

Helium Leak Detector

Vacuum Components

M-212LD
M-212LD-D
M-222LD
M-222LD-D
M-232LD
M-222LD-H
M-222LD-D-H
M-222LD-D-H_500



Helium Leak Detectors

Vacuum equipment



Model:

M-212LD

Compact!

Highly mobile compact type.



M-212LD-D

Compact and Dry!

Low particle compact and dry type with diaphragm pump.

Model:

M-222LD

High power!

High power type with increased power over the Model 212's roughing pump.



M-222LD-D

High power and Dry!

Portable type with dry pump.
For a clean environment!



Model:

M-222LD-H

M-222LD-D-H

M-222LD-D-H_500

High sensitivity & High power!

Adopted a new platform (newly developed TMP / valve block), high sensitivity and high response type with FINE mode as standard. Even higher power type with 500L/min multi-stage roots pump

Automotive industry



Medical industry



Vacuum components



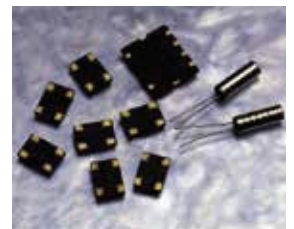
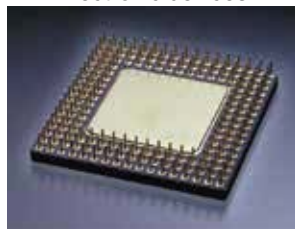
Model:

M-232LD

Sniffer

Sniffer dedicated type

Electronic devices



Portable series

HELEN M-212LD (-D) / M-222LD (-D) (-H) (_500) / M-232LD



■ Summary

The portable series products have been conceptually developed with emphasis on compactness, lightness, and portability.

The M-212LD is a lightweight, general-purpose model that has been specifically designed for use in the field.

The M-222LD is equipped with a large roughing pump. It can perform leak tests of large vacuum containers by itself without the need of the equipment's pump. High sensitivity type M-222LD-H/LD-D-H adopt new platform (TMP, valve block) and offer even higher sensitivity and response than other models.

The M-222LD-D-H_500 equipped with 500L/min dry pump optimum for leak tests of large vacuum equipment is newly line-upped.

The M-232LD is a dedicated machine focusing on the sniffer method. It is ideally suited for use in gas pipes and pressurization components.

Furthermore, the “-D” models use a dry pump pumping system to keep the vacuum equipment (vacuum components) free of oil contamination.

Select the best model for the intended application from the variety of models provided in this series.

M-212LD **Compact**

- Suitable for inspection and field maintenance of various vacuum equipment
- Compact leak detector for various vacuum components

M-212LD-D **Compact & Dry**

- Low particle compact and dry type with diaphragm pump.
- Ideal for use in cleanrooms

M-222LD **High Power**

- Maintenance of various vacuum equipment
- Leak test of various large-scale vacuum containers such as accelerators
- Leak system analyzer

M-222LD-D **High Power & Dry**

- Supports clean room
- Enables oil-free leak tests
- Maintenance of various vacuum equipment

M-232LD **Sniffer**

- Leak test of gas supply systems, vacuum components, and piping components
- Leak test of automotive parts and air conditioning freezers
- Leak test of food and pharmaceutical packages
- Leak test of water and various gas pipes

■ Features

1. Simple operation

From equipment startup to measurement with just a touch of a button. Anyone can easily perform leak tests. Simply set the conditions appropriate for the test specimen. Sensitivity calibration is performed automatically.

2. Industry leading sensitivity, stability, and response

In addition to using a 180° magnetic deflection mass spectrometer tube, an MCP (Micro-Channel Plate with a secondary-electron multiplier) is installed for amplifying helium ions. As a result, even the standard models can achieve a sensitivity as high as $10^{-12} \text{Pa} \cdot \text{m}^3/\text{s}$. This is also coupled with high stability throughout the long-term service period.



3. Portable

The large casters and handle make the units ideal for field maintenance use.



4. Durable robust design

The units are equipped with a variety of safety features. They respond immediately to operator errors and abnormal environmental conditions.

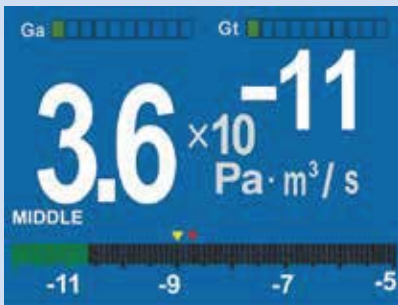
A long life tungsten filament is used to enable long term high-sensitivity measurement. The robust design enables the units to be installed in systems that operate 24 hours.

5. Wide range of functions

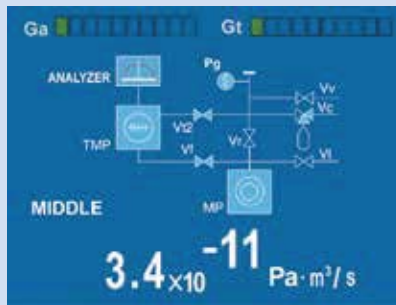
Just like the simple operation of the conventional system, measurements can be performed using the start/stop button. Even those customers requiring complicated configurations to satisfy their specific needs can be easily supported. A 4.1 inch color LCD is used for the display unit. A color LCD has been adopted in order to increase legibility. The standard, status, and trend screens are shown below.

As an example of other functions, reading the internal temperature variations and compensating for temperature drift of the preamplifier have improved the measurement accuracy.

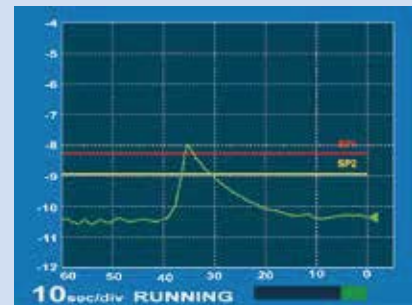
■ Hand controller



Standard screen



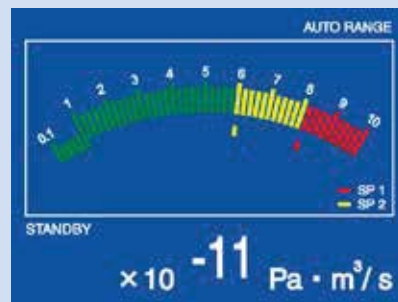
Status screen



Trend screen

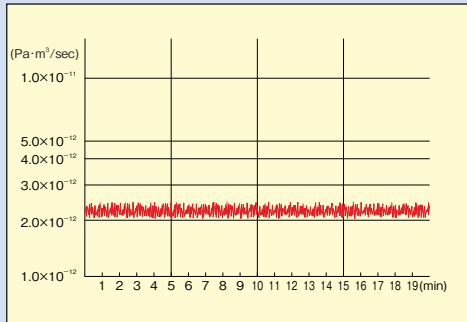


Hand controller



Analog screen

Minimum detectable leakage data



M-212/222LD

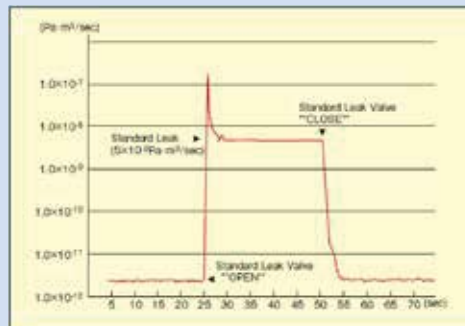
Print-out example

```

*****
# HELIX PRINTER OUTPUT #
*****
No. Lap# M S TIME
(9x10-4)
-----
0001-01 2.1e-12 S.G. OK 040709 17:51:03
0001-01 4.5e-10 G.L. OK 040709 17:51:10
-----
0002-01 2.1e-12 S.G. OK 040709 17:51:29
0002-01* 1.9e-09 M.L. NG 040709 17:51:46
0002-01 1.1e-11 M.L. OK 040709 17:52:05
-----
0003-01 2.1e-12 S.G. OK 040709 17:52:28
0003-01* 5.3e-11 F.L. OK 040709 17:52:12
0003-01 3.1e-09 F.L. NG
0003-01 4.1e-11 F.L. OK 040709 17:52:40
0003-02 3.1e-11 F.L. OK 040709 17:52:40
0003-02 2.5e-09 F.L. NG
0003-02 3.4e-11 F.L. OK 040709 17:53:40
0003-03 3.6e-11 F.L. OK 040709 17:54:04
0003-03 2.5e-09 F.L. NG
0003-03 3.5e-11 F.L. OK 040709 17:54:27
-----
0004-01 2.4e-12 S.G. OK 040709 17:54:48
0004-01 ***** EVC 040709 17:54:50
-----
EVC
-----
0005-01 2.5e-12 S.G. OK 040709 17:55:28
0005-01 2.0e-09 M.L. NG 040709 17:55:57
-----
0006-01 1.7e-12 S.G. OK 040709 17:56:31
EVC
-----
0007-01 3.4e-12 S.G. OK 040709 17:57:24
0007-01 4.6e-11 M.L. OK 040709 17:57:36

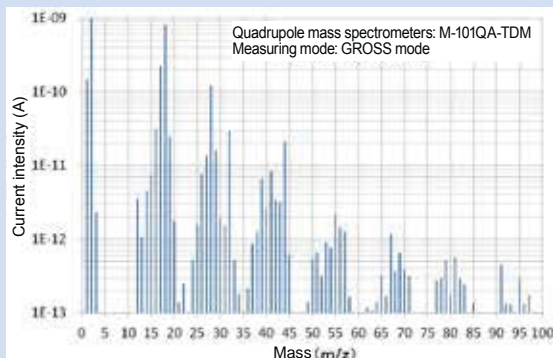
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Response/cleanup data

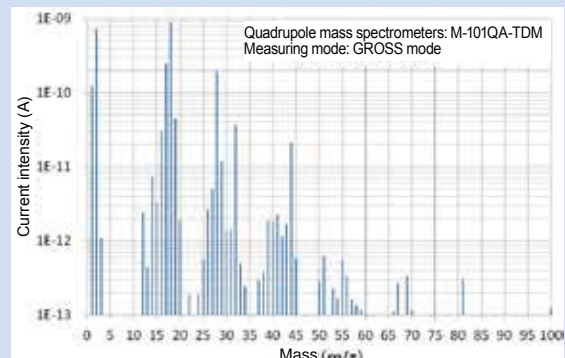


M-212/222LD

Comparison of residual gas analysis (RGA) at inlet port between dry pump type and RP type



M-222LD



M-222LD-D

Specifications

Standard type

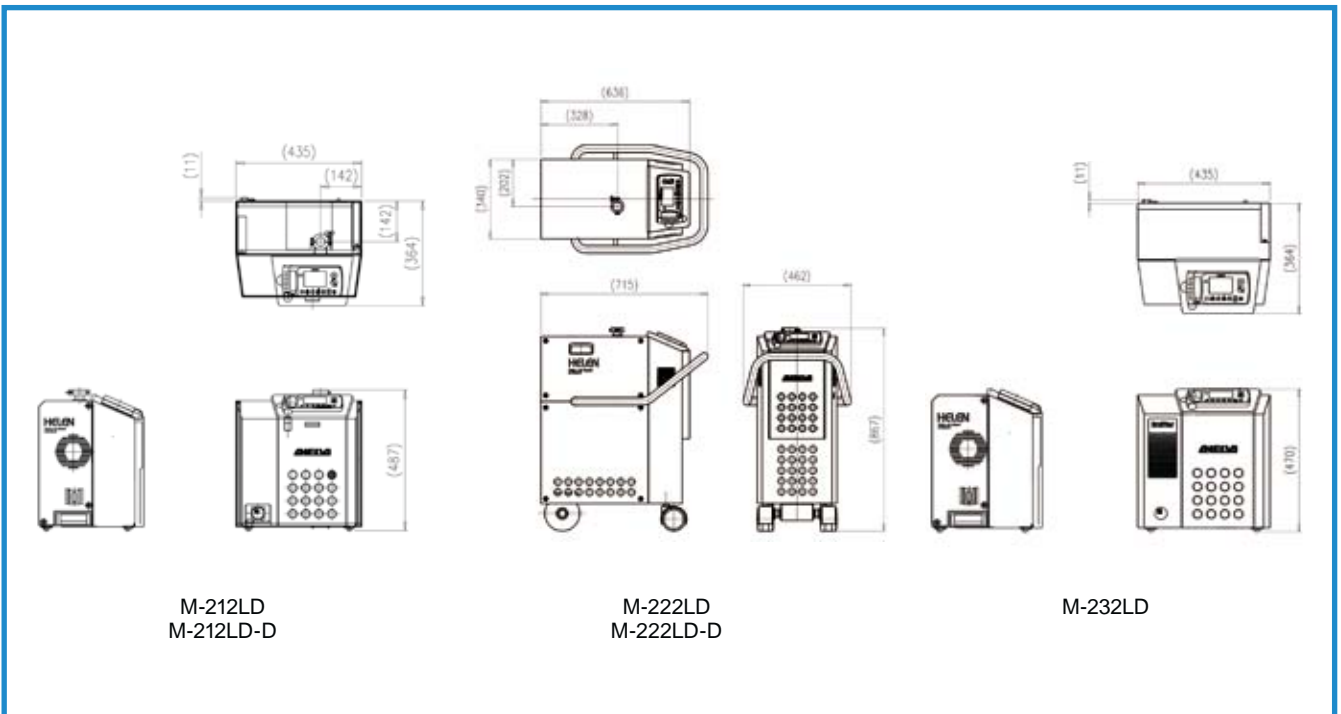
| Type | M-212LD | M-212LD-D | M-222LD | M-222LD-D | M-232LD |
|---|---|---|---------------------------------------|---|---|
| Version | Compact | Compact & Dry | High power | High power & Dry | Sniffer |
| Quantitative measurement range (Pa·m ³ /s) | 10 ⁻¹² to 10 ⁻³ | 10 ⁻¹² to 10 ⁻³ | 10 ⁻¹² to 10 ⁻³ | 10 ⁻¹² to 10 ⁻³ | 10 ⁻⁸ to 10 ⁻¹ (10 ⁻² to 10 ⁵ ppm) |
| Inlet port exhaust speed (He) (L/s) | 0.5 (Gross Mode) 2.0 (middle Mode) | 1.0 (middle2 Mode) 4.0 (middle1 Mode) 7.0 (Fine Mode) | 1.8 (Gross Mode) 2.0 (middle Mode) | 2.0 (Gross Mode) 2.0 (middle Mode) | Probe suction speed 0.3Pa·m ³ /s |
| Inlet port shape | NW25 (ISO) | | | | - |
| Main pump | TMP 50L/s | | | | |
| | 50L/s | 70L/s | 50L/s | | |
| Roughing pump | RP30L/min | Dry pump15L/min | RP 236L/min | Dry scroll pump 250L/min | RP30L/min+ Diaphragm pump |
| External interface | RS232C Analog output (2 points) • standard I/O | | | | |
| Display | 4.1inch color LCD | | | | |
| Sniffer probe | 981-9370 (option) | *1 | 981-9371 (option) | | Standard |
| Power requirements ² | AC100 to 120V, 8A | AC100 to 120V, 6.3A | AC100V, 15A | AC100 to 120V, 15A ³ AC200 to 240V, 10A | AC100 to 120V, 8A |
| Dimensions(WxHxD) (mm) | 435x487x364 | | 462x867x715 | | 435x470x363 |
| Weight (kg) | 42 | 39 | 75 | | 42 |

*1: Please consult us.

*2: Please specify voltage when ordering.

*3: The attached fuse replacement and input cable replacement are required.

Dimensions



Specifications



High sensitivity type

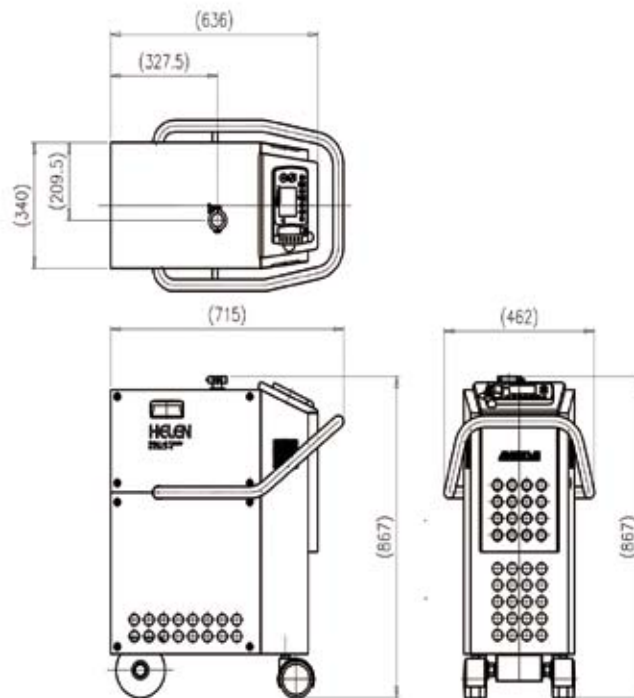
| Type | M-222LD-H | M-222LD-D-H | M-222LD-D-H_500 |
|---|--|--|--|
| Version | High power | High power & Dry | High power & Dry(500) |
| Quantitative measurement range (Pa·m ³ /s) | 10 ⁻¹³ to 10 ⁻³ | | 10 ⁻¹² to 10 ⁻³ |
| Inlet port exhaust speed(He) (L/s) | 1.8 (Gross Mode) 4.0 (middle Mode) 7.0 (Fine Mode) | 2.0 (Gross Mode) 4.0 (middle Mode) 7.0 (Fine Mode) | 3.5 (Gross Mode) 4.0 (middle Mode) 7.0 (Fine Mode) |
| Inlet port shape | NW25 (ISO) | | |
| Main pump | TMP 70L/s | | |
| Roughing pump | RP 236L/min | Dry scroll pump 250L/min | Multi-stage roots pump500L/min Bypass pumping |
| External interface | RS232C Analog output (2 points) • standard I/O 4.1inch color LCD | | |
| Power requirements ^{*1} | AC100V, 15A | AC100 to 120V, 15A ^{*2} AC200 to 240V, 10A | AC100 to 120V, 15A ^{*3} AC200 to 240V, 10A |
| Dimensions(WxHxD) (mm) | 462x867x715 | | |
| Weight (kg) | 75 | | |
| Protection standard | CE, RoHS | | RoHS |

*1: Please specify voltage when ordering.

*2: The attached fuse replacement and input cable replacement are required.

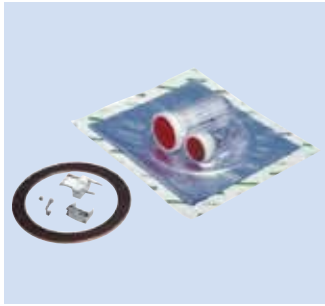
*3: It depends on the specification at the time of ordering.

Dimensions



M-222LD-H
M-222LD-D-H
M-222LD-D-H_500

Option



Filament maintenance kit



Various cart



Sniffer probe



Flex tubes and reducers
(Various types are available.)



Calibrated leak
(5×10^{-9} to 2×10^{-3} Pa·m³/s)



Bombing system



PC software



Helium spray gun

Ordering Information

| Product mode | Product name | | Remarks |
|--------------|-----------------|--|--|
| | Model | Description | |
| 26640 | M-212LD | Helium leak detector (HELEN 212) | AC100 to 120V, Compact type 2014 VERSION |
| 26616 | M-212LD | Helium leak detector (HELEN 212) | AC200 to 230V, Compact type 2014 VERSION |
| 26619 | M-212LD-D | Helium leak detector (HELEN 212D) | AC100 to 120V, Compact, Dry Pump type 2014VERSION |
| 26650 | M-222LD | Helium leak detector (HELEN 222) | AC100V, High power type 2014VERSION |
| 26654 | M-222LD | Helium leak detector (HELEN 222) | AC200V, High power type 2014VERSION |
| 26625 | M-222LD | Helium leak detector (HELEN 222) | AC110V to 120V, High power type 2014VERSION |
| 26626 | M-222LD | Helium leak detector (HELEN 222) | AC220 to 240V, High power type 2014VERSION |
| 26651 | M-222LD-D | Helium leak detector (HELEN 222D) | AC100 to 240V, Dry pump type 2014VERSION |
| 26655 | M-222LD-H CE | Helium leak detector (HELEN222H CE) | AC100V, High Power, High Sensitivity type 2014VERSION * |
| 26656 | M-222LD-H CE | Helium leak detector (HELEN222H CE) | AC220 to 240V, High Power, High Sensitivity type 2014VERSION * |
| 26657 | M-222LD-D-H CE | Helium leak detector (DRY HELEN222DH CE) | AC100 to 240V, Dry pump, High sensitivity type 2014VERSION * |
| 26658 | M-222LD-D-H_500 | Helium leak detector (DRY HELEN222DH500) | AC100 to 120V High power, Dry pump type 2014VERSION |
| 26660 | M-232LD | Helium leak detector (HELEN232) | AC100 to 120V, Sniffer dedicated type 2014VERSION |
| 26661 | M-232LD | Helium leak detector (HELEN232) | AC200 to 230V, Sniffer dedicated type 2014VERSION |
| 26680 | | Tool case (for HELEN2 Transport case) | For HELEN2 Transport case |
| 26681 | | HELEN212 Transport case | On casters |
| 26682 | | HELEN222 Transport case | On casters |
| 26801 | 981-9361 | ASL25V Helium calibrated leak | NW25, calibrated leak rate with valve: 5×10^{-9} to 2×10^{-8} Pa·m ³ /s |
| 26802 | | ASL25N2 Helium calibrated leak | NW25, calibrated leak rate: 5×10^{-9} to 2×10^{-8} Pa·m ³ /s |
| 26810 | 981-9370 | Sniffer probe for HELEN 212 | Suction rate: 0.1Pa·m ³ /s (Compatible with HELEN/ALD) |
| 26811 | 981-9371 | Sniffer probe for HELEN 222 | Suction rate: 0.3Pa·m ³ /s (Compatible with HELEN/ALD) |
| 26830 | 981-9790 | Helium spray gun | |
| 26850 | 981-9351 | HELEN Filament maintenance kit | Filament assembly, gasket, and ion chamber: one each (Compatible with HELEN/ALD) |
| 26851 | 981-9350 | HELEN Filament assembly | Filament only (Compatible with HELEN/ALD) |
| 26856 | | HELEN Filament maintenance kit O-ring type | Filament assembly, o-ring, and ion chamber: one each (Compatible with M-232LD/2014VERSION) |

* CE, RoHS compliant

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