

**FABRICATION DIVISION**  
**Welding Development & Technology**

**P.I No.**

**Technical Specification No: FBM/WD&T/TS10 Rev 02**

Technical Specification for ERCu Wire for GMAW Welding

| S.No     | Description                                                                                                                    | Requirement                                                                                                                   | Vendor to<br>Furnish/confirm                                       | Offered | Deviation | Remark |
|----------|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|---------|-----------|--------|
| <b>1</b> | <b>Objective</b>                                                                                                               | <b>ERCu wire to weld Oxygen Free Copper and ETP Copper upto 44 mm thickness with radiographic quality using GMAW process.</b> | <b>OCM to Confirm</b>                                              |         |           |        |
| 2.1      | ERCu                                                                                                                           | As per SFA 5.7 of ASME Sec IIC Ed 2019                                                                                        | Vendor to confirm                                                  |         |           |        |
| 2.2      | Diameter of wire(in mm)                                                                                                        | 1.2 & 1.6 (Quantity as per P.I requirement)                                                                                   | Vendor to confirm                                                  |         |           |        |
| 2.3      | Standard Size and Shapes                                                                                                       | As per clause 11 of SFA 5.7 of ASME Sec IIC Ed 2019 (Wire in spool form only)                                                 | Vendor to confirm                                                  |         |           |        |
| 2.4      | Finish and Uniformity                                                                                                          | As per clause 12 of SFA 5.7 of ASME Sec IIC Ed 2019                                                                           | Vendor to confirm                                                  |         |           |        |
| 2.5      | Standard Package Forms                                                                                                         | As per clause 13 of SFA 5.7 of ASME Sec IIC Ed 2019                                                                           | Vendor to confirm                                                  |         |           |        |
| 2.6      | Winding Requirement                                                                                                            | As per clause 14 of SFA 5.7 of ASME Sec IIC Ed 2019                                                                           | Vendor to confirm                                                  |         |           |        |
| 2.7      | Filler Metal Identification                                                                                                    | As per clause 15 of SFA 5.7 of ASME Sec IIC Ed 2019                                                                           | Vendor to confirm                                                  |         |           |        |
| 2.8      | Packaging                                                                                                                      | As per clause 16 of SFA 5.7 of ASME Sec IIC Ed 2019                                                                           | Vendor to confirm                                                  |         |           |        |
| 2.9      | Marking of Pacakges                                                                                                            | As per clause 17 of SFA 5.7 of ASME Sec IIC Ed 2019                                                                           | Vendor to confirm                                                  |         |           |        |
| <b>3</b> | <b>The wire (required as per this specification) shall meet the requirements of the tests mentioned in S. No. 3.1 to 3.3 :</b> |                                                                                                                               | Vendor to confirm and provide Test Certificates/Datasheet from OCM |         |           |        |
| 3.1      | Chemical Analysis                                                                                                              | As per Clause 9 of SFA 5.7 of ASME Sec IIC Ed 2019                                                                            |                                                                    |         |           |        |
| 3.2      | Hardness                                                                                                                       | As per Table A2 of SFA 5.7 of ASME Sec IIC Ed 2019                                                                            |                                                                    |         |           |        |
| 3.3      | Tensile test                                                                                                                   | As per Table A2 of SFA 5.7 of ASME Sec IIC Ed 2019                                                                            |                                                                    |         |           |        |

|                                                                          |                                                                                                                                                                                                                                                                                                                                                                  |                   |  |  |  |
|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--|--|--|
| 4.0                                                                      | BHEL reserves the right to call free sample spool (of size as required in PO) of 12.5 -15 kg for each diameter as mentioned in clause 2.2 for further technical evaluation and testing at recommended parameters. The test results of BHEL will be final. Vendor to submit samples as per time period mentioned in PQR (Pre Qualifying Requirements).            | Vendor to confirm |  |  |  |
|                                                                          |                                                                                                                                                                                                                                                                                                                                                                  |                   |  |  |  |
| 5.0                                                                      | Operating parameters: The following operating parameters must be mentioned by OCM to weld ETP/Oxygen Free copper upto 44 mm thickness with radiographic quality:<br>a) Current,<br>b) Voltage,<br>c) Travel speed,<br>d) Type and percentage composition of shielding gas,<br>e) Gas flow rate,<br>f) Preheat requirements,<br>g) Any other specific requirement | Vendor to specify |  |  |  |
| 6                                                                        | <b>Authorization and Correspondence:</b>                                                                                                                                                                                                                                                                                                                         |                   |  |  |  |
| 6.1                                                                      | In case authorized vendor of original manufacturer quotes for the tender then the following must be met:                                                                                                                                                                                                                                                         | Vendor to confirm |  |  |  |
| 6.2                                                                      | Vendor to provide authorized dealer certificate valid for 1 year, and the OCM to take guarantee of the product quoted, failing this the offer will be rejected.                                                                                                                                                                                                  |                   |  |  |  |
| 6.3                                                                      | All Technical correspondence and confirmation shall be done with their principal supplier (original wire manufacturer). Contact details of OCM to be provided with the offer.                                                                                                                                                                                    |                   |  |  |  |
| 6.4                                                                      | All liability shall be of principal manufacturer in the event of default by the authorized agent/dealer.                                                                                                                                                                                                                                                         |                   |  |  |  |
| <div>Legends :</div> <div>1. OCM- Original Consumable Manufacturer</div> |                                                                                                                                                                                                                                                                                                                                                                  |                   |  |  |  |