AUTOMOTIVE INDUSTRY

PRODUCT CATALOGUE 2015

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ESA SERVICE

ESA Service S.r.l. is active throughout the world as a leading player in the fields of leakage testing, filling coolant gas, recovery gas, performance and safety test.
The focus of our business activities includes manufactures of plants and key components for home appliances, air conditioning for building and cars, MV power switches, valves.

As concerns Automotive, since 1980 **ESA Service** has designed and manufactured leak detection systems to test the tightness of many car components such as:

- Aluminium wheel rims
- Fuel tanks and fuel pumps
- Air conditioning evaporators, condensers, hoses
- Thermostatic valves
- Dryers
- Air bags
- Manifolds

This wealth of experience and our innovative new ideas ensure that each system is engineered for optimum performance and designed to maximize value.
ESA Service integrates rapid response, innovation and flexibility to identify cost-effective solutions for our customers.

Technology Team
Innovative employees who think as entrepreneurs and focus on customers are our capital.
Their qualifications and commitment are the basis for outstanding performance and top-notch products.

The major reasons for our success are our employee-oriented values:
Pioneering spirit
Courage
Fairness
Closeness

Taken in combination, these values give the **ESA Service** team its unmistakable image.
Ambitious goals and a clear management style both foster and drive progress at **ESA Service**.
Fairness, security and mutual trust are the cornerstones of our corporate culture.
Our strength is innovation in attractive niche markets.
Our research and development projects are aligned to costumers needs and requirements.
Together and in close cooperation with our customers, today we are working on the answers to tomorrow's questions.
We apply our know-how to develop new solutions while setting standards and driving technical advances.

The result is innovation which sets trends-to the benefit of our customers.

LEAK DETECTION

No components, devices or plants have perfectly tight welds. Perfect tightness does not exist. The unavoidable leak must be sufficiently small depending on the use; this means that it is necessary to define the value of the acceptable leak. In other words, a component can be considered tight for a specific use if the remaining leak is lower than the acceptable maximum leak value for that specific component.

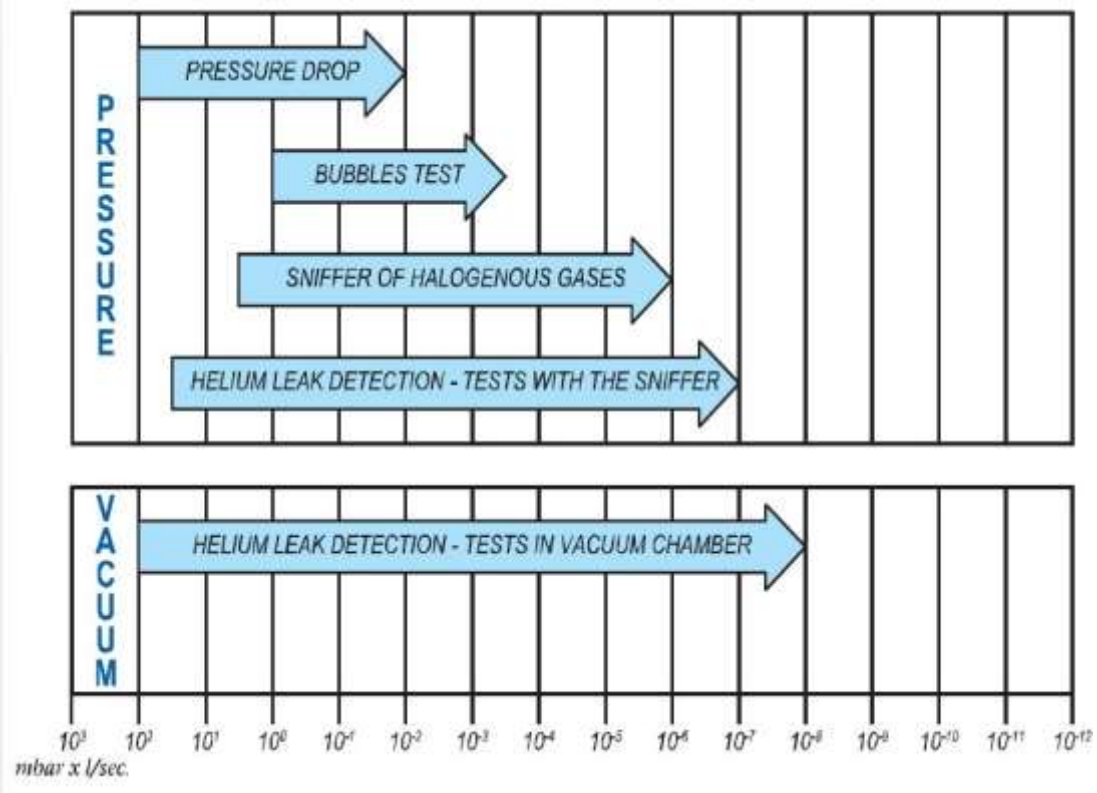
A leak is a hole, a crack or porosity allowing the inlet or the leakage of a fluid from a container.
The main function of the leak detection is to locate and measure leaks from products that will contain a fluid or the vacuum.
The leak detection preferably uses non-destructive techniques.

There are various methods to check the tightness: from the emission of bubbles in water up to highly sophisticated systems using helium as tracing gas in sniffer or in vacuum.

The main considerations in choosing a method for tightness control are: sensitivity, reliability, easy use, the component to test, safety and cost.

