

RFQ no. 77/15/6250/RCD-Kothagudem/Bhadradi TPS-TRANSPORT AIR COMPRESSORS PACKAGE-technical clarifications dtd. 02.02.2016

Sr. No	Sheet No.	Clause No.	Bidder Comments/Clarifications/ Deviations	BHEL Reply/ Clarification
1	3 of 16	2.00	<p>1. System integration shall be BHEL Scope.</p> <p>2. Performance Guarantee test for free air delivery and power consumption at rated discharge pressure with job motor shall be demonstrated at our works in Pune as per ISO1217 Ed 3 Annexure C. At site, we shall carry out only mechanical run test of the compressor.</p> <p>3.The Air Intake filters shall be mounted in the compressor & necessary protection has been take care. Hence separately packing the air filter is not envisaged.</p> <p>4. The packing of the machines shall be as per Bidder standards followed for all the machines. The machines shall be stored under dry, rain protected area/room. The storage procedure is enclosed with the mail and shall be part of our technical bid. As Bidder has innovative technology of reusing the packing material, we further can use the same packing after the Preventive maintenance procedure is carried out.</p> <p>5. Further BHEL to provide the manpower at site to unpack and pack the machines.</p>	<p>1. System integration with ash handling system shall be in BHEL's/BHEL's vendor scope. However, the integration within compressor and/or compressors shall be in bidder's scope. Also any assistance required for integration with air dryers supplied by BHEL/BHEL's vendors shall be in bidder's scope.</p> <p>2. Noted.</p> <p>3. No deviation is acceptable. Bidder to consider as per specification.</p> <p>4. Machine shall be stored in rain protected area/room. Storage procedure is not enclosed. No deviation is acceptable. Bidder to consider as per specification.</p> <p>5. Manpower has to be arranged by bidder.</p>
2	4 of 16	3.01	Offered compressor's for Transport Air Compressor / Low Pressure is with standalone after cooler & as per Bidder standards.	Noted for standalone aftercoolers for compressors.
4	5 of 16	4.08	Water cooled compressor's cooling system as well as the oil coolers as required should be designed to withstand the maximum pressure of 4.5 kg/cm ²	No deviation is acceptable. Bidder to consider as per specification.
6	5 of 16	4.11	Cooling water supply temp shall be limited to 36 Deg C	No deviation is acceptable. Bidder to consider as per specification.
10	5 of 16	4.16	Motor rating shall be selected such that compressor shall deliver/meet the specified parameter of loading pressure, considering margin of min. 10% of compressor shaft power.	No deviation is acceptable. Bidder to consider as per specification
11	6 of 16	5.00	Companion flanges along with nuts & bolts for air discharge & cooling water inlet & outlet flanges shall be in scope of Bidder. Compressors shall be supplied without oil before transit & fresh oil shall be filled in presence of BHEL during commissioning of compressor at site. NRV is inbuilt in the compressor skid & separate NRV is not envisaged at discharge. Ventilation fan is not applicable. Necessary instruments as per Good Engineering Practice are incorporated in compressor skid for smooth, satisfactory & reliable operation of compressor....any further requirement's of additional instruments needs to be	No deviation is acceptable. Bidder to consider as per specification.

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			specified by BHEL- ISG. Compressor shall be Inbuilt Control Panel mounted on the compressor skid. Please refer to the scope of supply of compressor & any further requirement of other accessories/ instruments for necessary / monitoring & operational safety of offered compressor shall be in scope of BHEL-ISG.	
14	7 of 16	9.00 SI No 1	1 No of Compressor have been asked as Mandatory Spare apart from the main supply of 3 Nos for Kothagudem. Please confirm, as the main supply may contain the standby compressor also.	Confirmed, Bidder to consider as per specification.
	7 of 16	9.00 SI No 2 & 3	These items forms the major integral part for of the compressor skid and the same is not supplied as loose item, hence we are not considering in the supply of mandatory spares	No deviation is acceptable. Bidder to consider as per specification.
		SI No 3	Bearings of rotors are not supplied loose items, hence not applicable.	No deviation is acceptable. Bidder to consider as per specification
		SI No 4	Seal kits – Please elaborate, which item seals are required.	Seal kit refers to all types of seals required in one compressors.
15	8 of 16	10.00	Essential spares – The same need discussion	
19	15 of 16	17.00	<p>Each compressor is provided with microprocessor based control panel known as "Elektronikon". There is no separate provision for redundant microprocessor.</p> <p>Hardware Signals – The Elektronikon shall have potential free contacts. BHEL to further hardwire the signals from the Elektronikon to DCS. Potential free contacts shall be used for the following commands: 1) Start/ stop 2) Load/unload 3) Emergency stop 4) Common alarm 5) Common trip.</p> <p>Elektronikon is having software loaded in it and hardware is part of it. The Elektronikon forms the integral part of the compressor skid.</p> <p>Further, we have considered a Mark V Gateway (Communication Box), which is a common Combox, wherein all the compressors in the particular compressor room can be connected in daisy chain through Communication cable.</p> <p>Communication cable shall be in scope of BHEL. Required connectors for respective compressors shall be supplied by BIDDER. Further the Combox can be placed in the last compressor, where in it will derive 24 v DC power from the control panel of the compressor. The Soft Signals from the Combox can be carried through communication cable to plant DCS and same shall be in scope of BHEL.</p>	<p>The signals to be hardwired to DCS will be intimated to successful bidder during detailed engg. and will be binding on Bidder.</p> <p>Each compressor should have independent provision for communication (through soft link) to DCS.</p> <p>However, Bidder's proposal can be discussed with customer in the event of order and same is subject to Customer approval. Decision of Customer will be final and will be binding on Bidder without any commercial implication to BHEL. Also, the looping/ Daisy chain of compressors to a common box shall be in Bidder's scope including the communication cable connectors, etc.</p> <p>Pl find below the details of compressor locations: Bhadradi Project: No.of Compressor rooms: 02 No.of Compressors per compressor room: 06 Cabling Distance between compressor rooms: 1.5km (appx.)</p>

