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Steel for the prestressing of concrete —

Part 1:
General requirements

Acier pour armatures de précontrainte —
Partie 1: Spécifications générales

Reference number
ISO 6934-1:1991(E)

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.

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.

International Standard ISO 6934-1 was prepared by Technical Committee ISO/TC 17, *Steel*.

ISO 6934 consists of the following parts, under the general title *Steel for the prestressing of concrete*:

— *Part 1: General requirements*

— *Part 2: Cold-drawn wire*

— *Part 3: Quenched and tempered wire*

— *Part 4: Strand*

— *Part 5: Hot-rolled steel bars with or without subsequent processing*

Annex A forms an integral part of this part of ISO 6934. Annexes B and C are for information only.

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Steel for the prestressing of concrete —

Part 1:
General requirements

1 Scope

1.1 ISO 6934 specifies requirements for high tensile strength steel to be used in prestressed concrete. It applies only to material in the condition as supplied by the manufacturer. It does not cover requirements for materials and anchorage devices used in conjunction with the prestressing steel in structural components.

1.2 The specific properties for each type of prestressing steel are given in ISO 6934-2 to ISO 6934-5.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 6934. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 6934 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 1099:1975, *Metals — Axial load fatigue testing.*

ISO 6892:1984, *Metallic materials — Tensile testing.*

ISO 7801:1984, *Metallic materials — Wire — Reverse bend test.*

ISO 10065:1990, *Steel bars for reinforcement of concrete — Bend and rebend tests.*

3 Definitions

For the purposes of this part of ISO 6934, the following definitions apply.

3.1 cast analysis: Chemical analysis of a sample of the molten steel during casting.

3.2 characteristic value: Value having a prescribed probability of not being attained in a hypothetical unlimited test series. [ISO 8930]

NOTE 1 Equivalent to fractile, which is defined in ISO 3534.

3.3 nominal cross-sectional area: The cross-sectional area equivalent to the area of a circular plain bar of nominal diameter.

3.4 relaxation: Time-dependent stress loss for a constant length. Relaxation is stated as a percentage of the initial stress applied to the steel.

4 Manufacturing process

Steel according to ISO 6934 may be made by any process except the air or mixed air/oxygen bottom blown processes.

5 Types of prestressing steel

5.1 Cold-drawn wire

A solid product obtained from a rod by cold working through dies or rollers. The product is supplied in coils of diameter approximately equal to that of the wiredrawing machine capstan (mill coils) or in larger diameter coils of straightened wire.

The wire is defined by its surface configuration (5.1.1 to 5.1.4) and method of treatment (5.1.5 and 5.1.6).

5.1.1 plain wire: Wire with a surface as obtained in the drawing die. The wire has a constant nominal