

	CORPORATE STANDARD	AA 771 41 03 REV. No. PAGE 1 OF 3
<u>CARBON STEEL SUBMERGED ARC WELDING WIRE</u> <u>IN COIL FORM FOR CLASS EM 12K</u>		
1.0 SCOPE: This standard prescribes requirements for the classification of carbon steel submerged arc Welding wire for class EM 12k to SFA 5.17 of ASME Sec. II Part-C. 2.0 APPLICATION: This standard covers carbon steel continuous welding wire in coil form to be used in submerged Arc Welding process with the procedure established with flux to have the required Tensile strength. 3.0 COMPLIANCE WITH THE STANDARD: This standard is made to class EM 12k of SFA 5.17 of ASME Sec. II Part-C. 4.0 CHEMICAL COMPOSITION OF ELECTRODE WIRE WRIGHT % (MAX.): C = 0.05 to 0.15, Mn = 0.80 to 1.25, Si = 0.1 to 0.35, S = 0.03, P = 0.03, Cu = 0.35. 5.0 METHOD OF MANUFACTURE: The electrode wire may be manufactured by any method that will yield products conforming to the requirements of this specification. 6.0 TOLERANCE TEMPER & FINISH: Electrodes shall have a smooth finish, free from slivers, depressions, seams, laps, scratches, scale or other foreign material that would adversely affect the welding characteristic of the electrode or the operation of the equipment. Copper or other suitable protective coatings may be used. 6.1 Temper: The temper of the electrodes shall be such that the electrodes will feed in an uninterrupted manner in automatic and semi automatic welding equipment. The standard wire dia will be ϕ 1.6mm to 6.3mm having tolerance on dia $\pm$ 0.03mm for wire ϕ 1.6, 0.05mm for wire ϕ 2.0 and ϕ 2.4mm; 0.08 for wire ϕ 3.2mm and 0.1mm for wire ϕ 4.0mm to 6.4mm. Other sizes and tolerances may be supplied as agreed between Purchaser & Supplier.		
Revision:		Approved: INTERPLANT STANDARDIZATION COMMITTEE-WG (W)
Rev.No.	Amd.No.	Reaffirmed
Dt.	Dt.	Year:
Prepared HYDERABAD		Issued CORP. R&D
Dt. of 1st issue Oct. '93		

 COPYRIGHT AND CONFIDENTIAL
 The information on this document is the property of BHARAT HEAVY ELECTRICALS LIMITED.
 It must not be used directly or indirectly in any way detrimental to the interest of the company.

CORPORATE STANDARD



7.0 STANDARD FORM, DIMENSIONS AND WEIGHT:

7.1 Cast & Helix:

The cast and helix of the electrodes shall be such that the electrodes will feed in an uninterrupted manner in automatic and semi automatic equipment.

7.2 Welding Requirements:

The electrode in each coil and drum shall be one continuous length of material. Butt joints are permitted but they must be made and finished in such a manner that they do not interfere with the uniform feeding of the electrode in automatic and semi automatic equipment.

The electrode shall be wound so as to avoid kinks, waves or sharp bends that would interfere with feeding. The out side end of the electrode (the end where welding is to begin with) shall be secured and identified.

7.3 Coil Without Liner:

Dimensions and net weights shall be as agreed between purchaser and supplier.

7.4 Coil With Liner:

Dimensions and net weights shall be as specified in Para 7.6. Liners shall be of a material and design such that they will protect the electrode from damage during normal handling and use. Liners shall be sufficiently clean and dry to maintain the cleanliness of the electrode.

7.5 Drums:

Drums shall have an out side diameter of 20 or 23" (500 to 600mm). The drums shall be of a material and construction such that they will protect the electrode from damage during normal handling and use. Drums shall be sufficiently clean and dry to maintain the cleanliness of the electrode.

7.6 Coil With Liner - Standard Dimensions And Weight:

Electrode Size		Net weight of coil		Inside dia of liner		Width of coil max.		Out side dia of coil max.	
In	mm	lbs	kgs	In	mm	In	mm	In	mm
1/16	1.6	25	11	12±	305±	2½	65	17½	420
to	to	50	23	1/8	3mm	4 5/8	120	17	430
1/4"	6.4	60	27						
3/32	2.4	100	45	As agreed between supplier & purchaser		5	125	31½	800
to	to	150	68						
1/4"	6.4	200	91						



CORPORATE STANDARD

AA 771 41 03

REV. No.

PAGE 3 OF 3

Other dimensions, weights and diameter of the liner shall be as agreed between purchaser and supplier.

8.0 TEST REQUIREMENTS:8.1 Chemical Analysis:

Electrodes shall be classified only on the basis of their chemical composition as given in clause 4.0.

8.2 Mechanical Properties of Weld Metal:

Mechanical properties of weld metal will be determined according to the fluxes used after establishing the procedure qualification and as agreed between purchaser and supplier.

9.0 MARKING AND IDENTIFICATION:

Electrodes in coils with liners or in drums shall have the tag having the information such as (1) Material classification and specification numbers, (2) Supplier's name and trade designation (3) Size (diameter of the electrodes) and net weight (4) lot control or heat number attached in a manner such that it can not be readily removed. Also coil with liners and drums shall have the labeling with all the above information affixed to the liner or drum in a prominent location that it will not be removed easily.

10.0 PACKAGING:

Electrodes shall be suitably packaged to ensure against damage during shipment and storage under normal conditions.

CORPORATE RATIONALISED SIZES APPROX. WEIGHT AND CODES

SIZE D X ID mm	APPROX. WT. kgs	SUB-CODE
2 x 300	25	167
2.4 x 300	10 - 15	191
2.4 x 300	25	205
3.2 x 600	100	248
4 x 300	25	272
4.8 x 300	25	302
6.4 x 300	25	337
6.4 in pay off packs	250	345