



# SLOVENSKI STANDARD SIST EN ISO 17634:2006

01-oktober-2006

8 cXUrb]a UYf]U]nUj UfYbYÉ GfYyYbg\_Yÿ]W]nWj ]nUcVc bc'j UfYbY\_Yž  
cXdcb] \bU`YnYbY'j nUy ]bYa `d`bi `ÉFUnj fy UbYfIGC`%\*' (.&\$\$ (Ł

Welding consumables - Tubular cored electrodes for gas shielded metal arc welding of creep-resisting steels - Classification (ISO 17634:2004)

Schweißzusätze - Fülldrahtelektroden zum Metall-Schutzgasschweißen von warmfesten Stählen - Einteilung (ISO 17634:2004)

Produits consommables pour le soudage - Fils-électrodes fourrés pour le soudage à l'arc avec gaz de protection des aciers résistant au fluage - Classification (ISO 17634:2004)

Ta slovenski standard je istoveten z: EN ISO 17634:2006

## ICS:

25.160.20 Potrošni material pri varjenju Welding consumables

SIST EN ISO 17634:2006

en

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN ISO 17634:2006

<https://standards.iteh.ai/catalog/standards/sist/f2c61ca5-92f8-414c-b2ae-e4a9fa2dfb5f/sist-en-iso-17634-2006>

EUROPEAN STANDARD

EN ISO 17634

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2006

ICS 25.160.20

Supersedes EN 12071:1999

English Version

## Welding consumables - Tubular cored electrodes for gas shielded metal arc welding of creep-resisting steels - Classification (ISO 17634:2004)

Produits consommables pour le soudage - Fils-électrodes fourrés pour le soudage à l'arc avec gaz de protection des aciers résistant au fluage - Classification (ISO 17634:2004)

Schweißzusätze - Fülldrahtelektroden zum Metall-Schutzgasschweißen von warmfesten Stählen - Einteilung (ISO 17634:2004)

This European Standard was approved by CEN on 16 March 2006.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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

<https://standards.iteh.ai/catalog/standards/sist/f2c61ca5-92f8-414c-b2ae-e4a9fa2dfb5f/sist-en-iso-17634-2006>



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

**EN ISO 17634:2006 (E)****Foreword**

The text of ISO 17634:2004 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 17634:2006 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 October 2006, and conflicting national standards shall be withdrawn at the latest by October 2006.

This document supersedes EN 12071:1999.

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

**iTeh STANDARD PREVIEW**  
**Endorsement notice**  
**(standards.iteh.ai)**

The text of ISO 17634:2004 has been approved by CEN as EN ISO 17634:2006 without any modifications.

[SIST EN ISO 17634:2006](https://standards.iteh.ai/catalog/standards/sist/f2c61ca5-92f8-414c-b2ae-e4a9fa2dfb5f/sist-en-iso-17634-2006)

<https://standards.iteh.ai/catalog/standards/sist/f2c61ca5-92f8-414c-b2ae-e4a9fa2dfb5f/sist-en-iso-17634-2006>

INTERNATIONAL  
STANDARD

ISO  
17634

First edition  
2004-11-01

---

---

**Welding consumables — Tubular cored  
electrodes for gas shielded metal arc  
welding of creep-resisting steels —  
Classification**

*Produits consommables pour le soudage — Fils-électrodes fourrés pour  
le soudage à l'arc avec gaz de protection des aciers résistant au  
fluage Classification*

iTeh STANDARD PREVIEW  
(standards.iteh.ai)

[SIST EN ISO 17634:2006](https://standards.iteh.ai/catalog/standards/sist/f2c61ca5-92f8-414c-b2ae-e4a9fa2dfb5f/sist-en-iso-17634-2006)

[https://standards.iteh.ai/catalog/standards/sist/f2c61ca5-92f8-414c-b2ae-  
e4a9fa2dfb5f/sist-en-iso-17634-2006](https://standards.iteh.ai/catalog/standards/sist/f2c61ca5-92f8-414c-b2ae-e4a9fa2dfb5f/sist-en-iso-17634-2006)



Reference number  
ISO 17634:2004(E)

© ISO 2004

**ISO 17634:2004(E)****PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

## iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN ISO 17634:2006](https://standards.iteh.ai/catalog/standards/sist/f2c61ca5-92f8-414c-b2ae-e4a9fa2dfb5f/sist-en-iso-17634-2006)

<https://standards.iteh.ai/catalog/standards/sist/f2c61ca5-92f8-414c-b2ae-e4a9fa2dfb5f/sist-en-iso-17634-2006>

