

- (2) ASTM B 88, *Standard Specification for Seamless Copper Water Tube*, water tube (Type K or L) or equivalent International Standard(s) approved by the Authority Having Jurisdiction.
- (3) ASTM B 280, *Standard Specification for Seamless Copper Tubing for Air Conditioning and Refrigeration Field Service*, 280ACR tube or equivalent International Standard(s) approved by the Authority Having Jurisdiction. [NFPA 99:5.1.3.5.13.4]

The compressor air intake shall be located outdoors above roof level, at a distance of not less than 3m (10 ft.) from any door, window, exhaust, other intake, or opening in the building and a distance of not less than 6m (20 ft.) above ground. [NFPA 99:5.1.3.5.13.2]

If an air source equal to or better than outside air (e.g., air already filtered for use in operating room ventilating systems) is available, it shall be permitted to be used for the medical air compressors with the following provisions:

- (1) This alternate source of supply air shall be available on a continuous 24 hours-per-day, 7 days-per-week basis.
- (2) Ventilating systems having fans with motors or drive belts located in the air stream shall not be used as a source of medical air intake. [NFPA 99:5.1.3.5.13.3]

Air intakes for separate compressors shall be permitted to be joined together to one common intake where the following conditions are met:

- (1) The common intake is sized to minimize back pressure in accordance with the manufacturer's recommendations.
- (2) Each compressor can be isolated by manual or check valve, blind flange, or tube cap to prevent open inlet piping when compressors are removed from service and consequent backflow of room air into the other compressor(s). [NFPA 99:5.1.3.5.13.5]

**1324.3.1** Each medical air compressor shall have an isolation valve installed so that shutting off or failure of the largest unit will not affect the operation of the other unit(s).

**1324.4** Drains shall be installed on dryers, aftercoolers, separators, and receivers.

**1324.5** Medical air receivers shall be provided with proper valves to allow the flow of compressed air to enter and exit out of separator receive ports during normal operation and allow the receiver to be bypassed during service, without shutting down the medical air system. [NFPA 99:5.1.3.5.11.4]

**1324.6 Medical Air Receivers.** Receivers for medical air shall meet the following requirements:

- (1) Be made of corrosion-resistant materials or otherwise be made corrosion resistant.
- (2) Comply with Section VIII, Unfired Pressure Vessels, of the *ASME Boiler and Pressure Vessel Code* or equivalent International Standard(s) approved by the Authority Having Jurisdiction.
- (3) Be equipped with a pressure-relief valve, automatic drain, manual drain, sight glass, and pressure indicator.
- (4) Be of a capacity sufficient to prevent the compressor from short cycling. [NFPA 99:5.1.3.5.6]

Piping within compressor systems upstream of the source shutoff valve shall comply with Sections 1315.0 and 1318.0, except that stainless steel shall be permitted to be used as a piping material.

### **1325.0 Medical Vacuum Pump System.**

The vacuum plant shall be installed in a well-lit, ventilated, and clean location with ample accessibility. The location shall be provided with drainage facilities. The vacuum plant, when installed as a source, shall be located separately from other medical vacuum system sources, and shall be readily accessible for maintenance.

**1325.1** Medical-surgical vacuum sources shall consist of the following:

- (1) Two or more vacuum pumps sufficient to serve the peak calculated demand with the largest single vacuum pump out of service.
- (2) An automatic means to prevent backflow from any on-cycle vacuum pumps through any off-cycle vacuum pumps.
- (3) A shutoff valve or other isolation means to isolate each vacuum pump from the centrally piped system and other vacuum pumps for maintenance or repair without loss of vacuum in the system.
- (4) A vacuum receiver.
- (5) Piping between the vacuum pump(s), discharge(s), receiver(s), and the vacuum source shutoff valve shall be in accordance with Section 1315.1, except that stainless, galvanized, or black steel pipe shall be permitted to be used.
- (6) Materials and devices used between the medical vacuum exhaust and the medical vacuum source shall be permitted to be of any design or construction appropriate for the service, as determined by the manufacturer. [NFPA 99 5.1.3.6.1.2(1), (2), (3), (4), (5), (6)]

**1325.1.1** Additional pumps shall automatically activate when the pumps in operation are incapable of adequately maintaining the required vacuum.