

M&S/Gas Services		
Annexure - PART-A		
Supply,Installation and Commissioning of Screw type Air Compressor of 1 x 1500 cfm Capacity		
QUALIFICATION CRITERIA		
S.No	Description	Vendor to confirm
1	Only those vendors, who have experience and carried out the following activities specified in Sl.No.1.1 to 1.3 and submitting the requested documents are eligible to participate in the tender and further evaluation. If not meeting the qualifying criteria,the tender is liable for rejection:	
1.1	Vendors who have supplied screw type air compressors of capacity 1500 cfm or above for atleast to two companies in the past five years from the date of tender opening for which required order copies are to be submitted along with the offer.	
1.2	The vendor should submit performance certificate from minimum one customer for the satisfactory performance of the screw type air compressor that is supplied for order submitted for the above Sl.No.1.1 in the customer's letter head.	
1.3	The vendor shall be either manufacturer of screw type air compressor(OEM) or authorised dealer of the OEM of screw type air compressor for which required documents are to be submitted. Incase the vendor is an authorised dealer, the valid dealership certificate issued by the OEM is to be submitted.	
2	The vendor should submit the following details of the customer specified in the order submitted for the above Sl.No.1.1. a)Postal address of the customer,Name & Designation of the contact person of the customer. b)Phone number and email address of the contact person of the customer.	
3	BHEL reserves the right to visit the manufacturer's works if required for verifying the manufacturing facilities and any other credential furnished by the vendor. In case the information furnished alongwith the offers is found to be false/incorrect, the offer shall be rejected.	

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TECHNICAL SPECIFICATION PRODUCER GAS BOOSTER ASSEMBLY-1 x 1 700 Nm3/Hr CAPACITY

Annexure - PART-B				
Supply,Installation and Commissioning of Screw type Air Compressor of 1 x 1500 cfm Capacity				
Sl.No.	DESCRIPTION	SPECIFIED/ TO BE CONFIRMED BY VENDOR	VENDOR'S OFFER	DEVIATION IF ANY,VENDOR TO SPECIFY
1.0	Scope of Supply;			
1.1	Design,Manufacture,Supply,Erection and Commissioning of 1500 cfm capacity ,7 Kg/cm2 (g) rated pressure ,Air cooled,Oil lubricated screw air compressor along with complete accessories at specified location in BHEL Trichy,Tamil Nadu.	Vendor to confirm		
1.2	The compressor with in-built coolers,lube system,control panels and other necessary accessories shall be complete packaged machine with canopy arrangement, inbuilt/stand alone moisture seperator,stand alone VFDrive and with good accessibility for maintenance.	Vendor to confirm		
1.3	All equipments furnished is to be heavy duty,continous,designed for around 46 deg.C ambient temperature.	Vendor to confirm		
1.4	Quantity: 1 No. (1500 cfm delivery (min.) shall be from single unit of compressor only.More than one unit of compressor with split up delivery is not acceptable)	Vendor to confirm		
2.0	Site Conditions;			
2.1	Design inlet condition: Suction at atmosphere	Vendor to note		
	a)Ambient temperature around 46 deg.C	Vendor to note		
	b)Relative humidity: around 35 to 100%	Vendor to note		
	c)Altitude: approx. 82 meter above MSL	Vendor to note		
3.0	Technical Specifications;			
3.1	Type of Compressor : Air Cooled,Oil Lubricated Screw Air Compressor(Maximum allowable oil carry over in compressed air is restricted to 3 ppm only)	Vendor to confirm		
3.2	Rating : Continous	Vendor to confirm		
3.3	Free Air delivery-Capacity per compressor : 1500 cfm(minimum)	Vendor to confirm		
3.4	Rated Pressure(Minimum) : 7 Kg/cm2 (g)	Vendor to confirm		
3.5	Operating Pressure setting range : 5.0 to 6.0 Kg/cm2 (g)	Vendor to confirm		
3.6	Compressor Shaft power (KW)	Vendor to specify		

