INTERNATIONAL STANDARD

ISO 1071

Third edition
2015-11-15

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

Produits consommables pour le soudage — Electrodes enrobées, fils d'apport, baguettes et fils fourrés pour le soudage par fusion de la fonte — Classification

Reference number
ISO 1071:2015(E)

© ISO 2015



COPYRIGHT PROTECTED DOCUMENT

© ISO 2015, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

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**

© ISO 2015 – All rights reserved

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.

© ISO 2015 – All rights reserved

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).

© ISO 2015 – All rights reserved

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.

a) The first part gives a symbol indicating the product to be identified.

b) The second part indicates the type of alloy (C for cast iron).

c) 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.

a) The first part gives a symbol indicating the product to be identified.

b) The second part indicates the type of alloy (C for cast iron).

c) The third part gives a symbol indicating the chemical composition of the all-weld metal.

d) The fourth part gives a symbol indicating the shielding gas.

© ISO 2015 – All rights reserved