TRACER GAS LEAK DETECTORS

The widest offer of leak testing solutions, using helium and hydrogen

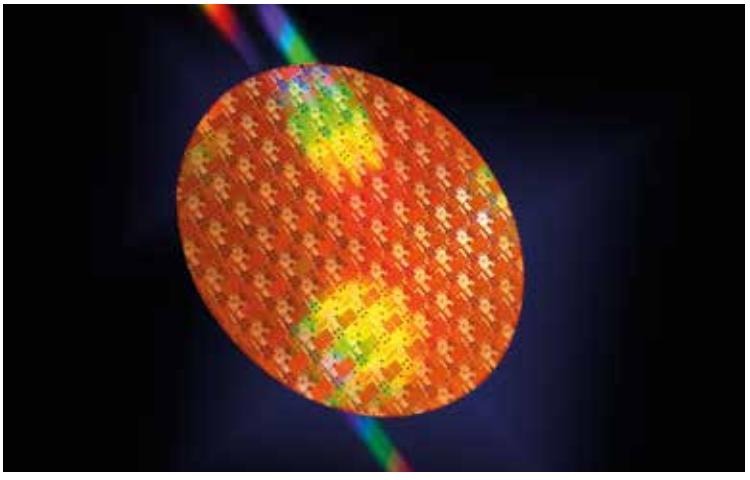
PFEIFFER VACUUM

LEAK DETECTORS

Contents

LEAK DETECTORS

Advantages and applications



Leak detectors for various needs:

Our portable leak detectors are used both for mobile leak detection „on site“, as well as for worldwide service jobs in a variety of different locations. They stand out above all due to their high performance combined with low weight.

These multipurpose leak detectors are used mainly for stationary applications to localize leaks and to check leak tightness. They are also movable thanks to a dedicated cart. Compact helium leak detectors are used in a wide range of industries, from heavy industry right up to clean room applications. In this latter case, the dry versions of the leak detector are used.

High-performance leak detectors are used where extremely short cycle times and fast reduction of helium background are required. From testing of industrial components in high throughput production up to highly sensitive applications in vacuum and medical technology or in research and development.

Customer benefits:

Portable:
- Ultralight and easy to operate
- Ideal for global servicing work
- Remote controlled for comfortable operation

Multipurpose:
- Suitable for a large variety of leak detection applications
- Powerful and dependable
- Simple design for easy operation

High performance:
- Extremely short pump down times even on large volumes
- Designed for ultra sensitive leak detection limits whatever size and volume of the test parts
- High reliability in clean processes as well as rough environments

Workstation:
- Ideal for tests in mass production with short cycle times
- Fully automatic operation on sealed components
- Ergonomic design and operation for seated operators

Modular:
- Easy and flexible integration into leak detection systems
- Low maintenance for continuous operation
- Broad selection of interfaces to answer all common industry standards

Sniffing:
- Ideal solution for accurately locating minor leaks
- Status messages by voice synthesizer for the user’s convenience
- Remote controlled for comfortable operation

LEAK DETECTORS

Series and applications

Overview of series and applications

■ recommended

	Analytics						Semiconductor										Coating										Industry										R&D												
	Electron microscopy	Leak detection	Mass spectrometry	Surface analysis	Plasma monitoring	Residual gas analysis	Lithography	PVD (Physical Vapor Deposition)	CVD (Chemical Vapor Deposition)	Plasma etching	Implantation – Source	Implantation – Beamline	Inspection	Bonding	MBE (Molecular Beam Epitaxy)	Load-locks, transfer chambers, handling systems	Flat Panel Display (FPD)	LED / OLED	Hard disk coating	Photovoltaics	Glass coating (PVD)	CD- / DVD- / Blu-Ray manufacturing (PVD)	Optical coating (PVD)	Wear protection (PVD, CVD)	Web coating	Medical technology	Industrial leak detection	Electron beam welding	Isolation vacuums	Lamp and tube manufacturing	Heat treatment	Vacuum drying	Vacuum furnaces	Nuclear research	Fusion technology	Plasma research	Particle accelerators	Space simulation	Cryogenic research	Elementary particle physics	Nanotechnology	Biotechnology
Portable																																															
ASM 310	■	■		■	■			■	■	■	■	■	■	■		■							■	■		■			■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Multipurpose																																															
ASM 340	■	■	■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
ASM 340 D	■	■	■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
ASM 340 I	■	■	■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
High-performance – mobile																																															
ASM 390	■	■	■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
ASM 392	■	■	■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
High-performance – compact																																															
ASM 182 T	■	■	■	■		■											■			■	■		■	■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
ASM 182 TD+	■	■	■	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■					■		■	■	■	■	■	■	■	■	■	■	■	■	
High-performance – console																																															
ASM 192 T		■															■			■						■			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
ASM 192 T2D+		■					■	■	■	■	■	■	■	■	■	■	■	■		■									■			■	■	■	■	■	■	■	■	■	■	■	■	■	
Workstation																																															
ASM 1002		■												■												■	■																				
Modular																																															
ASI 35		■																									■																				
Sniffing																																															
ASM 102 S		■						■	■	■																■							■	■	■	■	■	■	■	■	■	■			

Series at a glance

Portable

ASM 310

Multipurpose

ASM 340
ASM 340 D
ASM 340 I

High-performance – mobile

ASM 390 / 392

High-performance – compact

ASM 182 T
ASM 182 TD+

High-performance – console

ASM 192 T
ASM 192 T2D+

Workstation

ASM 1002

Modular

ASI 35

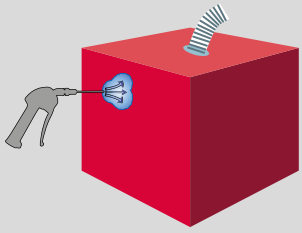
Sniffing

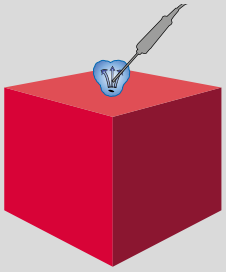
ASM 102 S

LEAK DETECTORS

Six test methods for leak detection

Leak localization
Applications in production and maintenance as well as quality control

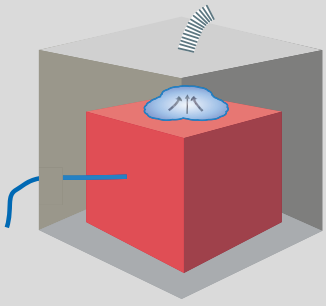




Method	**Vacuum test: Spraying test**	**Sniffing test**
	For leak localization on parts under vacuum	For leak localization on pressurized parts
Description	The leak detector evacuates the air inside the test part. After that, the tracer gas is sprayed on the external surface of the part. The detector measures the gas flow through the leak channel in the wall of the test part. The leak can be localized.	The test part is pressurized with tracer gas. After that, the sniffer probe is moved around the part. If a leak is present, the leak detector will detect the escaping tracer gas, allowing to locate the leak.
Customer benefits	■ Localization of the leak ■ Very high sensitivity ■ Easy to perform ■ Local or integral test	■ Localization of the leak ■ Not necessary to put the test part under vacuum ■ Easy to perform

	Vacuum test: Spraying test	Sniffing test	Integral vacuum test	Vacuum test: Bombing test	Integral test of enclosed parts under vacuum	Sniffing test: Integral test at athomspheric pressure
ASM 310	■	■				
ASM 340 /340 D / 340 I	■	■	■		■	■
ASM 390 / 392	■	■	■		■	■
ASM 182 T / TD+	■	■	■	■	■	■
ASM 192 T / T2D+	■	■	■	■	■	■
ASM 1002	■	■	■	■	■	■
ASI 35		■	■		■	■
ASM 102 S		■				

Integral test
Industrial applications and quality control

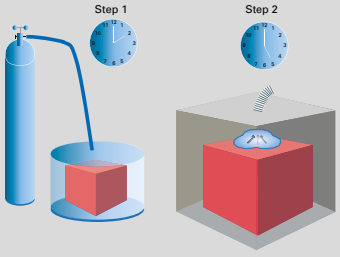


Integral vacuum test

Used in production environments

The test part is placed in a vacuum test chamber and filled with tracer gas. Should a leak be present, the tracer gas will escape from the part into the test chamber and will be measured by the leak detector.

