

# INSTITUTE FOR PLASMA RESEARCH

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## MINOR FABRICATION WORKS ENQUIRY

Office Copy

ENQUIRY NO :IPR/MFW/19-20/55

Date : 13-11-2019

**Due Date : 04-12-2019 13:00 IST**

Please send your offer in sealed envelope specifying Inquiry No, Date & Due Date, ALONG WITH your credentials for the following items:

Important Note:

Please note that e-mail quotations are not acceptable however you may send your queries (if any) to **shukla@ipr.res.in**

Please Ensure that your sealed quotation reaches this office not later than above mentioned due date and time.

Kindly go through the following document properly before Quoting which are available on the IPR web portal i.e., <http://www.ipr.res.in/documents/tenders.html/> attached here with.

1. Technical specification as enclosed.
2. Instruction to the bidders & terms and Condition (refer Form NO:**IPR-MFW-01-V1**)
3. Bidding format(refer Biddingformat MFW-Bid.pdf)

GST fro Goods and Services (IGST/CGST/SGST TAX BENEFITS): PLEASE REFER clause no:8 of Form No:**IPR-MFW-01-V1**

QUOTATION SHOULD BE ADDRESSED TO **BRAJ KISHORE SHUKLA** ONLY.

Sr.No.	Description	Quantity	Rate
1	Copper Busbar installation, MV cable laying and termination work as per technical specification	1	No.

### Free Issue Material

Sr.No.	Description	Quantity	Unit	Value
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Note : Please quote with complete technical details (Technical Compliance sheet and product data sheet)

Encl:As per attachment

Sd/-  
BRAJ KISHORE SHUKLA  
Scientific Officer-G

## Technical Specification for Busbar installation and cabling work

### 1. Scope :-

This specification covers the following major activities;

- Busbar installation
- HV Cable laying and termination work

### 2. Busbar Installation :-

2.1 Contractor has to carry out Installation of 80x10mm busbar on existing support frame mounted over transformer including following activities

- HV post insulator mounting (4# per phase, total 12 Nos.) on existing support frame. Existing busbar support frames has integrated hardware for post insulator mounting, no additional hardware's are required
- Busbar cutting, bending and drilling as per layout requirement. Edges of the busbar after cutting drilling shall be rounded.
- Busbar joints shall be of overlapped type and complete with high tensile bolt, washers and nuts. Six hardware sets of M10 size shall be used to prepare single joint
- 80mmx10mm, 300mm long, 10 nos copper strips are used to connect two adjacent busbar sections. Supply of fabricated copper strips are in contractor scope. Contractor may consider any other size of copper strips, however total cross section area to be maintained of 800mm<sup>2</sup>.
- Busbar shall be fixed with post insulator using M16x1Nos and M10x2 Nos hardware set on each post insulator.
- Busbar ends shall be covered with "Busbar end cap" of Red, Yellow and Blue colour
- Busbar laying length shall be approximately 20 meters for three-phase system.

2.2 Contractor has to carry out Installation of 25x5mm busbar on floor including following activities

- Fixing of LV post insulator on floor using M12x40mm threaded stud
- 25x5mm Busbar laying and fixing with LV post insulator-using M12x30mm as per layout.
- Busbar will be connected with earthing point on device as per layout and purchaser instruction
- Busbar cutting, bending and drilling as per layout requirement. Edges of the busbar after cutting drilling shall be rounded.
- Busbar joints shall be of overlapped type and complete with high tensile bolt, washers and nuts. Two hardware set of M8 size shall be used to prepare single joint
- Busbar laying length shall be approximately 30 meters. LV post insulator shall be placed at 1meter interval

*Only SS hardware shall be used for installation work*

*Purchaser will provide 80x10mm and 25x5mm copper busbar, and HV-LV post insulators in required quantity (Free Issue material). Single busbar length shall of 4 meter.*

3. Cable laying and termination work:-

Contractor has to carry out HV cable laying work in existing cable tray including following activities

- Single run cable laying for 195sq.mm, Al conductor, XLPE insulated, 3 - Core, 22kV, HV cable in existing cable tray
- Termination for cable at both the ends using HV termination kit for indoor application, suitable for above cable.
- Cable termination connection with HV distribution board and Busbar
- *Cable dressing / laying shall ensure stress free connection with device. If required additional support shall be provided*
- Cable laying length shall be 25 meters approximately. Termination kit shall be from 3M / Raychem only.
- Purchaser will provide HV cable in required quantity. However, contractor has to unwind and cut the cable from cable drum.
- Purchaser will perform Insulation test (5kV/10kV) on prepared cable / terminations. Contractor is liable for successful demonstration.

