**Doc: MTD 11(24321) WC**
**December 2023**

# भारतीय मानक ब्यूरो

**DRAFT FOR WIDE CIRCULATION**



*भारतीय मानक मसौदा*

# वेल्डिंग उपभोग्य — विसर्पण-प्रतिरोधी इस्पात के गैस परिरक्षित धातु आर्क वेल्डिंग के लिए ट्यूबलर कोर्ड इलेक्ट्रोड — वर्गीकरण

*Draft Indian Standard*

# Welding Consumables — Tubular Cored Electrodes for Gas Shielded Metal Arc Welding of Creep-Resisting Steels — Classification

ICS 25.160.20

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|---|---|
| Welding General and its Applications Sectional Committee, MTD 11 | Last date of comment: 04/01/2024 |

NATIONAL FOREWORD

This draft standard is identical to ISO 17634 : 2015 ‘Welding consumables — Tubular cored electrodes for gas shielded metal arc welding of creep-resisting steels — Classification’ issued by the International Organization for Standardization (ISO), and subject to its finalization, is to be adopted by the Bureau of Indian Standards on the recommendation of the Welding General and its Applications Sectional Committee and approval of the Metallurgical Engineering Division Council.

The committee decided to adopt ISO 17634 : 2015 standard under dual numbering system.

The text of ISO standard has been approved as suitable for publication as an Indian Standard without deviations. Certain terminologies and conventions are, however, not identical with those used in Indian Standard. Attention is especially drawn to the following:

a) Wherever the words `International Standard’ appear referring to this standard, it should be read as `Indian Standard’.

b) Comma (,) has been used as a decimal marker, while in Indian Standards, the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exists. The corresponding Indian Standards which are to be substituted in their place are listed below along with their degree of equivalence for the edition indicated:

| *International Standard* | *Corresponding Indian Standard* | *Degree of Equivalence* |
|---|---|---|

| | | |
|---|---|---|
| ISO 544 : 2017 Welding consumables — Technical delivery conditions for filler materials and fluxes — Type of product, dimensions, tolerances and markings | Doc : MTD/11/22952 Welding consumables — Technical delivery conditions for filler materials and fluxes — Type of product, dimensions, tolerances and markings | Identical |
| ISO 3690 : 2018 Welding and allied processes — Determination of hydrogen content in arc weld metal | Doc : MTD/11/23214 Welding and allied processes — Determination of hydrogen content in arc weld metal (First Revision) | Identical |
| ISO 6947 : 2019 Welding and allied processes — Welding positions | Doc : MTD/11/22957 Welding and allied processes — Welding positions | Identical |
| ISO 14175 : 2008 Welding consumables — Gases and gas mixtures for fusion welding and allied processes | Doc : MTD/11/22962 Welding consumables — Gases and gas mixtures for fusion welding and allied processes | Identical |
| ISO 14344 : 2010 Welding consumables — Procurement of filler materials and fluxes | Doc : MTD/11/22964 Welding consumables — Procurement of filler materials and fluxes | Identical |
| ISO 15792-1 : 2020 Welding consumables — Test methods — Part 1: Preparation of all-weld metal test pieces and specimens in steel, nickel and nickel alloys | Doc : MTD/11/22966 Welding consumables — Test methods — Part 1: Preparation of all-weld metal test pieces and specimens in steel, nickel and nickel alloys | Identical |
| ISO 15792-3 : 2011 Welding consumables — Test methods — Part 3: Classification testing of positional capacity and root penetration of welding consumables in a fillet weld | Doc : MTD/11/22969 Welding consumables — Test methods — Part 3: Classification testing of positional capacity and root penetration of welding consumables in a fillet weld | Identical |
| ISO 80000 - 1 : 2022 Quantities and units — Part 1 : General | IS / ISO 80000 - 1 : 2022 Quantities and Units Part 1 General (First Revision) | Identical |

This standard also makes a reference to the BIS Certification Marking of the product, details of which are given in National Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis, shall be

rounded off in accordance with IS 2 : 2022 'Rules for rounding off numerical-values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

The scope of the standard is as follows:

**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.

**The complete document/text of ISO 17634 : 2015 'Welding consumables — Tubular cored electrodes for gas shielded metal arc welding of creep-resisting steels — Classification' may be made available, on request to:**

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## National Annex A

(*National Foreword*)

### A-1 BIS CERTIFICATION MARKING

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the standard mark.