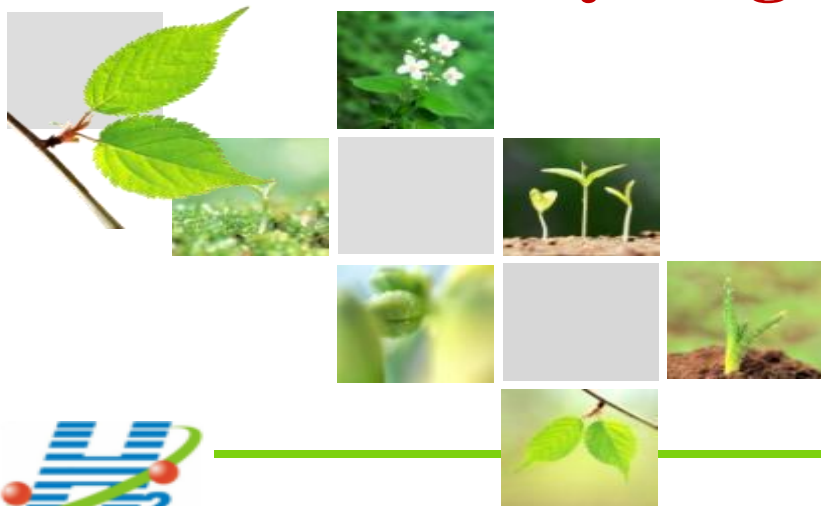




Hydrogen offer a pathway to
low-carbon energy

Green Hydrotec Inc

Onsite to Onboard Compact hydrogen Generators



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Onsite or Onboard hydrogen generator of GHT

- **The problem in H₂ distribution is the high energy consumption (1.3~30%) with compression (1.6MJ/kg H₂) or liquefaction (36MJ/kg H₂) and the safety risk during disconnection of valve or piping.**
- **Onsite or Onboard is the solution: GHT develops compact and highly efficient hydrogen generator to produce hydrogen from methanol for onboard and onsite supply of H₂ to users on a truck or a boat.**
- **GHT heats up her hydrogen generator with catalyst in an aluminum reactor for for rapid and even heating-quick start-up for H₂ production.**

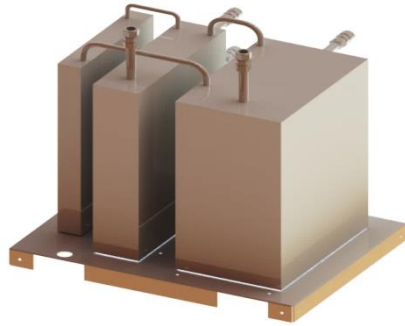


Onsite or Onboard Hydrogen

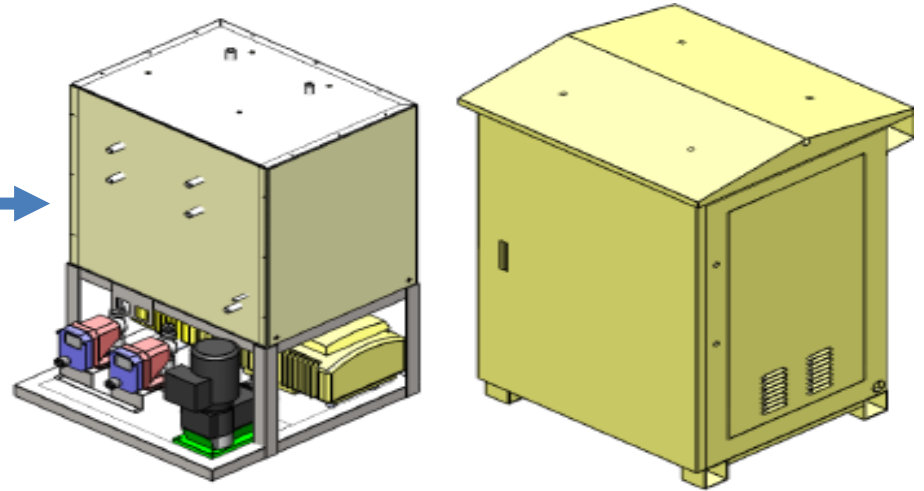
- Hydrogen generator of GHT is compact in size and in shape (rectangular) and can be installed anywhere for supply of high purity or medium quality hydrogen. In the later case, the volume of generator shrinks to only 13%; it can then generate power onboard a vehicle or a ship by onboard H₂-FC power generator.
- GHT generator is long lasting: 63,000hr for heating catalyst and 41,500hr for reformer as of Oct 30-21 since Feb 3rd of 2017.



Compact generator of medium H₂



Methanol reformer



Hydrogen generators as such can be developed with high temperature fuel cell for onboard power generation to drive engine.



GHT H2 generator in the Field

CHP/FC, telecom UPS/FC systems



industries (in Metallurgy, chemicals plants)



combustion systems



sounding balloon inflating device



Product portfolio

<p>Methanol reformer</p>	 <p>7.5NMh</p>	 <p>15NMh</p>	 <p>30NMh</p>			
<p>Onsite methanol reformer</p>				<ul style="list-style-type: none"> • 75% H₂ • For heating • outdoor use 		
<p>Onsite high purity hydrogen generator</p>	 <p>Methanol fuel tank</p>					<ul style="list-style-type: none"> • >99.9999% H₂ • CO<0.1ppm <p>H₂ generator</p>

Onsite production for HRS-1

The stable and safe onsite production of hydrogen by GHT generator of 100-300Nm³/h is suitable for hydrogen supply to a hydrogen refueling station (HRS) of 200-600kg/D.

- GHT product is compact and occupies a small floor space of 20 or 40ft containers for 200-600kg/D hydrogen supply- **only a 40% of the parking lot of the long tube trailers.**
- **No storage of high-pressure hydrogen in the station** to enhance safety concern of the station and the neighborhood.
- Operates at 0.6MPa pressure to free from high pressure regulation and with flameless catalytic heating of 58%-methanol/water as the fuel to meet the EPA regulation on methanol storage.



Onsite production for HRS-2

GHT 's hydrogen generators of 50-300Nmh can be used to supply hydrogen to hydrogen refueling station of 100-600 kg/D by onsite production for

- 1), Lower hydrogen cost of \$3.0-4.5/kgH₂ about 40-60% of hydrogen procurement in the current HRS.
- 2), Eliminate or reduce hydrogen storage of 3600-7400m³ in a HRS to improve safety in a busy urban area.
- 3), Save energy consumption in the compression or liquefaction during hydrogen distribution.



Technical innovation in GHT

- GHT is seeking partner in heavy truck or ship company to cooperate in the development of **onboard production of hydrogen for 300-400hp engine.**
- **The onboard H₂/FC Power system** will extend the navigation distance, free-from route restriction, expensive installation of hydrogen station is not needed any more.
- Coupled with PV power and hydrogen, **GHT is developing a one-step low pressure recovery of CO₂ with H₂ to methanol** for a carbon free production of hydrogen from methanol with an unique catalyst.



**Sincerely thank you for your
patience and listening**

**❖ Green Hydrotec Inc
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