

MAHARASHTRA STATE ELECTRICITY TRANSMISSION CO.LTD.,

Office of the Executive Engineer
500 kV HVDC TL (O&M) Division, Rajgurunagar
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Ref.No.: EE/500 kV/HVDC/TL(O&M)/Dn./RNGR/Tech/376

Date:-02.08.2023

NOTIFICATION FOR BUDGETARY OFFERS

Sub:- Providing and Fixing of Wedge Connectors suitable for 0.5 Moose ACSR Conductor at critical Tension tower Jumpers of 400kV Babhaleshwar -Padghe Ckt 1 & 2 Lines under Jurisdiction of 500kV HVDC TL O&M Division, Rajgurunagar for FY 2023-24.

Sir/Madam,

Budgetary Offers are invited from the MSETCL registered vendors having subject experience for the supply of material and service portion as per schedule A given below & as per under given terms and conditions :-


SCHEDULE -A

Sr. No.	Description	Unit	Qty	Rate (Ex-works without Freight&Insurance, Labour cess and GST) for each (A)	Labour cess on A= B)	Total C= A+B	Freight & Insurance (D)	Total E= C+D	GST on E=F	Total =E+F
1.	Supply of Wedge Connectors suitable for 0.5 Moose ACSR Conductor for critical Tension tower Jumpers	No	1							
2	Installation of Wedge Connectors suitable for 0.5 Moose ACSR Conductor at critical Tension tower Jumpers	No	1				----			
3	Modification of Jumper of 0.5 ACSR Moose conductor required for wedge connector	No	1				----			

Terms & conditions:-

1. The material supplied should meet the specification attached herewith.
2. Freight & Insurance will be 2% extra on Ex-work for supply item.
3. Labour cess will be 1% extra on supply and service items
4. GST at 18% will be applied on these items.
5. Validity of offer period should be mentioned on the offer letter.
6. Guarantee for supply of the material/Warranty for workmanship should be mentioned in the offer.
7. The offers should reach within 10 days from date of the issue of notification on website.

Such sealed offers need to be sent on letter head with due company seal and sign of authorized person in hard copy to this office address as mentioned above.


Executive Engineer
500kV HVDC TL O&M Division,
MSETCL. Rajgurunagar

**SPECIFICATIONS FOR WEDGE CONNECTORS SUITABLE FOR
0.5 to 0.5, 0.5 to 0.4 & 0.4 to 0.4 ACSR/ AAAC CONDUCTOR**

- 1) Wedge Connectors must have boltless design as well as there should not be any Nut, Bolt, Clamping, Tightening, Compression activity requirement during installation.
- 2) Wedge shall be inserted in tapered C member with suitable modality, such that no damage to connector or to conductor shall occur during installation.
- 3) Wedge connector members - tapered 'C' shaped spring member and wedge should be made from special aluminium alloy of high ductility and electrical conductivity. When installed, it will provide a tenable electrical and mechanical connection for solid or stranded conductor combination including ACSR / AL59 conductor.
- 4) The dimensions for the wedge shall be manufactured to close tolerances to ensure repeatability and reliability of the connection.
- 5) All sharp edges and burrs shall be removed.
- 6) The wedges shall be burnished to achieve optimum surface roughness for electrical contact.
- 7) The wedge terminal shall have back up conductor cleaning capability during application. The Wedge Terminals should ensure stable & low contact resistance under varying load conditions & the thermal cycling effects.
- 8) An oxide inhibiting compound placed in the wedge & "C" member groove of Wedge Terminals.
- 9) The following Type Tests shall be submitted for registered works with MSETCL, performed for Wedge connector suitable for ACSR / AAAC conductor to ACSR / AAAC conductor combination as per IS:5561 2018 (latest revision).
 - a) Dimensional verification
 - b) Pull out strength test (Product should not get fail when steady load increase to 110 kgf and held for 1 minute)
 - c) resistance test ($\leq 110\%$ of the resistance without connector)
 - d) temperature rise test (For 0.5 to 0.5/ 0.4, test should be performed at 1200 AMP or above load, temperature should be $\leq 95^\circ \text{C}$, For 0.4 to 0.5/ 0.4, test should be performed at 795 AMP or above load, temperature should be $\leq 45^\circ \text{C}$)
 - e) Short circuit current test (for 40 kA for 3 Second with initial peak of 100 kA)
 - f) Visual corona (Corona extinction voltage should be more than 320 kA AC)
 - g) RIV test (Measured RIV should be below $2500\mu\text{V}$ at specified test voltage)
- 10) The following Type Tests shall be submitted for registered works with MSETCL, performed for Wedge connector suitable for every ACSR / AL59 conductor combination of same run & tap conductor incl. offered sizes (e.g. ACSR 0.3 to ACSR 0.3 connector & ACSR 0.4 to ACSR 0.4 Connector Type Test required for offered ACSR 0.3 to ACSR 0.4 connector likewise for every combination), with latest revision of standard mentioned.
 - a) The wedge connector shall meet the current cycle test requirements as per ANSI, C 119.4-2016 Class AA. When connected as specified, samples shall indicate electrical stability for terminated connectors. The resistance of connection, when measured as specified shall be stable throughout test. The samples shall be tested to 500 on/off current cycles with the control conductor temperature raised between 175°C to 180°C above ambient.
 - b) The wedge connector shall meet the mechanical requirements as per ANSI C 119.4-2016 Class 3, minimum tension. When tested as specified or 5% of the rated cable strength of the weaker conductor.
 - c) The wedge connector shall meet the following thermal shock & salt spray test. Connectors shall be installed with designed run & tap conductors of suitable length. Free ends of both conductors shall be suitably connected / welded to Aluminium pads for ease of current supply & resistance measurements. Initial resistance shall be measured & resistance shall be measured after each cycle as below. Results shall be tabulated.
 - o 2 ½ Hours at 150°C .
 - o 15 minutes at 0°C water, immediately from the oven.
 - o 30 minutes at 150°C .
 - o 20 ¾ Hours at room temperature.No physical damage to samples is acceptable.

