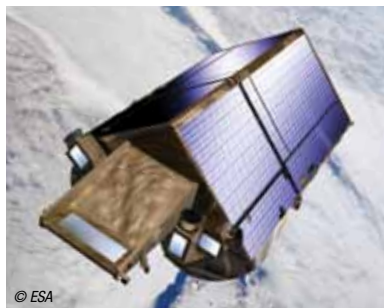




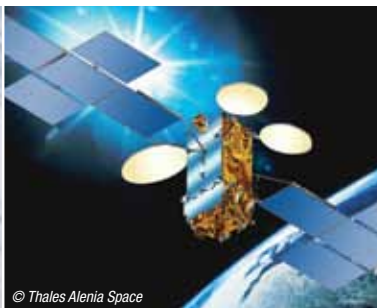
## VC03 Fill and Drain Valve

The VC03 is a generic Fill and Drain Valve capable of sealing liquid propellant or gas across a range of pressures. Variable thread dimensions to allow differentiation between valve applications (pressurant, fuel, oxidiser) are available as options to this design. The Fill and Drain valve was originally developed to produce a generic valve capable of sealing all propellant media and has been selected for use on a number of major International satellite programmes, employing monopropellant, bipropellant and electric propulsion systems. The Fill and Drain valve flight half (FH) consists of a titanium alloy housing incorporating a stainless steel screw mechanism providing the primary seal. This seal is formed by a silicon nitride ball making point contact with the screw mechanism minimizing friction and ensuring only axial movement is transmitted. The ball mates with a conical land in the housing that forms the seal. Redundant seals are located within the titanium alloy cap.

The Fill and Drain valve is operated using a dedicated ground half coupling (GHC) which is screwed onto the flight half housing providing series seals to prevent external leakage. The internal screw mechanism is opened by applying a counter clockwise rotation to the actuating shaft until fully open as indicated by the position indicator. After fuelling is complete, the valve is closed by clockwise rotation. The GHC may then be removed and the cap fitted and torqued.



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# VC03 Fill and Drain Valve

## Performance Characteristics

Operating Media	GHe, GN2, Xe, NTO, MMH, N2H4.
Operational Temperature	-35°C to +72°
Operating Pressure	310 bar (max)
Cycle Life	100 open/close (qual) 100 FH/GHC mate/de-mate (qual)
External Leakage	$< 1 \times 10^{-6}$ scc/sec GHe
Internal Leakage	$< 1 \times 10^{-6}$ scc/sec GHe
Mass	$< 50$ g
Materials	Titanium alloy, Stainless steel, PTFE, Silicon Nitride
Interfaces	1/4" weldable Ti tubing (optional 3/8" or 1/4" AN fitting)
Maximum Length	78.5 mm (incl pipe)



Dedicated Ground Half Coupling

# MOOG

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