safe and reliable

KÜHME Solutions for Gas Fueled Ships
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The interactive MORE Button will lead you to content related additional, more detailed information. You are Welcome. Just try and find out.
Alternative Fuels represent a matter of global significance and are subject to ecological background. Due to intensified establishment of emission based regulations and standards the marine sector has actively driven a process to determine alternative solutions to optimize marine engine systems accordingly.

In this context Gas / LNG has prevailed as most advantageous clean solution concept. Secured availability of the Fuel and the possibilities to utilize the same for new building projects as well as retrofitting engine systems of existing fleets offer excellent basic prerequisites accordingly. The value chain is furthermore complemented by highly beneficial ecological and simultaneous economical aspects.

The significant reduction of emissions and noise levels are thus accompanied by stable, transparent as well as less cost compared to regular heavy fuel oil.
KÜHME as a technology leader within the field of safety shut-off valve equipment has specialized in design, development & production of special valves for most challenging applications. In the course of utilizing Gas as a Fuel for Marine Engines the application requires an outmost level of safety.

**KÜHME Valves – The Interface between Fuel and Safety**

The corresponding high demands are considered particularly in the fuel feed and storage facilities. Advanced type approved KÜHME Shut-Off Valve Technology is building the backbone to guarantee highest safety level in those particular sub-systems upstream to the engines.
More than 50 years of know how and experience feed into every level of detail of each KÜHME valve skid and system solution. Internationally renowned as a manufacturer of fully integrated valve skids for fuel handling and combustion systems, our plug & go portfolio covers tailored equipment for Gas Fueled Marine Engines as well.

Your individual application
- one tailored KÜHME Solution

In that respect the fusion of proven shut-off valve technology and complex application driven system integration is reflected in so called Gas Valve Units (GVU) – fitted for installation right upstream the Engine or relocated from the Engine Room.
### Features
- Modular structure
- Optional additional sensors for optimized monitoring

### ESDs
Certified Safety Shut-Off Valves Type KÜHME KVII/F

### Pipe Connection
DN 25 / DN 50 / DN 80 / DN 100 / DN 150

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Proven KÜHME Technology for a future-driven Application
Encapsulated 3D-GVU

Features
- Explosion proof design
- Backpressure safe up to 37 bar (g)
- Redundant high safety sealing system for external tightness

ESDs
Certified Safety Shut-Off Valves
Type KÜHME DGV

Pipe Connection
DN 80 / DN 100 / DN 150

Optimized for easy maintenance and additional instrumentation
### Encapsulated GVU-NT

| Features                  | - Explosion proof design  
<table>
<thead>
<tr>
<th></th>
<th>- Modular structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation Direction</td>
<td>Either horizontal or vertical</td>
</tr>
<tr>
<td>ESDs</td>
<td>Certified Safety Shut-Off Valves Type KÜHME KVII/F</td>
</tr>
<tr>
<td>Pipe Connection</td>
<td>DN 50 / DN 80 / DN 100 / DN 150</td>
</tr>
</tbody>
</table>

![Diagram of Encapsulated GVU-NT]

Most compact space and weight saving design
# GVU Technology designed by KÜHME

<table>
<thead>
<tr>
<th>GVU-C</th>
<th>3D-GVU</th>
<th>GVU-NT</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="GVU-C Image" /></td>
<td><img src="image2" alt="3D-GVU Image" /></td>
<td><img src="image3" alt="GVU-NT Image" /></td>
</tr>
</tbody>
</table>

- **Enclosure**
- **Double Block & Bleed**
- **KÜHME Valve Series**: KV / DGV
- **Installation**: horizontal / vertical
- **Coriolis (optional)**
- **Enclosure tightness control (optional)**
- **Service opening (optional)**
- **Enclosure opening device (optional)**

Available: [ ]
Not available: [ ]
Case Study

<table>
<thead>
<tr>
<th>Ship Name</th>
<th>SLEIPNIR</th>
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<tbody>
<tr>
<td>Application</td>
<td>Offshore Heavy Lifting</td>
</tr>
<tr>
<td>Dimensions</td>
<td>Length 220 m / Width 102 m</td>
</tr>
<tr>
<td>Crane Capacity</td>
<td>2 Cranes – each 10,000 Tonnes</td>
</tr>
<tr>
<td>Power Generation</td>
<td>96 MW total / 12 engines of 8 MW each</td>
</tr>
<tr>
<td>Type of Engine</td>
<td>MAN Dual Fuel Engines 8L51/60DF</td>
</tr>
<tr>
<td>Emission Limits</td>
<td>Compliant to IMO Tier III</td>
</tr>
</tbody>
</table>

Source: https://hmc.heerema.com/fleet/sleipnir/
Case Study

KÜHME’s Customer | MAN Diesel & Turbo Augsburg, Germany
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Size | DN 100
Year of Production | 2016
Volume | 12 pieces of 3D-GVU
KÜHME Armaturen GmbH

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