- Very high sensitivity
- High throughput
- Easy to integrate into a production line
- Easy calibration
- High repeatability

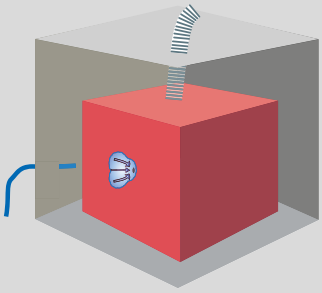


Vacuum test: Bombing test

The test part is sealed and cannot be evacuated or pressurized.

Place the test part in a specific chamber and pressurize it with tracer gas (bombing chamber). Should a leak be present, the tracer gas is forced into the part due t o the gas pressure. After that, the part is placed in a vacuum chamber which is evacuated.
Any tracer gas that was forced inside the part will now escape and be measured by the leak detector.

- The only solution to test sealed components with high sensitivity
- High repeatability

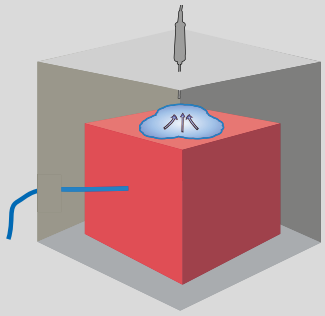


Integral test of enclosed parts under vacuum

It needs to be tested whether tracer gas can enter into the part.

Inside a test chamber, the part is connected to a leak detector and evacuated. The chamber is filled with tracer gas. Should a leak be present, the tracer gas will penetrate the part and be measured by the leak detector.

- High automation level possible
- Very high sensitivity
- High throughput
- High repeatability



Sniffing test: Integral test at atmospheric pressure

The test part can withstand overpressure and needs to be tested as a complete product.

The test part is pressurized with tracer gas in a simple accumulation chamber which is under atmospheric pressure. After an accumulation time, the detector analyzes the air inside the chamber and determines if an increase in the tracer gas concentration can be measured.

- Easy to integrate into a production line

PORTABLE – ASM 310

Combining light weight and superior performance

Powerful

Highly compact and light in weight, the leak detector ASM 310 requires low maintenance. Its low weight and universal voltage enable the ASM 310 to be easily operated anywhere in the world. A transport case to safeguard against shipping damage and a trolley are available as accessories.

Superior performance

■ Backing capacity	1.7 m^3/h
■ Pumping speed for He	1.1 l/s
■ Inlet pressure	15 hPa
■ Minimum detectable leak rate	$5 \cdot 10^{-13}$ Pa m^3/s

User-friendly

The control panel integrates magnets, enabling the operator to place it on a metallic base.

The unique color touchscreen display can be individually adjusted. As a result, only information that the user actually needs for his task are displayed. The menu is password-protected to prevent unauthorized access to the settings of the device.

Detachable control panel (with approx. 2 m long cable)

Compatible

The ASM 310 can likewise be operated with the wireless remote control RC 10. This enables the leak detector to be operated even from a distance of up to 100 meters.

Remote control RC 10

Customer benefits

- Lightweight and portable, only 21 kg
- Smart design with retractable handle
- Easy to move
- Detachable control panel
- On-demand operating interface
- Intuitive and customizable menu
- Small footprint, small size
- Can be operated in any position
- Large, bright color touchscreen
- Color graphics functionality
- Password-protected display
- Integrated SD memory card for recording, downloading data and parameter settings
- Voice synthesizer

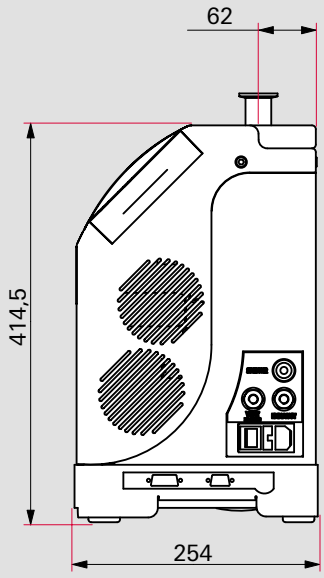
Applications

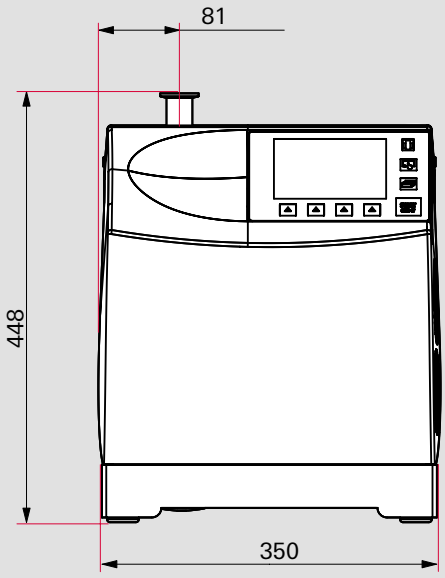
- Semiconductor industry
- Analytics and research
- Industrial applications
- Power plants

PORTABLE – ASM 310

Combining light weight and superior performance

Dimensions





Dimensions in mm

Technical data

Portable leak detector	ASM 310
Test methods	Vacuum and sniffing leak detection
Minimum detectable leak rate for Helium (vacuum leak detection)	$5 \cdot 10^{-13}$ Pa m^3/s
Minimum detectable leak rate for Helium (sniffer leak detection)	$1 \cdot 10^{-8}$ Pa m^3/s
Detectable gases	^4He, ^3He, H_2
Maximum inlet test pressure	15 hPa
Backing pump capacity	1.7 m^3/h
Pumping speed for He	1.1 l/s
Flange (in)	DN 25 ISO-KF
Start-up time (20 °C)	< 2 min (< 3.5 min with auto-calibration)
Response time (sniffing leak detection)	< 1 s
Interface	RS-232
I/O interfaces	Digital input Analog output (mantissa) Analog output (exponent)
Dimensions	350 x 245 x 414 mm
Weight	21 kg
Universal voltage	100 – 240 V AC; 50/60 Hz
Maximum power consumption	300 W
Helium background suppression	Automatic / manual
Operator interface	Color touchscreen
Selectable languages	English, French, German, Italian, Spanish, Russian, Japanese, Chinese, Korean

Order numbers

	Order number
ASM 310	**BSAA0000MM9A**

Order numbers accessories

Accessories	Order number
Country-specific power cables	
UK	**104411**
Italy	**104758**
Switzerland	**103718**
Remote control RC 10, wired/wireless	**124193**
Trolley	**114820**
Transportation case	**119594**

General accessories for our leak detectors will be found on page 42.

MULTIPURPOSE – ASM 340, ASM 340 D, ASM 340 I

Best in class leak detector for high reliability testing in various applications, using helium and hydrogen

Top performance

The ASM 340 guarantees top performance in vacuum or sniffing leak detection for various applications – from maintenance to applications in small production environments. This dependable leak detector can be used both for qualitative localization of leaks as well as quantitative global or local testing.

The ASM 340 is characterized by its powerful pumping system and available in conventional or dry versions. It is the only leak detector in its class that offers qualitative leak detection starting at 100 hPa before reaching the inlet test pressure. With an unrivaled performance in sniffing* the ASM 340 is the ideal partner for leak localization on pressurized parts. Easy operation, ultra fast response time and short recovery time are among the outstanding features of this compact multi-purpose unit. The ASM 340 is the perfect solution for everyday testing even in severe test conditions.

*$5 \cdot 10^{-10}$ Pa m^3/s min. detectable leak rate for He

Remote control RC 10

Easy operation

The detachable control panel with magnets enhances ergonomics for leak detection on medium or large size parts. Its large, bright and color touch screen makes for a maximum readability of the leak test results. The menu is customizable and can be protected to avoid any unintended operation. Thanks to the wireless remote control, the ASM 340 can easily be operated from a distance of up to 100 m.

