

Welding consumables - Covered electrodes, wires, rods and tubular cored electrodes for fusion welding of cast iron - Classification (ISO 1071:2015)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 1071:2015 sisaldab Euroopa standardi EN ISO 1071:2015 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 1071:2015 consists of the English text of the European standard EN ISO 1071:2015.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 16.12.2015.	Date of Availability of the European standard is 16.12.2015.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 25.160.20

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:

Aru 10, 10317 Tallinn, Eesti; koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Aru 10, 10317 Tallinn, Estonia; homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

English Version

**Welding consumables - Covered electrodes, wires, rods
and tubular cored electrodes for fusion welding of cast
iron - Classification (ISO 1071:2015)**

Produits consommables pour le soudage - Electrodes
enrobées, fils d'apport, baguettes et fils fourrés pour le
soudage par fusion de la fonte - Classification (ISO
1071:2015)

Schweißzusätze - Umhüllte Stabelektroden, Drähte,
Stäbe und Fülldrahtelektroden zum Schmelzschiessen
von Gusseisen - Einteilung (ISO 1071:2015)

This European Standard was approved by CEN on 15 August 2015.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

European foreword

This document (EN ISO 1071:2015) 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 June 2016, and conflicting national standards shall be withdrawn at the latest by June 2016.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 1071:2003.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 1071:2015 has been approved by CEN as EN ISO 1071:2015 without any modification.

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Classification	1
3.1 Wire electrodes and rods	1
3.2 Tubular cored electrodes	1
3.3 Covered electrodes	2
3.4 Tubular cored and covered electrodes	2
4 Symbols and requirements	2
4.1 Symbols for the product form	2
4.2 Symbol for the type of alloy	2
4.3 Symbol for the chemical composition	2
4.3.1 General	2
4.3.2 Consumables producing similar weld metal	2
4.3.3 Consumables producing dissimilar weld metal	3
4.4 Symbol for shielding gas (tubular cored electrode)	3
4.5 Symbols for effective electrode efficiency and type of current (covered electrode)	7
5 Mechanical tests	7
6 Chemical analysis	7
7 Rounding procedure	7
8 Retests	8
9 Technical delivery conditions	8
10 Designation	8
Annex A (informative) Description of the consumable	10
Annex B (informative) Expected minimum values for strength and elongation of dissimilar all-weld metal in tensile test	14
Bibliography	15

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 on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 44, *Welding and allied processes*, Subcommittee SC 3, *Welding consumables*.

This third edition cancels and replaces the second edition (ISO 1071:2003), which has been technically revised.

Introduction

This International Standard classifies welding consumables for fusion welding of various types of unalloyed cast irons.

Applications for welding consumables classified to this International Standard:

- production welding, that means welding of cast materials during the process of production. In that way, the quality of the casting shall be ensured in accordance with the guaranteed properties and to the requirements of the application;
- repair welding of castings which are damaged during service;
- welding for construction purposes where cast irons are joined to themselves or to other ferrous or non-ferrous metals.

The following methods are used for the welding of cast irons:

- using a welding consumable which produces a weld metal similar to the parent metal. High preheating is required (typical temperature range 550 °C to 650 °C);
- using a welding consumable which produces a weld metal dissimilar to the parent metal. No or only low preheating is required.

This International Standard contains different types of welding consumables because the chemical composition of welding rods and wire electrodes, as well as the all-weld metal of the corresponding covered electrodes and tubular cored electrodes, is similar.

Additionally, to the welding consumables specified in this International Standard, consumables classified to other standards can be used (see Annex A).

Welding consumables — Covered electrodes, wires, rods and tubular cored electrodes for fusion welding of cast iron — Classification

1 Scope

This International Standard specifies requirements for classification of covered electrodes for manual metal arc welding, wire electrodes for metal arc welding, tubular cored electrodes for metal arc welding with and without a gas shield, rods for TIG-welding, and rods for oxy-fuel gas welding of unalloyed cast irons. Classification is based on the chemical composition of wires and rods and on the all-weld metal deposit for tubular cored and covered electrodes.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 6847, *Welding consumables — Deposition of a weld metal pad for chemical analysis*

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

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

3 Classification

3.1 Wire electrodes and rods

For wire electrodes and rods classified in accordance with their chemical composition (see [Table 2](#) and [Table 3](#)), the classification is divided into three parts.

- The first part gives a symbol indicating the product to be identified.
- The second part indicates the type of alloy (C for cast iron).
- The third part gives a symbol indicating the chemical composition of the wire electrode or of the rod.

3.2 Tubular cored electrodes

For tubular cored electrodes classified in accordance with the all-weld metal chemical composition produced with an appropriate shielding gas, the classification is divided into four parts.

- The first part gives a symbol indicating the product to be identified.
- The second part indicates the type of alloy (C for cast iron).
- The third part gives a symbol indicating the chemical composition of the all-weld metal.
- The fourth part gives a symbol indicating the shielding gas.