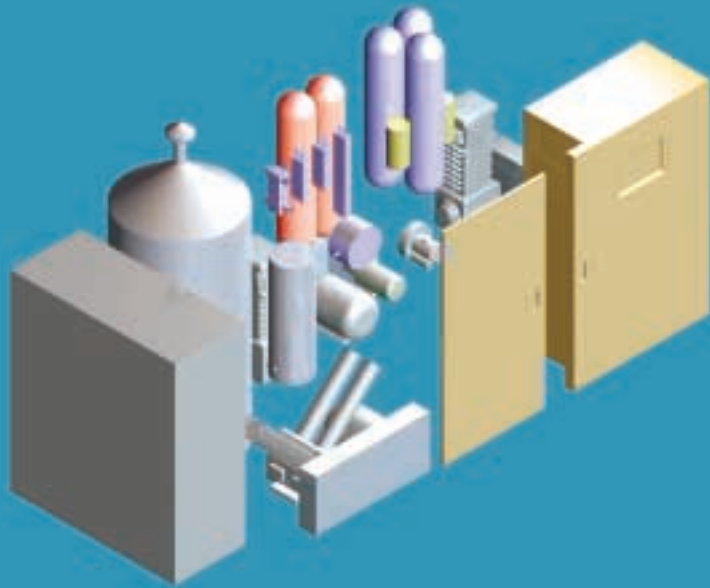


## MRT's integrated hydrogen generation system



- Includes all equipment required to convert as-supplied natural gas to pure, pressurized hydrogen.
- Natural gas is conditioned by sulfur removal, compression and preheating before feeding to the single step membrane reactor.
- In the membrane reactor, natural gas and steam mix intimately in a fluidized bed.
- Perm-selective membranes within the reactor continuously withdraw pure hydrogen driving the equilibrium forward and maximizing the yield of hydrogen from the natural gas feed.
- Optimal internal oxidation provides additional energy to drive the reaction.
- Designed for automated and unattended operation with key parameters monitored and controlled for fail-safe operation by an on-board controller.

### REFORMING THE WAY YOU WILL THINK ABOUT HYDROGEN

If it's more hydrogen you need, here is one integrated generation system that warrants your close attention.

MRT's patented membrane-reactor technology delivers low cost, high purity hydrogen, and more of it too. It will beat the cost of delivered hydrogen and is more efficient than conventional hydrocarbon reformers, surpassing their output of hydrogen per unit input of methane.

It's the simplicity of the system that makes this possible. Built around a fluidized-bed membrane reactor, MRT's process combines hydrocarbon reforming, shift conversion and hydrogen purification in one step. Which gives it significant advantages over conventional methods of natural gas reforming.

We have set our sights on the industrial market for intermediate-scale demand. And we are ready to work with you to meet your needs, and those of your customers—to our mutual benefit.

More than blue sky

## Who are we?

The HG-50-BA is a packaged on-site hydrogen generator suitable for continuous generation of high purity (>99.99%) hydrogen. It uses MRT's patented membrane reactor technology to transform natural gas into pure hydrogen in one simple step, thus reducing system complexity and improving efficiency. All equipment required for quick installation and turn-key operation are included in the package.

Target markets include merchant hydrogen consumers as well as hydrogen vehicle refuelling stations.

### Outputs

|                  |   |
|------------------|---|
| Product Hydrogen | 50 Nm <sup>3</sup> /hr<br>>99.99% purity<br>7 bara (100 psig) |
|------------------|---|

### Inputs

|                      |                                       |
|----------------------|---------------------------------------|
| Pipeline Natural Gas | 20 Nm <sup>3</sup> /hr                |
| Water                | <0.4 L/min                            |
| Electricity          | Compressor / Pump motors and controls |

**Dimensions (m)** 2.0 W x 4.6 L x 2.1 H

Minimum Hydrocarbon conversion efficiency: 82% (HHV)



**Membrane Reactor Technologies Ltd.** is a Vancouver-based private company that is focused on creating opportunities for customers and partners to use hydrogen more profitably. The company has patented a process that combines the reforming of natural gas, shift conversion and the purification of hydrogen in one simple, cost effective step. The system achieves higher yields of pure hydrogen than conventional reformers. The company and its partners are operating an industrial demonstration unit as a step to meeting the growing need for hydrogen in the intermediate-scale market and are rapidly moving towards commercializing MRT's technology.

To learn more about how MRT can work with your company, visit our website or contact us.

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