HYOSUNG

HYOSUNG GENERATOR

High Speed Generator
Medium Speed Generator
Control Panel
Motor-Generator Set
Wind Generation System

Global Top Energy, Machinery & Plant Solution Provider

About HYOSUNG

Hyosung Power & Industrial Systems PG is a division under Hyosung which consists of seven performance groups(PGs). In addition to establishing itself as a world-class manufacturer of electrical equipments, green technology and industrial machineries, Hyosung is also the largest producer of tire cords and spandex in the global market and the second largest supplier of ATMs in the USA.

01 Our Business

Brief introduction of Hyosung Power & Industrial Systems

Hyosung Power & Industrial Systems Performance Group

Hyosung Power & Industrial Systems Performance Group, a comprehensive energy solution provider, boasts world-leading technology in the global power industry and has secured a competitive capability on par with that of top competitors in transformers, switchgears, motors, decelerators, industrial pumps, and wind energy business.

With globalization as one of our top priorities, we have achieved outstanding increase in sales over the past few years thanks to the enhancement in Hyosung's quality, technology, and brand recognition among overseas clients, which include North America, Europe, the Middle East, and Asia. We expect such robust performance, marked by an increasing number of orders from the overseas market, to continue in the future.

At the heart of our capability to grow as a comprehensive energy solution provider is our global organization structure. Hyosung Power & Industrial Systems Performance Group is divided into four business areas or performance units, depending on the types of flagship products: Power Systems Performance Unit, Industrial Machinery Performance Unit, Hyosung GoodSprings Performance Unit, and the Wind Energy Business Division.

Industrial Machinery Performance Unit

The Industrial Machinery Performance Unit Plays an important role in the infrastructure industry around the globe and is specialized in manufacturing all types of motors, gear reducers, generators, green energy, and industrial machines.

With the ability to produce motors with up to 20,000kW, we possess an automated production line capable of manufacturing more than 40,000 motors every month.

Our accumulated technologies and various experiences have made it possible to develop turnkey-based engineering projects including industrial plant, ropeways, energy solutions, and alternative refueling systems.

In addition, we anticipate that our efforts in innovation among rotary machinery will make significant contributions towards creating energy profitability as well as greater efficiency. With the goal to serve as a world-leading provider of industrial machinery and plant engineering, we will continue to focus on innovative energy conservation technology, enhanced reliability of new products, and development of new technologies.

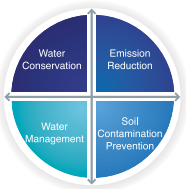
CONTENTS

02 Sustainability

Our sustainability principles are the backbone of the way we design and manufacture products

Quality Assurance

Hyosung strives for excellence. We believe excellence can only be achieved through absolute quality and value for customers. In order to create quality products, we believe that all of the actions of every single employee must be focused in the highest level of quality. In order to achieve such levels, we have implemented a quality assurance policy and programs that make our philosophy into a reality.
Our Quality Assurance Policy was founded based on the management policy of the president and meets the demands of ISO 9001. As a globally active company, we are committed to comprehensive and quality management through three quality strategies: quality management system, customer-focused management system, and concentration on core competencies.
The comprehensive quality management system ensures that we completely comply with all compliances and applicable legislation, codes, and standards in addition to implementing efficient operation of our management resources to eliminate unnecessary waste.
Our customer-focused management system clarifies and simplifies our first priority which is customer satisfaction. All of our work is aimed to exceed customer needs and provide exceptional value through quality standards, flexibility, and innovation.
Finally, we concentrate on our core competencies for strict quality control and continual improvement which provides quality products and cost-saving to our clients via advancement in technical capacity and technological innovation.
We implement our policy via a Quality Management Team manages research laboratories, including the Measurement Standard Laboratory, the Chemical Analysis Laboratory and the Material Analysis Laboratory to maintain a strict control over quality.



Environment Protection Policy

Hyosung understands the impact of Hyosung's activities in the environment and works to protect the environment from pollution, manages the environmental impacts of Hyosung's products and technologies, and prevents future pollution and harmful effects in the environment by investing in environmentally-friendly products and solutions.
Based on this eco-philosophy of shared responsibility, Hyosung has implemented a comprehensive environmental protection program that aims to minimize our impact on the environment and conserve resources. Our environmental policy fulfils all requirements of the ISO 14001.

03 R&D

Inspiring innovation, creation and expertise

Hyosung R&D Center identifies innovation, creation, and expertise as core value, and concentrates on world class R&D activities in the 21st century with a philosophy aspiring after customer satisfaction, quality priority, and performance orientation. Hyosung pursues to be the world's best company in the field of heavy electrical machinery, industrial & electrical electronics engineering, and energy system. Ever since establishment in 1978, R&D Center had led the development of domestic technology. Along with the Anyang and Changwon labs, the group has endeavored to produce core technology and world-class products in the areas of heavy electrical machinery, energy system, electrical electronics engineering, and industrial automation system.

Research Areas

Hyosung R&D Center engages in the activities in the field of energy system, solution & service, applied electrical and electronic technology, basic core technology, technology of improved reliability, core components, and new materials.

Energy System
- Renewable energy
  (wind system, wind turbine, wind PCS, solar system, PV PCS, fuel cell, co-generation)
- Electric Vehicle (EV charger, EV motor)

Solution & Service
- Power facility diagnosis algorithm and system
- Power facility lifecycle evaluation system
- Service solution for remote diagnosis for prevention

Applied Electrical & Electronic Technology
- Power conversion system
- Flexible AC transmission system and high voltage direct current
- Power quality solution

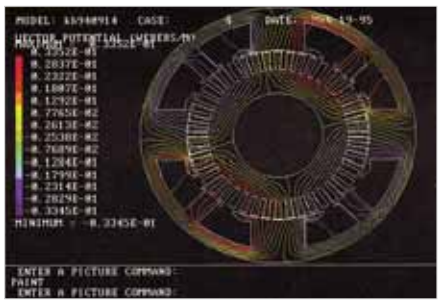
Basic Core Technology
- Fortified technology in structural dynamics, electromagnetics, heat transfer analysis, etc.
- Skills for system simulation, analysis and evaluation
- Business support technology

Technology with Improved Reliability
- Test data analysis and testing facility
- Analysis of lifecycle and cause of error
- Reliability assessment (environment-friendliness, durability, long-term degradation, and more)

Core Components and New Materials
- Organic and inorganic insulation materials
- Silicon forming technology
- Intelligent sensor
  (facility diagnosis, CT, PT, VT, LA, and more)

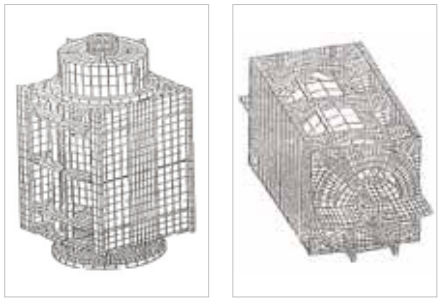
HYOSUNG Generator

Optimizing Generator through Analysis Program

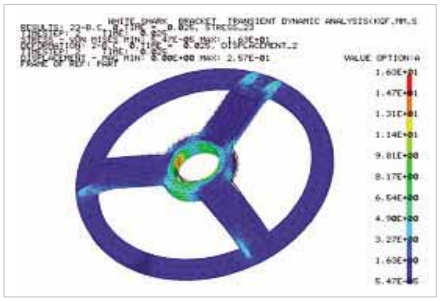


Magnetic Flux Vector Potential in core

Magnetic Flux Density in core



Stress Analysis by ANSYS



Stress Analysis in bracket by NASTRAN

We have improved reliability by designing generator in 3D(AUTO CAD) and structural analysis program manufacturing suitable products in condition of field.

