
Part 1 General

1.1 REFERENCE STANDARDS

- .1 American Society for Testing and Materials International (ASTM) (Latest edition)
 - .1 ASTM E202, Standard Test Methods for Analysis of Ethylene Glycols and Propylene Glycols.

1.2 CLEANING AND START-UP OF MECHANICAL PIPING SYSTEMS

- .1 In accordance with Section 23 08 02- Cleaning and Start-up of Mechanical Piping Systems.

1.3 HYDRONIC SYSTEMS - PERFORMANCE VERIFICATION (PV)

- .1 Perform systems performance verification after cleaning is completed and system is in full operation.
- .2 When systems are operational, perform following tests:
 - .1 Conduct full scale tests at maximum design flow rates, temperatures and pressures for continuous period of 48hours to demonstrate compliance with design criteria.
 - .2 Verify performance of condensate pumps, boiler feed pumps as specified, recording system pressures, temperatures, fluctuations by simulating maximum design conditions and varying.
 - .1 Pump operation.
- .3 Calculate system capacity at test conditions.
- .4 Using manufacturer's published data and calculated capacity at test conditions, extrapolate system capacity at design conditions.
- .5 When capacity test is completed, return controls and equipment status to normal operating conditions.
- .6 Submit sample of system water to approved testing agency to determine if chemical treatment is correct.

1.4 REPORTS

- .1 In accordance with Section 01 91 13- General Commissioning (Cx) Requirements: Reports, supplemented as specified herein.

1.5 TRAINING

- .1 In accordance with Section 01 91 13- General Commissioning (Cx) Requirements: Training of O&M Personnel, supplemented as specified herein.

Part 2 Products**2.1 NOT USED**

.1 Not Used.

Part 3 Execution**3.1 NOT USED**

.1 Not Used.

END OF SECTION