



## Bharat Heavy Electricals Limited

Enquiry No. :

Due Date :

Supplier's Ref.:

Date :

### Part A (Techno-Commercial Bid)

### Section IV

#### Specification cum Compliance Certificate for Rotary Type, Screw Air Compressor Unit

Note:-

1. The 'Offered' Column and where applicable, the 'Deviations' & 'Remarks' Column of this format shall be filled in by the Vendor and submitted along with the offer. Inadequate / incomplete, ambiguous or unsustainable information against any of the clauses of the specifications / requirements shall be treated as non-compliance.

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

Name & Address of the supplier:

Telephone No.

Fax No.

e-mail :

Scope: Supply, Erection, Testing and commissioning of Screw Type Air Compressor Unit complying with the following specifications

S No.	Description - BHEL's Requirement	Specified	Offered	Deviations	Remarks
1.0	Purpose				
1.1	"Oil flooded, Twin rotary, positive displacement, compact energy efficient screw Air Compressor Unit" consisting of Screw Type Air Compressor, Air Dryer, Air Filters, Air Receiver and Valves etc. as per the following specifications is required to supply dry and clean compressed air in manufacturing shop, for the operation of different equipments.	The compressor block and motor will be coupled by means of a flexible coupling and will be mounted on a common heavy steel fabricated structure. The complete package includes compressor block, electric motor, flexible coupling, compressor inlet system, compressor discharge and oil separation system, compressor cooling and lubrication system, capacity control system, protective devices, instrument and control panel.			
2.0	SPECIFICATIONS: "Screw Type Air Compressor Unit" consists of following with specifications given against each	Vendor to offer			
2.1	SCREW TYPE AIR COMPRESSOR				
2.1.1	Air delivery (minimum)	260 CFM at 6.5 ata			
2.1.2	Working pressure	107 psig			
2.1.3	No of stages	Single			

S No.	Description - BHEL's Requirement	Specified	Offered	Deviations	Remarks
2.1.4	Cooling system	Air cooled / quiet			
2.1.5	Drive	Squirell cage induction motor (approx 45 kW), TFFC type, suitable for operation on 415 V, 3 phase, 50 Hz AC supply, Class-F insulation conforming to IS:6875			
2.1.6	Starter	Automatic star-delta			
2.1.7	Suitable for continuous duty	Vendor to confirm			
2.2	<b>AIR DRYER:</b> Refrigerated type Air Dryer, suitable for application of the above Compressor to deliver dry compressed air of the required quality	Vendor to offer and submit detail			
2.3	<b>AIR FILTERS:</b> Set of suitable Air Filters consisting of Pre-Filter, Fine Filter and Carbon Filter for application of the above Compressor to deliver dry and clean compressed air of the required quality	Vendor to offer and submit detail			
2.4	<b>AIR RECEIVER</b>				
2.4.1	Capacity (minimum)	Vendor to confirm			
2.5	<b>NOISE PROOF CANOPY</b>				
2.5.1	Suitable Noise Proof Canopy to cover Air Compressor and Drier to reduce noise level	Vendor to offer as optional			
2.5.2	Size and details of Canopy	Vendor to submit details			
2.6	<b>FIRST FILLING OF OILS / REFRIGERANT</b>				
2.6.1	First filling of all required Oils, Grease and Refrigerant etc. required for the Compressor and other items like Air Filter, Air Drier and Air Receiver etc., to be supplied by vendor. Manufacturer's details / codes to be submitted by the vendor	Vendor to offer			
2.7	<b>Zero Air Loss Automatic Drain Valve</b>				
2.7.1	Zero Air Loss Automatic Drain Valve for draining condensed air from the Dryer	Vendor to offer			
2.8	<b>OTHER ITEMS</b>				
2.8.1	Necessary Pipes in required length and size, Connectors and Valves required between Compressor, Air Dryer and Filters to be supplied with the equipment	Vendor to offer			
3.0	<b>QUALITY OF DELIVERED AIR:</b> Compressor unit should deliver compressed air according to ISO - 8573-1, having the following parameters of compressed air	Vendor to confirm			
3.1	Pressure Dew Point	3 - 4 Degree Celsius			
3.2	Max. Ambient Temperature	50 Degree Celsius			
3.3	Solid Particle / Dust	Class - I			
3.4	Humidity	Class - IV			

