What is a Gas Cogeneration System? (Combined Heat and Power)

Gas Cogeneration Systems generate electricity from gas and at the same time, utilizes waste heat energy to heat water or generates steam.

- Natural Gas Cogeneration System using SNG as its Feeder Gas

In the event of a disaster, parts of a city’s gas distribution might be suspended. This system example consists of a YANMAR micro-cogeneration system “Genelite” and an ITO “SNG Generator”. If the disaster causes both the electricity and gas supply to fail, the SNG Generator uses LPG (Propane) which is relatively easy to handle, transport and store, as its source for the synthetic natural gas to feed into Genelite. The generator can operate with most micro-cogeneration systems.

The ITO PA System – Basic Operation
Application at Hikone Gas Building by Osaka Gas Co., Ltd.

No Need for Electricity!

Outlet Pressure of Regulator
Pressure of Feeder Gas
Propane Air

SNG Generator

Outlet Pressure of Regulator
Pressure of Feeder Gas
LPG Cylinders (50kg x 7)
Regulator

Genelite (Available in blackout)
*Manufactured by YANMAR ENERGY SYSTEM CO., LTD.

Even when electricity distribution is suspended after disasters, you can keep an electricity supply by switching connections in this independent unit.

Key electronics to sustain even in blackout
Electricity

Electronics not to sustain in blackout

Exchange Valve
Section Valve

Propane Air

Emergency Use
Normal Use

Computer
Server
Lighting

Lighting
Air Conditioning

Genelite for 35kW

Hot-Water Supply

Lighting
Air Conditioning

Key electronics to sustain even in blackout

Electronics not to sustain in blackout

Computer
Server
What energy is used to operate Genelite in emergencies?

Propane air produced by SNG Generator will be used when both electricity and natural gas distribution networks are disconnected.

*Note
- Shut-off of natural gas triggers alarms in Genelite. So you need to reset them.
- SNG Generator starts operation by hand.

Installing several Natural Gas Cogeneration Systems using SNG as feeder gas

How many units of Genelite can one SNG Generator supply gas to?

<table>
<thead>
<tr>
<th>Model of SNG Generator (1 unit)</th>
<th>Genelite Electricity Output (kW)</th>
<th>Supplied units</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA-13A8-HH</td>
<td>35</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>31</td>
<td></td>
</tr>
<tr>
<td></td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>PA-13A30N-H</td>
<td>35</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>31</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>6</td>
</tr>
</tbody>
</table>
## Specifications of SNG Generator

<table>
<thead>
<tr>
<th>Model</th>
<th>PA-13A8-HH</th>
<th>PA-13A30N-H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td><img src="image1" alt="PA-13A8-HH Image" /></td>
<td><img src="image2" alt="PA-13A30N-H Image" /></td>
</tr>
<tr>
<td>Dimensions (mm)</td>
<td>W780 x H884 x D390</td>
<td>W1100 x H1780 x D596</td>
</tr>
<tr>
<td>Product Weight</td>
<td>Approx. 50 kg</td>
<td>Approx. 300 kg</td>
</tr>
<tr>
<td>Resource Gas</td>
<td>LP gas containing 95% or more propane gas</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(20% or more liquid LP gas should be left in each cylinder)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pressure: 0.15~1.56MPa</td>
<td></td>
</tr>
<tr>
<td>Max Capacity of Mixed Gas (Nm³/h)</td>
<td>8</td>
<td>30</td>
</tr>
</tbody>
</table>

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