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Stainless steel bars for the reinforcement of concrete

Barres en ~~acier inoxydable~~**aciers inoxydables** pour ~~le renforcement~~**l'armature** du béton

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee Technical Committee ISO/TC-17, Steel, Subcommittee SC-16, *Steels for the reinforcement and prestressing of concrete*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Field Code Changed

Field Code Changed

Stainless steel bars for the reinforcement of concrete

1 Scope

This document specifies technical requirements for hot rolled stainless steel plain bars and ribbed bars used as reinforcement in concrete.

It is applicable to steel delivered in the form of bars, coils and de-coiled products. It does not apply to ribbed bars produced from finished products

The production process is at the discretion of the manufacturer.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 ~~404148-1~~, *Metallic materials — Charpy pendulum impact test — Part 1: Test method*

ISO 6935-1, *Steel and steel products — General technical delivery requirements for the reinforcement of concrete — Part 1: Plain bars*

ISO 6935-2, *Steel for the reinforcement of concrete — Part 2: Ribbed bars*

ISO 14284, *Steel and iron — Sampling and preparation of samples for the determination of chemical composition*

ISO 6935-1, *Steel for the reinforcement of concrete — Part 1: Plain bars*

ISO 6935-2, *Steel for the reinforcement of concrete — Part 2: Ribbed bars*

ISO 15510, *Stainless steels — Chemical composition*

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

ISO 15630-1, *Steel for the reinforcement and prestressing of concrete — Test methods — Part 1: Reinforcing bars, rods and wire*

EN 196-1, *Methods of testing cement — Part 1: Determination of strength*

EN 197-1, *Cement — Part 1: Composition, specifications and conformity criteria for common cements*

4.3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 6935-1, ISO 6935-2, ISO 15510 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

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- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

stainless steel bars

stainless steel bars with at least 10,5 % (mass fraction) of chromium and max. 1,2 % (mass fraction) of carbon.

5.4 Symbols

Symbol	Unit	Description
A	%	Percentage elongation after fracture
A_{gt}	%	Percentage total extension at maximum force
S_0	mm ²	Nominal cross-sectional area
d	mm	Nominal diameter of the bar
R_m	MPa ^a	Tensile strength
$R_{p0,2}$	MPa ^a	0,2 % proof strength, plastic extension
$R_{7,0}$	MPa ^a	7,0 % proof strength, plastic extension

^a 1 MPa = 1 N/mm².

6.5 Dimensions, mass per unit length and permissible deviations

Dimensions are given in [Table 1](#), mass per unit length and permissible deviations are given in [Table 2](#), [Table 3](#) and [Table 4](#). By agreement between the manufacturer and the purchaser, the following options shall be applied:

- Ribbed bars and plain bars for which the nominal diameters are other than those shown in [Table 2](#) may be used. The permissible deviation of nominal diameters larger than 50 mm shall be ± 4 %.
- The permissible deviation on mass per length of plain bars may be replaced by tolerances on diameters.

A list of options for agreement between the manufacturer and the purchaser is provided in [Annex B](#).

Table 1.— Dimensions

Nominal bar diameter d mm		Nominal cross-sectional area ^a S_0 mm ²
Ribbed bars	Plain bars	
6	6	28,3
8	8	50,3
10	10	78,5

Nominal bar diameter d mm		Nominal cross-sectional area ^a S_0 mm ²
Ribbed bars	Plain bars	
12	12	113
14	14	154
16	16	201
20	20	314
	22	380
25	-	491
28	-	616
32	-	804
40	-	1 257
50	-	1 964

^a $S_0 = 0,785 4 \times d^2$.

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