



An ISO 9001
Company

Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT / MATERIALS MANAGEMENT

ENQUIRY

NOTICE INVITING TENDER

Phone: +91 431 257 7653
Email : skaruna@bheltry.co.in,
ajay@bheltry.co.in
Web : www.bhel.com

TWO PART BID

Tender to be submitted in two Parts

Enquiry
Number:

2631700008

Enquiry Date:

22.06.2017

Due date for submission of
quotation:

21.07.2017

You are requested to quote the Enquiry number date and due date in all your correspondence. This is only a request for quotation and not an order.

Please note that under any circumstances both delayed offer and late offers will not be considered. Hence vendors are requested to ensure that the offer is reaching physically our office before 14.00 hrs on the Date of tender opening.

Item	Description	Quantity
10	Packaged Air Conditioner with Indoor AHU as per the technical specification & commercial conditions applicable (to be downloaded from web site www.bhel.com or http://tenders.gov.in)	3 Nos

Important points to be taken care during submission of offer

1. Compliance Form No: TRY/ IND/ 02A to be filled and enclosed along with the offer failing which, the offer will not be considered for evaluation.
2. Delivery period required is 3 months from the date of P.O.
3. Commissioning and performance prove out shall be done at BHEL Trichy by the supplier
4. Time period required for commissioning and performance prove out shall be 2 month from the date of intimation by BHEL
5. EMD for this tender Rs.1,00,000/-
6. All updates, amendments, corrigenda, etc., (if any), for each tender will be posted only on the above websites from time to time, as and when required, until each tender is opened. There will be no publication of such updates, amendments, corrigenda, etc., through newspapers or any other media.

BHEL's General guidelines / instructions (refer MM/CE/GENL/001- EMD), compliance form and technical specification can be downloaded from BHEL web site <http://www.bhel.com> or from the Government tender website <http://tenders.gov.in> (public sector units > Bharat Heavy Electricals Limited page) under Enquiry reference.

Tenders should reach us before 14:00 hours on the due date
Tenders will be opened at 14:30 hours on the due date
Tenders would be opened in presence of the tenderers who have submitted their offers and who may like to be present

Yours faithfully,
For BHARAT HEAVY ELECTRICALS LIMITED

Manager / Capital Equipment / MM

AJAY V ASALKAR
MANAGER
MM / Capital Equipment
BHEL, Tiruchirappalli - 620 014.

PART - A

PRE-QUALIFICATION CRITERIA

S.No	BHEL Specification	Vendor's Offer
1.0	QUALIFYING CRITERIA	
1.1	Only those Bidders, who have supplied and commissioned at least ONE number of ** Centralised Air conditioning system with minimum total installed capacity of 40 TR per system (or) higher capacity in the past TEN years and such system is presently working satisfactorily for a period of minimum one year (as on the date of tender opening) should quote. (** - Centralised Air conditioning system as mentioned above shall have been installed under a single project per customer and shall comprise of Ductable Split units / Packaged air conditioners / Chiller units / VRF Units.)	
1.2	Bidder / Vendor has to submit at least ONE Performance Certificate from their customer, for satisfactory performance of the Air conditioning facility as specified in clause 1.1 , supplied to them and such equipment is working satisfactorily for a minimum period of one year [as on date of this tender opening]. (For obtaining the Performance certificate, a suggestive format is provided at the end of part-A.)	
1.3	The Bidder should submit following information where similar facilities have been supplied for qualification of their offer. - Name and postal address of the customers or company where similar plants are installed. - Name and designation of the contact person of the customer. - Phone and email address of the contact person of the customer. - Month and Year of commissioning of the system	
1.4	BHEL may verify the information provided by the Vendor. In case the information provided by vendor is found to be false/ incorrect, the offer shall be rejected.	

Suggestive Format of Performance Certificate:

The performance certificate should be produced **on Customer's Letter Head OR must clearly mention Customer company name, address, phone number and email id (apart from the following details).**

PERFORMANCE CERTIFICATE

- 1 Supplier of the equipment
- 2 Manufacturer of the equipment
- 3 Type of equipment: Ductable Split Units / Package AC / Chiller unit / VRF system
- 4 PO Reference number :
- 5 Date, Month & Year of Commissioning:
- 6
 - a. Capacity of the equipment in TR
 - b. Application for which the system is used
- 7 Performance of the equipment Satisfactory / Not Satisfactory
(Strike off whichever is not applicable)
- 8 Service after sales Satisfactory / Not Satisfactory
(Strike off whichever is not applicable)
- 9 Performance certificate issued date:
- 10 Any Other remarks