				<p>Kothagudem Project: No.of Compressor rooms: 1 No.of Compressors per compressor room: 3 Distance between compressor rooms: NA</p>
21	2 of 3	2.6	<p>Please refer clarification in clause No. 17. The purpose of connecting the compressor control system to the DCS is met through Mark V gateway (Communication Box) as explained in Clause No. 17. As the individual compressor control panel has no separate provision for redundant microprocessor, Bidder is asked to provide one microprocessor as loose item for each compressor. There are 15 Nos of Compressors in the IA package. Providing 15 Control panels as loose items does not make the system as redundant, as this forms the integral part of compressor and there are 1000 items inside the compressor panel. Instead, we can provide 1 No of Mark V Gateway (communication Box) as loose item, which may meet your requirement. Please clarify</p>	<p>Kindly note that ,there are only 3 Nos of TA Compressor in Kothagudem and 12 Nos of TAC in Bhadradi. No deviation is acceptable. Bidder to consider as per specification. Bidder to note that the same is customer requirement.</p>
22	2 of 3	2.7	<p>Please refer clarification above in 2.6. There are more than 10 sensors/instruments within the each compressor panel. Since the number of IA compressors are 15, providing the redundancy for each instrument make the supply as multiple sensors/instruments. This kind of requirement has never been asked by BHEL in any of the projects till date. Please clarify</p>	<p>No deviation is acceptable. Bidder to consider as per specification</p>
25	2 of 3	3.2	<p>Make of electrical equipments shall be as per the preference of bidder within the compressor skid except for the Make of the motor which in this case shall be Marathon.</p>	<p>Make of motors shall be as per BHEL's clarification dt: 29.01.2016 uploaded on website. Pls note that Marathon motor is not approved. However, Successful Bidder's proposal can be taken up with Customer for Vendor approval during detailed engg. and Customer's decision will be final and binding on Bidder without any commercial implication to BHEL.</p>
27	2 of 3	3.7	<p>Motors shall be as per BIDDER standards followed for all HT Motors.</p>	<p>Shall be as already mentioned in specification. Kindly note that HT voltage levels for Bhadradi is 6.6kV and for Kothagudem is 3.3kV.</p>
35			<p>VOLUME: V-A - SECTION-II - TECHNICAL SPECIFICATION FOR A.C. & D.C. MOTORS</p>	<p>The specs provided shall be applicable for this package except for those which are exclusively mentioned in the BHEL enquiry specification provided during tendering</p>
			<p>Not Applicable</p>	
36			<p>VOLUME-VI - TECHNICAL SPECIFICATIONS FOR CONTROL AND</p>	

			INSTRUMENTATION	
			VOLUME: VI - SECTION-I - GENERAL TECHNICAL REQUIREMENTS	stage. Any deviation from the specs shall be taken up only with the customer/consultant during detailed engg. by successful bidder and the decision of Customer shall be final in this regard and binding on Bidder without any price implication to BHEL.
			Not Applicable	
37			VOLUME VI - SECTION V - BTG AUXILIARIES & OFF SITE PLANTS	
			Not Applicable	
38			VOLUME: VI - SECTION-VI - TECHNICAL SPECIFICATION – CONTROL AND INSTRUMENT SYSTEMS	
			Not Applicable	
39			VOLUME : VI - SECTION-VI SUB SECTION – B PROGRAMMABLE LOGIC CONTROLLER (PLC) / PROPRIETARY CONTROL SYSTEM	
			Not Applicable	
40			VOLUME: VI - SECTION-VII - TECHNICAL SPECIFICATION – FIELD INSTRUMENTS & FLOW ELEMENTS , CONTROL VALVES , I&C CABLES , ERECTION HARDWARES , TOOLS & TACKLE	
			Not Applicable	
41			VOLUME : VI - SECTION-VII - SUB SECTION – D - PANELS , DESKS , RACKS AND JUNCTION BOXES	
			Not Applicable	

Redundancy of Control Panel & Instruments: Please note, supplying 1 additional control panel as loose for each compressor (Apart from the controller within the skid) does not make the system redundant, as in case of any fault in the controller, the same need to be removed from the panel for rectification and can reused. You may buy 1 or 2 controllers as Spare after commissioning. But we strictly do not recommend these controllers to be supplied along with equipments for redundancy purpose. The same is applicable for Instruments and Sensors within the compressor skid. We request you to kindly exclude from the scope of Supply

BHEL REPLY: Bidder to follow specification.

Mandatory Spares: 1 No Spare Compressors, Major parts like Air Element, Gear Set, Bearing for Air element is been asked as mandatory Spares, which are again forms the major integral parts of the compressors. As there are Standby compressors available as spare, we recommend not to buy these spares at this stage. As these items will have self life and may not perform and deliver desired outputs if not used for longer time. We request you to kindly exclude from the scope of Supply

BHEL REPLY: Bidder to follow specification.