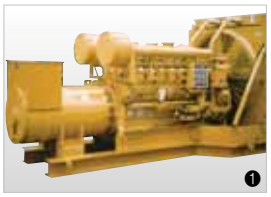
As applying Thyristor Control and Brushless exciter system, it is more improved for solidity, maintenance and stable voltage without fluctuation of load than the brush exciter system. First of domestic, with developing PMG exciter system, we are proud of top class quality.

Products

High Speed Diesel Generator
- 4 pole, 20 ~ 3,300kW

Medium Speed Diesel Generator
- 6 ~ 14 pole, 300 ~ 20,000kW

ETC.
- MG Set (AC, DC)
- Gas Turbine Generator
- Gas Engine Generator
- Co-generation Power Station
- Specialty Products



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❶ Diesel generator set for emergency power
❷ Diesel generator set for continuous power
❸ Motor-Generator Set
❹ Control Panel

Characteristic

PMG type makes superior transient response characteristic (declining the drop of electric pressure rates, improvement in recovery time of voltage) on initially started to machines

PMG type, under short-circuit condition, is capable of withstanding the mechanical stresses induced by a short-circuit current of at least three times the full load current

PMG type supplies stable voltage as isolated out of the disturbance like noise and makes fine wave form because of protection against distortion

Special Features

Compact
To get compact by designing each part in structure and electric analysis program

Convenient Operation
To supply convenient operation by designing to system with auto and manual at the same in condition of field

Complete Device Protecting against Noise
To reduce noise by using industrial, residential and critical silencer

Stable Voltage Occurrence
To get stable voltage by using AVR with Thyristor

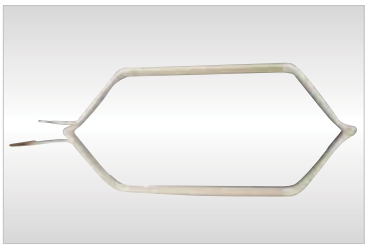
Complete Vibration Isolation Device
To get complete vibration isolation by using isolator

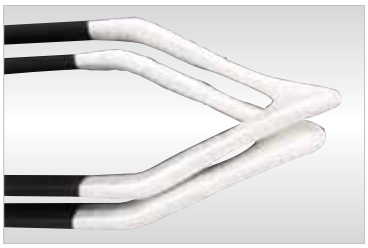
Simple Maintenance
To supply easy maintenance with simple and strong organization by adopting the brushless type

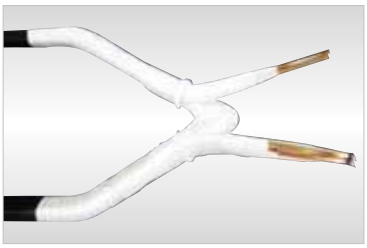

Auto Spreading M/C


Auto Taping M/C


Manual Taping


Uniform Shape by Spreading M/C


Coil Insulated with MICA Tape


End Section of Coil Taped Manually

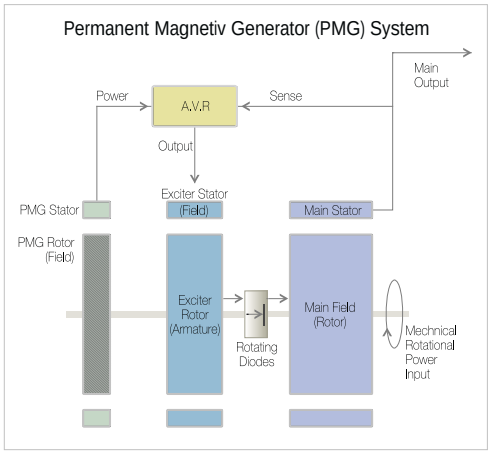
PMG (Permanent Magnetic Generator) **System**

In modern society, as changed electric consumption pattern, it is being more rising requirement on high quality source of power. With accumulated technical expertise and experience for a long time, Hyosung developed PMG type in the first of country and is applying it to the standard item.

In case of usual self-excitation system, it did not guarantee stability of voltage because of irregular input voltage to AVR when machines are initially started.

Whereas, permanent magnet excitation system, by providing self-generating voltage from itself to AVR, is capable of supplying absolutely stable voltage to load.


Features of PMG system generator



Schematic diagram (PMG)

High Speed Generator Set

Characteristic

High speed diesel generator sets apply to various worldwide engine brand according to customer's requirement.
It ensures protection against noise, isolation vibration and feeds suitable source of power as supplying stable voltage.

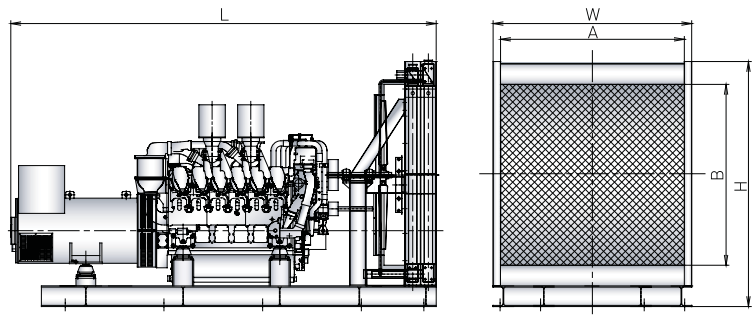
Application

High speed diesel generator sets of Hyosung apply main, emergency power source of Industrial facilities that is factories, buildings, apartment and power plants.
It supplies suitable source of power as fitly composed to characteristic of each Industrial facilities.

HIGH SPEED GENERATOR

MTU Engine (HGMT Series 550 ~ 3300 kW)

Outline Drawing



DATA Sheet

1800rpm, 60Hz

GenSet Model	Engine Model	Emergency Output (kWe)	Prime Output (kWe)	Generator Sets (mm)			Weight (kg)		Exhaust Pipe (inch)	Air - Inlet Size			Air - Outlet Size			Fuel Consumption (liter/hr)	Cooling -Water Quantity (liter)	Lub-Oil Quantity (liter)	Foundaion Size (mm)	
				L	W	H	Dry	Wet		(WXH (mm))		M²	(AXB (mm))		M²				L	W
HGMT 070	12V2000G45	700	630	3900	1580	2050	5090	5334	8	1500	1500	2.3	1300	1400	1.8	175.0	164.0	77.0	4200	1900
HGMT 080	12V2000G85	800	730	3900	1448	2174	5320	5564	8	1700	1700	2.9	1400	1300	1.8	217.0	164.0	77.0	4500	2000
HGMT 090	16V2000G45	900	820	4400	1900	2300	6630	6942	8	2050	2050	4.2	1800	1600	2.9	241.0	212.0	102.0	5000	2500
HGMT 100	16V2000G85	1000	910	4250	1898	2450	6680	6992	8	2050	2050	4.2	1800	1600	2.9	265.0	212.0	102.0	4850	2500
HGMT 120	18V2000G85	1200	1090	5000	2081	2745	8100	8550	8	2350	2350	5.5	2000	1900	3.8	314.0	216.0	130.0	5600	2700
HGMT 160	12V4000G43	1600	1400	6200	2591	2936	13400	14477	14	2650	2650	7.0	2400	2000	4.8	406.0	690.0	260.0	6800	3200
HGMT 175	12V4000G83	1750	1600	6300	2591	2936	13950	15027	14	2650	2650	7.0	2400	2000	4.8	451.0	590.0	260.0	6900	3200
HGMT 210	16V4000G43	2100	1850	6700	2900	2887	16750	17857	14	2800	2800	7.8	2700	2000	5.4	534.0	670.0	300.0	7300	3500
HGMT 230	16V4000G83	2300	2100	7200	2900	2887	20120	20770	14	2800	2800	7.8	2700	2000	5.4	605.0	700.0	300.0	7800	3500
HGMT 250	20V4000G43	2500	2300	7700	2900	2887	22200	22880	16	2800	2800	7.8	2700	2000	5.4	635.0	735.0	390.0	8300	3500
HGMT 280	20V4000G83	2800	2500	7900	4638	2795	25650	26510	16	3400	3400	11.6	4100	1900	7.8	713.0	915.0	390.0	8500	5250
HGMT 330	20V4000G83L	3300	2800	7900	4638	2795	26750	27640	16	3400	3400	11.6	4100	1900	7.8	879.0	945.0	390.0	8500	5250

