

Testing & Commissioning of Chilled Water Pumps

The purpose of this method of statement or standard operating procedure is to define the step by step method to implement the correct practices for the **pre-commissioning & commissioning** of “**Chilled Water Pump**” through the guidelines contained herein so as to ensure that the job execution complies with the project requirements and serves the intended function to satisfactory level.

Before doing the pump testing make sure that chilled water pump installation work is complete and approval is available in writing.

References

- Contract Specifications and Approved Shop Drawings
- Approved Material Submittals
- Manufacturer’s Instructions

Tools / Equipment /Testing Instruments

- Pressure Gauges
- Clamp Ammeter
- Portable Hand tools
- Tachometer

Chilled Water Pump Commissioning Procedures

Visual Checks

- Ensure that the pump installation is complete and mechanical completion is approved.
- Ensure that no damage occurs between mechanical completion & pre-commissioning.
- Repair all damages to the equipment paint finish.
- Ensure that the pumps are identified location wise and service wise.
- Note the details of each motor such as make, model number, frame size, KW rating and RPM.
- Check that the Chiller water & Condenser pump piping network is complete with proper valves, pressure switches and instruments in place as per final approved shop drawing.
- Ensure the pump shafts are rotated by hand freely.
- Ensure that electrical power connections and earthing is proper.

- Ensure that the field wiring is pre-tested for continuity and insulation resistance.
- Ensure that all the relevant valves are in open position. Pump discharge valve should be in closed position.
- Direction of rotation and RPM shall be checked during commissioning.
- Check the pumps are properly bolted
- Check for proper installation of pressure gauges.
- Check identification and labeling for equipment.

Chilled Water Pump Start Up Procedure

- Ensure that all the pre-commissioning checks are carried out successfully.
- Ensure that pipe alignment is done.
- Ensure the discharge valve is closed.
- Open the suction valve & allow water to flow into the pump.
- Start the pump and record shut – off head.
- Open the discharge valve fully & record the head of the pump.
- Check pumps for overheating by feeling it physically by hand (there is no specific criteria for checking the overheating of pump).
- Check for any undue vibration/noise (it is just physical hearing of undue vibration / noise during operation).
- Calculate the actual pump performance and plot actual performance curve.
- Check current, voltage & rpm of the motor & record the values.
- Check & ensure that the pumps shut off at low water level.
- The wiring diagram of pump controls & schematic piping shall be displayed near or inside the control panel.

Inspection & Records

- Inspection Request (IR) duly signed by the Consultant.
- Specialist Suppliers commissioning report /document.

Health & Safety

- All safety precautions shall be followed as per the established Project Safety Plan.
- Only experienced and skilled technicians shall be engaged for carrying out Start-up and Commissioning of “Chilled Water pump”.
- Safety Guards shall be in place and secured prior to start-up.

- Cable test reports shall be verified prior to energisation.
- Appropriate Warning signs and tapes shall be placed during start-up and commissioning as required.
- All PPE shall be worn as appropriate according to the nature of the job.
- Work area shall be maintained neat and clean.

Attachments

- Schedule of Chilled Water Pump Installation
- Pre-Commissioning check list for Chilled Water Pumps
- Commissioning check list for Chilled Water Pumps
- Chilled Water Pump Schematic diagram.