LEAK DETECTION

Leak detection systems in comparison



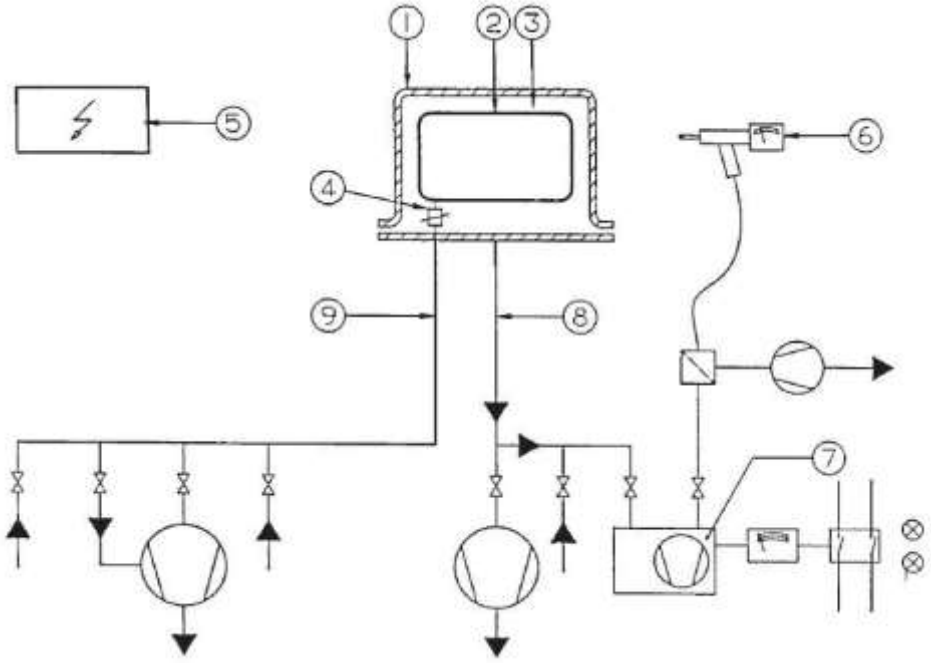
The growing demand for tightness systems, elimination of returns, reduction of environmental pollution and an ever-increasing quality of an attentive and selective market, has produced new leak detection techniques.

The helium leak detection offers remarkable advantages in comparison with traditional methods, such as the air pressure drop or the bubbles test:

- More sensible method to detect leaks
- Reliable and objective sealing tests
- Quantity leak measurement also with sniffer method
- Sealing tests carried out in extremely safe conditions with pressure from 0.5 to 40 Mpa
- Marking of the positively tested pieces

LEAK DETECTION

FINELEAK measurement principle in vacuum chamber



1. Vacuum Chamber
2. Component to be tested
3. Gas
4. Connection device
5. Control switchboard
6. Sniffer
7. Helium leak detector
8. Vacuum pump for chamber
9. Vacuum pump for component

The component to be tested is placed inside the vacuum chamber and connected to the helium supply system, then it is evacuated from the atmospheric pressure and pressurized with the helium.
The vacuum chamber is also evacuated and, when the total pressure has reached the correct rate, it is connected to the mass spectrometer, which will detect the presence of helium due to a leak.
System is able to detect leaks between 1x10-3 and 1x10-7 mbar l/s of helium.

Minimum detectable leak: till $5x10^{-7}$ mbar l/s of helium
equal to 0,2÷ 0,5 g/y of R134A

APPLICATIONS

CAR WHEEL RIMS

AIR CONDITIONING HOSES

AIR BAGS

RECEIVER DRYERS

AIR CONDITIONING EVAPORATORS

FUEL FLANGES

PRODUCTS

LEAK DETECTION IN VACUUM CHAMBER - FINELEAK

GAS RECOVERY SYSTEMS

ACCESSORIES

Technical data subjected to modifications without notice

LEAK DETECTION IN VACUUM CHAMBER 1.1

FINELEAK 3.120
ALL-AUTOMATIC HELIUM LEAK TESTING OF CAR WHEEL RIMS

Aluminium wheels are today an integral part of the standard equipment for a great number of cars.
Like all the components made by casting, even the wheel rims are subjected to defect which can lead to a non-perfect tightness of the rim: this condition cannot be accepted, particularly when the wheel rims are used with tubeless tyres.
So the tightness test takes on a relevant importance, because it has to guarantee the perfect efficiency of the wheel for a long time.
ESA Service has realized a full automatic leak testing machine for alloy wheel rims, able to perform a leak test fast, clean, reliable and perfectly suitable to meet the demands for this application.

Description

Car wheels of different size arrive at the leak testing station on a conveyor line from the automatic lathes via a cleaning and drying system. A stopper keeps the wheel in loading position until it is picked up by the arms leak testing station and placed into testing position. The test hood is closed and pumped down until a preset reference pressure of a few mbar is attained. Within the test chamber a sealing plate is now lowered on the upper-side rim, thus dividing the test volume into two separate sections: the tire area around the rim as the search gas volume and the enclosed hub area as the analysis volume.

LEAK DETECTION IN VACUUM CHAMBER

The hub area is further evacuated by a separate vacuum pumping set down to the base pressure required for testing, and the analysis system (helium leak detector) is then

connected to the analysis volume. Approximately at the same time the tire area, i.e. the rim base, is flooded with the search gas/air mixture.
Based on the present parameters, the leak detection system distinguishes between two different test result:
- Leak
- No Leak

At the end of the leakage test, the search gas volume (tire area), the analysis volume (hub area) is vented and the test chamber hood is lifted.
The triple arm system of the machine removes the tested wheel rim and picks up the next one. Both rims are rotated of 120°.
The next wheel to be tested is loaded into the test position and the tested wheel is placed on the discharging conveyor line.
The next testing cycle is now initiated.
The tested wheel in carry-off position is classified in accordance with the test result.
All "no leak" wheels are sorted out. The leaky ones are transferred straight through the conveyor system.
"No leak" wheels are additionally identified by a coloured mark or by a dot point.
A ultimate software allows to control completely the system including auto-alibration, fault diagnostic, maintenance program and so on.
The standard leak used like a certified master, allows to auto-calibrate and check machine sensitivity.

