

A photograph of a biogas upgrading plant. In the center, there are four vertical white cylindrical vessels with 'xebec' logos, connected by a network of pipes and valves. To the right is a larger vertical white tank and a blue industrial container. A control cabinet with a fan grille is positioned in front of the larger tank. The entire setup is on a concrete pad under a cloudy sky.

xebec

Biogas Upgrading Plants

xebecinc.com

About us

Our Experience

Xebec Adsorption Inc. (Xebec) was established in 1967 in Canada, designing, building, installing and servicing more than 9,000 adsorption units for compressed air and gas. Over the years, Xebec has evolved as both a pioneer and a champion of clean energy in biogas upgrading through pressure swing adsorption (PSA) technology, having supplied over 250 Fast Cycle PSA systems around the world. We've invested significantly in R&D innovation, developing proprietary state-of-the-art technology now used in over 50 biogas upgrading installations worldwide. We are currently one of the largest suppliers for PSA equipment in Europe.

42,000 sq. ft. head office/manufacturing facility in Blainville, north of Montreal

100,000 ft² state-of-the-art facility in Denver, Colorado.

Engineering, manufacturing and sales offices in China

Sales Offices in the USA and Italy; strategic partners in France, Singapore, and South Korea

Our Reputation for Excellence

Xebec is recognized as an ethical, experienced and reputable player in Canada and on the world scene. Our financial viability is assured by Canada's Export Development Corporation (EDC), a strong advocate and lending partner that recognized Xebec as their 2018 Canadian Cleantech Export Star. We pride ourselves on being a public company with North American and European manufacturing and supply chains for quick turnaround and easy access. Xebec is fully compliant with all North American and European manufacturing codes and standards. As an Original Equipment Manufacturer (OEM), we guarantee the performance of our biogas plants.

Accreditations



Main equipment

Biogas Plant Components

EQUIPMENT INCLUDED

- 1 H₂S Scavenger.** A desulpherization unit for H₂S removal by activated carbon, lead-lag configuration.
- 2 Compressor Room/ Container.** Biogas low pressure de-watering package, feed biogas blower package, biogas compressor package, regeneration vacuum pumps, instrument air.
- 3 Buffer Tanks.** PSA inlet , recycle, biomethane, and exhaust gas buffer tanks to facilitate the gas balance.
- 4 PSA System.** Nine vessel, fast cycle, single rotary valve combined with high efficiency regenerative adsorbent.
- 5 Control System.** Fully automated control of biogas flow and composition to optimize product gas recovery.
- 6 Water Chiller Package.** A dehumidifier/compact cooler with heat exchanger.

INSTRUMENTATION INCLUDED

Pressure, temperature and flow transmitters.

Electrical distribution and PLC-based control panel.

Gas analyser for CH₄, CO₂, O₂, H₂S measurement and process control.

SERVICES INCLUDED

Basic, prelim and detailed engineering packages with documentation.

Assembly onto skid(s) and into containers.

AVAILABLE OPTIONS

Heat tracing & insulation package.

Thermal oxidizer system for waste gas treatment to meet local environmental standards.

Product compression unit to meet local gas utility requirements.

Biological H₂S removal package.

De-oxygenation package.



Our competitive **advantage**

Xebec's rotary valve and highly efficient proprietary adsorbent are the two core technology differentiators that are integrated into each advanced biogas upgrading plant providing considerable CAPEX and OPEX cost savings.

Maximized Revenue. Improved Profitability. High recovery combined with the reliability of our biogas upgrading solution and our low operating costs creates significantly more profit than any competing technology.

High Reliability. Xebec PSAs have accumulated over 15 million hours of commercial operation with proven availabilities of better than 99.8%.

Ease of Installation. Xebec delivers modularized, skidded, containerized units for simple, fast installation.

Lowest Power Consumption. Xebec's low-pressure PSA operation and advanced control systems give one of the lowest possible power consumptions in biogas upgrading.

Compare the key features of Xebec's biogas upgrading solution with other available technologies:

Comparison	Xebec PSA	Other PSAs	Water Scrubber	Amine Scrubber	Membrane
Removes CO ₂	•	•	•	•	•
Removes N ₂ & O ₂ (partially)	•	•			
Delivers high methane recovery	•			•	•
Compact	•				•
Keeps operating & maintenance costs low	•	•			
No water, chemicals or solvents are added	•	•			•
Economical in wide range of flows	•	•			
Easy to operate	•				•
Delivers reliable & consistent life performance	•	•		•	
Environmentally friendly	•	•			•
Produces high purity biomethane	•	•		•	
Quick start-up	•	•			•