For customized applications

As an extension range, the ASM 340 exists also without a backing pump. This ASM 340 I allows to connect a different backing pump, for even more convenience and/or better adaptation to customer application, as for example in case of integration into a leak detection system. The connection for the external backing pump is located at the rear of the leak detector".

ASM 340 I

Customer benefits

- Fastest time to test in its class
- High backing pump capacity for versatile use
- Rapid response time due to high helium pumping speed
- Unique capability to detect leaks starting at 100 hPa
- Impressive results in sniffing test mode, with $5 \cdot 10^{-10}$ Pa m^3/s minimum detectable leak rate for helium
- Low maintenance due to rugged design
- Integrated SD memory card for recording, downloading and parameter setting
- Detachable color control panel for enhanced ergonomics
- User friendly and customizable interface
- Complete range of I/O and Profibus communication available

More convenience

- Sniffer probe with LEDs that indicate the measurement status and with a zero button facilitates sniffing leak detection
- Bypass option for the installation of an auxiliary primary pump
- Complete range of I/O and Profibus communication available for an easy integration into production lines

Applications

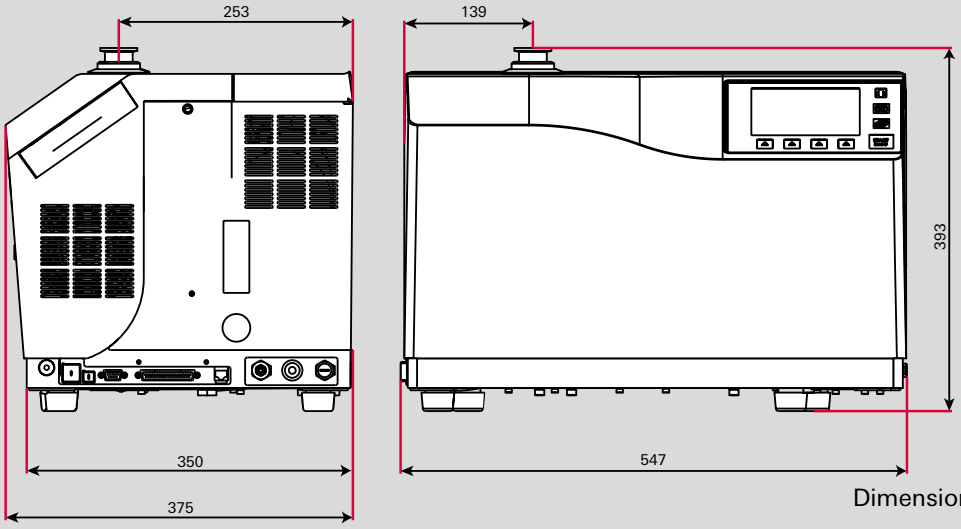
- R & D
- Aeronautic industry
- Mechanical engineering
- Measuring technology
- Refrigeration
- Air conditioning
- Semiconductor technologie

Sniffer probe LP 505

MULTIPURPOSE – ASM 340, ASM 340 D, ASM 340 I

Best in class leak detector for high reliability testing in various applications, using helium and hydrogen

Dimensions



Dimensions in mm

Technical data

General technical data	ASM 340
Flange (in)	DN 25 ISO-KF
Test method	Vacuum and sniffing leak detection
Detectable gases	^4He, ^3He, H_2
Minimum detectable leak rate for He (sniffing leak detection)	$5 \cdot 10^{-10}$ Pa m^3/s
Minimum detectable leak rate for He (vacuum leak detection)	$< 5 \cdot 10^{-13}$ Pa m^3/s
Pumping speed for He	2.5 l/s
Maximum inlet test pressure	25 hPa
Start-up time (20 °C) without calibration	~ 3 min
I/O interfaces	Digital and Analog I/O, Relays
Interfaces (see ordering matrix)	RS-232, Ethernet, Bluetooth …
Selectable languages	English, French, German, Italian, Spanish, Russian, Japanese, Chinese, Korean
Dimensions	393 x 547 x 375 mm

Specific technical data	ASM 340	ASM 340 D (dry version)	ASM 340 I
Backing pump	Rotary vane pump	Diaphragm pump	None
Backing pump capacity	15 m^3/h	3.4 m^3/h	–
Power consumption max.	850 W	600 W	350 W
Supply	90–130 V; 50/60 Hz 200–240 V; 50/60 Hz	Universal 90–240 V; 50/60 Hz	Universal
Weight	56 kg	45 kg	32 kg
Operating temperature	0–45 °C (vacuum) 0–40 °C (sniffing)	0–35 °C	0–40 °C

Order number matrix ASM 340

Order number

abc **A 0 0 A** d **M** e **9** f

Leak detector	abc
ASM 340	**JSV**
ASM 340 D (dry version)	**KSB**
ASM 340 I (without backing pump)	**MSX**

Interface board	d
Basic 15 Pins I/O	**0**
Basic 15 Pins I/O + Bluetooth	**1**
37 Pins I/O	**2**
37 Pins I/O + Ethernet[1)]	**4**
37 Pins I/O + Bluetooth	**5**

Supply	e
90–130 V; 50/60 Hz, US Power cable (only for ASM 340)	**L**
200–240 V; 50/60 Hz, EU Power cable (only for ASM 340)	**H**
Universal 90–240 V; 50/60 Hz (only for ASM 340 D + I)	**M**

Personalization	f
No	**A**
Japan (not available for ASM 340 D and ASM 340 I)	**B**

[1)] Ethernet will allow to create an additional COM port to operate the leak detector through a computer

Order number accessories

Accessories	Order number
Country-specific power cable	
UK	**104411**
Italy	**104758**
Switzerland	**103718**
Remote control, 5 m cable	
Leak rate in mbar l/s, front panel in English	**106688**
Leak rate in Pa m^3/s, front panel in English	**108880**
Remote control	
Remote control RC 10, wired/wireless	**124193**
Transport cart	
Transport cart, 2 wheels, for ASM 340 (not for ASM 340 I)	**122570**
Spray Gun	
Standard	**112535**
“Elite kit” spray gun with accessories in a compact case	**109951**
Standard sniffer probe	
5 m hose length, rigid 9 cm nozzle	**SNC1E1T1**
Other nozzle and hose lengths upon request	
Sniffer probe with Pass/Fail indication and Zero button	
LP 505, 5 m hose length, rigid 12 cm nozzle	**BG 449 208-T**
Bypass option	
With European cable	**PT 445 411-T**
With US cable	**PT 445 413-T**
Interface	
Profibus	**122253**
ECB-Wifi	**125902**

HIGH PERFORMANCE – MOBILE – ASM 390 AND ASM 392

Mobile leak detectors optimized for rapid pump down and short response times on large test objects.

Superior performance, fast testing

The ASM 390 and ASM 392 are the perfect leak detection solutions adapted to the semiconductor and display industries as well as to other demanding applications where rapid pump down and high sensitivity is key. Both models are fully Semi S2 compliant.

These leak detectors are fitted with a dry frictionless backing pump and a powerful high vacuum pump, making them the ideal tools for leak testing of various components in clean environments. Equipped with an additional turbopump, the ASM 392 will speed up your leak detection process to reduce the downtime of your production equipment.

Robust, accurate and reliable

The ASM 390 and ASM 392 were developed to provide full confidence in leak testing regardless of the operator's knowledge. They deliver premium performances and accurate results in a minimal time, making them highly efficient in the field.

Ergonomic and highly maneuverable

ASM 390 and ASM 392 share the same platform and are uniquely ergonomic with a convenient size and height, a secondary handle in the front, a fully rotatable, removable display, an inlet in the front for easy connection to test ports and unrivaled maneuverability for access to all testing areas, even in tight spaces.

Smart and user-friendly

Thanks to a wide, clear color touch display panel, an integrated toolbox with modular compartments and storage space for vacuum bellows, you will be amazed how easy leak detection can be when you have all necessary accessories at the point of use.

