HELISYS®

HELIUM RECOVERY & PURIFICATION

sysadvance®

INDUSTRIAL

VPSA TECHNOLOGY



CARBON FOOTPRINT REDUCTION

RECYCLE **PURIFY** **REUSE**

THE END OF HELIUM WASTE

Helium recovery systems just recycle your problems.
HELISYS solves them.

EN

THE CRITICAL CHALLENGE

THE REALITY OF TRADITIONAL HELIUM RECOVERY

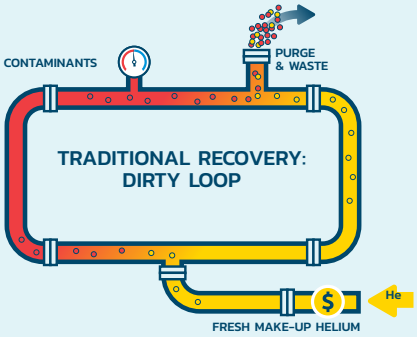
Most **Helium Recovery** systems on the market today offer only passive recovery. They collect, compress, and filter for dust, but they cannot stop the buildup of atmospheric air – containing N_2 and O_2 as well as moisture. This creates a "Dirty Loop" that eventually compromises your entire process, and forces costly Helium "dirty venting" and fresh make-up.

THE "PURGE TRAP"

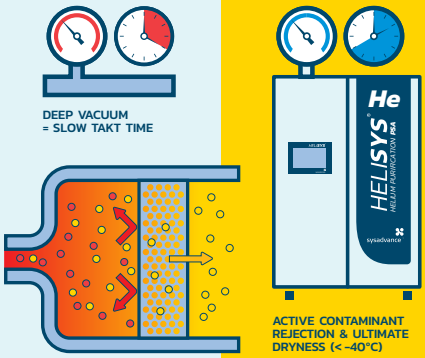
As Nitrogen, Oxygen, and humidity accumulate, your Helium purity decays.
This forces you into a cycle of "Postponed Waste":

- **VENTING PROFITS**: You must frequently vent "dirty" Helium to the atmosphere just to refresh the system;
- **CONSTANT RE-PURCHASING**: You remain dependent on expensive, fresh makeup Helium to fix purity drops.
- **PROCESS INSTABILITY**: Fluctuating purity leads to inconsistent leak test sensitivity.

THE HIDDEN COST OF TRADITIONAL RECOVERY: PURITY DECAY & WASTE



HELISYS VPSA: ACCELERATED PRODUCTION



THE STRATEGIC ADVANTAGE: SWITCH TO HELISYS

CONVENTIONAL RECOVERY	HELISYS®
PURITY FLUTUATION	STABLE He PURITY
+5°C DEW POINT	<-40°C DEW POINT
SLOW TAKT TIME	FAST TAKT TIME
PURGE & WASTE LOGIC	PURIFY & REUSE LOGIC

The HELISYS Insight:

"If you still have to purge, you aren't saving.
Close the loop and truly Reuse Helium with Helisys."

VPSA TECHNOLOGY

HELISYS VPSA PURIFICATION TECHNOLOGY

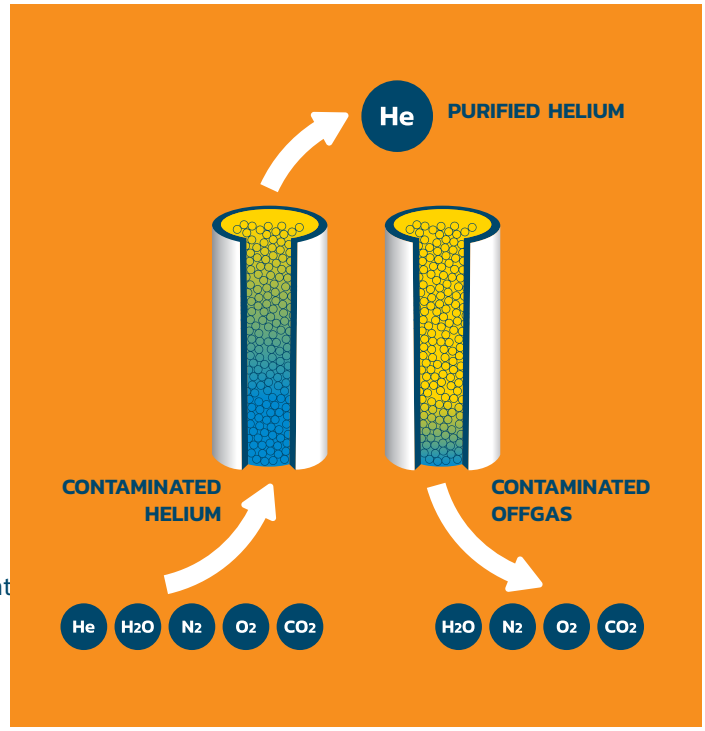
Contaminated Helium is fed to the **Helisys** system, which uses Vacuum Pressure Swing Adsorption (VPSA) technology to remove impurities such as N_2, O_2, CH_4, Air, H_2O and CO_2.

Helisys systems contains two or more adsorption columns packed with selective adsorbents designed to retain contaminants while allowing helium to pass through. The columns operate through alternating high- and low-pressure steps, ensuring a continuous flow of high-purity Helium.

The residual Helium remaining in the adsorption bed is recycled to the helium collection vessel for recompression and reprocessing, thereby maximizing the helium recovery of the purification stage.

