INTERNATIONAL STANDARD

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Quantities and units —

Part 4: Mechanics

Grandeurs et unités —

Partie 4: Mécanique

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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 80000-4 was prepared by Technical Committee ISO/TC 12, *Quantities, units, symbols, conversion factors*, in collaboration with IEC/TC 25, *Quantities and units, and their letter symbols*.

This first edition cancels and replaces the second edition of ISO 31-3:1992. The major technical changes from the previous standards are the following:

— the presentation of *numerical statements* has been changed;

— the *normative references* have been changed;

— quantities from *analytical mechanics* have been added to the list of quantities.

ISO 80000 consists of the following parts, under the general title *Quantities and units*:

— *Part 1: General*

— *Part 2: Mathematical signs and symbols for use in the natural sciences and technology*

— *Part 3: Space and time*

— *Part 4: Mechanics*

— *Part 5: Thermodynamics*

— *Part 7: Light*

— *Part 8: Acoustics*

— *Part 9: Physical chemistry and molecular physics*

— *Part 10: Atomic and nuclear physics*

— *Part 11: Characteristic numbers*

— *Part 12: Solid state physics*

IEC 80000 consists of the following parts, under the general title *Quantities and units*:

— *Part 6: Electromagnetism*

— *Part 13: Information science and technology*

— *Part 14: Telebiometrics related to human physiology*

Introduction

0.1 Arrangement of the tables

The tables of quantities and units in this International Standard are arranged so that the quantities are presented on the left-hand pages and the units on the corresponding right-hand pages.

All units between two full lines on the right-hand pages belong to the quantities between the corresponding full lines on the left-hand pages.

Where the numbering of an item has been changed in the revision of a part of ISO 31, the number in the preceding edition is shown in parentheses on the left-hand page under the new number for the quantity; a dash is used to indicate that the item in question did not appear in the preceding edition.

0.2 Tables of quantities

The names in English and in French of the most important quantities within the field of this International Standard are given together with their symbols and, in most cases, their definitions. These names and symbols are recommendations. The definitions are given for identification of the quantities in the International System of Quantities (ISQ), listed on the left-hand pages of the table; they are not intended to be complete.

The scalar, vectorial or tensorial character of quantities is pointed out, especially when this is needed for the definitions.

In most cases only one name and only one symbol for the quantity are given; where two or more names or two or more symbols are given for one quantity and no special distinction is made, they are on an equal footing. When two types of italic letters exist (for example as with ϑ and θ; φ and ϕ; *a* and a; *g* and g) only one of these is given. This does not mean that the other is not equally acceptable. It is not recommended to give such variants different meanings. A symbol within parentheses implies that it is a reserve symbol, to be used when, in a particular context, the main symbol is in use with a different meaning.

In this English edition, the quantity names in French are printed in an italic font, and are preceded by *fr*. The gender of the French name is indicated by (m) for male and (f) for female, immediately after the noun in the French name.

0.3 Tables of units

0.3.1 General

The names of units for the corresponding quantities are given together with the international symbols and the definitions. These unit names are language-dependent, but the symbols are international and the same in all languages. For further information, see the SI Brochure (7th edition 1998) from BIPM and ISO 80000-1[1)].

The units are arranged in the following way.

a) The coherent SI units are given first. The SI units have been adopted by the General Conference on Weights and Measures (Conférence Générale des Poids et Mesures, CGPM). The use of coherent SI units

1) To be published.