

Rolling bearings and spherical plain bearings — Search structure for electronic media — Characteristics and performance criteria identified by attribute vocabulary

ICS 21.100.20

National foreword

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- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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Summary of pages

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INTERNATIONAL STANDARD

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Rolling bearings and spherical plain bearings — Search structure for electronic media — Characteristics and performance criteria identified by attribute vocabulary

*Roulements et rotules lisses — Structure de recherche pour supports
électroniques — Caractéristiques et critères de performance identifiés
par un vocabulaire particulier*



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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 21107 was prepared by Technical Committee ISO/TC 4, *Rolling bearings*.

Introduction

Electronic media are used more and more when purchasing and selling products. This also applies to the rolling bearing industry, where it can be expected that a large proportion of sales will be processed via electronic media.

One potential problem when ordering bearings is that designations, especially designations for special executions and variants, differ from one bearing supplier to another. For the electronic media business there is, therefore, a need for customers and distributors to have available a system that makes it possible to identify a bearing quickly and easily when the bearing designation is not known.

This can be achieved using a computerized search structure. The user responds to specified simple questions on a computer screen about visual bearing components (dimensions, number of rolling element rows, cage, etc.) and, if needed, about performance criteria and other characteristics. Based on these input values, the computer provides possible bearing designations and other information.

In order to facilitate programming and provide the user with the same and consistent input vocabulary, independent of supplier, this International Standard provides a standardized search structure for electronic media with a vocabulary for identifying bearings, bearing components and accessories based on ISO 5593 and other ISO/TC 4 International Standards.

When creating their own search structures, some bearing manufacturers and/or distributors may decide they have a need to customize certain attributes or attribute options in order to refine the selection of the possible bearing designation(s) that will meet the purchaser's requirements. If this is done, then, where possible, it is recommended that the terminology of ISO 5593 and other appropriate ISO documents for rolling bearings be used.

SI units are used in ISO International Standards, but it is recognized that the attributes in this document can also be used for inch dimension products.

Rolling bearings and spherical plain bearings — Search structure for electronic media — Characteristics and performance criteria identified by attribute vocabulary

1 Scope

This International Standard establishes a search structure and an attribute vocabulary for identifying rolling bearings, spherical plain bearings, bearing housings and accessories, primarily with the aid of electronic media, such as the Internet.

The methodology for using this International Standard in search programs is not included.

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 reference document (including any amendments) applies.

ISO 199, *Rolling bearings — Thrust bearings — Tolerances*

ISO 492, *Rolling bearings — Radial bearings — Tolerances*

ISO 3290, *Rolling bearings — Balls — Dimensions and tolerances*

ISO 5593, *Rolling bearings — Vocabulary*

ISO 5753, *Rolling bearings — Radial internal clearance*

3 Terms and definitions

For the purposes of this document, the terms and definitions in ISO 199, ISO 492, ISO 3290, ISO 5593, ISO 5753 and the following apply.

3.1

noun

highest level of classification

3.2

modifier

sub-classification of a noun

3.3

attribute

characteristic or feature used to identify a product in detail

NOTE Product and component designations used in ISO/TC 4 International Standards have been used throughout this International Standard as the preferred choice.

4 Description and use of the search structure for electronic media

4.1 General

When Internet and other electronic media are used for ordering products, a system is needed to define a product easily and correctly, even when a product specification is not complete or is missing. This International Standard is built up to meet this requirement and makes it possible to identify dimensions, characteristics and demands on performance of rolling bearings, spherical plain bearings, bearing housings and accessories with a standardized vocabulary.

Using the Internet, for instance, a purchaser can go to the “Home page” of a bearing manufacturer or a distributor and select a search program (individually established by each bearing manufacturer or distributor, but based on this International Standard). Then, by answering given questions (with specified alternative options), obtain a list of one or more product options with designations, availability, prices, etc.

The advantage of using a standardized search structure is that the purchaser always works with the same vocabulary, independent of manufacturer, and the risk of misunderstanding and confusion is reduced. As most attributes of interest are included in the search structure, this makes programming considerably easier.

4.2 Layout of the search structure

The layout of the search criteria follows the general structure as used in the Internet environment, i.e. an XML (extensible mark-up language) specification for defining the data structure.

The data structure is built up in the way shown below and illustrated in Figure 1 and Table 1.

There are three levels of classification – noun, modifier and attribute as defined in Clause 3.

Attributes and **Attribute options** to each attribute cover the information needed to define a product and are specified in 5.1 to 5.10. These attributes and attribute options are based on typical product ranges which can be found in manufacturers' catalogues and brochures.