d) For Salt spray corrosion, samples of (c) above which is successfully passed, subsequently shall be subjected to a 30-day salt spray corrosion test. Initial resistance shall be measured & resistance shall be measured after every 5 cycles. Results shall be tabulated. Each daily exposure shall consist of:

- 15 hours in 5% salt spray atmosphere
- 1 hour in drying over at 100 C.
- 8 hours at room temperature.

No physical damage to samples is acceptable.

11. During installation, the wedge of wedge tap shall be driven inside the "C" member between the run & tap conductor so as to spread the "C" member to ensure high retentive force on the conductors. A locking tab, should prevent the wedge from loosening once it has been driven into position.

12. Also, locking arrangement shall be provided to avoid overrun of wedge in to C member.

Following points will be considered during tendering:

13. Successful bidder have to offer inspection for finished product minimum 15 days in advance with routine test reports applicable as per IS:5561. All acceptance tests as per IS 5561: 2018 (latest revision) shall be carried out during inspection by MSETCL inspector as per the sampling criteria specified in IS. Additionally, one sample of each offered item shall be subjected to Chemical Composition test from offered lot for inspection. For retest, guideline specified in IS:5561 2018 (latest revision) shall be followed. No material shall be dispatched without inspection or dispatch instruction issued by MSETCL.

14. Type tests shall be considered valid for the period of Ten (10) years & shall be valid as on last date of submission of bid.

15. Bidder shall submit valid type test reports from NABL accredited/Government Laboratory. The bidder has to submit all type test reports as stated for the offered item along with the technical bid. In case of non-submission / partial submission or type test reports of which validity is over, the bidder shall submit pending type test report/s from NABL accredited/Government Laboratory, in the event of an order, before commencement of supply without affecting delivery schedule, free of cost to MSETCL. Confirmation for above shall be invariably submitted along with technical bid. Furthermore, purchaser reserve right to select the sample from Manufacturer Works & recommend the NABL lab to carry out type tests in case of non-submission/ partial submission or type test reports of which validity is over.

16. Bidder have to submit detailed drawing including all important dimensions, material grade, ratings etc. & detailed QAP including raw material stage to finished product inspection stage wise check points with technical bid.

17. ONE Sample of each required combination is required to deliver to the office of Tender inviting authority of MSETCL before the tender submission limit.

18. MSETCL reserve right to conduct any testing out of the tender testing reference mentioned in the tender on any sample delivered by the bidder at any NABL accredited laboratory located within India.

19. Expense of the testing will be under scope of bidder. In case of non paying testing charges or failure of delivering the tender sample or failure in testing, bidder will consider as disqualified & no further discussion will be entertained by the tender inviting authorities.

20. Bidder must have valid type test reports as demanded in technical spec available with the bidder when they've quoted tender. In case of missing the same, bid will get considered as deviation and bidder will get disqualified without any further correspondence.



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