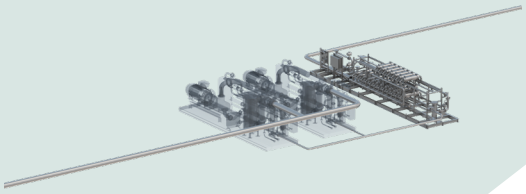
Greenlane™

Cascade MS

Membrane Separation



Upgrading of biogas from large anaerobic digester projects: Optimized for low capital cost at high biogas flow rates

Cascade MS was designed by Greenlane to provide the best possible combination of price and performance specifically for large biogas flow projects. Lowering the cost to build projects, amplifies returns and helps critical renewable energy infrastructure get built at scale.

Cascade MS important benefits

- **High capacity upgrading with low capital cost:** Efficiently treats high biogas flows from a wide range of anaerobic digestion feedstocks while minimizing capital investment.
- **Reliable production of pipeline-quality RNG:** High-selectivity membrane technology ensures consistent CO_2 separation and oxygen removal to meet or exceed pipeline specifications.

Types of Feedstock:

Dairy manure, agricultural residues, sugar mills, and other organics

Why Cascade MS for your large biogas upgrading task?

- delivers high methane recovery at the best combination of price and performance
- integrates with Cascade H_2S for cost effective removal of high H_2S in the biogas along with efficient RNG production
- cost optimized open frame layout

Typical gas processing capability for RNG

Parameter	Raw Gas Quality
Methane (CH_4)	50-65 %
Carbon Dioxide (CO_2)	35-50 %
Nitrogen (N_2)	0~1.5 %
Oxygen (O_2)	0~0.4 %

Cascade MS can be configured with either passive or regenerative pretreatment to remove low to high levels of H_2S, VOCs and siloxanes

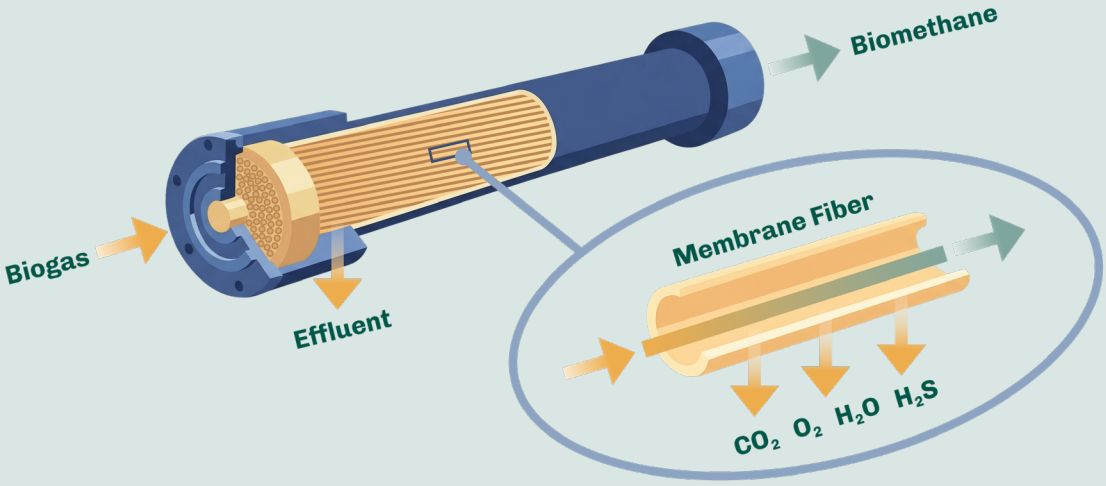
Cascade MS Flow Range

	Max Flow (Nm^3/h)	Max Flow (scfm)
Cascade MS	1,200-6,000*	750-3,700*

**Higher flow rates can be accommodated with multiple units*

How Cascade MS Works

1. Biogas is pretreated, compressed, filtered, and conditioned for upgrading
2. Pretreated gas flows membrane cartridges that remove carbon dioxide and oxygen, resulting in high purity methane product gas
3. Some of the processed gas is recycled back to the compressor inlet to maximize methane recovery
4. This entire process results in a continuous stream of high value renewable natural gas that exceeds pipeline quality requirements



The Greenlane Advantage

Solving the industry's most challenging problems for over 35 years with more than 500 systems sold into 32 countries.

- 24/7/365 expert technical support
- Remote monitoring and management
- Priority spare parts incl. warehousing/logistics
- Proprietary software and equipment upgrades
- Commissioning, training & performance optimization
- Service contract options

Contact us

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