

**Bharat Heavy Electricals Limited,
Heavy Electrical Equipment Plant,
Haridwar - 249403, Uttarakhand, INDIA.**

Enquiry No.

Date:

Due Date:

Supplier's Ref.:

Date :

SPECIFICATION CUM COMPLIANCE OF "SET OF 2 NOS. SLIDING ROOF FOR OPENING OF 3.7 M X 20.0 M FOR AC ENCLOSURE FOR TG ROTOR WINDING ASSEMBLY IN BLOCK I BAY II EXTENSION AS PER ENCLOSED SPECIFICATION" for AUGMENTATION TO 10020MW FACILITIES

Note:-

1. The offer and all documents enclosed with offer should be in English language only.

2. The following format must be completely filled and deviations mentioned in the appropriate columns. Inadequate / incomplete, ambiguous, or unsustainable information against any of the clauses of the specifications / requirements shall be treated as non-compliance.

3. All the components should be in metric sizes only.

4. Vendor (OEM) must submit complete information against clause no. 12 (Qualifying condition). The offer meeting this clause would only be processed (OEM : Original Equipment Manufacturer).

NAME & ADDRESS OF THE SUPPLIER:

Telephone No.:

Fax No.:

e-mail:

Scope: Design, Manufacturing, Supply, Erection & Commissioning & job proving of Sliding Roof (Set of 2 Nos.) for AC Enclosure complying with the following specifications.

Annexure to enquiry no : C/6210/9/6114T, Dated: 18.12.2009

MATERIAL CODE NO.: ZTGT17092019

S. No.	Description - BHEL's Requirement	Specified	Offered	Deviations	Remarks
1.0	APPLICATION:				
1.1	The subject Sliding Roof (Set of 2 Nos.) shall be used for covering the opening in the roof (meant for placing & taking out the Rotor) of AC Enclosure. In normal course, the opening shall remain closed. The entire assembly is proposed for an indoor area inside the production Block (Block I, Bay II extension). This shall be an insulated one to eliminate loss of controlled atmosphere when closed.	Vendor to note			
1.2	The Sliding Roof shall be put to use for 365 Days continuous duty.	Vendor to note			
2.0	SCOPE OF SUPPLY:				
2.1	Design, Manufacturing, Supply, Erection, Commissioning & Job Proving of Electrically Operated Sliding Roof (Set of 2 Nos.) with suitable power supply system & control switches as per enclosed annexure & Layout Drawing No. EMT 1578, Rev. 01. This shall be an insulated one to eliminate loss of controlled atmosphere when closed.	Vendor to Comply			
3.0	Quantity Required: Sliding Roof (Set of 2 Nos.)	1 Set			