DATA Sheet

1500rpm, 50Hz

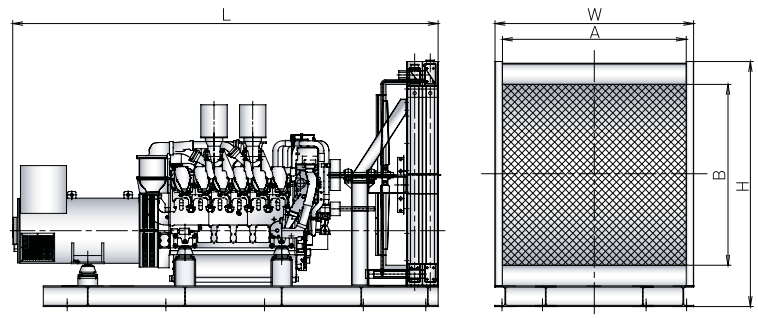
GenSet Model	Engine Model	Emergency Output (kWe)	Prime Output (kWe)	Generator Sets (mm)			Weight (kg)		Exhaust Pipe (inch)	Air - Inlet Size			Air - Outlet Size			Fuel Consumption (liter/hr)	Cooling -Water Quantity (liter)	Lub-Oil Quantity (liter)	Foundaion Size (mm)	
				L	W	H	Dry	Wet		(WXH (mm))		M²	(AXB (mm))		M²				L	W
HGMT 056	12V2000G25	560	510	3900	1488	2050	5090	5334	8	1700	1700	2.9	1400	1300	1.9	149.0	164.0	77.0	4200	1800
HGMT 068	12V2000G65	680	620	3900	1488	2050	5340	5584	8	1700	1700	2.9	1400	1300	1.9	180.0	164.0	77.0	4500	2100
HGMT 080	16V2000G25	800	720	4250	1581	2450	6520	6820	8	1900	1900	3.7	1400	1600	2.3	207.0	200.0	102.0	4850	2200
HGMT 088	16V2000G65	880	800	4250	1581	2450	6570	6870	8	1900	1900	3.7	1400	1600	2.3	227.0	200.0	102.0	4850	2200
HGMT 100	18V2000G65	1000	900	4700	1898	2450	7230	7582	8	2050	2050	4.4	1800	1600	2.9	262.0	212.0	130.0	5300	2500
HGMT 145	12V4000G23	1450	1300	6007	2591	2936	13000	14077	14	2650	2650	7.2	2400	2000	4.8	345.0	690.0	260.0	6600	3200
HGMT 160	12V4000G63	1600	1450	6000	2591	2936	13000	13977	14	2650	2650	7.2	2400	2000	4.8	394.0	590.0	260.0	6600	3200
HGMT 180	16V4000G23	1800	1650	6700	2900	2887	17060	18167	14	2800	2800	8.1	2700	2000	5.4	433.0	670.0	300.0	7300	3500
HGMT 200	16V4000G63	2000	1800	6700	2900	2887	17910	19047	14	2800	2800	8.1	2700	2000	5.4	495.0	700.0	300.0	7300	3500
HGMT 225	20V4000G23	2250	2000	7636	2900	2887	22780	24059	16	2800	2800	8.1	2700	2000	5.4	549.0	735.0	390.0	8250	3500
HGMT 245	20V4000G63	2450	2200	7600	4638	2795	23220	24680	16	3400	3400	11.7	4100	1900	7.8	596.0	915.0	390.0	8200	5250
HGMT 265	20V4000G63L	2650	2400	7664	4638	2795	24020	25509	16	3400	3400	11.7	4100	1900	7.8	646.0	945.0	390.0	8300	5250

* Above specification may change without notice and rating is based on ISO 8528, standard reference condition.

High Speed Generator Set

CUMMINS Engine (HGCU Series 200 ~ 2750 kW)

Outline Drawing



DATA Sheet

1800rpm, 60Hz

GenSet Model	Engine Model	Emergency Output (kWe)	Prime Output (kWe)	Generator Sets (mm) L	W	H	Weight (kg) Dry	Wet	Exhaust Pipe (inch)	Air - Inlet Size (WXH (mm))		M²	Air - Outlet Size (AXB (mm))		M²	Fuel Consumption (liter/hr)	Cooling -Water Quantity (liter)	Lub-Oil Quantity (liter)	Foundaion Size (mm) L	W
HGCU 025	QSL9-G3	250	227	3135	1100	1928	2119	2684	4	1350	1350	1.8	1000	1200	1.2	77.0	28.6	26.5	3450	1400
HGCU 027	QSL9-G4	275	250	3135	1100	1928	2518	3157	4	1350	1350	1.8	1000	1200	1.2	82.0	28.6	26.5	3450	1400
HGCU 030	QSL9-G5	300	273	3135	1100	1928	2518	3157	6	1350	1350	1.8	1000	1200	1.2	89.0	28.6	26.5	3450	1400
HGCU 035	NTA855-G3	350	315	3156	1000	1914	3032	3143	6	1200	1200	1.4	950	950	0.9	96.0	65.8	36.0	3450	1300
HGCU 040	NTA855-G5	400	N/A	3156	1000	1914	3032	3143	6	1200	1200	1.4	950	950	0.9	110.0	65.8	34.1	3450	1300
HGCU 045	QSX15-G9	450	410	3494	1500	1807	3700	3860	6	1400	1400	2.0	1150	1100	1.3	123.0	65.9	83.0	3800	1800
HGCU 050	QSX15-G9	500	450	3494	1500	1807	3700	3860	6	1400	1400	2.0	1150	1100	1.3	139.0	65.9	83.0	3800	1800
HGCU 060	VTA28-G5	600	436	3819	1483	2037	5604	5880	6	1700	1700	2.9	1400	1350	1.9	173.0	166.0	83.0	4100	1800
HGCU 075	VTA28-G7	750	N/A	4080	1756	2181	6278	6568	6	1900	1900	3.6	1600	1550	2.5	221.0	162.0	68.0	4700	2350
HGCU 082	QSK23-G3	800	727	4593	1502	2086	6700	7023	6	1700	1700	2.9	1350	1400	1.9	212.0	95.5	95.0	5200	2100
HGCU 092	QST30-G3	900	823	4230	1756	2248	6890	7295	12	2000	2000	4.0	1600	1600	2.6	228.0	169.0	133.0	4850	2350
HGCU 100	QST30-G4	1000	910	4469	1755	2248	7488	7768	12	2000	2000	4.0	1600	1550	2.5	267.0	302.0	133.0	5100	2350
HGCU 127	KTA50-G3	1250	1135	5283	2066	2233	9960	10400	12	2200	2200	4.8	1950	1650	3.2	330.0	351.0	151.0	5900	2700
HGCU 154	KTA50-G9	1500	1295	5637	2250	2250	11300	12000	14	2300	2300	5.3	2100	1650	3.5	392.0	400.0	178.0	6250	2850
HGCU 200	QSK60-G6	2000	1825	5828	2270	2550	15245	16000	16	2450	2450	6.0	2200	1900	4.2	521.0	410.0	261.0	6450	2900
HGCU 250	QSK78-G7	2500	2235	6965	2965	3371	20588	21408	16	2700	2700	7.3	3000	3700	11.1	644.0	450.0	413.0	7300	3100
HGCU 275	QSK78-G8	2750	2500	6965	2965	3371	20790	21733	16	2700	2700	7.3	3000	4000	12.0	704.0	997.0	413.0	7300	3300

