



SLOVENSKI STANDARD
oSIST prEN ISO 636:2024
01-april-2024

Dodajni in pomožni materiali za varjenje - Palice, žice in čisti vari pri varjenju nelegiranih in drobnozrnatih jekel po postopku TIG - Razvrstitev (ISO/DIS 636:2024)

Welding consumables - Rods, wires and deposits for tungsten inert gas welding of non-alloy and fine-grain steels - Classification (ISO/DIS 636:2024)

Schweißzusätze - Stäbe, Drähte und Schweißgut zum Wolfram-Inertgasschweißen von unlegierten Stählen und Feinkornstählen - Einteilung (ISO/DIS 636:2024)

Produits consommables pour le soudage - Baguettes, fils et dépôts pour soudage TIG des aciers non alliés et des aciers à grains fins - Classification (ISO/DIS 636:2024)

Ta slovenski standard je istoveten z: prEN ISO 636

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25.160.20 Potrošni material pri varjenju Welding consumables

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ISO/DIS 636

Welding consumables — Rods, wires and deposits for tungsten inert gas welding of non-alloy and fine-grain steels — Classification

*Produits consommables pour le soudage — Baguettes et fils pour
dépôts par soudage TIG des aciers non alliés et des aciers à grains
fins — Classification*

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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).

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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 sixth edition cancels and replaces the fifth edition (ISO 636:2017), which has been technically revised.

The main changes are as follows:

— to be added after DIS ballot

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>.

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Introduction

This document provides a classification for the designation of rods and wires 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 to tensile strength of weld metal is generally higher than that of parent metal. Matching weld metal yield strength to parent metal yield strength will not necessarily ensure that the weld metal tensile strength matches that of the parent material.

Where the application requires matching tensile strengths, selection of consumables is made by reference to columns 3 and 7 of [Table 2](#).

Of note is that the mechanical properties of all-weld metal test specimens used to classify the rods and wires vary from those obtained in production joints because of differences in welding procedure such as diameter, width of weave, welding position, and material composition.

The classification according to system A is mainly based on EN 1668:1997.^[1] The classification according to system B is mainly based upon standards used around the Pacific Rim.

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Welding consumables — Rods, wires and deposits for tungsten inert gas welding of non-alloy and fine-grain steels — Classification

1 Scope

This document specifies requirements for classification of rods, wires and deposits in the as-welded condition and in the post-weld heat-treated condition for tungsten inert gas 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.

This document is 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) Components which carry the suffix letter “A” are applicable only to rods, wires and deposits 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) Components which carry the suffix letter “B” are applicable only to rods, wires and deposits 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) Components which have neither the suffix letter “A” nor the suffix letter “B” are applicable to all rods, wires and deposits classified in accordance with this document.

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 13916, *Welding — Guidance on the measurement of preheating temperature, interpass temperature and preheat maintenance temperature*

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

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

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

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

3 Terms and definitions

No terms and definitions are listed in this document.

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>

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— IEC Electropedia: available at <https://www.electropedia.org/>

4 Classification

4.1 General

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

Rods or wires shall be classified according to their chemical composition in accordance with [Table 4](#).

Deposits shall be classified in accordance with the chemical composition of the wire or rod used in accordance with [Table 4](#) and the mechanical properties of the all-weld metal deposit in accordance with system A or B in [Table 2](#) and [Table 3](#).

4.1.1 Classification systems

Each classification system, A and B, is split into four parts as given in [Table 1](#).

Table 1 — Parts of the classification systems, A and B

Part of classification designation	Classification system	
	A Classification by yield strength and 47 J impact energy	B Classification by tensile strength and 27 J impact energy
1	symbol indicating the product/process to be identified.	
2	symbol indicating the strength and elongation of the all-weld metal (see Table 2)	symbol indicating the strength and elongation of the all-weld metal in either the as-welded or post-weld heat-treated condition (see Table 2).
3	symbol indicating the impact properties of all-weld metal (see Table 3).	symbol indicating the impact properties of all-weld metal in the same condition as specified for the tensile strength (see Table 3). The letter "U" after this designator indicates that the deposit meets an average 4 optional requirement of 47 J at the designated Charpy test temperature.
4	symbol indicating the chemical composition of the rods or wires used (See A or B in Table 4).	

5 Symbols and requirements

5.1 Symbol for the product/process

The symbol of weld deposit by the tungsten inert gas welding process shall be the letter "W" placed at the beginning of the designation.

The symbol of rods or wires for the tungsten inert gas welding shall be the letter "W" placed at the beginning of the rod or wire designation.

5.2 Symbol for strength and elongation of all-weld metal

See [Table 2](#).