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BSI Standards Publication

Hydraulic fluid power — Two-, three-and four-port screw-in cartridge valves — Cavities with ISO 725 (UN and UNF) threads

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National foreword

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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. www.iso.org/directives

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The committee responsible for this document is 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. Typical components found in such systems include hydraulic valves. These devices control flow direction, pressure or flow rate of liquids in the enclosed circuit.

Screw-in cartridge valves are becoming increasingly popular in hydraulic fluid power applications worldwide. The number of manufacturers of these products has grown substantially in recent years. The application of these products requires the use of a valve cavity prepared by machining. The specifications for the machined cavity can come from a source other than the manufacturer of the cartridge valve to be used. An ISO document for these cavities was needed to ensure interchangeability.

In recognition of this need, an International Standard, ISO 7789:1998, for screw-in cartridge valve cavities with metric threads was developed. The aim of ISO 7789 was a new range of cavities for which a full range of valve functions and sizes are not yet available.

The purpose of this ISO Technical Report is to provide a series of cavities and sizes with ISO 725 UN and UNF threads and sizes that match the fit requirements of the majority of cartridge valves produced and applied worldwide today.

It is not proposed that this Technical Report replace ISO 7789. It is needed to enhance uniform interchangeability in the use of existing products which use ports with UN and UNF (inch) threads, are in worldwide use today and continue to be produced in ever-increasing quantities and valve functions. This Technical Report uses the port form and thread in the existing ISO 11926-1.

This Technical Report fulfils the following five points, which are the priorities agreed upon by ISO/TC 131.

— The Technical Report is needed to ensure functionality in fluid power applications of cartridge valves. Currently, the user has no assurance that a cartridge valve of the same basic size actually fits properly into a cavity of the same basic size if it was made to a different manufacturer's specification.

— The ability of screw-in cartridge valves to fit into customized applications is an important factor in choosing fluid power over other means of motion control.

— A Technical Report for the screw-in cartridge valve cavities currently in use allows users to make performance comparisons in selecting valves.

— A Technical Report for the screw-in cartridge valve cavities currently in use simplifies selection and application of valves.

— A Technical Report for the screw-in cartridge valve cavities currently in use can result in less variety of non-standard cavities. It can also simplify tooling selection in the manufacture of manifold systems.

TECHNICAL REPORT ISO/TR 17209:2013(E)

Hydraulic fluid power — Two-, three- and four-port screw-in cartridge valves — Cavities with ISO 725 (UN and UNF) threads

1 Scope

This Technical Report specifies the dimensions and provides other data relating to cavities with ISO 725 UN and UNF threads in which two-, three-, and four-port screw-in cartridge valves are mounted, in order to ensure dimensional interchangeability.

It is applicable to two-, three-, and four-port screw-in cartridge valves generally used in industrial, agricultural, mining and mobile equipment

2 Normative references

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

ISO 1101, *Geometrical product specifications (GPS) — Geometrical tolerancing — Tolerances of form, orientation, location and run-out*

ISO 1302, *Geometrical Product Specifications (GPS) — Indication of surface texture in technical product documentation*

ISO 2768-1, *General tolerances — Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*

ISO 2768-2, *General tolerances — Part 2: Geometrical tolerances for features without individual tolerance indications*

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*

ISO 11926-1, *Connections for general use and fluid power — Ports and stud ends with ISO 263 UN and UNF threads and O-ring sealing — Part 1: Ports with truncated housing for O-ring seal*

ISO 16874, *Hydraulic fluid power — Identification of manifold assemblies and their components*

3 Terms and definitions

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

4 Dimensions

The dimensions of cavities for hydraulic screw-in cartridge valves with two, three and four ports are shown in Figures 1 through 4 and given in Tables 1 through 4.