Remote control RC 10

Customer benefits

- High maneuverability and compact design
- Superior leak testing performances
- Large rotateable color touch screen
- High roughing capacity (35 m^3/h) for fast evacuation
- Dry and clean pumping technology
- Low maintenance requirements
- Ergonomic design with working surface
- Fast recovery in case of pollution
- Intuitive menu for easy operation
- Integrated toolbox for storage of accessories
- Fast start-up
- High sensitivity and accurate measurements
- Fully Semi S2 compliant

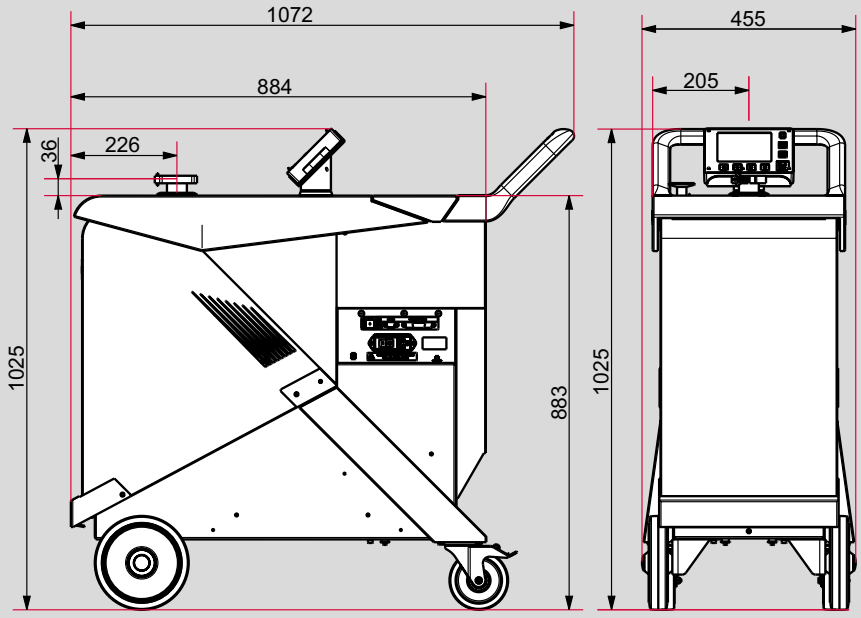
Applications

- Semiconductor industry
- Large area coating
- Solar industry
- Accelerators
- Vacuum components – feedthroughs, valves, bellows, expansion joints
- Laser technology
- Ultra-pure media supply
- Electronics
- Aeronautics
- Medical technology

HIGH PERFORMANCE – MOBILE – ASM 390 AND ASM 392

Mobile leak detectors optimized for rapid pump down and short response times on large test objects.

Dimensions



Dimensions in mm

Technical data

Features	ASM 390	ASM 392
Detectable gases	^4He, ^3He, H_2	
Min. detectable leak rate for Helium (vacuum leak detection)	$1 \cdot 10^{-12}$ mbar l/s	
Min. detectable leak rate for Helium (sniffer leak detection)	$1 \cdot 10^{-8}$ mbar l/s	
Helium pumping speed	10 l/s	25 l/s
Backing capacity	35 m^3/h	
Maximum inlet test pressure	20 mbar (and additional massive mode)	
Start-up time (20°C) without calibration	2 min	
Inlet flange	DN 40 ISO-KF	
Response time	< 1 s	
Interface	RS-232, I/O, Ethernet (consult operating instructions for more details)	
Noise level	≤ 55 dB (A)	
Operating temperature	10-35 °C	
Supply voltage	100-240 V, 50/60 Hz	
Power consumption	800 W	
Power consumption max.	1,600 W	
Weight	125 kg	130 kg
Dimensions (LxWxH)	1,072 x 455 x 1,025 mm	

Order number matrix ASM 390/392

Order number

a **G** b **M M 9** c

Version	a
ASM 390	**CSGB01**
ASM 392	**ESGB02**

Interface board	b
Basic 15 pins I/O	**0**
37 pins I/O	**2**
37 pins I/O + Ethernet[1)]	**4**

Customization on exhaust	c
None (Standard)	**A**
Exhaust DN 25	**B**
Exhaust DN 40	**C**

Accessories

Accessorie	Order number
Bottle holder for ASM 390 and ASM 392	**126561**
Remote control	
RC10 (wired/wireless operation, color touch screen)	**124193**
Basic with 5 m cable	**106688**
Locking clamp DN 40 KF	**118801**
Standard sniffer probe[2)]	
5 m hose length, rigid 9 cm nozzle	**SNC1E1T1**
External communication box ECB-Wifi	**125902**
Helium spray gun	
Standard	**112535**
Spray gun ”Elite” with accessories in a case	**109951**
Inlet filters for dust[2)]	
Brass, 20 µm, DN 40/40 ISO-KF	**105842**
Stainless steel, 15 µm, DN 40/40 ISO-KF	**on request**

[1)] Ethernet will allow to create an additional COM port to operate the leak detector through a computer
[2)] Other configurations available, please contact your local Pfeiffer Vacuum support

HIGH PERFORMANCE – COMPACT – ASM 182 T, ASM 182 TD+

The perfect combination of high performance and easy operation for exceptional reliability even in the harshest industrial applications

Powerful and compact

The high-performance compact leak detectors in the ASM 182 series are available in oil-lubricated and dry versions. Both versions are equipped with a high backing capacity. The small footprint of these leak detectors enables them to be easily integrated into production lines. Our powerful ASM 182 can be used for leak detection on parts of the most varied sizes and volumes. Whether used in the automotive industry, the aeronautic and aerospace or in semiconductor industry, these leak detectors fit the bill with their high performance and reliability.

Oil sealed version: ASM 182 T

The ASM 182 T leak detector has a rotary vane pump with a pumping speed of 20 m^3/h. This large backing pump, together with a powerful turbopump, enables the ASM 182 T to achieve the fastest cycle times in its performance class. It is most impressive when large volume test parts are concerned. Thanks to the fold-out feature of the front and rear housing sides the leak detector can be easily maintained.

Dry version: ASM 182 TD+

The dry ASM 182 TD+ combines a particle-free backing pump with extreme long-term stability and a pumping speed of 25 m^3/h, a molecular pump for high pumping speed in the medium vacuum range and a powerful turbopump in the high vacuum range. The test pressure is attained rapidly for large or strongly outgassing test objects. Thanks to ultra-small background signals, the ASM 182 TD+ reliably performs even in the most demanding environments.

Customer benefits ASM 182 T

- Short cycle times thanks to the largest backing pump in its class
- Low helium background even with large test parts
- Ease of service thanks to the fold-out feature of the front and rear housing sides

Customer benefits ASM 182 TD+

- The test pressure is attained rapidly even with large or strongly outgassing test specimens.
- Short response times and test cycles thanks to high helium pumping speed
- Ultra-small background signals and rapid signal reduction – for demanding test jobs

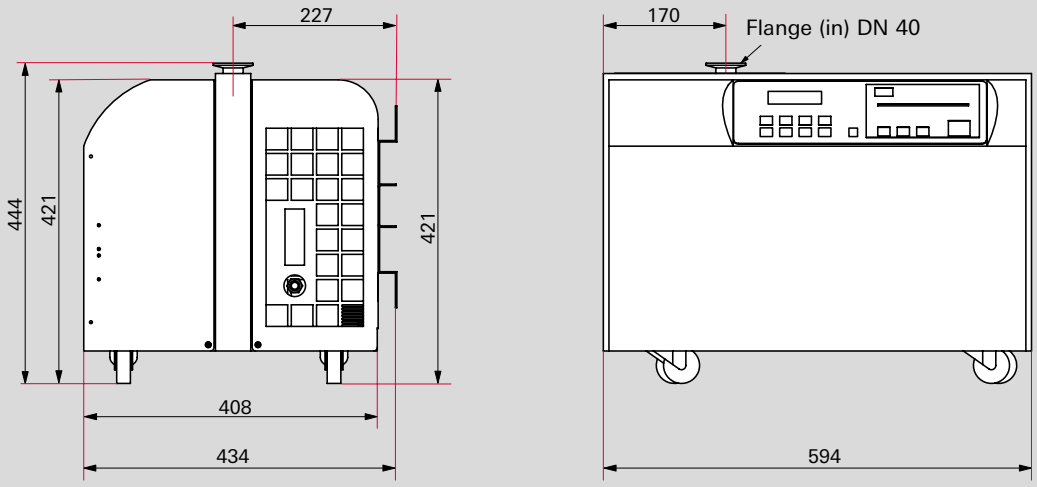
Applications

- Leak detection systems
- Automotive
- Aeronautic and aerospace industry
- Laser technology
- Sensors
- Vacuum components – feedthroughs, valves, bellows, expansion joints
- Electronics
- Mechanical components for petrochemistry
- Heat exchangers

