

**SPECIFICATION FOR AIR COOLED AIR COMPRESSOR**  
**SPECIFICATION NO. MECH/M&P/3100/GM/06**

**1.0 IMPORTANT INSTRUCTIONS TO TENDERERS FOR FILLING TECHNICAL BID**

- 1.1 Bidders are required to give clause wise comments on the technical specifications, confirming compliance/non-compliance with details of deviations if any along with their effect on the performance. Back references to be avoided, offers are likely to be ignored in case of non-compliance of these instructions for furnishing the information.
- 1.2 Unless otherwise stated, latest alterations/ revisions of specifications/ standards/ drawings shall be applicable. In respect of safety standards and environmental standards relevant to the machine, the machine manufacturers shall ensure compliance with international (CE/ISO/DIN/JIS)/National standards (IS) (where applicable).
- 1.3 Tenderers should offer and quote for all the specified concomitant accessories, as these are considered essential for commissioning and utilization of the machine. Even if bidder does not recommend the purchase any of these accessories, the price must be quoted for comparison purposes and their recommendation/suggestion indicated in the offer. Tenderers should also quote for optional accessories, spares and consumable spares as asked in the specifications.
- 1.4 In case, any item is required in sets, please specify nos./pieces per set. This is essential for proper technical evaluation of the offer. Offers received without this may be considered as incomplete and liable to be rejected.
- 1.5 The bidder should quote only for the specified make of sub-assemblies and equipment wherever specified. Makes of sub-systems other than the specified ones will normally not be acceptable. In case, some other make is quoted, specific reasons for the same including its features/advantages over specified makes must be brought out in the offer.
- 1.6 In case there is a contradiction in any information provided (some parametric values given in the specification and those given in the brochure or some other document enclosed by the tenderer), unless specifically mentioned in the deviation cum confirmation statement the values as given in the specification shall be taken as confirmed by the tenderer and offer evaluated accordingly.
- 1.7 The Purchaser may accept internationally accepted alternative specifications which ensure equal or higher quality than the specifications mentioned in the Technical Specification. However, the decision of the Purchaser in this regard shall be final.
- 1.8 Purchaser reserves the right to verify the details submitted by the bidder by actual site visits.
- 1.9 Other terms & condition of the contract will be as per Indian Railway Standard conditions of contract.

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**2.0 DESCRIPTION AND SCOPE OF SUPPLY**

Supply of electrically driven, air cooled air compressor with air dryer of make Ingersol rand, CPT or Atlas Copco only as per parameters in schedule-I. It is required as an alternate compressor in case of breakdown of existing compressor supplying compressed air for essential machines like CNC laser cutting and welding machine, CNC spot welding machines etc to avoid the loss in production work. This compressor shall manage to supply compressed air through trolley mounted portable air compressor.

**3.0 CONCOMITANT ACCESSORIES:**

3.0 The machine along with accessories mentioned in the specifications should be accompanied with the following concomitant accessories. The cost of each listed concomitant accessory should be quoted separately. Wherever for any reason the cost of any accessory treated as concomitant accessories is included in the basic price of the machine by the same should be specifically so mentioned.

3.1 Compatible Air Receiver.

3.2 Stainless Steel pipe line of suitable size and length along with Pressure Regulator of suitable rating, ball valve, flow regulator.

3.3 Seamless air piping of suitable bore between Compressor and air receiver including sockets, NRV, Tee/elbow joints, isolating valves etc.

3.4 First fill of oils and lubricants (quantity of each item to be indicated in the bid), rates of each item to be quoted along with total cost of all items required

3.5 Maintenance tool kit (list to be furnished by the bidder)- 1 Set

3.6 Electrical cable to connect compressor panel to supply distribution board

3.7 Compatible voltage stabilizer - 01nos. (Servomax/Delta/Microtech make only)

3.8 Any other equipment required to make the compressor fully functional at site shall be listed under concomitant accessories and quoted separately

3.9 **Compatible Refrigerated Air drier of make Trident, Ultra Filter or Gem only with 50% higher CFM than the compressor i.e 150 CFM capacity.**

3.10 Two year's maintenance spares suitable for compressor should be included as **compulsory** with the compressor.

3.11 Consumables for one year schedule maintenance. **List may please be attached with the offer.**

Note ;The bidder shall also quote per meter rate for the items required specified above in Clause 3.2 ,3.3 & 3.6.

**4.0 OPTIONAL SPARES AND ACCESSORIES:**

Any other attachment/accessories, which in the opinion of the bidder shall enhance the capability of the air compressor, shall be quoted separately bringing out the advantage thereof. Their prices are not included in the basic price of the machine. However for the information of the purchaser item wise price should be indicated in the offer.

**5.0 PROVEN DESIGN AND MANUFACTURING CAPABILITY:**

The system must be of proven design incorporating latest features. The bidder shall provide satisfactory evidence, to show that he is a reputed/ proven manufacturer, has experience in manufacturing & supply of a similar system. He shall furnish a statement giving a list of such systems as per his offer and/or

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similar systems supplied by him during the last five years along with purchaser's name and address, order number, date and quantity supplied.

