



भारत हैवी इलेक्ट्रिकल्स लिमिटेड भोपाल
BHARAT HEAVY ELECTRICALS LIMITED BHOPAL

Annexure –I

Tender Enquiry No:CMX/AC/1920/03

Comprehensive Preventive Maintenance/ All-in-service of Cold Storage & Container's cooling Units, Package/ Ductable/ Air-Conditioners & Water Chiller installed inside BHEL Factory-area, Kasturba Hospital OT & Kasturba Hospital Mortuary's Cooling Units under Maintenance Contract for 12 Month.

1. Description:

- 1.1 This contract will be comprehensive in nature, i.e. during breakdowns & for servicing, the bidder has to replace all the spare parts, compressors, electrical items, refrigerant gas, consumables, etc. free of charge, as required, for the continuous operation of the equipment covered under contract, as given in clause 1.2.
- 1.2 Following equipment with exact location, capacity, make, m/c sl. No. etc. are covered under preventive maintenance/ in-service contract for one year:

S. No.	Location	Equipment Description with Cooling Capacity	Qty.	Make, Model no. & Equipment Sl. No.
1.	ADM Bldg., 3 rd Floor, Conference Hall	11 TR Air - cooled Package AC with Semi-sealed Compressor of 5.5 TR x 2 refrigeration circuit.	1 Nos.	Voltas make
2.	Computer Building GF, Rigid Area	16.5TR Air-cooled Package AC with Scroll Sealed Compressor of 5.5TR x3 refrigeration circuit& Central Microprocessor.	4 Nos.	Blue Star Make, Model DPA1983S
3.	Computer Building GF, Non-Rigid Area	16.5TR Air-cooled Package AC with Scroll Sealed Compressor of 5.5TR x3 refrigeration ckt.	2 Nos.	Blue Star Make,
4.	Computer Building FF, Seminar Hall	11TR Air-cooled Package AC with Scroll Sealed Compressor of 5.5TR x 2 refrigeration circuit.	2 Nos.	Blue Star Make, Model DPA1322S,
5.	HRDC Bldg., GF, Room No. 29	11TR Air-cooled Package AC with Scroll Sealed Compressor of 5.5TR x 2 refrigeration circuit.	1 Nos.	Voltas Make, Model DP045687D,
6.	Blk-4/ Bay-1/ Rectifier Assembly	15TR Air-cooled Package AC with Recip. Sealed Compressor of 5.5TR x 3 refrigeration circuit.	2 Nos.	Blue Star make, model DPA1803,
7.	Kasturba Hospital OT No. 3 & 4	11TR Air-cooled Package AC with Scroll Sealed Compressor of 5.5TR x 2 refrigeration circuit.	2 Nos.	Blue Star Make
8.	CIM Winding Hall Bay 5	16.5 TR x 4 Nos , Voltas make Package AC plant	4 Nos	Voltas make
Total Package AC Units : 18 Nos.				

S. No.	Location	Equipment Description with Cooling Capacity	Qty.	Make, Model no. & Equipment Sl. No.
9.	Tool & Gauge/ 3-D Gear Measuring Room	5.5TR Air-cooled Roof-mounted Ductable AC with Scroll Sealed Compressor of 5.5 TR.	3 Nos.	Blue Star make,
10.	Press shop/ 8Ton Auto-Notch M/c	5.5TR Air-cooled Roof-mounted Ductable AC with Scroll Sealed Compressor of 5.5 TR.	1 Nos.	Blue Star make,
11.	Press shop/ 16 Ton Auto-Notch M/c	5.5TR Air-cooled Roof-mounted Ductable AC with Scroll Sealed Compressor of 5.5 TR.	1 Nos.	Blue Star make,
12.	HRDC Bldg./ FF/ Room No. 16	5.5TR Air-cooled Roof-mounted Ductable AC with Scroll Sealed Compressor of 5.5 TR.	2 Nos.	Blue Star make,
13.	HRDC Bldg./ FF/ Room No. 21	5.5TR Air-cooled Roof-mounted Ductable AC with Scroll Sealed Compressor of 5.5 TR.	1 No.	Blue Star make,
14	Kasturba Hospital labour room	5.5 TRAircooled package AC	1 no	Voltas make
Total Ductable AC Units : 9 Nos.				
15.	Blk-3/ Bay-7/ TRM div. Container	4.75TR Air-cooled Refrigeration Unit with Reciprocating Sealed Compressor of 4.75TR	2 Nos.	Blue Star make, model QC1622,
16.	Blk-3/ Bay-7/ TRM div. Container	4.75TR Air-cooled Refrigeration Unit with Reciprocating Sealed Compressor of 4.75TR	2 Nos.	Blue Star make, model QC1622,
17.	Blk-3/ Bay-3/ TRM div. Container	4.75TR Air-cooled Refrigeration Unit with Reciprocating Sealed Compressor of 4.75TR	2 Nos.	Blue Star make, model BR201C,
18.	Blk-9/ Bay-4/ TXM div. Container	4.75TR Air-cooled Refrigeration Unit with Reciprocating Sealed Compressor of 4.75TR	2 Nos.	Blue Star make, model BR201C
19.	Blk-9/ Bay-4/ TXM div. Container	4.75TR Air-cooled Refrigeration Unit with Reciprocating Sealed Compressor of 4.75TR	2 Nos.	Blue Star make
20.	CIM/ Bay-5/ Cold Storage	5TR Air-cooled Refrigeration Unit with Reciprocating Sealed Compressor of 5TR	3 Nos.	Blue Star make, model BC440,
21.	Blk-2/ Bay-9/ LEM Div. Cold Storage	4.75TR Air-cooled Refrigeration Unit with Reciprocating Sealed Compressor of 4.75TR	2 Nos.	Blue Star make, model QC1622,
Total Refrigeration Units : 15 Nos.				

