

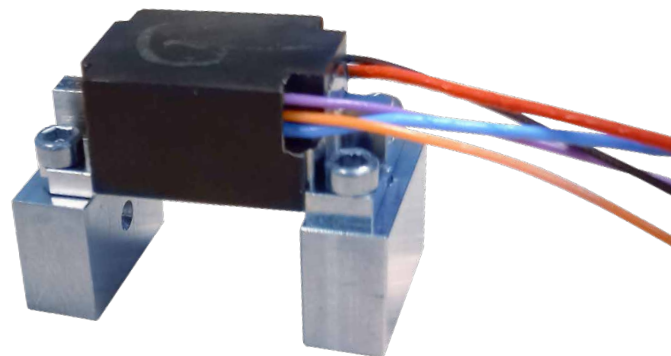
Helium low-mass low-power Miniature Latch Valve (MLV)

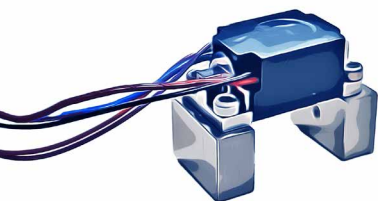


Key component of the Gas Chromatograph (GC), Air Liquide Miniature Latch Valve (MLV) is an extreme low-mass and low-power valve driving the distribution of the sample and the carrier gas within the GC columns.

Key benefits

- ✓ Miniaturization
- ✓ Very-low power
- ✓ Tightness
- ✓ High-performance





Miniature Latch Valve (MLV)

Technical specifications

Application	Scientific Instruments for space exploration (Mars, Jupiters' Moon, Titan...)
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Technology Readiness Level (TRL) according to ESA standards

- First development for MOMA GC: TRL 8, should be flight proven on ExoMars mission
- New development in progress: TRL 6
- All developments have been supported by CNES (Centre National d'Études Spatiales)

Functions

Technical solution	Two-way, bistable latch valve
Gas	Inert gas (He / N ₂ / Xe / Kr / Ar)
Flow rate	100 mL/min

Performances

Cycle life	> 5 000
Electric resistivity	39 Ω at 20°C
Operating voltage	12V / 10 ms
Operating power	< 4W during 10 ms
Opening response time	< 10 ms
Internal tightness	≤ 10 ⁻⁵ mbar.L.s ⁻¹ @ 2.5 bara GHe
External tightness	≤ 10 ⁻⁶ mbar.L.s ⁻¹ @ 2.5 bara GHe

Sizing

Mass	< 7g
Dimensions	<ul style="list-style-type: none"> • Length: < 20 mm • Width: < 10 mm • Height: < 10 mm
Internal volume	< 20 μL
Maximum Expected Operating Pressure (MEOP)	2.5 bara
Minimum operating pressure	Secondary vacuum (1.10-2 mbar)
Proof pressure factor	2
Burst pressure (ultimate) factor	4

Environments

Unit tightness temperature range	20°C to 110°C
Unit operational temperature range	-10°C to 110°C
Unit non-operational temperature range	-50°C to 135°C

Interfaces

Fluidic interface	1/32"
Electrical wires	2 flying wires (excluding sensor)

Our strengths

- Recognized experience in the space adventure for 60 years.
- Solid expertise in space cryogenics for ground facilities, launchers and satellites.
- End-to-end solutions for your cryogenic propellants: from production to engine feeding onboard the launcher.
- Dedicated teams providing support.
- Unique cryogenic test center simulating space environment in order to qualify your flight equipment.
- Resources of an international group.

Contacts

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