
Kalmar Group Standard

KGS 90103

Part

Group

Article Standard

9. Hydraulic Components

Name

Designation - Hydraulic Fitting, Flange, Clamp

1 Scope

The standard gives an overview of hydraulic fittings and designations with flange clamps. This standard does not cover all hydraulic fittings flange clamps available on the market; it covers the most common hydraulic fitting flange clamps used in the Kalmar Group.

This standard covers hydraulic fitting flange clamps used in conjunction with hydraulic fitting flange heads. For the designations of the hydraulic fitting flange heads, see related standards KGS 90101 and KGS 90102.

2 Purpose

This standard specifies the designation of hydraulic fittings used in the Kalmar Group.

3 Responsibilities

Engineer, Standards Engineer - for the purpose of properly naming a hydraulic fitting and standardizing on a naming designation.

4 Definitions

Hydraulic Fitting - used to connect hydraulic hoses, tubes, and pipes to pumps, valves, cylinders and other parts of the hydraulic system; also used in place of the term "adaptor" - a device that allows connection of parts whose interfaces are dissimilar in size or type as defined in ISO 5598 §3.2.12; replacing the term "connector" as defined in ISO 5598 §3.2.122

5 Records / references / attachments

KGS 90101, *Designation - Hydraulic Fitting*

KGS 90102, *Designation - Hydraulic Fitting, Adapter*

ISO/TS 11672:2016, *Connectors for fluid power and general use - Designation and nomenclature*

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

ISO 6162-1, *Hydraulic fluid power – Flange connections with split or one piece flange clamps and metric or inch screws – Part 1: Flange connectors, ports and mounting surfaces for use at pressures of 3,5 MPa (35 bar) to 35 MPa (350 bar), DN 13 to DN 127*

ISO 6162-2, *Hydraulic fluid power - Flange connections with split or one piece flange clamps and metric or inch screws - Part 2: Flange connectors, ports and mounting surfaces for use at a pressure of 42 MPa (420 bar), DN 13 to DN 76*

ISO 6149 (series), *Connections for hydraulic fluid power and general use – Ports and stud ends with ISO 261 metric threads and O-ring sealing*

ISO 9974 (series), *Connections for general use and fluid power – Ports and stud ends with ISO 261 threads with elastomeric or metal-to-metal sealing*

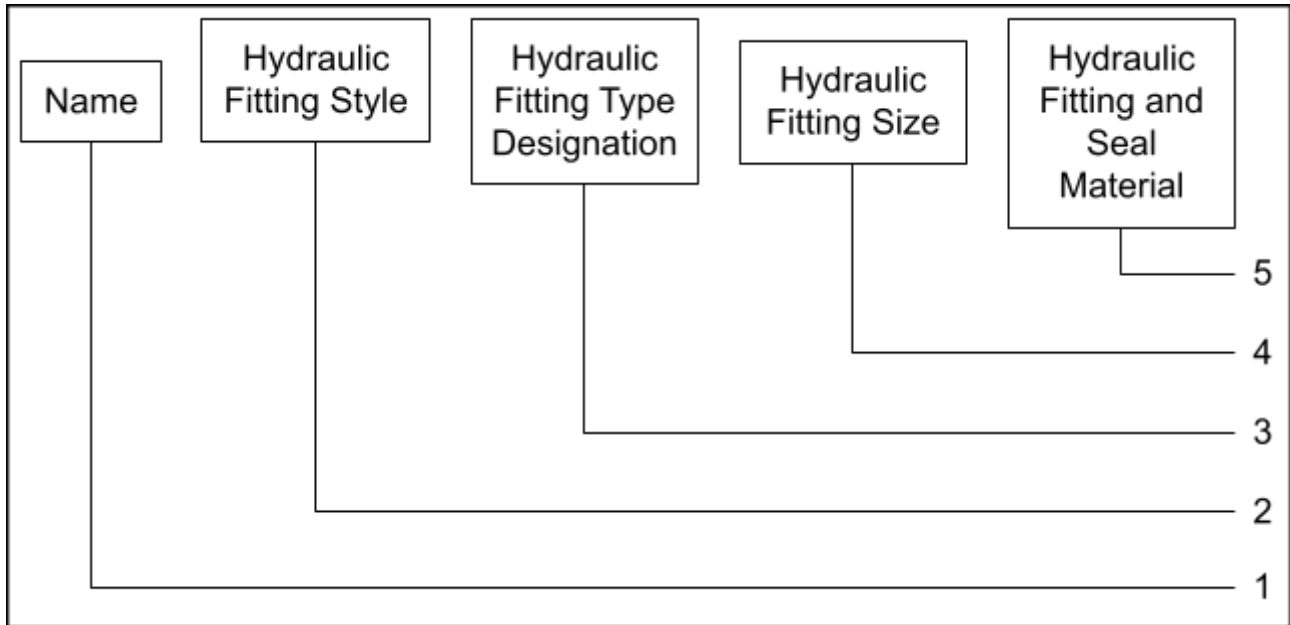
ISO 1179 (series), *Connections for general use and fluid power – Ports and stud ends with ISO 228-1 threads with elastomeric or metal-to-metal sealing*