Sl. No.	Location	Equipment Description with Cooling Capacity	Qty.	Make, Model no. & Equipment Sl. No.
22.	Blk-1/Bay-2/ Gun Control	28TR Air-cooled Package AC with scroll Sealed Compressor of 14TR x 2 refrigeration ckt.	1 Nos.	Blue Star make,
23.	Blk-1B/ Radiator Seam-line Welding M/c	45TR Air-cooled Package AC with scroll Sealed Compressor of 15TR x 3 refrigeration ckt.	1 Nos.	Blue Star make,
24.	Kasturba Hospital/ Mortuary -6 Chamber	2TR Air-cooled Refrigeration Unit with Reciprocating Sealed Compressor of 2TR with PLC & Remote Indicator.(1 w+1 s)	1 Set.	Blue Star make
25	Blk-3/ Bay-1/ CPM Clean Room	8.75 TR x 2 & 5.5 TR X1 Air cooled unit	1 No	Blue Star make

2. DETAILED SCOPE OF WORK:

2.1 Scope of work includes preventive maintenance twice in a year, break-down maintenance through-out the contract period, supply & replacement of burnt/ defective hermetically-sealed compressors, refrigerant-gas charging, repair & rewinding of motors ,changing of defective relays, starting & running capacitors, fan-blade, thermostat, switches, Knobs, etc. during the contract period all inclusive, on comprehensive-basis.

2.2 PREVENTIVE MAINTENANCE:

2.2.1 The Contractor has to carry out the scheduled preventive maintenance/ servicing during contract period.

2.2.2 Servicing include cleaning of condenser-coil of all the equipment under contract by cleaning agent & Water-jet; oiling/ greasing the fan-motor; checking, adjusting & replacing the broken/ unbalanced fan-blades, etc.; tightening all the electrical connections, checking the operation of thermostats & replacing the defective ones; cleaning of evaporator coils/ cooling coils if required then minor repairing & painting of equipment's base and outer Body, red-oxide painting, painting complete outer surface; checking the refrigerant gas in the system and if, any leakage is observed the same has to be rectified; checking the compressors and to take necessary action, whenever required; checking the functions of all the control circuit's items, such as HP/LP Cut-out switches, thermostats, anti-freeze thermostats, time delay relay, thermal overload protector, automatic time initiated defrost system, drain Heater, crankcase heater, etc.; checking & adjusting belt tension, alignment of all drives, tightening of bolts, etc. In addition to this contractor have to make day-to-day cleaning as per requirement of the equipment for effective operation of the same.

2.3 ATTENDING TO BREAKDOWN:

2.3.1 Contractor's supervisor have to issue the 'complaint Attending Ship' to the technicians after informing AC section supervisor daily and after completion of the work one copy of the same duly signed by the user has to be deposited with AC section supervisor.

On the receipt of requisition/ telephone complaint from the user division, the complaint will be recorded in the AC section. The bidder's authorized Supervisor has to take the complaints on the same day before start of the day. The work has to be attended on the same day & have to report the status/ completion of the complaints to AC section.

- 2.3.2 The breakdown reports will be given directly during general shift (working hours at present from 7.00 AM to 4.00 PM) However, any emergency calls from Kasturba hospital for working of Mortuary will have to be attended on urgent-basis other than normal working hours and on Holidays. All breakdowns are to be attended promptly and on completion b/d report are to be signed by user deptt.
- 2.3.3 Any unexpected major breakdown complaint reported during the working hours, i.e, 7.00 AM upto 10.00 PM has to be attended on priority basis including Sundays & holidays.
- 2.3.4 As far as possible all breakdown are to be attended and cleared on daily basis. For all minor repair, the AC units must be repaired at the site, only.
- 2.3.5 The parts requiring replacement shall be identified and shall be replaced immediately at the site, with intimation to AC section.
- 2.3.6 All breakdowns need to be completed within 2 working days and for compressor replacement & gas charging within 4 working days.
- 2.3.7 In case the breakdowns are more at any point of time, the contractor has to detain their staff and attend all pending breakdown after 4:00 PM, also. BHEL will not pay any compensation on this account.

