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Standards

Irish Standard  
I.S. EN ISO 18275:2012

# Welding consumables - Covered electrodes for manual metal arc welding of high-strength steels - Classification (ISO 18275:2011)

## I.S. EN ISO 18275:2012

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EUROPEAN STANDARD

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**Welding consumables - Covered electrodes for manual metal  
arc welding of high-strength steels - Classification (ISO  
18275:2011)**

Produits consommables pour le soudage - Électrodes  
enrobées pour le soudage manuel à l'arc des aciers à  
haute résistance - Classification (ISO 18275:2011)

Schweißzusätze - Umhüllte Stabelektroden zum  
Lichtbogenhandschweißen von hochfesten Stählen -  
Einteilung (ISO 18275:2011)

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## **Foreword**

The text of ISO 18275:2011 has been prepared by Technical Committee ISO/TC 44 “Welding and allied processes” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 18275:2012 by Technical Committee CEN/TC 121 “Welding” 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of an identical text or by endorsement, at the latest by November 2012, and conflicting national standards shall be withdrawn at the latest by November 2012.

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### **Endorsement notice**

The text of ISO 18275:2011 has been approved by CEN as a EN ISO 18275:2012 without any modification.

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STANDARD**

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**Welding consumables — Covered  
electrodes for manual metal arc welding  
of high-strength steels — Classification**

*Produits consommables pour le soudage — Électrodes enrobées pour  
le soudage manuel à l'arc des aciers à haute résistance —  
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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

ISO 18275 was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 3, *Welding consumables*.

This second edition cancels and replaces the first edition (ISO 18275:2005), of which it constitutes a technical revision. It also incorporates Technical Corrigendum ISO 18275:2005/Cor.1:2007.

Requests for official interpretations of any aspect of this International Standard should be directed to the Secretariat of ISO/TC 44/SC 3 via your national standards body. A complete listing of these bodies can be found at [www.iso.org](http://www.iso.org).

## **Introduction**

This International Standard recognizes that there are two somewhat different approaches in the global market to classifying a given electrode, and allows for either or both to be used, to suit a particular market need. Application of either type of classification designation (or of both, where suitable) identifies a product as classified in accordance with this International Standard. The classification in accordance with system A is mainly based on EN 757:1997<sup>[1]</sup>. The classification in accordance with system B is mainly based upon standards used around the Pacific Rim.

This International Standard provides a classification system for covered electrodes for high-strength steels in terms of the tensile properties, impact properties and chemical composition of the all-weld metal, as well as the type of electrode covering. 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 metal. Therefore, where the application requires matching tensile strength, selection of the consumable should be made by reference to column 3 of Table 1A or column 2 of Table 8B.

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

**I.S. EN ISO 18275:2012**

# Welding consumables — Covered electrodes for manual metal arc welding of high-strength steels — Classification

## 1 Scope

This International Standard specifies requirements for classification of covered electrodes and deposited metal in the as-welded condition and in the post-weld heat-treated condition for manual metal arc welding of high-strength steels with a minimum yield strength greater than 500 MPa or a minimum tensile strength greater than 570 MPa.

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

- a) Subclauses and tables which carry the suffix letter “A” are applicable only to covered electrodes classified under the system based upon the yield strength and an average impact energy of 47 J of the all-weld metal given in this International Standard.
- b) Subclauses and tables which carry the suffix letter “B” are applicable only to covered electrodes classified under the system based upon the tensile strength and an average impact energy of 27 J of the all-weld metal given in this International Standard.
- c) Subclauses and tables which do not have either the suffix letter “A” or the suffix letter “B” are applicable to all covered electrodes classified under this International Standard.

## 2 Normative references

The following referenced documents are indispensable for the application 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 2401, *Covered electrodes — Determination of the efficiency, metal recovery and deposition coefficient*

ISO 2560:2009, *Welding consumables — Covered electrodes for manual metal arc welding of non-alloy and fine grain steels — Classification*

ISO 3690, *Welding and allied processes — Determination of hydrogen content in arc weld metal*<sup>1)</sup>

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

ISO 6947:2011, *Welding and allied processes — Welding positions*

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

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1) To be published. (Revision of ISO 3690:2000)

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