

Calibrated Leaks

VIC Calibrated Leaks are provided with certificates traceable to NIST, ideal for companies establishing ISO-9000 and other quality procedures



Ask about our recalibration service!

Vacuum Instruments Corporation, LLC

Designers and Manufacturers of Leak Detectors and Gas Handling Equipment Solutions

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CALIBRATED GAS LEAKS

VIC offers a high quality line of calibrated gas leaks traceable to National Institute of Standards Technology (NIST). Calibrated gas leaks are used to provide a controlled delivery of gases at a relatively low flow rate for applications including:

- Calibration of leak detectors, including helium and halogen sniffers
- Calibration of residual gas analyzers
- Calibration of analytical mass spectrometers
- Provides pressure rise at predictable rates
- Gas blending
- Simulated leak

Certificates of NIST traceability are provided with each leak standard documenting the accuracy, and calibration parameters. This information is perfect for meeting various quality standards.

VIC offers a variety of Calibrated Gas Leaks:

- **OM Series** Orifice type, lowest temperature coefficient ensures predictable leak rates over a wide temperature band
- **PM Series** Permeation type, suitable for precision calibration of helium leak detectors; resists clogging
- **Outlet Fittings** for PM and OM Series
- **EMOT Series** Metal Orifice type, designed for atmospheric sniffing applications
- **SC Series** designed for MS-40 and MS-50 leak detectors and helium leak detectors
- **Specialty Leaks**
- **Storage Cases** for calibrated leaks
- **Recalibration Services**

OM Series

Calibrated Orifice Leaks

The OM Series leaks utilize a precision tapered glass capillary as the leak element. Gases pass through a single orifice, with the leak rate dependent upon size and gas pressure. To prevent clogging of the fine orifice, a unique particle trap is located between the capillary tube and outlet fitting.



High Performance features

- Lowest temperature coefficient available, 0.2 %/°C ensures predictable leak rates over a wide temperature band
- Wide range of leak rates available, 10^{-3} to 10^{-9} Atm-cc/sec
- Specific leak rate values available to match your product's leak specifications
- Supplied with N.I.S.T. certificate at no additional charge
- Unique particle trap virtually eliminates clogging, typically associated with harsh environments.
- Leaks supplied with 300cc or 500cc stainless steel cylinder (depending on leak rate) with DOT-3E1800 rating offering maximum life span
- Available in a wide variety of gases (see ordering information) and outlet fittings

OM Series

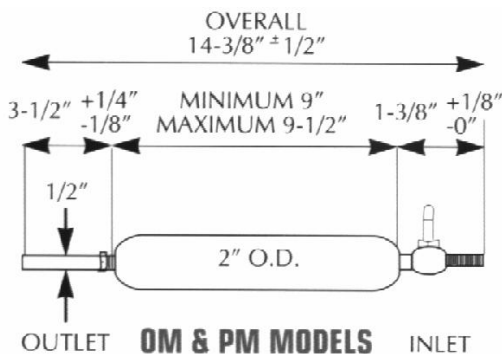
Ordering Information

Available in a wide range of gases as coded below. Specify gas code and leak rate. When ordering P/N 922-XYX, X = Leak Rate Exponent and YY = Gas Code from the chart below. Leak Rates: 10^{-3} to 10^{-9} .

Example: OM No. 922-501 = 10^{-5} range Helium Leak

All leaks filled with high purity gases. Please note that other gases and specific leak rate values are also available upon request. Available gases include:

| | | |
|-------------|--------------------|-------------------|
| 01 Helium | 08 Deuterium | 15 Methane |
| 02 Helium 3 | 12 Krypton | 16 Neon |
| 03 Argon | 13 Carbon Dioxide | 17 Sulfur Dioxide |
| 04 Nitrogen | 14 Carbon Monoxide | |
| 05 Hydrogen | | |
| 06 Oxygen | | |
| 07 Air | | |



All OM models supplied with 1/2" OD smooth tube connection unless otherwise specified. OM³ Range leaks provided with 500-cc volume.

Other gases and specific leak rate values available upon request. At an additional charge, all OM model gas leaks can be supplied at a specific leak rate + or - 1 of specified leak rate. P/N 922-021 (Example: 2.5×10^{-5} Atm-cc/sec asked for, will receive leak at 1.5 or 3.5×10^{-5} Atm-cc/sec), or at an extra close tolerance of specific leak rate + or - 0.5 of specified leak rate. P/N 921-622 (Example: 2.5×10^{-5} Atm-cc/sec asked for will receive leak at 2 to 3×10^{-5} Atm-cc/sec).

PM Series

Calibrated Permeation Leaks

The PM Series leaks utilize a durable 7740 Pyrex glass permeation leak element that permits diffusion of helium gas. Helium diffuses through the glass membrane at a constant rate determined by the membrane thickness and surface area. These leaks are highly resistant to clogging by nature of their design.



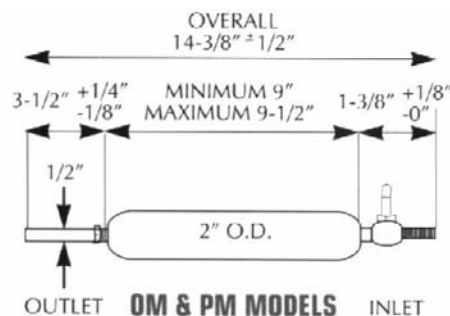
High Performance features:

- Supplied exclusively with high purity helium gas Ideally suited for precision calibration of leak detectors
- Available in leak rates from 10^{-5} to 10^{-10} Atm-cc/sec
- Temperature coefficient is 4%/°C
- Durable 7740 Pyrex glass element will not clog
- Leaks supplied with 300cc stainless steel cylinder with DOT-
 - 3E1800 rating offering maximum lifespan
- Supplied with N.I.S.T. certificate at no additional charge
- Fused glass to kovar transition
- Available with a wide variety of outlet fittings

PM Series - Ordering Information:

Available in Helium only. All PM models are supplied with 1/2" OD smooth tube connection unless otherwise specified. Specify leak rate when ordering, as follows: P/N 923-X01 where X = Leak Rate Exponent and available Leak Rates are 10^{-5} , 10^{-6} , 10^{-7} , 10^{-8} , 10^{-9} , 10^{-10}

Example: PM No. 923-801 = 10^{-8} range (helium) leak. All PM models supplied with 1/2" OD smooth tube connection unless otherwise specified.



Outlet Configurations for PM and OM Series CGL's

Part Number and Description

| | |
|--------------|--|
| 922-011 | 1-1/8" O.D. Tube Outlet |
| 922-012 | Conflat Flange, 2.75" |
| 922-013 | Mini Flange, 1.33" |
| 922-014 | 1/4" Cajon Male VCR |
| 922-015 | 1/4" Cajon Female VCR |
| 922-016 | 1/4" Cajon Male VCO |
| 922-017 | 1/4" Cajon Female VCO |
| 922-018 | NW-16 ISO KF |
| 922-019 | Isolation Valve, all metal, bellows sealed |
| 922-020 | Isolation Valve, high pressure, req'd w/ 10^{-3} leaks |
| 922-022 | NW-25 ISO KF |
| 922-026 | NW-40 ISO KF |
| 922-028 | 1/4" OD Tube |
| 922-033 | NW-10 ISO KF |
| 922-036 | 1/8" Female to 1/4" Male NPT |
| 922-025 | 1/2" Cajon Female VCR |
| 922-027 | 1/2" Cajon Male VCR |
| 922-034 | 2" OD Smooth Tube |
| 922-035 | 3/4" OD Smooth Tube |
| 473-291-1001 | Replacement Fill Valve |



EMOT Series

Calibrated Metal Orifice Leaks

These leaks are specifically designed for atmospheric sniffing applications. The leak standard features a metal orifice with zero dead space volume between leak element and outlet fitting. This allows for direct reading of leak rates in atmospheric conditions. Leaks are available in helium, SF₆, and most refrigerant gases.



High Performance features:

- Construction providing direct reading of leak rates in atmosphere
- Non-breakable stainless steel leak element
- Unique outlet fitting filter protects orifice from clogging
- Wide range of leak rates available, 10^{-1} to 10^{-6} Atm-cc/sec
- Low temperature coefficients
- Supplied with 300cc stainless steel cylinder with DOT3E1800 rating offering maximum life span
- Supplied with N.I.S.T. certificate at no additional charge
- Specifically designed for atmospheric sniffing
- Ideal for calibrating VIC's TurboTest™ MD-490S and halogen sniffing instruments

EMOT Series - Ordering Information:

Specify leak rate when ordering VIC Part No 921-XYX, where X = Leak Rate Exponent, YY = Gas Code and available Leak Rates are 10^{-1} , 10^{-2} , 10^{-3} , 10^{-4} , 10^{-5} , 10^{-6}

SC Series

Calibrated Gas Leaks

The SC Series leaks are calibrated to a master standard traceable to NIST. Calibrations are compliant with applicable industrial standards. SC leaks are supplied with a certificate of calibration.