© ISO 2004

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

## Contents

Page

Foreword .....	iv
Introduction .....	v
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Classification</b> .....	<b>2</b>
<b>4 Symbols and requirements</b> .....	<b>3</b>
4.1 Symbol for the product/process.....	3
4.2 Symbol for the chemical composition of all-weld metal.....	3
4.3 Symbol for the mechanical properties of all-weld metal .....	3
4.4 Symbol for type of electrode core or the usability characteristics of the electrodes.....	8
4.5 Symbol for shielding gas .....	9
4.6 Symbol for welding position.....	9
4.7 Symbol for hydrogen content of deposited metal.....	10
4.8 Rounding-off procedure .....	10
<b>5 Mechanical tests</b> .....	<b>10</b>
5.1 Tensile and impact tests .....	10
5.2 Preheating and interpass temperatures.....	10
5.3 Pass sequence .....	11
<b>6 Chemical analysis</b> .....	<b>11</b>
7 Fillet weld test .....	11
8 Retests .....	12
9 Technical delivery conditions.....	12
10 Example of designation.....	13
<b>Annex A (informative) Classification systems</b> .....	<b>14</b>
<b>Annex B (informative) Description of composition designations of electrode in the classification system based upon tensile strength and chemical composition</b> .....	<b>16</b>
<b>Annex C (informative) Description of types of electrode core in the classification system based upon chemical composition</b> .....	<b>17</b>
<b>Annex D (informative) Description of types of usability characteristics in the classification system based upon tensile strength and chemical composition</b> .....	<b>18</b>
<b>Annex E (informative) Notes on hydrogen content</b> .....	<b>19</b>

**ISO 17634:2004(E)****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.

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.

ISO 17634 was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 3, *Welding consumables*.

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN ISO 17634:2006](https://standards.iteh.ai/catalog/standards/sist/f2c61ca5-92f8-414c-b2ae-e4a9fa2dfb5f/sist-en-iso-17634-2006)

<https://standards.iteh.ai/catalog/standards/sist/f2c61ca5-92f8-414c-b2ae-e4a9fa2dfb5f/sist-en-iso-17634-2006>



## Introduction

This International Standard provides a classification system for tubular cored electrodes in terms of chemical composition of the all-weld metal, type of electrode core, type of shielding gas and welding position, or in terms of the tensile properties, chemical composition of the all-weld metal, usability characteristics of the electrodes, shielding gas and welding position. The ratio of proof to tensile strength of weld metal is generally higher than that of parent metal. Users should note that matching weld metal proof strength to parent metal proof strength will not necessarily ensure that the weld metal tensile strength matches that of the parent metal. Where the application requires matching tensile strength, therefore, selection of the consumable should be made by reference to column 4 of Table 2.

It should be noted that the mechanical properties of all-weld metal test specimens used to classify the tubular cored electrodes will 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.

The classification according to system A is mainly based on EN 12071:1999, *Welding consumables — Tubular cored electrodes for gas shielded metal arc welding of creep-resisting steels — Classification*. The classification according to system B is mainly based upon standards used around the Pacific Rim.

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 which can be found at [www.iso.org](http://www.iso.org).

(standards.iteh.ai)

[SIST EN ISO 17634:2006](https://standards.iteh.ai/catalog/standards/sist/f2c61ca5-92f8-414c-b2ae-e4a9fa2dfb5f/sist-en-iso-17634-2006)

<https://standards.iteh.ai/catalog/standards/sist/f2c61ca5-92f8-414c-b2ae-e4a9fa2dfb5f/sist-en-iso-17634-2006>

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN ISO 17634:2006](#)

<https://standards.iteh.ai/catalog/standards/sist/f2c61ca5-92f8-414c-b2ae-e4a9fa2dfb5f/sist-en-iso-17634-2006>

# Welding consumables — Tubular cored electrodes for gas shielded metal arc welding of creep-resisting steels — Classification

## 1 Scope

This International Standard specifies requirements for classification of tubular cored electrodes used in the post-weld heat-treated condition for gas shielded metal arc welding of creep-resisting and low alloy elevated temperature steels. One tubular cored electrode can be tested and classified with different shielding gases.

This International Standard is a combined specification providing for classification utilizing a system based upon the chemical composition of all-weld metal or utilizing a system based upon the tensile strength, and the chemical composition of all-weld metal.

- 1) Paragraphs and tables which carry the suffix letter “A” are applicable only to tubular cored electrodes classified to the system based upon chemical composition, with requirements for the yield strength and the average impact energy of 47 J of all-weld metal in accordance with this International Standard.
- 2) Paragraphs and tables which carry the suffix letter “B” are applicable only to tubular cored electrodes classified to the system based upon the tensile strength and chemical composition of all-weld metal in accordance with this International Standard.
- 3) Paragraphs and tables which have neither the suffix letter “A” nor the suffix letter “B” are applicable to all tubular cored electrodes classified in accordance with this International Standard.

It is recognized that the operating characteristics of tubular cored electrodes can be modified by the use of pulsed current, but for the purposes of this International Standard, pulsed current is not used for determining the electrode classification.

## 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 31-0:1992, *Quantities and units — Part 0: General principles*

ISO 544, *Welding consumables — Technical delivery conditions for welding filler materials — Type of product, dimensions, tolerances and marking*

ISO 3690, *Welding and allied processes — Determination of hydrogen content in ferritic steel arc weld metal*

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

ISO 6947:1990, *Welds — Working positions — Definitions of angles of slope and rotation*

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