HIGH PERFORMANCE – COMPACT – ASM 182 T, ASM 182 TD+

The perfect combination of high performance and easy operation for exceptional reliability even in the harshest industrial applications

Dimensions



Dimensions in mm

Technical data

	ASM 182 T	ASM 182 TD+
Flange (in)	DN 40 ISO-KF	DN 40 ISO-KF
Test methods	Vacuum and sniffing leak detection	Vacuum and sniffing leak detection
Detectable gases	^{4}He	^{4}He
Minimum detectable leak rate for He (sniffing leak detection)	$1 \cdot 10^{-8}$ Pa m^3/s	$1 \cdot 10^{-8}$ Pa m^3/s
Minimum detectable leak rate for He (vacuum leak detection)	$5 \cdot 10^{-13}$ Pa m^3/s	$5 \cdot 10^{-13}$ Pa m^3/s
Pumping speed for He	4.4 l/s	4.4 l/s
Noise level	54 dB (A)	65 dB (A)
Supply	200–240 V; 50/60 Hz	200–240 V; 50/60 Hz
Power consumption max.	1,000 W	1,500 W
Maximum inlet test pressure	6 hPa	6 hPa
Backing pump capacity	20 m^3/h	25 m^3/h
Start-up time (20 °C) without calibration	3 min	< 4 min
Start-up time (20 °C) with calibration	4.5 min	< 5.5 min
I/O interfaces	Digital inputs (start, vent, calibration…); digital outputs (test modes, cycle in progress, helium signal above reject setpoint …); analog outputs (helium signal log, inlet pressure)	Digital inputs (start, vent, calibration…); digital outputs (test modes, cycle in progress, helium signal above reject setpoint …); analog outputs (helium signal log, inlet pressure)
Interface	RS-232	RS-232
Operating temperature	10–40 °C	10–40 °C
Weight	76 kg	88 kg

Order number matrix
ASM 182 T, ASM 182 TD+

Order number

a b c d e f **P** h i j **0**

Leak detector	a
ASM 182 T	**D2**
ASM 182 TD+ without cart	**D1**
ASM 182 TD+ with cart	**D7**

Detectable gases	b
Helium (^{4}He)	**0**
3 masses (^{4}He, ^{3}He, H_2)	**3**

Seals for vacuum module and analyzer cell	c
Elastomer	**R**
Metal	**M**

Control panel	d
Standard	**S**
Graphic color touchscreen	**T**

Detection option	e
ASM 182 T (not available)	**0**
ASM 182 TD+ standard	**S**
ASM 182 TD+ with gas line option	**G**

Test chamber	f
none	**0**
Small test chamber	**1**
Medium test chamber	**2**
Large test chamber	**3**

Language	h
French	**A**
English	**B**
German	**C**
Japanese	**E**

Supply	i
100–130 V; 50/60 Hz	**7**
220–240 V; 50/60 Hz	**8**

Cable and plug type	j
USA	**1**
France/Germany	**2**
UK	**3**
Italy	**4**
Switzerland	**5**
Without plug	**7**

HIGH PERFORMANCE – CONSOLE – ASM 192 T, ASM 192 T2D+

Ultra sensitive detection limits on large-volume components, ergonomic unit for standing operators

Ergonomic console units

High-performance leak detectors in the ASM 192 series provide high reliability even in harsh environments. The console units have an ergonomic work height for standing operators and the remote control is fixed to a freely movable arm for convenient use. The work surface is grounded and provides a generous surface for placing large test objects, useful small parts and installation components on.

These console leak detectors benefit of an easy menu navigation combined with a voice synthesizer for delivering important status messages. As with all other Pfeiffer Vacuum leak detectors, the ASM 192 series can be controlled using a personal computer and measuring data can be documented – console units, in fact, provide as well a work surface for a laptop.

Most sensitive detection limits on large-volume components

Extremely short pump down times even of large chambers as well as ultra short cycle times are the outstanding features of these console units. The vacuum system incorporating a powerful high vacuum pump reduces helium background fast and makes for short recovery times even after big leaks.

With one or two backing pumps operating in parallel, system configurations can be ideally adapted to meet any production throughput requirements. For the ASM 192 series, too, there are oil-lubricated rotary vane pumps as well as dry ACP pumps available for use as backing pumps.

Customer benefits

- Ideal for industrial applications
- Robust and reliable in the harshest environments
- Fast response time thanks to very high helium pumping speed
- Various languages and operating voltages available for global use
- Graphic color touchscreen
- Test chambers can be mounted on the inlet flange

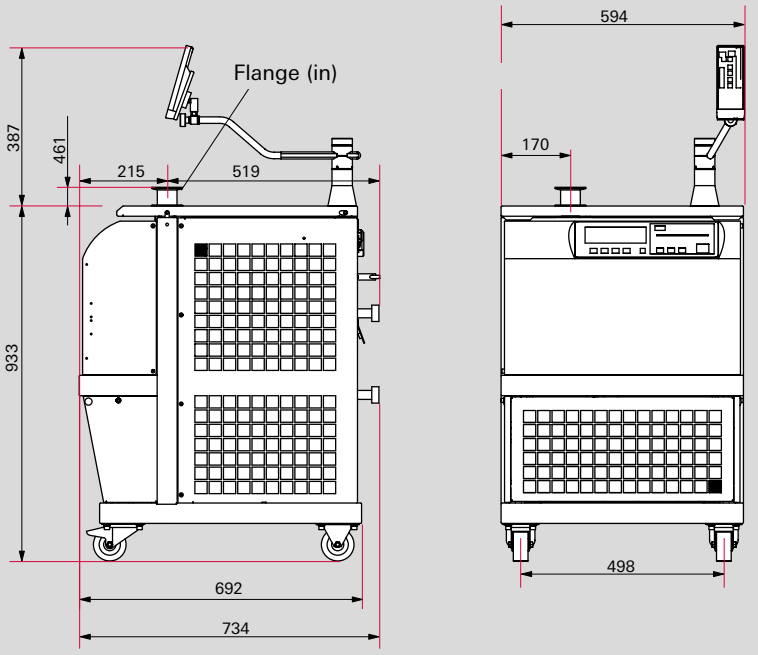
Applications

- Laser technology
- Aeronautics and aerospace
- Space simulation
- Electronics
- Nuclear technology
- Medical technology
- Accelerators
- Semiconductor technology
- R & D
- Coating
- Vacuum technology, large chambers

HIGH PERFORMANCE – CONSOLE – ASM 192 T, ASM 192 T2D+

Ultra sensitive detection limits on large-volume components, ergonomic unit for standing operators

Dimensions



Dimensions in mm

Technical data

	ASM 192 T	ASM 192 T2D+
Flange (in)	DN 40 ISO-KF	DN 50 ISO-KF
Test methods	Vacuum and sniffing leak detection	Vacuum and sniffing leak detection
Detectable gases	^{4}He	^{4}He
Minimum detectable leak rate for He (sniffing leak detection)	$1 \cdot 10^{-8}$ Pa m^3/s	$1 \cdot 10^{-8}$ Pa m^3/s
Minimum detectable leak rate for He (vacuum leak detection)	$5 \cdot 10^{-13}$ Pa m^3/s	$5 \cdot 10^{-13}$ Pa m^3/s
Pumping speed for He	4.4 l/s	20 l/s
Noise level	54 dB (A)	66 dB (A)
Supply	200–240 V; 50/60 Hz	200–240 V; 50/60 Hz
Power consumption max.	1,300 W	1,000 W
Maximum inlet test pressure	6 hPa	30 hPa
Backing capacity	20 m^3/h	25 m^3/h
Start-up time (20°C) without calibration	3 min	3.5 min
Start-up time (20°C) with calibration	4.5 min	5 min
I/O interfaces	Digital inputs (start, vent, calibration…); digital outputs (test modes, cycle in progress, helium signal above reject setpoint…); analog outputs (helium signal log, inlet pressure)	Digital inputs (start, vent, calibration…); digital outputs (test modes, cycle in progress, helium signal above reject setpoint …); analog outputs (helium signal log, inlet pressure)
Interface	RS-232	RS-232
Operating temperature	10–40 °C	10–40 °C
Weight	125 kg	157 kg

