

ChargeIT

HELIUM CHARGING STATION

- A NEW ERA IN LEAK DETECTION TECHNOLOGY -



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Specialist in leak testing since 1973

nolek

- Leak Testing -



HELIUM CHARGING STATION

ChargeIT is a multifunctional system with a user friendly touch screen interface that allows for easy selection and configuration of the various unique functions shown below. The ChargeIT unit is the first one of its kind and solves problems that many customers have today with leak detection. The pioneer Nolek technology will start a new era in leak detection technology. Functions are:

- Proof Test
- Pressure Decay
- Evacuation (vacuum pump)
- Vacuum Decay
- Helium Charging and Mixing
- Helium Recovery Management
- Cleaning and Back Fill
- PC control and Communication



Product description

A product that needs to be leak tested with the use of tracer gases e.g. Helium or Hydrogen, later to be either Sniffed or detected by a helium leak detector (LD) has one big challenge; the gas has to be charged correctly into the (entire) product.

➡ **ChargeIT charges the (entire) product correctly; this is its main purpose.**

Furthermore, before the LD is used one has to check that the product does not have a gross leak. Otherwise the charged gas leak out in the surrounding atmosphere and will increase the gas background. This makes it practically impossible to test for a long while since helium is all around.

➡ **The ChargeIT conducts this gross leak test both with a pressure and vacuum decay test.**

Then one has to be sure that the gas enters the product correctly and completely and that all parts of the product is filled with the gas with equal concentration. This is very difficult when the product volume is at atmospheric pressure. It is therefore very difficult to guarantee correct filling without a charging station, which means one is not checking the integrity of the whole product and it is not considered as a valid leak test.

➡ **ChargeIT pumps vacuum in the product before filling it, which guarantees complete filling in the entire product.**

The thickness of the walls of the product can cause delays with the spreading of gases. Furthermore, the capillaries can take time to fill, up to a couple of minutes. When an operator fills a product manually he will never know how long he has to fill before the gas is spread entirely in the product and if he waits long enough to see the leaks.

➡ **ChargeIT solves this with pumping vacuum and having set time parameters for charging.**

To test products with 100% helium concentration is quite expensive, actually most products (leak rates) does not require 100% helium concentration.

➡ **ChargeIT enables you to mix the helium to the level you need for the specific leak rates of the product. It is possible to mix down to 10% helium.**

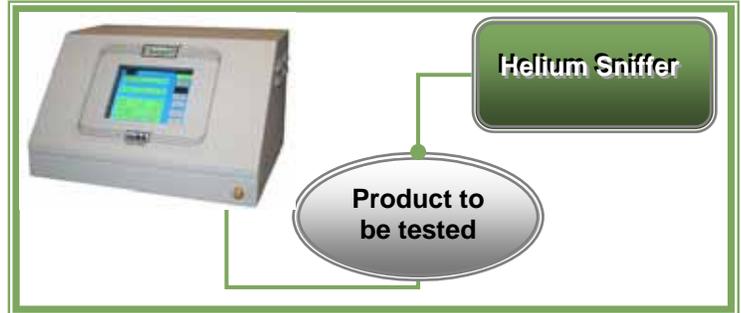
Generally companies have several different products that need to be tested which have different requirements and parameter settings. It is very time consuming to program these parameters every time one changes product to be tested.

➡ **The ChargeIT makes it possible to communicate with a PC and directly to a leak detector. This gives a lot of possibilities e.g. to program and save test parameters for all the different products, name the products. put the operator name. save test results etc.**

The ChargeIT was mainly developed to encompass helium leak detectors and/or sniffers which lack essential charging possibilities. The complete system turned out to do much more and today includes; Proof test, Pressure and Vacuum decay, helium mixing and recover capabilities, evacuation of test objects (vacuum pump), cleaning and back-fill and PC control and communication. The ChargeIT can be used both in sniffing and hard vacuum applications. Following system build-ups are possible:

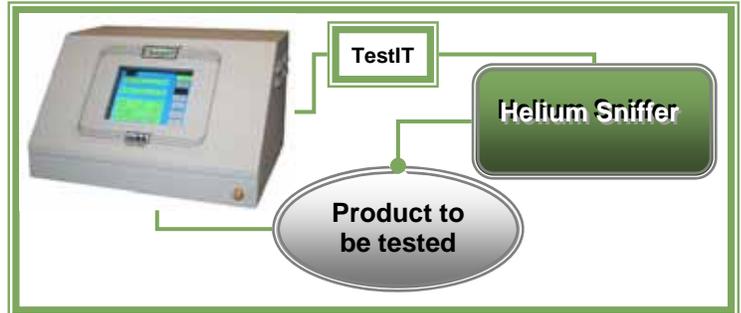
1) Sniffer application without TestIT communication:

The ChargeIT is connected to the test object and conduct all the steps including; Proof test, Gross leak test, evacuation, mixing and charging and recovery management. When ChargeIT indicates that it is ready, the operator uses the He Sniffer to detect helium outside the product. After completed test He is removed from the product by ChargeIT.



