

# SPACE HARDWARE



Image: NASA; Photographer: Thales Alenia Space

## Qualified, Next-Generation Pressure Relief Valves

Aurora designs, builds, and delivers essential components for spacecraft, including Positive Pressure Relief Valves (PPRV) and Manual Pressure Equalization Valves (MPEV) used on NASA and ESA programs.

**Proven.** Aurora provides valves for Cygnus and Gateway and first delivered PPRVs for the International Space Station in 1995.

**Durable.** Today's valves meet more stringent lunar mission environmental requirements and are more resilient to the high levels of radiation in lunar orbit.

**US Made.** Experienced engineers and technicians design, build, and test PPRV and MPEV in Aurora's fully equipped facility in Massachusetts.

- On-site clean room for spaceflight hardware assembly to ISO class 5
- Equipment for thermal, pressure and leak detection testing at both acceptance and qualification levels
- Local vibration facilities for random, sinusoidal and shock testing

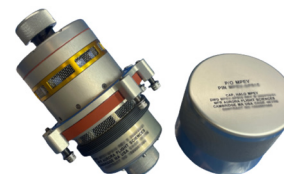


### Positive Pressure Relief Valve (PPRV)

- Fully pneumatic mechanical device designed to sense a pressure build-up inside an enclosed volume.
- When the "trigger" pressure level is reached, the valve opens to allow internal air to escape outside the module, preventing any additional increase in internal pressure.
- Two-stage design: the trigger piston opens to pressurize the main piston diaphragm, forcing the main piston to open and provide a flow path for internal air to escape.

#### SPECIFICATIONS:

5.6" length x 4.5" diameter  
Open between 15.00 and 15.20 psid  
Operating pressure:  $2 \times 10^{-04}$  to 15.2 psia  
Operating temperature: 4 to 45°C  
Weight not to exceed 3.1 lbs.



### Manual Pressure Equalization Valve (MPEV)

- Mechanical device designed to manually equalize the pressure between two space station modules.
- Manual knobs on both the inlet and exit sides of the valve allow a crewmember to use the valve to equalize the pressure between modules from either side.
- The design also includes an untethered cap that prevents use when manually installed on the inlet side of the valve.

#### SPECIFICATIONS:

6.5" length x 4.5" diameter  
Min Flow Rate: 1.47 lbm/min at 2.0 psid  
Max Flow Rate: 6.75 lbm/min at 15.5 psid  
Operating pressure:  $2 \times 10^{-04}$  to 15.2 psia  
Operating temperature: 4 to 45°C  
Weight with cap not to exceed 2.4 lbs.