

TECHNICAL SPECIFICATION FOR PRECISION AIR CONDITIONER

Ref No : BAP:IC:TS:PAC001

Date: 01.08.2012

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Prepared By	Approved By
K.Alfred Suman, Sr.Engineer/IC	M.P.Sivasubramani, SM/IC

Technical Specification for Precision Air Conditioning

- a) BHEL is having DC (Data Centre) with 250 Sq. feet area. This area is having 5 server racks and two 10 T Emerson PACs Model PEX 135FA-100 working with 1+1 redundancy. BHEL is going to extend this Data Centre with additional area of 370 Sq. feet. In the extended area, 5 server racks will be located. False flooring and false ceiling for this area will be arranged by BHEL. Bidder should supply one no of 10 T Precision Air Conditioner as per the technical specifications given in this document. This AC should work along with the existing 2 PACs to provide 2+1 redundancy for the total DC Area.
- b) DC requires round the clock 365 days precision cooling to maintain Temperature of 21 Deg. C +/- 1 and relative humidity of 50% +/- 5. his PAC should work along with the existing Sequential controller. The DC will be operated round the clock shift on all 365 days.
- c) The Precision Air-conditioners shall be bottom discharge with high CFM units. The cold air discharge will be from false floor void. The raised floor will be provided with volume controlled diffuser. The existing false floor is going to be extended to accommodate 5 server racks and the PAC. Bidder is responsible for meeting the cooling requirement (to maintain Temperature of 21 Deg. C +/- 1 and relative humidity of 50% +/- 5) of the total data center along with existing server racks and two PACs.
- d) The thermal insulation below the false floor, AC ducts, diffuser and floor grills are in the scope of the bidder. The thermal insulation required to be applied on the original floor is in the scope of the bidder.
- e) The unit supplied shall have redundancy (2+1) along with the existing two PACs. This PAC should work along with the existing sequential timer facility available with BHEL for the alternate use of these units. If the existing sequential timer unit is not compatible, the bidder should supply the new sequential timer along with PAC.
- f) The minimum requirements for the AC are mentioned below. Bidder has to comply with these specifications.
- g) The entire system is required 3-year comprehensive onsite maintenance support and if BHEL opts, the bidder shall undertake to provide maintenance support for two years after the expiry of the three year period. The scope of Comprehensive onsite maintenance support covers:
 - (i) Diagnose the faults & rectify the hardware/software faults detected.
 - (ii) Repair/replace the faulty units/parts etc of the equipment.
 - (iii) Carry out the periodic preventive maintenance.
 - (iv) Upkeep & Upgrade the software to latest version periodically.
- h) Total Price shall be for the complete scope as per technical specifications, inclusive of comprehensive onsite maintenance including repair/replacement of parts during the three year period, all taxes & duties, insurance, any other incidental charges, etc. The comprehensive maintenance support period shall start from the date of successful completion of installation and acceptance by BHEL.
- i) The vendor shall have support Center in Chennai. The vendor shall furnish the names, locations, complete postal address, Telephone numbers and FAX numbers of all Technical support Centers after successful commissioning of the PAC.

j) The vendor shall ensure that a minimum stock of critical spare parts / units of the system are maintained as spare stock at the site.

k) Payment Terms:

80% of the contract value will be paid after successful completion of supply, installation and commissioning.

10% of the contract value will be paid at the end of second year

10% of the contract value will be paid at the end of third year

l) Performance Bank Guarantee Terms:

Bidder should pay PBG for the value of 10% of contract value and it is valid for three years till the end of the contract period.

m) Any down time in the PAC affecting the availability of service of the data center shall be considered critical and liable to cause imposition of penalty @ Rs.5000 per day. The penalty shall be deducted from the remaining invoices. The maximum value of penalty shall not exceed 5% of the total contract value.

n) If the availability of the PAC is continuously below 75% over a period of 3 months, BHEL reserves the right to terminate the contract in full without any cost implications.

o) An agreement should be signed in the format attached in Annexure-I after successful completion of the installation and commissioning work.

p) Bidder should meet the following Support requirement:

