



ANNEXURE – I

Technical Specifications for 'Oil Free Air Compressor'

| S.No. | Description | Detail |
|-------|-------------------|---|
| 1 | Name of equipment | Oil free Air compressor with air dryer for the supply of Instrumentation air |
| 2 | Quantity | 1 Number |
| 3 | Capacity | Air Receiver Tank capacity: 200 litres. |
| 4 | Design Features | <ul style="list-style-type: none">• Oil free Air Compressor unit capable of continuously supplying Clean and dry compressed air to the instruments, powered by a 3- phase A.C. electric motor of suitable rating and complete witha) 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) Drain Valve,f) Non Return Valve,g) Starter for the motor• Air delivery : 50 CMH• Working pressure at outlet of Integrated Refrigeration Type Air Dryer: 2 Kg. / cm².• Compressor should be designed for continuous duty and fitted with Deep finned cast iron cylinder with Aluminium cooler tubes and Low wear stainless steel Valves.• Maximum noise level of compressor should be 70 dB (A) at normal load condition, one meter away from the machine. |

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| | | <p><u>INTEGRATED REFRIGERATION TYPE AIR DRYER:</u></p> <p>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 instruments according to ISO - 8573-1 having the following parameters of air:</p> <ul style="list-style-type: none"> - Solid particles / dust: Class - 1 - Humidity: Class - 4 <p><u>PRE FILTER:</u></p> <p>A suitable and efficient Pre Filter for Compressor Unit as per the requirement mentioned above for oil & other foreign particles removal from air.</p> <p><u>Control Panel :</u></p> <p>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.</p> <ul style="list-style-type: none"> 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, Remotely or via. Local Area Network. <p>CMET 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 and Pre Filter are to be supplied with the unit.</p> |

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|-------|----------------------|---|
| 5 | Spares & consumables | Supplier should quote spares & consumables for 2 years continuous operation (@ 24 hrs. / 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. |
| 6 | Other requirements | <ul style="list-style-type: none"> • Safety feature should be incorporated for safety of operator and the machine. • Anti-Vibration Mountings should be provided on the compressor frame for vibration isolation from Screw element, Motor and Oil Separator Tank. • <u>DOCUMENT:</u> 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. • <u>GUARANTEE:</u> Vendor shall provide full and complete Guarantee for two years trouble free performance from date of commissioning. <p><u>WORKING CONDITIONS AT CMET-HYDERABAD:</u></p> <p>Input Power Supply : 3 Phase, 415 ± 10%Volt, 50 ± 3% Hz</p> <p>Temperature : 0-50 Degrees C</p> <p>Relative Humidity : 70%</p> <ul style="list-style-type: none"> • <u>CIVIL WORK:</u> Requirement of civil work, if any for the erection of the unit, to be mentioned in the quotation. • <u>DELIVERY:</u> Delivery Period to be informed by the supplier. • <u>SPACE REQUIREMENT:</u> Requirement of space for installation of one compressor unit to be informed. • <u>PACKING:</u> Compressor unit and all items shall be dispatched in suitable packing to avoid ingress of dust and handling, transit and storage. |

| S.No. | Description | Detail |
|-------|-------------|--|
| | | <ul style="list-style-type: none"> • <u>PRE-DESPATCH INSPECTION AND ACCEPTANCE:</u> Pre-dispatch inspection and acceptance of the compressor and other items shall be made by CMET at vendor's work prior to dispatch. Test certificates, Specification compliance and performance of the complete supplied system shall be checked and verified. • <u>FINAL ACCEPTANCE:</u> Final acceptance shall be after erection and commissioning of the complete air compressor system at CMET by the vendor to the full satisfaction of CMET. 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. • <u>IMPORTANT REMARK :</u> <ul style="list-style-type: none"> • Offer should be complete in all respect. • Technical literature and catalogues of the offered compressor, air dryer, pre-filter & control panel etc. should be sent along with the offer / quotation. <p>Supplier should confirm and clarify each clause / point as given above at the first instance</p> |

Technical Specifications for 'Air Compressor'

| S.NO. | Description | Detail |
|--------------|--------------------|--|
| 1 | Name of equipment | Air compressor for air drying cakes in filter presses |
| 2 | Quantity | 2 Numbers |
| 3 | Capacity | Air Receiver Tank capacity: 500 litres. |
| 4 | Design Features | <ul style="list-style-type: none"> • Air Compressor unit capable supplying compressed air to the filter presses, powered by a 3- phase A.C. electric motor of suitable rating and complete with <p>a)Receiver Tank (conforming to ASME Norms) fitted with Safety Valves, pressure gauge, and drain valve.</p> <p>b) Pressure Relief Valve,</p> <p>c) Automatic Pressure Switch,</p> <p>d) Oil level glass</p> <p>e) Suction Filter,</p> <p>f) Drain Valve,</p> <p>g) Non Return Valve,</p> <p>h) Starter for the motor</p> <ul style="list-style-type: none"> • Air delivery : 50 CMH • Working pressure at outlet: 5 Kg. / cm². <ul style="list-style-type: none"> • Compressor should be designed for continuous duty and fitted with Deep finned cast iron cylinder with Aluminium cooler tubes and Low wear stainless steel Valves. • Maximum noise level of compressor should be 70 dB (A) at normal load condition, one meter away from the machine. <p>CMET 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, Pre Filter are to be supplied with the unit.</p> |

| S.NO. | Description | Detail |
|-------|----------------------|---|
| 5 | Spares & consumables | Supplier should quote spares & consumables for 2 years continuous operation (@ 24 hrs. / 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. |
| 6 | Other requirements | <ul style="list-style-type: none"> • Safety feature should be incorporated for safety of operator and the machine. • Anti-Vibration Mountings should be provided on the compressor frame for vibration isolation from Screw element, Motor and Oil Separator Tank. • 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. • GUARANTEE: Vendor shall provide full and complete Guarantee for two years trouble free performance from date of commissioning. <p>WORKING CONDITIONS AT CMET-HYDERABAD:</p> <p>Input Power Supply : 3 Phase, 415 ± 10% Volt, 50 ± 3% Hz</p> <p>Temperature : 0-50 Degrees C</p> <p>Relative Humidity : 70%</p> <ul style="list-style-type: none"> • CIVIL WORK: Requirement of civil work, if any for the erection of the unit, to be mentioned in the quotation. • DELIVERY: Delivery Period to be informed by the supplier. • SPACE REQUIREMENT: Requirement of space for installation of one compressor unit to be informed. • PACKING: Compressor unit and all items shall be dispatched in suitable packing to avoid ingress of dust and handling, transit and storage. |

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| | | <ul style="list-style-type: none"> • <u>PRE-DESPATCH INSPECTION AND ACCEPTANCE:</u> Pre-dispatch inspection and acceptance of the compressor and other items shall be made by CMET at vendor's work prior to dispatch. Test certificates, Specification compliance and performance of the complete supplied system shall be checked and verified. • <u>FINAL ACCEPTANCE:</u> Final acceptance shall be after erection and commissioning of the complete air compressor system at CMET by the vendor to the full satisfaction of CMET. 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. • <u>IMPORTANT REMARK :</u> <ul style="list-style-type: none"> • Offer should be complete in all respect. • Technical literature and catalogues of the offered compressor, pre-filter & control panel etc. should be sent along with the offer / quotation. • Supplier should confirm and clarify each clause / point as given above at the first instance |