

## **PART 1 - GENERAL**

These standards apply to piping, equipment and materials for compressed air systems.

### **1.01      DESIGN CRITERIA**

#### **A. Drawings and Specifications:**

1. Use Central Mechanical Plant air systems for compressed air service.
2. Indicate unit dimensions, weight loading, required clearances, electrical characteristics and connection requirements.
3. Equipment schedules: Capacities, horsepower, brake horsepower, RPM, efficiency, electrical requirements, weights, etc.
4. Indicate service access requirements on plans.
5. Include riser diagrams.
6. Shows invert elevations and points of connection to locations.
7. Show acceptable slope for all piping to low-point drains.
8. Do not use PVC or CPVC piping.
9. Pneumatic tank systems: specify cut-off pressure, start pressure, and associated tank volume percentages for ease of start-up and servicing.

#### **B. Design:**

1. Compressed Air: Horizontal pipe pitched 1-inch in 20-feet to low points.
2. Drip Leg: 6-inches long, provide at bottom of vertical pipe with globe or ball valve blow-off on compressed air.
3. Branch Outlet Method: Take compressed air from top of horizontal pipe.
4. Testing for Compressed Air: Test piping system to air pressure of 150 psig for 30 minutes with no perceptible drop in pressure.

## **PART 2 - PRODUCTS**

### **2.01      PIPE AND FITTINGS**

- A. Buried Pipe: Type "K" copper with wrought copper fittings, ASTM B-88.
- B. Above Grade Piping: Type "L", hard drawn copper with wrought copper fittings, ASTM B-88.

- C. Brazed silver joints.

## **2.02      AIR COMPRESSOR**

- A. Manufacturers: Sullair, Ingersoll Rand, Atlas/Copco, Kaeser, or approved equal.
- B. 7.5 HP and larger: Variable speed with soft start, vertical screw type, single stage, asymmetrical lobe, tapered roller bearings, direct NEMA motor non-lubricated flexible couples, oversized 99.99% efficient filter per SAE J726C, ASME 200 psig min rated tank, ASME pressure relief, air/filter separating element, fluid level sight glass, pumpless cooling lubricant system, air cooled after cooler, max cooling air temp of 104 deg F, fluid filter with ISO 6889 certified non-metal replacement element, variable speed package controls to modulate 15-100 percent and include start/stop/fault history/run hours/pressure/unload/unload minutes/modulate disable/auto or manual selection, high temp shutdown safety, low/high sump pressure safety, motor overload, fan motor overload safety, sound enclosure. Include frame and vibration isolation for mounting off of floor.
- C. Under 7.5 HP: Single acting, two-stage reciprocating type compressor. Cast iron cylinders, finned intercooler, positive displacement pump and automatic unloading. OSHA totally enclosed belt guard with automatic start, stop, and alternation.

## **2.03      AIR DRYER**

- A. Manufacturers: Hankison, Ingersoll-Rand, Pneumatech, Pure Aire, or approved equal.
- B. Packaged unit, Regenerative desiccant dryer consisting of alternating dual towers filled with desiccant (activated alumina). Towers shall be ASME certified and labeled. Complete with controls, filters and relief valve.

## **2.04      AIR RECEIVER**

- A. Manufacturers: Manchester, Ingersoll-Rand, Atlas/Copco, Kaeser, or approved equal.
- B. Vertical unit, ASME rated to a min of 125 psig or higher as applicable, flange or screw inlet and outlet connections, primed and painted finish. Include adjustable pressure regulator, safety valve, pressure gauge per Section 20 03 00 – Basic Materials and Methods, drain cock, and automatic float actuated condensate trap.

**2.05      ISOLATION VALVES**

- A. Manufacturers: Apollo, Stockham, Tyco, Milwaukee, or approved equal.
- B. ASTM B584 bronze ball valve, 3 piece body, full port, 316 stainless steel trim and stem, 316 stainless steel ball, RTFE seats: 600 psi non-shock cold water, oil, or gas.

**2.06      PRESSURE REDUCING VALVES**

- A. Manufacturers: Norgren, Kunkle, Leslie, or approved equal.
- B. Spring loaded, stainless steel spring, diaphragm type, all bronze, ASME rated.

**2.07      FILTERS**

- A. Manufacturers: Sullair, Ingersoll Rand, Balcrank, or approved equal.
- B. Particulate removal to 1 micron, remaining oil content to be no more than 0.5 ppm, include automatic drain and access for maintenance.

END OF SECTION