Main parts

- Conveyors for load and unload of the wheels
- Automatic arm system for placing and unloading the wheel rims from the testing chamber
- Test chamber
- Pneumatical and vacuum equipment
- Measure leak system
- Power switchboard and auxiliary electric devices controlled by PLC and touch-screen display.
- Helium recovery system
- Auto-Calibration control system

Technical Data

Tested equipment	Aluminium wheel rims
Detection method	Overall leak test
Tracing Gas	Helium/air mixture
Test pressure (handling included)	Max 3,5 bar abs
Cycle time	18÷22 sec
Smallest detectable leak	3xE-5 mbar l/s
Wheel rim diameter	from 13" to 22"
Wheel rim width	from 4" to 10"
Automatic output sorting	No leak-Leak

LEAK DETECTION IN VACUUM CHAMBER

1.2

FINELEAK 2.20
LEAK DETECTION PLANT FOR FUEL FLANGES

This machine is able to test the tightness of plastic flanges for fuel tank pumps by using helium as tracing gas.
The workbench is made of 2 separate and independent testing stations: while on the first station the cycle is going on automatically, on the second station the operator unloads the flange just tested and loads a new one to be tested.
The testing chambers on their turn are split up into two parts: the upper chamber and the lower chamber. The flange to be tested is placed between the two chambers.
A suitable marking device marks the piece tested with good result (i.e. without leak).
A vision system acknowledges the marking.

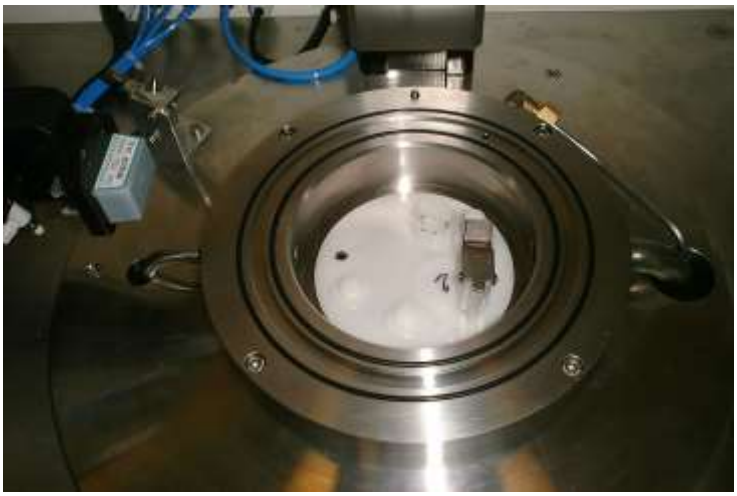
Main parts

- Frame with locks on all its sides and sliding doors electrically locked at level with the Workbench
- N°2 Test chambers with special jigs for flanges
- Vacuum pump system
- Electric control board with interface for operator
- Marking device
- Vision system to detect the presence of piece and acknowledge both the MASTER and the flange marking

LEAK DETECTION IN VACUUM CHAMBER

Features

- Automatic connection of piping
- Automatic selection of connectors
- Helium consumption reduced
- Adjustable helium gas percentage (from 10% up to 100% gas concentration)
- Automatic marking of piece tested with good result
- Automatic marking acknowledgement
- Master flanges with and without leak



Technical Data

Detection method	Overall leak test
Search gas	Helium/Air mixture adjustable
Search gas pressure applied	From inside to outside
Differential pressure during test	500 mbar
Productivity	1pc every 19sec
Number of test position	2
Piping connections	3
Dimensions	L1000xW1650xH2380mm
Max gas leak rate allowed	> 5xE-5mbar l/sec

LEAK DETECTION IN VACUUM CHAMBER

1.3

FINELEAK 2.10
LEAK DETECTION PLANT FOR AIR BAGS

Purpose of the plant is the measurement of the leak on manifold assembly.
The way of work is semi-automatic: manual loading and automatic unloading.
The severe test features and the reliability of the system make this machine a test plant of great productivity and customer satisfaction.
The test pressures, so as the expansion of gas as a consequence, are carefully checked.

Technical Data

Detection method	Overall leak test
Tracer gas	Argon 98% /Helium 2%
Argon helium pressure	250 bar adjustable from 4 to 400 bar
Max gas leak rate allowed	1xE-5 mbar/sec
Productivity	327 pcs/h
Number of test position	2
Operators engaged	1
Loading	Manual
Unloading	Automatic

LEAK DETECTION IN VACUUM CHAMBER

1.4

FINELEAK 2.800
LEAK DETECTION PLANT FOR AIR CONDITIONING CONDENSERS/EVAPORATORS

Machine for automatic fine leak detection of condensers and evaporators.
The leak test concerns the sealing and joint points of the component.
This is a plant of high reliability and toughness.

Description

The Fineleak Tester 2.800 is an automatic plant to test condensers placed on pallets.
Burst Test, Leak detection, Condenser obstruction are the tests carried by this machine in automatic way.
The Fineleak Tester works in a special welding and assembly line totally automatic.
The condensers to be tested are assembled on pallets that move the condensers to the several working stations and finally to the leak test station.
The condenser pallets are approx. 30.
The pallet is equipped with expansion pliers which connect the condenser with a special multi way coupling device connecting the pallet to the pneumatic circuit of the Fineleak.

LEAK DETECTION IN VACUUM CHAMBER

1.4

The pallet arrives at the loading/unloading station of the Fineleak and is taken by automatic devices in the vacuum chamber for the leak detection test.
The test chambers are 2: while a chamber works for the leak detection, the other one unloads the previous pallet and loads a new pallet.
After test, the pallet is carried to the loading/unloading station and sent to the marking station.
The pallets move automatically. The calibration of the plant is even completely automatic.