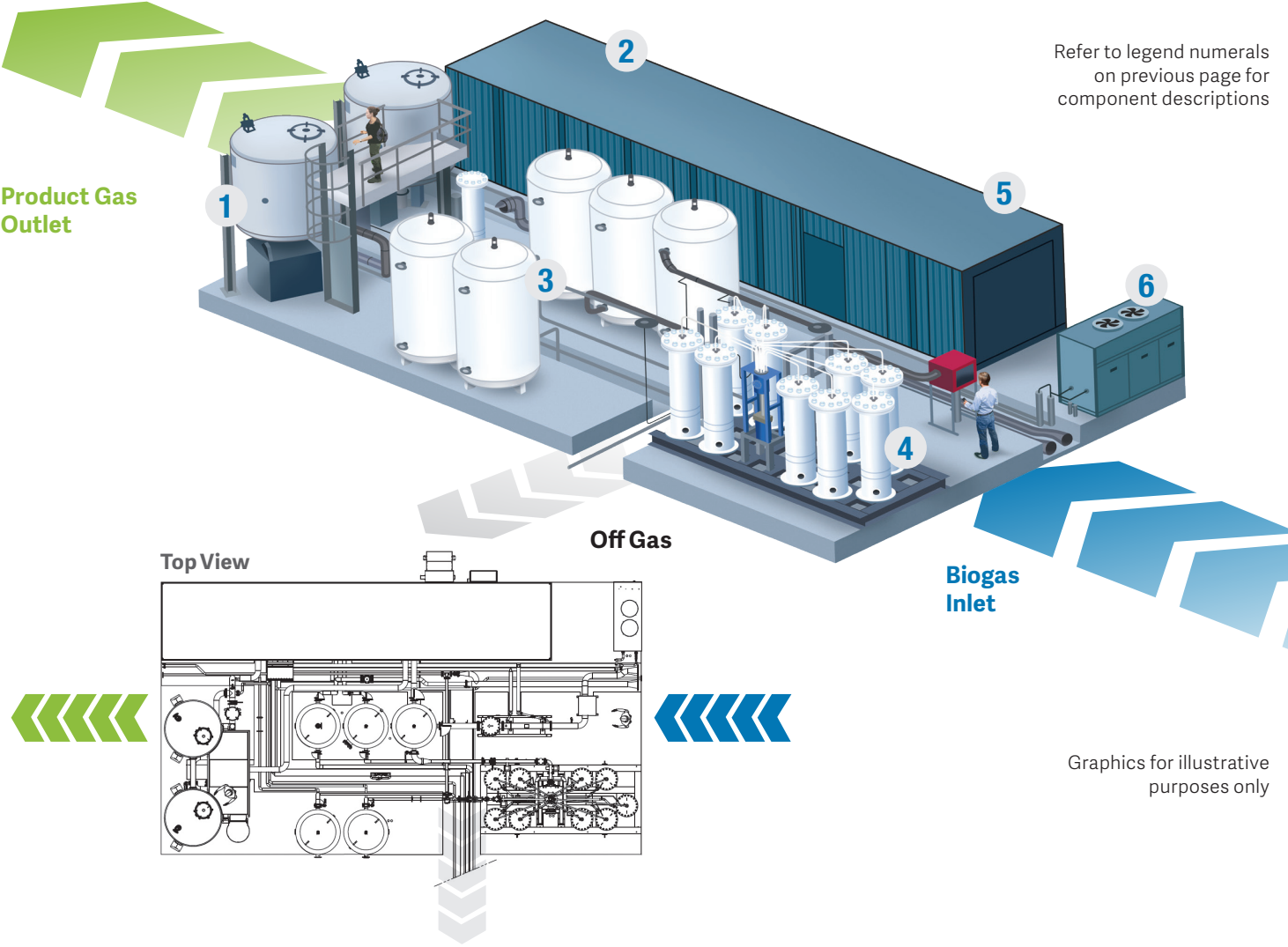
Service, Maintenance, Commissioning & Training

Our range of local support services include a full-service team; 24/7 spare parts availability, and on-line system monitoring support.



Products

Model	Biogas Flow		Product Gas Flow		Dimensions				Energy Consumption
					Width		Length		
	scfm	Nm³/h	scfm	Nm³/h	ft	m	ft	m	kW
BGX Biostream	140	225	86	135	39	12	7.5	2.3	55
BGX Biostream+	280	450	171	270	39	12	7.5	2.3	110
2X BGX	951	1500	571	900	134	41	65.7	20	330
3X BGX	1268	2000	761	1200	154	47	82	25	520
BGX Custom Design	1585	2500	951	1500	194	59	98.5	30	725



Small scale **Solution**

Monetize your Biogas with a Small-Scale Upgrading Solution

Xebec has conceptualized a containerized, single-stage PSA upgrading plant for flows from 90 to 450 NCMH.

Fully automated biogas upgrading solution.

Press start and go.

Flexible solution – Injects renewable natural gas (biomethane) directly to natural gas grid or readies it for transport to injection site.

Quick delivery – Get up & running faster with scalable turnkey solution that evolves with your biomethane production levels.

Model	Biostream	Biostream+
Capacity (NCMH)	90 - 250	90 - 450
Purity	97+ %	
Methane Recovery	98,5+ %	
Power Consumption (nominal Flow)	30-55 kW	40-110 kW
Lifetime Reliability	20+ Years	
Turn Down	40-100 %	20-100 %
Control System	Fully Automated	

The new BGX Biostream™ provides all of the advantages of Xebec's Rotary Valve PSA technology, in a reliable, flexible and scalable package.