Signature & Seal of the Authority
Issuing the Performance Certificate

Contact details of issuing authority

Name & Designation:

Office No/ Mobile no:

Email ID:

Part B -Technical Specification

TECHNICAL SPECIFICATION FOR PACKAGED AIR-CONDITIONERS WITH INDOOR AHU UNITS (AIR-COOLED UNITS)
in BLDG. 163, BHEL, TRICHY COMPLEX

Scope of Work : Dismantling of Existing old Water cooled Air Conditioning system and Design ,Supply , Installation, Testing, commissioning of New Air Cooled Packaged Air conditioning units and interconnection to the existing ducting system in Bldg. 163 at BHEL, Trichy as per the specification mentioned below.

Dismantling Works of the existing old Air conditioning system			
S.No	Item Description	Technical Specification	Vendor's offer
A	The supplier has to dismantle the existing water cooled Airconditioning system (2X40 TR) consisting Compressors, Air Handling Units , Motors , Condensors, Cooling Towers , Piping, pipe fittings, valves, electrical controls and accessories completely from Bldg no.163 / ATP/ BHEL/ Trichy and handover the materials to BHEL.	Vendor to confirm	
B	Existing Equipment details:		
B (i)	40 TR reciprocating compressors with motor assembly - 2 nos.	Vendor to notedown and confirm	
B (ii)	Air Handling Unit - 1 no.		
B (iii)	Cooling tower - 1 nos.		
B (iv)	Cooling water circulation pump - 2 nos.		
B (v)	Refrigeration, other piping materials and any other accessories - As installed.		
C	General Instructions for Dismantling works :		
C (i)	Tools & tackles: All required tools and tackles for dismantling the above existing installations are in the scope of Vendor	Vendor to confirm	
C (ii)	M/s BHEL shall provide equipment assistance to material handling activities for loading & unloading of the units subjected to the availability of the facility.Any items which are not in their scope to be spelt out clearly in their offer.	Vendor to confirm	
C (iii)	Duration of work: All dismantling work has to be completed with in a short period(max.10 working days)	Vendor to confirm	
C (iv)	All required man power for the above work is in contractor's scope.	Vendor to confirm	
C (v)	The vendor has to endure that all the above works are carried out as per the instructions and guidelines of BHEL Engineer / supervisor.	Vendor to confirm	

S.No	Item Description	Technical Specification	Vendor's offer
C (vi)	All the system dismantled should be shifted, stored and stacked properly in a store room inside the factory premises which will be provided by BHEL. All required tools, tackles are in the scope of the contractor	Vendor to confirm	
C (vii)	All Major Civil works such as wall breaking , finishing works , foundation works etc will be under BHEL scope and all minor civil works such as jumbering , wall drilling will be under contractor scope	Vendor to confirm	
C (viii)	All welding machines with cables , cutting set torches etc. are under the scope of the vendor.All the consumables like water,compressed air,electricity,welding elctrodes,cutting gas will be issued by BHEL at free of cost.	Vendor to confirm	
C (xi)	Vendor may visit the site to assess the quantum of work	Vendor to confirm	
Design, Supply , Installation, Testing and commissioning of 3 X 20 TR Packaged Air conditioners in Bldg. 163 / ATP, BHEL, Trichy			
i)	General	Vendor to Note down	
	The offered system shall confirm to the following specification.		
a)	Manufacturing room Dimension	14.7 m X 10 m X 8 m	
b)	Application for which the air conditioning is required.	Manufacturing activities like Welding,Fabrication, machining etc.	
c)	Inside temperature required	22 +/- 2 deg.C	
d)	Out side temperature (ambient)	45 degree C	
e)	Required Humidity	55 to 60 % (Approx.)	
f)	Number of occupancy	15 Persons (approx)	
g)	Required Filtration level	5 microns minimum.	
h)	Refrigerant gas to be used in compressor	R-407C/R-410 A/ R-134A /R-404A	
i)	Sound level inside air-conditioned hall	Less than 85 db	
1	Scope of work:		
1.1	Design, manufacture, Supply, erection, testing and commissioning of packaged airconditing units (with Air handling unit type Indoor unit) with energy efficient single / multi scroll compressors, air-cooled condenser, micro processor controlled panel programmable and other accessories as given below. Evaporator (AHU) and condensor tube coils material should be copper.	60 TR (Approx - including stand by) (20 Ton X 3 Nos or any equivalent numbers to be accomodated in the service plant rooms). (Out of 60 TR - 67 % working and 33 % standby) - Vendor to Confirm	

