



SLOVENSKI STANDARD

oSIST prEN ISO 14341:2019

01-december-2019

[Not translated]

Welding consumables - Wire electrodes and weld deposits for gas shielded metal arc welding of non alloy and fine grain steels - Classification (ISO/DIS 14341:2019)

Schweißzusätze - Drahtelektroden und Schweißgut zum Metall-Schutzgasschweißen von unlegierten Stählen und Feinkornstählen - Einteilung (ISO/DIS 14341:2019)

Produits consommables pour le soudage - Fils-électrodes et métaux d'apport déposés en soudage à l'arc sous protection gazeuse des aciers non alliés et à grains fins - Classification (ISO/DIS 14341:2019)

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25.160.20 Potrošni material pri varjenju Welding consumables

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Welding consumables — Wire electrodes and weld deposits for gas shielded metal arc welding of non alloy and fine grain steels — Classification

Produits consommables pour le soudage — Fils-électrodes et métaux d'apport déposés en soudage à l'arc sous protection gazeuse des aciers non alliés et à grains fins — Classification

ICS: 25.160.20

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ISO/DIS 14341:2019 (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.

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).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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*.

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

This third edition cancels and replaces the third edition (ISO 14341:2010), which has been technically revised.

The main changes compared to the previous edition are as follows:

— To be added before publication

Introduction

This document recognizes that there are two somewhat different approaches in the global market to classifying a given wire electrode, and allows for either or both to be used, to suit a particular market need. Application of either type of classification designation (or both where suitable) identifies a product as classified in accordance with this document.

This document provides a classification in order to designate wire electrodes in terms of their chemical composition and, where required, in terms of the yield strength, tensile strength and elongation of the all-weld metal. The ratio of yield strength to tensile strength of weld metal is generally higher than that of parent metal. Users should note that matching weld metal yield strength to parent metal yield strength does not necessarily ensure that the weld metal tensile strength matches that of the parent material. Therefore, where the application requires matching tensile strength, selection of the consumable should be made by reference to column 3 of Table 1A or 1B.

It should be noted that the mechanical properties of all-weld metal test specimens used to classify the electrodes vary from those obtained in production joints because of differences in welding procedures such as electrode size, width of weave, welding position and material composition.

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Welding consumables — Wire electrodes and weld deposits for gas shielded metal arc welding of non alloy and fine grain steels — Classification

1 Scope

This document specifies requirements for classification of wire electrodes and weld deposits in the as-welded condition and in the post-weld heat-treated condition for gas shielded metal arc welding of non alloy and fine grain steels with a minimum yield strength of up to 500 MPa or a minimum tensile strength of up to 570 MPa. One wire electrode can be tested and classified with different shielding gases.

This document constitutes a combined specification providing classification utilizing a system based upon the yield strength and the average impact energy of 47 J of all-weld metal, or utilizing a system based upon the tensile strength and the average impact energy of 27 J of all-weld metal.

- a) Clauses and tables which carry the suffix letter “A” are applicable only to wire electrodes classified to the system based upon the yield strength and the average impact energy of 47 J of all-weld metal in accordance with this document.
- b) Clauses and tables which carry the suffix letter “B” are applicable only to wire electrodes classified to the system based upon the tensile strength and the average impact energy of 27 J of all-weld metal in accordance with this document.
- c) Clauses and tables which have neither the suffix letter “A” nor the suffix letter “B” are applicable to all wire electrodes classified in accordance with this document.

2 Normative references

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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 13916, *Welding — Measurement of preheating temperature, interpass temperature and preheat maintenance temperature*

ISO 14175:2008, *Welding consumables — Gases and gas mixtures for fusion welding and allied processes*

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

ISO 15792-1:2000, *Welding consumables — Test methods — Part 1: Test methods for all-weld metal test specimens in steel, nickel and nickel alloys*. Amended by ISO 15792-1:2000/Amd 1:2011

ISO 80000-1:2009, *Quantities and units — Part 1: General*. Corrected by ISO 80000-1:2009/Cor 1:2011

3 Terms and definitions

No terms and definitions are listed in this document.

ISO/DIS 14341:2019 (E)

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

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

4 Classification

Classification designations are based upon two approaches to indicate the tensile properties and the impact properties of the all-weld metal obtained with a given electrode. The two designation approaches include additional designators for some other classification requirements, but not all, as will be clear from the following subclauses. In most cases, a given commercial product can be classified in both systems. Then either or both classification designations can be used for the product.

A wire electrode shall be classified according to its chemical composition as in Table 3A or Table 3B. A weld deposit shall be classified with additional symbols according to the mechanical properties of its all-weld metal, using a shielding gas from a specific group.

4A Classification by yield strength and 47 J impact energy

The classification is divided into five parts:

- 1) the first part gives a symbol indicating the product/process to be identified;
- 2) the second part gives a symbol indicating the strength and elongation of the all-weld metal (see Table 1A);
- 3) the third part gives a symbol indicating the impact properties of the all-weld metal (see Table 2);
- 4) the fourth part gives a symbol indicating the shielding gas used (see 5.4);
- 5) the fifth part gives a symbol indicating the chemical composition of the wire electrode used (see Table 3A).

4B Classification by tensile strength and 27 J impact energy

The classification is divided into five parts:

- 1) the first part gives a symbol indicating the product/process to be identified;
- 2) the second part gives a symbol indicating the strength and elongation of the all-weld metal in either the as-welded or post-weld heat-treated condition (see Table 1B);
- 3) the third part gives a symbol indicating the impact properties of the all-weld metal in the same condition as specified for the tensile strength (see Table 2). The letter U after this symbol indicates that the deposit meets an average optional requirement of 47 J at the designated Charpy test temperature;
- 4) the fourth part gives a symbol indicating the shielding gas used (see 5.4);
- 5) the fifth part gives a symbol indicating the chemical composition of the wire electrode used (see Table 3B).

5 Symbols and requirements**5.1 Symbol for product/process**

The symbol for a weld deposit produced by gas shielded metal arc welding shall be the letter G placed at the beginning of the designation.