3. PRECAUTIONARY MEASURES TO PREVENT COMPRESSOR FAILURES:

- 3.1 Contractor must ensure the all electrical and mechanical items such as relay, OLP, capacitors, thermostat, etc. should not be by-passed & should be positively incorporated in the circuit to ensure satisfactory performance of all the equipment.
- 3.2 No spurious/ sub-standard accessories must be fitted; neither any required item must be removed from the equipment.
- 3.3 If the compressor of equipment fails due to mishandling then the contractor has to replace the same, free of cost on their account.

4. SUPPLY OF SPARES BY CONTRACTOR:

- 4.1 All spares required for servicing, overhauling and attending complaints will be strictly of reputed and original make like Usha/ Klaxon/ Mallory/ Danfoss/ TOC/ GEC/ Dixell/ Carel or other standard company as approved by BHEL.
- 4.2 Refrigerant gas R-22/R-404A/R-134a/R-407C/R410 must be filled in the equipments, after confirming the usage of the gas. Re-circulated/used contaminated gas must not be used.
- 4.3 Refrigerant gas to be arranged by the contractor and has to ensure its availability at all times, at our works, for charging the equipment, in case of gas leakage.
- 4.4 Hermetically Sealed Compressors must be replaced with the same type & make from OEMsupplier.

- 4.5 All spare parts, Electrical items, Control & Measuring Instruments, etc. must be supplied from the OEMs.
- 4.6 Sufficient spares must be maintained by the bidder all the time to attend the breakdown on priority.
- 4.7 All the Motors will be repaired/re-winded by the Contractor free of cost from reputed party. If, the Motors are beyond Repair or beyond Rewinding same should be replaced by new one free of cost.
- 4.8 Consumable materials like POE/ Mineral-oil, Brazing Rods, Electrical Thimbles, Wires/ Cables, Oil/ Grease etc. are in the scope of the Contractor.
- 4.9 The Contractor has to keep necessary refrigeration special tools and general tools & tackles at sites i.e. inside & outside BHEL factory for servicing and b/d maintenance.
- 4.10 During the contract period, if rusting appearing on outer covers and frame of any machine, contractor has to provide cleaning agent, wire-brush, kerosene, turpentine, paint, painting brush, paint etc.
- 4.11 All consumable materials & spares must be taken inside by the contractor through Delivery Challan, duly recorded at CISF gate no. 9, and one copy of the same must be deposited with AC section Supervisor. The gas cylinders, tools & tackles, trolley/ thela for internal transportation of units and all other non-consumable items must be taken inside by Self-declaration Challan Format of CISF and must be preserved for returning the same after the contract period. The properties of BHEL such as Motors, Compressors etc. must be taken outside for repair through BHEL's returnable gate pass and it must be returned within 7 days. After returning the material, the same gate pass must be cleared within stipulated date as mentioned in the pass and must be deposited with In-charge, AC section. At the time of final settlement of payment, Contractor have to ensure clearance of all the Gate Passes & give an understanding that if any dues are there in the part of the Contractor, the same will be deducted from the SD deposited with BHEL.

5. SCHEDULE FOR RATE:

- 5.1 In the format enclosed at Annexure-A: schedule for Rates, the bidder has to quote their Annual Comprehensive contract rate, including compressor replacement.

6. IDLE HOURS OF UNIT:

- 6.1 All daily complaints will be attended by the contractor on the day of reporting. All major complaints will be reported by the contractor to the in-charge of the section and completed at the earliest. All breakdowns must be completed within 2 working days and for compressor replacement along with its gas charging within 4 working days.

7.0 Penalty:

- 7.1 For units remaining un-repaired or un-serviced for the period more than as mentioned at clause 6.1 above; the firm is liable to be penalized for per AC unit @ Rs. 500/- per day limited to 5% of contract value which will be deducted from their bills for the period more than permissible period of the repair.
- 7.2 Requisite man power is indicated in 9.1 - In case contractor fails to provide requisite manpower on working days additional manpower shall be allowed to compensate absence of manpower during the quarter. If still there is short fall in total man-days, payment shall not be made for absence period (only labour wage rate for short supplied man days, at the CLC rate as declared by HR(BHEL) including statutory payment of PF & ESI, Labour welfare cess) and in addition to that deduction shall be made as per rates indicated below. Penalty will be calculated on cumulative man-days supplied on quarterly basis and not on daily basis.
- Supervisor & Skilled worker: Rs. 300/-, Semi-Skilled Technician: - Rs. 250/-

8. FACILITIES THAT CAN BE MADE AVAILABLE BY BHEL :

- 8.1 Water, Compressed Air, Electricity, etc. required for servicing & repair can be supplied free of cost, as available within the factory premises.
- 8.2 Plug Top and extension Cable whenever required will be given by BHEL.

