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

**Part 2:  
Metric series**

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

*Partie 2: Série métrique*



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Printed in Switzerland

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

This third edition cancels and replaces the second edition (ISO 3019-2:1986) and ISO 3019-3:1988, which have 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 of this part of ISO 3019 is for information only.

## 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

- a minimum number of flanges and shaft sizes to cover probable present and future requirements (short and long flange spigot options are included),
- dimensional interchangeability of flange and shaft end mountings,
- flange and spigot dimensions allowing for recommended sealing arrangements when sealing is required between a flange and its mating housing (see annex A), and
- identification codes for flanges and shaft ends that can be used separately or in combination.

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

## Part 2: Metric series

### 1 Scope

This part of ISO 3019 establishes a metric series of mounting flanges and shaft ends for positive-displacement, rotary hydraulic fluid power pumps and motors. It specifies sizes and dimensions and establishes an identification code for two- and four-bolt, and polygonal (including circular), mounting flanges, as well as for cylindrical keyed shaft ends, conical keyed shaft ends with an external thread and metric involute spline shaft ends.

NOTE Involute spline is in accordance with DIN 5480 [1]...[8].

## 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 261:1998, *ISO general-purpose metric screw threads — General plan*.

ISO 286-2:1988, *ISO system of limits and fits — Part 2: Tables of standard tolerance grades and limit deviations for holes and shafts*.

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

ISO 3912:1977, *Woodruff keys and keyways*.

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.

## 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

#### 4.2.1 General

Selection of mounting flange (4.2.2) and shaft end (4.2.3) dimensions for pumps and motors manufactured in accordance with this part of ISO 3019 shall be according to Tables 1 to 6 and Figures 1 to 6.

For the dimensions of cylindrical keyed shaft ends without internal thread, conical shaft ends with external thread and metric involute spline shaft ends, see Figures 4, 5 and 6, and Tables 7, 8 and 9, respectively.

#### 4.2.2 Mounting flanges

Select mounting flanges according to the following.

- For two-bolt mounting flanges, choose from Table 4, see Figure 1.
- For four-bolt mounting flanges, choose from Table 5, see Figure 2.
- For polygonal (including circular) mounting flanges, choose from Table 6, see Figure 3.
- Avoid, whenever possible, the non-preferred series of two- and four-bolt mounting flanges identified in Tables 1, 4 and 5.

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