



**BHARAT HEAVY ELECTRICALS LIMITED**  
**PROJECT ENGINEERING MANAGEMENT, NOIDA**

Date-5-Aug-22

**CORRIGENDUM- 03**

<b>PROJECT</b>	<b>:</b>	<b>1X800MW NORTH CHENNAI TPS Stage-III (FGD SYSTEM)</b>
<b>PACKAGE</b>	<b>:</b>	<b>COMPRESSED AIR SYSTEM</b>
<b>ENQUIRY NO</b>	<b>:</b>	<b>PE/PG/NCF/E-7019/2022 dtd 16.07.22</b>
<b>SUBJECT</b>	<b>:</b>	<b>TECHNICAL &amp; COMMERCIAL CLARIFICATION</b>

Type of Corrigendum			
Technical Corrigendum -	<input checked="" type="checkbox"/>	Commercial Corrigendum -	<input checked="" type="checkbox"/>

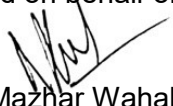
Please note the following:

- 1. Due Date is being extended from 05.08.2022 to 16.08.2022 till 11:00 AM. Bid Opening shall be done at 04:00 PM on the due date.*
- 2. Clarifications as per attached Annexure-I.*

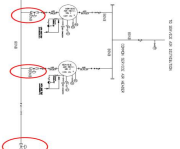
All the other terms and conditions of the tender enquiry shall remain unchanged. All the bidders are requested to quote accordingly.

Yours faithfully,

For and on behalf of BHEL

  
Mazhar Wahab  
Dy. Manager/BOP

PROJECT		1 X 800 MW North Chennai TPS Stage-III - FGD TECHNICAL SPECIFICATION FOR COMPRESSED AIR SYSTEM			
EPC		BHEL			
Pre Bid Clarification					
Sl no	Page no:	Clause	Project spec	observation & Deviation	BHEL REPLY
1	15/385	5.2	Cooling water supply will be provided by the purchaser outside the compressor house (5m within vicinity of Compressor house). The return hot water shall be terminated by the contractor at the same location. Parameters at T.P. shall be as below: INLET TEMP. TO PHE :38 °C DESIGN PRESSURE = 10 KG/SQ.CM(G) Temperature rise for DMCW = 8 °C	Cooling Water temp rise shall be 10 Deg C	Cooling water temp. rise of 10 deg. C is Noted.
2	21/385	2	Codes & Standard	Same shall be as per OEM standard practice and previous executed projects.	Noted. Codes & Standards as per proven practice is acceptable.
3	23/385	5.1.8	The intake filter shall prevent dust and dirt from entering the compressor casing and shall conform to the requirements of IS 6206. The type of intake filter shall be as specified in data sheet furnished in Annex-2.1.1 of this document. The filter shall be replaceable and designed to retain particles of five (5) micron and above with ninety nine (99) percent efficiency. In case of cloth filter, the filter element may be of nylon, polypropylene, or woolen cloth attached to the wire netting	Intake filter shall be of 10 Micron Only	Bidder to ensure filter efficiency as specified in specification.
4	26/385	2	MOC	MOC of Compressors shall be as OEM standard and Previous executed projects.	Equivalent / better MOC within compressor skid is acceptable as per OEM proven design subjected to supporting documents by bidder.
5	29/385	2.3	Maximum Allowable pressure Drop : 0.3 Kg/cm2	Same Shall be 0-4-0.5 Kg/cm2	Bidder to comply specification requirement.
6	39/385	3	Civil Work	Civil work not in our scope.	Pl. refer Cl. No. "6. EXCLUSIONS", page 15 of 389, wherein civil is excluded from bidder's scope.
1	17/385	15. ADDITIONAL POINTS TO BE NOTED BY BIDDER	Only KKS tagging shall be used in all document/drawings and in the field for all Items/equipment/signals etc. No other tagging method is acceptable. The successful bidder shall provide detailed drawing with KKS only. Operational write up of the system should strictly contain KKS code for identification and description.	KKS Tags not applicable for instrument and accessories inside the skid . Shall comply for filed instruments only	Noted. Same shall be subjected to Customer approval during detail engineering.
2	34/385	3.2 EQUIPMENT DESIGN CRITERIA	The motor name plate rating shall have 15% margin over duty point input (or) 10% margin over the maximum demand of driven equipment whichever is higher considering highest system frequency.	Shall comply 10% from Max demand of driven equipment .	Bidder to comply specification requirement.
3	36/385	5.1.3.3. Local/remote mode feedback shall also be hardwired to DCS.	On tripping of the working compressor, the standby compressor shall come into operation automatically in case of very low pressure in the system.	This logic has to be developed in customer DCS .	The same is achievable through the compressors itself, through the PT's within the compressor skid.
4	111/385	ELECTRICAL SCOPE BETWEEN BHEL AND VENDOR	Make of all electrical equipments/items supplied shall be reputed make & shall be subject to approval of BHEL/customer after award of contract.	Shall be as per bidder OEM standard inside the skid	Noted. Makes within compressors skid are acceptable as per OEM proven sources.
5	111/385	ELECTRICAL SCOPE BETWEEN BHEL AND VENDOR	4. Vendor shall indicate location of Electronic Earth pit in their Civil assignment drawing	Offed compressor shall have Earthing provision only . Earth PIT and Earthing shall be under customer scope	Earth PIT and Earthing are in BHEL scope. However Vendor shall indicate location of Electronic Earth pit in their Civil assignment drawing as per specification.
6	119/385	SECTION : 3.1- MOTORS 3.12.0 Starting current	Motor shall be designed for direct online starting at full voltage. Starting current shall not exceed 6 times full load current for all auxiliaries. No further tolerances are applicable on starting current specified above for HT motors. • For LT motors, the applicable starting current shall be limited to 7.2 times of full load current including all tolerance.	Offed motor shall comply as per IS12165 and the starting current shall be 7.7 times subjected to tolerance only .	Starting current shall be as per applicable standards for IE3 motors.
7	120/385	Temperature Detectors	Five number of Temperature detectors / thermistors shall be provided for L.T. motors above 90 KW (3 numbers winding temperatures & 2 numbers bearing temperatures)	These Offerd RTD And BTD of LT motor shall be connected to compressor controller for compressor Safety interlock and trip	Noted.
8	122/385	3.20.0 Earthing Terminals	The frame of each motor shall be provided with two separate and distinct grounding pads complete with tapped hole, GI bolts and washer. The terminal box shall have a separate grounding terminal. The grounding connection shall be suitable for accommodation of ground conductors as follows : Above 100 to 200 KW : 75x10 mm GS flat Above 55 KW to 100 KW : 50x6 mm GS flat Above 22 KW to 55 KW : 50x6 mm GS flat Above 5.5 KW to 22 KW : 25x6 mm GS flat Fractional HP LV Motors : 8 SWG GS Wire	Offered motors are skid mounted to compressor canopy . Hence the canopy only have Earthing provision .	Vendor to confirm whether two numbers grounding pad for earthing of motors and earthing conductors for terminal box are connected to earthing of canopy. Otherwise The frame of each motor shall be provided with two separate and distinct grounding pads complete with tapped hole, GI bolts and washer. The terminal box shall have a separate grounding terminal as per specification.
9		8.0.0 SPECIFIC REQUIREMENTS	90 KW and above but 160 KW & below: ACB controlled with numerical relays	Kindly note bidder shall be offering Compressor without mian motor starter . Start /ACB shall be under customer scope .	Noted.