Service Window	24*7
Telephonic Support	24*7
Response Time: Onsite On call	24 Hours
Resolution	48 Hours
Spare Turn Around Time	48 Hours

S.No	Specifications	Compliance (Yes/No)	Document Reference/ Remarks
	Make: Emerson/Uniflair/Stulz		
1	Precision air conditioners complete with all controls, indoor and outside units, monitoring units and complete installation and commissioning for server room.		
2	The vendor is expected to include all auxiliary works like ducting, inlet and drain piping, piping between indoor and outdoor, cabling, acoustic and thermal insulation (Duct and floor for server room), volume control dampers, supply and returns air grills, stands for indoor and outdoor units with related civil works etc. as per the site requirements.		

3	Automatic monitoring and control of cooling, heating, humidification, dehumidification, air-filtration, etc. should be installed		
4	These equipment should be compliant to the following :		
	Cabinet conforming to Class 1 BS 476 Part 6&7 standards		
	Air filtration conforming to EU3 standards		
	Electric Re-heater should be operating at black heat temperature		
	Humidifier should have an adjustable capacity control ranging from 40%-100%		
	Visual and audible alarm indication		
5	Humidity , Ventilation, Air Conditioning (HVAC)		
	Air conditioning for direct expansion air conditioning is used then condensers should be located outside the building.		
	Optimal temperature of 21 deg C + or -1 shall be maintained.		
	45 -50% Relative Humidity shall be maintained.		
	Relative humidity variation shall not exceed +/-3%.		
6	Microprocessor controller Panel		
7	The display panel should be located on the front of the unit with LCD display for monitoring and alarm indication. The panel should be used for :		
	Status detection (whether on or off)		
	Temperature controller		
	Humidity controller		
8	The panel should make an audio visual alarm in case of:		
	Power failure		
	Fan overload		
	Humidifier power fault		
	Humidifier control fault		
	Heater fault		
	Airflow failure		
	Change filter		
	Control circuit trip		
	Return air temperature / RH out of range		
	Supply air temperature out of range		
	Return air humidity sensor alarm		
	Return air temp. Sensor alarm		
	Service alarm		
	Electric heater alarm		
	Microprocessor fault		
Humidifier flood			
Water leakage alarm			
Smoke alarm			
9	Other functions of the control panel		
	Graphical display of temperature and humidity curves over the last 24-hour.		
	Self-diagnostic functionality		
	Supply air fan surge to let fan continue on operation for a period of 180 second before total shutdown.		
	An automatic changeover for duty / standby unit based on time interval setting and any failure of duty unit.		
	An automatic restart function with sequence start program to prevent power surge during start-up on multisystem		

	installation.		
	A graphic display to review the return air temperature and humidity condition.		
	Comprehensive event storage system by date and time of occurrence.		
	Simply user-friendly operating guidance.		
10	Complied the SLA requirement given in this document		
11	Sequential timer requirement as per clause (e)		
12	Three years comprehensive onsite support as specified in this document		
13	Complied all the clauses specified in this document.		
14	Agreement to be executed in the format given in Annexure-I. (in the event of getting PO)		

Contract Ref:

Agreement for Comprehensive maintenance support of Precision Air conditioner

This agreement made on this _____ (“Effective Date”) between M/s. _____, a Company incorporated under the laws of Republic of India, having its registered office at _____ (hereinafter called the ‘Company’) of the one part, and the **BHARAT HEAVY ELECTRICALS LIMITED**, a company incorporated under the Indian Companies Act having its registered office at Siri Fort, New Delhi and one of its manufacturing unit BHEL/BAP situated at Ranipet, Vellore, Tamil nadu - 632406 (hereinafter called the ‘BHEL’) of the other part.

Whereas ‘Company’ is in the business of providing Comprehensive maintenance support for PAC and whereas the ‘BHEL’ has placed an order (_____) on Company for AMC for a period of 36 months as per contract (_____) and ‘Company’ has agreed to provide Comprehensive maintenance support contract for PAC to the ‘BHEL’ under the following terms and conditions.

