INTERNATIONAL STANDARD

ISO 3266

Second edition
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Forged steel eyebolts grade 4 for general lifting purposes

Anneaux à tige de classe 4 en acier forgé pour applications générales de levage

Reference number
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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 3266 was prepared by Technical Committee ISO/TC 111, *Round steel link chains, chain slings, components and accessories*, Subcommittee SC 3, *Components and accessories.*

This second edition cancels and replaces the first edition (ISO 3266:1984), which has been technically revised.

Introduction

This document is a type-C standard as stated in ISO 12100.

The equipment concerned as well as the extent to which hazards, hazardous situations and hazardous events are covered are indicated in the scope of this International Standard.

When provisions of this type-C standard are different from those which are stated in type-A or type-B standards, the provisions of this type-C standard take precedence over the provisions of the other standards, for equipment that have been designed and built according to the provisions of this type-C standard.

Forged steel eyebolts grade 4 for general lifting purposes

1 Scope

This International Standard specifies the general characteristics, performance and critical dimensions necessary for interchangeability and compatibility with other components, of forged steel eyebolts grade 4 for general lifting purposes. These eyebolts can be used for axial and inclined loading.

This International Standard specifies the dimensions of the eyes of eyebolts permitting direct connection with shackles of the same working load limit as those defined in ISO 2415. These dimensions also allow designs with a larger eye which can permit direct connection with sling hooks of similar working load limit.

This International Standard covers all significant hazards, hazardous situations and events relevant to eyebolts grade 4 as defined in Clause 4.

This International Standard is applicable to eyebolts grade 4 for use in the temperature range of −20 °C to 200 °C.

This International Standard is not applicable to eyebolts which are not forged in one piece.

This International Standard is not applicable to forged steel eyebolts grade 4 manufactured before the date of its publication as an International Standard.

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 referenced document (including any amendments) applies.

ISO 148-1, *Metallic materials — Charpy pendulum impact test — Part 1: Test method*

ISO 148-2, *Metallic materials — Charpy pendulum impact test — Part 2: Verification of testing machines*

ISO 261, *ISO general purpose screw threads — General plan*

ISO 643, *Steels — Micrographic determination of the apparent grain size*

ISO 965-1, *ISO general purpose metric screw threads — Tolerances — Part 1: Principles and basic data*

ISO 6506-1, *Metallic materials — Brinell hardness test — Part 1: Test method*

ISO 6508-1, *Metallic materials — Rockwell hardness test — Part 1: Test method (scales A, B, C, D, E, F, G, H, K, N, T)*

ISO 7500-1:2004, *Metallic materials — Verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Verification and calibration of the force-measuring system*

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

EN 10228-1, *Non-destructive testing of steel forgings — Part 1: Magnetic particle inspection*

EN 10228-2, *Non-destructive testing of steel forgings — Part 2: Penetrant testing*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
nominal size
thread size
size related to the nominal diameter of the thread, d, of an eyebolt

3.2
working load limit
WLL
maximum mass that an eyebolt is authorized to sustain along its centreline axis in general lifting service

3.3
traceability code
series of letters and/or numbers marked on an eyebolt that enables its manufacturing history, including the identity of the cast of steel used, to be traced

3.4
proof force
force applied to the eyebolt during the manufacturing proof test

3.5
breaking force
maximum force reached during the static tensile test of the eyebolt at which the eyebolt fails to retain the load

3.6
axial loading
F_a
loading along the centreline axis of the eyebolt

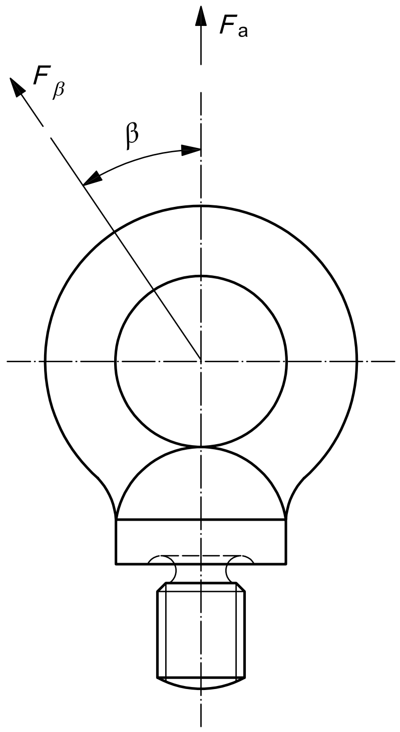
See Figure 1.

