

DIVI-H

Next Generation
Hydrogen Separation
Membranes



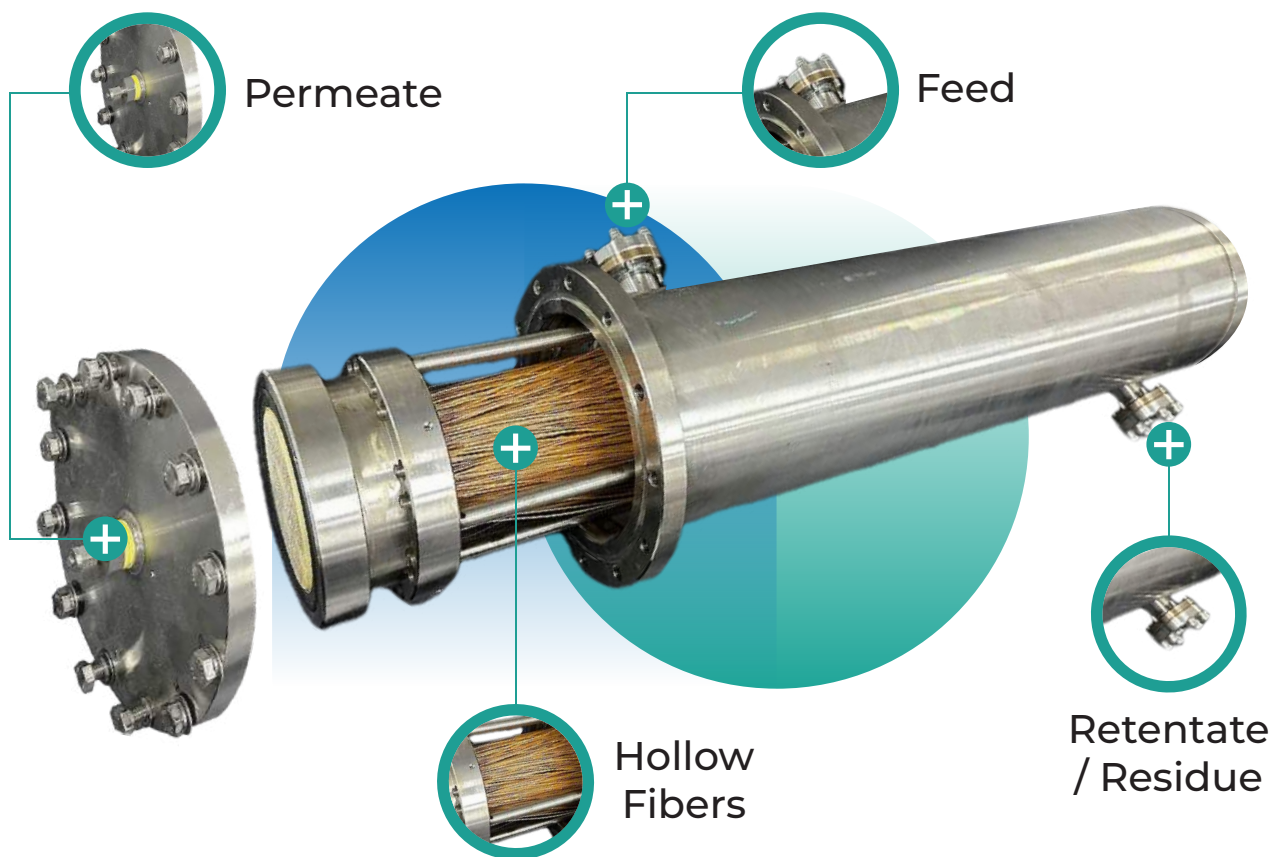
DIVI
GAS

CONNECT WITH US:



Introduction

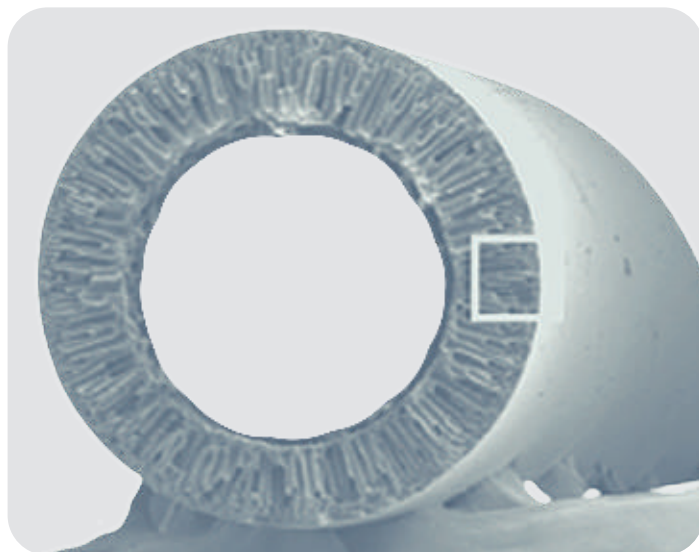
Introducing the Divi-H hollow fiber hydrogen separation membrane – a revolutionary product allowing scalable membrane separation of hydrogen from carbon dioxide and other contaminant gases, even in extreme pH and high temperature environments.



