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Hydraulic fluid power — Identification of manifold assemblies and their components

*Transmissions hydrauliques — Identification des blocs collecteurs et de
leurs composants*



Reference number
ISO 16874:2004(E)

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Foreword

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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 16874 was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 5, *Control products and components*.

Introduction

In hydraulic fluid power systems, power is transmitted and controlled through a liquid under pressure within an enclosed circuit.

Manifold assemblies used in hydraulic fluid power systems consist of components installed on standard mounting surfaces or in standard cavities machined in a manifold. Fluid connections among components in an assembly are concealed within the manifold. Complete, accurate identification of the components and connection ports is needed to install or service a manifold assembly.

In normal practice, the system supplier is responsible for the marking of manifolds and correlation of that marking with documents. Manifold manufacturers commonly share that responsibility through supplier subcontract provisions.

Hydraulic fluid power — Identification of manifold assemblies and their components

1 Scope

This International Standard provides identification coding for manifolds used in hydraulic systems and for component installation features (for example, mounting surfaces or cavities) of such manifolds. It specifies identification codes to be marked on manifold blocks and correlated with product and service documentation such as circuit diagrams, bills of material and assembly drawings, for the purpose of facilitating assembly, installation, use and service of systems in which the manifolds are applied. The codes define a unique identifier traceable to associated documentation for each mounting surface or cavity. The installed component may be marked or tagged with the same identifier when such marking is necessary for clarity in assembly or service.

2 Normative references

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

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

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

ISO 9461, *Hydraulic fluid power — Identification of valve ports, subplates, control devices and solenoids*

3 Terms and definitions

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

4 Identification

4.1 General requirements

Manifolds shall be marked and the resulting marking correlated with documents in accordance with the requirements given in 4.2 and 4.3. In cases of complex systems that also require marking or tagging of the components, such marking or tagging shall fully identify the manifold and the mounting surface or cavity on which each component is installed. Additional markings or document references required as information for use or otherwise, such as required by other applicable standards, purchase agreements or regulations, are not affected by the provisions of this International Standard.

4.2 Manifold marking

Manifolds shall be marked with the following information in permanent characters at least 3 mm in height:

- a) For the complete manifold assembly, a unique numerical or alphanumerical identifier identical to the one used for the same assembly in the complete system circuit diagram or other controlling document, distinguished from individual mounting surface or cavity identifiers by location or other means.
- b) For each mounting surface for a valve, accessory or other component, and each cavity for a slip-in or screw-in cartridge valve or other component, a unique numerical identifier located adjacent to the mounting surface or cavity it identifies as necessary for clarity in assembly or service.
- c) For each port, a letter identifier in accordance with ISO 9461, with a number added as needed to make the identifier unique (see Table 1).