Order number matrix
ASM 192 T, ASM 192 T2D+

Order number

a b c 0 d e f g h i 0

Leak detector	a
ASM 192 T	D4
ASM 192 T2D+	D3

Detectable gases	b
Helium (^{4}He)	0
3 masses (^{4}He, ^{3}He, H_2)	3

Seals for vacuum module and analyzer cell	c
Elastomer	R
Metal	M

Backing pump	d
One backing pump (ASM 192 T: 20 m^3/h, ASM 192 T2D+: 25 m^3/h)	S
ASM 192 T – two backing pumps: 40 m^3/h	R
ASM 192 T2D+ – two backing pumps: 50 m^3/h	T

Test chamber	e
None	0
Small test chamber	1
Medium test chamber	2
Large test chamber	3

Measuring units	f
mbar l/s	M
Torr l/s	T
Pa m^3/s	P

Language	g
French	A
English	B
German	C
Japanese	E

Supply	h
100–130 V; 50/60 Hz[1)]	7
220–240 V; 50/60 Hz	8

Cable and plug type	i
USA 15 A	1
France/Germany	2
UK	3
Italy	4
Switzerland	5
Without plug	7
USA 30 A[2)]	8

[1)] not below 110 V for operation with two backing pumps

[2)] If the voltage is lower than 110 V

WORKSTATION – ASM 1002

For leak testing of various objects where high production throughput is required

Dedicated to mass production applications

Leak detection workstations are used when extremely short cycle times and fast reduction of helium background are required. These leak detectors were developed for leakage testing of open or sealed components in mass production.

Powerful

The ASM 1002 leak detector combines high performance with user-friendliness. The vacuum system provides a backing capacity up to 50 m^3/h and guarantees fast reduction of helium background between measurements. These performance characteristics along with its reliability and long-term stability make the ASM 1002 the ideal solution for even the most demanding applications such as leak testing of pacemakers.

User-friendly

The ergonomic design of the ASM 1002 provides ideal conditions for seated operators. The unit's software supports the user during testing of sealed components after a bombing test as well as during leakage testing of open parts. Clear optical and acoustic displays make for easy and reliable operation of the workstation by experienced and semi-skilled users alike.

Adaptable

The ASM 1002 enables automatic leak detection to be carried out on sealed components. By closing the test chambers, the test procedure starts and a red / green light indicates the test result at the end. If necessary, the test chambers can simply be exchanged for a standard vacuum flange or a part-specific holding fixture. This allows the same leak detector to be used for testing open parts, too.

Customer benefits

- Short time to test thanks to powerful pumping package: one or two rotary vane pumps (25 or 50 m^3/h) to evacuate the test object and one rotary vane pump (20 m^3/h) as fore pump for the high-vacuum pump
- The fastest unit of its category: less than 5 seconds to achieve $1 \cdot 10^{-10}$ Pa m^3/s in mass production
- Unique ergonomics for operator's comfort
- Two test methods: Standard test or special Pass/Fail menu for semi-automatic testing with high throughput
- Rugged and highly reliable unit to meet high volume production needs
- Low maintenance

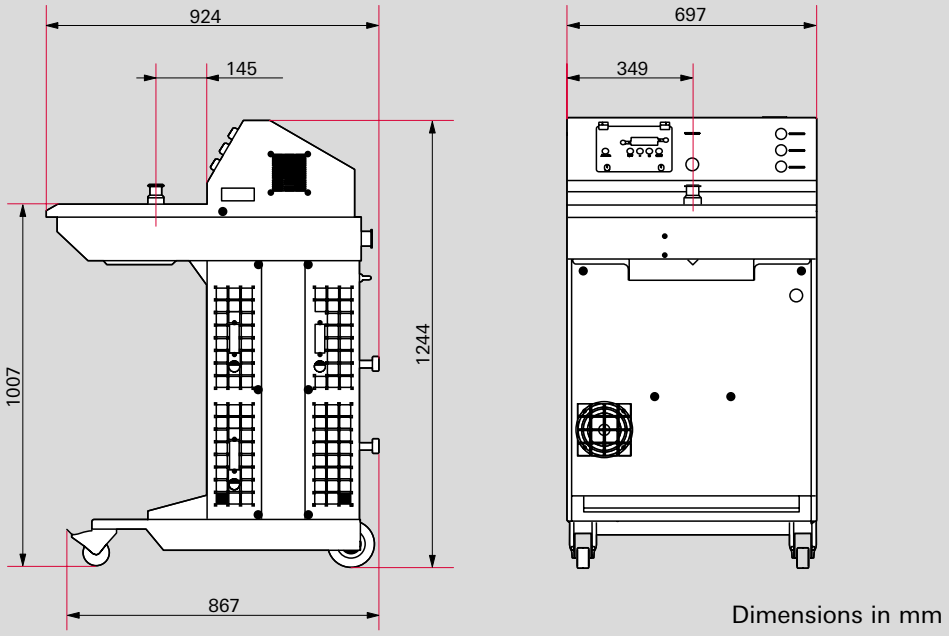
Applications

- Electronic components
- Medical technology
- Pharmaceutics
- Food technology
- Lamp technology
- Vacuum technology, large components

WORKSTATION – ASM 1002

For leak testing of various objects where high production throughput is required

Dimensions



Dimensions in mm

Technical data

	ASM 1002
Flange (in)	DN 25 ISO-KF
Test methods	Vacuum and sniffing leak detection
Detectable gases	^{4}He
Minimum detectable leak rate for He (sniffing leak detection)	$1 \cdot 10^{-8}$ Pa m^3/s
Minimum detectable leak rate for He (vacuum leak detection)	$1 \cdot 10^{-12}$ Pa m^3/s
Pumping speed for He	4 l/s
Noise level	55 dB (A)
Backing capacity	25 m^3/h
Supply	110–130 / 200–240 V; 50/60 Hz
Power consumption	< 1,500 W
Power consumption max.	2,300 W
Maximum inlet test pressure	100 hPa
Start-up time (20°C) without calibration	< 3.5 min
Start-up time (20°C) with calibration	< 4.5 min
I/O interfaces	Analog outputs (helium signal log, inlet pressure); special analog outputs for returning the light status in pass/fail mode
Interface	RS-232
Operating temperature	10–40 °C
Weight	190 kg

Order number matrix
ASM 1002

Order number

a b c **0** d e **0** f g h i **0**

Leak detector	a
ASM 1002	**Y**

Detectable gases	b
Helium (^{4}He)	**0**
3 masses (^{4}He, ^{3}He, H_2)	**3**

Seals for vacuum module and analyzer cell	c
Elastomer	**R**
Metal	**M**

Backing pump	d
One backing pump, 25 m^3/h	**S**
Two backing pumps, 50 m^3/h	**R**

Test chamber	e
Inlet flange DN 25	**0**
Small test chamber	**1**
Medium test chamber	**2**
Large test chamber	**3**

Remote control	f
Without	**S**
mbar l/s	**M**
Torr l/s	**T**
Pa m^3/s	**P**
Pa m^3/s, Japan	**J**

Language	g
French	**A**
English	**B**

Voltage	h
100 – 130 V; 50/60 Hz[1)]	**7**
220 – 240 V; 50/60 Hz	**8**

Cable and plug type	i
USA/Japan	**1**
France/Germany	**2**
UK	**3**
Italy	**4**
Switzerland	**5**
Without plug	**7**

[1)] not below 110 V for operation with two backing pumps

MODULAR – ASI 35

Modular tracer gas leak detector
The highest performance in helium and hydrogen for industrial leak detection systems.

The perfect solution

The ASI 35 is the perfect leak detection solution dedicated to leak detection machine builders and end-users. This unit combines high performance, reliability, and repeatability with maximum uptime. The ASI 35 provides maximum performance for tracer gases helium and hydrogen in integral and localizing test methods or a combination of both. Therefore, it offers flexibility in the testing of demanding samples with minimum signal background and crosstalk, guaranteeing fast overall cycle times.

Flexible and versatile

Due to its modular design, the ASI 35 is optimized for minimum space requirements and maximum integration options. The vacuum module can be installed in any orientation and all other modules are compatible with ½ 19 inch rack format. The user interface becomes optional as the unit can be controlled by PCs or PLCs. Only two cables are needed to connect the vacuum and electronic modules, making the ASI 35 the easiest modular leak detector to set up.

Dependable, fast and sensitive

Further advantages of the ASI 35 are its high helium pumping speed and low maintenance turbopump, its dual independent long life filaments as well as its state-of-the-art electronics. These features guarantee a long-lasting trouble-free operation. The leak detection system can be designed for testing in various operational modes for vacuum or sniffing tests with the highest sensitivity level. The ASI 35 sustains very high throughput, ensures the accuracy and reproducibility of the measurement results and allows ultra fast cycle time as short as 1 second. Thanks to its unrivalled performances in sniffing, the ASI 35 is the perfect leak detector for such specific systems, especially if multipoint sniffing is needed.

Customer benefit

- Integral and localizing test (vacuum and sniffing) for both tracer gases: helium and hydrogen
- Short cycle times due to highest pumping speed
- Maximum reliability and robustness for high uptime
- Wide temperature range allows for operation in challenging environments
- Worldwide operation thanks to universal voltage of the electronic module
- Ability to sustain up to 800 sccm flow in sniffing applications
- Easy substitution of any other modular leak detector model (I/O compatibility mode)

Easy worldwide operation

The electronic module is suitable for universal voltage, making the ASI 35 easy to integrate into systems designated for worldwide operation. The leak detector is designed for working conditions in ambient temperatures of up to 45 °C. The easy mechanical integration is complemented by a wide range of interfaces, allowing data acquisition and complete external control of the system. Thanks to customized I/O configuration, a basic leak detection system can also be considered without PC or PLC. The optional control panel with color touch display provides easy operation through intuitive settings and software menus for both leak detection machine builders and end-users.

Applications

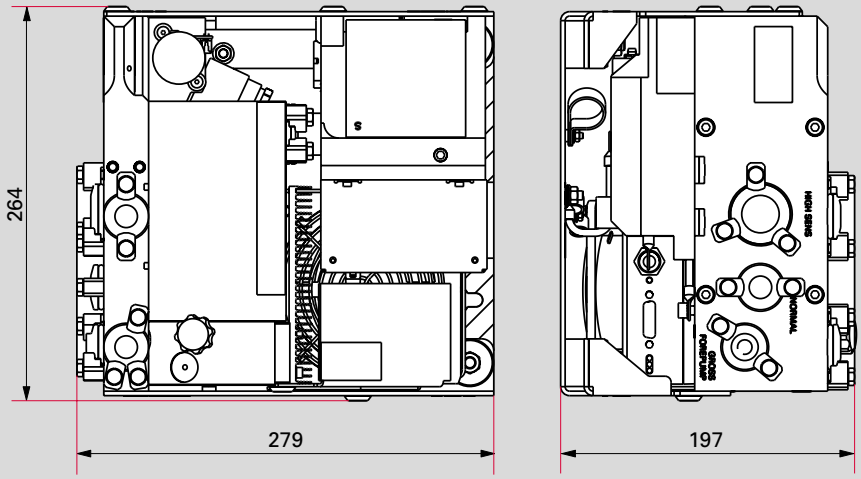
- Automotive: airbag inflators and ignitors, cooling radiators, fuel rails, and injectors
- Refrigeration and air conditioning: evaporators, compressors, tubes, coils
- Packaging: cans and capsules, tubular bags, blisters
- Mechanical parts: valves, fittings, manifolds

MODULAR – ASI 35

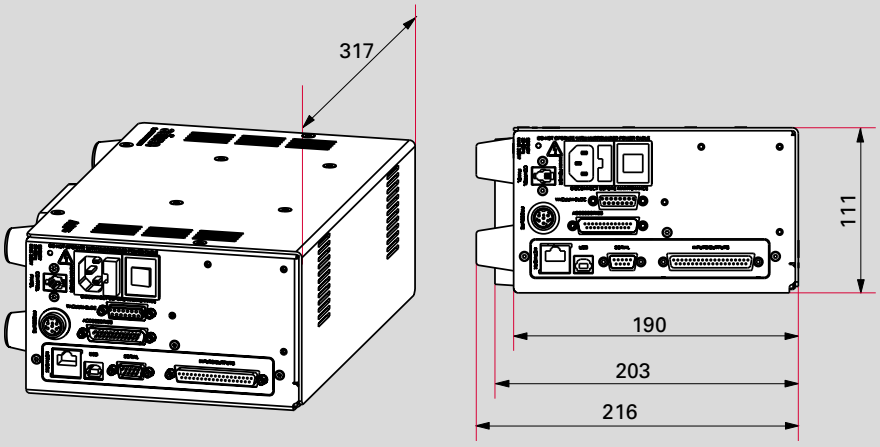
Modular tracer gas leak detector
The highest performance in helium and hydrogen for industrial leak detection systems.

Dimensions

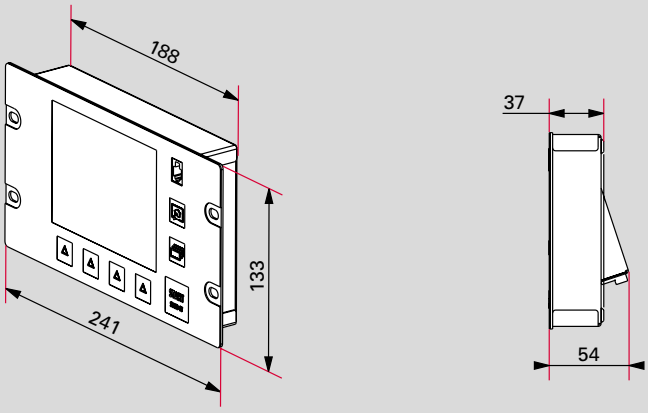
Vacuum module



Electronic module



Control panel



Dimensions in mm

Technical data

Modular Helium Leak Detector	ASI 35
Test methods	Vacuum and sniffing leak detection
Minimum detectable leak rate for He (vacuum leak detection)	$3.5 \cdot 10^{-8}$ mbar l/s (gross leak test mode) $1 \cdot 10^{-10}$ mbar l/s (normal leak test mode) $5 \cdot 10^{-12}$ mbar l/s (high sensitivity test mode)
Minimum detectable leak rate for He (sniffing leak detection)	$1.5 \cdot 10^{-8}$ mbar l/s
Tracer gases	^{4}He, ^{3}He, H_2
Maximum inlet test pressure	18 mbar (gross leak test mode) 1 mbar (normal leak test mode) 0.2 mbar (high sensitivity test mode)
Pumping speed for He	6 l/s (high sensitivity test mode) 1.8 l/s (normal test mode)
Start-up time	< 3 min
Vacuum connections	DN 25 ISO-KF; DN 16 ISO-KF
Interface (see the order matrix for complete options configuration)	RS-232, Ethernet, Profibus, USB
I/O interface	6 digital inputs (allocated functions configurable) 3 analog outputs (configurable: helium signal log, mantissa, exponent, inlet pressure) 5 relay outputs (allocated functions configurable) 4 transistor (open collector) outputs (allocated functions configurable)
Dimensions: L × W × H	
Vacuum module:	279 × 264 × 197 mm
Electronic module:	216 × 317 × 111 mm
Control panel:	241 × 54 × 133 mm
Weight	
Vacuum module:	15 kg
Electronic module:	5 kg
Control panel:	1.3 kg
Universal Voltage	90–240 V AC; 50/60 Hz
Maximum power consumption	300 W
Operating temperature	10–45 °C

Order matrix ASI 35

Order number

S a b c 0 d 0 e MM9A

Industrial control panel and associated cable length	a
Without control panel	**0**
1.8 m	**1**
5 m	**2**
10 m	**3**

Cable length for electronic module	b
1.5 m	**1**
3.5 m	**2**
5 m	**3**
10 m	**4**

Sniffing	c
Without	**X**
With	**S**

Internal calibration	d
Without	**0**
With	**1**

Interface board	e
37 pins I/O	**2**
37 pins I/O + Ethernet	**4**
Profibus	**6**

SNIFFER LEAK DETECTOR – ASM 102 S

Portable sniffer leak detector for locating even the smallest leaks quickly and accurately

Localization of leaks

The ASM 102 S sniffer leak detector is the ideal solution for accurately locating minor leaks. This unit has a wide measuring range from 0.1 ppm up to 100% helium. With a detection limit of up to $1 \cdot 10^{-8}$ Pa m^3/s leaks are detected accurately and fast.

This leak detector is very easy to operate and even inexperienced users achieve reliable results. Delivery of important status messages by voice synthesizer and a remote control facility are additional features for the user's convenience.

Portable and flexible

The ASM 102 S sniffer leak detector with its 18 kg lightweight design and small footprint is ideally suited for maintenance work in restricted spaces or outdoors. This helium leak detector is dry and can be operated in any position, which considerably enhances its flexibility.

Besides its voice synthesizer and remote control features, this unit has a sniffer probe with a 5 m long tube. Longer tubes can also, of course, be supplied on request. The leak detector has an interior storage box which can accommodate the unit's entire accessories.

Customer benefit

- The perfect unit for maintenance of pressurized systems
- Portable sniffer leak detector, only 18 kg
- Easy operation
- Various languages and operating voltages available for global use
- A specific hand-held sniffing remote control is delivered with the leak detector; the cable length is to be selected in the order matrix
- Sniffer probe with 5 m hose length and rigid 9 cm nozzle (order number SNC1E1T1) is delivered with the leak detector

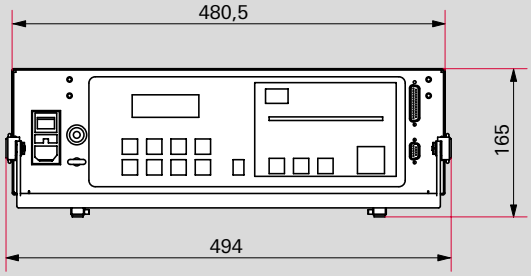
Applications

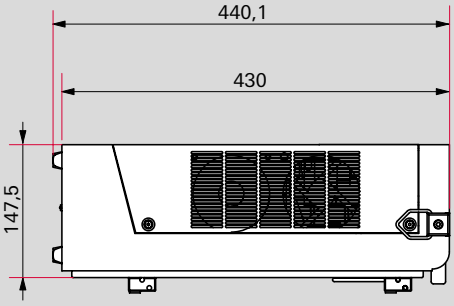
- Laser with helium as working gas
- Aeronautics and aerospace engineering (fuel)
- Underground cables and tubes
- Gasline installations in semiconductor fabs

SNIFFER LEAK DETECTOR – ASM 102 S

Portable sniffer leak detector for locating even the smallest leaks quickly and accurately

Dimensions





Dimensions in mm

Technical data

	ASM 102 S
Test method	Sniffing leak detection
Detectable gases	^{4}He
Minimum detectable leak rate for He (sniffing leak detection)	$1 \cdot 10^{-8}$ Pa m^3/s
Measurement range	$1 \cdot 10^{-8}$ to $1 \cdot 10^{-1}$ Pa m^3/s helium (0.1 ppm to 100 % helium)
Noise level	56 dB (A)
Supply	200 – 240 V; 50/60 Hz
Power consumption max.	100 W
Start-up time (20 °C) without calibration	1.5 min
I/O interfaces	Digital inputs (start sniffer, calibration (on external leak), zero); digital outputs (sniffing test in progress, helium signal above sniffer reject setpoint, default…); analog outputs (mantissa, exponent)
Interface	RS-232
Operating temperature	0 – 45 °C
Weight	18 kg

Order number matrix
ASM 102 S

Order number

a b 0000 c d e f g 0

Leak detector	a
ASM 102 S	Z

Detectable gases	b
Helium (^{4}He)	0
3 masses (^{4}He, ^{3}He, H_2)	3

Remote control cable length	c
5 m	2
10 m	4
15 m	5

Measurement unit	d
mbar l/s	M
Torr l/s	T
Pa m^3/s	P

Language	e
French	A
English	B
German	C
Spanish	F

Supply	f
100 – 130 V; 50/60 Hz	7
220 – 240 V; 50/60 Hz	8

Cable length and plug type	g
USA/Japan	1
France/Germany	2
UK	3
Italy	4
Switzerland	5
Without plug	7

LEAK DETECTOR ACCESSORIES

Universal accessories for ASM leak detectors

Accessories

Various accessories are available for Pfeiffer Vacuum leak detectors. Please refer to the overview below.

Remote control

The standard remote control allows to control and display values of the leak detector from a distance of up to 5 m.

Accessories	Order number
Remote control	
Leakage rate in mbar l/s, front panel in English	**106688**
Leakage rate in Torr l/s, front panel in English	**108881**
Leakage rate in Pa m^3/s, front panel in English	**108880**
Leakage rate in Pa m^3/s, front panel in Japanese	**106690**

Sniffer probe

Sniffer probe for leak detection in sniffing mode.
Easy connection to the leak detectors by external coupling.

Accessories	Order number
Sniffer probe	
5 m hose length, rigid 9 cm nozzle	**SNC1E1T1**
10 m hose length, rigid 9 cm nozzle	**SNC2E1T1**
5 m hose length, flexible 15 cm nozzle	**SNC1E3T1**
10 m hose length, flexible 15 cm nozzle	**SNC2E3T1**

Other nozzle and hose lengths available on request.
Only the SNC1E1T1 is suitable for the ASM 310.

Sniffing calibration accessory

To be used to connect the calibrated leak to the sniffer probe for a more accurate calibration for sniffing applications.

Sniffer probe for liquids

Sniffer probe for connection to the inlet of the leak detector to measure the helium concentration in water and other liquids.
Leakage rate for 100% helium: $2 \cdot 10^{-5}$ Pa m^3/s.

Spray gun
For connection to a gas bottle or gas line for easy tracer gas spraying.

Accessories	Order number
Spray gun, standard	**112535**
Spray gun „Elite" with accessories in a case	**109951**

Bombing chambers
Chambers equipped with valve and pressure measurement, for bombing test on sealed components

Accessories	Order number
Bombing chamber 10 bar (ø 150 mm, l = 200, V = 3.5 l)	**786396**
Bombing chamber 25 bar (ø 100 mm, l = 800, V = 6.4 l)	**786397**

Calibrated leak
Helium calibrated test leak from 10^{-10} to 10^{-5} Pa m^3/s,
with helium reservoir.

Inlet filter
Connected to the inlet flange, these dust filters prevent large amounts of dust from entering the leak detector.

Locking clamp
Clamp with specific tool that allows to lock any accessory on a DN 40 flange.

Further accessories are available at
www.pfeiffer-vacuum.com

VACUUM SOLUTIONS FROM A SINGLE SOURCE

Pfeiffer Vacuum stands for innovative and custom vacuum solutions worldwide, technological perfection, competent advice and reliable service.

COMPLETE RANGE OF PRODUCTS

From a single component to complex systems:
We are the only supplier of vacuum technology that provides a complete product portfolio.

COMPETENCE IN THEORY AND PRACTICE

Benefit from our know-how and our portfolio of training opportunities!
We support you with your plant layout and provide first-class on-site service worldwide.

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Pfeiffer Vacuum GmbH
Headquarters · Germany
T +49 6441 802-0

www.pfeiffer-vacuum.com

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