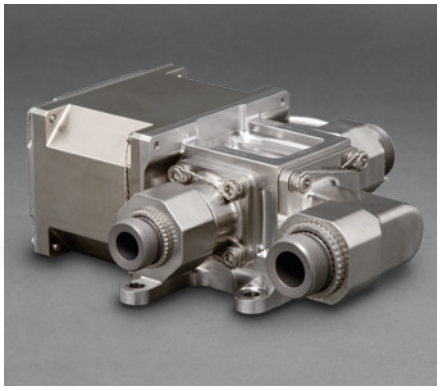
ECLSS VALVES

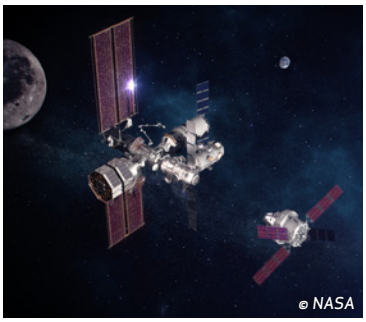


Human access to space continues to evolve beyond the International Space Station, with new missions to the Moon, NASA's Lunar Gateway, and commercial space stations. Whenever humans are involved, environmental control and life support systems (ECLSS) must be in place to maintain a habitable breathing atmosphere and thermal environment. Moog has been producing hardware in support of NASA's Orion Crew Module, specifically used in the cabin pressurization system and thermal control system. This hardware leverages Moog's capabilities developing space-qualified valves to control gas and liquid media. Hardware covers the gas supply and distribution systems, along with the thermal control system.

Products include high pressure (4,500 psi) oxygen isolation valves, intermediate pressure (145 psi) oxygen control valves, and low pressure (14.5 psi) cabin atmosphere control valves. Moog also provides valves for the environmental control system, including ammonia, propylene glycol, and urine isolation valves.

Moog has been successful winning work in support of NASA's Lunar Gateway and is developing numerous ECLSS components including manually operated tank valves, pressure regulators, high pressure quick disconnects, and both high and low pressure isolation valves.

Moog's capabilities extend beyond components to delivering system-level solutions, combining components with structures, plumbing, and electrical control to deliver an integrated and fully tested package that is able to be installed into the space vehicle system.



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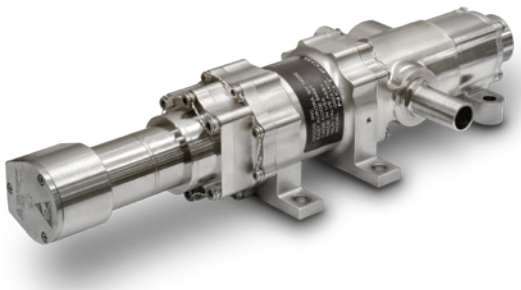
ECLSS VALVES



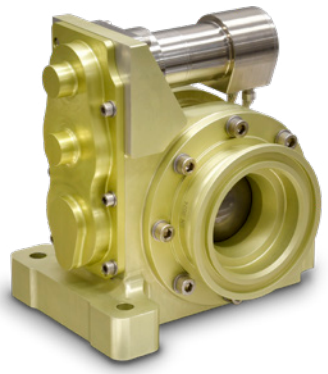
HP Oxygen Isolation Valve

SUPPLY

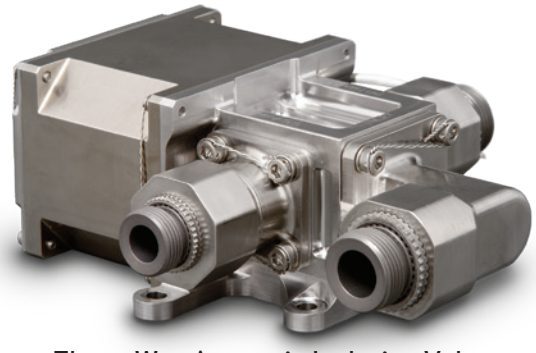
Moog's nitrogen and oxygen ECLSS components manage the supply of high-pressure gas for atmosphere control. Manual valves connected to tanks provide safe, controlled access to breathing gases. Motorized isolation valves allow remote actuation to control the flow of breathing gases to the system, feeding into pressure regulators that safely drop the high pressure stored gas to levels that support distribution into the crew environment. High pressure quick disconnects facilitate installation of LRUs that support removal and replacement of system components, including replenishment of gas storage tanks.

DISTRIBUTION

Moog's low pressure ECLSS components include motorized, solenoid, and torque motor-actuated valves to manage the distribution of breathing gas to the crew. Moderate pressure (100-145 psi) components support distribution to different ECLSS systems, while the low pressure (14.7 psi) components provide high volumetric flowrate gas to maintain cabin atmosphere.



Low pressure, high flow cabin oxygen valve



Three-Way Ammonia Isolation Valve

ENVIRONMENTAL CONTROL

Moog's thermal control components are solenoid and torque motor valves that handle a variety of fluids, including ammonia and propylene glycol. A variant of these valves is used to manage urine flow in the Orion Crew Module waste management system.

MOOG
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