NOTE In the Tables 2 to 94 the **Attributes** are shown in the row below the heading “Attributes and Attribute options”, and the **Attribute options** are shown in the rows with option numbers.

Each user of this International Standard can select the applicable attributes and attribute options from this International Standard, and add further attributes and attribute options if needed. Additional attribute options, either individually or as a group, can also be included under the attribute option **Other**. In general, the attribute option “Other” is not shown in the tables, except for the attributes “Tolerance” and “Clearance” with the only attribute option “Normal”.

It is possible to identify a product on the basis of noun, modifier, attributes and attribute options.

It is important to realise that the attribute options shown in 5.1 to 5.10 illustrate possible options of each attribute. All attribute options are, however, not always needed to cover the product range of a supplier. Besides, all attribute options of one attribute can sometimes not logically be used. Taking an example from 5.2.1 Cylindrical roller bearings, a one row bearing with two outer ring ribs is selected. Then the attribute option for selecting “Inner ring with two ribs” is to be excluded, as such a bearing is not a bearing type in regular production.

For the user this is, however, not a problem when selection is made from the attribute options presented in a search program. The supplier determines the product range attribute options, and the programmer has to consider the logic in the attribute options presented, so that combinations that are not possible are excluded during the selection process.

An example of how to use the search structure is shown in Annex A.