10	131/385	3.0 DESIGN REQUIREMENTS	Motors shall be continuously rated at the design ambient temperature specified in Data Sheet-A and other site conditions specified under Project information Motor ratings shall have at least a 15% margin over the continuous maximum demand of the driven equipment, under entire operating range including voltage & frequency variation specified above.	Shall comply 10% from Max demand of driven equipment .	Bidder to comply specification requirement.
11	167/385	Scope of C&I for compressed Air System	3. Annunciation Window and Hooter 4. Indication Lamp 8. ALL transmitter PT and DPT, TE inside the outside the compressor skid to be hooked up with the system 9. Recommended Logic for DCS 9. Config Diagram 10. Time Synch 12. Make and model of Instruments 19) P&ID And Scope of Instruments 21) Transmitter mounting 23) Scope of instruments 31) Redundancy on microcontroller	3 & 4 ) Kindly note all alarm and trip and status related to compressor shall be displayed on HMI only . 8) Instruments offered inside the compressor and dryer skid shall be hooked up with Compressor /Dryer individual controllers . Instruments outside the skid shall be hook to DCS only and the same is under customer scope . 9) bidder shall submit Operational philosophy , IO list Logic development shall be under customer scope only . 10) Time Synch is Not possible with Microcontroller based system sales to take deviation 12) Shall be as per bidder OEM standard inside the skid . bidder shall comply make and model as per Spec for filed instruments ( instruments outside the skid ) 19) Shall be as per Mutually agreed scope of supply 21) Field instruments Shall be directly Pipe mounted as per previously executed BHEL packages .Trnsmitter used inside the skid shall be as per OEM standard only . 23) Shall be as per Tender P&ID and mutually agreed scope of supply 31) Redundancy by any means cannot be complied in Air Compressor system .	3), 4), 8) Noted. 9) Bidder to provide IO list inline with previously executed projects. Further, any help required for logic development in DCS, same shall be provided by bidder. 10) Noted. Bidder shall provide supporting documents during detail engineering in this regard. However, during detail engineering, if time synch is available with supplier, same shall be provided to BHEL. 12) Noted. Makes within compressors skid are acceptable as per OEM proven sources. 13) Noted. However, bidder to consider minimum instruments as indicated in the P&ID of CAS attached with tender specification. 21) Noted. However same shall be subjected to OEM standard during detail engineering. 23) Noted. However, bidder to consider minimum instruments as indicated in the P&ID of CAS attached with tender specification. 24) Redundancy as per specification shall be consider by bidder. In case, equipment cannot be mounted within skid, same shall be provided loose.
12	174/385	List Of deliverables	a) Control scheme /Logic diagram b) Data sheet of Instruments b) Annunciation & SOE	a) NA b) Shall submit for Field Instruments only c) NA	Noted
13		10.3.30 Junction Boxes	(i) No. of ways 12/24/36/48/64/72/96/128 with 20% spare terminals. (ii) Material 4mm thick fibre glass reinforced polyester. (iii) Type Screwed at all four corners for door. Door handle shall be self-locking with common key. Door gasket shall be of synthetic rubber.	Since the Qty is very less bidder shall offer Standard RITTAL JB only .	Bidder to comply specification requirement.
14	221	Local control panel & Data sheet		LCP of compressor is not a free standing type it is an integral part of compressor canopy . Hence Shall be as per bidder oem standard only	Noted. Compressor microprocessor panel as per OEM is acceptable.
15	230/385	HARD WIRED INTERFACE	Motor Winding & Bearing	Kindly note Motor RTD and BTD shall be interface with Controllers only for Interlock purpose . Hence the same cannot be extended to DCS	Noted.
16	378/385	Tender P&ID		BHEL to confirm the type of valve to be offered at highlighted junction to proceed further	The valve shall be ball type with pneumatic actuator.