
**Hydraulic fluid power — Dimensions and
identification code for mounting flanges
and shaft ends of displacement pumps and
motors —**

**Part 1:
Inch series shown in metric units**

*Transmissions hydrauliques — Dimensions et code d'identification des
flasques de montage et des bouts d'arbres des pompes volumétriques et
moteurs —*

Partie 1: Conversion en unités métriques de la série en inches

ISO 3019-1:2001

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Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.ch
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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 3.

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 part of ISO 3019 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 3019-1 was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 2, *Pumps, motors and integral transmissions*.

This second edition cancels and replaces the first edition (ISO 3019-1:1975), which has been technically revised.

ISO 3019 consists of the following parts, under the general title *Hydraulic fluid power — Dimensions and identification code for mounting flanges and shaft ends of displacement pumps and motors*:

— Part 1: *Inch series shown in metric units*

— Part 2: *Metric series*

Annex A forms a normative part of this part of ISO 3019.

Introduction

In hydraulic fluid power systems, power is transmitted and controlled through a liquid under pressure within an enclosed circuit. Pumps convert mechanical power into hydraulic fluid power, while motors convert hydraulic fluid power into mechanical power.

This part of ISO 3019 provides composite dimension reference and identification codes for both pumps and motors, simplified dimensional interchangeability for their flanges and shafts, and preferred sizes and dimensions for new designs.

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Hydraulic fluid power — Dimensions and identification code for mounting flanges and shaft ends of displacement pumps and motors —

Part 1: Inch series shown in metric units

1 Scope

This part of ISO 3019 specifies sizes and dimensions and establishes an identification code for the two- and four-bolt mounting flanges and the shaft ends of positive-displacement, rotary hydraulic fluid power pumps and motors. It is applicable to cylindrical keyed shaft ends with an external thread, as well as to those without a thread, to conical keyed shaft ends with an external thread and to 30° involute spline shaft ends.

NOTE Involute spline is in accordance with SAE J744 ^[1].

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of ISO 3019. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 3019 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 68-2, *ISO general purpose screw threads — Basic profile — Part 2: Inch screw threads*.

ISO 1101:—¹⁾, *Geometrical Product Specifications (GPS) — Geometrical tolerancing — Tolerances of form, orientation, location and run-out*.

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

3 Terms and definitions

For the purposes of this part of ISO 3019, the terms and definitions given in ISO 5598 apply.

1) To be published. (Revision of ISO 1101:1983)

4 Dimensions

4.1 Tolerances

Dimensions shown without tolerances are nominal.

Tolerances of form and position are shown in accordance with ISO 1101.

4.2 Selection of mounting flanges and shaft ends

Select flange and shaft dimensions for pumps and motors manufactured in accordance with this part of ISO 3019 from Figures 1 to 6 and Tables 1 to 6, inclusive.

Shaft ends according to Figure 3 and Figure 6 may be provided with a tapped hole.

4.3 Mating components

The dimensions and related tolerances of the mating components shall be compatible with the dimensions and tolerances specified in this part of ISO 3019, thus avoiding undue body strain as well as transverse loads on shafts in excess of those permitted by the pump or motor manufacturer.

5 Identification code

5.1 Mounting flanges

Use the mounting flange identification code given in Table 1 and Table 2.

The number preceding the hyphen (-) is an approximation, in millimetres, of the mounting flange pilot diameter.

The number following the hyphen is the number of mounting bolt holes in the flange.

5.2 Shaft ends

Use the shaft end identification codes shown in Tables 3 to 6.

The number preceding the hyphen is an approximation, in millimetres, of the shaft major diameter.

The number following the hyphen is arbitrarily assigned as follows:

- cylindrical keyed shaft ends without thread, -1;
- cylindrical keyed shaft ends with external thread, -2;
- conical keyed shaft ends with external thread, -3;
- 30° involute spline shaft ends, -4.

6 Flange/shaft end combinations

Use the preferred flange or shaft end combinations given in Table 7. Use other combinations only when necessary, by agreement between the purchaser and the supplier.