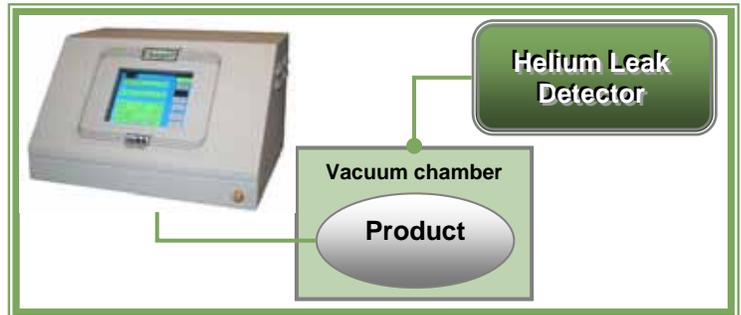
2) Sniffer application with TestIT communication:

As the example above (1) but with communication with Nolek's own developed PC software; TestIT. This enables the operator to program and save parametres for many different products, name the products in the program, from which he can pick from and save time and get a better overview of the tests. Test parametres can also be stored by TestIT.



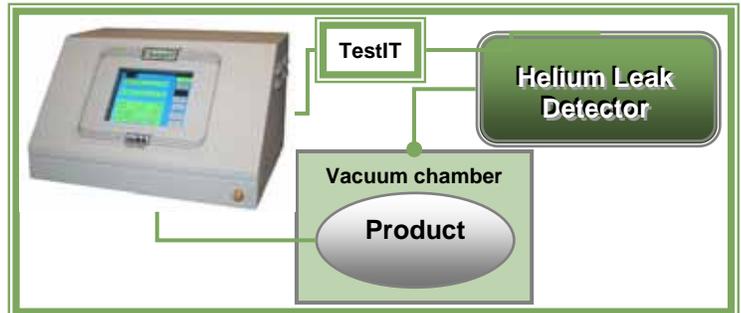
3) Hard vacuum application without TestIT com.:

The ChargeIT is connected to the test object which is placed in a vacuum chamber. It conducts all the steps including; Proof test, Gross leak test, evacuation, mixing and charging and recovery management. When ChargeIT indicates that it is ready, the operator start the He leak detector and it tries to detect helium inside the chamber. After completed test He is removed from the product by ChargeIT.



4) Hard vacuum application with TestIT com.:

As the example above (3) with added feature as example (2). The difference is that here the operator can set it so that when the ChargeIT is ready TestIT can start the He leak detector automatically. After the detector is finished ChargeIT removes the helium from the product and can recover it (option).



1

Proof test

The Proof Test function is a stress test during which the test part is pressurized to a specified positive pressure in relation to the part's standard operating condition.

2

Pressure decay

The Pressure Decay function is a check for gross leaks under positive pressure conditions. After the pressure specified in the Proof Test function is achieved, the test part is isolated and the internal pressure of the part is monitored for a specified period of time. If the pressure decay exceeds the specified limit an optional incremental pressure test is available to locate the leak(s). The test is done at incremental pressure levels using a 10% helium concentration.

3

Evacuation (vacuum pump)

The Evacuation function evacuates the test part to a specified vacuum level. Without evacuating the test part there are limitations to the helium concentration that can be achieved during the charging process. This function is also essential in assuring the proper charging of test parts with capillary channels.

4

Vacuum decay

The Vacuum Decay function is a check for gross leaks under vacuum conditions. After the vacuum level specified in the Evacuation function is achieved, the test part is isolated and the internal pressure of the part is monitored for a specified period of time. If the vacuum decay exceeds the specified limit an optional incremental pressure test is available to locate the leak(s). The test is done at incremental pressure levels using a 10% helium concentration.

5

Helium Charging & Mixing

The Helium Charging function charges the test part with helium. As a feature the charging function allows for the selection of the helium mixture that is charged into the test object. Although a certain mixture may be selected, the system will display the actual mixture charge into the test part depending on the selected evacuation level.

6

Helium Recovery Management

The Helium Recovery Management function controls and sets the parameters of the optional **RecoverIT** Helium Recovery System. With RecoverIT it is possible to recover up to 98% of the helium used depending on the allowed time for recovery.

7

Cleaning and Backfill

The Cleaning and Backfill function is a three step process by which the helium is removed from the part and can be back filled with the connected test gasses (commonly Air or N₂).

Pressure ranges: with or without mixing capabilities:

Low: Up to 3 bar pressure (43 PSI)
 Normal: Up to 16 bar pressure (230 PSI)
 High: Up to 21 bar pressure (300 PSI)