DATA Sheet

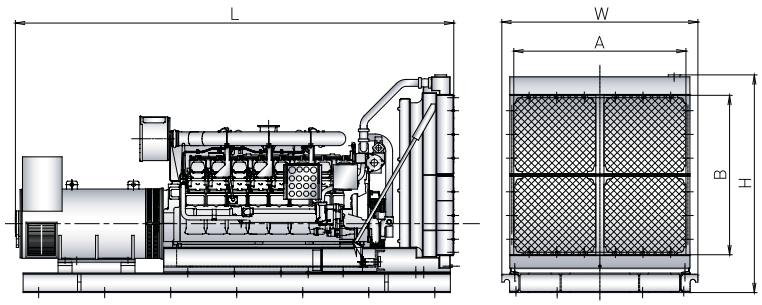
1500rpm, 50Hz

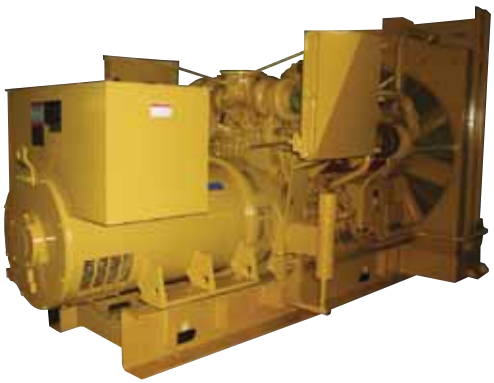
GenSet Model	Engine Model	Emergency Output (kWe)	Prime Output (kWe)	Generator Sets (mm) L	W	H	Weight (kg) Dry	Wet	Exhaust Pipe (inch)	Air - Inlet Size (WXH (mm))		M²	Air - Outlet Size (AXB (mm))		M²	Fuel Consumption (liter/hr)	Cooling -Water Quantity (liter)	Lub-Oil Quantity (liter)	Foundaion Size (mm) L	W
HGCU 022	QSL9-G5	220	200	3135	1100	1928	2518	3157	4	1350	1350	1.8	1000	1200	1.2	69.0	28.6	26.5	3450	1400
HGCU 024	QSL9-G5	240	220	3135	1100	1928	2518	3157	6	1350	1350	1.8	1000	1200	1.2	75.0	28.6	26.5	3450	1400
HGCU 028	NTA855-G3	280	252	3156	1000	1914	3032	3143	6	1200	1200	1.4	950	950	0.9	87.0	65.8	36.0	3450	1300
HGCU 030	NTA855-G5	312	280	3156	1000	1914	3032	3143	6	1200	1200	1.4	950	950	0.9	99.0	65.8	34.1	3450	1300
HGCU 056	VTA28-G5	560	N/A	3819	1483	2037	5604	5880	6	1700	1700	2.9	1350	1400	1.9	154.0	166.0	83.0	4100	1800
HGCU 072	QSK23-G3	720	648	4593	1502	2086	6700	7023	6	1700	1700	2.9	1350	1400	1.9	178.0	95.5	135.0	4100	1800
HGCU 080	QST30-G3	800	728	4230	1756	2248	6890	7295	8	2000	2000	4.0	1600	1600	2.6	207.0	169.0	133.0	4850	2350
HGCU 088	QST30-G4	880	800	4469	1755	2248	7488	7768	8	2000	2000	4.0	1600	1550	2.5	240.0	302.0	133.0	5100	2350
HGCU 112	KTA50-G3	1120	1020	5283	2066	2233	9960	10400	12	2200	2200	4.8	1950	1650	3.2	330.0	351.0	151.0	5900	2700
HGCU 134	KTA50-G8	1340	1120	5637	2250	2250	11300	12000	12	2500	2500	6.3	2250	2250	5.1	345.0	400.0	178.0	5900	2700
HGCU 160	QSK60-G3	1600	1500	5828	2270	2550	15245	16000	14	2500	2800	7.0	2250	2550	5.7	408.0	410.0	261.0	6150	2600
HGCU 180	QSK60-G4	1800	1636	5891	2270	2550	15245	16000	14	2500	2800	7.0	2250	2550	5.7	437.0	621.0	261.0	6200	2600
HGCU 200	QSK60-G13	2000	1600	5842	2270	2800	17000	17000	14	2500	3100	7.8	2200	1900	4.2	366.0	410.0	261.0	6450	2900
HGCU 240	QSK78-G9	2400	2200	6965	2965	3371	20790	21733	16	2700	2700	7.3	3000	4000	12.0	569.0	997.0	413.0	7300	3300

* Above specification may change without notice and rating is based on ISO 8528, standard reference condition.

CATERPILLAR Engine (HGCA Series 200 ~ 4000 kW)

Outline Drawing





DATA Sheet

1800rpm, 60Hz

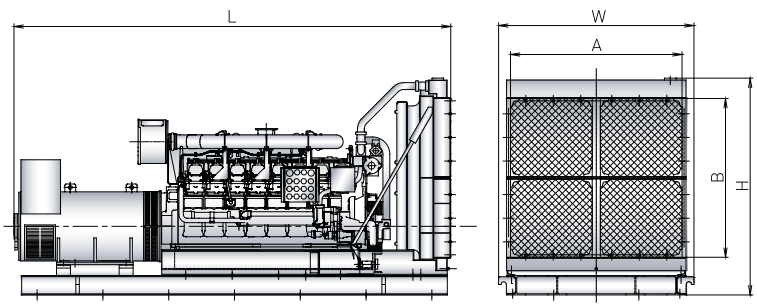
GenSet Model	Engine Model	Emergency Output (kWe)	Prime Output (kWe)	Generator Sets (mm)			Weight (kg)		Exhaust Pipe (inch)	Air - Inlet Size			Air - Outlet Size			Fuel Consumption (liter/hr)	Cooling -Water Quantity (liter)	Lub-Oil Quantity (liter)	Foundaion Size (mm)	
				L	W	H	Dry	Wet		(WXH (mm))		M²	(AXB (mm))		M²				L	W
HGCA 023	3306 TA	230	210	3200	1320	1714	3432	3500	6	1000	1000	1.0	900	900	0.9	68.0	36.0	38.0	4100	1400
HGCA 025	3306 ATTAC	250	225	3200	1320	1714	3432	3500	6	1000	1000	1.0	900	900	0.9	73.0	36.0	38.0	4100	1400
HGCA 030	3406 TA	300	275	4265	1110	2150	3943	4000	6	1200	1200	1.5	1000	1100	1.1	87.0	58.0	38.0	4900	1800
HGCA 035	3406 TA	350	320	4265	1110	2150	3943	4000	6	1200	1200	1.5	1000	1100	1.1	101.0	58.0	38.0	4900	1800
HGCA 040	C15 ATAAC	400	365	4265	1110	2166	3891	4000	6	1200	1200	1.5	1000	1400	1.4	111.0	58.0	60.0	4900	1800
HGCA 045	C15 ATAAC	450	410	3823	1110	2166	4391	4500	6	1400	1400	2.0	1000	1400	1.4	120.0	58.0	64.0	4500	1800
HGCA 050	C15 ATAAC	500	455	3823	1110	2166	4391	4500	6	1400	1400	2.0	1000	1400	1.4	127.0	58.0	64.0	4500	1800
HGCA 055	C18 ATAAC	550	500	3934	1536	2168	4941	5000	8	1400	1600	2.3	1400	1300	1.9	148.0	82.0	64.0	4600	2200
HGCA 060	C18 ATAAC	600	545	3934	1536	2168	4941	5000	8	1400	1600	2.3	1400	1300	1.9	163.0	82.0	64.0	4600	2200
HGCA 065	3412 TTA	650	591	4485	1799	1987	6269	6500	8	1600	1800	2.9	1600	1500	2.4	176.0	160.0	142.0	5000	2000
HGCA 070	3412 TTA	700	635	4485	1799	1987	6722	7000	8	1600	1800	2.9	1600	1500	2.4	188.0	163.0	142.0	5000	2000
HGCA 075	3412 STA	750	680	4485	1742	1987	7220	7500	8	1600	1800	2.9	1600	1500	2.4	206.0	149.0	142.0	5000	2000
HGCA 080	3412 STA	800	725	4485	1742	1987	7231	7500	8	1600	1800	2.9	1600	1500	2.4	222.0	149.0	142.0	5000	2000
HGCA 100	C32 ATAAC	1000	910	4475	2011	2174	8253	10000	12	1600	2000	3.2	1600	1700	2.8	263.0	190.0	68.0	5100	2600
HGCA 110	3512 TA	1100	1000	5138	1975	2174	11950	12000	12	2200	2400	5.3	2200	2000	4.4	305.0	287.0	322.0	5800	2600
HGCA 125	3512 TA	1250	1135	5138	1975	2368	11950	13000	12	2200	2400	5.3	2200	2000	4.4	354.0	287.0	322.0	5800	2600
HGCA 140	3512B TA	1400	1275	5241	2286	2342	12915	14500	14	2200	2400	5.3	2200	2000	4.4	377.0	306.0	322.0	5900	2900
HGCA 150	3512B TA	1500	1360	5241	2286	2342	12915	14500	14	2200	2400	5.3	2200	2000	4.4	404.0	306.0	322.0	5900	2900
HGCA 175	3516 TA	1750	1600	5815	2286	2368	14754	15500	16	2200	2400	5.3	2200	2000	4.4	470.0	398.0	416.0	6500	2900
HGCA 200	3516B TA	2000	1825	6267	2588	3051	15731	17000	16	2400	3100	7.5	2400	2500	6.0	514.0	421.0	416.0	6900	3200
HGCA 225	3516B TA	2250	2000	6527	2588	3051	16634	17500	16	2400	3100	7.5	2400	2500	6.0	594.0	405.0	416.0	7100	3200
HGCA 250	3516C ATAAC	2500	2275	6983	2570	3010	17648	19000	20	2500	3300	8.3	2400	2500	6.0	656.0	504.0	481.0	7600	3200
HGCA 300	C175-16 ATAAC	3000	2725	6133	2175	2208	19248	20600	20	2500	2500	6.2	2000	2600	5.2	806.0	304.0	540.0	6700	2800
HGCA 310	C175-16 ATAAC	3100	2825	6133	2175	2208	19248	20600	20	2400	2500	6.2	2000	2600	5.2	795.0	304.0	540.0	6700	2800
HGCA 400	C175-20 ATAAC	4000	3600	6653	2337	2556	22148	23500	24	2800	2700	7.6	2500	2600	6.4	1039.0	440.0	675.0	7200	2900

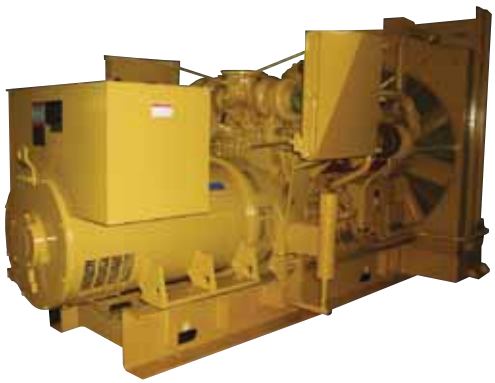
* Above specification may change without notice and rating is based on ISO 8528, standard reference condition.

High Speed Generator Set

CATERPILLAR Engine (HGCA Series 240 ~ 3200 kW)

Outline Drawing





DATA Sheet

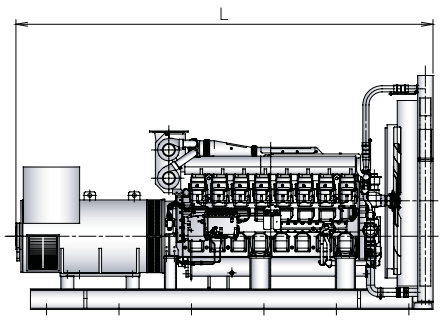
1500rpm, 50Hz

GenSet Model	Engine Model	Emergency Output (kWe)	Prime Output (kWe)	Generator Sets (mm)			Weight (kg)		Exhaust Pipe (inch)	Air - Inlet Size			Air - Outlet Size			Fuel Consumption (liter/hr)	Cooling -Water Quantity (liter)	Lub-Oil Quantity (liter)	Foundaion Size (mm)	
				L	W	H	Dry	Wet		(WXH (mm))		M²	(AXB (mm))		M²				L	W
HGCA 024	3406 TA	240	220	4265	1110	2150	3943	4000	6	1200	1200	1.5	1000	1100	1.1	87.0	58.0	38.0	4900	1800
HGCA 028	3406 TA	280	256	4265	1110	2150	3943	4000	6	1200	1200	1.5	1000	1100	1.1	101.0	58.0	38.0	4900	1800
HGCA 032	C15 ATAAC	320	292	4265	1110	2166	3891	4000	6	1200	1200	1.5	1000	1400	1.4	111.0	58.0	60.0	4900	1800
HGCA 036	C15 ATAAC	360	328	3823	1110	2166	4391	4500	6	1400	1400	2.0	1000	1400	1.4	120.0	58.0	64.0	4500	1800
HGCA 040	C15 ATAAC	400	364	3823	1110	2166	4391	4500	6	1400	1400	2.0	1000	1400	1.4	127.0	58.0	64.0	4500	1800
HGCA 044	C18 ATAAC	440	400	3934	1536	2168	4941	5000	8	1400	1600	2.3	1400	1300	1.9	148.0	82.0	64.0	4600	2200
HGCA 052	C18 ATAAC	520	480	3934	1536	2168	4941	5000	8	1400	1600	2.3	1400	1300	1.9	163.0	82.0	64.0	4600	2200
HGCA 056	3412 TTA	560	508	4485	1799	1987	6269	6500	8	1600	1800	2.9	1600	1500	2.4	176.0	160.0	142.0	5000	2000
HGCA 060	3412 TTA	600	544	4485	1799	1987	6722	7000	8	1600	1800	2.9	1600	1500	2.4	188.0	163.0	142.0	5000	2000
HGCA 064	3412 STA	640	580	4485	1742	1987	7220	7500	8	1600	1800	2.9	1600	1500	2.4	206.0	149.0	142.0	5000	2000
HGCA 072	3412 STA	720	648	4485	1742	1987	7220	7500	8	1600	1800	2.9	1600	1500	2.4	222.0	149.0	142.0	5000	2000
HGCA 088	C32 ATAAC	880	800	4475	2011	2174	8253	10000	12	1600	2000	3.2	1600	1700	2.8	263.0	190.0	68.0	5100	2600
HGCA 100	3512 TA	1000	920	5138	1975	2174	11950	12000	12	2200	2400	5.3	2200	2000	4.4	305.0	287.0	322.0	5800	2600
HGCA 112	3512 TA	1120	1020	5138	1975	2368	11950	13000	12	2200	2400	5.3	2200	2000	4.4	354.0	287.0	322.0	5800	2600
HGCA 120	3512B TA	1200	1088	5241	2286	2342	12915	14500	14	2200	2400	5.3	2200	2000	4.4	377.0	306.0	322.0	5900	2900
HGCA 128	3512B TA	1280	1200	5241	2286	2342	12915	14500	14	2200	2400	5.3	2200	2000	4.4	404.0	306.0	322.0	5900	2900
HGCA 160	3516 TA	1600	1460	5815	2286	2368	14754	15500	16	2200	2400	5.3	2200	2000	4.4	470.0	398.0	416.0	6500	2900
HGCA 180	3516B TA	1800	1600	6267	2588	3051	15731	17000	16	2400	3100	7.5	2400	2500	6.0	514.0	421.0	416.0	6900	3200
HGCA 200	3516B TA	2000	1820	6527	2588	3051	16634	17500	16	2400	3100	7.5	2400	2500	6.0	594.0	405.0	416.0	7100	3200
HGCA 240	C175-16 ATAAC	2400	2180	6133	2175	2208	19248	20600	20	2500	2500	6.2	2000	2600	5.2	806.0	304.0	540.0	6700	2800
HGCA 248	C175-16 ATAAC	2480	2260	6133	2175	2208	19248	20600	20	2400	2500	6.2	2000	2600	5.2	795.0	304.0	540.0	6700	2800
HGCA 320	C175-20 ATAAC	3200	2880	6653	2337	2556	22148	23500	24	2800	2700	7.6	2500	2600	6.4	1039.0	440.0	675.0	7200	2900

* Above specification may change without notice and rating is based on ISO 8528, standard reference condition.

MITSUBISHI Engine (HGMI Series 500 ~ 2000 kW)

Outline Drawing



DATA Sheet

1800rpm, 60Hz

GenSet Model	Engine Model	Emergency Output (kWe)	Prime Output (kWe)	Generator Sets (mm)			Weight (kg)		Exhaust Pipe (inch)	Air - Inlet Size			Air - Outlet Size			Fuel Consumption (liter/hr)	Cooling -Water Quantity (liter)	Lub-Oil Quantity (liter)	Foundaion Size (mm)	
				L	W	H	Dry	Wet		(WXH (mm))		M²	(AXB (mm))		M²				L	W
HGMI 060	S6R-PTA	600	530	3454	1410	1790	5,290	5,497	8	1400	1400	2.0	1400	1100	1.5	157.0	113.0	94.0	3900	1600
HGMI 080	S12A2-PTA	800	675	3970	1600	2100	6,290	6,625	8	1600	1600	2.6	1500	1300	2.0	222.0	215.0	120.0	4400	1800
HGMI 100	S12H-PTA	1000	900	4370	1650	2320	8,180	8,624	8	1800	1800	3.2	1600	1600	2.6	265.0	244.0	200.0	4700	1600
HGMI 125	S12R-PTA	1200	1060	4620	1820	2540	9,620	10,135	12	2000	2000	4.0	1800	1700	3.1	314.0	335.0	180.0	5100	1800
HGMI 130	S12R-PTA2	1300	1200	4620	1830	2870	11,000	11,485	12	2100	2100	4.4	1800	2000	3.6	358.0	305.0	180.0	5100	1800
HGMI 150	S12R-PTAA2	1500	1350	5000	2200	2925	11,400	11,897	12	2100	2100	4.4	1800	2000	3.6	388.0	305.0	180.0	5400	2000
HGMI 160	S16R-PTA	1600	1445	5300	1860	2750	13,050	13,630	14	2200	2200	4.8	1800	2100	3.8	408.0	350.0	230.0	5800	2400
HGMI 180	S16R-PTA2	1800	1620	5180	2600	2900	12,840	13,515	14	2800	2800	7.8	2500	2400	6.0	479.0	445.0	230.0	5600	3200
HGMI 200	S16R-PTAA2	2000	1780	5750	2610	3325	13,670	14,300	14	2600	2600	6.8	2100	2500	5.3	521.0	400.0	230.0	6000	3000

DATA Sheet

1500rpm, 50Hz

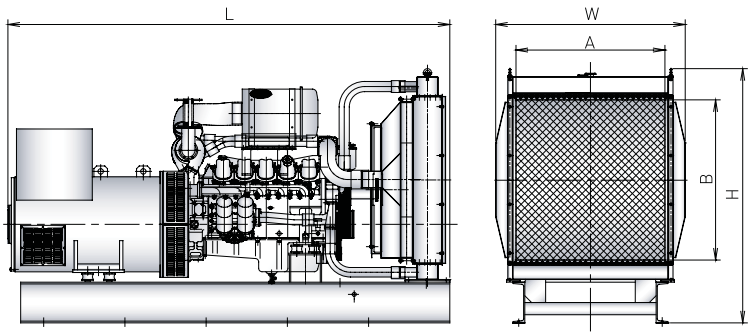
GenSet Model	Engine Model	Emergency Output (kWe)	Prime Output (kWe)	Generator Sets (mm)			Weight (kg)		Exhaust Pipe (inch)	Air - Inlet Size			Air - Outlet Size			Fuel Consumption (liter/hr)	Cooling -Water Quantity (liter)	Lub-Oil Quantity (liter)	Foundaion Size (mm)	
				L	W	H	Dry	Wet		(WXH (mm))		M²	(AXB (mm))		M²				L	W
HGMI 050	S6R-PTA	510	460	3454	1410	1790	5,290	5,497	8	1400	1400	2.0	1400	1100	1.5	157.0	113.0	94.0	3900	1600
HGMI 067	S12A2-PTA	670	600	3970	1600	2100	6,290	6,625	8	1600	1600	2.6	1500	1300	2.0	222.0	215.0	120.0	4400	1800
HGMI 090	S12H-PTA	910	825	4370	1650	2320	8,180	8,624	8	1800	1800	3.2	1600	1600	2.6	265.0	244.0	200.0	4700	1600
HGMI 110	S12R-PTA	1110	1000	4620	1820	2540	9,620	10,135	12	2000	2000	4.0	1800	1700	3.1	314.0	335.0	180.0	5100	1800
HGMI 120	S12R-PTA2	1200	1085	4620	1830	2870	11,000	11,485	12	2100	2100	4.4	1800	2000	3.6	358.0	305.0	180.0	5100	1800
HGMI 130	S12R-PTAA2	1315	1190	5000	2200	2925	11,400	11,897	12	2100	2100	4.4	1800	2000	3.6	388.0	305.0	180.0	5400	2000
HGMI 150	S16R-PTA	1490	1350	5300	1860	2750	13,050	13,630	14	2200	2200	4.8	1800	2100	3.8	408.0	350.0	230.0	5800	2400
HGMI 165	S16R-PTA2	1650	1500	5180	2600	2900	12,840	13,515	14	2800	2800	7.8	2500	2400	6.0	479.0	445.0	230.0	5600	3200
HGMI 178	S16R-PTAA2	1780	1580	5750	2610	3325	13,670	14,300	14	2600	2600	6.8	2100	2500	5.3	521.0	400.0	230.0	6000	3000

* Above specification may change without notice and rating is based on ISO 8528, standard reference condition.