**6.0 PURPOSE AND PLANT CAPABILITY :**

- 6.1 The air compressor shall be capable of supplying compressed air at full rated capacity at the specified pressure as per schedule-I.
- 6.2 The compressor shall be capable of working continuously in double shift, 6 days in a week at full rated capacity.
- 6.3 The compressor shall be capable to perform, conforming to the requirements of BS:1571 Pt-II/IS: 1217 (latest) or better (i.e taking into account all losses) at the point of discharge of water cooler and air drier for packaged compressors.
- 6.4 The compressor shall be capable of working in normal Indian Railways workshop environment with maximum ambient temperature up to 50°C and maximum relative humidity up to 98%.

**7.0 BASIC DESIGN FEATURES :**

**7.1 General features**

- 7.1.1 The compressor shall be of rugged/robust construction, shock proof and user friendly to operate.
- 7.1.2 It should be designed to provide easy access for maintenance and operation on-site.
- 7.1.3 The equipment should be suitably designed to meet with the Indian climatic conditions during transportation, assembly and operation.

**7.2 Safety**

- 7.2.1 The machine design shall ensure safety of the operator and the machine at all times.
- 7.2.2 A master switch should be provided on the machine to stop the operation during an event of emergency.
- 7.2.3 Indication for choking of lubricating oil filters, oil separator element and air filter shall be provided.
- 7.2.4 The motor should automatically shut down in case temperature of the equipment exceeds the designed limits.
- 7.2.5 Low pressure oil switch, low cooling water pressure switch and high discharge air temperature switch should be provided.

**7.3 Specific Features**

- 7.3.1 Controls : Microprocessor based centralized control panel, automatic electronic control, alpha-numeric display and trips with indication & temperature transmitters, ergonomically designed and within easy reach of the operator with the following features may be provided on the machine:-
- 7.3.2 Data read out display- Working pressure, operating temperature, sump pressure, operating hours, service information and status data during shut downs & emergency stops.
- 7.3.3 Setting of Operating parameters- Working pressure (Full load/No load)
- 7.3.4 Fault Diagnostics – General Maintenance alarm LED indication with cogged belt driven with energy efficient more, automatic indication of faults and shut down in

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case of high air-end discharge temperature, low oil pressure, starter fault, main motor overload, fan motor overload, air receiver temperature indication and trips.

7.3.5 Any more additional feature incorporated in the system clearly indicating its advantage.

**7.4 Filters:**

7.4.1 Air Intake Filters: Heavy duty, multistage with particle removal down to 3 microns and maintenance user friendly with respect to cleaning and replacement.

7.4.2 Oil Filters: Filtration capacity of 25 microns and maintenance friendly with respect to cleaning and replacement.

7.5 **Bearings:** Only KF/FAG/NORMA/NTN/KOYO/NBC/NSK/TIMKEN/CP/IR/ ATLAS COPCO acceptable makes.

7.6 **Electrical Requirements:** Suitable Horse Power drive motor Squirrel cage flange mounted TEFC enclosure induction motor and 'F' class insulation along with automatic star-delta starter. The motor and the starter shall be of **BHARAT BIJILI/SIEMENS/CROMPTON GREAVES/ABB/NGEF/OEM** makes only.

**7.7 Cabling & Tubing :-**

7.7.1 Instruments tubing from measuring points to gauge panel.

7.7.2 Unloader piping from suction valves to Unloaded.

7.7.3 Electrical supply at one location /DP will be provided by RCF. Rest of cabling work from DB to starter & starter to motor will be done by supplier in cable trays.

7.7.4 Control cabling between various instruments and starter-cum-control panel duly terminated properly laid through ducts/cable trays with fixing clamps.

**7.8 Noise Level**

Noise level of the compressor with canopy during operation shall not exceed 85+/- 5 Db at a distance of 7m when measured as per IS 11446-1985 or ISO2151-1972 in free field condition.

**8.0 TECHNICAL LITERATURE:**

8.1 One copy of the printed illustrative catalogue showing features of the machine and its elements must be enclosed with each copy of the bid.

8.2 The successful bidder shall furnish 4 copies of spare parts catalogue giving the part list number of each component with exploded views and assembly drawings, maintenance manual, trouble shooting guide, operational manual of the machine and all electrical /electronics circuit diagrams to the consignee directly.

8.3 The bidder shall furnish a list of documents to be supplied with the machine. The technical literature shall be provided for the complete machine including imported and indigenous components/subassemblies alongwith the bid submitted.

8.4 The supplier shall furnish to consignee 6 copies of Installation layout drawing and related diagrams (mechanical & electrical). The successful bidder should also supply fully dimensioned general arrangement drawings indicating all leading parameters as per Schedule-I and get approval from the consignee before supply of equipment.

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**9.0 SPARES & CONSUMABLES**

- 9.1 Two lists of recommended perishable and non-perishable spares (with quantities) & another of consumables (with quantities) required for normal maintenance for two-year warranty to cover complete range of mechanical, hydraulic and electrical equipment (including controls) on double shift working basis should be furnished and quoted separately.
- 9.2 If the spares are quoted as kit then detailed break-up details i.e S.no. Description, part no, perishable/non perishable shelf life, replacement after hours, cost/unit quantity required/recommended for each individual parts should be given.

**10.0 DEVIATIONS**

- 10.1 The bidder shall certify that the machine offered fully meets the specification
- 10.2 Deviations shall be clearly indicated in a deviation statement elaborating their implications.

**11.0 INSPECTION & TESTING**

- 11.1 A load test must be carried out at the manufacturer’s works conforming to requirements of BS: 1571 Pt-II / IS :1217 (latest). Rigidity of the machine must be demonstrated to the satisfaction of the appointed Inspector or Inspecting Agency.
- 11.2 Manufacturers must have suitable facilities at their works for carrying out various performance tests on the machine. the tenderer should clearly confirm that all facilities exist and shall be made available to the inspecting authority.
- 11.3 A sample inspection chart for inspecting the machine should be supplied along with the bid. The inspection chart should indicate the entire tests that are carried out during machine manufacturer.

**12.0 TRAINING**

Technical experts of the manufacturer shall fully and adequately train operator/ maintenance staff nominated by the consignee during commissioning for a minimum of five to eight hours shift.

**13.0 INSTALLATION, COMMISISONING AND PROVING TESTS**

- 13.1 The contractor or his authorized agent shall be required to carry out a joint check at the consignee’s end along with the consignee before unpacking is done to avoid subsequent complaints regarding short shipment or transit damages.
- 13.2 Installation and commissioning of compressor shall be done by the supplier for which the charges if any shall be quoted separately in the bid.
- 13.3 The contractor or his authorized agent shall install & commission the compressor within 30 days form the date of receipt of machine at site or handing over of ready site by consignee, whichever is later. Readiness of the site (where the compressor & accessories mentioned in scope of supply are to be erected, installed & commissioned) would mean as follows:-
  - a) Clear & adequate industrial flooring
  - b) Availability of electricity within proximity of 10 meter on a main board.
  - c) Availability of water within proximity of 10 meter, if required.

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- 13.4 The consignee shall provide following assistance free of cost to the supplier/ contractor or his authorized agent after handing over of ready site for the purpose of erection, installation & commissioning of compressor:-
- a) Material handling facilities to the extent available
  - b) Electricity
  - c) Compressed air as available
  - d) Tap water as available
  - e) Welding facilities as available
- 13.5 The contractor or his authorized agent shall demonstrate the machine performance after successful commissioning at the consignee's works for a period of two weeks in 8 hours shifts. Thereafter the consignee shall watch the machine performance for a period of one month or minimum 100 hours of operation whichever is later.
- 13.6 If any assembly/ subassembly were required to be taken back to the manufacturer's premises for repair/ replacement either before commissioning or during warranty, the manufacturer or his authorized agent would be required to submit an indemnity bond.
- 13.7 In case the entire machine has to be taken back, a bank guarantee would have to be submitted. The indemnity bond/ bank guarantee should be of adequate value so as to cover the cost of these assembly/ sub assembly/ paid up cost of the machine.

**14.0 ELIGIBILITY CRITERIA:**

- 14.1 The tenderer shall be registered on IREPS website ([www.ireps.gov.in](http://www.ireps.gov.in)) to participate in the tendering process.
- 14.2 The tenderer shall have established quality control system and organization to ensure adequate control at all stages of the manufacturing process.
- 14.3 The tenderer shall provide a performance statement giving a list of major supplies of same/similar equipments effected in last 5 years to the reputed organizations giving details of the order no. and date and the quantity supplied and whether the supply was made within the delivery schedule. Such period shall be reckoned from the date of opening of tender.  
Tenderer not submitting the requisite information may note that his offer is liable to be ignored.

**15.0 COLOUR:**

All metallic surfaces shall be cleaned thoroughly and painted with primer and poly urethane paint in either yellow, grey or apple green colour. The DFT shall not be less than 80 Microns. Colour of bought outs shall not be changed.

**16.0 WARRANTY:**

The warranty condition of contract will be as per IRS conditions or as quoted by the tenderer whichever is later.

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## SCHEDULE-I

### LEADING PARAMETERS:

1.	Free Air delivery	100 CFM
2.	Working Air Pressure	13 bar.
3.	Input Power	415 V +/-10% , 3Phase, 50Hz +/-3%
4.	Insulation	F Class
5.	Noise level (Max)	85 +/-5 dB at a distance of 7mtrs in free Field condition.
6.	Motor	Motor should be 25 HP or more of make <b>Bharat Bijli/ Crompton Greaves etc</b>

Note : Free air delivery, working pressure, capacity variation, power and specific energy consumption shall be as per BS: 1571 Pt-II/ IS:1217 (i.e. taking into account all losses) at the point of discharge of after cooler and air drier.

**Note:** Tenderer to furnish following detail of the Air Cooled Air Compressor offered

S.no.	Technical Parameter	Offered by Tenderer

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