**SECTION 22 05 15**

**PIPING SPECIALTIES**

**BASED ON DFD MASTER SPECIFICATION DATED 10/1/12**

***This section has been written to cover most (but not all) situations that you will encounter. Depending on the requirements of your specific project, you may have to add material, delete items, or modify what is currently written. The Division of Facilities Development expects changes and comments from you.***

**P A R T 1 - G E N E R A L**

**SCOPE**

This section contains specifications for plumbing piping specialties for all piping systems. Included are the following topics:

PART 1 - GENERAL

 Scope

 Related Work

 Reference

 Reference Standards

 Shop Drawings

 Operation and Maintenance Data

 Design Criteria

PART 2 - PRODUCTS

 Thermometers

 Thermometer Sockets

 Test Wells

 Test Plugs

 Pressure Gauges

 Strainers

PART 3 - EXECUTION

 Thermometers

 Thermometer Sockets

 Test Wells

 Test Plugs

 Pressure Gauges

 Strainers

**RELATED WORK**

Section 01 91 01 or 01 91 02 – Commissioning Process

Section 22 11 00 - Facility Water DistributionSection 22 13 00 - Facility Sanitary SewerageSection 22 14 00 - Facility Storm DrainageSection 22 15 13 - General Service Compressed-Air PipingSection 22 50 00 - Pool and Fountain Plumbing SystemsSection 22 60 00 - Gas and Vacuum Systems for Laboratory and Healthcare FacilitiesSection 22 63 00 - Gas Systems for Laboratory and Healthcare FacilitiesSection 22 67 00 - Processed Water Systems for Laboratory and Healthcare Facilities

Section 22 05 23 - General-Duty Valves for Plumbing Piping

Section 22 07 00 - Plumbing Insulation

Section 22 30 00 - Plumbing Equipment

**REFERENCE**

Applicable provisions of Division 1 govern work under this section.

**REFERENCE STANDARDS**

ASTM B650 Electrodeposited Engineering Chromium Coatings on Ferrous Substrates

**QUALITY ASSURANCE**

Substitution of Materials: Refer to Section GC – General Conditions of the Contract, Equals and Substitutions.

**SHOP DRAWINGS**

Required for all items in this section. Include materials of construction, dimensional data, ratings/capacities/ranges, approvals, test data, pressure drop data where appropriate, and identification as referenced in this section and/or on the drawings.

# OPERATION AND MAINTENANCE DATA

All operations and maintenance data shall comply with the submission and content requirements specified under section GENERAL REQUIREMENTS.

***Delete the following if there are no additional requirements.***

In addition to the general content specified under GENERAL REQUIREMENTS supply the following additional documentation:

1. ***[A/E and commissioning provider to define detailed operation and maintenance data requirements for equipment specifications added to this section.]***

**DESIGN CRITERIA**

All piping specialties are to be rated for the highest pressures and temperatures in the respective system in accordance with ANSI B31, but not less than 125 psig unless specifically indicated otherwise.

**P A R T 2 - P R O D U C T S**

**THERMOMETERS**

Ashcroft, Marsh, Taylor, H. O. Trerice, Ametek/U. S. Gauge, Weiss, Wika, Weksler.

Stem Type: Cast aluminum case, nine inch scale, clear acrylic window. adjustable angle brass stem with stem of sufficient length so the end of the stem is near the middle of a pipe without reducing the thickness of any insulation, red indicating fluid, black lettering against a white background, with scale ranges as follows:

**Service** Hot Water

**Scale Range, oF** 30 - 180

**Increment, oF**  2

**THERMOMETER SOCKETS**

Brass with threaded connections suitable for thermometer stems and temperature control sensing elements in pipeline. Furnish with extension necks for insulated piping systems.

**TEST WELLS**

Similar to thermometer sockets except with a brass cap that threads into the inside of the test well to prevent dirt from accumulating. Secure cap to body with a short chain. Furnish with extension necks, where appropriate, to accommodate the pipeline insulation.

**TEST PLUGS**

Brass threaded pressure and temperature test plug with neoprene self-closing valve, valve retainer, brass threaded cap, rated for 150 psi and 0-200 degrees F.

**PRESSURE GAUGES**

Ametek/U. S. Gauge, Ashcroft, Marsh, Taylor, H. O. Trerice, Weiss, Wika, Weksler.

Cast aluminum case of not less than 4.5 inches in diameter, double strength glass window, black lettering on a white background, phosphor bronze bourdon tube with bronze bushings, recalibration from the front of the dial, 99% accuracy over the middle half of the scale, 98.5% accuracy over the remainder of the scale, with scale range as follows:

**Service**  Hot Water Cold Water Compressed Air

**Scale Range, psig**  0-100 0-100 0-200

**Increment, psig** 1 1 2

Pressure Snubbers: Bronze construction, 300 psig working pressure, 1/4" size.

Gauge Valves: Use ball valves as specified in Section 22 05 23 - General-Duty Valves for Plumbing Piping.

**STRAINERS**

Armstrong, Illinois, Keckley, Metraflex, Mueller Steam, Sarco, Watts.

Y type; cast bronze body, ASTM B62; 20 mesh stainless steel screens; bolted or threaded screen retainer tapped for a blowoff valve; sweat, threaded or flanged body rated at not less than 150 psi WOG.

Y type; cast iron body, ASTM A126; 20 mesh stainless steel screens; bolted or threaded screen retainer tapped for a blowoff valve; threaded or flanged ends; rated at not less than 150 psi WOG.

**P A R T 3 - E X E C U T I O N**

**THERMOMETERS**

Stem Type: Install in piping systems as indicated on the drawings and/or details using a separable socket in each location.

**THERMOMETER SOCKETS**

Install at each point where a thermometer or temperature control sensing element is located in a pipeline.

**TEST WELLS**

Install in piping systems as indicated on the drawings and/or details wherever provisions are needed for inserting a thermometer at a later date.

**TEST PLUGS**

Install in piping systems as indicated on the drawings and/or details wherever provisions are needed for short-term measurement of pressure or temperature.

**PRESSURE GAUGES**

Install in locations where indicated on the drawings and/or details, with scale range appropriate to the system operating pressures.

Pressure Snubbers: Install in gauge piping for all gauges used on water services.

Gauge Valves: Install at each gauge location as close to the main as possible and at each location where a gauge tapping is indicated.

**STRAINERS**

Install all strainers where indicated allowing sufficient space for the screens to be removed. Install a ball valve in the tapped screen retainer.

END OF SECTION