High Speed Generator Set

DOOSAN Engine (HGDO Series 50 ~ 750 kW)

Outline Drawing



DATA Sheet

1800rpm, 60Hz

GenSet Model	Engine Model	Emergency Output (kWe)	Prime Output (kWe)	Generator Sets (mm)			Weight (kg)		Exhaust Pipe (inch)	Air - Inlet Size			Air - Outlet Size			Fuel Consumption (liter/hr)	Cooling -Water Quantity (liter)	Lub-Oil Quantity (liter)	Foundaion Size (mm)	
				L	W	H	Dry	Wet		(WXH (mm))		M²	(AXB (mm))		M²				L	W
HGDO 006	DB58	60	55	2290	850	1380	950	1260	2.5	750	750	0.6	700	600	0.4	18.1	34.0	19.0	2900	1450
HGDO 009	D1146	90	82	2500	850	1448	1320	1620	2.5	750	750	0.6	700	600	0.4	26.6	38.5	15.5	2900	1450
HGDO 013	D1146T	130	109	2500	850	1448	1530	1730	4	750	750	0.6	700	600	0.4	35.9	38.5	15.5	2900	1450
HGDO 017	DE12T	175	159	2785	920	1498	1810	2020	4	900	900	0.8	800	800	0.6	49.0	41.0	23.0	3400	1550
HGDO 020	P086TI	200	184	2728	946	1613	1840	2050	4	1000	1000	1.0	800	900	0.7	56.8	48.5	15.5	3400	1450
HGDO 025	P126TI-3	250	229	2994	1100	1558	1980	2420	4	1000	1000	1.0	900	900	0.8	68.2	60.0	23.0	3600	1550
HGDO 027	P126TI	275	257	2994	1100	1558	2110	2420	4	1000	1000	1.0	900	900	0.8	76.5	60.0	23.0	3600	1550
HGDO 030	P126TI-II	300	270	2994	1100	1558	2240	2500	4	1000	1000	1.0	900	900	0.8	89.5	60.0	23.0	3600	1550
HGDO 033	P158LE-2	330	304	2990	1400	1868	2510	2750	4 X 2	1300	1300	1.7	1100	1200	1.3	93.5	88.5	28.0	3600	1750
HGDO 036	P158LE-1	360	328	2990	1400	1868	2610	2840	4 X 2	1300	1300	1.7	1100	1200	1.3	104.0	88.5	28.0	3600	1750
HGDO 040	P158LE	400	351	2990	1400	1868	2810	2940	4 X 2	1300	1300	1.7	1100	1200	1.3	115.7	88.5	28.0	3600	1750
HGDO 045	P158LE-III	450	408	2990	1400	1868	2910	3050	4 X 2	1300	1300	1.7	1100	1200	1.3	129.8	88.5	28.0	3600	1750
HGDO 050	P180LE	500	460	3170	1400	1868	3250	3320	4 X 2	1300	1300	1.7	1100	1200	1.3	144.6	94.0	35.0	3800	1750
HGDO 055	P180LE-II	550	506	3170	1400	1868	3360	3520	4 X 2	1300	1300	1.7	1100	1200	1.3	155.6	94.0	35.0	3800	1750
HGDO 061	P222LE	610	552	3390	1400	1898	3920	3990	4 X 2	1400	1400	2.0	1300	1200	1.6	173.5	113.0	40.0	4000	1750
HGDO 066	P222LE-II	660	602	3390	1400	1898	4080	4150	4 X 2	1400	1400	2.0	1300	1200	1.6	192.1	125.0	40.0	4000	1750
HGDO 075	P222FE-II	750	671	3390	1620	2098	4320	4660	4 X 2	1650	1650	2.7	1500	1400	2.1	201.6	161.0	40.0	4000	1750

DATA Sheet

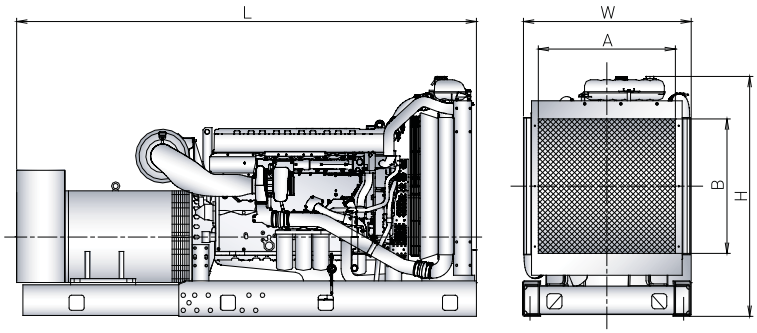
1500rpm, 50Hz

GenSet Model	Engine Model	Emergency Output (kWe)	Prime Output (kWe)	Generator Sets (mm)			Weight (kg)		Exhaust Pipe (inch)	Air - Inlet Size			Air - Outlet Size			Fuel Consumption (liter/hr)	Cooling -Water Quantity (liter)	Lub-Oil Quantity (liter)	Foundaion Size (mm)	
				L	W	H	Dry	Wet		(WXH (mm))		M²	(AXB (mm))		M²				L	W
HGDO 005	DB58	50	46	2290	850	1380	950	1260	2.5	750	750	0.6	700	600	0.4	15.3	34.0	19.0	2900	1450
HGDO 007	D1146	75	66	2500	850	1448	1320	1620	2.5	750	750	0.6	700	600	0.4	20.8	38.5	15.5	2900	1450
HGDO 010	D1146T	105	94	2500	830	1448	1530	1730	4	750	750	0.6	700	600	0.4	27.0	38.5	15.5	2900	1450
HGDO 015	DE12T	150	134	2785	920	1498	1810	2020	4	900	900	0.8	800	800	0.6	41.0	41.0	23.0	3400	1550
HGDO 017	P086TI	175	158	2728	946	1613	1840	2050	4	1000	1000	1.0	800	900	0.7	48.4	48.5	15.5	3400	1450
HGDO 022	P126TI-3	225	201	2994	1100	1558	1980	2420	4	1000	1000	1.0	900	900	0.8	59.6	60.0	23.0	3600	1550
HGDO 025	P126TI	250	220	2994	1100	1558	2110	2420	4	1000	1000	1.0	900	900	0.8	66.2	60.0	23.0	3600	1550
HGDO 027	P126TI-II	270	242	2994	1100	1558	2240	2500	4	1000	1000	1.0	900	900	0.8	77.6	60.0	23.0	3600	1550
HGDO 029	P158LE-2	295	268	2990	1400	1868	2510	2750	4 X 2	1300	1300	1.7	1100	1200	1.3	84.4	88.5	28.0	3600	1750
HGDO 033	P158LE-1	330	296	2990	1400	1868	2610	2840	4 X 2	1300	1300	1.7	1100	1200	1.3	93.6	88.5	28.0	3600	1750
HGDO 037	P158LE	375	331	2990	1400	1868	2810	2940	4 X 2	1300	1300	1.7	1100	1200	1.3	102.9	88.5	28.0	3600	1750
HGDO 045	P180LE	455	407	3170	1400	1868	3250	3320	4 X 2	1300	1300	1.7	1100	1200	1.3	144.6	94.0	35.0	3800	1750
HGDO 053	P222LE	530	491	3390	1400	1898	3920	3990	4 X 2	1400	1400	2.0	1300	1200	1.6	173.5	113.0	40.0	4000	1750
HGDO 060	P222LE-II	600	-	3390	1400	1898	4080	4150	4 X 2	1400	1400	2.0	1300	1200	1.56	192.1	125.0	40.0	4000	1750

* Above specification may change without notice and rating is based on ISO 8528, standard reference condition.