4.0	Location: Block-I, Bay-II Extension (AC Enclosure for Rotor winding Assembly area)	Vendor to note			
5.0	Technical Specifications:				
5.1	The layout of AC Enclosure is enclosed as per Drawing No. EMT-1578, Rev. 1.	Vendor to note			
5.2	LT Span of each Roof suitable for opening of 20 Meter and Long Travel Span / overlapping if any to be decided by designer.	Vendor to Specify			
5.3	Width of each Roof suitable for opening of 3.7 Meter and overlapping if any to be decided by designer.	Vendor to Specify			
5.4	Sliding Roof exterior dimensions after fabrication / insulation etc to be decided by designer.	Vendor to Specify			
5.5	The opening area shall be 3.7x20 Mtr. and dim. 3.7 meter as given in layout at 2 places is the opening of enclosure for sliding roof. For these 2 openings, sliding roofs are to be designed having controlled movement on the available opening side only.	Vendor to Comply			
5.6	Size of cover roof area should be able to cover opening of size 20 x 3.7 M. The roof frame fabrication shall be in suitable parts / sections to facilitate easy handling transportation & assembly at site.	Vendor to Comply			
5.7	The roof material should be standard steel sheet of suitable thickness with corresponding supporting structural members, so as to give a modern and aesthetic appearance.	Vendor to Comply			
5.8	The roof is to be designed so as to allow maintenance staff to walk over it alongwith tools, tackle and spares.	Vendor to Comply			
5.9	Each sliding Roof shall move at parking place shown in layout drg as 5 meter.	Vendor to Comply			
5.10	The sliding roof shall be supported on the existing columns and rail to be fixed on these existing columns by vendor.	Vendor to Comply			
5.11	Rail for long travel wheel is also to be provided by the vendor.	Vendor to Comply			
5.12	Any other information required shall be provided during discussions / site visit by vendor.	Vendor to Comply			
5.13	Roof shall be of fabricated type duly filled with puff insulation that escape of Cold Air can be minimized.	Vendor to Comply			
5.14	Gear Boxes: Shall be used of reputed make with brake motor	Vendor to Specify the make & details			
5.15	Wheels: Wheels shall be forged and made of C55 Mn75 Carbon steel, Hardened to BHN 300-350.	Vendor to Comply			
5.16	Very low noise operation system should be provided.	Vendor to Comply			
5.17	Type of Coupling:	Vendor to specify			
5.18	Lubrication: Suitable lubrication system shall be provided for gear boxes and all rotating parts wherever applicable.	Vendor to Comply			

5.19	Buffers (End Stoppers): Buffers of adequate size to suit the installed on Sliding Roof shall be provided.	Vendor to Comply			
5.20	Guards: All the moving / rotating parts like couplings, wheels etc. shall be duly covered with proper guard / cover / tray as per safety norm, wherever	Vendor to provide			
5.21	Rail Size for Long Travel (LT): To be provided by Vendor	Vendor to Specify			
5.22	Wheels: To indicate wheel dia & No. of wheels on each sliding roof (LT wheel Shall be matched with the above rail).	Vendor to Specify			
5.23	Electrical Elements:				
5.24	Operation / Control: The operation shall be from a fixed operating station by manual Push Button control with option for control selection by one operating switch for forward & reverse shall be provided for each roof individually . A suitable interlock limit switch shall be provided so that both roofs do not operate simultaneously.	Vendor to Comply			
5.25	The sliding roof movement shall be motorized. The operating speed for LT Motion shall be maximum 1-2 meter/min.	Vendor to Comply			
5.26	LT motion shall be Twin Drive type.	Vendor to Comply			
5.27	Motor Details: Preferred make & details to be submitted.	Vendor to specify			
5.28	Limit switches to cut off movement when the roof reaches its pre-determined position on either side shall be provided.	Vendor to Comply			
5.29	Red revolving flasher light and warning bell / siren should be actuated when the roof is being moved so as to warn personnel in the area.	Vendor to Comply			
5.30	Control Voltage:	Vendor to specify			
5.31	Input Power Supply: Shall be 415 \pm 10% Volts, 50 \pm 3% Hz, 3 Phase AC	Vendor to note			
5.32	DSL & Current Collector System: Fastoon system / Shrouded Bus Bar or Cable drag arrangement for LT Motion shall be provided by vendor. BHEL shall provide electrical supply upto starter and starter shall be provided by the supplier and fixed on existing column.	Vendor to indicate details			
5.33	Type of Brakes:	Vendor to specify			
5.34	Limits Switch: Limit switches shall be provided LT.	Vendor to Comply			
5.35	Painting: One coat of Primer with 25 micron DFT (Dry Film Thickness) and 48 hours of compulsory curing after painting and Two coats of Enamel Paint (Colour – Golden Yellow) each with a DFT of 25 micron and intermittent curing of 16 hours.	Vendor to Comply			
6.0	Spares: 1 No. LT Gear Box with Motor (Unit Price should be offered in the price bid).	Vendor to Confirm			
7.0	Acceptable BOI Make:				
7.1	Electric Motors: GE / Bharat Bijlee / Siemens / KEC / ABB / Crompton	Vendor to Comply			
7.2	Limit Switches: Siemens / BCH / L&T / GE	Vendor to Comply			
7.3	Contactors: Siemens / L&T / GE	Vendor to Comply			