Reliable & Robust*

250+ Rotary Valve PSA systems

- 15+ countries
- 1500+ customers

Simple, Flexible & Scalable

20 - 100% turndown

Double your capacity when you're ready

Maximize revenues

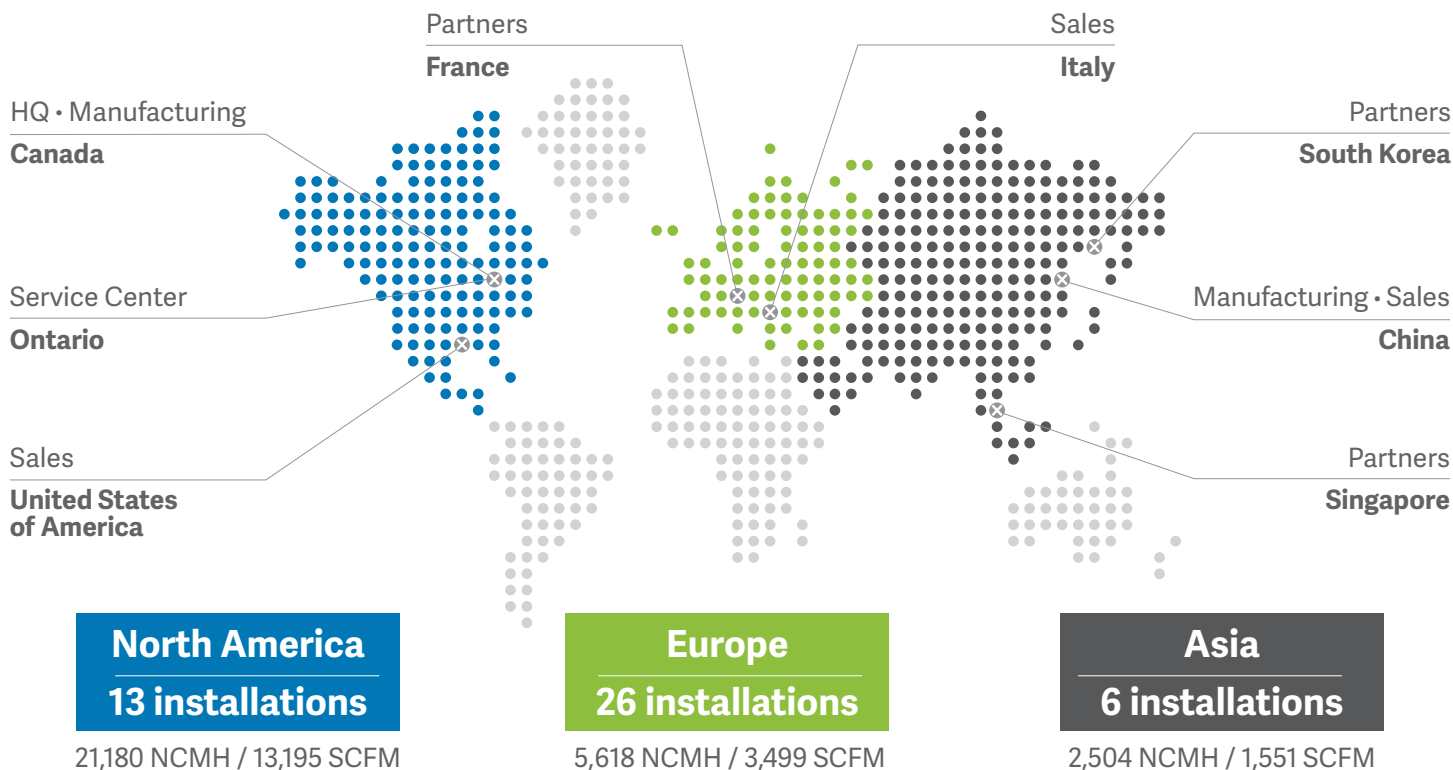
Optimized for lowest life-cycle cost

xebecinc.com/bgx-biostream

* Based on more than 50 years of experience in air and gas purification



Selected references and gallery



Bioloie Project

Biogas from Anaerobic Digestion of a mix of municipal/agri/food waste

📍 L'Oie, France
Commissioned: 2016



Chantonay Project

Biogas from Anaerobic Digestion of local organic matter

📍 Chantonay, France
Commissioned: 2017



Fortis Project

Landfill gas to RNG into Fortis BC pipeline

📍 Salmon Arm, B.C., Canada
Commissioned: 2010



Rumpke Project

Landfill gas to RNG into Duke Energy pipeline

📍 Cincinnati, Ohio
Commissioned: 2014



xebecinc.com

Xebec Adsorption Inc.

730, boul. Industriel
Blainville, Québec,
Canada
J7C 3V4

Phone 1 450 979-8700
Toll-free 1 877 469-3232
Fax 1 450 979-7869
Email sales@xebecinc.com

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ensuring quality, reliability, and
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Training