Now, therefore, the agreement witnessed as follows:

1. Contract Reference:

- a. This Document shall be read along with the contract (_____) .This Terms and Conditions of the contract shall be fulfilled along with the clauses of this agreement.

2. Scope of Contract (in brief):

The entire system is required 3-year comprehensive onsite maintenance. The scope of Comprehensive onsite maintenance support covers:

- (i) Diagnose the faults & rectify the hardware/software faults detected.
- (ii) Repair/replace the faulty units/parts etc of the equipment.
- (iii) Carry out the periodic preventive maintenance.
- (iv) Upkeep & Upgrade the software to latest version periodically.

3. Definitions:

In this agreement, ‘Contract’ means the Contract referred in the Clause 1.a

4. Contract Period:

The Comprehensive maintenance support period is for three years (from _____ to _____).

5. Scope of Contract shall cover the followings:

- a. The vendor shall have support Center in Chennai. The vendor shall furnish the names, locations, complete postal address, Telephone numbers and FAX numbers of all Technical support Centers after successful commissioning of the PAC.
- b. The vendor shall ensure that a minimum stock of critical spare parts / units of the system are maintained as spare stock at the site.

c. **Payment Terms:**

80% of the contract value will be paid after successful completion of supply, installation and commissioning.

10% of the contract value will be paid at the end of second year

10% of the contract value will be paid at the end of third year

d. **Performance Bank Guarantee Terms:**

Bidder should pay PBG for the value of 10% of contract value and it is valid for three years till the end of the contract period.

e. Any down time in the PAC affecting the availability of service of the data center shall be considered critical and liable to cause imposition of penalty @ Rs.5000 per day. The penalty shall be deducted from the remaining invoices. The maximum value of penalty shall not exceed 5% of the total contract value.

f. If the availability of the PAC is continuously below 75% over a period of 3 months, BHEL reserves the right to terminate the contract in full without any cost implications.

g. An agreement should be signed in the format attached in Annexure-I after successful completion of the installation and commissioning work.

h. Bidder should meet the following Support requirement:

Service Window	24*7
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i. **Indemnity and Limitation of liability:**

The vendor/contractor shall indemnify to BHEL for the losses, costs, expenses and damages caused by the contractor/vendor or their employees during the contract period to the extent of value of the contract.

j. **Arbitration:**

Disputes, if any arising out of or in connection with this contract shall be resolved mutually, at the very first instant. In the event parties fail to amicably resolve the dispute within a period of 30, days of being communicated in writing by one party to the other, the same shall be referred to arbitration under the Indian Arbitration and conciliation Act, 1996 to be held at Ranipet. The unit head of BHEL/BAP, Ranipet or his nominee shall be sole arbitrator. The decision of the sole Arbitrator shall be final and binding on the both the parties hereto.

k. Jurisdiction & Governing Laws:

- a. In case of any suit or other legal proceedings arising under this contract the courts at Ranipet (Vellore District) Tamil Nadu only shall have the jurisdiction. This contract will be governed in all respects by Indian Laws.
- b. This contract and any amendments thereto shall be valid and binding upon Vendor only if signed by the Authorized signatories of both 'BHEL' and Vendor.
- c. The Contractor shall comply with all the provisions of Applicable Laws, including any laws relating to the Project, statutory compliances, tax, labour law. The Contractor shall be bound to give all notices required by Applicable Laws as aforesaid and to pay all fees and taxes payable to any authority in respect thereof. BHEL shall not be responsible for any reason whatsoever for the non-compliance by the Contractor of Applicable Laws

IN WITNESS WHEREOF, 'BHEL' has caused this agreement to be signed at Ranipet, the day and year first above written, while 'Company' has caused this agreement to be signed at _____ through its authorized signatory – under their stamp who are the only constituted attorneys for this purpose, the day and year indicated below against the execution on its behalf.

SIGNED AND DELIVERED FOR & on behalf of the above named 'Company' by its authorized representative:

At Ranipet this day of 2012.

BHEL

Vendor

Name:

Name:

Title:

Title:

Date:

Date: