



LV-100

Calibrated Reference Leak For Helium MSLD Calibration

- **Mass Spectrometer Leak Detector (MSLD) Calibrations**
- **Durable Vacuum Sinter Leak Element**
- **100cc Stainless Steel Reservoir**
- **Patented Manufacturing Process**

High precision calibrations, HTP patented technology for longer service life and increased durability.

Included in the range of Calibrated Reference Leaks applicable to high vacuum systems is the 'LV-100' Reference Leak for calibration of helium mass spectrometer systems and leak detection equipment.

Vacuum Sintered Leak Technology

Traditional calibrated leaks for helium MSLD systems use a quartz glass element sealed inside the gas reservoir. The Helium permeates through the quartz glass into the vacuum at a consistent rate. HTP replaces the traditional quartz element with an element using its patented 'vacuum sinter' reference leak element. This change delivers numerous advantages.

- 1) **Increased Durability and Service Life.**
Quartz glass reference leaks are notoriously prone to damage through rough handling and are very costly to replace or repair.
- 2) **Improved Temperature Performance.**
Calibration temperature is critical, calculations are generally made to compensate for the effect of temperature on the output flow rate of a quartz glass reference leak, this effect is minimal with a sinter type reference leak. The element alone varies by less than 0.1% per °C.
- 3) **Lower Maintenance / Modification Costs.**
Due to the flexibility of the sinter technology maintenance or modification to an existing reference leak is much more practical. The value can be fine tuned or adjusted to specification and HTP has often retro-fitted vacuum sintered leak elements in place of other reference leak technologies.

KEY FEATURES

- Extremely low variation with temperature.
- High purity Nupro shut-off valve.
- Outlet Fitting :
KF Vacuum Coupling
(can be substituted, please enquire).
- Sintered leak element built into Helium Reservoir.
- Flow Rates from 1×10^{-6} to 1×10^{-9} mbl/s available.
- Certification traceable to National Standards

APPLICATION

- Calibration of Mass Spectrometer Leak Detection systems.
- Options available for different gases, flow rates refilling, variable flow rates and bespoke formats.



LV-100 REFERENCE LEAK - TECHNICAL NOTES

Calibration of a Helium Mass Spectrometer Leak Detection System against a certificated reference leak should be carried out on a daily basis, particularly if the leak detector is in regular use. This will guarantee accurate readings across the range of leak rates when in use. This process also passes the traceability of a certificate reference to the leak detection process which is important for Quality Assurance and many industrial Standards.

Many Helium Mass Spectrometer Leak Detectors (MSLD) include an internal calibrated reference leak. The leak rate value of the internal leak is programmed into the machine. During the machine's calibration routine the leak is opened and the calibration is adjusted to reflect the value of the internal reference leak.

Most MSLDs can also be calibrated with an external reference leak, this calibration procedure would be performed with the reference leak connected to the test-port of the machine. The calibration process will adjust the detector's response to reflect the value of the external leak. If the MSLD does not include an internal calibrated leak, an external calibration would be essential. HTP can manufacture reference leaks for both internal and external calibration procedures.



Vacuum Reference Leak with Swagelok outlet fitting, Certification and Storage Case



Helium MSLD Leak Detection System



Nu-Pro Style Shut-Off Valve

SPECIFICATIONS

Reservoir Capacity	100cc, St/St Welded Construction
Reservoir Gas	(Options Available for Many Gases and Flow Rates).
Reservoir Pressure	2 - 25 psi (dependent on required flow rate).
Valve	'NuPro' Style Bellows Sealed Valve (Manual, Pneumatic + Electronic Options Available).
Outlet Fitting	KF25 Vacuum Coupling (as standard, can be substituted).
Temperature Coefficient	+/- 0.1% Per °C
Certification	Calibration Certificate with Traceability to National Standards Typically +/-12% Uncertainty, 12 Month Validity

PRODUCT OPTIONS

HT9-LV100-HE-8	LV-100 Reference Leak : Gas - Helium, Flow - 1x10 ⁻⁸ ml/s, Style - St/St Vacuum Sinter KF25 Outlet Coupling, 100cc St/St Reservoir, Nupro shut-Off Valve w/ Certification
HT9-LV100-CF16R-AR-7	LV-100 Reference Leak : Gas - Argon, Flow - 1x10 ⁻⁷ ml/s, Style - St/St Vacuum Sinter CF16 Rotatable Outlet Coupling, 100cc St/St Reservoir, Nupro shut-Off Valve w/ Certification

ACCESSORIES

Adaptors + Hoses	Full Range of KF Adaptors + St/St Flexible Hoses Available - Please Enquire
HT9-KF25SVCR	Pack 10 - KF25 St/St + Viton Centering Ring
HT9-KF25C	Pack 10 - KF25 Aluminium Swing Clamp
Gas	Special Gas mix or alternative calibration gases available - Please Enquire