

**PROCUREMENT PROCEDURE OF CPRI (NON WORKS)**

Revision No. : 04  
 Dt of Revision : 27.08.2020  
 Page No. : 1 of 4  
 Section : Formats  
 Topic : Technical Specifications format

Issue No : 2  
 Issue Dt. : 30.06.2003  
 Issued by : P A  
 Documents : PPM

FORMAT NO.:CPRI/PUR/ETBID/GTP

**Section IV T -Technical Specification**

**CENTRAL POWER RESEARCH INSTITUTE, BENGALURU/BHOPAL Web: www.cpri.res.in, www.tenderwizard.com/CPRI**

Tender Enquiry No : CPRI/BLR22HPL07C1116

Description of the Equipment/Goods/Services : 1. Electrolytic Tough Pitched (ETP) Copper flat busbars  
 2.Tin coated Braided Copper Wire Rope

Note : 1) The technical bid submitted in other than this format is liable to be rejected.

2) All blue fields are mandatorily to be filled in.

Name and address of the bidder

Quotation Number and Date

Sl.No.	Parameters	CPRI Technical Specification / Requirements	Qty	To be completed by the Bidder		
				Details of guaranteed technical parameters offered by the bidder	Guaranteed Technical Particulars (GTP) Mention Complied/Not Complied	Deviations from GTP
1	Place where equipment /service to be supplied /provided	High Power Laboratory, CPRI, Bangalore.	Refer Sl. No. 8 & 15			
2	Scope	Scope covers the supply, packing and transportation, insurance and material test certificates.				
3	General	The copper flat busbars supplied should be bright and clean.They shall be free from oxide later, nodules, shrinks, holes, crack, cold sets, pits, sloppy edge, concave tops, and other similar defects in set or casting. They shall also be free from all foreign materials, such as copper sulphate, drift, grease and oil, and shall withstand ordinary handling without breakage. The materials should be ISI approved and marked.				

**PROCUREMENT PROCEDURE OF CPRI (NON WORKS)**

Revision No. : 04  
 Dt of Revision : 27.08.2020  
 Page No. : 2 of 4  
 Section : Formats  
 Topic : Technical Specifications format

Issue No : 2  
 Issue Dt. : 30.06.2003  
 Issued by : P A  
 Documents : PPM

FORMAT NO.:CPRI/PUR/ETBID/GTP

**Section IV T -Technical Specification**

**CENTRAL POWER RESEARCH INSTITUTE, BENGALURU/BHOPAL Web: www.cpri.res.in, www.tenderwizard.com/CPRI**

Sl.No.	Parameters	CPRI Technical Specification / Requirements	Qty	To be completed by the Bidder		
				Details of guaranteed technical parameters offered by the bidder	Guaranteed Technical Particulars (GTP) Mention Complied/Not Complied	Deviations from GTP
4	Service Condition	<ul style="list-style-type: none"> <li>• Temperature : 0°C to +50°C</li> <li>• Humidity: 90% RH (Non condensation).</li> </ul>				
5	Applicable Standards	IS 191:2007 (reaffirmed 2021) : The chemical composition and physical properties of various types of copper.  IS : 440 – 1964 (reaffirmed 2018) : Methods of chemical analysis of copper.  IS : 613 – 2000 (reaffirmed 2021) : Copper rods and bars for electrical purposes — specification.  IS : 1599 –2019 : Method for bend test.  IS : 1817 –1961 (reaffirmed 2021) : Methods of sampling non-ferrous metals for chemical analysis.  IS : 1897 – 2008 (reaffirmed 2021) : Copper strip for electrical purposes —specification.  IS : 2378 –1974 (reaffirmed 2006) : Code for designation of copper and copper alloys.  IS : 2378 –1974 (reaffirmed 2021) : Dimensions and tolerances for copper and copper alloy rods and bars for general engineering purposes.  IS : 7212 –1974 (reaffirmed 2021) : Methods of determination of copper.				
<b>Electrolytic Tough Pitched (ETP) Copper flat busbars</b>						
6	Types of bus bars	Air insulated with open phase rigid flat conductors				
7	Material of bus bar	Oxygen-free Electrolytic Grade Tough Pitched Copper (Cu-ETP) (Grade: C 101)				

PROCUREMENT PROCEDURE OF CPRI (NON WORKS)

Revision No. : 04  
 Dt of Revision : 27.08.2020  
 Page No. : 3 of 4  
 Section : Formats  
 Topic : Technical Specifications format

