

सेंट्रल मार्क्स डिपार्टमेंट-2

हमारा संदर्भ: सीएमडी-2/16:15769

14.09.2023

विषय: आईएस 15769:2008 में संशोधन संख्या 1 के कार्यान्वयन के लिए दिशानिर्देश

यह ऊपर वर्णित विषय के संदर्भ में है।

सक्षम प्राधिकारी ने कार्यान्वयन के लिए संलग्न दिशा-निर्देशों का अनुमोदन कर दिया है।

सभी आरओ/बीओ से अनुरोध है कि उपरोक्त दिशानिर्देशों का तत्काल प्रभाव से कार्यान्वयन सुनिश्चित करें।

**कन्नन गोविंदराज
वैज्ञानिक डी**

प्रमुख (सीएमडी-2)
सभी आरओ/बीओ/लैब /MTD/LPPD

CENTRAL MARKS DEPARTMENT-2

Our Ref: CMD-2/16:15769

14 Sep 2023

Subject: Guidelines for implementation of Amendment No. 1 to IS 15769:2008

This has reference to the subject mentioned above.

The Competent Authority has approved the enclosed Guidelines for implementation.

All ROs/BOs are requested to ensure the implementation of the above Guidelines with immediate effect.

**Kannan Govindaraj
Scientist D**

Head (CMD-2)

All ROs/BOs/Labs/MTD/LPPD

CENTRAL MARKS DEPARTMENT-2

Our Ref: CMD-2/16: 15769

14 Sep 2023

Subject: Guidelines for implementation of Amendment No. 1 to IS 15769:2008 (Flux cored (tubular) electrodes for gas shielded and self-shielded metal arc welding of carbon or carbon-manganese steel)

1. Amendment No. 1 to IS 15769:2008 had been published. The last date for implementation of the Amendment No. 1 to IS 15769:2008 is **1 Feb 2024**.
2. Flux Cored (Tubular) Electrodes for Gas Shielded and Self Shielded Metal Welding of Carbon or Carbon Manganese Steel –Specification is under mandatory certification with 11 licences in operation domestically.
3. All BOs/FMCD shall inform the Applicants and Licensees under their jurisdiction about implementation of the amended Standard within a week of issuance of these guidelines.
4. The significant changes in the amended Standard as listed in the Table are given for the purpose of general guidance. BOs/FMCD shall ensure that the product conforms to all the requirements, as applicable, as per the amended Standard.

Clause	Change
First Cover Page and Page 1, English Title	The title of the standard has been amended to “Flux cored (tubular) electrodes for gas shielded and self-shielded metal arc welding of carbon or carbon-manganese steel”
2, References	Latest Versions of the referred standards have been updated
Table 1, Designation of Strength Characteristics	The range of Ultimate Tensile Strength(in N/mm ²) for Designation Digit 5 has been amended to “ 510-670 ” in place of the existing 510-610
Table 10, Dimensions and Maximum Weight of Spools	Title of Col 7 of the Table has been amended to “ Net Weight of the Wire/Electrode, Max kg ’ in place of the existing ‘Weight, Max kg’ Dimensions and Weight of spools of Outside Diameter 275 mm, 550 mm and 600 mm have been added in the Table Note defining “Net Weight of the Wire/Electrode, Max kg’ has been introduced below the Table
5.1.2.2 Preparation of Transverse Tensile and Longitudinal Bend Tests Assembly	The clause has been amended to specify that the electrode size used for welding of the plates for preparing the test assembly shall be 1.2 mm, 1.6 mm or 2.4 mm in diameter

7.1 Packing and Storage	This clause has been deleted
Table 15 Chemical Composition Requirement	Silicon (%) for electrode classification ET5XXXC9 ET 5XXXM9 has been amended to 0.90 max in place of the existing 0.50 max.
8.1.1 Marking	The requirement for Marking the “ Recommendation for special storage conditions and re-drying temperature” on each bundle or carton of electrodes has been omitted

5. Consequent upon the issuance of the Amendment No. 1, there are changes in Product Manual. The same is being circulated separately.
6. Most of the changes to the standard through this amendment are editorial and relaxation in testing requirements, none of which require any evidence of conformity to the amended standard to be established.
7. No application for grant of licence and/or change in scope of licence shall be accepted or grant of licence/change in scope permitted without consideration of the amendment after 1 Feb 2024.
8. The above guidelines come into force with immediate effect.

Kannan Govindaraj
Scientist D

Head (CMD-2)
DDG (Certification)
ROs/BOs

AMENDMENT No. 1 MAY 2023

TO

IS 15769 : 2008 FLUX CORED (TUBULAR) ELECTRODES FOR GAS SHIELDED AND SELF-SHIELDED METAL WELDING OF CARBON OR CARBON-MANGANESE STEEL

(First cover page, English title) — Substitute the following for the existing:

‘Flux Cored (Tubular) Electrodes for Gas Shielded and Self-Shielded Metal Arc Welding of Carbon or Carbon-Manganese Steel’.

(First cover page and Page 1, English title) — Substitute the following for the existing:

‘FLUX CORED (TUBULAR) ELECTRODES FOR GAS SHIELDED AND SELF-SHIELDED METAL ARC WELDING OF CARBON OR CARBON-MANGANESE STEEL’.