3.7
inclined loading
F_β
loading at an angle β to the centreline axis

See Figure 1.

3.8
lot
specified number of eyebolts from which samples are selected for testing purposes and which have been manufactured from the same cast of steel and subjected to the same heat treatment

NOTE Adapted from ISO 8539:2009, definition 3.6.



Key

F_a axial loading

F_β inclined loading

β inclined loading angle

Figure 1 — Axial and inclined loading of an eyebolt

4 List of significant hazards

This clause contains all the significant hazards, risk areas and hazardous situations and events as far as they are dealt with in this International Standard, identified by risk assessment as significant according to ISO 14121-1 for this type of machinery and which require action to eliminate or reduce the risk. See Table 1.

Table 1 — Hazards and associated requirements

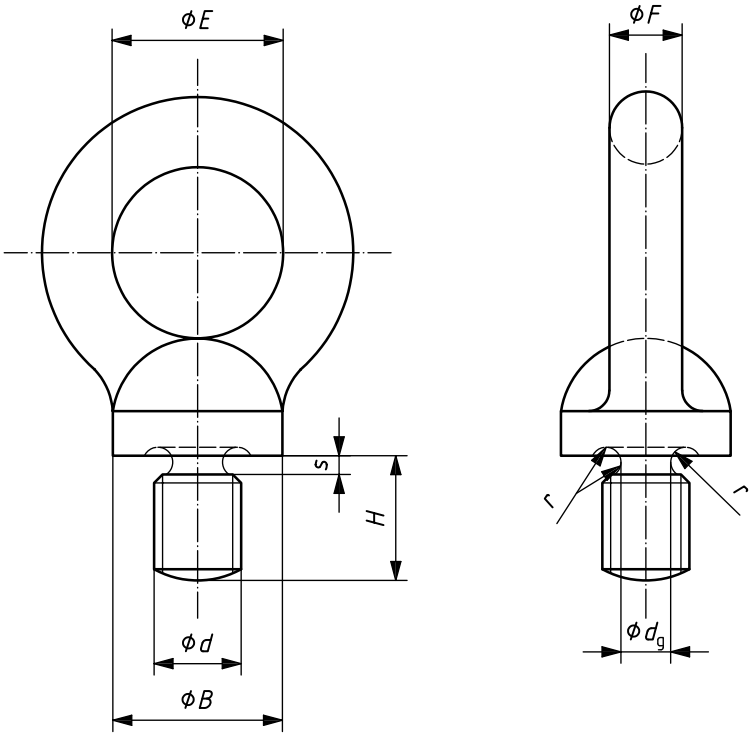
Hazards identified in Annex A of ISO 14121-1:2007	Causes of failure	Relevant clause of this International Standard
Injury or death due to being hit by a falling load arising from failure of the eyebolt from the following causes:	Inadequate strength and toughness	7 8 9 10 11 12 13
	Dimensional incompatibility and errors of fitting	5 6 7 14
	Incorrect selection	14 15 16 Annex A
	Inadequate information for use	14 16

5 Dimensions and tolerances

The dimensions of the eyebolt shall conform to the requirements of Figure 2 and Table 2.

A positive local deviation of roundness of +5 % is permitted in respect of the internal diameter, E.

A tolerance of symmetry of 5 % on the diameter, F, is permitted.



Key

B	diameter of collar
d	nominal thread diameter
d_g	shank diameter
E	internal diameter of the eye
F	diameter of cross section of the eye
H	height from underside of collar to end of threaded shank
r	radius of under cut and thread run-out
s	distance from underside of collar to the first thread

Figure 2 — Dimensions of eyebolts