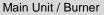
### Press Information



12<sup>th</sup> APR. 2016

VOLCANO Co., Ltd. launched Oil/Gas Combination Burner named "Vignis-mini".







Gas Valve Unit

VOLCANO Co.,Ltd. \*1 developed an "Oil/Gas Combination burner for LNG Fueled vessel" and has launched "Vignis-mini" as new product on 12<sup>st</sup> APR, 2016.

\*1 ) http://www.volcano.co.jp/english/

"Vignis-mini" for LNG Fueled vessels which are expected to increase can be installed in boilers. "Vignis-mini" has four types of burners as its product

line-up. The types of Vignis-mini cover the range of "Boiler evaporation 1t/h to 3t/h". This burner has HFO/FG dual combustion mode and MGO/FG dual combustion mode as well as HFO-mono, MGO-mono and LNG-mono combustion mode. Dual-combustion-mode combusts "Boil Off Gas(BOG) from LNG Fuel tank" in combination with "Fuel Oil". Dual-combustion-mode can efficiently utilize BOG as fuel and shortage of calorie can be fulfilled by "Fuel Oil". Because combustion condition is stable even at Dual-combustion-mode and Fuels can be easily changed over, the customer can easily select an adequate combustion-mode for situation.

When docking a LNG Fueled vessel, combustible gas in the fuel tank should be fully consumed and replaced to inert gas. Dual-combustion-mode combusts the combustible gas including Inert gas safely. In this operation, Fuel gas can be efficiently used as the fuel for a boiler.

Some of "Vignis-mini"s has been already shipped in advance for some customers whose name cannot be disclosed in current, in order to be installed in the boilers for LNG Fueled vessels. VOLCANO Co.,Ltd hope our contribution for Energy-saving and Load-reduction on environment through enhancing "Vignis-mini" after launching of these new LNG Fueled vessel.

The name of "Vignis-mini";

Vignis = "V" + "ignis"

"V"means "VOLCANO" as our brand

"ignis" means flame in Latin.

"Vignis series" has two products.

One is "Vignis-mini" and another is "Vignis".

"Vignis-mini" is for "Boiler-evaporation 1t/h to 3t/h" and

"Vignis" is for "Boiler-evaporation 4t/h to 10t/h".

VOLCANO CO.,LTD

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# Press Information Product Information

### Features:

### Combination burner for HFO/MGO/LNG

- 5 modes of combustion including Dual combustion and mono combustion.
- Even 700cSt HFO can be combusted.

## Contribution for Energy-saving and Load-reduction on environment

 Dual combustion of Fuel gas in combination with Fuel oils utilizes gas in LNG Fuel tank efficiently and safely.

## Compact and safe "Gas Valve Unit"

- Space-saving, Easier for maintenance and High-pressure-durable-structure.

# Reliable control system using PLC

## Product line-up:

Burner Type		MJGX-90	MJGX-140	MJGX-180	MJGX-250
Boiler Evaporation	t/h	1	1.5	2	3
Combustion Rate (HFO)	kg/h	90	140	180	250
Combustion Rate (LNG)	kg/h	74	115	148	206
Combustion System		HFO mono, MGO mono, FG mono			
Oil Pressure	MPa	Max. 2.0			
Atomizing Air Pressure	MPa	0.5 Constant Pressure Control			
Gas Pressure (BNR INLET)	kPa	Over 100 (1.0 @ Min. Load)			
Control System		Proportional Control			
Draft System		Forced Draft			
Register Draft Loss at MCR(HFO firing)	kPa	2.9			
Combustion Air Temp.	°C	45			
Excess Air Ratio		1.2			
Turn Down Ratio		3:1 ~ 10:1			