

The World Best Performance

Electrical Efficiency 49%

NOx (at O₂=0%) ≤ 200 ppm

GREEN
Gas Engines

Gas Engine

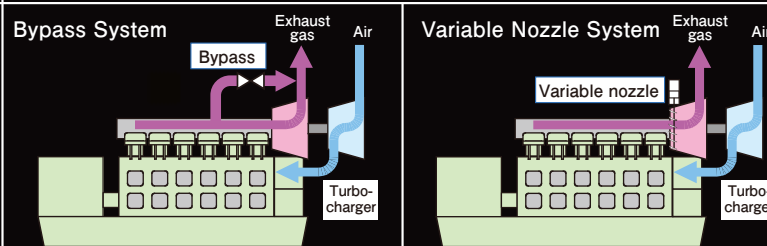
Electric power
5.2 - 7.8 MW (50Hz)
5.0 - 7.5 MW (60Hz)

Kawasaki

●Engine Lineup

Engine model	Standard Model		High Efficiency Model		
	KG-12	KG-18	KG-12-V	KG-18-V	
No. of cylinders	12	18	12	18	
Cylinder bore×Stroke (mm)	300 × 480				
Electric output(kW) ※1	50Hz/750rpm	5,200	7,800	5,200	7,800
	60Hz/720rpm	5,000	7,500	5,000	7,500
Efficiency at generator terminal (%) ※2	48.5		49.0		
NOx (ppm)	200 or less (at O ₂ =0%) [57 or less (at O ₂ =15%) equivalent]				
Ignition system	Spark plug ignition				
Min. continuous operation load (%) ※3	35				
Starting time ※4	within 10 min				
Lube oil consumption	less than 0.4g/kWh (as nominal data)				

Engine feature



Note ※1 ISO3046, Fuel : Standard gas in Japan (LHV:40.6MJ/Nm³)

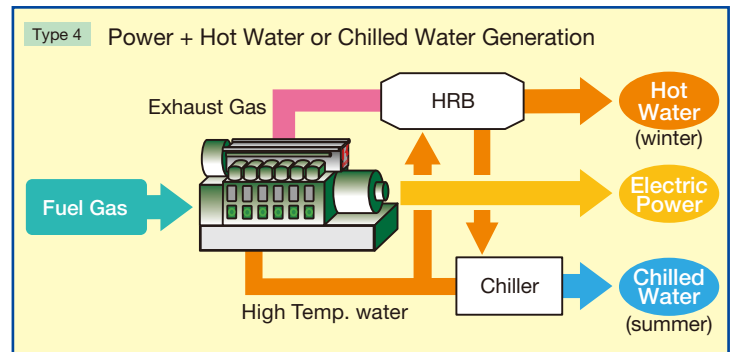
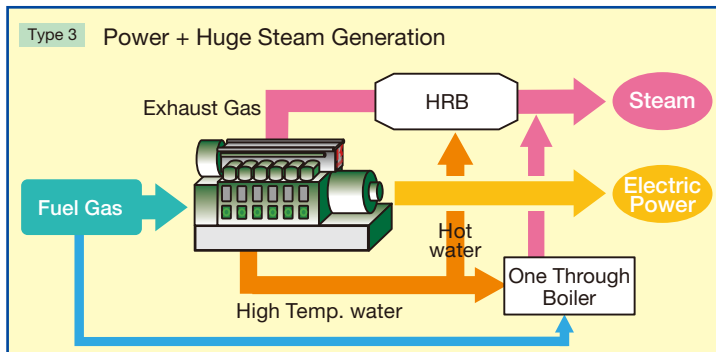
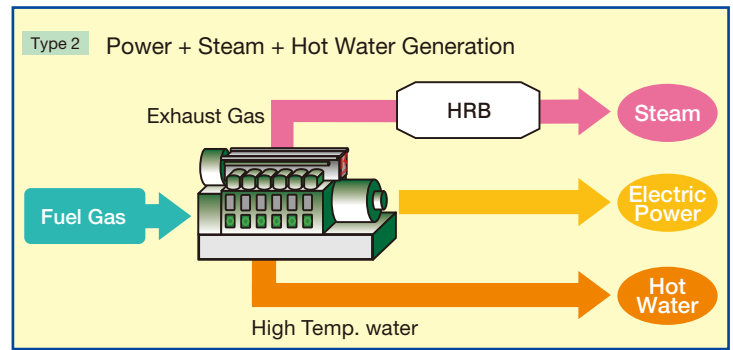
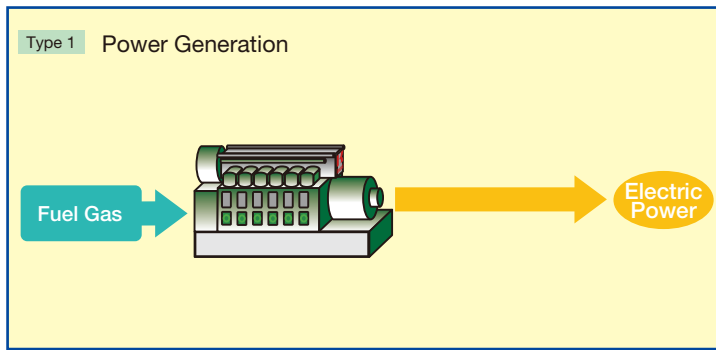
※2 Gas Methane Number shall be more than 65.