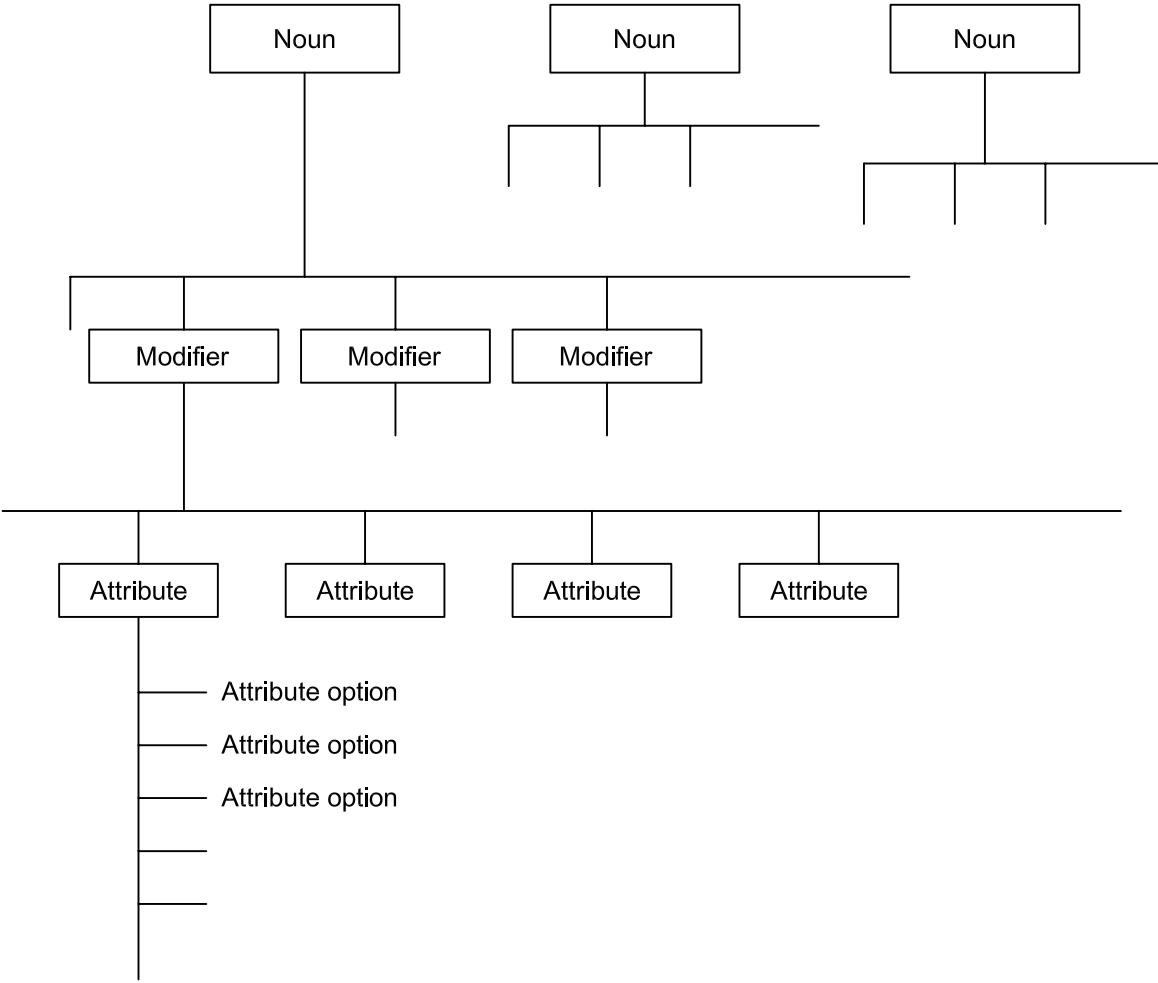


Figure 1 — Search structure

Table 1

Noun	Modifier
Ball bearing	Deep groove radial Angular contact radial Angular contact thrust Thrust Self-aligning
Roller bearing	Cylindrical radial Cylindrical thrust Needle radial Needle thrust Spherical radial Spherical thrust Tapered radial Tapered thrust
Insert bearing	Bearing only Bearing unit Housing Accessory
Combined bearing	Radial needle roller/thrust ball or Radial needle roller/thrust roller
Rolling bearing component	Ball Cylindrical roller Needle roller Thrust collar (L-shaped) Aligning seat washer (thrust ball bearing) Inner ring (special execution for needle roller bearing)
Linear bearing	^a
Bearing housing and housing accessory	Housing Accessory Housing unit
Bearing accessory	Tapered sleeve Locknut and locking device
Track roller	Yoke-type Stud-type Accessory
Plain bearing	Spherical radial Spherical thrust Rod end
^a International Standard in preparation.	

5 Search structure for electronic media

5.1 Ball bearings

5.1.1 Deep groove ball bearings

Noun: Ball bearing

Modifier: Deep groove radial

Attributes and attribute options: See Tables 2 to 5

Table 2

Options	Attributes and attribute options				
	Number of rows	Bore type	Cage	Filling slot	Relubrication feature
1	One	Cylindrical	Sheet metal	No	Without
2	Two	Tapered	Non-metallic	Yes	With
3			Machined metal		
4			Without		

Table 3

Options	Attributes and attribute options				
	Sealing	Seal type	Lubricant (in bearing)	Locating feature, bearing outside	Bore diameter
1	None	Contact	None	None	Value/Range
2	Seal on one side	Non-contact	Grease	Snap ring groove	
3	Shield on one side		Solid oil	Snap ring (fitted)	
4	Seal on both sides			Retaining notch	
5	Shield on both sides			Flange	
6	Seal on one side, shield on the other				

Table 4

Options	Attributes and attribute options				
	Outside diameter	Width	Matched arrangement	Radial internal clearance	Material/Treatment
1	Value/Range	Value/Range	No	Group N	Bearing steel
2			Face-to-face (X)	Group 2 (C2)	Stainless steel
3			Back-to-back (O)	Group 3 (C3)	Ceramic
4			Tandem	Group 4 (C4)	Hybrid
5				Group 5 (C5)	High temperature steel
6					Dimensionally stabilized
7					Coated
8					Insulated

Table 5

Options	Attributes and attribute options	
	Tolerance	Outer ring with only one raceway shoulder
1	Normal (PN)	Removable outer ring
2	Class 6 (P6)	Non-removable outer ring
3	Class 5 (P5)	
4	Class 4 (P4)	
5	Class 2 (P2)	

5.1.2 Angular contact ball bearings

Noun: Ball bearing

Modifier: Angular contact radial

Attributes and attribute options: See Tables 6 to 10.

Table 6

Options	Attributes and attribute options				
	Type	Number of rows	Arrangement of contact angle	Ring type	Cage
1	Normal contact (two-point contact)	One	Back-to-back (O)	One-piece inner and outer rings	Non-metallic
2	Four-point contact	Two	Face-to-face (X)	Two-piece inner ring	Sheet metal
3	Three-point contact			Two-piece outer ring	Machined metal
4					Without

Table 7

Options	Attributes and attribute options				
	Sealing	Seal type	Relubrication feature	Lubricant (in bearing)	Locating feature, bearing outside
1	None	Contact	Without	None	None
2	Seal on one side	Non-contact	With	Grease	Snap ring groove
3	Shield on one side			Solid oil	Snap ring (fitted)
4	Seal on both sides				Retaining notch
5	Shield on both sides				Flange
6	Seal on one side, shield on the other				