भारतीय मानक ब्यूरो

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भारतीय मानक मसौदा

वेल्डिंग उपभोग्य — विसर्पण-प्रतिरोधी इस्पात के मैन्यूअल धातु आर्क वेल्डिंग के लिए आवरित इलैक्ट्रोड — वर्गीकरण

Draft Indian Standard

Welding Consumables — Covered Electrodes for Manual Metal Arc Welding of Creep-Resisting Steels — Classification

ICS 25.160.20

Welding General and its Applications Sectional Committee, MTD 11	Last date of comment: 05/01/2024

NATIONAL FOREWORD

This draft standard is identical to ISO 3580 : 2017 'Welding consumables — Covered electrodes for manual 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 3580 : 2017 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 6847 : 2020 Welding consumables — Deposition of a weld metal pad for chemical analysis	Doc : MTD/11/22954 Welding consumables — Deposition of a weld metal pad for chemical analysis	Identical
ISO 6947 : 2019 Welding and allied processes — Welding positions	Doc : MTD/11/22957 Welding and allied processes — Welding positions	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

The technical committee responsible for the preparation of this standard has reviewed the provisions of following International Standards referred in these adopted standards and decided their acceptability for use in conjunction with this standard.

International Standard	*Title*
ISO 2401 : 2018	Welding consumables — Covered electrodes — Determination of the efficiency, metal recovery and deposition coefficient
ISO 13916 : 2017	Welding — Measurement of preheating temperature, interpass temperature and preheat maintenance temperature

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 document specifies requirements for classification of covered electrodes, based on the all-weld metal in the heat-treated condition, for manual metal arc welding of ferritic and martensitic creep-resisting and low alloy elevated temperature steels.

This document is a combined specification for classification utilizing a system based upon the chemical composition of the all-weld metal, with requirements for the yield strength and impact energy of the all-weld metal, or utilizing a system based upon the tensile strength and the chemical composition of the all-weld metal.

a) Paragraphs and tables which carry the suffix letter "A" are applicable only to electrodes classified to the system based upon chemical composition, with requirements for the yield strength and impact energy of the all-weld metal under this document.

b) Paragraphs and tables which carry the suffix letter "B" are applicable only to electrodes classified to the system based upon the tensile strength and the chemical composition of all-weld metal under this document.

c) Paragraphs 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 document.

For comparison purposes, some tables include requirements for electrodes classified according to both systems, placing individual electrodes from the two systems, which are similar in composition and properties, on adjacent lines in the particular table. In a particular line of the table that is mandatory in one system, the symbol for the similar electrode from the other system is indicated in parentheses. By appropriate restriction of the formulation of a particular electrode, it is often, but not always, possible to produce an electrode that can be classified in both systems, in which case the electrode, and/or its packaging, can be marked with the classification in either or both systems.

The complete document/text of ISO 3580 : 2017 'Welding consumables — Covered electrodes for manual 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.