Technical specification:

ASME SEC.II.C, SFA-5.20 CARBON STEEL FCAW WIRE E71T-1C DIA.1.60 MM X 12.5/15 Kg SPOOLS as per WCPI-502/06. The wire is intended to be used in fillet welding of tube to fin and also butt welding applications. Fillet weld test as per ASME SEC IIC shall be performed and test results reported. Diffusible hydrogen content shall be less than 4ml/100 grams. The mechanical properties shall be reported after PWHT condition 610 degree Celsius ± 10 degree Celsius with soaking of 2.5 minutes per mm (minimum 30 minutes).

Pre – Qualification Criteria

FCAW E71T-1C Dia1.6mm Wire spool, as per WCPI 502/06

Sl. No.	Pre –Qualification Criteria	Bidder remarked
1	Bidder shall be a manufacturer of Welding Consumables / an authorized dealer of Welding Consumables. If the offer is quoted by agent, letter of authorization and agreement duly signed by the manufacturer is required to consider the offer {Specify: Manufacturer / Authorized dealer}.	
2	Bidder should have successfully supplied FCAW E71T-1C wire spools as per ASME Section IIC to any govt. Organizations/ PSUs/ Public ltd. Company/Reputed Industries. Regarding this Document like Purchase order or any related documents to be provided along with offer. Note: Successfully supplied means – supplied and accepted.	
3	Welding Consumables brand name shall be provided along with offer Note: Catalogue to be provided along with the offer.	
4	Manufacturing plant address shall be provided along with offer.	
5	Suppliers shall submit manufacturing process flow chart (Raw material to finished product) along with offer.	
6	Suppliers shall submit a valid ISO 9001 certificate or Quality management system certificate or Written down procedure.	
7	Shall confirm to WCPI 502/06.	

Signature and Seal.

BHARATH HEAVY ELECTRICALS LIMITED TIRUCHIRAPALLI-620 014 WELDING TECHNOLOGY CENTRE	Doc. Number: WCPI – 502 Revision No.: 06 Date: 01.10.2013

WELDING CONSUMABLE PURCHASE INSTRUCTION FOR FCAW WIRE AS PER ASME SEC II C SFA-5.20M E491T-1C

1.0 GENERAL:

1.1 The wire shall comply with the requirements specified in the latest edition and addenda (applicable on the date of issue of purchase order) of ASME Sec.II.C.SFA-5.20M, E491T-1C. All tests, acceptance criteria shall be in accordance with this. Additional requirements specified in this document shall also be complied.

1.2 The wires shall be supplied in sizes and quantities as specified in the purchase order.

1.3 The wires are intended for use as a welding electrode for welding carbon steel by FCAW process with 100% CO_2 with radiographic quality in high pressure boiler components in single & multi-pass welding .

2.0 CHEMICAL COMPOSITION:

The chemical composition of the weld metal deposited using wire with CO_2 shielding shall conform to ASME SEC.II.C SFA-5.20M, E491T-1C.

3.0 MECHANICAL PROPERTIES:

Mechanical properties of the wire shall conform to ASME SEC.II.C SFA-5.20M, E491T-1C with 100% CO_2 shielding.

4.0 RADIOGRAPHIC SOUNDNESS & USABILITY:

4.1 The wire when used as an electrode in FCAW with 100% CO_2 shall deposit a weld metal that flows freely, produce notch free weld interface and posses good slag detachability. The wire shall produce a soft and stable arc, very low spatter and fumes.

4.2 The resultant weld metal shall be smooth, uniform, finely rippled with no visible evidence of cracks, porosity or other defects and shall meet the radiographic soundness requirements as per ASME SECIIC SFA- 5.20M, E491T-1C.

4.3 Diffusible hydrogen level in the weld metal deposited using the wire shall be ≤ 4 ml.

5.0 SIZE:

The wire shall be supplied in diameter 1.2mm or 1.6mm as specified in the purchase order. The tolerance on diameter shall be as per SFA-5.02.

Prepared:	Reviewed & Approved:
S. Singaravelu DGM / WTC	Dr. K. Asokkumar AGM/WTC

6.0 FORM & WEIGHT:

The wire shall be precision layer wound in ISO 644 : S300/BS300/B300 plastic spools as per SFA-5.02 and the net weight of wire shall be 10/12.5/15Kg. The spools shall meet the clause 4.3.4 of SFA-5.02.

7.0 FINISH & UNIFORMITY:

The wire shall meet the requirements of clause 4.2 of SFA-5.02. The wire as shipped shall be essentially free from lubricants, residue or rust that would cause buildup and stoppage in welding nozzles.

8.0 WINDING REQUIREMENTS:

The wire shall meet the requirements of clause 4.4 of SFA-5.02.

9.0 IDENTIFICATION:

The wire shall meet the requirements of clause 4.5.2 & 4.5.5 of SFA-5.02.

10.0 MARKING:

The wire shall meet the requirements of clause 4.6 of SFA-5.02.

11.0 PACKAGING:

11.1 The wire should be completely devoid of moisture or any other foreign material with adequate sealing in suitable cartons to ensure no deterioration in the wire quality during transportation by sea or long duration storage.

11.2 The cartons shall be packed in waterproof boxes with crates so as to protect them from damage during shipment and storage under normal conditions. Weight of each crate shall not exceed 1000kg. The cartons shall have product information as per clause 4.6 of SFA-5.02

12.0 TESTING & CERTIFICATION:

12.1 Each consignment of wires supplied shall be from one batch only.

12.2 Batch /lot classification shall be Class T1 as per SFA-5.01 filler metal procurement guidelines of ASME Sec.II.C. (Latest edition and addenda).

12.3 The level of testing shall be Schedule J as per SFA-5.01 filler metal procurement guidelines of ASME Sec.II.C (Latest edition and addenda).

12.4 Three copies of original test certificates in English countersigned by inspecting authority (latest) approved by IBR of the country of origin giving details of the tests done in compliance with this purchase instruction and ASME SECIIC SFA- 5.20M, E491T-1C shall be sent. In addition, test certificate shall contain purchase order number, quantity and customer name.

12.5 The testing authority shall certify that supplies made against the batch conform to the requirements of the latest edition & addenda (applicable on the date of issue of purchase order) of ASME Sec.IIC, SFA-5.20M, E491T-1C.