(Page 1, clause 2) — Substitute the following for the existing:

‘2 REFERENCES

The standards listed below contain provisions, which through reference in this text constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

<i>IS No.</i>	<i>Title</i>
IS 1608 (Part 1) : 2022/ISO 6892-1 : 2019	Metallic materials — Tensile testing: Part 1 Method of test at room temperature
IS 1757 (Part 1) : 2020/ISO 148-1 : 2016	Metallic Materials — Charpy pendulum impact test: Part 1 Test method (<i>fourth revision</i>)
IS 2002 : 2009	Steel plate for pressure vessel for intermediate and high temperature service including boilers (<i>third revision</i>)
IS 2062 : 2011	Hot rolled medium and high tensile structural steel — Specification (<i>seventh revision</i>)
IS 11802 : 1986	Methods for determination of diffusible hydrogen content of deposited weld metal from covered electrodes in welding mild and low alloy steels
IS 13851 : 1993	Storage and redrying of covered electrodes before use — Recommendations

(Page 3, Table 1) — Substitute the following for the existing:

Table 1 Designation of Strength characteristics
(Clause 3.3 and 3.4)

SI No.	Designation Digit	Ultimate Tensile Strength N/mm ²	Yield Strength <i>Min</i> N/mm ²	Elongation Percent <i>Min</i> on 5.65√S
(1)	(2)	(3)	(4)	(5)
i)	4	410 - 510	330	22
ii)	5	510 - 670	360	20

Price Group 2

(Page 6, Table 10) — Substitute the following for the existing:

Table 10 Dimensions and Maximum Weight of Spools
(Clause 4.4.3)

SI No.	Overall Diameter A mm	Overall Width B mm	Inner Diameter C mm	Distance Between Axes D mm	Driving Hole Diameter E mm	Net Weight of wire/ electrode, Max kg
(1)	(2)	(3)	(4)	(5)	(6)	(7)
i)	100 ± 2	45 ⁺⁰ ₋₂	16 ⁺¹ ₋₀	-	-	0.8
ii)	200 ± 3	55 ⁺⁰ ₋₃	50.5 ^{+2.5} ₋₀	44.5 ± 0.5	10 ⁺¹ ₋₀	5
iii)	275 ± 5	103 ± 5	50.5 ^{+2.5} ₋₀	44.5 ± 0.5	10 ⁺¹ ₋₀	15
iii)	300 ± 5	103 ± 5	50.5 ^{+2.5} ₋₀	44.5 ± 0.5	10 ⁺¹ ₋₀	15
iv)	350 ± 5	0.30	50.5 ^{+2.5} ₋₀	44.5 ± 0.5	10 ⁺¹ ₋₀	25
v)	550 ± 10	300 ± 5	40.5 ⁺¹ ₋₀	D ₁ = 25 + 1 D ₂ = 35 + 1	17 ± 1	100
vi)	600 ± 10	340 ± 5	40.5 ⁺¹ ₋₀	D ₁ = 25 + 1 D ₂ = 35 + 1	17 ± 1	150
vii)	760 ± 10	340 ⁺¹⁰ ₋₁	40.5 ⁺¹ ₋₀	D ₁ = 25 + 1 D ₂ = 35 + 1	17 ± 1	300
NOTE — Net weight of wire/electrode is only the weight of wire wound on spool. It is not the sum of weight of spool (on which wire/electrode is wound) and wire/electrode.						

(Page 9, clause 5.1.2.2) — Substitute the following for the existing clause:

‘5.1.2.2 The test assembly shall be prepared and welded, as shown in Fig. 5 using the welding conditions as recommended by manufacturers. After tack welding the plates at each end, the test assembly shall be welded in the flat position with one bead on each side. Welding shall begin with the assembly at room temperature (20 °C Min). When the weld bead has been completed on one side, the assembly shall be turned over and another bead shall be deposited on the reverse side, as shown in Fig. 5. This sequence shall not be interrupted. The electrode size shall be 1.2 mm, 1.6 mm or 2.4 mm in diameter.’

(Page 13, clause 7.1) — Delete.

(Page 17, Table 15) — Substitute the following for the existing Table:

Table 15 Chemical Composition Requirement
(Clause 5.8.2)

Sl No.	Classification	C %	Mn %	Si %	P %	S %	Ni %	Cr %	Mo %	V %	Al %
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
i)	ET4XXXC9 ET4XXXM9	0.15	1.75	0.90	0.030	0.030	0.50	0.20	0.30	0.08	-
ii)	ET4XXXN9	0.30	1.75	0.90	0.030	0.030	0.50	0.20	0.30	0.08	2.0
iii)	ET5XXXC9 ET5XXXM9	0.15	2.0	0.90	0.030	0.030	0.50	0.20	0.30	0.08	-
iv)	ET5XXXXN9	0.30	2.0	0.90	0.030	0.030	0.50	0.20	0.30	0.08	2.0

NOTES
1 Single values are maximum.
2 Since Ni, Cr, Mo and V are not intentionally added, the total of these elements Ni % + Cr % + Mo % + V % shall not exceed 0.70 %.

(Page 17, clause 8.1.1) — Substitute the following for the existing clause:

8.1.1 Each bundle or carton of electrodes shall be clearly marked with the following information:

- Classification (*see 3*);
- Indicating the source of manufacture;
- Trade name and brief description of the electrodes;
- Size and quantity of electrodes;
- Batch number;
- Recommended current range, polarity and shielding gas;
- Date of manufacture; and
- A cautionary note on safety during welding.

(Page 17, clause 8.1.2) — Substitute the following for the existing clause:

‘8.1.2 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.’

(Page 19) — Substitute the following for the existing clause:

Examples of Electrode Classifications:

Flux cored (tubular) electrodes with rutile cored ingredients for metal arc welding of multi-pass joints in the flat and horizontal/vertical positions without shielding gas. The electrode is designed to give 15 ml diffusible hydrogen content per 100 g of weld metal deposit. The test results showed that the ultimate tensile strength of weld deposit was 450 N/mm² with 350 N/mm² yield strength and 24 percent elongation. The average impact value obtained was 30 J at – 20 °C. The classification of the electrode is therefore ET 420RN9H15.

(MTD 11)