



International Standard

ISO 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, fils et
dépôts pour soudage TIG des aciers non alliés et des aciers à
grains fins — Classification*

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Foreword

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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:

- document has been reformatted in single column format;
- dated references have been updated to current editions;
- text added to [4.1](#) and [Table 8](#) regarding differences in mechanical properties;
- chemical compositions have been updated for some classifications;
- five new classifications have been added to system B;
- footnote for boron added to [Table 4](#);
- table footnotes have been revised for clarity;
- requirements in [Table 5](#) have been aligned with other standards;
- information on preheating and interpass temperatures has been revised in [Table 6](#);
- [Clause 7](#) was revised to clarify the effect of chemical elements that do not change during production;
- examples in [Clause 11](#) have been revised and examples have been added.

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ISO 636:2024(en)

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

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 the 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.