Main parts

- Skid frame L3850xP2000xH2300 mm approx.
- 2 Vacuum Chambers
- Mass spectrometer leak detector to measure helium in vacuum chambers
- Test Result to manage the plant (data recording, statistic analysis of test results,
- preventive maintenance of plant)
- Standard leak certified for chamber calibration
- Master Leak certified in running conditions
- Air Dryer pressurized at 30 bar max.
- Vacuum system
- 30 Transport Pallets are equipped with special connectors

Technical Data

Detection method	Overall leak test
Search gas pressure applied	from inside to outside
Burst test	30 bar with dry air
Differential pressure during test	20 bar
Search gas	Helium
Max leak rate allowed	1E-5 mbar l/sec equivalent to 3 g/y of R134A
Productivity	N° 1 pc. each 24 seconds
Number of test position	N° 2
Numbers of pallets	30

LEAK DETECTION IN VACUUM CHAMBER

FINELEAK 2.300
LEAK DETECTION PLANT FOR AIR CONDITIONING HOSES

Where traditional methods like the pressure drop and the bubble test don't guarantee the necessary accuracy, the mass-spectrometer leak detector, used with helium as tracer gas, offers many advantages.
Helium is a gas with a very small molecule, able to get quickly into the leaks, even the smallest ones, and to be easily detected. Being an inert gas, it's not toxic, not inflammable, it is odourless and it doesn't make reaction with any other element. Furthermore, it has a very low concentration in atmosphere (5 ppm), allowing the leak detector to operate with no background noise.

Description

This plant, just like all the Fineleak line, is specifically designed to meet the Customer's requirements, offering the best solutions concerning precision and reliability of the measurement, friendly use, running costs.
Calibration of the plant is automatically made at the switching-on, by using a Certified Calibrated Leak, and it can be verified by request of the operator or by programmed intervals.
To make a reduction of running costs of the plant it is possible to recover helium used for the tests by using a helium recovery system REA.

LEAK DETECTION IN VACUUM CHAMBER

Component to be tested is placed inside the vacuum chamber and connected to the helium supply system, then it is evacuated from the atmospheric pressure and filled with the helium. The vacuum chamber is also evacuated and, when the total pressure has reached the correct rate, it is connected to the mass spectrometer, which will detect the presence of helium due to a leak.
System is able to detect leaks between 1x10-3 and 1x10-7 mbar l/s of helium.

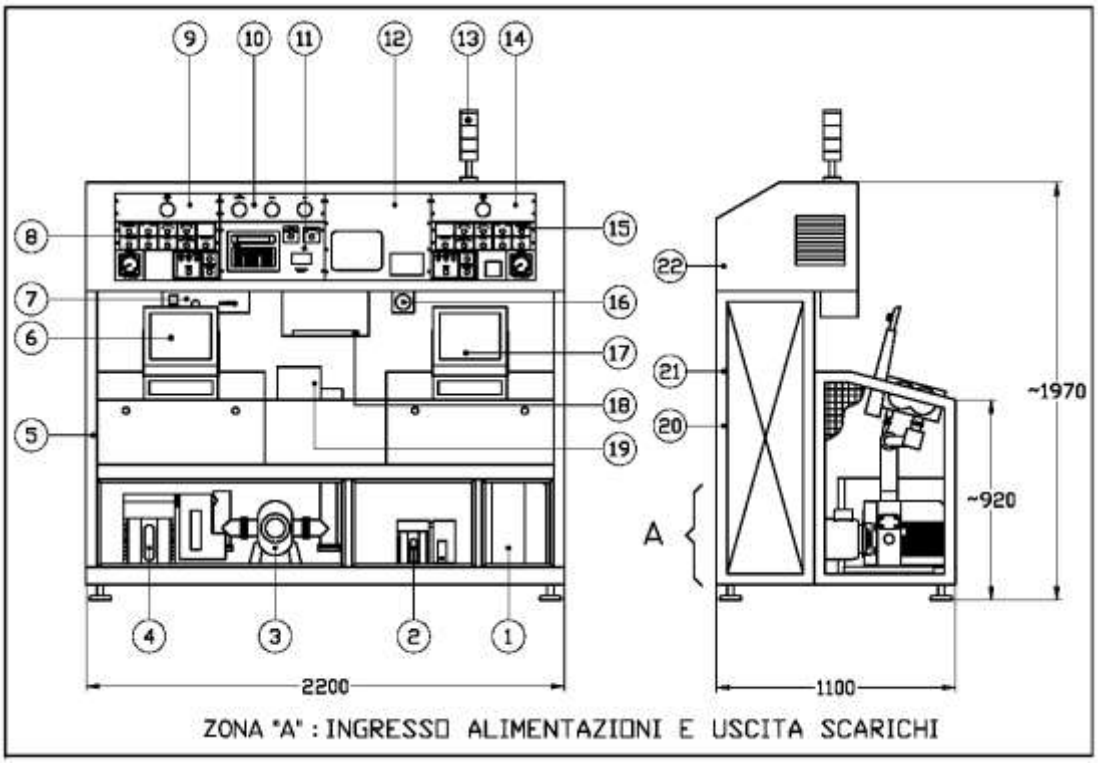
Technical Data

Detection method	Overall Leak Test under vacuum chamber
Tracer gas	helium 100%
Test Pressure	adjustable from 10 to 25 bar
Gross leak test made by pressure drop	at 35 bar with nitrogen
Loading and unloading	Manual
Productivity	120 pieces/hour
Chambers working in alternate mode	2
Piping tested on each chamber	2
Max gas leak rate allowed	2 g/year of R134a

LEAK DETECTION IN VACUUM CHAMBER

1.6

FINELEAK 10
LEAK DETECTION PLANTS FOR DRYERS



22	FRAME
21	ELECTRICAL CABINET
20	PNEUMATIC PANEL
19	DRYER MARKING SYSTEM
18	KEYBOARD
17	CHAMBER 2: DRYER CHECK
16	EMERGENCY BUTTON
15	CONTROL PANEL & CONTROL CHAMBER 2
14	PRESSURE CONTROL PANEL & DRYER VACUUM IN CHAMBER 2
13	RUNNING SIGNALLING LAMP
12	TEST RESULT PANEL
11	RUNNING CONTROL PANEL
10	GENERAL POWER SUPPLY CONTROL PANEL
9	PRESSURE CONTROL PANEL & DRYER VACUUM IN CHAMBER 1
8	CONTROL PANEL & CONTROL CHAMBER 1
7	STANDARD LEAK CHARGING PANEL
6	CHAMBER 1: DRYER CHECK
5	GENERAL FRAME
4	ROTATIVE PUMP
3	ROOTS PUMP
2	ROTATIVE PUMP
1	LEAK DETECTOR

LEAK DETECTION IN VACUUM CHAMBER

The plant is suitable for the leak detection on little components of air conditioning systems for cars.

The machine can perform several working cycles depending on the components to be tested; it works on a recipe basis and can accept till 100 codes.
The chambers can process filters with different codes.
The operator loads the filters to be tested in chamber 1, closes the cover and the cycle starts.
At the end of the cycle, the machine informs the operator about the test result ("with" or "without" leak).
The filters "without" leak are marked inside the chamber.

Technical Data

Test chambers	N° 2 in stainless steel
Tracing gas	helium
Test pressure	Adjustable from 10 to 50 bar
Standard Leak for autocalibration of plant	N° 1
Sensitivity	1-5 g/y of R134a
Coarse leak test by pressure decay	50 bar of nitrogen
Loading and unloading	manual
Productivity	120/240 pcs/hour
Power installed	6 Kw approx.

GAS RECOVERY SYSTEMS

HELIUM RECOVERY MACHINE – LOW PRESSURE

2.1

The helium recovery systems REA find their application on all those situations where the helium consumption of the leak testing plants is particularly high.
From the leak testing plant, which the REA unit is always connected to, helium used for the tests is recovered, filtered and finally compressed in a reservoir, where it will stay at disposal for the next test, at the required pressure. Helium concentration is kept under control by an analyzer, and it is restored by adding pure helium if needed.

The REA unit keeps always on vacuum the suction tube and on pressure the delivery tube, so the helium is available in any moment, at the desired pressure.
When the leak testing unit discharges the helium, REA provides to carry out recovery, filtration and compression in the delivery reservoir. Helium concentration is always kept under control by an analyzer. If the measured value goes under an alarm level, pure helium is inlet in order to restore the concentration to a pre-set value.

- CERTIFIED ACCORDING TO PED NORMS

GAS RECOVERY SYSTEMS

2.1

HELIUM RECOVERY MACHINE – LOW PRESSURE

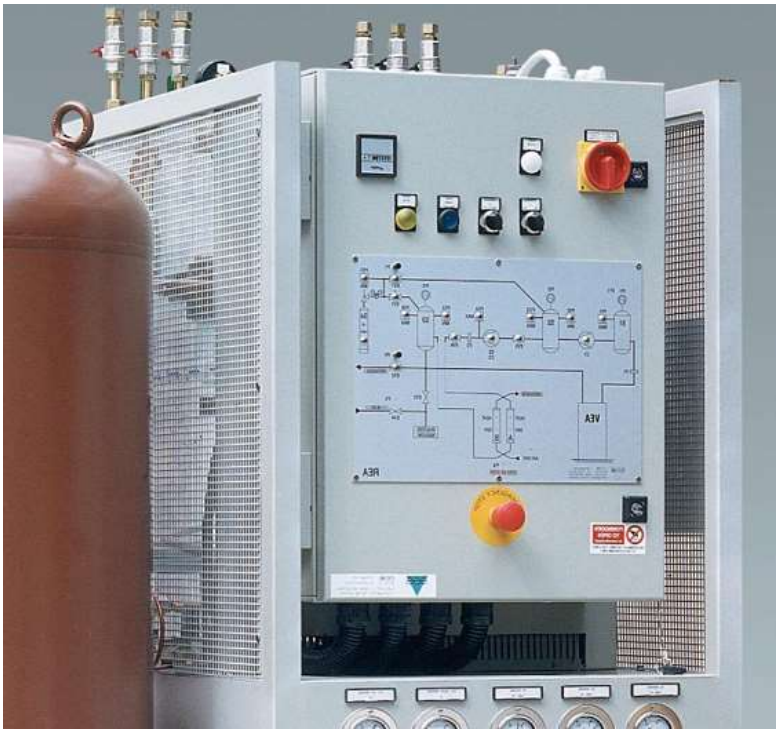
COMPOSITION OF REA 1001 UNIT

- Compressors
- Reservoirs
- Electric switchboard controlled by PLC
- Pressure regulator, valves, filters and any other device needed for the working cycle
- Helium concentration analyzer with display for reading of current value and programming of alarm levels.
- Air dryer AIRDRY (optional)
- Helium dryer HELIDRY (optional)

	REA 20	REA 30	REA 1001
Power installed	2,5 KW	5 KW	5,5 KW
Max Helium pressure	10 bar	15 bar	25 bar
Suction pressure	10 mbar	10 mbar	10 mbar
Recovery rate efficiency	95%	98%	98%
Nominal capacity	60 Nl/min	90 Nl/min	150 Nl/min
Helium concentration analyser	By thermal conductivity	By thermal conductivity	By thermal conductivity
N° leak testing connectable units	Till nominal capacity		

OPTIONS

- Helium dryer HELIDRY
- Air dryer AIRDRY
- Helium consumption measuring device HCC
- Helium concentration analyzer HELITEST



Control panel

GAS RECOVERY SYSTEMS

2.2

HELIUM RECOVERY MACHINE – HIGH PRESSURE

The mixture helium-air, coming from the leak detection units, is sucked by REA 60HP/C because of the pressure difference between the piece tested and the reservoir in vacuum.
When the gas in the high pressure reservoir goes down the fixed quantity, the helium-air mixture is recovered by HELYMIX. This gas is pumped by the compressors in the high pressure reservoir.The maximum helium pressure is 60 bar. The helium used for test is sent from the high pressure reservoir to the leak detection plants VEA or FINELEAK.
REA 60HP/C includes a helium concentration measuring device, HELITEST, that assures a continous control of the helium concentration used during the test and a helium-air mixture device HELIMIX allowing to top up at a controlled concentration.

COMPOSITION

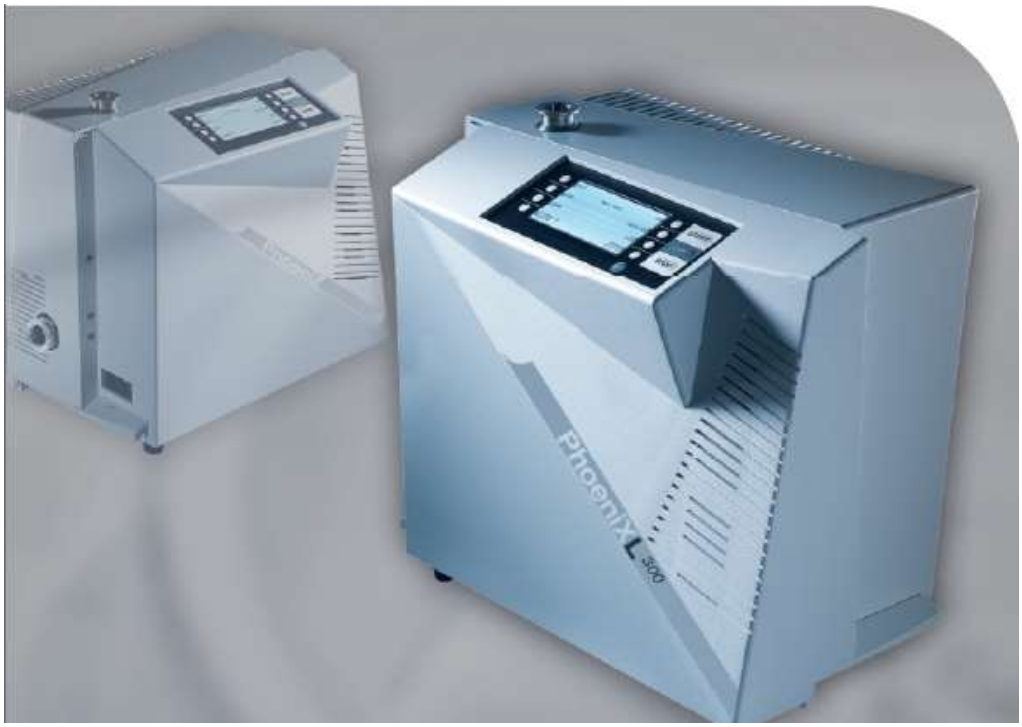
- Reservoir
- Compressors
- Helium cylinder for topping with reducer (optional)
- HELITEST: helium concentration measuring device
- HELIMIX: helium-air mixture device (setable concentration)
- Helium dryer HELIDRY
- Air dryer AIRDRY
- Helium consumption measuring device HCC
- Electric switchboard controlled by VT

	REA 60 HP	REA 120 HP	REA 300 HP
Max Helium pressure	60 bar	100 bar	300 bar
Suction pressure	10 mbar	10 mbar	10 mbar
Recovery rate efficiency	98%	98%	98%
Nominal capacity	200 Nl/min	200 Nl/min	400 Nl/min
Helium concentration analyser	By thermal conductivity	By thermal conductivity	By thermal conductivity
Reservoir certificates	included, according to PED norms		
N° leak testing connectable units	Till nominal capacity		
Certification	PED		

ACCESSORIES

L300
HELIUM LEAK DETECTOR

3.1.1



L300 leak detectors set new standards for modern and up-to-date leak detection.
The L300 excels through ruggedness, rapid entry into the measurement mode, high measurement accuracy and reliability as well as flexibility of use.
Being a mobile helium leak detector, the L300 is equally suited for use on mass production lines and service work.

It excels through its rapid entry into the measurement mode and an extremely short response time thereby fulfilling
the requirements of industrial series production testing – for example in the refrigerating and air conditioning industry.
The oil-free gas admission system allows the use of this leak detector in testing of optical systems, in analytical systems or in the semiconductor industry.

MODE OF WORK

- Vacuum operation
Upon request, our application consulting department is prepared to customise the L 300 also in response to specific customer specifications.

- Sniffer operation
In connection with the corresponding accessories, the leak detector may be operated as a sniffer leak detector.

ACCESSORIES

3.1.1

OPTIONS

- Partial flow pump set
  The L300 Modul is suited for leak testing large volume vessels. In combination with a partial
  flow pump set, the L300 can also be equipped for such applications offering leak rate measurements starting at 1000 mbar

- Remote control
  The optional remote control unit is equally suited for right handers and left handers The L300 helium leak detectors are so-called counterflow leak detectors which contain many well proven own

- Calibrated leak
  Integrated calibrated leak and automatic calibration 1xE-7 mbar l/sec

- Leak Ware
  Software for PC connection in order to record the leak rate measured on a database and print a certificate

APPLICATION

- Quality assurance in production lines for leak detection by helium
- High and ultrahigh vacuum technology

TECHNICAL DATA

Lowest detectable helium leak rate: Vacuum operation Sniffer operation	mbar l/s ≤5 x 10-12 - ppm	mbar l/s ≤ 1 x 10-7 - ≤0,1÷100.000
Maximum measurable helium leak rate: Vacuum operation	mbar l/s	> 0.1
Measurement ranges		12 decades
Selectable mass	m	2 – 3 - 4
Maximum permissible inlet pressure	mbar	15
Trigger thresholds	n	3
Pumping speed during pumpdown 50 Hz/ 60 Hz	m3/h	2.5
Helium pumping speed in the vacuum mode	l/s	> 2.5
Time constant for the leak rate signal	s	< 1
Time until ready for operation	min	≤ 2
Power consumption	VA	420
Inlet flange	mm	DN 25 KF
Dimensions (W x H x D)	mm	495 x 456 x 314
Weight	kg	40

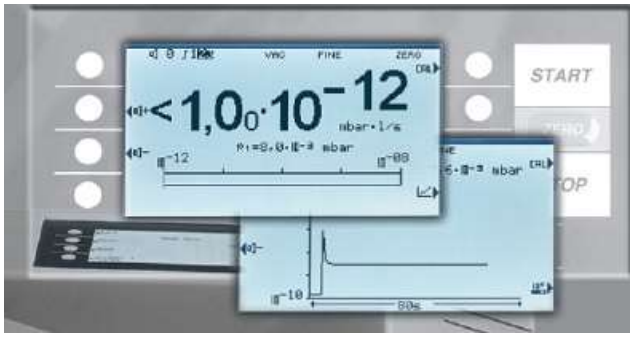
ACCESSORIES

PERFORMANCE

- Maintenance friendly concept – the mechanical connections have been separated from the electrical connections and have each been arranged in a protected connection strip
- Extremely long service life of the cathodes due to their Iridium/Yttrium coating; two ion sources with two automatically switchable cathodes
- Faster detection times through an averaging method which adapts itself dynamically to the leak rates
- Leak detection starting at an inlet pressure of 15 mbar
- The leak detector may be moved to a different location immediately (≤ 30 s) after switching off
- Transportation in any orientation
- R134a equivalent leak rate readout
- High helium pumping speed 2.5 l/s
- Data output and external driving analog / RS 232
- The preamplifier of the mass spectrometer is located in a hermetically sealed metal enclosure and is thereby protected against external influences like humidity in the air, for example

MAINTENANCE-FRIENDLY

- The design of the L300 is such that all components can be accessed rapidly when maintenance becomes necessary.
- The internal arrangement completely separates the mechanical from the electrical and electronic subassemblies.



ACCESSORIES

PTL60
HELIUM CALIBRATED LEAK

3.2.1

Calibrated leak certified for the calibration control of leak detectors by manual sniffer and under vacuum chamber.

On industrial field, integral eak testing on vacuum chamber with the mass spectrometer leak detector is now used in a wide range of applications.
For the first calibration of this kind of plants and the following periodic controls, it is mostly important to have at your disposal a device able to supply to the system a controlled flow of helium in the sam range of the leaks to be detected.
Calibrated Leaks PTL have exactly the aim to meet this requirement. The construction technology b quartz capillary guarantees high precision and reliability and allows to realyze leaks between 1x10- and 5x10-7 mbar l/s of helium.

They are supplied with a Calibration Certificate, according to ISO norms and with traceability to the National Standards.

TECHNICAL DATA

Tank volume	100 cc
Rechargeable connector	quick ⅛
Safety valve	6 bar
Pressure indicator	analogical/ digital
Storage case	Wooden material
Uncertainty of measurement	Less than 5% of declared value
Construction Technology	Quartz capillary
Leak rate	By request; between 1x10-4 and 1x10-7 mbar l/s
Validity of Calibration Certificate	1 year
Available Gas	He - H2, others on request

ACCESSORIES

APPLICATION

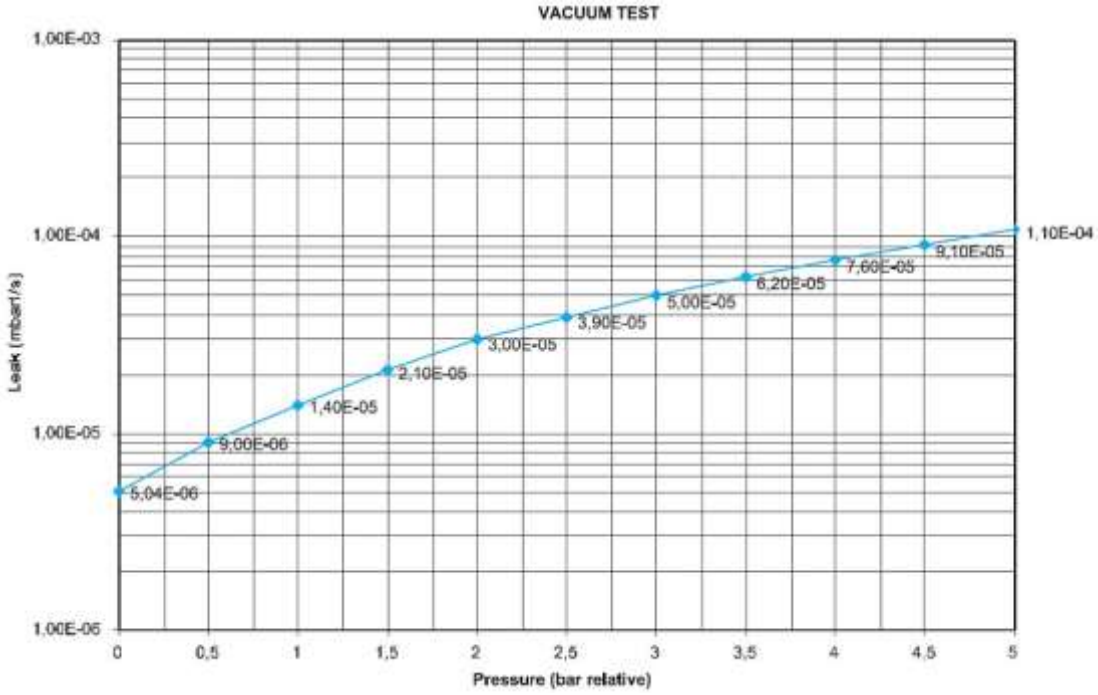
Calibrated Leaks PTL have two different applications:

- they can be enclosed in the plant as permanent component, so they can be used for the automatic calibration control
- they can be inserted on a master component, so they can be used for a manual efficiency test of the system.

They can be also used for the calibration control of leak detectors by manual sniffer.

LEAK RATE

The output flow rate is variable; it depends on the helium pressure in the tank.
In order to get the leak rate wanted, you need to adjust the helium pressure at the value indicated on the diagram which is supplied with the calibrated leak.



ACCESSORIES 3.2.2

PL – PERMEABILITY CALIBRATED LEAK

The calibrated leak PL with tank is used to calibrate the mass spectrometers for helium leak detection systems.
This calibrated leak is equipped with a manual valve to prevent the output of helium during the check of leak detector's zero point; this way, the leak element is never closed.
The helium accumulated in the tank, which is sufficient for 10 years at least, goes through the leak and remain with the manual valve when this is closed.
When opening the manual valve, the helium accumulated goes out and displays on the mass spectrometer a leak value higher that the nominal value of the leak range.
The leak value becomes correct only when the pressure on the connection flange KF is lower than 1 mbar.
The helium that might still stay on the valve can be removed by connecting the PL with a vacuum pumping system for an extended time.

