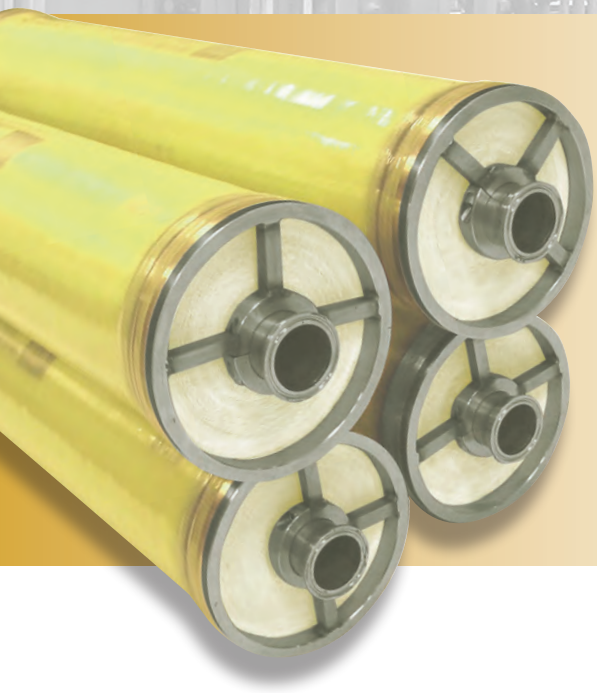


HYDROGEN RECOVERY FROM METHANOL PLANT PURGE GAS

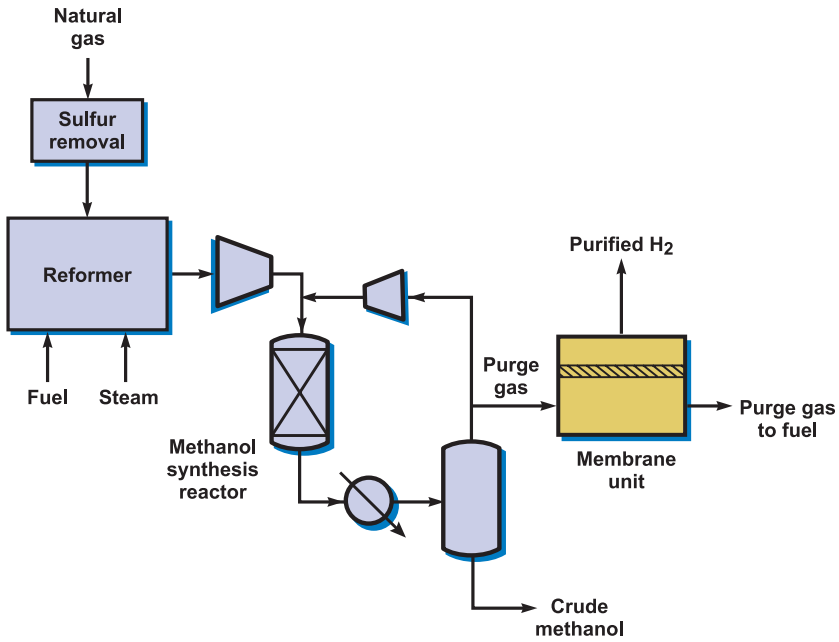
- **Recovers useful hydrogen at minimal cost**
- **Simple, passive unit with no moving parts**
- **Minimizes installation cost with skid-mounted construction**

"VaporSep-H_2™ is a simple system offering economical recovery of hydrogen from the syngas purge."

Problem

In methanol production, synthesis gas is generated by reforming natural gas with steam. The synthesis gas is compressed and then reacted to form methanol. Unreacted syngas is recycled to the reactor. Since the normal ratio of hydrogen to carbon in the synthesis gas is greater than 2 (the value required for methanol synthesis), excess hydrogen is removed by purging a hydrogen rich stream from the reactor loop and sending it to fuel.

VaporSep-H_2™ Solution



Recovery of hydrogen from methanol plant purge gas

If there is a use for hydrogen elsewhere in the facility, MTR's VaporSep-H_2™ membranes can be used to recover relatively pure hydrogen from this purge gas.

MTR Membrane Technology & Research

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HYDROGEN RECOVERY FROM METHANOL PLANT PURGE GAS

VaporSep-H_2™ system for hydrogen recovery from methanol plant purge gas

Benefits

- Recovers useful hydrogen from methanol plant purge gas
- Requires no additional rotating equipment
- Easy to operate, passive system
- Ambient temperature operation
- Simple installation with skid-mounted construction

System Performance

- Complete skid-mounted unit includes all necessary instrumentation and controls
- Typical size:
  6m (L) x 3m ft (W) x 2.5m (H); 6000 kg

System Description

- Typically 80% of purge gas hydrogen recovered
- Payback is 6 to 12 months

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