection at mounting interface		
01			Two-position, air-actuated at both ends
02			Two-position, air-actuated, internal supply air return
03			Two-position, air-actuated, external supply air return
04			Two-position, air-actuated, spring return
05			Two-position, air-actuated, spring and internal supply air return
06			Three-position, spring-centred, air-actuated at both ends, all ports closed

Function code		Valve function symbol	Remarks
Without electrical connection at mounting interface	With electrical connection at mounting interface		
07			Three-position, spring-centred, air-actuated at both ends, load ports open to centre port
08			Three-position, spring-centred, air-actuated at both ends, load ports open to exhaust ports
09			Two-position, air-actuated at both ends, detented
10 to **18**		Reserved	
19			Two-position, manually actuated, internal supply air return
20			Two-position, manually actuated, spring return
21			Two-position, manually actuated, spring and internal supply air return

Function code		Valve function symbol	Remarks
Without electrical connection at mounting interface	With electrical connection at mounting interface		
22			Two-position, detented, manually actuated, manual return
23			Three-position, detented, manually actuated at both ends, all ports closed
24			Three-position, spring-centred, manually actuated at both ends, all ports closed
25			Three-position, detented, manually actuated at both ends, load ports open to exhaust ports
26			Three-position, spring-centred, manually actuated at both ends, load ports open to exhaust ports
27			Three-position, detented, manually actuated at both ends, load ports open to centre port
28			Three-position, spring-centred, manually actuated at both ends, load ports open to centre port

Function code		Valve function symbol	Remarks
Without electrical connection at mounting interface	With electrical connection at mounting interface		
29			Two-position, manually actuated, external supply air return
30 to **40**	**70**	Reserved	
41	**71**		Two-position, direct solenoid-actuated, internal supply air return
42	**72**		Two-position, direct solenoid-actuated, spring-returned
43	**73**		Two-position, direct solenoid-actuated, spring and internal supply air return
44	**74**		Two-position, direct solenoid-actuated at both sides
45	**75**		Two-position, detented, direct solenoid-actuated at both ends