

Initial pressure tests shall be conducted as follows:

- (1) After installation of station outlets/inlets rough-in assemblies. Test caps shall be permitted to be used.
- (2) Prior to the installation of components of the distribution piping system that would be damaged by the test pressure (e.g., pressure/vacuum alarm devices, pressure/vacuum indicators, line pressure-relief valves, manufactured assemblies with flexible hose, etc.). [NFPA 99:5.1.12.2.3.2]

The source shutoff valve shall remain closed during these tests. [NFPA 99:5.1.12.2.3.3]

The test pressure for pressure gases shall be 1.5 times the system working pressure but not less than a gauge pressure of 10bar (150 psi). [NFPA 99:5.1.12.2.3.4]

The test pressure for vacuum shall be not less than a gauge pressure of 4.1bar (60 psi). [NFPA 99:5.1.12.2.3.5]

The test pressure shall be maintained until each joint has been examined for leakage by means of soapy water or other equally effective means of leak detection that is safe for use with oxygen. [NFPA 99:5.1.12.2.3.6]

Leaks, if any, shall be located, repaired (if permitted), replaced (if required), and retested. [NFPA 99:5.1.12.2.3.7]

1326.11 Standing Pressure Test – Piped Vacuum Systems. After successful completion of the initial pressure tests under Section 1326.10, vacuum distribution piping shall be subjected to a standing vacuum test. [NFPA 99:5.1.12.2.7]

Tests shall be conducted after installation of components of the vacuum system. [NFPA 99:5.1.12.2.7.1]

The piping systems shall be subjected to a 24 hour standing vacuum test. [NFPA 99:5.1.12.2.7.2]

Test pressure shall be between 30cm (12 in.) gauge HgV and full vacuum. [NFPA 99:5.1.12.2.7.3]

During the test, the source of test vacuum shall be disconnected from the piping system. [NFPA 99:5.1.12.2.7.4]

At the conclusion of the test, there shall be no change in the vacuum other than that attributed to changes of ambient temperature, as permitted in the following [NFPA 99:5.1.12.2.7.5]:

Test vacuum changes due to expansion or contraction shall be permitted to be determined by means of the following pressure temperature relationship:

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- (1) The calculated final absolute pressure equals the initial absolute pressure times the final absolute temperature, divided by the initial absolute temperature.
- (2) Absolute pressure is the gauge pressure reading plus 1bar (14.7 psi).
- (3) Absolute temperature is the temperature reading plus 238°C (46°F).
- (4) The final allowable gauge pressure reading equals the final allowable absolute pressure minus a gauge pressure of 1bar (14.7 psi). [NFPA 99:5.1.12.2.7.6]

Leaks, if any, shall be located, repaired (if permitted), or replaced (if required), and retested. [NFPA 99:5.1.12.2.7.7]

1326.12 Corrections. Notices of correction or violation shall be written by the Authority Having Jurisdiction and posted at the site of the work or mailed or delivered to the permittee or an authorized representative. Refusal or failure to comply with any such notice or order within ten days of receipt thereof shall be considered a violation of this code, and shall be subject to the penalties set forth elsewhere in this code for violations.

1326.13 Approval. Upon satisfactory completion of all tests and certification of the medical gas and medical vacuum systems, a certificate of approval shall be issued by the Authority Having Jurisdiction to the permittee.

1326.14 Covering or Use. No medical gas or medical vacuum system or part thereof shall be covered, concealed, or put into use until it has been tested, inspected, and accepted as required in this code.

1326.15 Uncovering. Any medical gas and vacuum system or part thereof that is covered or concealed before testing and inspected as required in this code shall be uncovered for inspection, after notice to uncover the work has been issued to the permittee or his authorized representative by the Authority Having Jurisdiction.

1327.0 System Certification.

1327.1 Prior to any medical gas system being placed in service, each and every system shall be certified, as described in Section 1327.2.

1327.1.1 Verification tests shall be performed only after all tests required in Section 1326.0, Installer-Performed Tests, have been completed. [NFPA 99:5.1.12.3.1.1]

Testing shall be conducted by a party technically competent and experienced in the field of medical gas and vacuum pipeline testing and meeting the requirements of ASSE Standard