

SR #	ITEM SPECIFICATON	QTY
1.	<p>Air Cooled Water Chiller & Spares having below mentioned specifications with O&M, Installation & Commissioning Manuals.</p> <ul style="list-style-type: none">• Make: DAIKIN, Hitachi, Atis-Makina, Kalte-Klima or Eqv• Cooling Capacity: 30 USRT• Type: Air Cooled Water Chiller• Power Supply: 3 ϕ, 400 V, 50 Hz• Refrigerant Compressors: 02 Nos• Ambient Temperature Max: 46°C• Control: Monitoring, Adjustment and preferably should also contain diagnostics and error identification. <p><u>Detailed Technical Specifications as per page-3~4/4.</u></p>	02 Nos.
2.	<p>Spares</p> <ul style="list-style-type: none">i) Control module/display screenii) Compressoriii) Condenser Fan motor	01 Set 01 No 02 Nos

Note:

- i) Items must be complete in all respects and in ready to use conditions.
- ii) Refurbished, Repaired or Overhauled units are not acceptable.

Specification Sheet for Chiller

Type:	Air Cooled Water Chiller
Installation Location:	Outdoor
Quantity:	02 No's
Cooling Capacity:	30USRT=360000Btu/hr=106kW
Capacity Control:	Variable PLC Based
Chilled Water Entering Temperature:	12° C
Chilled Water Leaving Temperature:	7° C
Ambient Air Temperature Maximum:	46° C
Installation Altitude:	2000ft above Sea Level
Refrigerant Gas Type:	R-134a, R407C or R-410a
No. of Refrigerant Circuits:	02 No's (Preferably)
No. of Refrigerant Compressors:	02 No's (Independent Operation)
Compressor Type:	Preferably Scroll
Power Supply:	3 Phases, 400 V, 50 Hz
Evaporator Type:	Preferably Shell and Tube Type with water in Shell side and Refrigerant in Tube side with fouling factor of the order of $0.0000176m^2 \text{ } ^\circ C/W=0.001875ft^2 \text{ } ^\circ Fhr/Btu$.
Air Cooled Condenser:	02 No's. Preferably Forced Draft, Aluminum Finned, Cross Flow Type with Hot Air Outlet in Vertical direction
Frame/ Casing Material:	Galvanized Steel Sheet internally and externally painted to provide corrosion resistance.
Brand/ Make:	Preferably of Kalte-Klima, Atis-Makina, DAIKIN, and HITACHI.
Origin:	Preferably Italy, Turkey, Malaysia, Asian (Excluding Israel and India) local Pakistani Origin.

Standard Safeties and Indications:

Chiller Units should be factory assembled, piped, wired and shipped in one piece and ready for field connection. It should be leak tested (Pressure and Vacuum tested) and factory charged with appropriate quantity of Refrigerant. Unit should be supplied with all the standard temperature, pressure gauges and safeties. In addition unit must also have compressor over current relays, Thermal Protection; high and low pressure switches etc.

Documents and Drawings:

Bidder should be responsible for provision of at least 02 sets of below mentioned documents/ drawings in English Language for supplied units.

- i. Certificate by manufacturer that equipment being supplied is brand new.
- ii. Warranty certificate by manufacturer that equipment being supplied have been manufactured with good workmanship and are free of any defect. In case of some manufacturing defect, equipment will be replaced free of cost.
- iii. Equipment part and assembly drawings.
- iv. Unit installation drawings and manuals.
- v. Operation/ Maintenance manual describing operation of unit, troubleshooting of equipment, maintenance techniques/ methods and maintenance schedules etc.
- vi. Detail of standard parts with part number and its manufacturing name.
- vii. Control and Electric Wiring Diagram of Unit.
- viii. Testing and calibration Certificate of all supplied equipment, instruments and satieties.
- ix. Supplier must provide CD containing all level passwords & control software.