

HYDROGEN PURIFICATION - CLEAN, SIMPLE, PROVEN, RELIABLE

When it comes to the cost of ownership and performance of hydrogen purification equipment, the choice is simple.

XEBEC pressure swing adsorption (PSA) systems combine proven industrial expertise with advancements in rotary valves and rapid-cycle PSA, eliminating the problems of large equipment size, complex systems and numerous high-maintenance switching valves. More than 120 XEBEC PSA systems have been sold and are purifying hydrogen from steam reforming and off-gas streams containing hydrogen. The high-purity hydrogen is being used at refineries, chemical plants, metal production and edible oils operations worldwide.



XEBEC H-3100 2700 Nm³/hr unit at HydroEdge liquid hydrogen plant in Japan.



XEBEC H-3100 1000 Nm³/hr unit in operation at a European oil refinery.



XEBEC H-3200 recovering hydrogen from off-gas at a chemical plant in North America.

XEBEC PSA ADVANTAGES:

Compact and skid-mounted

Extremely reliable rotary valves

Efficient six- or nine-bed PSA cycle

Minimal utilities and no consumables required

Standard plant designs and options for different capacities

XEBEC PSA BENEFITS:

Simple and economical to integrate, install, and commission

More than 99% availability

Increased hydrogen recovery

Minimal operating costs

Minimized cost

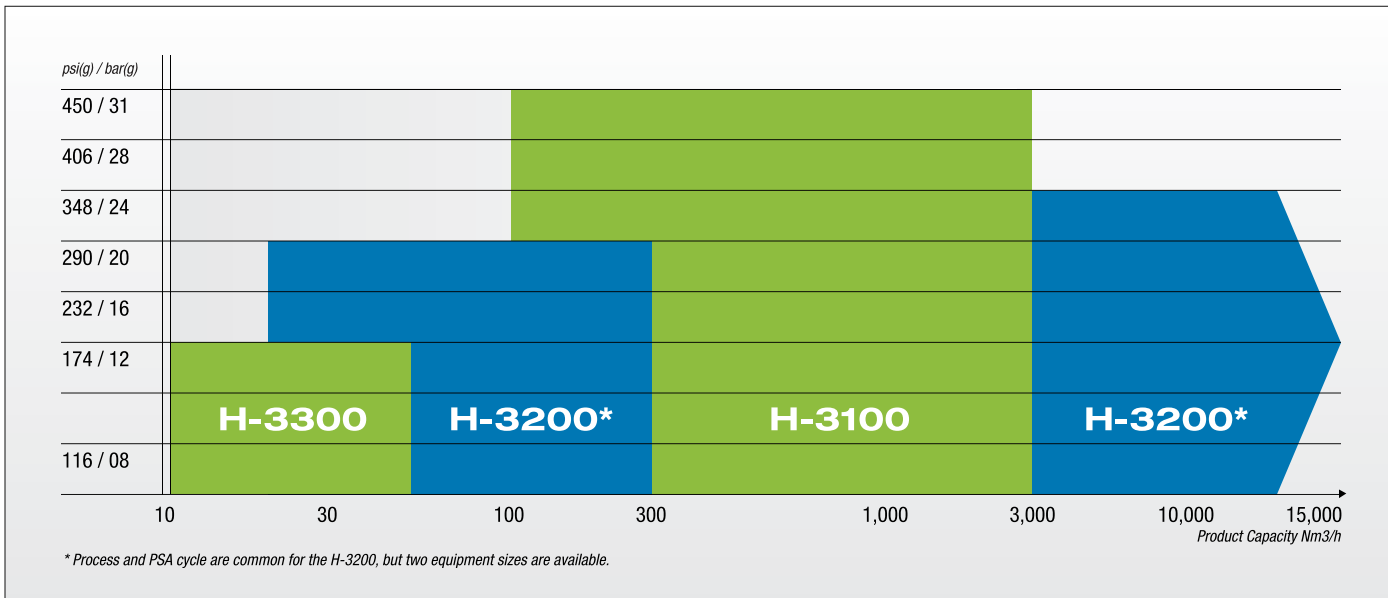
XEBEC HYDROGEN PURIFICATION PSA SYSTEMS

PROCESS DESCRIPTION

Steam reforming and other hydrogen containing off-gas streams typically contain gases such as water vapor, carbon dioxide, carbon monoxide, methane, nitrogen and other trace gases. The XEBEC H-3300, H-3200 and H-3100 PSA's remove these contaminants in the adsorber bed at feed pressure. Virtually pure hydrogen passes through the bed with minimal loss in pressure. The impurities are desorbed from the bed as the pressure is reduced to the PSA exhaust pressure. This PSA process is completely reversible and repeats to provide continuous flows, essentially splitting the mixed-feed flow into purified product and exhaust flows. The exhaust gas is typically used as the primary fuel input to the hydrogen-generating reforming process or other fuel, making it a very efficient, integrated process.

XEBEC PSA FOR HYDROGEN PURIFICATION PRODUCT RANGE

Feed Pressure vs. Hydrogen Product Flow (higher operating pressures are possible)



XEBEC PROVIDES

- > International engineering and design experience for project specific requirements and codes
- > System feasibility and optimization studies
- > PSA only or full gas treatment engineering and procurement solutions
- > Short delivery times to meet tight project schedules
- > Technical training programs for integrators and operators
- > Product and engineering support throughout the life of the plant

ABOUT XEBEC ADSORPTION INC.

XEBEC ADSORPTION INC. is a developer and supplier of proprietary and conventional gas purification systems for several large international markets, including biogas production, natural gas processing, natural gas for NGV's, oil refining and compressed air. XEBEC is based in Blainville, Quebec.

NOTE TO READER: At the time this document went to print, Xebec Adsorption Inc. and QuestAir Technologies Inc. were in the process of a merger transaction. All Questair IP will become the property of the combined company under Xebec Adsorption Inc.