9. DEPLOYMENT OF MAN-POWER :

- 9.1 Contractor has to engage sufficient man-power/ staff on regular basis to attend & rectify all the breakdown, following man power required for the work are as follows

Sl. No.	STAFF DESCRIPTION	1 st shift (Nos.)	2 nd Shift (Nos.)	DESIRABLE QUALIFICATION
1	Supervisor	01	00	Diploma in AC&R / Mechanical Engg.
2.	Skilled Technician	01	01	ITI in AC&R with 2 yrs of experience of HVAC or min 5 yrs. of working experience of HVAC work.
3.	Skilled Technician	01	01	ITI in Electrical with min 2 yrs of working experience or min 5 yrs. of working experience of HVAC work.
4.	Semi-Skilled Technician	01	00	Sound physical & mental health.

- 9.2 Contractor shall supervise the work as per this contract & ensure that the man-power engaged is carrying out the work to the satisfaction of BHEL.
- 9.3 Contractor must ensure that the staff deployed in the premises of BHEL & work place are physically & mentally fit & do not have any criminal record. Such staff should possess the requisite skill, proficiency, qualification, experience, etc. in handling similar nature of work.
- 9.4 Contractor to ensure that all precautions are taken for safety of his staff & equipment. Contractor shall provide all safety appliances & maintain the same at his own cost, which may be required under the statutory law.
- 9.5 This Contract is awarded on job contract/ lump sum job basis & the contractor has to carry out the work undertaken by him at his own risk, finance, material, human resource.

10. **MAINTENANCE OF RECORDS:**

Contractor has to maintain the following records:

- a) Records of complaints, preventive maintenance, etc.
- b) The Contractor has to maintain register for attendance of his workers and have to present to the AC section when demanded.
- c) The contractor has to maintain the gate pass issued by AC section & has to get it cancelled on regular basis
- d) All incoming materials to be replaced must be taken inside the factory against delivery challans which must have CISF gate entry pass no. & certified by the user deptt. for replacement being carried out.

11. **TERMS OF PAYMENT:**

- 11.1 100% Payment shall be made after completion of the work duly certified by in-charge AC section-WE&CS, against submission of comprehensive contract bill as per Annexure-A **on quarterly basis** for the said period..
- 11.2 Payment will be made to Contractor on the basis of actual work carried out by him which will have no relation with the payment schedule of contractor's employees.
- 11.3 Contractor must allow BHEL, Bhopal to deduct IT & SD as per BHEL terms.
- 11.4 Payment will be made on the basis of satisfactory report of service carried out in the previous quarter.

12. **PERIOD OF CONTRACT:**

- 12.1 Period of contract shall be for 12 month from the date of issue of the work order.
- 13.0 All bidder have to provide PF, ESI, GST, Labour License (if applicable) Registration Certificate Photocopies which must be enclosed with 'Technical-cum Commercial Bid'. Also, Photocopies of PAN Card & latest Income Tax Return must be enclosed.

14. **GENERAL:**

- 14.1 In addition to this Scope of Work, Contractor has to accept all other documents attached with this Contract. These special requirements in the above scope of work are intended to amplify the General Conditions of contract and shall be read in conjunction with them. In case of any discrepancy between the General Conditions of contract and these special requirements, the most stringent shall apply.
- 14.2 Contractor has to specifically agree to all the tender-enquiry documents by putting signature & seal in every page, otherwise the offer can be rejected. If according to the bidder there is any deviation, the same must be specifically mentioned
- 14.3 All transportation of men & material in & outside the factory premises shall be the responsibility of the Contractor.
- 14.4 BHEL reserves the right to revoke the contract at any time and at any stage of the contract if the work is not carried out to its satisfaction or for any other

reason (s) which are prejudicial to the interest of BHEL, Bhopal and also forfeit the EMD, SD, etc.

- 14.5 Security deposit will be returned to the Contractor after completion of 2 months from the date of final release of payment. If any dues is on the part of the Contractor, the same will be deducted from the SD.
- 14.6 The Contractor shall comply with the provisions of all relevant rules of the Government and or enactments which may be enforced from time to time by State Government/ Central Government.
- 14.7 The statutory obligation of payment of provident fund to the workmen engaged by the contractor is binding of the contractor and there shall be no additional liability to BHEL on this account.