

HeliCycler

The integrated gas supply system for helium leak testing plants

Helium leak testing is the most sensitive leak detection process. It is widely used in several industrial processes to check components where no leak is allowed. Due to the high cost of helium, helium-nitrogen blend is used generally, with helium concentration from 2-3 % to 50 %.

Efficient recycling of helium significantly reduces the costs of the process.

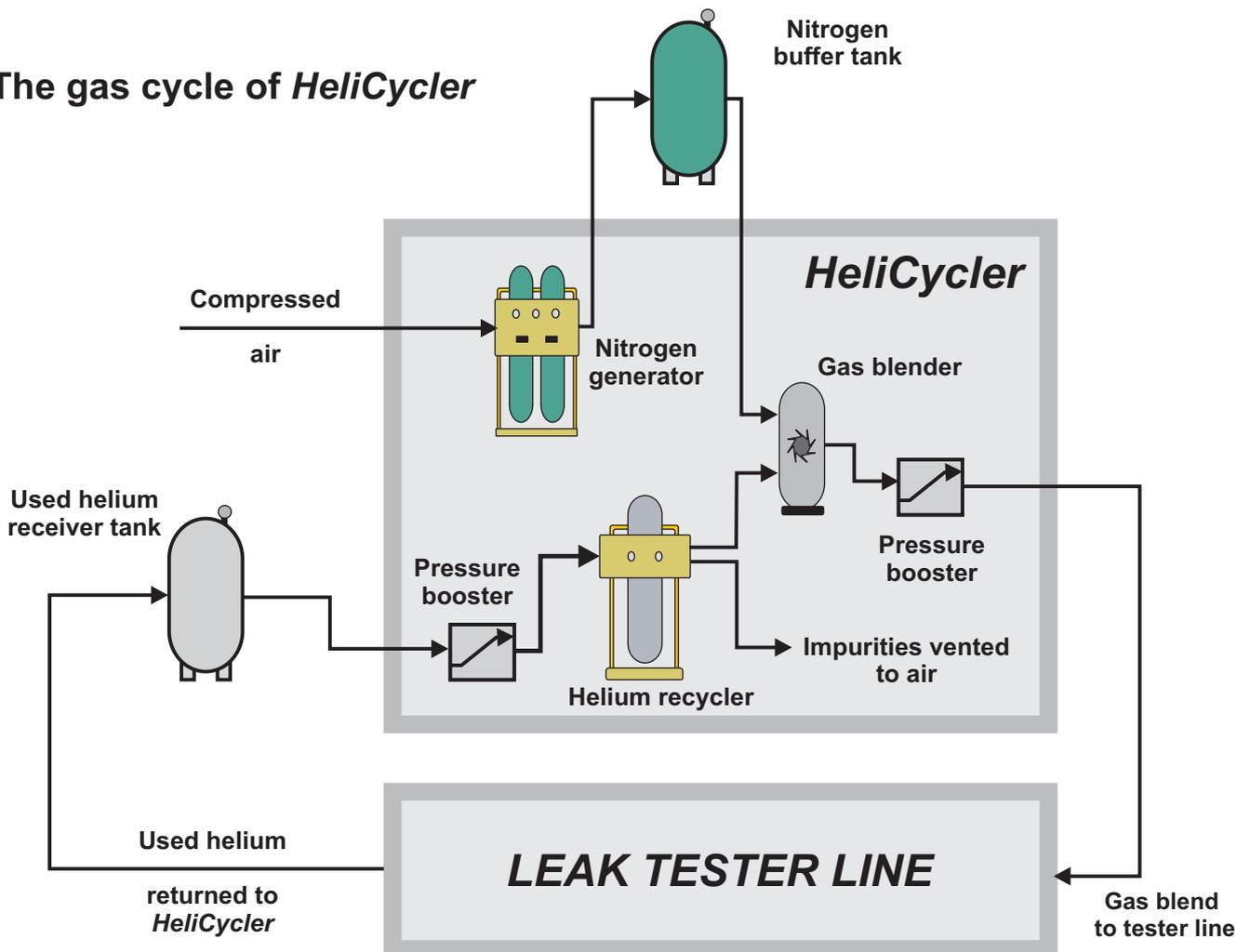
However, the gas blend picks up impurities through the testing operation: therefore, the helium shall be purified before returned to the testing line.

Additionally, the proper concentration of helium shall be set to the required level, and the gas blend shall be pressurized.

HeliCycler is an integrated gas supply system, developed specifically for the needs of leak testing applications:

- purifies the used helium
- generates nitrogen for the blend
- blends the gases to reach the required helium concentration
- compresses the blend to reach the working pressure of testing line
- monitors and displays the helium concentration of blend

The gas cycle of HeliCycler



HeliCycler - Main features

Every *HeliCycler* system shall be sized to meet the requirements of the particular leak tester line for helium concentration, pressure, gas volume. If several tester lines operate in a plant, a central *HeliCycler* system is recommended.

Economy

- low operational costs: the only cost factor is the energy to compress gases
- gas costs are drastically reduced
- fast payback: payback period is usually less, than two years - in several cases, it even less than one year

Convenience

- fully automatic operation, no human interaction is needed
- work related with nitrogen gas is completely eliminated
- reduced amount of work with cylinders or liquid gases increases work safety
- small footprint, no special operational requirements

Efficiency

- in most cases, helium recycling rate is well over 90 %

System size range

- systems are available to supply 1 - 50 m³/hour helium-nitrogen blend
- nitrogen generator may supply excess nitrogen to other applications in the plant up to 150 m³/hour

Control

- industrial PLC control, for continuous operation
- thermal conductivity helium concentration meter
- optional remote control of helium concentration

Input gas streams

- compressed air at 6 barg
- used helium stream: all the helium-containing gases shall be collected from all exit points of tester. Even the output of vacuum pumps can be recycled, as the pressure of receiver tank is kept below 0,1 bar overpressure.

Output, blended gas stream

- pressure: up to the specifications of tester
- helium concentration: settable between 2 - 90 %

Nitrogen generator

- Pressure Swing Adsorption (PSA) type generator to separate nitrogen from compressed air

The *HeliCycler* (central unit shown below) supplies a plant with 30 % helium-nitrogen blend. The plant tests 1,2 million air conditioner compressors annually on three testing lines.



A few words for our future.....

Helium is more and more widely used in optical cable manufacturing, in superconducting magnets, in medical applications and in many other high-tech fields.

However, helium is a non-renewable resource in Earth: if helium is released to the atmosphere, it escapes to space.

Helium reserves are limited: by recycling helium, we save this unique gas for future high-tech applications.