
Heat-resistant cast steels and alloys for general applications

*Aciers et alliages moulés réfractaires destinés à des applications
générales*



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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

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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 documents 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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC17, *Steel*, Subcommittee SC11, *Steel castings*.

This second edition cancels and replaces the first edition (ISO 11973:1999), which has been technically revised with the following changes:

- [Clause 8](#) revised;
- [Table 1](#) composition limits modified — various grades;
- [Tables 1](#) and [2](#) — grade number added;
- [Annex A](#) added.

Heat-resistant cast steels and alloys for general applications

1 Scope

This International Standard specifies chemical composition and mechanical properties of cast steels and alloys for heat-resistant service.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4990, *Steel castings — General technical delivery requirements*

3 General conditions for delivery

Materials furnished in conformity with this International Standard shall conform to the applicable requirements of ISO 4990 including the supplementary requirements that are indicated on the enquiry and purchase order.

4 Heat treatment

GX40CrSi13, GX40CrSi17, GX30CrSi7, GX40CrSi24, GX40CrSi28, and GX130CrSi29 may be annealed at a temperature of 800 °C to 850 °C. If required, GX30CrSi7 may also be supplied in the as-cast condition. Other grades produced according to this International Standard do not require heat treatment. If heat treatment is required, the treatment should be established by agreement between the manufacturer and the purchaser, and should be specified in the purchase contract.

5 Chemical composition

The chemical composition of the alloys shall comply with the values given in [Table 1](#).

6 Mechanical properties

Mechanical testing at room temperature shall be performed when agreed upon between the manufacturer and purchaser in which case the material shall conform to the requirements listed in [Table 2](#).

7 Maximum use temperature

Limited information on maximum use temperatures are included in [Table 2](#). These values are intended to allow comparison of grades. The actual conditions of service must be considered when selecting a grade including the composition of the environment and service mechanical loading.

8 Supplementary requirements

A list of standardized supplementary requirements for use on the option of the purchaser is included in ISO 4990. Others, whether or not in ISO 4990, may be used with this specification upon agreement between the manufacturer and the purchaser.