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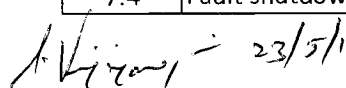
3.7	Specific power consumption of the compressor inclusive of cooling fan @ 5.5 bar(g) or 5.61 Kg/cm2(g) pressure shall be 0.165 KW/cfm(max.)		Vendor to confirm		
3.8	Number of stage of compressor		Vendor to specify		
4	Drive Motor;				
4.1	The motor is to be specially designed and suitable for the torque,speed and horse power characteristic of the compressor.		Vendor to confirm		
4.2	The motor shall be of asynchronous type and TEFC design and shall be compatible for use with VFD. The motor shall be provided with VPI coating and shall have insulated bearings.		Vendor to confirm		
4.3	The motor is to be operated by 3 phase,415V +/-10% ,50Hz +/-5% power source.		Vendor to confirm		
4.4	The starting current of the motor(inclusive of tolerance) to be specified.		Vendor to specify		
4.5	The motor should be Squirrel cage induction motor with suitable rating, IP 55, S1,Class F.		Vendor to confirm		
4.6	The motor efficiency shall be IE-2.		Vendor to confirm		
4.7	Motor should confirm to IS standard(IS:12615-2011)		Vendor to confirm		
4.8	Motor make:BHEL/ABB/SEIMENS/KIRLOSKAR/CGL/INGERSOLL RAND or Any other BHEL approved makes		Vendor to confirm		
4.9	Vendor shall indicate the capacity of motor selected and its frame size		Vendor to indicate		
4.10	Vendor shall indicate the service factor of the motor selected		Vendor to indicate		
4.11	Vendor shall indicate the size of the cable required between the VFD and the motor terminal box.The motor terminal box shall be suitable to receive the cable size and fitted with cable gland for the specified cable.		Vendor to confirm		
5	Variable Frequency Drive(VFD)				
5.1	Torque and Power	The output torque and power of VFDrive must drive the above specified main motor with suitable variable speed control and temperature must be within the limits.The torque that can be continuously taken from the motor must not exceed the full load torque.	Vendor to confirm		
5.2		Torque and Power of VFDrive to be provided.	Vendor to specify		

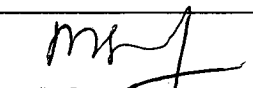
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5.3	De-rating factor	To ensure that the temperature will not rise above the original drive specification.	Vendor to confirm		
5.4	Output Protection	The VFDrive should have current limiting when the motor is overloaded.	Vendor to confirm		
5.5	Thermal limiting	Motor temperature is to be limited by VFDrive to protect the motor from over heating.	Vendor to confirm		
5.6	Equipment protection	The VFDrive must have internal protections against over voltage, under voltage, surge, etc.	Vendor to confirm		
5.7	Indication	The VFDrive should indicate the output parameters like frequency, voltage, current, speed, etc.	Vendor to confirm		
5.8	Alarms	Drive should give proper alarms in case of failures	Vendor to confirm		
5.9	Make	ABB/SEIMENS/KIRLOSKAR/AMTECH or any other BHEL approved makes	Vendor to confirm		
5.10	The compressor package shall include a VFDrive, for starting and operating the compressor and shall be mounted on its own enclosure (stand alone enclosure). The compressor shall have provision for starting and operating the compressor either with VFDrive or without VFDrive.		Vendor to confirm		
5.11	The VFDrive shall be mounted, wired and tested as part of complete compressor package prior to shipment.		Vendor to confirm		
5.12	415V, 3 phase, 50Hz 3 wire supply will be provided with an isolator near to the compressor usage point. Control voltage requirements shall be derived by the supplier by providing suitable transformers in the starter/control panels.		Vendor to confirm		
6	Lubrication Systems;				
6.1	Initial fill of biodegradable oil for compressor should be done		Vendor to confirm		
7	Operation and Control: Vendor to indicate in their offer the controls provided by them		Vendor to indicate		
7.1	Display parameters		Vendor to indicate		
7.2	Adjustable operating parameters		Vendor to indicate		
7.3	Fault warnings		Vendor to indicate		
7.4	Fault shutdowns		Vendor to indicate		