Process Principle

Divi-H is a hollow fiber membrane gas separator engineered to purify hydrogen from harsh gas streams to purities up to 99.95% and recoveries between 90-95%. The polymer design of the hollow fiber in Divi-H is unique, making it the only polymer membrane solution for difficult separations such as H_2/CO_2 . Divi-H polymeric hollow fiber is tailored to tolerate a wide range of pH (1-14) and elevated temperature (up to 150 °C) simultaneously. These specifications make Divi-H a unique separation system suitable for hydrogen purification in nearly any environment. Divi-H is produced in three fiber designs with varying selectivity and permeance, allowing gas separation solutions to

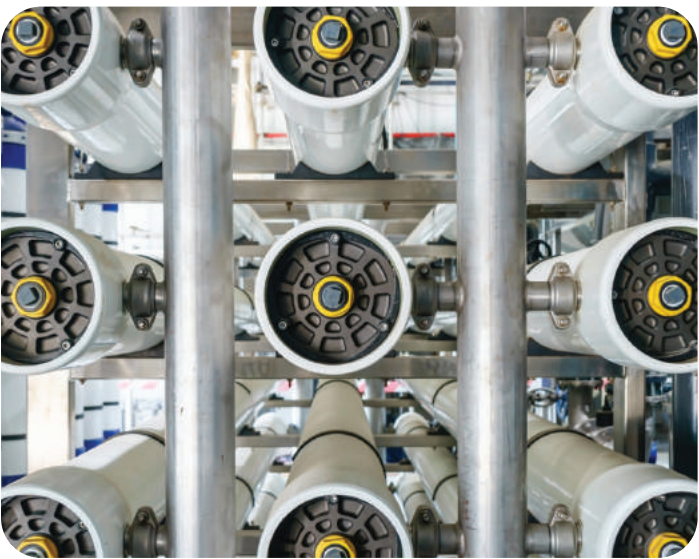
be tailor-made for each process depending on desired final product purities and pressures, while optimizing required module counts.



Operation

Divi-H modules can be operated in parallel or series configurations, depending on the desired purity and recovery of the system. Operation is simple, requiring only back-pressure control valves to maintain the appropriate pressure delta across the membrane barrier. This pressure delta drives the entire separation – no chemical or energy input is required. While the fiber will age over time, replacement of the fiber bundle is incredibly easy – simply isolate the stainless-steel housing from the process gas flow, install a new fiber bundle, and reintroduce it to the process gas stream. Replacement intervals can be anticipated at

3-5+ years, depending on the process gas composition, temperature, and pressure.



Membrane Specification	
Type	Polymeric hollow fiber membrane
Maximum purity of H ₂	99.95 mol%
H ₂ Recovery	>90%
Module size (4" Module, 6" Module)	Length: 1.2m, Diameter: 10.2cm, 15.2cm
Maximum delta pressure tolerance (ΔP)	15 bar
Maximum operating temperature	150 °C
Product lifespan	20+ years
Membrane replacement cycle	1-5 years

Applications

Divi-H has a wide array of applications – such as ammonia purge gas and H₂/CO syngas separation, to new areas with harsher gas streams where legacy membranes would be unable to operate – such as refinery off-gas and H₂/CO₂ syngas. Other applications include but are not limited to:



Refineries



Petrochemicals Industry



Polypropylene & Ethylene Purge Gases



Syngas Separation



Methanol Production



Metallurgical Production



Biomass



Ammonia Production

Installation & Use

DiviGas manufactures the hollow fiber and installs it into the cartridge. The fiber can be ordered as a replacement (just the cartridge) or with a stainless-steel housing. All housings are designed to ASME Div. VIII pressure vessel specifications and meet PED requirements for pressure vessels. Clients have the option to purchase the housings and modules outright – utilizing their EPC of choice for integration into their process, or DiviGas can work with our preferred EPCs to deliver a skid-mounted, turn-key solution. Additional benefits include:

- No moving parts
- Skid-mounted system is simple to install and requires little maintenance or operator attention.
- The footprint is orders of magnitude smaller than traditional industrial separation processes.
- Estimated pay back periods of less than a year are typical.
- Linearly scalable to any system size

Step 1: Introductory call/email (contact info provided next page)

Step 2: Run gas composition simulation (fit & feasibility test)

Step 3: Receive pilot module (performance & requirements)

Step 4: Receive quotation & confirm order

Step 5: Implementation

Step 6: On-call customer support

About DiviGas

DiviGas is a Singapore-based industrial membrane supplier for refineries, chemical and industrial processors. We are dedicated to providing our clients with the leading edge of technological advancement when it comes to gas processes. We work with leading manufacturing partners to provide a complete plug-and-play product package usable right away.

Backed by SGInnovate, the Singaporean Government's innovation arm, HAX, Volta Energy, Mann + Hummel, SOSV & others; DiviGas has already been chosen by several plants for its unique and excellent technical performance.



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