

Retrofitting of Water Cooled Water Chiller for Vacuum Drying Vessel No. ME-6/1/2114 & 2115 in Bay- 8**1. DETAILS OF THE VESSEL:**

Machine/Plant no. : ME-6/1/2114 & 2115
Location : Bay-8 TRM
Plant Type : Vacuum Drying Vessel
Supplier : M/s- VPI (Transferred from BHEL-Bhopal)
Year of installation : 1977

2. DESCRIPTION OF THE PLANT:

Vacuum Drying Vessel No. 2114 & 2115 are installed in Bay-8 TRM and are suitable for vacuum drying of instrument transformers. In addition, there is a provision for filling of processed transformer oil under vacuum, in transformer after drying is completed. Vacuum pumps and vapour condensers with water jackets are provided with the plant. Chilled water supply is required for operation of vacuum pumps and vapour condensers.

3. SCOPE OF WORK:

Supply, Installation and Commissioning of 20 TR @ 15 °C water cooled water chiller for vacuum drying vessel no. ME-6/1/2114 & 2115 in bay-8.

- i. Installation of chilling unit and connection with inlet & outlet line of process water and cooling tower water.
- ii. Initial gas charging of chiller.
- iii. Operator's training for operation & control of water chiller.

4. SCOPE OF SUPPLY:

Water cooled water chiller for cooling system of vacuum drying vessel - TR capacity & details:

Cooling Capacity: 20TR@15°C
Min/Max Operating Temp: +5°C/+25°C
Min/Max Ambient Temp.: +5°C/+45°C
Media to Cool: Clean Water

Chiller should be supplied with following Components/Accessories/Features-

A. Main Refrigeration Components:

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Compressor Make: Emerson/Danfoss
 Compressor Type: Scroll
 Condenser Type, Make: Water cooled, Shell & Tube type, Alphasval make.
 Evaporator Type, Make: Brazed Heat Exchanger, GEA/ Swep/ Kaori/ Alphasval.
 Refrigeration Circuits: 02
 Refrigerant: R134a/R407C

B. Refrigeration Control Circuit with Accessories

C. Externally Mounted Pump: (on Tank Skid)

Make: Grundfoss/Kirloskar/Crompton
 Type: Centrifugal, Multistage
 Construction: SS304 Impeller/CI Housing
 Process Flow Rate & Pressure: 200 L/Min @ 4Bar

D. Electrical:

MPCB for Compressor, Pump, Fan etc: Schneider/ABB/L&T/Siemens
 Contactor for Compressor, Pump, Fan etc: Schneider/ABB/L&T/Siemens
 Main switch on/off: Schneider/ABB/L&T/Siemens
 Single Phase Preventer: Schneider/ABB/L&T/Siemens
 Microprocessor based controller & antifreeze switch

E. Water Reservoir:

Volume: 500 Ltrs (with a provision for water level monitoring)
 Construction: SS 304
 With nitrile rubber insulation

F. Hydraulic Specs:

Piping: Non-Corrosive
 Inlet/Outlet End Connections: 1-1/2" BSP

G. Power Supply: 3 PH., 415 V, 50Hz, AC

H. Safety Devices:

Hand Shut Off Valve: Both Suction & Discharge side of the Compressor for servicing purpose.
 Digital Temperature Controller.

I. Control Accessories:

High Pressure Trip
 Low Refrigerant Trip

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Phase Reversal Trip
Water Level Low Trip
Overload Relay Trip
High/Low Temperature Alarm
Antifreeze Trip

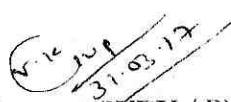
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5. General Conditions:

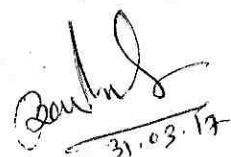
- i. Water chiller shall be supplied with 3 set of manual. The manual shall contain the details of -
 - a. Refrigeration circuit diagram
 - b. Complete wiring diagram with ferrule no.
 - c. Spare parts details and
 - d. Operation manual with maintenance details.
- ii. Erection & Commissioning shall be done by supplier at BHEL works.
- iii. Interconnecting piping between chiller & process shall be in BHEL's scope
- iv. Material handling support shall be provided by BHEL.
- v. Supplier to bring all the tools & tackles required for installation & commissioning.
- vi. Initial charge of Refrigerant shall be provided by supplier.
- vii. GA & PI diagram with detail for refrigeration system shall be provided by supplier.
- viii. Guarantee required: minimum 18 months from the date of supply or 12 months from the date of commissioning, whichever is earlier.
- ix. Minimum 15 days advance notice to be given by supplier for Inspection at supplier's works.

6. Qualification criteria

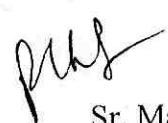
- i. Only those vendors/bidders, who have supplied and commissioned at least THREE numbers of water chiller of capacity 20 TR (or) more in the last FIVE years (as on original date of tender opening) for industrial use should quote.
- ii. Vendor/bidder should submit Performance Certificate from their customers (meeting clause Sl. No. 6.i), for the satisfactory performance of water chiller of capacity 20 TR (or) more, for a minimum period of one year (as on original date of tender opening). The performance certificate should be in the customer's letterhead.


Dy. Manager (WEX / P)


Manager (WEX / P)


Manager (Services)


DGM (MC-II & Services)


Sr. Manager (TRM)