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7.5	Compressor package should have noise level less than 85 dB(A) at 1 M distance	Vendor to confirm		
7.6	Necessary safety interlocks for the operation of the compressor shall be incorporated and the same to be specified in the offer.	Vendor to confirm & specify		
8	Scope of Supply;			
8.1	Vendor to provide the item wise list of the complete scope of supply of the 1500 cfm capacity compressor package along with the offer.	Vendor to provide		
9	General Points;			
9.1	The offer shall include the catalogue for the offered equipment and complete technical description of all parts of the compressor as also the material of construction of the major parts. Full description of the compressor protection features should be included.	Vendor to confirm		
9.2	GA Drawing,Schematic & Foundation diagram showing the layout and interconnection shall be submitted along with the offer.	Vendor to submit		
9.3	Incase of any foundation requirement for the compressor,the same shall be clearly mentioned in the offer and supply of the foundation material like bolts and nuts,washers,levelling plate,etc., required for total installation shall be in vendor scope.Only civil work will be in BHEL Scope.	Vendor to confirm		
9.4	All electrical devices,contactors,relays,limit switches,push buttons,etc. shall be from SEIMENS/L&T/ALSTOM/BCH/Telemechanique or any other BHEL approved makes.	Vendor to confirm		
10	Spares;			
10.1	Itemized break up of mandatory mechanical, electrical and electronics spares used in the machine in sufficient quantity as per recommendation of vendor for 2 years of trouble free operation on continous running basis shall be offered by vendor.Spare price shall be quoted seperately and shall not constitute part of main offer.(Unit price for each item of spare shall be offered in the price bid).	Vendor to offer		

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10.2	All type of spares and service support for total machines and accessories shall be available for atleast 10 years after supply of the machine.If machine is likely to become obsolete in this period,the vendor should inform BHEL sufficiently in advance and provide drawings of parts/details of spares and supplier's to enable BHEL to procure in advance, if required.	Vendor to confirm		
10.3	Vendor to confirm the complete list of spares for machine and accessories,along with item part number/specification/type/model and name and address of the spare supplier shall be furnished along with documentation to be supplied with the machine.	Vendor to confirm		
11	Documentation;			
11.1	Five set of following documents(in 5 hard copies) in English language should be supplied along with the compressor.	Vendor to confirm		
11.2	Operation and Maintenance Instructions	Vendor to confirm		
11.3	Spare parts manual	Vendor to confirm		
11.4	GA Drawing	Vendor to confirm		
11.5	Electrical wiring drawings, Power and control circuits	Vendor to confirm		
11.6	Necessary material test certificate,applicable Pressure test certificates are to be submitted.	Vendor to confirm		
11.7	One additional set of all the above documentation shall be given in the form of CD.	Vendor to confirm		
12	Training;			
12.1	The vendor shall impart 3 days training to BHEL operators and maintenance crew in Operatoin and Maintenance after the commisssioning of machine at BHEL works.	Vendor to confirm		
13	Erection and Commissioning;			
13.1	Vendor to take full responsibility for erection,start up,test the compressor,its control and all type of other supplied equipments upto its commissioning. Service requirements like power,interconnecting compressor delivery piping with exisiting air piping ,civil works shall be provided by BHEL.	Vendor to confirm		

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13.2	Tools,tackles,instruments and other necessary equipments required to carry out all above activities should be brought by the vendor.	Vendor to confirm		
13.3	All spares required for commissioning of the compressor shall be brought by the vendor	Vendor to note		
13.4	Schedule of erection and commissioning shall be submitted with offer.	Vendor to submit		
13.5	Erection and commissioning cost should be furnished in detail separately by vendor along with offer.Erection and commissioing charges shall be on lumpsum basis.	Vendor to confirm		
14	Testing and acceptance			
14.1	The equipments shall be offered for inspection by BHEL Engineers at supplier's work prior to despatch.	Vendor to confirm		
14.2	Testing : Compresor shall be fully tested at the supplier works to determine its mechanical and electrical characteristics.Compressor air capacity,pressure and temperature shall be measured and recorded and shall confirm to ISO 1217 Appendix-C.	Vendor to confirm		
15	Guarantee/Warranty;			
15.1	The equipment and accessories shall have guarantee/warranty for proper operation and shall have guarantee/warranty for all parts for a period of 24 months from the date of commissioning or 30 months from the date of supply whichever is earlier.	Vendor to confirm		
16	Delivery Period;			
16.1	Preferable Delivery Period to be within 16 Weeks from the date of purchase order.	Vendor to confirm		

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