4. Site work and safety :-

Contractor has to ensure not damage to purchase equipment's on which work will be carryout or any adjacent system. In case of damage, contractor has to repair to ensure its indented performance. High voltage safety practice shall be followed. Contractor has to clean the site after work. Purchaser representative shall be available on site for necessary instruction for installation work and layout.

### Annex – Busbar layout drawing (Typical)

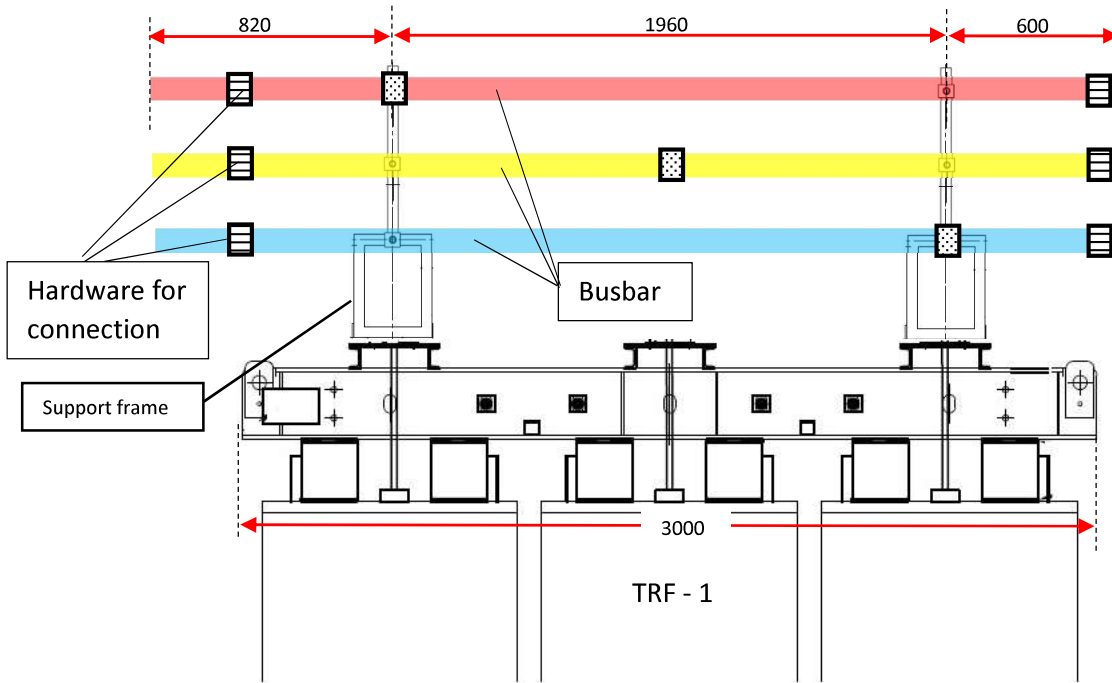


Figure 1 : Front view showing busbar layout and mounting detail for TRF -1

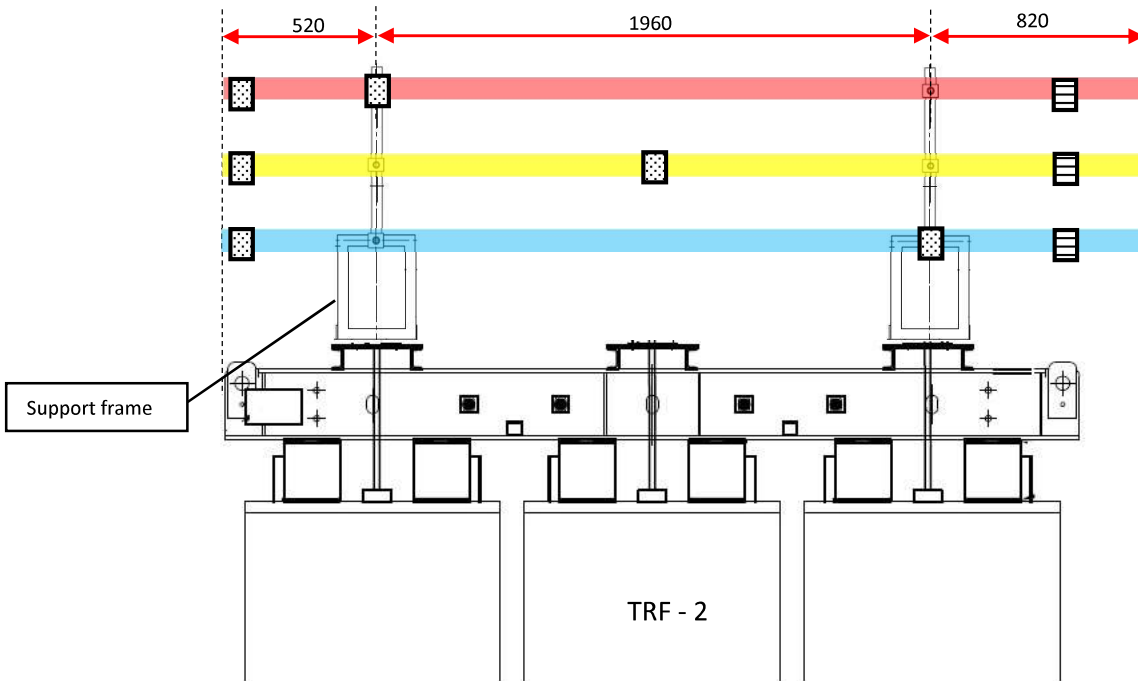


Figure 2 : Front view showing busbar layout and mounting detail for TRF -2

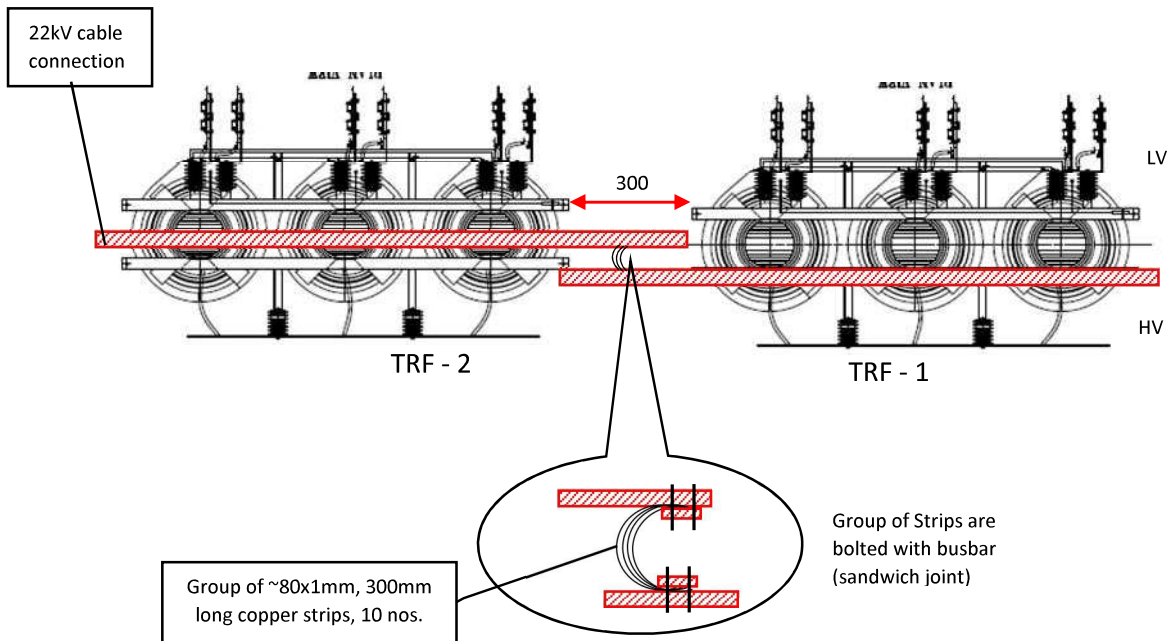




Figure 3 Top view for the TRF -1 and TRF 2, showing detail for busbar connection between two busbar sections

**Note:**

1. All dimension are in MM
2. Layout shown here is for guideline purpose only, it may modify during work execution as per site constrain
3. Contractor has to verify the dimension before start of work
4. Hardware connection marked with  symbol represent the cable connection
5. Hardware connection marked with  symbol represent the busbar to busbar connection

**List of services to be performed**

<b>Sr. No.</b>	<b>Description</b>	<b>Quantity</b>	<b>Unit</b>
1.	Installation of 80x10mm copper busbar as per section 2.1 (including SS hardware for busbar mounting / joining)	20	Mtr.
2.	Installation of 25x5mm copper busbar as per section 2.2 (including SS hardware for busbar mounting / joining)	30	Mtr.
3.	Supply of fabricated copper strips (800mm <sup>2</sup> equivalent area) and 300mm long copper strips	03	Nos.
4.	Supply of HV termination kit and cable termination as per section 3	02	Nos.
5.	Cable laying work as per section 3	25	Mtr

**Note:**

- Bidder has to submit rate for above items in price bid format attached
- Payment will be made against actual work performed.