7.4	MCB / MCCB: Siemens / L & T / GE / ABB	Vendor to Comply			
7.5	Push - Buttons: Siemens / L & T / GE	Vendor to Comply			
7.6	Couplings: WMI / Fenner / ALFEX or reputed equivalent make to be approved by BHEL	Vendor to Comply			
7.7	Bearings: SKF / FAG only	Vendor to Comply			
7.8	Cables: LAPP / Schiess Kabel/finolex/NICCO/equivalent reputed make to be approved by BHEL, confirming to relevant IS/ DIN	Vendor to Comply			
8.0	INSPECTION: Inspections shall be strictly adhered to, prior to dispatch from the Supplier's Works, witness by BHEL (Check of Roof span and diagonal, Idle running, Speed, BOI etc.).	Vendor to submit			
9.0	ERECTION & COMMISSIONING OF SLIDING ROOF: Prove out for the Sliding roof for smooth Functioning of the Sliding roof (at BHEL Works) shall be the RESPONSIBILITY of the supplier. Necessary tools & equipments required for erection shall be brought by the supplier.	Vendor to Comply			
10.0	O & M MANUALS: 3 Copies of Erection, Operation & Maintenance Manual with 2 set of CDs, containing the all technical details & drawings with spares & bought out items shall be submitted. All copies shall be hard-bound in high quality leather folders, encased in decent individual boxes.	Vendor to Comply			
11.0	PERFORMANCE GUARANTEE: The Performance of the Sliding Roof for proper functioning shall be guaranteed for a minimum period of 24 months from the date of receipt at BHEL or 18 months from the date of commissioning of the Sliding Roof at BHEL Works, which ever is earlier.	Vendor to Comply			
12.0.0	QUALIFYING CONDITIONS:				
12.1.0	Only those vendors (OEMs), who have supplied and commissioned at least one Sliding Roof or Transfer Trolley min. cap. 5T or EOT Crane min. cap. 5T or more in the past ten years (on the date of opening of Tender) and referred Sliding Roof, Transfer Trolley or EOT Crane is presently working satisfactorily for more than one year (on the date of opening of Tender) after commissioning, should quote. The following information should be submitted by the vendor about the companies where referred Crane (s) have been supplied. This is required from all the vendors for qualification of their offer.	Vendor to accept and confirm			
12.2.0	Name of the customer / company where Sliding Roof/ Transfer Trolley or EOT Crane(As detailed above) is installed.	Vendor to inform			
12.3.0	Complete postal address of the customer.	Vendor to inform			
12.4.0	Month & Year of commissioning.	Vendor to inform			
12.5.0	Parameters of sliding Roof / Transfer Trolley or EOT Crane (s) supplied.	Vendor to inform			
12.6.0	Name and designation of the contact person of the customer.	Vendor to inform			
12.7.0	Phone, FAX no. and e-mail address of the contact person of the customer.	Vendor to inform			

12.8.0	Performance certificate from the customers regarding satisfactory performance of Sliding Roof / Transfer Trolley or EOT Crane supplied to them (Original Certificate or Through E-mail directly from the customer). The original performance certificate may be returned after verification by BHEL, if required.	Vendor to submit			
12.9.0	BHEL reserves the right to verify information submitted by vendor. In case the information is found to be false / incorrect, the offer shall be rejected.	Vendor to accept & confirm			
13.0	DUPLICATE COPY OF TECHNICAL OFFER MUST BE SUBMITTED	Vendor to Confirm			
14.0	The successful Vendor is required to measure all necessary dimensions i.e. Span, Head Room, All required dimensions / clearances between rail center to existing column at site before starting of the Sliding Roof design / manufacturing.	Vendor to Confirm			