

**PART 1 GENERAL**

**1.1 RELATED REQUIREMENTS**

- .1 Section 23 05 05 Installation of Pipework

**1.2 REFERENCES**

- .1 American Society of Mechanical Engineers (ASME).
- .2 ASME B40.100-01, Pressure Gauges and Gauge Attachments.
- .3 ASME B40.200-01, Thermometers, Direct Reading and Remote Reading.
- .4 Canadian General Standards Board (CGSB).
- .5 CAN/CGSB-14.4-M88, Thermometers, Liquid-in-Glass, Self Indicating, Commercial/Industrial Type.
- .6 CAN/CGSB-14.5-M88, Thermometers, Bimetallic, Self-Indicating, Commercial/Industrial Type.

**1.3 ACTION AND INFORMATIONAL SUBMITTALS**

- .1 Submittals in accordance with Section 01 33 00- Submittal Procedures.
- .2 Submit shop drawings and product data.
- .3 Submit manufacturer's product data for following items:
  - .4 Thermometers.
  - .5 Pressure gauges.
  - .6 Stop cocks.
  - .7 Syphons.
  - .8 Wells.

**1.4 WASTE MANAGEMENT AND DISPOSAL**

- .1 Collect, separate and place in designated containers for reuse and recycling paper, plastic, polystyrene, corrugated cardboard packaging, Steel, Metal, and Plastic in accordance with Waste Management Plan.
  - .2 Fold up metal banding, flatten and place in designated area for recycling.
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- .3 Place materials defined as hazardous or toxic waste in designated containers.
  - .4 Ensure emptied containers are sealed, labelled and stored safely for disposal away from children.

**PART 2 PRODUCTS**

**2.1 GENERAL**

- .1 Design point to be at midpoint of scale or range.
- .2 Ranges: as indicated.

**2.2 DIRECT READING THERMOMETERS**

- .1 Industrial, variable angle type, liquid filled, 125 mm scale length: to CAN/CGSB 14.4.

**2.3 REMOTE READING THERMOMETERS**

- .1 100 mm diameter mercury-free liquid filled activated dial type: to CAN/CGSB-14.5, accuracy within one scale division, brass movement, stainless steel capillary, stainless steel spiral armour, stainless steel bulb and polished stainless steel case for wall mounting.

**2.4 THERMOMETER WELLS**

- .1 Copper pipe: copper or bronze.
- .2 Steel pipe: stainless steel.

**2.5 PRESSURE GAUGES**

- .1 112 mm, dial type: to ASME B40.100, Grade 2A, stainless steel bourdon tube having 0.5% accuracy full scale unless otherwise specified.
  - .2 Provide as applicable:
    - .1 Siphon for steam service.
    - .2 Snubber for pulsating operation.
    - .3 Diaphragm assembly for corrosive service.
    - .4 Gasketed pressure relief back with solid front.
    - .5 Bronze stop cock.
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**PART 3 EXECUTION**

**3.1 GENERAL**

- .1 Install so they can be easily read from floor or platform. If this cannot be accomplished, install remote reading units.
- .2 Install between equipment and first fitting or valve.

**3.2 THERMOMETERS**

- .1 Install in wells on piping. Provide heat conductive material inside well.
- .2 Install in locations as indicated and on inlet and outlet of:
  - .1 Heat exchangers.
  - .2 Water heating and cooling coils.
  - .3 Water boilers.
  - .4 Chillers.
  - .5 Cooling towers.
  - .6 DHW tanks.
- .3 Install wells as indicated only for balancing purposes.
- .4 Use extensions where thermometers are installed through insulation.

**3.3 PRESSURE GAUGES**

- .1 Install in following locations:
    - .1 Suction and discharge of pumps.
    - .2 Upstream and downstream of PRV's.
    - .3 Upstream and downstream of control valves.
    - .4 Inlet and outlet of coils.
    - .5 Inlet and outlet of liquid side of heat exchangers.
    - .6 Outlet of boilers.
    - .7 In other locations as indicated.
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- .2 Install gauge cocks for balancing purposes, elsewhere as indicated.
  - .3 Use extensions where pressure gauges are installed through insulation.

**3.4 NAMEPLATES**

- .1 Install engraved lamicoïd nameplates as specified in Section 23 05 53.01 - Mechanical Identification, identifying medium.

**END OF SECTION**

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