

## SECTION 15034 - GAUGES

### City of San Diego, CWP Guidelines

#### PART 1 - GENERAL

##### 1.1 WORK OF THIS SECTION

- A. The WORK of this Section includes providing pressure and vacuum gauges, including fittings, snubbers, connections, gaskets, supports, and accessories.

##### 1.2 RELATED SECTIONS

- A. The WORK of the following Sections applies to the WORK of this Section. Other Sections of the Specifications, not referenced below, shall also apply to the extent required for proper performance of this WORK.
  - 1. Section 11000 Equipment General Provisions
  - 2. Section 11370 Blowers, Compressors, and Vacuum Pumps, General
  - 3. Section 15100 Valves, General

##### 1.3 CODES

- A. The WORK of this Section shall comply with the current editions of the following codes as adopted by the City of San Diego Municipal Code:
  - 1. Uniform Plumbing Code

#### PART 2 - PRODUCTS

##### 2.1 PRESSURE AND VACUUM GAUGES

- A. **General:** Pressure gauges shall be installed on suction and discharge connections to pumps; on discharge connections from blowers and compressors; at each side of pressure reducing valves; and where otherwise indicated. Vacuum gauges and compound gauges, where indicated, shall be installed on vacuum pumps.
- B. **Gauge Construction:** Gauges shall have Type 316 stainless steel movement and stainless steel or alloy case. Except as otherwise indicated, gauges shall have a 3-1/2-inch dial, 1/4-inch threaded connection, a Type 316 stainless steel snubber adapter, and a shut-off valve. Gauges shall be calibrated to read with an accuracy of  $\pm 1$  percent to 150 percent of the indicated pressure. Gauges shall be vibration and shock resistant. Gauges on liquid service should have cases filled with a suitable liquid.
- C. **Diaphragm Seal:** Gauges attached to systems containing chemical solutions, corrosive fluids, sludge, sewage, or other liquids containing solids, shall be equipped with diaphragm seals, or equal protective pressure or vacuum sensing devices, and comply with the following:

- |   |  |
|---|--|
| 1. For: sewage, sludge, liquids containing solids, pulsating flow                                 | Seals shall be fabricated with Type 316 stainless steel, with stainless steel diaphragm for pressures over 15 psi, and elastomer diaphragm for pressures of 15 psi and below with Type 316 stainless steel nuts and bolts, fill connection and valved flush port size 1/4-inch NPT, capable of disassembly without loss of filler fluid. |
| 2. For: chlorine and sulfur dioxide under pressure  | Seals shall be fabricated with carbon steel with silver diaphragm and shall be rated at 800 psi.   |
| 3. For: chemical solutions, low pressure sewage and chemical sludge except as otherwise indicated | Seals shall be fabricated with PVC body for removable mounting and rated at 200 psi, with Type 316 stainless steel bolts and nuts, 1/2-inch inlet, 1/4-inch outlet, liquid-filled with Teflon diaphragm for pressure service and proper elastomer diaphragm for vacuum service.  |

## 2.2 SLEEVE PRESSURE GAUGES

- A. **General:** Sleeved pressure gauges shall be provided where indicated.
- B. Sensors shall be in-line ring-type, bolted directly between 600 lb R.F. flanges. The sensors shall have through-holes for positive alignment with pipeline flanges. Inside diameters of the sensors shall be the same as the mating pipes. Pressure sensing rings shall measure pressure for 360 degrees around the inside circumference of the pipe. Pressure shall be transmitted to the gauge by a locked-in, sealed ethylene glycol or silicone oil. The pressure indicators shall be local to the sensors. Pressure transmitters shall be connected by capillary tubing to the sensors.

## 2.3 MANUFACTURERS

- A. Pressure and Vacuum Gauges
1. Pressure and vacuum gauges shall be manufactured by one of the following (or equal):
- Ashcroft Industrial Instruments (Dresser)  
 Foxboro/Jordan, Inc.  
 Marsh Instrument Company  
 Marshalltown Instruments, Inc.  
 U.S. Gauge Div. of Ametek

2. Diaphragm seals shall of the following manufacture and model (or equal):
  - a. Stainless steel diaphragm seals and elastomer diaphragm seals for sewage, sludge and liquids containing solids.  
  
Ashcroft, model 101  
Marshalltown, Series 225-01  
U.S. Gauge (Ametek), SG
  - b. Silver diaphragm seals for chlorine and sulfur dioxide under pressure.  
  
Fischer and Porter  
Pennwalt (W&T)
  - c. Teflon diaphragm and elastomer diaphragm seals for chemical solutions, low pressure sewage, and chemical sludge.  
  
Harrington Ind. Plastics, Inc.  
Plast-O-Matic Valves, Inc.  
Utilities Supply
3. Snubbers shall be manufactured by one of the following (or equal):  
  
Cajon Company  
Weksler Instruments, Corp.

B. Sleeve Pressure Gauges:

1. Sleeve pressure gauges shall be manufactured by one of the following (or equal):  
  
Red Valve Company, Inc.  
Ronningen-Petter

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. Gauges shall be installed in accordance with the manufacturer's installation instructions.
- B. Gauges shall be installed with the face in the vertical position at the indicated locations. Gauges shall be installed to minimize the effect of water hammer and vibrations, and, where indicated, gauges shall be mounted independently, with flexible connectors.

**\*\* END OF SECTION \*\***