MN Plumbing Board

RFI: Backflow Prevention Requirements on High-Purity Water Systems

7/21/2020

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Common/Shared Goal of All Parties:

• Protect the health of the public

Thank you to DOLI Staff and to the Plumbing Board for helping us to clarify this issue.
602.2 Cross-Contamination. Unless there is provided a backflow prevention device approved for the potential hazard and maintained in accordance with this code, no person shall make a connection or allow one to exist between pipes or conduits carrying domestic water supplied by a public or private building supply system, and (1) pipes, conduits, or fixtures containing or carrying water from any other source or containing or carrying water that has been used for any purpose whatsoever, or (2) any piping carrying chemicals, liquids, gases, or substances whatsoever. Each point of use shall be separately protected where potential cross-contamination of individual units exists.

Source: 2015 MN Plumbing Code
602.3 Backflow Prevention. No plumbing fixture, device, or construction shall be installed or maintained, or shall be connected to a domestic water supply, where such installation or connection provides a possibility of polluting such water supply or cross-connection between a distributing system of water for drinking and domestic purposes and water that becomes contaminated by such plumbing fixture, device, or construction unless there is provided a backflow prevention device approved for the potential hazard.
603.1 General. Cross-connection control shall be provided in accordance with the provisions of this chapter.

No person shall install a water-operated equipment or mechanism, or use a water-treating chemical or substance, where it is found that such equipment, mechanism, chemical, or substance causes pollution or contamination of the domestic water supply. Such equipment or mechanism shall be permitted where equipped with an approved backflow prevention device or assembly.

Source: 2015 MN Plumbing Code
603.5.19 Pure Water Process Systems. The water supply to a pure water process system, such as dialysis water systems, semiconductor washing systems, and similar process piping systems, shall be protected from backpressure and backsiphonage by a reduced-pressure principle backflow preventer.

603.5.19.1 Dialysis Water Systems. The individual connections of the dialysis related equipment to the dialysis pure water system shall not require additional backflow prevention.

Source: 2015 MN Plumbing Code
2020 Buffalo Hospital Sterilizer and DI Tank Replacement (Project Completed)

APPLICATION
AMS600 Series Steam Sterilizers are configured to promote crucial sterilization effectiveness and improve usable medical devices and their accessories used in healthcare facilities.

DESCRIPTION
AMS600 Series Steam Sterilizers are equipped with new features in both design and technology and ease of use. Sterilizer is designed to be completely serviced from the front of the sterilizer, removing the bottleneck.

Chamber Sizes: AMS600 Modular steam sterilizers are available in three sizes, with interior chamber dimensions (W x L x H) and capacities as follows:
- 26.5 x 30.0 x 19” (673 x 762 x 489 mm) – 440L
- 38.6 x 30.0 x 19” (980 x 762 x 489 mm) – 600L
- 20.5 x 26.0 x 19” (520 x 660 x 489 mm) – 300L

Clean accessibility – All AMS600 series sterilizers include a fully-enclosed chamber with stainless steel for steam delivery.

Vertical sliding doors – Automatically-driven doors are opened through a push button on the touch screen and hand-stand vertically in space.

Control – Includes a STERIS microprocessor to assist control system, featuring a touch-screen interface. See pages 2 and 3 of catalog.

STANDARDS
- AMS600 SeriesSterilizer meets applicable requirements of the following listings and specifications, and maintains up-to-date norms:
  - Laboratory, Laboratory (12) Standard 810-1 as certified by Intertek (US, United Kingdom).
  - ASME Code, Section VIII, Division 1 for all pressure vessels. The pressure vessels on stamped ASME Form.

FEATURES

Chamber and Jacket
The AMS600 Series chamber is a stainless steel chamber (side X depth X height: 660 x 660 x 489mm) made of stainless steel, with high-volume processing, sterilization containers, tray and packs.

Fully-enclosed chamber construction reduces heat conduction. The chamber is manufactured from AISI 316L stainless steel, and stainless steel, as is the chamber door, and the modular jacket is manufactured from AISI 304 stainless steel.

Pressure Vessels
All pressure vessels are designed and manufactured in accordance to the required pressure vessel standards. An identification number is permanently marked on each pressure vessel. Features include:
- Chamber vacuum baffle provides vacuum steam distribution to the chamber.
- Chamber and jacket are equipped with safety relief devices.
Buffalo Hospital Sterilizer and DI Tank Replacement (January 2020)
RPZ Valves Added to Individual Sterilizers per DOLI

Concerns about RO Faucet Contamination
Our Concerns:

• Stagnation of water inside RPZ valve test ports, **pressure sensing line**, relief valve
• Bacterial growth
• Endotoxin contamination
Questions for Plumbing Board

• Does an RPZ-contained Pure Water Process System fall under the same cross-contamination protection requirements as a Domestic water system?
• Is RPZ backflow (isolation) protection for the sterilizers warranted in this situation?
• If the RO faucet were not in the design, would RPZ backflow (Isolation) protection for the sterilizers still be warranted?
• How will this affect other school, laboratory, and industrial projects?
• Does this mean that all existing facilities will need to add RPZ’s anytime they modify their high-purity water systems? (most facilities currently do NOT have RPZ’s on individual pure water fixtures/equipment).

THANK YOU AGAIN FOR YOUR CONSIDERATION