



BHARATH HEAVY ELECTRICALS LIMITED
TIRUCHIRAPALLI-620 014
WELDING TECHNOLOGY CENTRE

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Welding Consumable Purchase Instruction

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**PURCHASE INSTRUCTION FOR STAINLESS STEEL SMAW ELECTRODE TO
ASME SEC.II.C, SFA 5.4, CLASS E 410-15.**

1.0 SCOPE:

- 1.1 This purchase instruction prescribes the requirements for Stainless Steel Shielded Metal Arc Welding Electrode that conforms to ASME SEC II, Part C, and SFA 5.4 Classification. E 410-15.

2.0 GENERAL:

- 2.1 Electrodes shall be supplied in sizes and quantities as specified in the Purchase Order.
- 2.2 The Electrode shall comply with requirements called for in the latest edition of ASME Sec II C, SFA 5.4, and Class E 410-15. Additional requirements specified in this document also apply.
- 2.3 Alloy steel core wires shall be used in the manufacture of these Electrodes. (Non-Synthetic type).

3.0 CHEMICAL COMPOSITION:

- 3.1 The chemical composition of the undiluted weld metal deposited using the Electrode shall be as follows.

Carbon	0.12 % Max	Silicon	0.90 % Max
Chromium	11.00-13.50 %	Phosphorous	0.04 % Max
Nickel	0.70 % Max	Sulphur	0.03 % Max
Molybdenum	0.75 % Max	Copper	0.75 % Max
Manganese	1.00 % Max		

PREPARED


(S. SINGARAVELU)
MANAGER / WTC

REVIEWED


(A. WILFRED JOSEPH)
DGM/WTC

APPROVED


(S. CHELLAIAH)
AGM/WTC, WCMC&TE



4.0 USABILITY:

4.1 The Electrode shall allow it to be used with DCEP in All positions (4mm and smaller diameters.)

4.1 The Electrode shall produce Acceptable Radiography Quality welds with uniform properties and without cracks, or zones of incomplete fusion nor any Porosity or slag inclusions.

5.0 WELD METAL HARDNESS.

The hardness of weld metal deposited using the Electrode on a deposited thickness of 2 mm shall be 350-400 BHN. (As welded)

6.0 SIZE, COVERING, ARC END & GRIP END AND IDENTIFICATION:

6.1 SIZE:

Electrode shall be supplied in diameters and lengths as specified in the Purchase order.

6.2 COVERING:

The core wire and covering shall be free of defects that would interfere with uniform deposition of weld metal.

6.3 ARC END & GRIP END:

The Arc end of each Electrode shall be sufficiently bare and covering sufficiently tapered for easy striking of the Arc. The Grip end shall be bare for a length that is sufficient to provide electrode electrical contact with the Electrode Holder.

6.4 IDENTIFICATION:

All electrodes shall be identified by providing at least one imprint of the Electrode Classification near the grip end. (Prefix letter 'E' may be omitted). The numbers and letters of the imprint shall be of bold block type and of a size large enough to be legible.

The ink used for imprint shall provide sufficient contrast with the electrode covering so that the imprint shall remain legible after drying and welding.



7.0 PACKING AND MARKING OF PACKAGES:

7.1 PACKAGING:

Electrodes in standard quantity shall be wrapped tightly in a corrugated paper and then packed in moisture proof polythene bags and sealed. These shall be further packed either in hermetically sealed containers or in cardboard packets and then packed in polythene bags and sealed.

The number of electrodes per packet shall be such that the Net weight of each packet does not exceed 5 Kg. Packets shall be shipped (transported) in wooden crates lined with waterproof material. Net weight of each wooden crate shall not exceed 50 Kg. Each crate shall contain electrode packets of one size and batch only.

Alternatively Electrodes in Standard quantity shall be tightly packed in moisture proof plastic containers and sealed. The number of Electrodes per container shall be such that the Net Weight of each container does not exceed 5 Kg. Containers shall be further packed in Cartons and encapsulated in Polythene covers and sealed. Net Weight of each encapsulated carton shall not exceed 15 Kg. Each carton shall contain Electrode containers from one size and Batch only.

7.2 MARKING OF PACKAGES:

The following product information shall be legibly marked/labeled on the outer side of each packet/container.

- a) AWS Specification and Classification numbers
- b) Suppliers Name and Brand
- c) Size, Quantity of Electrodes and Net weight
- d) Batch No and Date of manufacture

8.0 CERTIFICATION AND TESTING:

8.1 Each consignment of electrodes shall be of from one Batch only.

8.2 Batch classification shall be Class C4 as per Section 5.0 of SFA-5.01 Filler metal procurement guidelines of the Latest Edition of ASME Sec.II. Part C.

8.3 The level of testing shall be Schedule -K as per Section 6.0 of SFA 5.01 Filler metal procurement guidelines of the Latest Edition of ASME Sec.II. Part C.



8.4 Three copies of Test certificates giving details of following tests done for compliance to this WCPI over and above requirements called for the Latest Edition of ASME Sec.II.C, SFA-5.4, Class E 410-15 shall be sent.

a) Chemical composition of Weld Metal for the elements listed in clause 3.1

b) Test for weld metal Hardness to HRC scale. (As welded)

8.5 The testing authority shall certify that supplies made against the Batch conforms to the requirements of the Latest Edition of ASME Sec.II, Part C, SFA 5.4 Class E 410-15 and this WCPI.

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