These leaks are ideal for the Advanced Leak Metrology division's high-speed production leak detectors and older Veeco models. We can offer the option to configure the leak with a variety of different vacuum flanges.



SC Series - Ordering Information:

SC-4 for external calibration of all systems, 10^{-8} Atm-cc/sec range; includes 1 1/8 adapter and manual isolation valve

P/N 6130-001-01

SC-7 for MS-40 & MS50 series only (internal calibrator replacement, 10-8 atm-cc/sec range) Includes built-in temperature sensor mounting block

P/N 0135-110-00

SC-5 for extremely high sensitivity calibration for all systems, 10-9 or 10-10 atm-cc/sec, includes 1 1/8 adapter with manual isolation valve

P/N 6150-001-01

SC-9 for MS-60 HS and MS-50 HS series only (internal calibrator replacement, 10^{-9} Atm-cc/sec. range);

P/N 0137-016-01

Specialty Leaks

VIC manufactures a wide range of specialty leaks designed specifically to meet your application requirements. Please contact our application specialist for complete details.

Laser Drilled Micron Orifice

These leaks utilize a laser-drilled orifice as the leak element. The leaks are attached to a product (bogey) and are internally charged with tracer gas. The tracer gas flows into the product and through the orifice and allows for direct reading by a mass spectrometer.

High Performance features

- orifice sizes available down to 2 microns
- ideally suited for product mounting, and offers fast response times
- specific leak rate values available to match your products leak specification

This calibrated leak will have a blank VCR fitting to protect the orifice and a 1/4" NPT thread fitting to attached to the customer's product and will be provided with a 0.xx micron diameter orifice. This orifice yields a $x.x \cdot 10^{-4}$ Atm-cc/sec leak rate of air at atmosphere.

Internal Leak Detector Leaks

Sniffer Unit (MD-490S) Internal Helium Calibrated Gas Leaks, P/N 752-150

Please contact VIC for additional ordering information.

Storage Cases for Calibrated Gas Leaks

VIC offers a durable custom storage case for its calibrated gas leaks. Constructed of a high impact resistant material, each case is filled with a specially molded insert which eliminates the chances of damage to the precision leak element in the event the gas leak is dropped. A handle and clearly marked outer label facilitate transportation and identification. Two case sizes are available: 16" x 4" x 4" and 19" x 4" x 4" to accommodate additional fittings to the calibrated leak.



- Protect your company's investment
- Eliminate costly replacements of leak elements
- Minimize downtime
- Improve accuracy of mass spectrometer calibrations

16" x 4" x 4" case, P/N 922-024

19" x 4" x 4" case, P/N 922-038

Recalibration Services

Quality Control and Calibration Lab

Every VIC designed and manufactured leak detector & leak detection system incorporates an N.I.S.T traceable calibrated gas leak. The gas leaks are required in order to properly calibrate and provide accurate quantified part leakage that is used to qualify the integrity of the customer's product. Our gas leaks are filled to a specified pressure which allows both the desired leak rate and the discharge duration interval which is 12-months from the date of calibration.

In order to maintain NIST certification and traceability while ensuring that the quality of the leak test is not compromised, each gas leak must be returned to VIC for the following calibration service:

- Measurement of the gas leak as-received and determine if the leak is out of tolerance.
- Inspection of the capillary leak element (excludes SC series leaks)
- Evacuation of the cylinder, (excludes SC series leaks)
- Recharge the leak cylinder with the desired tracer gas to the required fill pressure (excludes SC series leaks)
- Calibration and comparative measurements using 2x additional NIST traceable gas leaks
- Certificate of calibration for each leak
- Data storage including historical calibration information for all our gas leaks

In order to maintain NIST traceability each gas leak requires recalibration 12-months from the last date of calibration. Our gas leaks are available for recalibration at our Corporate office in NY or our office in QRO Mexico and include a certificate of calibration traceable to NIST.

Recalibration Services include a certificate with traceability to N.I.S.T. on all of our manufactured leaks and all non-VIC manufactured leak standards as well. Exchanges are available on all SC7 gas leaks with lead times of 24-48 hours.

Exchange Program

The SC7 Exchange Program provides customers with factory refurbished, repaired, or recalibrated assemblies that are ready for immediate installation. Most exchange items are available within 24-48 hours, allowing customers to reduce downtime as well as their inventory of on-hand spare parts. [For more information contact us.](#)