S.No	Item Description	Technical Specification	Vendor's offer
2	Packaged Air conditioners - General:		
2.1	Nominal Capacity	(20 Ton X 3 Nos or any equivalent numbers to be accommodated in the service plant rooms). (Out of 60 TR - 67 % working and 33 % standby) - Vendor to confirm (Each set of packaged air conditioner unit should consist of indoor units plus associated outdoor unit seperately.)	
2.2	Air Flow (in CMH)	Vendor to specify	
2.3	Make of the Packaged Air conditioner Units : Bluestar, Voltas, Carrier, Hitachi, Daikin, LG, York, Trane, Samsung, Lloyd, Mitsubishi (or) any other reputed makes acceptable to M/s BHEL	Vendor to confirm & mention the Make.	
2.4	Model No. of the Packaged Air conditioning units	Vendor to Specify	
3	Electrical Power Supply		
3.1	Power Supply - 415 V , 3 Phase, 50 Hz, AC supply	Vendor to confirm	
3.2	Rated Current (in Amps)	Vendor to specify	
3.3	BHEL will provide necessary power supply upto isolator incoming for AC units (Isolator will be provided inside the Service plant room in a single location). All other interconnection cabling shall be in supplier's scope. The interconnection cables should be of copper with rating acceptable to M/s BHEL.	Vendor to confirm	
3.4	Size of the copper cable in Core X Sq.mm	Vendor to specify	
3.5	The vendor to ensure the proper clamping of the electrical cabling and routing through Cable trays as per requirement. Under vendor's scope.	Vendor to confirm	
4	Compressor		
4.1	No. of compressors per Package unit - Qty. in nos.	Vendor to specify	
4.2	Type - Hermetically sealed Scroll type compressor	Vendor to confirm	
4.3	Make - Emerson Copeland / Danfoss	Vendor to confirm & Specify	
4.4	Power Supply - 415 V , 3 Phase, 50 Hz, AC supply	Vendor to confirm	
4.5	Refrigerant - Should be eco-friendly. R-407 C/ R-410 A/ R-134 A/R-404 A	Vendor to confirm & Specify	

S.No	Item Description	Technical Specification	Vendor's offer
5	Indoor Unit : Air Handling Unit Type :		
5.1	Air Handling Units : Qty : 3 nos. 2 Working & 1 stand by	Vendor to confirm	
5.2	Overall Dimensions : Width X Depth X Height (in mm)	Vendor to specify (in mm)	
5.3	Air Flow rate : Minimum 8000 CFM per AHU	Vendor to confirm	
5.4	Type of flow : Horizontal flow type	Vendor to confirm	
5.5	Mounting : Floor mounting	Vendor to confirm	
5.6	Capacity : Minumm 20 TR Per AHU (Suiting the capacity of the Package unit).	Vendor to confirm	
5.7	Type of Casing : Double Skin Construction with Min 50 mm thick PUF insulation	Vendor to confirm	
5.8	Static Pressure: Minimum 100 mm WC	Vendor to confirm	
5.9	Cooling Coil Section : Should consist cooling coil made up of copper tube with mechanically bonded aluminium fins.	Vendor to confirm	
5.10	Drain Pan : Drain pans (thermally insulated) are to be provided for cooling coil. Drain Pan shall be made of Stainless Steel.	Vendor to confirm	
5.11	Type of fan : Should be centrifugal, forward / backward curved, multi- blade double inlet double width type.	Vendor to confirm	
5.12	Motor - TEFC squirrel cage induction motor	Vendr to confirm	
5.13	Motor HP rating. (Minimum 7.5 HP)	Vendr to specify	
5.14	The AHUs shall be provided with fine filters with filtering capacity of minimum 5 microns.	Vendor to confirm	
5.15	The filters shall be arranged to suit the AHU configuration in frame and all mounted directly on AHU for easy removal	Vendor to confirm	
5.16	Star Delta starter required if any for the Air handling unit motors to be supplied seperately or to be integrated in the control panel as per manufacturing design standard. Vendor's scope.	Vendor to confirm	
6	Expansion Valve		
6.1	Type - Thermostatic with external equaliser line	Vendor to confirm	
6.2	Make: Danfoss / Emerson	Vendor to confirm	