Adsorbent regeneration is assisted vacuum, which enhances process efficiency by promoting the desorption and venting of the retained contaminant

Helisys systems are fully automated, with the operating cycles controlled according to the inlet conditions and required outlet helium purity, ensuring stable and reliable performance.



CONVENTIONAL RECOVERY *VS.* HELISYS

	CONVENTIONAL RECOVERY	vs. HELISYS®
REMOVED CONTAMINANTS	H_2O	N_2, O_2, CO_2, H_2O, Oil, CH_4, dust
RECOVERY	Variable and decreasing	Up to 98% Constant
DEW POINT	Constant up to +3° C	-40° C Constant
PURITY	Variable	Constant (up to 99,999%)
TAK TIME	More vacuum - Slower takt time	Lower vacuum - Faster takt time

HELISYS ADVANTAGES

ACTIVE VPSA TECHNOLOGY: A GAME-CHANGER FOR INDUSTRIAL EFFICIENCY

Helisys is not a basic filter; it is an advanced Vacuum Pressure Swing Adsorption (VPSA) engine that actively strips away contaminants to keep your loop pristine.

1. FASTER TAKT TIME (PRODUCTION SPEED)
Traditional recovery requires a deep, time-consuming vacuum in the test chamber to avoid air contamination. Because **Helisys** continuously removes these excess contaminants, you can operate with a shallower vacuum. This significantly accelerates your production cycle, allowing more parts to be tested per hour.

2. ULTIMATE DRYNESS
Using proprietary molecular sieving technology, **Helisys** achieves a dew point of < -40°C. It eliminates water vapor and CO_2, preserving sensitive test components - especially those using specialized oils or refrigerant gases - from degradation and corrosion.

3. HELIUM PURITY AND SETPOINT STABILITY GUARANTEED
Whether you need to concentrate helium from a low 2% or maintain a 4.0 purity grade, **Helisys** adapts to your needs. It rejects Nitrogen, Oxygen and moisture continuously, ensuring your helium gas (pure or N_2/He mixture) stays at its target composition without the need for frequent fresh Helium "make-up."

OTHER ADVANTAGES

- Continuous Purification: Reject contaminants in real-time, even with changing composition;
- Accelerate your Production: Less vaccum - > Significantly reduce Takt Time;
- High Helium recovery rates, up to 98%;
- Huge savings on Helium cost,up to 98% - Short payback period;
- Stable product purity, adjustable up to 99.99%;
- Adaptative purity control: Maintain your He purity even with changing inlet conditions;
- Also suitable for He / N_2 mixtures;
- Seamless integration with existing recovery systems.









TECHNICAL DATA

SIZED FOR PERFORMANCE. SCALED FOR YOUR LOOP.

Standard Industrial Solutions: **The Helisys SAVER SERIES**

Specifically conceived for standard Helium leak test loops.

MODEL	PACKAGE	BEST SUITED FOR	MAXIMUM LOOP FLOW CAPACITY	APPLICATION FOCUS
Helisys SAVER I P	 VPSA Purification Package	Upgrade of an existing Helium recovery system	30 Nm^3/h	Industry Medium Consumption – Leak test
Helisys SAVER I RP	 Recovery + VPSA Purification Package	New production lines or replacement of old recovery systems	30 Nm^3/h	Industry Medium Consumption – Leak test
Helisys SAVER II P	 VPSA Purification Package	Upgrade of an existing high-throughput Helium recovery loop	60 Nm^3/h	Industry High Consumption – Leak test
Helisys SAVER II RP	 Recovery + VPSA Purification Package	New high-throughput production lines or complete replacement of existing recovery systems	60 Nm^3/h	Industry High Consumption – Leak test

Recovery-only configurations are not available. Every Helisys solution includes VPSA purification to ensure stable Helium quality and effective reuse.

ENGINEERED-ON-DEMAND: THE S-SERIES

For large-scale processing, concentration from diluted streams, or ultra-high purity requirements.

- **Helisys 1S (Single Stage)**: For concentration or polishing applications.
- **Helisys 2S (Dual Stage)**: Two separation stages for maximum purification effort.

TECHNICAL SPECIFICATIONS SUMMARY

FEATURE	SAVER Series (Standard)	S-Series (Engineered)
Capacity	30 / 60 Nm^3/h	Up to 2,000 Nm^3/h
Standard Pressure	6 to 9 barg	8 to 9 barg
Dew Point	< -40°C	< -40°C
Contaminant Rejection	Continuous (N2, O2, Ar, CO2)	Custom configured (incl. CH4)
Purity Logic	Stable at Setpoint	Customizable up to 5.0 Grade

HELIUM INDUSTRIAL APPLICATIONS

Industrial Helium leak-test lines



HVAC and refrigeration manufacturing



Automotive and EV battery production



Aerospace and defence



Optical-fibre production



Cryogenic and vacuum equipment



Semiconductor manufacturing



Helium extraction and upgrading projects



TRIPTC_HELISYS_V01_JUL2026_EN

Ready to start saving money?

Contact Sysadvance for a Technical Helium Evaluation and see how much faster and more sustainable your production can be.

PURIFY & REUSE HELIUM. EMPOWER YOUR BUSINESS.

sysadvance®

sysadvance.com

© 2026 – SYSADVANCE S.A. All rights reserved.
The names, product names, business names and service marks are the property of SYSADVANCE. We reserve the right to change the product specification without prior notice.
Images are illustrative.

COMPETE 2030 · PORTUGAL 2030 · Cofinanciado pela União Europeia