Table 1 — Marking of manifold ports

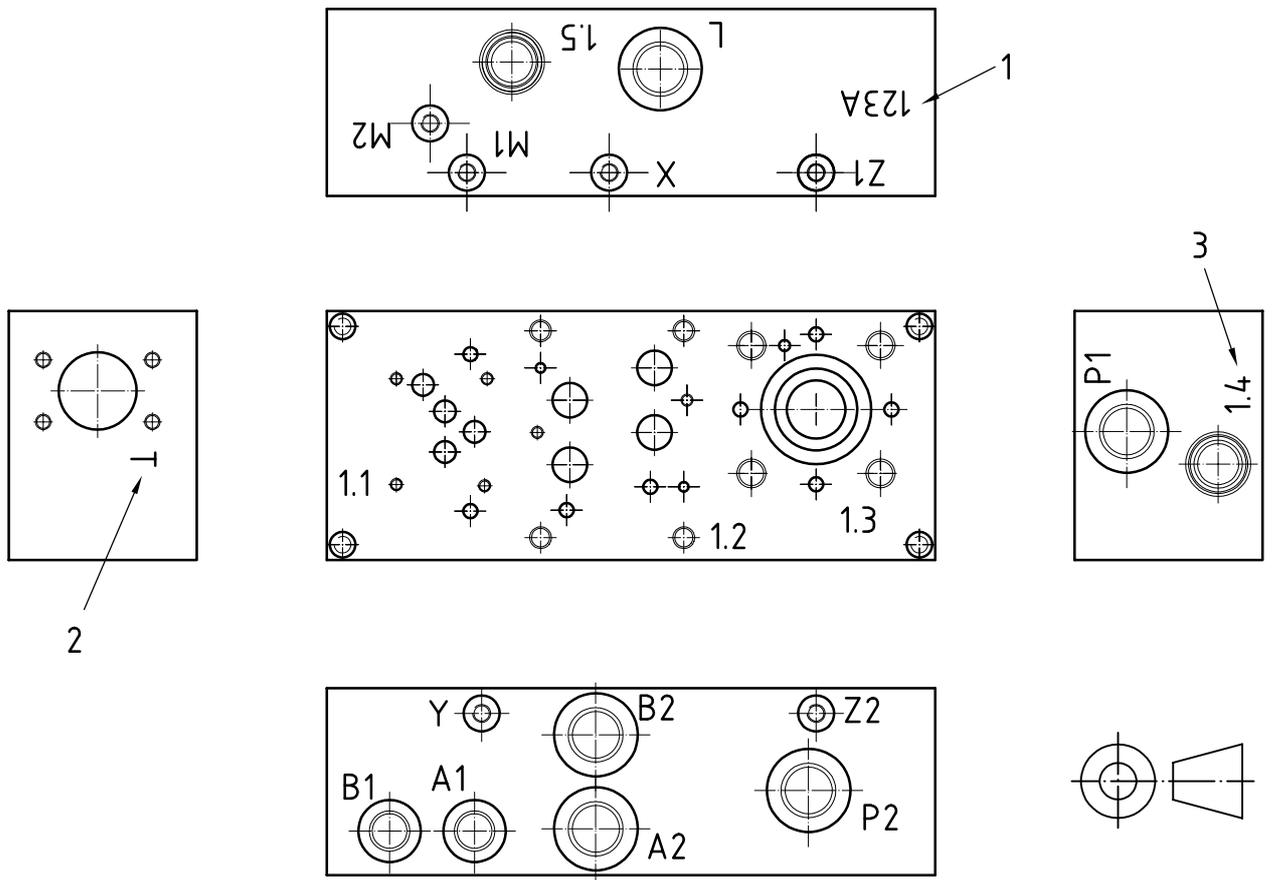
Function of port	Examples of identification
Inlet (main system)	P, P1, P2, ...
Return-to-tank (main system)	T, T1, T2, ...
Working ports	A, B, A1, B1, ...
Pilot supply	X, X1, X2, ...
Pilot return (pilot valve)	Y, Y1, Y2, ...
Auxiliary ports	Z1, Z2
Drain	L, L1, L2, ...
Pilot lower pressure (vent)	V, V1, V2, ...
Take-off-point (diagnostic) ports	M, M1, M2, ...

4.3 Correlation with documentation

4.3.1 In circuit diagrams or other controlling documents, each manifold assembly shall be designated with a numerical or alphanumerical identifier unique within the diagram or circuit. It shall be feasible to put the marking on the manifold in full or in recognizable part. Figure 1 shows an example of the marking of a manifold. Figure 2 shows an example of a related circuit diagram for the manifold shown in Figure 1.

4.3.2 For each manifold assembly, the following shall be shown on or with the circuit diagram or other controlling document:

