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SPECIFICATION FOR SCREW TYPE AIR COMPRESSOR WITH AIR DRYER

1.0 PURPOSE:

Screw type air compressor system consisting of compressor, integrated refrigeration type air dryer and pre-filter is required to supply dry and filtered air.

2.0 MAIN SPECIFICATION :

The screw type compressor system consists of following items, with specifications given against each.

2.1 SCREW TYPE AIR COMPRESSOR:

2.1.1. An independent Screw Type Air Compressor unit capable of continuously supplying compressed air to the machine, powered by a 3 phase A.C. electric motor of suitable rating and complete with

- a) Receiver Tank (conforming to ASME Norms) fitted with Safety Valves, pressure gauge, and drain valve.
- b) Pressure Relief Valve,
- c) Automatic Pressure Switch,
- d) Suction Filter,
- e) Oil Sight Glass,
- f) Drain Valve,
- g) Non-Return Valve,
- h) Starter for the motor.

2.1.2. Air delivery: 71 CFM

2.1.3. Working pressure at outlet of Integrated Refrigeration Type Air Dryer: 10 Bar or better

2.1.4. Receiver Air tank capacity: 500 liters minimum

2.1.5. Compressor should be designed for continuous duty

2.1.6. Maximum noise level of compressor should be within 75 dB (A), one meter away from the machine.

2.2 INTEGRATED REFRIGERATION TYPE AIR DRYER:

Compressor Unit should have an integrated Air-cooled Refrigeration type Air Dryer with Moisture Trap (with automatic and manual drain), suitable for above mentioned applications. Hot gas by pass valve should be provided to maintain a stable pressure dew point (2°C to 3°C) & avoid freezing during extended un-load run operation. Air dryer should be able to deliver compressed air to the machine according to ISO – 8573-1 having the following parameters of air:

- Solid particles / dust: Class – 1
- Humidity: Class – 4
- Oil content: Class – 1

2.3 PRE FILTER:

A suitable and efficient Pre-Filter for Compressor Unit as per the requirement mentioned above for oil & other foreign particles removal from air.

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2.4 CONTROL PANEL :

Control panel for monitoring continuously & accurately (through microprocessor-based Regulator and Electronic Controller) the data and for controlling the performance through feedback to the operator and interlocking arrangements. Built in protection systems, inclusive the following, should be provided for safe and foolproof operation of the complete compressor system.

- a) Phase sequence protection relay,
- b) Phase failure protection relay,
- c) Motor overload Trip,
- d) High Air / Oil Discharge Temperature Trip.
- e) Protection against starting on load,
- f) Suitable for controlling the compressor operation Locally

2.5 CSIR-CMERI-CoEFM-Ludhiana will provide only connection of 3 phase A.C. power supply. Switches, Circuit breaker etc. for input power requirement are to be offered by supplier. Necessary Hoses, Pipes, Connectors and Cables between Compressor, Air Dryer, air receiver and Pre Filter are to be supplied with the unit by Supplier.

3.0. Optional SPARES & CONSUMABLES:

Supplier should quote spares & consumables for 2 years continuous operation (@ 8 hr / day basis) of the Compressor Unit. Complete list of spares & consumables (inclusive of the following spares & consumables) is to be provided (along with the offer itself), giving individual item's part identification no, its application, life (in hrs of use), recommended quantity and unit cost.

3.1. Oil separator

3.2. Oil Filter

3.3. Oil

3.4. Air Filter

3.5. Stand Alone Air Dryer = 01 No.

Absolute inlet pressure bar / psi	: 1 / 14,5
Relative humidity %	:70
Air inlet temperature °C / F	:20 ⁰ / 68 ⁰
Maximum effective working pressure bar	:16
Minimum effective working pressure bar	:5
Reference pressure bar	:7
Maximum ambient temperature °C	:40 ⁰
Minimum ambient temperature °C	:5 ⁰
Max FAD at reference conditions cfm	:21.2
Dew point °C	:3 ⁰
Refrigerant Gas Type	: R134

4.0 OTHER REQUIREMENTS:

- 4.1.** Safety feature should be incorporated for safety of operator and the machine.
- 4.2.** Anti Vibration Mountings should be provided on the compressor frame for vibration isolation from Screw element, Motor and Oil Separator Tank.
- 4.3. DOCUMENT:** Three sets of Operation and Maintenance Manuals documents are to be supplied along with the unit, without any additional charges. Detailed electrical circuit should also be supplied along with the air compressor.

- 4.4. **GUARANTEE:** Vendor shall provide full and complete Guarantee for two years trouble free performance from date of successful commissioning / final acceptance.
- 4.5. **CIVIL WORK:** Requirement of civil work, if any for the erection of the unit, to be mentioned in the quotation.
- 4.6. **DELIVERY:** Delivery Period to be informed by the supplier.
- 4.7. **SPACE REQUIREMENT:** Requirement of space for installation of one compressor unit to be informed.
- 4.8. **PACKING:** Compressor unit and all items shall be dispatched in suitable packing to avoid ingress of dust and handling, transit and storage.
- 4.9. **FINAL ACCEPTANCE:** Final acceptance shall be after erection and commissioning of the complete air compressor system at CSIR-CMERI-CoEFM-Ludhiana by the vendor to the full satisfaction of CSIR-CMERI-CoEFM. The criteria for acceptance of the air compressor system after erection shall be "satisfying all the clauses from 2.0 to 4.4 of Technical Specifications" given above.

4.10. QUALIFYING CONDITIONS :

- a) The vendor should be a original Screw type Air Compressor manufacturer/Authorised Dealer
- b) The vendor should have experience of manufacturing Screw type air compressor system of minimum 50 CFM at 10bar with integrated refrigeration type air dryer.
- c) The vendor should have supplied at least Three Screw type air compressor system of minimum 50 CFM at 10 Bar Kg/cm² or above with integrated refrigeration type air dryer to any of the govt agencies and which is working satisfactorily for last two years.
- d) The vendor has to provide the performance certificate in original from the Govt. Agencies to whom this air compressor is supplied by him to Govt. Agencies (along with the contact person's name, address and phone number), broad specification of the supplied air compressor & year of supply.

4.11. IMPORTANT REMARK:

- 4.11.1. Offer should be complete in all respect.
- 4.11.2. The vendor whose offer does not meet all the four qualifying conditions as stated under 4.10 will be not be considered for evaluation and will be rejected.
- 4.11.3. Technical literature and catalogues of the offered compressor, air dryer, pre-filter & control panel etc. should be sent along with the offer / quotation.
- 4.11.4. Supplier should confirm and clarify each clause / point as given above at the first instance.

