



**International  
Standard**

**ISO 18819**

**Ships and marine technology —  
High-manganese austenitic steel —  
Specification for plates, sheets and  
coils below 6,0 mm for cryogenic  
temperature**

*Navires et technologie maritime — Acier austénitique à haute teneur en manganèse — Spécifications applicables aux tôles, feuilles et bobines d'épaisseur inférieure à 6,0 mm pour service à température cryogénique*

**First edition  
2026-03**

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Published in Switzerland

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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](http://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](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee TC 8, *Ships and marine technology*, Subcommittee SC 4, *Outfitting and deck machinery*.

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](http://www.iso.org/members.html).

## Introduction

The newly developed, high-manganese austenitic steel is expected to possess mechanical properties including Charpy impact energy values comparable to those materials for cryogenic service listed in both the IGC Code<sup>[1]</sup> and IGF Code.<sup>[2]</sup> Consequently, high-manganese steel is intended to satisfy the strength requirements of the structure of cargo tanks, fuel tanks and piping systems.

In addition, upon agreement with a purchaser, this document can be applied to piping systems for liquefied hydrogen.

This document provides a standard specification of high-manganese austenitic steel plate, sheet, strip and coil for material manufacturers, ship owners, ship yards and shipping companies with regard to producing, purchasing and using such materials.



# Ships and marine technology — High-manganese austenitic steel — Specification for plates, sheets and coils below 6,0 mm for cryogenic temperature

## 1 Scope

This document specifies the delivery conditions for high-manganese austenitic steel in the form of hot rolled or cold rolled plates, sheets, and coils for low temperature purposes.

This document covers all product types with a thickness below 6,0 mm. Refer to ISO 23430 for specifications on high manganese-austenitic steel thin strips.

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

ISO 2566-1, *Steel — Conversion of elongation values — Part 1: Carbon and low-alloy steels*

ISO 6892-1, *Metallic materials — Tensile testing — Part 1: Method of test at room temperature*

ISO 10474, *Steel and steel products — Inspection documents*

ISO 16160, *Hot-rolled steel sheet products — Dimensional and shape tolerances*

ISO 16162, *Cold-rolled steel sheet products — Dimensional and shape tolerances*

EN 10048, *Hot rolled narrow steel strip — Tolerances on dimensions and shape*

EN 10140, *Cold rolled narrow steel strip — Tolerances on dimensions and shape*

## 3 Terms and definitions

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

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

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

### 3.1

#### **coil**

long continuous *sheet* (3.5) of steel that has been coiled into a coil form

### 3.2

#### **design temperature**

minimum temperature for the selection of materials at which cargo or fuel can be loaded or transported in the cargo or fuel tanks