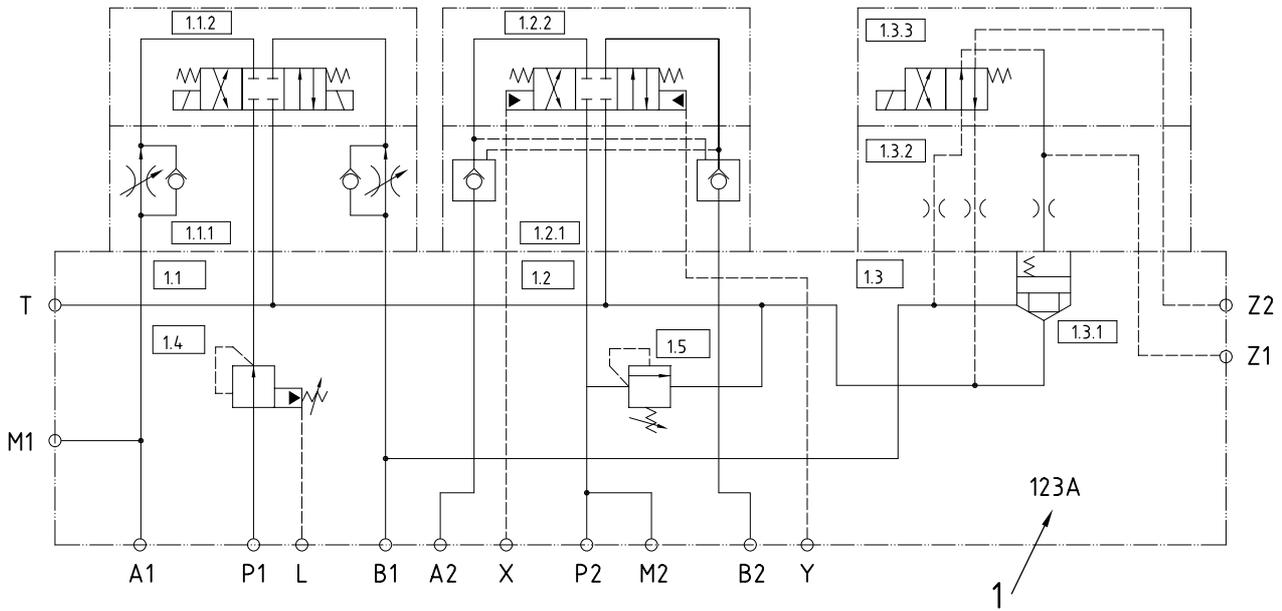
- a) a table of port sizes similar to the example shown in Table 2, listing and describing all ports in the manifold;
- b) a bill of materials for the assembly similar to the example shown in Table 3, listing and describing all mounting surfaces and cavities in the manifold, all components to be installed and their locations in the assembly. The following specific requirements shall apply:
 - 1) for modular stack valves, cartridge valve subassemblies that include auxiliary controls, and other sets of components to be installed on a single mounting surface or in a single cavity, the components in each set shall be listed in sequence from bottom to top, that is, from the mounting surface outward for a modular valve stack or from the insert outward for a cartridge valve assembly,
 - 2) on the bill of materials, each component shall be numbered according to its position in the list. The same number shall be used in assembly and service documents to identify each component and its location in the set.



Key

- 1 block assembly identifier
- 2 port identifier (typical)
- 3 valve identifier (typical)

Figure 1 — Example of the marking of a manifold



Key
 1 block assembly identifier

Figure 2 — Example of the circuit diagram for the manifold in Figure 1

Table 2 — Example of listing and description of port sizes on a manifold

Port identification	Type and size of port
P1, P2	6149-1-M22 × 1,5
T	6162-1-DN 32-35 MPa
A1, A2, B1, B2	6149-1-M22 × 1,5
L	6149-1-M22 × 1,5
M1, M2	6149-1-M14 × 1,5
X, Y	6149-1-M10 × 1
Z1, Z2	6149-1-M10 × 1

Table 3 — Example of a bill of materials for a manifold

Mounting surface or cavity	Code for valve mounting surface or cavity (in accordance with ISO 5783)	Component item number	Supplier	Supplier model code ^a
1.1	4401-05-04-0-94	1.1.1		
1.1	4401-05-04-0-94	1.1.2		
1.2	4401-07-06-0-94	1.2.1		
1.2	4401-07-06-0-94	1.2.2		
1.3	7368-08-03- -97	1.3.1		
1.3	7368-08-03- -89	1.3.2		
1.3	4401-03-02-0-94	1.3.3		
1.4	7789-22-06-0-98	1.4		
1.5	7789-22-03-0-98	1.5		

^a If supplier model code is not applicable, a description should be agreed upon among the manufacturer, supplier and/or user

5 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:

“Identification of hydraulic manifold assemblies and their components is in accordance with ISO 16874:2004, *Hydraulic fluid power — Identification of manifold assemblies and their components.*”

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Bibliography

- [1] ISO 4401, *Hydraulic fluid power — Four-port directional control valves — Mounting surfaces*
- [2] ISO 6149-1, *Connections for fluid power and general use — Ports and stud ends with ISO 261 threads and O-ring sealing — Part 1: Ports with O-ring seal in truncated housing*
- [3] ISO 6162-1, *Hydraulic fluid power — Flange connectors with split or one-piece flange clamps and metric or inch screws — Part 1: Flange connectors for use at pressures of 3,5 MPa (35 bar) to 35 MPa (350 bar), DN 13 to DN 127*
- [4] ISO 7368, *Hydraulic fluid power — Two-port slip-in cartridge valves — Cavities*
- [5] ISO 7789, *Hydraulic fluid power — Two-, three- and four-port screw-in cartridge valves — Cavities*

NOTE This list does not include all of the standards that could be referenced when applying this International Standard.

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