TECHNICAL DATA

Leak range:	10^{-8} mbarl/sec
Accuracy:	± 10%
Available gas:	Helium
Connection flange:	DN16 KF
Temperature coefficient:	+ 3,5% / °C
Max temperature:	70°C

ACCESSORIES

3.2.3

TL - CALIBRATED LEAKS FOR

MASTER LEAKS IN LOW AND HIGH PRESSURE

TL Calibrated Leaks can be mounted on the components to be tested for the calibration control of leak detection systems.

The construction technology by quartz capillary guarantees high precision and reliability for a long time and allows to reach reduced flow values even in the presence of high pressure.

TL calibrated leak can be used in vacuum till a pressure of 250 bar.

Available models:
LP: for pressure calibration up to 10 bar
HP: for pressure calibration from 10 to 250 bar
Vacuum: up to 1x10E-3 mbar
Leak rate: from 2 cm3/h
Threaded connections: 1/4" male or female

Supplied with a Calibration Certificate having traceability to the National Standards of Metrology Institute.

Uncertainty of measurement	Less than 2% of declared value
Construction Technology	Quartz capillary
Leak rate	On request, from 2 cm3/h
Calibration pressure	
Standard Model:	up to 10 bar
HP Model:	from 10 to 250 bar
Vacuum:	up to 1x10E-3 mbar
Validity of Calibration Certificate	1 year
Available gas	He, H2, others on request

ACCESSORIES

3.2.4

TL - MASTER LEAK FOR WHEEL RIM

TL Master Leak can be mounted on the wheel rim to allow the auto-calibration of the helium leak tester.

The construction technology by quartz capillary guarantees high precision and reliability for a long time and allows to reach reduced flow values even in the presence of high pressure.

TL calibrated leak can be used in vacuum till a pressure of 10 bar.

Vacuum: up to 1x10E-3 mbar
Leak rate: in the range of 10E-4 and 10E-5 mbar l/sec
Assembling on the rim: in the hole of filling valve

Supplied with a Calibration Certificate having traceability to the National Standards of Metrology Institute.

Uncertainty of measurement	Less than 2% of declared value
Construction Technology	Quartz capillary
Leak rate range	10E-4 – 10E-5 mbar l/sec other on request
Calibration pressure	
Standard Model:	up to 10 bar
Vacuum:	up to 1x10E-3 mbar
Validity of Calibration Certificate	1 year
Available gas	He, H2, others on request

ACCESSORIES

3.4.1

DM300 – VACUUM GAUGE CONTROLLER
DMR300/1 – VACUUM IN COMPONENTS

Vacuum Gauge Controller DM300

Application: vacuum measurement only

- Control of 3 vacuum gauges contemporaneously
- Monochromatic, rear lighting, graphic touch screen display
- Direct setting from display
- Selection of different measurement units of vacuum
- Analogic and digital indication of vacuum
- "Custom" software on request for vacuum chambers control or vacuum test

Vacuum Gauge Controller C100 DP

Application: leak test on bench for little components

Output for vacuum valve
Vent valve
Remote Push-button panel
Lamps with result OK/NOK

Vacuum Gauge Controller DMR300/1

Application: Vauum in components

Output for vacuum valve
Vent valve
Remote push-button
Lamps with result OK/NOK

ACCESSORIES

3.4.1

HOW TO ORDER

DM300/1	1 gauge + 1 cable	Cat. No. V280011
DM300/2	2 gauges + 2 cables	Cat. No. V280010
DM300/3	3 gauges + 3 cables	Cat. No. V280004
DMR300/1		Cat. N. V280014
C100 DP		Cat. N. V190118
Portable box		Cat. No. 1021589

Vacuum gauge

TECHNICAL DATA

Vacuum gauge controller

Use	Indoor –rack – bench with box
Range	$10^{3} \div 10^{-4}$ mbar
Measurement unit	Pa-mbar-torr-hPa-mmH2O
Output signal	0-10 V dc
N° 3 failure relay	Change-over contact (1 for each gauge)
N° 3 set-point relay	Adjustable Change-over contact (1 for each gauge)
Dimensions without box With box	H128 x L142 x P250 mm H160 x L180 x P270 mm
Weight without box With box	1,6 kg 4,0 kg
Working temperature	+5……+50 °C
Interface	Rs232-Control

VACUUM GAUGE

Type	Pirani - ESA
Weight	120 g
Dimensions	85 mm ø 32,5 mm
Vacuum connection	KF 16

ACCESSORIES

3.5.1

HELIDRY – HELIUM DRIER

During the time of the helium pressure recompression in the tank, the helium drying plant "helidry" lowers the dew point of the helium gas and, using special filters, purifies it from eventual impurities absorbed during the leak detection cycle.

Helidry is completely automatic and works automatically.

HOW TO USE

Two modes of work are available:
24 hour Mode: The drier works no stop 24 hours every day.
Timer Mode: The drier works in a set time.

COMPOSITION

n.1 Drying plant with 2 colums (no. Cat. H19800)
n.1 Pneumatic panel for the automatic excharge of the columns
n.1 Electrical panel for the control of the work cycle and the regeneration process.

OPZIONI

Air drying instrument for the regeneration of the resins (no. Cat. H19603)
Humidity analyser

TECHNICAL DATA

ELECTRICAL FEEDING	220V – 50 Hz
POWER	1000 w max.
HELIUM GAS HUMIDITY WITH HELIDRY	- 40°c DI Dew point
HELIUM ANALYSER	Optional
HELIUM GAS PRESSURE	From 10 to 30 bar max
DRY AIR PRESSURE	10 bar
DIMENSIONS	W 500 x H 1600 x L 500