S.No	Item Description	Technical Specification	Vendor's offer
7	Connections:		
7.1	Hard drawn copper piping for liquid and gas lines with necessary fittings, elbows, bends and supports etc to be provided	Vendor to confirm	
7.2	Liquid line valve - Required quantity	Vendor to confirm	
7.3	Hand shut off valve - Required quantity	Vendor to confirm	
7.4	Service Valve of suitable size to be provided	Vendor to confirm	
8	Filter Drier:		
8.10	Make : Danfoss / Emerson	Vendor to confirm	
8.2	Air filter:		
8.3	Filtration capacity: 5 microns	Vendor to confirm	
8.4	Material : Non woven polyester media enclosed by HDPE mesh	Vendor to confirm	
9	Outdoor units for Packaged Air conditioners:		
9.1	Qty. per Package Unit - (in Nos.)	Vendor to specify	
9.2	Overall dimensions :Width X Depth X Height (in mm)	Vendor to specify	
10	Condenser Coil:		
10.1	Tube type/Material - Inner grooved copper tubes	Vendor to confirm	
10.2	Fin Material - Hydrophobic aluminium	Vendor to confirm	
11	Safety Devices		
11.1	Compressor Contactor, Blower motor contactor, Overload relay of reputed makes to be provided.	Vendor to confirm	
11.2	HP/LP Cutouts to be provided	Vendor to confirm	
12	Controller Features:		
12.1	7 Segment LCD / LED display	Vendor to confirm	
12.2	Set temperature range : 19 deg.C to 32 deg.C	Vendor to confirm	
12.3	NTC Thermistor bit sensor with 5M cable	Vendor to confirm	
12.4	Time delays for compressor operation	Vendor to confirm	
12.5	Auto restart after power failure	Vendor to confirm	
12.6	Built in Single phase / Phase reverse protection	Vendor to confirm	
12.7	Fault and Alarm display for : HP & LP / Temperature sensor / Indoor Fan overload	Vendor to confirm	

S.No	Item Description	Technical Specification	Vendor's offer
13	Ducting:		
13.1	G.I ducting - Supply Air - 20 G / 22 G. (Minimum 120 GSM)	Vendor to confirm	
13.2	The existing ducting works inside the Bldg. 163 area shall be used for the supply & Return air purpose.	Vendor to confirm	
13.2	The vendor has to do the ducting interconnection works of the Air handling units to the existing supply air duct inside AHU room. All the materials required for this interconnection works is under supplier's scope. Any modification to the existing supply air duct in the AHU room for the said interconnection works is under the supplier's scope.	Vendor to confirm	
13.3	Motorised Dampers to be provided seperately for individual Air handling units.	Vendor to confirm	
13.4	Vendor to provide PVC drainage pipes(not less than 30 mm dia) with Nitrile rubber Insulations along with necessary fittings, elbows,bends and supports etc., for all the Outdoor units.The condensate water drainage line should be connected to the nearest drainage point	Vendor to confirm	
13.5	Ribbed rubber pads to be provided wherever necessary	Vendor to confirm	
13.6	Industrial Quality Fire Retardant Canvass connections to be provided for required quantity	Vendor to confirm	
13.7	The vendor has to remove and replace the existing Heater in the supply air duct with new automatic humidity sensing Electric strip heater. All the accessories, cabling upto BHEL power supply point are under vendor's scope.	Vendor to confirm	
14	Thermal Insulation:		
14.1	The vendor has to remove the existing glass wool insulation provided in the portion of the supply & return air ducting that lies in the open area in between the AHU room & the manufacturing cabin facility.	Vendor to confirm	
14.2	The vendor has to provide thermal insulation for the supply & return air ducting (that lies in the open area in between the AHU room & the manufacturing cabin facility) which shall be foil faced closed cell XLPE material in sheet form of minimum 13 mm thickness.	Vendor to confirm	