SAE J846, *Coding Systems for Identification of Fluid Conductors and Connectors*

Document ID: IMS-K-008688
 Last update date: 08/07/2021
 Approver: lasse.eriksson@kalmarglobal.com
 Version: 1

6 Procedure Description

Designations:



Key:

1. Name - Hydraulic Fitting - see §6.1.1
2. Hydraulic fitting Style - Flange - see §6.1
3. Hydraulic fitting type designation - the abbreviated designation consists of symbol for flange pressure range type (Table 1).
4. Hydraulic fitting size - see §6.4
5. Hydraulic fitting material symbol (Table 3).

- 6.1 Hydraulic fitting flange clamps (captive and slit) used with flange head hydraulic fittings shall be designated by an alphanumeric code to facilitate ordering. They shall be designated by the words “Hydraulic fitting” followed by a comma and a space, then “Flange” followed by a comma and a space, then “Clamp” followed by a comma and a space, then the flange pressure range type (see 6.2), followed by a comma and a space, then the code for the clamp type (see 6.3) with an optional “M” for the designation of metric screws, separated by a multiplication symbol (×) and the nominal tube size with which the clamps are securing the flange head, followed by a hyphen and then the material code (as defined in SAE J846 §3.1.4). There shall be no spaces on either side of the multiplication symbol.
 - 6.1.1 Kalmar **Name_1** used in internal systems like Sovelia and 3DExperience shall be “Hydraulic Fitting”.
 - 6.1.2 Kalmar **Name_2** used in internal systems like Sovelia and 3DExperience shall be “Flange”.
 - 6.1.3 Kalmar **Name_3** used in internal systems like Sovelia and 3DExperience shall be “Clamp”.
 - 6.1.4 Related to internal Kalmar system tools, the remainder of the designation, as noted above, shall go in the **Description** or **Additional Description** field.
- 6.2 Hydraulic flange ends follow the ISO 6162 series of standards and can be designated as either “Code 61” or “Code 62”.

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Table 1 - Symbols used in designating hydraulic flange pressure range type

Flange pressure range type	Code
ISO 6162-1 (Code 61)	Code 61
ISO 6162-2 (Code 62)	Code 62

6.3 Hydraulic flange clamps can be either a split flange clamp pair or a one-piece captive flange clamp.

Table 2 - Letter symbols to be used in designating types of flange clamps for fluid power and general use (reference ISO/TS 11672)

Type of connector component	Letter
One-piece flange clamp	FC
Split flange clamp pair	FCS
Metric Screws (optional) (Add after above 2 choices)	M

6.4 Hydraulic flange clamp size corresponds to tube end size. (from KGS 90101)

6.4.1 Hydraulic fitting size shall begin first with the tube end of the hydraulic fitting.

6.4.1.1 Tube ends are assumed to be male and do not need the threads specified - only the tube size.

6.4.1.2 Tube end size is designated by the external diameter of the tube (which is the same as the internal diameter of a hose).

6.4.1.3 *Note* that corresponding flange head fittings - ORFS and JIC - the tube/thread designation size will directly correspond to the compatible flange clamp size.

6.4.1.4 *Note* that corresponding flange head fittings - UN thread (ORB) - the thread designation size will NOT directly correspond to the compatible flange clamp size. [Example: A 1-5/16"UN thread designation = a 1" OD tube size.]

6.5 Material identification (reference ISO/TS 11672 Table 7 and SAE J846 §3.1.4)

6.5.1 Hydraulic Fitting material

The material identification shall consist of a letter code for the material with protective finish, where applicable, as shown in the following table.

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Table 3 - Letter symbols to be used in designating connector material of connectors for fluid power and general use (reference ISO/TS 11672)

Connector Material and Finish	Code
Brass - no added finish treatment, Copper and copper alloys	B
Carbon steel - oil dipped for brazing or welding	CX
Composite material - non-metallic	K
Steel	S
Stainless steel	SS

7 Specifications

Specifications: Reference KGS 90204 for specifications regarding the hydraulic fitting, flange clamps.

8 Designation examples

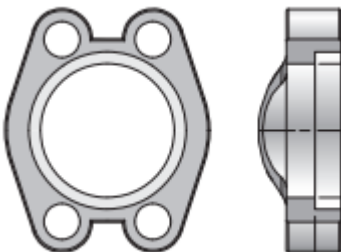
Examples:

8.1 Split Flange Clamp - FCS



Hydraulic Fitting, Flange, Clamp, Code 61, FCSx1-1/4-S

8.2 One-Piece Flange Clamp - FC



Hydraulic Fitting, Flange, Clamp, Code 62, FCx1-S