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3.5	Oil Content	Class - I			
<b>4.0</b>	<b>REQUIREMENT FOR ELECTRICAL EQUIPMENT</b>				
4.1	Voltage = 415V +10% / -10% , Frequency= 50Hz +3 / -3 , No. of phases = 3 phase with neutral. Power Supply source, as above, will be provided by BHEL at a single point near the machine, as per layout recommended by Vendor. All types of cables, connections, circuit breakers etc. required for connecting BHEL's power supply point to different parts of the machine/control cabinets including Voltage Stabilizer, Transformer & Air-Compressor etc. shall be the responsibility of vendor. Requirement of grounding/earthling with required material details should be informed by vendor well in advance so that same could be incorporated during construction of foundation.	Vendor to accept and offer			
<b>5.0</b>	<b>ENVIRONMENTAL PERFORMANCE OF THE MACHINE</b> The Machine should conform to following factors related to environment				
5.1	Maximum noise level shall be 85 dB(A) at normal load condition, 1 meter away from the Compressor Unit. This will be measured as per international standards like DIN 45635-16, if required. Supplier to demonstrate compliance to noise level, if so required	Vendor to confirm			
5.2	Paint of the machine should be oil / coolant resistant and should not get peeled off and mixed up with coolant	Vendor to confirm			
<b>6.0</b>	<b>ANCHORING MATERIAL</b>				
6.1	Complete set of anchoring materials including foundation bolts, nuts, washers and levelling shoes etc for fixing of Compressor including other items like Air Filter, Air Drier and Air Receiver etc. to the foundation should be supplied	Vendor to offer			
<b>7.0</b>	<b>SPARES</b>				
7.1	Itemised breakup of (1) standard/essential mechanical, electrical and electronic accessories & spares (included in Basic machine cost), (2) Optional in sufficient quantity as per recommendation of Vendor for 5 years (After initial 24 month's Guarantee period) for trouble free operation should be offered by vendor.If machine or control is likely to become obsolete in this period, the vendor should inform BHEL sufficiently in advance and provide drawings of parts / details of spares & suppliers to enable BHEL to procure these in advance, if required (Unit Price of each item of spare should be offered in the price bid)	Vendor to offer			

S No.	Description - BHEL's Requirement	Specified	Offered	Deviations	Remarks
<b>8.0</b>	<b>O &amp; M MANUALS</b>				
	Three sets of Operation & Maintenance Manuals in English language and its soft copies in CD should be supplied along with the equipment. Manuals should contain the following information in it.	Vendor to offer			
8.1	Operating manuals of Compressor including other items like Air Filter, Air Drier and Air Receiver etc	Vendor to offer			
8.2	Detailed Maintenance manual of Compressor including other items like Air Filter, Air Drier and Air Receiver etc. With the help of drawings of main assemblies/sub-assemblies/parts including Electrical / Coolant / Hydraulic circuit diagrams	Vendor to offer			
8.3	Catalogues, Operation & Maintenance Manuals of all bought out items including drawings, wherever applicable	Vendor to offer			
<b>9.0</b>	<b>PRE DESPATCH INSPECTION</b>				
9.1	Pre-dispatch inspection may be carried out by BHEL representative at vendor's works. However it is at the discretion of BHEL and final acceptance will be done at BHEL, Rudrapurpur during the commissioning of the Compressor	Vendor to offer			
<b>10.0</b>	<b>FOUNDATION</b>				
10.1	Foundation plan drawing with loading data at various points is to be submitted by supplier within 4 weeks of placement of LOI/PO which ever is earlier	Vendor to accept & offer			
10.2	BHEL shall carry-out the design and construction of foundation as per foundation plan drawing & loading data	Vendor to accept & confirm			
<b>11.0</b>	<b>ERECTION &amp; COMMISSIONING</b>				
11.1	Supplier to take full responsibility for carrying out the erection and commissioning of Compressors alongwith its all accessories at BHEL. Electrical power shall be provided by BHEL at only one point to be indicated by supplier in their layout drawings. Other requirements like crane shall also be provided by BHEL. During commissioning, vendor will have to demonstrate proper operation / functioning of the Compressor and all other items like Air Drier, Air Filter and Air Receiver etc.as per their specifications. Quality of outlet air from the Compressor Unit will also to be demonstrated as per the technical specifications	Vendor to offer			
<b>12.0</b>	<b>Packing</b>				
12.1	Rigid packing for all items of complete panel with all Accessories and other supplied items to avoid any damage/loss in transit. When panel is despatched in containers, all small loose items shall be suitably packed in boxes.	Vendor to confirm			
<b>13.0</b>	<b>Guarantee</b>				

S No.	Description - BHEL's Requirement	Specified	Offered	Deviations	Remarks
13.1	Guarantee for 24 months from the date of acceptance of the machine at BHEL works. During this Guarantee period at least 2 visits per year and/or whenever called by BHEL (within 24 hours of call) by the service engineer of the supplier to be made & the parts, items, spares etc. needing replacement to be replaced by the supplier free of cost. In support a Performance Bank Guarantee of 10% of Basic Value of P.O. valid for 24 months from the date of commissioning will have to be furnished by supplier	Vendor to confirm			
<b>14.0</b>	<b>General</b>				
	Total Space required (Length, Width, Height) for complete Compressor including all items like Filter and Drier etc. should be sent alongwith the offer	Vendor to inform			
	The supplier is to submit a clause wise deviation statement against each clause of this technical specification along with the offer	Vendor to submit			

**Signature & Seal of Tenderor**