INTERNATIONAL STANDARD

ISO 6020-1

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Hydraulic fluid power — Mounting dimensions for single rod cylinders, 16 MPa (160 bar) series —

Part 1:
Medium series

Transmissions hydrauliques — Dimensions d'interchangeabilité des vérins 16 MPa (160 bar) à simple tige —

Partie 1: Série moyenne

Reference number
ISO 6020-1:2007(E)

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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 6020-1 was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 3, *Cylinders*.

This third edition cancels and replaces the second edition (ISO 6020-1:1998) and ISO 8135:1999, which have been technically revised.

ISO 6020 consists of the following parts, under the general title *Hydraulic fluid power — Mounting dimensions for single rod cylinders, 16 MPa (160 bar) series*:

- *Part 1: Medium series*
- *Part 2: Compact series*
- *Part 3: Compact series with bores from 250 mm to 500 mm*

Introduction

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

One component of such systems is the fluid power cylinder. This is a device that converts power into linear mechanical force and motion. It consists of a movable element, i.e. a piston and piston rod, operating within a cylindrical bore.

Hydraulic fluid power — Mounting dimensions for single rod cylinders, 16 MPa (160 bar) series —

Part 1:
Medium series

1 Scope

This part of ISO 6020 establishes metric mounting dimensions for medium series cylinders, 16 MPa [160 bar [1]], as required for interchangeability of commonly used hydraulic cylinders.

The medium series dimensions are applicable to round head cylinders with bores from 25 mm to 200 mm and to both round and square head cylinders with bores larger than 200 mm, thus allowing a wider range of applications.

NOTE This part of ISO 6020 allows manufacturers of hydraulic equipment flexibility in the design of 16 MPa (160 bar) cylinders and does not restrict technical development; however, it does provide basic guidelines.

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 1179-1, *Connections for general use and fluid power — Ports and stud ends with ISO 228-1 threads with elastomeric or metal-to-metal sealing — Part 1: Threaded ports*

ISO 3320:1987, *Fluid power systems and components — Cylinder bores and pistons rod diameters — Metric series*

ISO 4395, *Fluid power systems and components — Cylinders — Piston rod thread dimensions and types*

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

ISO 6099:2001, *Fluid power systems and components — Cylinders — Identification code for mounting dimensions and mounting types*

ISO 6149-1, *Connections for hydraulic fluid power and general use — Ports and stud ends with ISO 261 metric threads and O-ring sealing — Part 1: Ports with truncated housing for O-ring seal*

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*

ISO 6162-2, *Hydraulic fluid power — Flange connectors with split or one-piece flange clamps and metric or inch screws — Part 2: Flange connectors for use at pressures of 35 MPa (350 bar) to 40 MPa (400 bar), DN 13 to DN 51*

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[1] 1 bar = 0,1 MPa = 10^5 Pa; 1 MPa = 1 N/mm^2.

ISO 6164, *Hydraulic fluid power — Four-screw, one-piece square-flange connections for use at pressures of 25 MPa and 40 MPa (250 bar and 400 bar)*

ISO 8132, *Hydraulic fluid power — Single rod cylinders, 16 MPa (160 bar) medium and 25 MPa (250 bar) series — Mounting dimensions for accessories*

3 Terms and definitions

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

4 Dimensions

4.1 The mounting dimensions for cylinders manufactured in accordance with this part of ISO 6020 shall be selected from Figures 1 to 6 and Tables 1 to 6 inclusive.

4.2 The dimensions for ports and flanges shall be selected from Table 7 and the relevant International Standards cited therein.

4.3 All dimensions and mounting types in this part of ISO 6020 are labelled with codes in accordance with ISO 6099.

5 Bore sizes

This part of ISO 6020 covers the following bore sizes, expressed in millimetres, in accordance with ISO 3320:1987, Table 1:

25 — 32 — 40 — 50 — 63 — 80 — 100 — 125 — 160 — 200 — 250 — 320 — 400 — 500

6 Stroke tolerances

Tolerances on stroke shall be in accordance with Table 9.

7 Mounting types

This part of ISO 6020 includes the following mounting types, identified in accordance with ISO 6099:2001, Table 2:

a) MF 1 — Head, rectangular flange;

b) MF 2 — Cap, rectangular flange;

c) MF 3 — Head, circular flange;

d) MF 4 — Cap, circular flange;

e) MP 3 — Cap, fixed plain eye;

f) MP 4 — Cap, detachable plain eye;

g) MP 5 — Cap, fixed eye with spherical bearing;

h) MP 6 — Cap, detachable eye with spherical bearing;

i) MS 2 — Side lugs;

j) MT 4 — Intermediate fixed or movable trunnion (male).