Issue No : 2  
 Issue Dt. : 30.06.2003  
 Issued by : P A  
 Documents : PPM

FORMAT NO.:CPRI/PUR/ETBID/GTP

**Section IV T -Technical Specification**

**CENTRAL POWER RESEARCH INSTITUTE, BENGALURU/BHOPAL Web: www.cpri.res.in, www.tenderwizard.com/CPRI**

Sl.No.	Parameters	CPRI Technical Specification / Requirements	Qty	To be completed by the Bidder		
				Details of guaranteed technical parameters offered by the bidder	Guaranteed Technical Particulars (GTP) Mention Complied/Not Complied	Deviations from GTP
8	Size of ETP cu flat busbars and Quantity	1) 3500 mm length x 100 mm width x 10 mm thick - Quantity : 20 Nos. 2) 3500 mm length x 150 mm width x 10 mm thick - Quantity : 20 Nos. 3) 3500 mm length x 200 mm width x 10 mm thick - Quantity : 20 Nos.				
9	Physical properties ETP cu flat busbars at 20 °C	a. Density : 8.89 g/cm <sup>3</sup> b. Electrical resistivity : 1.72× 10 <sup>-8</sup> Ω-m c. Conductivity (min) : 100% IACS d. Temperature coefficient of electrical resistance : 0.00393/°C e. Tensile strength Minimum : 250 MPa f. Elongation : 40 % g. Modulus of rigidity (torsion) : 44000 MPa h. Thermal conductivity : 397 W/mK i. Linear coefficient of thermal expansion : 14.1× 10 <sup>-6</sup> /°C j. Modulus of elasticity : 118 N/mm <sup>2</sup>				
10	Chemical Composition of ETP cu flat busbars	a. Copper(min) : 99.90 % b. Bismuth(max) : 10 ppm c. Lead(max) : 0.005 % d. Oxygen (max) : 0.045 % e. Total impurities(max) excluding oxygen & silver : 0.03 %				
11	Tolerance (max)	For Total Mass: ± 5 %. For Length of Bus bar: ± 5 mm. For Width and Thickness : ± 0.07 mm.				
12	Acceptance criteria	The supplier shall carry out testing of differnt Cu flat busbar sizes for conformity to Indian standards for electrical resistivity, tensile strength and all other physical properties as well as chemical composition and furnish the certificate from Government approved laboratories viz. National Metallurgical Lab. The test charges shall be borne by the bidder.  The copper bus bar will be accepted only, if the material meet all the desired specifications and standards mentioned above.				

**PROCUREMENT PROCEDURE OF CPRI (NON WORKS)**

Revision No. : 04  
 Dt of Revision : 27.08.2020  
 Page No. : 4 of 4  
 Section : Formats  
 Topic : Technical Specifications format

Issue No : 2  
 Issue Dt. : 30.06.2003  
 Issued by : P A  
 Documents : PPM

FORMAT NO.:CPRI/PUR/ETBID/GTP

**Section IV T -Technical Specification**

**CENTRAL POWER RESEARCH INSTITUTE, BENGALURU/BHOPAL Web: www.cpri.res.in, www.tenderwizard.com/CPRI**

Sl.No.	Parameters	CPRI Technical Specification / Requirements	Qty	To be completed by the Bidder		
				Details of guaranteed technical parameters offered by the bidder	Guaranteed Technical Particulars (GTP) Mention Complied/Not Complied	Deviations from GTP
<b>Tin coated Braided Copper Wire Rope</b>						
13	Type of braided copper wire rope	Air insulated with open phase flexible conductor				
14	Material of braided copper wire rope	High Flexibility & Conductivity ETP Grade Copper (Cu) with a minimum copper content of 99.90% and with tin coating of 10 micron minimum.				
15	Size of braided copper wire rope and Length	Cross-sectional area for Braided Ropes: 500 sq.mm Total Length : 100 meters ( supply of length can be splitted into 25 meters x 4)				
16	physical properties and chemical composition	Shall comply as per applicable IS standards				
17	Acceptance criteria	The supplier shall carry out testing for conformity to Indian standards for electrical resistivity, tensile strength and all other physical properties as well as chemical composition and furnish the certificate from Government approved laboratories viz. National Metallurgical Lab, which ever applicable. The test charges shall be borne by the bidder.  The Tin coated Braided Copper Wire Rope will be accepted only, if the material meet all the desired specifications mentioned above.				
18	Warranty	Warranty applicable as per CPRI Purchase terms and conditions.				

PN: 1) Mere statement of "Complied" do not suffice the requirement. The details of technical parameters in proof of CPRI requirements shall be furnished along with technical write-up, catalogues, brochures, literatures, phamplates, or any other documents shall be submitted in hard copy along with technical bid.

2) Calibration reports/certificates, factory test reports/certificates from an accredited agencies/facilites shall be submitted wherever applicable.

3) CPRI reserves the right to conduct "predispatch inspection" prior to dispatch at the works of the supplier and the expenditure towards PDI shall be borne by CPRI. However information regarding the rediness of the equipment/machinery for the PDI shall be communicated in writing at lease 70 days in advance.