

STN	Obalené elektródy na ručné oblúkové zváranie nehrdzavejúcich a žiaruvzdorných ocelí Klasifikácia (ISO 3581: 2023)	STN EN ISO 3581 05 5101
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Welding consumables - Covered electrodes for manual metal arc welding of stainless and heat-resisting steels - Classification (ISO 3581:2023)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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EUROPEAN STANDARD

EN ISO 3581

NORME EUROPÉENNE

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Welding consumables - Covered electrodes for manual metal arc welding of stainless and heat-resisting steels - Classification (ISO 3581:2023)

Produits consommables pour le soudage - Électrodes enrobées pour le soudage manuel à l'arc des aciers inoxydables et résistant aux températures élevées - Classification (ISO 3581:2023)

Schweißzusätze - Umhüllte Stabelektroden zum Lichtbogenhandschweißen von nichtrostenden und hitzebeständigen Stählen - Einteilung (ISO 3581:2023)

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN ISO 3581:2023 (E)

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European foreword

This document (EN ISO 3581:2023) has been prepared by Technical Committee ISO/TC 44 "Welding and allied processes" in collaboration with Technical Committee CEN/TC 121 "Welding and allied processes" the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by February 2024, and conflicting national standards shall be withdrawn at the latest by February 2024.

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Endorsement notice

The text of ISO 3581:2023 has been approved by CEN as EN ISO 3581:2023 without any modification.

INTERNATIONAL STANDARD

ISO 3581

Fourth edition
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Welding consumables — Covered electrodes for manual metal arc welding of stainless and heat-resisting steels — Classification

*Produits consommables pour le soudage — Électrodes enrobées pour
le soudage manuel à l'arc des aciers inoxydables et résistant aux
températures élevées — Classification*



Reference number
ISO 3581:2023(E)

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: 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 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 ISO/TC 44, *Welding and allied processes*, Subcommittee SC 3, *Welding consumables*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 121, *Welding and allied processes*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fourth edition cancels and replaces the third edition (ISO 3581:2016), which has been technically revised.

The main changes are as follows:

- the document has been updated in accordance with the drafting guidelines laid out in the ISO House Style;
- the dates of normative references have been updated to show their latest editions;
- a new [Clause 3](#) (Terms and definitions) has been added in accordance with the standard structure of ISO documents;
- “weld metal recovery” now reads “nominal electrode efficiency” throughout, in accordance with ISO 2401;
- a new [Table 2](#) has been added listing classification systems;
- new alloys have been added to [Table 3](#) (formerly Table 2) and associated clauses of the document;
- the chemical compositions of several alloys have been updated in [Table 3](#) (formerly Table 2);
- certain alloys have been reclassified in [Table 3](#) (formerly Table 2);
- a new footnote was added to [Table 3](#) (formerly Table 2) regarding Co content;

— the wording of [Clause 9](#) (formerly Clause 8) has been updated.

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. Official interpretations of ISO/TC 44 documents, where they exist, are available from this page: <https://committee.iso.org/sites/tc44/home/interpretation.html>.

ISO 3581:2023(E)

Introduction

This document provides a classification system for covered electrodes for manual metal arc welding of stainless and heat-resisting steels in terms of chemical composition of deposited weld metal and type of electrode covering. Other properties of the electrodes are specified by reference to tables.

This document recognizes that there are two somewhat different approaches in the global market for classifying a given covered electrode for arc welding of stainless steel. It allows for either or both to be used to suit a particular need. Application of either (or both) type(s) of classification designation identifies a product as classified according to this document. It is important to note that the two systems are not exactly equivalent; therefore, each system is to be used independently of the other, without combining designators in any way.

The classification according to nominal composition (system A) is mainly based on EN 1600. The classification according to alloy type (system B) is mainly based on standards used around the Pacific Rim.

Welding consumables — Covered electrodes for manual metal arc welding of stainless and heat-resisting steels — Classification

1 Scope

This document specifies requirements for classification of covered electrodes, based on the all-weld metal chemical composition, the type of electrode covering and other electrode properties, and the all-weld metal mechanical properties, in the as-welded or heat-treated conditions, for manual metal arc welding of stainless and heat-resisting steels.

This document is a combined standard providing for classification utilizing a system based upon classification according to nominal composition or utilizing a system based upon classification according to alloy type.

- a) Paragraphs and tables which carry the label “classification according to nominal composition-A” or “ISO 3581-A” are applicable only to products classified to that system.
- b) Paragraphs and tables which carry the label “classification according to alloy type-B” or “ISO 3581-B” are applicable only to products classified to that system.
- c) Paragraphs and tables which carry neither label are applicable to products classified according to either or both systems.

[Annex B](#) gives information on considerations on weld metal ferrite content.

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 544, *Welding consumables — Technical delivery conditions for filler materials and fluxes — Type of product, dimensions, tolerances and markings*

ISO 6847, *Welding consumables — Deposition of a weld metal pad for chemical analysis*

ISO 14344, *Welding consumables — Procurement of filler materials and fluxes*

ISO 15792-1:2020, *Welding consumables — Test methods — Part 1: Preparation of all-weld metal test pieces and specimens in steel, nickel and nickel alloys*

ISO 15792-3, *Welding consumables — Test methods — Part 3: Classification testing of positional capacity and root penetration of welding consumables in a fillet weld*

ISO 80000-1:2022, *Quantities and units — Part 1: General*

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