Gas Combustion Unit for LNG Fueled Vessel

**MECS-GCU**

Environmentally-conscious and safe

LNG fueled vessels require that boil off gas be treated safely and appropriately. The VOLCANO "MECS-GCU" gas combustion unit combustion treats boil off gas to help eliminate the release of methane gas into the atmosphere.

**MECS-GCU helps to decrease your environmental burden**

"Methane" is a major component of LNG (liquefied natural gas) fuel and has a **global warming potential 25 times that of carbon dioxide**!

The release of combustible gases into the atmosphere is prohibited under the IGF code*.1.

*1. International Code Of Safety For Ships Using Gases Or Other Low-Flash Point Fuels

---

**When?**

1. **LNG tank pressure adjustment**
   - If the engine cannot completely consume the gas, the boil off gas will need to be treated in order to adjust the pressure inside the tank

2. **Inert gas treatment during LNG bunkering**
   - Boil off gas becomes mixed with inert gas inside pipes, and must be treated when bunkering

3. **LNG tank cooling down / gas-freeing**
   - Gas let out from the tank during initial bunkering, when docking, or when performing maintenance work on the tank must be treated

---

**Boil off gas treatment process in vessels**

1. LNG tank
2. Vaporizer
3. Buffer tank
4. MECS-GCU
5. Gas valve unit

---

**VOLCANO Gas Combustion Unit (GCU) features**

- **Can be installed even in small vessels**
  - Has already been successfully installed in LNG fuel tug-boats

- **Combusts gas of any ratio**
  - Capable of treatment up to inert gas 100% (Gas/Oil simultaneous mixed combustion)

- **Combusts even low-temperature gas**
  - Supports gas at 0°C or even -150°C

- **Compatible with a wide range of vessels**
  - Can be used in many types of projects, such as installed on tug-boats, used for bunkering vessels, or as possible backups for other treatment devices

- **Low running cost**
  - Consumes less power during operation than reliquification
1. **CH4**: 100% (as lower calorific value 50 MJ/kg)
2. Gas supply pressure at gas valve unit inlet
3. “Free flow” is when gas is supplied at the tank pressure without pressurizing boil off gas
4. Vertical type hull dimensions
5. Dimensions and weight values are for reference only

**Also supports remote control panels**

**Compatible with classification rules**

**Also supports redundancy**

**GCU advantages**
- Lower operation cost than gas treatment methods that consume power (such as reliquefication)
- Gas/Oil simultaneous mixed combustion using diesel oil provides stable combustion

**Possible vessel types for installation**
- All types of gas fueled vessels (from tug-boats to VLCC class vessels)
- Gas fueled bunkering vessels, etc.

*Not just LNG gas fuel: Supports various kinds of gas fuels*

**VOLCANO solution for LNG fueled vessel issues**

**Combust and treat Boil Off Gas**

**Use/treat Boil Off Gas as fuel**

Considering using gas fuel even in your boilers? Our "Vignis" and "SFFG-II" Gas/Oil simultaneous mixed combustion DF burners are capable of completely combusting unburnt gas.

**Combustion Engineering Expert**

**VOLCANO Co., Ltd.** provides products for LNG as fuel and solution for LNG utilization, based on our experiences on Gas/Oil simultaneous mixed combustion DF burner for Marine-use, Gas burner for Industrial-use and Ultra-low NOx burner for Industrial-use.

**VOLCANO CO., LTD.**

Head Office: 1-3-38, Nonaka-ichita, Yodogawaku, Osaka 532-0034 Japan
TEL: +81-6-6382-5641 FAX: +81-6-6386-7609

Tokyo Office: Nishi Shinbashi Daiichi Hoki Building, 3-6-2, Nishi Shinbashi, Minato-ku, Tokyo 105-0005 Japan
TEL: +81-3-5403-5756 FAX: +81-3-5403-0550

**E-mail:** info-m@volcano.co.jp

**http://www.volcano.co.jp**