CLAIMS

WHAT IS CLAIMED IS:

1. A system for decontaminating a device, the system comprising:

a chamber defining an enclosed space, the chamber configured to withstand pressure changes within the enclosed space and receive a device that includes a lumen;

a controller configured to control a temperature and pressure within the chamber;

a vacuum pump in fluid communication with the enclosed space;

a source of a decontaminating substance;

at least one of a vaporizer or atomizer in fluid communication with the source of the decontaminating substance and configured to provide a vaporized decontaminating substance within the enclosed space; and

a pump positioned within the chamber, the pump having an inlet and an outlet wherein one of the inlet and outlet is in fluid communication with the enclosed space of the chamber and the other of the inlet and outlet is configured to be in fluid communication with the lumen.

2. The system of claim 1, wherein the inlet of the pump is in fluid communication with the enclosed space and the outlet of the pump is configured to be in fluid communication with the lumen.

3. The system of claim 1, wherein the outlet of the pump is in fluid communication with the enclosed space and the inlet of the pump is configured to be in fluid communication with the lumen.

4. The system of claim 1, wherein at least one of the inlet or outlet of the pump is configured to be in fluid communication with the lumen through a conduit attached to the pump and the lumen.

5. The system of claim 1, wherein the outlet of the pump is configured to be in fluid communication with the lumen through a conduit that is spaced apart from the device and is shaped to direct flow from the outlet of the pump through the lumen.

6. The system of claim 1, further comprising a container positioned within the enclosed space and enclosing the device, the container formed by at least one outer wall that is permeable by the vaporized decontaminating substance, wherein the pump is positioned outside the container to provide a flow of the vaporized decontaminating substance through the outer wall of the container to the lumen.

7. The system of claim 1, further comprising a container positioned within the enclosed space and enclosing the device, the container formed by at least one outer wall that is permeable by the vaporized decontaminating substance, wherein the pump is positioned inside the container to provide a flow of the vaporized decontaminating substance to the lumen.

8. The system of claim 1, further comprising a conduit connected to the outlet of the pump for directing the decontaminating substance from the outlet of the pump to the lumen.

9. The system of claim 1, and further comprising a conduit having a first end connected to the pump and a second end in fluid communication with the lumen for directing the vaporized decontaminating to the lumen and an outer surface of the device.

10. The system of claim 1, wherein the decontaminating substance comprises peracetic acid.

11. A system for decontaminating a device having a lumen, the system comprising:

a decontamination chamber defining an enclosed space, the decontamination chamber configured to withstand pressure changes within the enclosed space;

a container positioned within the enclosed space, the container having an outer wall that is permeable by a vaporized decontaminating substance;

a controller for controlling a temperature and pressure within the decontamination chamber;

a vacuum pump in fluid communication with the enclosed space;

a source of a decontaminating substance;

at least one of a vaporizer or atomizer for vaporizing the decontaminating substance, the vaporizer or atomizer in fluid communication with the source of the decontaminating substance and the enclosed space; and

a pump positioned within the decontamination chamber, the pump having a first opening in fluid communication with the enclosed space and a second opening in fluid communication with the lumen.

12. The system of claim 11, wherein the device includes a plurality of lumens, and wherein the system further comprises at least a first valve configured for controlling fluid communication between the pump and the plurality of lumens.

13. The system of claim 11, wherein the pump is positioned within the container.

14. The system of claim 11, further comprising a conduit having a first end connected to the second opening of the pump and a second end configured to be connected to the lumen such that the lumen is directly connected to the second opening of the pump via the conduit.

15. The system of claim 11, further comprising a conduit connected to the second opening of the pump, the conduit spaced from the device and configured to direct a flow of air to the device without touching the device.

16. The system of claim 11, further comprising a conduit having a first end connected to the pump and a second end positioned to direct the vaporized decontaminating substance to the lumen and an outside surface of the device.

17. The system of claim 11, further comprising a conduit connected to the second opening of the pump, the conduit having an outer diameter smaller than an inner diameter of the lumen such that the conduit is configured to be positioned with the outer diameter of the conduit within the inner diameter of the lumen to direct a flow of air into the lumen without touching the device.

18. A method of decontaminating a device containing a lumen, the method comprising:

placing the device inside a container;

placing the container within a decontamination chamber, the decontamination chamber defining an enclosed space;

decreasing the pressure inside the enclosed space to a pressure below atmospheric pressure;

directing a vaporized or atomized decontaminating substance into the enclosed space; and

providing a flow of air containing the vaporized or atomized decontaminating substance from the enclosed space into a lumen of the device with a pump located within the enclosed space or the container.

19. The method of claim 18, and further including physically connecting the pump to the lumen.

20. The method of claim 18, wherein the decontaminating substance includes peracetic acid.