WHAT IS CLAIMED IS:

1. A substrate processing apparatus comprising:

a process chamber;

an exhauster configured to exhaust the process chamber;

an exhaust pipe including a flexible portion configured to allow displacement of an end of the exhaust pipe;

a pipe housing configured to support the exhaust pipe;

at least one connector provided between the pipe housing and the exhaust pipe; and

a vibration-damping fastener connecting the exhauster and the pipe housing separately from the flexible portion;

wherein the exhaust pipe is configured to bring the process chamber into fluid communication with the exhauster, and

wherein the exhaust pipe is supported only by the at least one connector that is provided closer to the process chamber than the flexible portion.

2. The substrate processing apparatus of Claim 1, further comprising a vibration damper installed on the at least one connector;

wherein the pipe housing includes a frame and a panel configured to cover an outside of the frame, and

wherein the at least one connector is provided between the frame and the exhaust pipe.

3. The substrate processing apparatus of Claim 1, wherein the exhauster includes a booster pump and a gantry on which the booster pump is installed, and

wherein the exhaust pipe extends horizontally.

4. The substrate processing apparatus of Claim 3, wherein the exhauster includes a pump controller and an ancillary facility installed in the gantry.

5. The substrate processing apparatus of Claim 3, wherein the flexible portion is further configured such that a fixing tool configured to fix both ends of the flexible portion is attachable to the flexible portion.

6. The substrate processing apparatus of Claim 1, wherein the exhauster and the pipe housing are installed at a floor, and the exhauster includes a booster pump.

7. The substrate processing apparatus of Claim 1, further comprising a processing module including the process chamber and a transfer chamber connected to the process chamber below the process chamber,

wherein the pipe housing is connected to the transfer chamber by the vibration-damping fastener, and

wherein the exhaust pipe extends horizontally at a position higher than a maintenance port provided on a rear face of the transfer chamber.

8. The substrate processing apparatus of Claim 2, wherein the vibration-damper is made of a vibration-damping alloy that absorbs mechanical vibration, and the vibration-damping fastener is made of resin or rubber.

9. The substrate processing apparatus of Claim 1, wherein the exhaust pipe includes a plurality of separable sections connected via elastic seals, and the at least one connector is installed at each of the sections.

10. The substrate processing apparatus of Claim 2, wherein the exhaust pipe includes an installation plate formed parallel to an installation surface of the frame, and the at least one connector is connected by being bolted between the installation surface and the installation plate with the vibration-damper interposed.

11. The substrate processing apparatus of Claim 2, wherein the vibration-damper has a plate shape, and

wherein the vibration-damper is configured to support at least a portion of a gravity applied to the exhaust pipe as a shear load in a direction parallel to a planar surface of the vibration-damper.

12. The substrate processing apparatus of Claim 2, wherein the vibration-damper is configured to distribute a plurality of resonance points on a frequency axis.

13. The substrate processing apparatus of Claim 1, wherein the vibration-damper is configured to convert vibration to heat based on one or more selected from the group of viscous flow at a phase boundary of a two-phase mixed structure, rotation or movement of a magnetic domain in a ferromagnetic body, movement of transition in a crystal, and movement of a twin crystal interface.

14. A method of manufacturing a semiconductor device, the method comprising:

providing a substrate to a process chamber;

supplying a processing gas into the process chamber;

exhausting an inside of the process chamber by an exhauster via an exhaust pipe installed at a pipe housing;

supporting the exhaust pipe only by at least one connector provided between the pipe housing and the exhaust pipe and provided to be closer to the process chamber than the flexible portion; and

suppressing vibration transmitted from the exhauster to the exhaust pipe by a flexible portion of the exhaust pipe configured to allow displacement of an end of the exhaust pipe while bringing the process chamber into fluid communication with the exhauster,

wherein the exhauster is connected to the pipe housing by a vibration-damping fastener separately from the flexible portion.

15. A program executed in a substrate processing apparatus that comprises a process chamber and an exhauster configured to exhaust the process chamber;

wherein the program causes, by a computer, the substrate processing apparatus to perform a process comprising:

providing a substrate to the process chamber;

supplying a processing gas into the process chamber; and

exhausting an inside of the process chamber by the exhauster via an exhaust pipe installed at a pipe housing;

supporting the exhaust pipe only by at least one connector provided between the pipe housing and the exhaust pipe and provided to be closer to the process chamber than the flexible portion; and

suppressing vibration transmitted from the exhauster to the exhaust pipe by a flexible portion of the exhaust pipe configured to allow displacement of an end of the exhaust pipe while bringing the process chamber into fluid communication with the exhauster,

wherein the exhauster is connected to the pipe housing by a vibration-damping fastener separately from the flexible portion.

16. A method of processing a substrate comprising:

providing a substrate to a process chamber;

supplying a processing gas into the process chamber;

exhausting an inside of the process chamber by an exhauster via an exhaust pipe installed at a pipe housing;

supporting the exhaust pipe only by at least one connector provided between the pipe housing and the exhaust pipe and provided to be closer to the process chamber than the flexible portion; and

suppressing vibration transmitted from the exhauster to the exhaust pipe by a flexible portion of the exhaust pipe configured to allow displacement of an end of the exhaust pipe while bringing the process chamber into fluid communication with the exhauster,

wherein the exhauster is connected to the pipe housing by a vibration-damping fastener separately from the flexible portion.