
Connectors for fluid power and general use — Designation and nomenclature

*Connecteurs pour transmissions hydrauliques et applications
générales — Désignation et nomenclature*

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9841-4239-8b83-8e0dadef74f

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword – Supplementary information](#)

The committee responsible for this document is ISO/TC 131, *Fluid power systems*, Subcommittee SC 4, *Connectors and similar products and components*.

[Annexes A](#) and [B](#) are normative; [Annex C](#) is informative.

Introduction

In fluid power systems, power is transmitted and controlled through a fluid (liquid or gas) under pressure within an enclosed circuit. In general applications, a fluid can be conveyed under pressure.

Components can be connected through their ports by connections (connectors) and conductors (tubes and hoses). Tubes are rigid conductors; hoses are flexible conductors.

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Connectors for fluid power and general use — Designation and nomenclature

1 Scope

This document collects the various designation and nomenclature schemes specified in International Standards for connectors and similar products standardized by ISO/TC 131/SC 4. It establishes a uniform nomenclature structure to facilitate standardization of product names used for threaded connectors, push-in connectors, flanges, hose fittings, port plugs and quick-action couplings.

The designation and nomenclature established in this document are applicable for procurement purposes when agreed to by user and supplier.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

There are no normative references in this document.

3 Terms and definitions

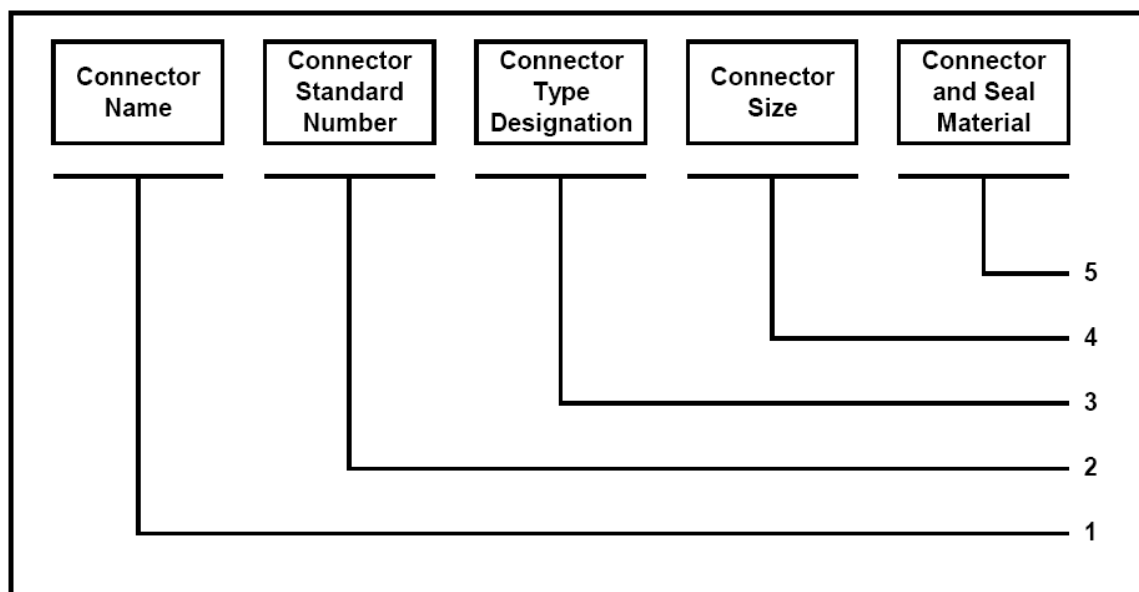
ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

4 Designation and format

4.1 General

Designations use the format shown in [Figure 1](#) when specifying a part for procurement to International Standards for connectors developed by ISO/TC 131/SC 4. Tube ends are assumed, so there is no type symbol for unions. When multiple end types are required to describe a threaded connector type, use the stud end first, when applicable (e.g. SDSWS). If there is no stud end, the description of the part shall dictate the designation order (e.g. WDRDNP for a weld-on reducing nipple).

**Key**

- 1 connector name – the name for the part (for example, connector, hose fitting, coupling, etc.) from the standard.
- 2 connector standard number – the term “ISO” and the number of the relevant International Standard.
- 3 connector type designation – the abbreviated designation consists of symbol for connector end type (Table 1) followed by, when needed, symbol for connector shape (Table 2) followed by symbol for complete connector (Table 3), if so ordered.
- 4 connector size – see 5.2.
- 5 connector material symbol (Table 7) followed by seal material symbol (Table 8), where applicable.

Figure 1 — System for designating and specifying a part

4.2 Connector size

The appropriate size designator for the connector end(s) from the relevant International Standard.

