

International Standard



4391

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Hydraulic fluid power — Pumps, motors and integral transmissions — Parameter definitions and letter symbols

Transmissions hydrauliques — Pompes, moteurs et variateurs — Définitions des grandeurs et lettres utilisées comme symboles

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 4391 was developed by Technical Committee ISO/TC 131, *Fluid power systems*.

This second edition was submitted directly to the ISO Council, in accordance with clause 6.11.2 of part 1 of the Directives for the technical work of ISO. It cancels and replaces the first edition (i.e. ISO 4391-1982), which had been approved by the member bodies of the following countries :

Australia	Finland	Netherlands
Austria	France	Norway
Belgium	Germany, F.R.	Poland
Bulgaria	India	Romania
Canada	Italy	Spain
Chile	Japan	Sweden
Czechoslovakia	Libyan Arab Jamahiriya	USSR

The member bodies of the following countries had expressed disapproval of the document on technical grounds :

United Kingdom
USA

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Hydraulic fluid power — Pumps, motors and integral transmissions — Parameter definitions and letter symbols

0 Introduction

In hydraulic fluid power systems, power is transmitted and controlled through a liquid under pressure within an enclosed circuit. Pumps are components which convert rotary mechanical power into fluid power. Motors are components which convert fluid power into rotary mechanical power. Transmissions convert a unidirectional variable speed shaft input to a unidirectional or bidirectional variable speed output.

1 Scope

This International Standard describes and systematically defines the principal technical characteristics of hydraulic pumps, motors and integral transmissions.

It allots letter symbols to these characteristics, and indicates how they can be more clearly defined by suffixes corresponding to particular cases. It also lists an analysis of parameter dimensions.

2 Field of application

The determination of exact descriptions with letter symbols, dimensions and definitions should create a single and unambiguous terminology for hydraulic pumps, motors and integral transmissions.

It is not yet possible to define a terminology absolutely valid in all cases concerning life, material fatigue or wear with respect to conditions of operation. This field is to be treated with reserve and should undergo precise study in each particular case.

3 References

ISO 31/0, *General principles concerning quantities, units and symbols*.

ISO 31/1, *Quantities and units of space and time*.

ISO 31/2, *Quantities and units of periodic and related phenomena*.

ISO 31/3, *Quantities and units of mechanics*.

ISO 31/4, *Quantities and units of heat*.

ISO 1219, *Fluid power systems and components — Graphic symbols*.

ISO 5598, *Fluid power systems and components — Vocabulary*.¹⁾

4 Definitions

For definitions of terms used, see ISO 5598.

5 Guidelines for the use of letter symbols and suffixes

5.1 Letter symbols

See clause 7 for letter symbols.

5.2 Suffixes for letter symbols

See clause 8 for suffixes for letter symbols.

5.3 Letter symbols and suffixes

The use of symbols is self-explanatory but in combination with suffixes a large variety of possibilities can be developed. Therefore, the following guidelines are required to avoid the creation of too many different symbol-suffix combinations for the same subject.

5.3.1 Only if necessary for clarification are letters to be placed at the top of the symbols (P, M, T) to indicate the unit to be used, i.e. when equations are to be developed and compared for pumps, motors and transmissions.

5.3.2 If two or more suffixes are required, use a comma between them.

5.3.3 First priority : 0, 1, 2

5.3.4 Second priority : 3, b, d, e, g, h, hm, i, m, s, t, v, φ

5.3.5 Third priority : c, dry, ex, f, fi, in, k, p, n

5.3.6 Fourth priority : am, aux, lc, r, st

1) At present at the stage of draft.