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Hydraulic fluid power — Identification of valve ports, subplates, control devices and solenoids

Transmissions hydrauliques — Identification des orifices des appareils, embases, organes de commande et solénoïdes

Reference number
ISO 9461:1992(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 9461 was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Sub-Committee SC 5, *Control products and components*.

Annex A of this International Standard is for information only.

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Introduction

This International Standard complies as closely as possible with the rules for the identification of valve ports specified in previously published International Standards, in particular those concerning valves on subplates (i.e. ISO 4401, ISO 5781, ISO 6263 and ISO 6264).

These four International Standards are however, somewhat extensive as they were expected to cover most of the current marking practices.

To remedy this situation, this International Standard give rules corresponding to the recommended practice, to be applied as a first priority for the identification of any new valve.

In hydraulic fluid power systems, power is transmitted and controlled through a liquid under pressure within an enclosed circuit. Fluid distribution and regulation are achieved by means of hydraulic valves which may be mounted on subplates. Valves, subplates, control devices and solenoids should be marked to ensure correct assembly and connection to the intended pipe or hose end.

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Hydraulic fluid power — Identification of valve ports, subplates, control devices and solenoids

1 Scope

This International Standard specifies rules for the identification of valve ports, subplates, control devices and solenoids for use in hydraulic fluid power systems. It applies in particular to valves which will be developed in future with two and three ports, where today's practise of marking valve ports is different. Table 1 therefore does not refer to components which are standardized in ISO 5781, ISO 6263 and ISO 6264.

Identification rules as specified in this International Standard apply to those ports which provide the connection between two valves or between a valve and a pipe. The rules are consequently valid for the valves themselves when mounted in-line, and for the subplates on which the valves are mounted when such a type of mounting is used.

2 Subplate-mounted valves

For subplate-mounted valves, the function actually performed by the valve port shall correspond to the function marked on the corresponding subplate port. This also applies to subplates which, although originally designed for valves of a given type and function, are then used with valves of a different type even if these valves have a smaller number of ports.

3 Valves with two main ports

3.1 In-line-mounted valves

The identification shall be replaced by an arrow indicating the direction of the flow, whenever this can be done without any risk of confusion.

3.2 Pressure-relief valves

"P" identifies the inlet port.

"T" identifies the outlet port.

3.3 Other valves, excluding pressure-relief valves

"P" identifies the inlet port.

"A" identifies the outlet port.

4 Valves with three main ports

These are either flow-control valves with a return to the excess inlet flow tank, or valves to connect working ports to the return supply ports. (The latter valves may, if required, be connected in a different way.)

"P" identifies the normal inlet port.

"A" identifies the normal working port.

"T" identifies the normal return-to-tank port.

5 Valves with four main ports

"P" identifies the normal inlet port.

"A" and "B" identify the normal working ports.

"T" identifies the normal return-to-tank port.

6 Auxiliary ports

6.1 Pilot ports

These ports are used for the remote control of pilot-operated valves

— either by using a pressure signal,

— or by using a lower pressure signal (or by return to tank or by venting to a reference pressure lower than the pressure at the considered port),

— or by supplying pressure to a pilot directional-control valve (normal supply and return to tank).

"X" and "Y" identify pressure pilot ports, that is

- either remote-controlled pilot ports,
- or supply ports and return ports of a pilot valve.

NOTE 1 "X" should be reserved for the control device port or for the supply to the pilot stage for pressurizing A.

"V" identifies the port of a pilot device whose action is initiated by venting to a lower pressure.

6.2 Drain ports

These ports are used to return to tank leak flows resulting from operating clearances or permanent flows from nozzles which may be necessary for the satisfactory operation of the valve.

"L" identifies the drain port.

In the case of subplate-mounted valves under the conditions described in clause 2, letters "Y" and "T" may also be used to identify the drain port when no confusion is possible.

6.3 Take-off-point ports

These ports are used to take samples of operating fluid for examination.

"M" identifies the take-off-point port.

7 Solenoids

The solenoids of the main or pilot stages shall be given the same identification as the main ports pressurized by their action.

8 Identification statement (Reference to this International Standard)

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

"Identification of valve ports conforms to ISO 9461:1992, *Hydraulic fluid power — Identification of valve ports, subplates, control devices and solenoids.*"

Table 1 — Summary of identification rules

Number of main ports		2		3	4
Type of valve		Pressure-relief valves	Other valves	Flow-control valves	Directional-control valves and function blocks
Main ports	Inlet	P	P	P	P
	1st outlet	—	A	A	A
	2nd outlet	—	—	—	B
	Return-to-tank	T	—	T	T
Auxiliary ports	1st pilot	—	X	—	X
	2nd pilot	—	—	—	Y
	Pilot (lower pressure)	V	V	V	—
	Drain	L	L	L	L
	Take-off-point	M	M	M	M

NOTE — This table does not refer to components which are standardized in ISO 5781, ISO 6263 and ISO 6264.