4.2.1 Threaded connectors & cross connectors

The following general rules shall apply:

- larger tube end size shall precede the smaller one for straight unions and union elbows;
- tube end size shall precede that of stud, hose, or other ends of the connector;
- male tube end shall precede female (swivel) tube end;
- for tee connectors, designation shall start with the size of the larger end on the run followed by the size of the branch;
- if the tee connector has a swivel, it shall be designated first, and on run tees the branch size shall follow;
- for cross connectors, leg with the largest tube end size shall be considered the run and the other the branch;
- the sequence shall be run sizes (large followed by small) followed by branch sizes (large followed by small);

- for tube or hose ends, the size of tube or hose in millimetres is used (for 8434-1 connectors the size is followed by the duty symbol (Table 4));
- for stud ends with metric threads, symbol “M” followed by thread size (without pitch) followed by the duty symbol (Table 4), followed by type of sealing (Table 5), e.g. M14LB for M14x1,5 light duty stud with metal-to metal sealing.
- for stud ends with BSP threads, symbol “G” followed by thread size in inches followed by “A” (tolerance class), followed by duty symbol, followed by type of sealing, e.g. G1/4ASE for heavy duty stud end with G1/4 BSP threads and elastomeric sealing;
- for stud ends with UN/UNF threads, thread size in inches (without pitch) followed by UN or UNF, as appropriate, followed by duty symbol (no sealing type is needed as only O-ring sealing is used with these threads).

4.2.2 Flange connectors

- For split flange clamps, FCS, the letter M if the split flange clamps are used with metric screws only, followed by a dash and the nominal size.

4.2.2.1 FCS-25 and FCSM-32

Most split flange clamps accept both inch and metric screws and shall use FCS. Those that only accept inch screws shall use FCS and those that accept metric screws only shall use FCSM.

For one-piece flange clamps, FC, the letter M if the one-piece flange clamps are used with metric screws only, followed by a dash and the nominal size e.g. FC-25 or FCM-32.

Most one-piece flange clamps accept both inch and metric screws and shall use FC. Those that only accept inch screws shall use FC and those that accept metric screws only shall use FCM

- For flange ports, P, followed by a dash and the nominal size and the letter M if the flange ports use metric screws e.g. P-76 or P-76M
- For flange heads, FH, followed by a dash and the nominal size e.g. FH-76

4.2.2.2 Push-in connectors

For tube ends, the outside diameter of the tubes with which they are to be connected, if all tubes are the same size, otherwise the largest and then the smallest each separated by a multiplication symbol (x)

For stud ends, the outside diameter of the tubes with which they are to be connected, followed by the stud end thread designation separated by an multiplication symbol (x)

4.2.2.3 Hose fittings

For ISO 12151-1, ISO 12151-5 and ISO 12151-6 hose fittings, the connection size, followed by a multiplication symbol (x) and the hose size e.g. 12x12,5.

For ISO 12151-2, ISO 12151-3 and ISO 12151-4 hose fittings, the duty symbol, the connection size, followed by a multiplication symbol (x) and the hose size e.g. L22x19.

4.2.2.4 Port plugs

Same as the stud ends for threaded connectors (see 5.2.1).

4.2.2.5 Quick-action couplings

Since are no connector styles, only the coupling series (A, B, or C) and the nominal coupling diameter are required there.

4.3 Designation for ordering parts

Connectors, hose fittings, port plugs, flanges, push-in fittings and quick-action couplings are designated by an alphanumeric code to facilitate ordering. They are designated by the connector name and a space, followed by reference to the relevant standard (ISO XXXX), followed by a hyphen, then the type letter symbols (connector type and shape, where applicable), followed by a hyphen and followed by the size code (tube/hose/flange end and/or thread size designators) for the ends, followed by hyphen and followed by connector and seal (if applicable) material symbols.

Size designators for connector ends shall be separated by a multiplication symbol (x). There shall be no spaces on either side of the hyphens or the multiplication symbol.

See [Tables 1](#) through [9](#) for the alpha-numeric symbols to be used.

[Annex A](#) provides an index of the letter symbols used in alphabetical order.

[Annex B](#) provides examples of how the designation system is applied.

[Annex C](#) provides correlation of SAE dash sizes to ISO connector, tube and hose sizes.

Table 1 — Letter symbols to be used in designating connector types for fluid power and general use

| Connector type | Letter symbol | Tube connectors | | | Hose fittings |
|----------------------------------------------------------------------------------|------------------|------------------------------------------------|------------------|---------|-----------------------------------------------------|
| | | Threaded | Flange | Push-in | |
| Banjo | BJ | | | 14743 | |
| Bulkhead | BH | 8434-1 8434-2 8434-3 8434-6 | | 14743 | |
| Braze-on | BR | 8434-1 8434-3 | | | |
| Cap | CP | 8434-1 8434-2 8434-3 | | | |
| Plug | PL | 8434-1 8434-2 8434-3 | | 14743 | |
| Port | P | | 6162-1 6162-2 | 14743 | |
| Reducer Reducer with nut Reducer without nut | RD RDA RDB | 8434-1 8434-2 8434-6 8434-3 8434-3 | | | |
| Stud | SD | 8434-1 8434-2 8434-3 8434-6 | | 14743 | 12151-4 |
| Swivel With sealing surface not exposed With sealing surface exposed | SW SWA SWB | 8434-1 8434-2 8434-6 8434-3 8434-3 | | 14743 | 12151-2 12151-5 12151-6 12151-1 12151-1 |
| Swivel with O-ring | SWO | 8434-1 | | | |
| Swivel bulkhead | SWBH | | | 14743 | |