※3 30 ~ 35% load is also operatable with time limitation 95 hour.

※4 From start order to rated load.

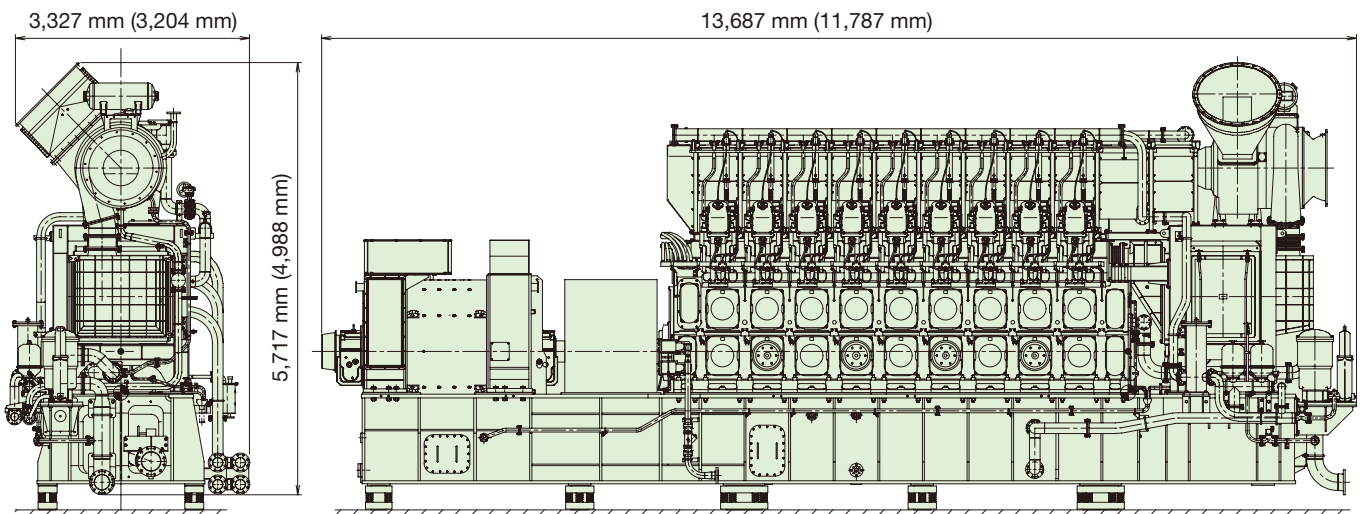
KAWASAKI GREEN GAS ENGINE

Typical Applications



*HRB : Heat Recovery Boiler

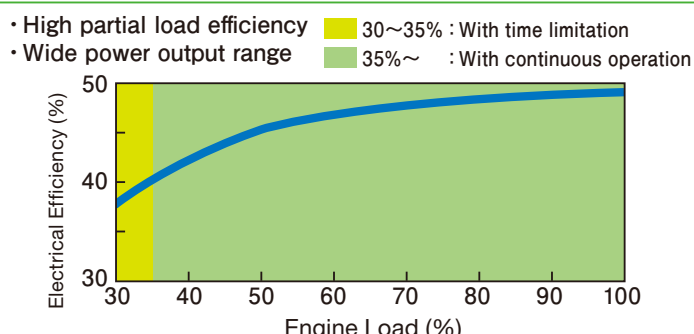
Engine Outline **KG-18**



Dry weight : 138 ton (104 ton)

Figure in bracket shows dimension of KG-12. Same dimension for Standard and High efficiency models.

Partial Load Performance



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110MW Nihon Techno Sodegaura Green Power



Project Description

Kawasaki was awarded a full turnkey contract in October 2011 to construct a power plant for Sodegaura Green Power. Its owner is Nihon Techno Co., Ltd., which is PPS*, a power producer and supplier. This 110MW power plant consists of 14 Kawasaki Green Gas Engines.

*PPS, a power producer and supplier, is defined under Japanese law as a type of independent electric power company that produces over 50kW of high-voltage electricity and supplies it to high-voltage electricity consumers such as factories and large-scale retail stores via the power grids of utility companies.

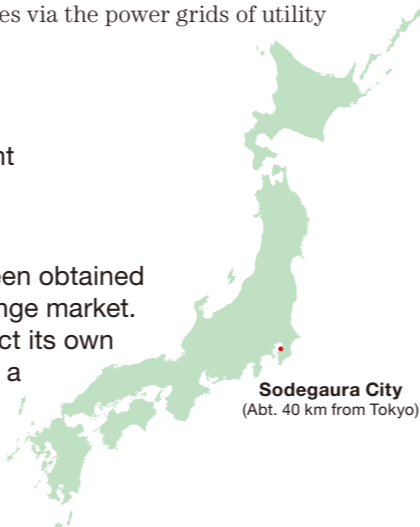
Overview

Plant Name: Nihon Techno Sodegaura Green Power Plant

Owner: Nihon Techno Co., Ltd.

Location: Sodegaura city, Chiba prefecture, Japan

Background: The electricity sold by Nihon Techno has been obtained externally through the electric power exchange market. Nihon Techno, however, decided to construct its own 110MW power plant with an eye to securing a stable supply of electricity in light of the recent supply status where we are facing the electricity shortage expected since the Great Earthquake disaster on Mar. 11, 2011.



Plant Configurations & Features

Configuration

Engine Type	KG-18-V (Rated Gross Output 7,800 kw)
Gross Electrical Output	109.2 MW (7.8 MW × 14 units)
Gross Electrical Efficiency	49.0%

Plant Operation Features **5 good points realize the outstanding flexible power plant.**

It is possible to operate continuously for 24 hours a day, 7 days a week with 14 units.

Optimized DSS (Daily Start And Stop) operation by each individual unit.

Fast start-up - less than 10 min. to full plant load.

Gross electrical efficiency is kept at about 49% almost in the range of 7.8MW - 109.2MW.

Individual maintenance can be performed one unit at a time leaving the other 13 units running, and power reduction can be kept at only 7.2% (1/14).

Scope of Supply & Schedule

Kawasaki's scope of supply and project schedule are as follows.

Civil Engineering and Construction	No.1 Gas Engine Building / No.2 Gas Engine Building / Office & Electric Building De-NOx System Control Room / L.O. Pump Room / Cable Culvert Radiator & Trance Foundation / Exterior Works & Temporal Works											
Machinery Equipment	Transportation and Installation / Gas Engine Generator Packages & All Related Auxiliaries With All Pipe works											
Electrical Equipment	Step-up Transformer (11kV / 66kV) / High & Low Voltage Switchgear Control Panel / All Wiring Works											