S.No	Item Description	Technical Specification	Vendor's offer
14.3	An estimated 100 sq.mm insulation as per the above requirement to be supplied & laid by the vendor.	Vendor to confirm	
15	Civil Works:		
15.1	A Service Plant room of dimension 4000 mm X 4400 mm X 5300 mm with RCC roofing will be provided from BHEL for accomodating the indoor AHU units.	Vendor to confirm	
15.2	The vendor has to install 3 nos. of indoor AHU units inside the service plant room provided. If any civil works are required for the modification of the AHU room (as per manufacturing & design standards), then the vendor has to inform the same well in advance.	Vendor to confirm	
15.3	Outdoor units to be installed on the roof top of the Service room building	Vendor to confirm	
	Any concrete beds required for moutning the indoor & outdoor units will be provided bu M/s BHEL.		
15.4	Any civil works involving wall openings will be under BHEL's scope.	Vendor to confirm	
16	Elecetrical works:		
16.1	All the electrical cabling between indoor and outdoor units with copper cables & G.I double earthing are under the scope of the supplier. BHEL's existing earth pits shall be used.	Vendor to confirm	
16.2	All Electrical control wiring & termination is also under the supplier's scope	Vendor to confirm	
17	Terms & Conditions - General:		
17.1	Vendors may visit the site and study the work place / environment before submitting their offer.	Vendor to confirm	
17.2	The AHU units to be installed inside the service plant rooms and the out door units to be installe don the roof of the service plant room.	Vendor to confirm	
17.3	Ribbed rubber pads to be provided wherever necessary		
17.4	Supplier should submit their offer for the package AC units along with catalogue consisting of details like specification, make, model,weight of indoor & outdoor units, power rating, power consumption, input power supply requirement, dimensions and air flow etc., of AC units.	Vendor to confirm	

S.No	Item Description	Technical Specification	Vendor's offer
17.5	After placement of Purchase order, vendor has to submit all GA drawings , Electrical panel & schematic drawings, BOQ to BHEL within 30 days for approval before manufacture.BHEL will approve the same in 15 days. Vendor to confirm	Vendor to confirm	
17.6	All the Welding, brazing, pressure testing, vacuumising, gas charging and commissioning are under the scope of the supplier.	Vendor to confirm	
17.7	After commissioning, units performance to be proved-out by the supplier.	Vendor to confirm	
17.8	Any civil work required for this work comes under the scope of BHEL. Supplier should give clearly the scope of civil work in their offer.	Vendor to confirm	
17.9	BHEL will provide necessary power supply upto isolator incoming for AC units. All other interconnection cabling (copper cables) shall be in supplier's scope.	Vendor to confirm	
17.10	BHEL will provide necessary electrical power on free of cost during erection work (Supplier should give clearly the rating of supply point in their offer).	Vendor to confirm	
17.11	The man power for the E&C activities is under vendor's scope. Supplier should adhere to necessary safety precautions while executing this job.	Vendor to confirm	
17.12	Guarantee : 12 months from the date of commissioning and acceptance at BHEL works or 18 months from the date of supply whichever is earlier. Supplier should provide four quarterly free services for their equipment and spares including refrigerant gas charged in the systems. If any leakage of refrigerant after commissioning, supplier should re charge the gas on free of cost during guarantee period.	Vendor to confirm	
17.13	Annual Maintenance Contract : The supplier shall submit an offer for AMC of the offered units for two years after the completion of warranty period.	Vendor to confirm	
17.14	All welding cables, welding generators,gas cutting torch sets, tools, equipments, etc, required for the air conditioning of the proposed area is in the scope of the supplier. All the consumables like water,compressed air,electricity,welding elctrodes,cutting gas will be issued by BHEL at free of cost. Any structural items like angles, channels required for the E&C activities is under the vendor's scope.	Vendor to confirm	

S.No	Item Description	Technical Specification	Vendor's offer
17.15	M/s BHEL shall provide assistance to material handling activities for loading & unloading of the units subjected to the availability of the facility. Any items which are not in their scope to be spelt out clearly in their offer.	Vendor to confirm	
17.16	The equipments shall be suitable for 415V+/- 10%, 50Hz +/-3%, 3Phase 3 wire systems.	Vendor to confirm	
17.17	Control panels shall consist of digital meters of reputed makes indicating the load current, voltage, kwh etc.	Vendor to confirm	
17.18	The following manuals in English shall be supplied. Operation & Maintenance (Maintenance manual shall include all electrical circuits). Hard copy Original: 3 Nos, CD Media: 2 Nos.	Vendor to confirm	
17.19	Pre despatch inspection will be done by BHEL engineers at supplier's works.	Vendor to confirm	
17.20	The supplier shall depute his personnel for erection and commissioning of the equipment at BHEL (including prove-out).	Vendor to confirm	
17.21	If contract labour temporary labour is employed for erection and commissioning of the equipment at BHEL works, statutory provisions including ESI & PF coverage etc. are to be complied with.	Vendor to confirm	