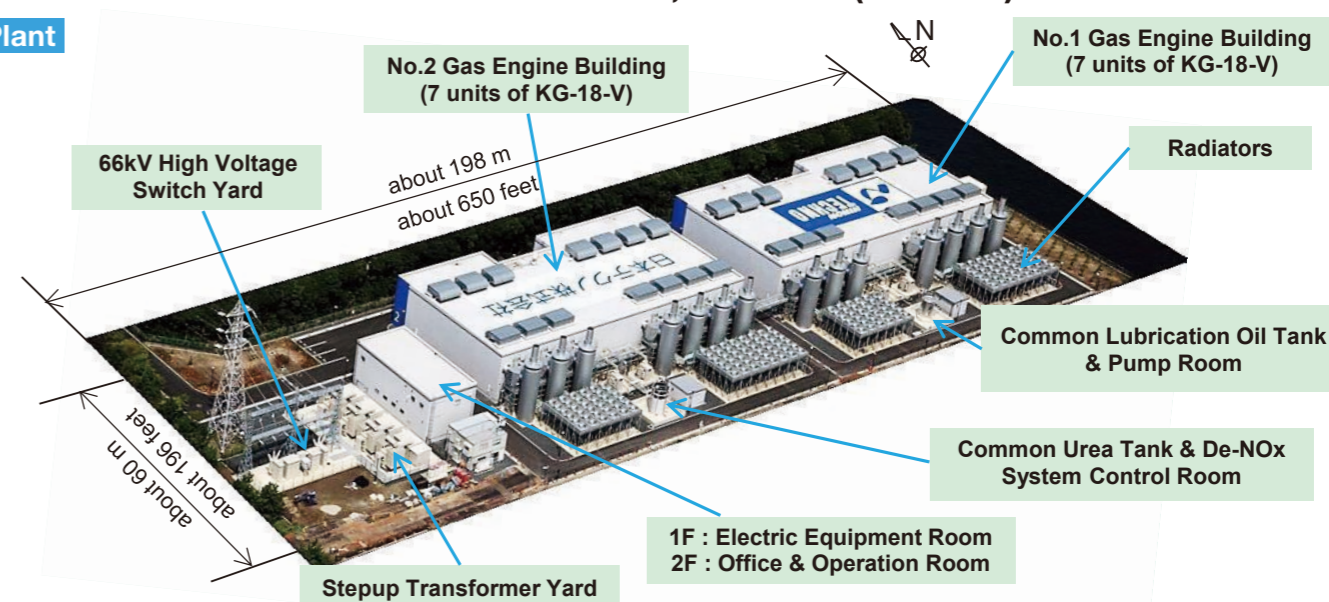
Construction Period: December 19, 2011 - August 15, 2012

Works	Oct./2011	Nov.	Dec.	Jan./2012	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	
Planning & Designing	[Progress bar]											
Civil & Architecture Work			[Progress bar]									
Machine Installation							[Progress bar]					
Pipework							[Progress bar]					
Electrical Work							[Progress bar]					
Commissioning								[Progress bar]				

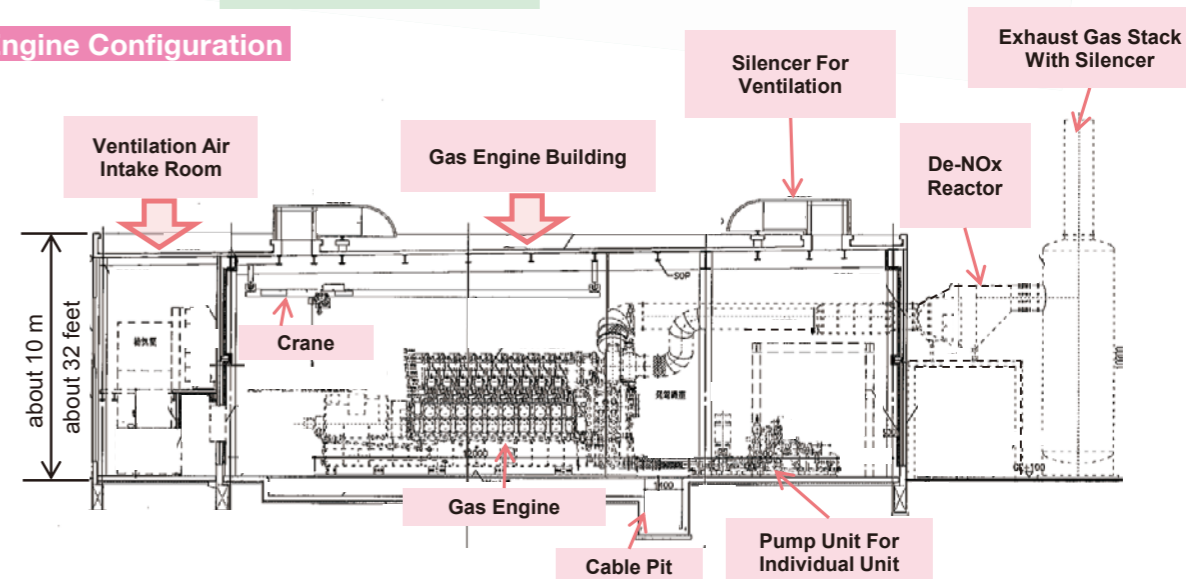
Plant outline

< Total site area : 12,430.24 m² (3.07acre) >

Plant



Each Engine Configuration



Picture Gallery

Under construction



Completed