VOLVO Engine (HGVO Series 75 ~ 600 kW)

Outline Drawing



DATA Sheet

1800rpm, 60Hz

GenSet Model	Engine Model	Emergency Output (kWe)	Prime Output (kWe)	Generator Sets (mm)			Weight (kg)		Exhaust Pipe (inch)	Air - Inlet Size			Air - Outlet Size			Fuel Consumption (liter/hr)	Cooling -Water Quantity (liter)	Lub-Oil Quantity (liter)	Foundaion Size (mm)	
				L	W	H	Dry	Wet		(WXH (mm))		M²	(AXB (mm))		M²				L	W
HGVO 008	TAD530GE	77	70	2200	865	1465	1120	1151	4	650	650	0.5	500	650	0.4	19.8	19.7	13.0	2500	1150
HGVO 090	TAD531GE	92	84	2280	865	1465	1340	1371	4	650	650	0.5	500	650	0.4	24.4	19.7	13.0	2600	1150
HGVO 012	TAD532GE	117	106	2315	955	1550	1560	1591	4	850	850	0.8	650	700	0.5	31.5	20.2	13.0	2600	1250
HGVO 014	TAD731GE	141	127	2480	870	1505	1590	1634	4	850	850	0.8	650	700	0.5	36.3	23.8	20.0	2800	1200
HGVO 018	TAD732GE	181	165	2445	1105	1615	1820	1888	4	1000	1000	1.0	750	950	0.8	45.8	38.4	34.0	2800	1400
HGVO 020	TAD733GE	201	181	2510	1080	1590	2240	2308	4	1000	1000	1.0	750	950	0.8	52.6	38.4	34.0	2800	1400
HGVO 023	TAD734GE	227	202	2570	1080	1590	2310	2377	4	1000	1000	1.0	750	950	0.8	55.3	32.0	29.0	2900	1400
HGVO 025	TAD940GE	251	228	2905	1095	1705	2470	2520	6	1100	1100	1.3	900	950	0.9	60.2	41.0	40.0	3200	1400
HGVO 030	TAD941GE	303	276	2955	1205	1755	3230	3280	6	1100	1100	1.3	900	950	0.9	72.3	41.0	40.0	3250	1500
HGVO 030	TAD1240GE	308	280	3090	1120	1637	2820	2895	6	1100	1100	1.3	900	950	0.9	73.2	44.0	35.0	3400	1450
HGVO 036	TAD1241GE	360	327	2955	1205	1755	3400	3475	6	1100	1100	1.3	900	950	0.9	86.0	44.0	35.0	3250	1500
HGVO 040	TAD1242GE	400	364	2955	1205	1755	3650	3725	6	1100	1100	1.3	900	950	0.9	99.8	44.0	35.0	3250	1500
HGVO 045	TAD1640GE	450	406	3305	1415	1925	3910	4020	8	1450	1450	2.1	1500	900	1.4	109.1	93.0	48.0	3600	1700
HGVO 050	TAD1641GE	518	461	3305	1415	1925	3910	4020	8	1450	1450	2.1	1500	900	1.4	126.7	93.0	48.0	3600	1700
HGVO 055	TAD1642GE	550	500	3305	1415	1925	3920	4030	8	1450	1450	2.1	1500	900	1.4	137.2	93.0	48.0	3600	1700
HGVO 060	TWD1643GE	605	550	3305	1415	1925	3920	4030	8	1600	1600	2.6	1150	1500	1.8	145.2	128.0	48.0	3600	1700

DATA Sheet

1500rpm, 50Hz

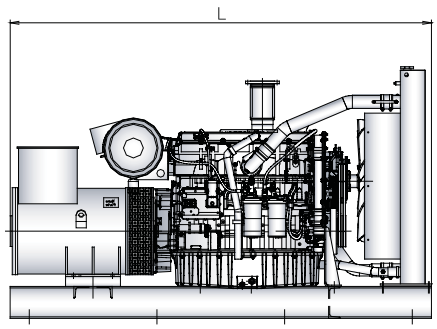
GenSet Model	Engine Model	Emergency Output (kWe)	Prime Output (kWe)	Generator Sets (mm)			Weight (kg)		Exhaust Pipe (inch)	Air - Inlet Size			Air - Outlet Size			Fuel Consumption (liter/hr)	Cooling -Water Quantity (liter)	Lub-Oil Quantity (liter)	Foundaion Size (mm)	
				L	W	H	Dry	Wet		(WXH (mm))		M²	(AXB (mm))		M²				L	W
HGVO 007	TAD530GE	74	68	2200	865	1465	1120	1151	4	650	650	0.5	500	650	0.4	19.5	19.7	13.0	2500	1150
HGVO 009	TAD531GE	87	80	2280	865	1465	1340	1371	4	650	650	0.5	500	650	0.4	22.9	19.7	13.0	2600	1150
HGVO 010	TAD532GE	114	103	2315	955	1550	1560	1591	4	850	850	0.8	650	700	0.5	29.2	20.2	13.0	2600	1250
HGVO 013	TAD731GE	133	121	2480	870	1505	1590	1634	4	850	850	0.8	650	700	0.5	34.4	23.8	20.0	2800	1200
HGVO 016	TAD732GE	165	149	2445	1105	1615	1820	1888	4	1000	1000	1.0	750	950	0.8	40.8	38.4	34.0	2750	1400
HGVO 018	TAD733GE	181	165	2510	1080	1590	2240	2308	4	1000	1000	1.0	750	950	0.8	45.9	38.4	34.0	2800	1400
HGVO 022	TAD734GE	222	199	2570	1080	1590	2310	2377	4	1000	1000	1.0	750	950	0.8	53.5	32.0	29.0	2900	1400
HGVO 025	TAD940GE	244	222	2905	1095	1705	2470	2520	6	1100	1100	1.3	900	950	0.9	58.6	41.0	40.0	3200	1400
HGVO 029	TAD941GE	286	260	2955	1205	1755	3230	3280	6	1100	1100	1.3	900	950	0.9	68.6	41.0	40.0	3250	1500
HGVO 030	TAD1240GE	308	280	3090	1120	1637	2820	2895	6	1100	1100	1.3	900	950	0.9	71.4	44.0	35.0	3400	1450
HGVO 032	TAD1241GE	329	300	2955	1205	1755	3400	3475	6	1100	1100	1.3	900	950	0.9	77.0	44.0	35.0	3250	1500
HGVO 036	TAD1242GE	360	327	2955	1205	1755	3650	3725	6	1100	1100	1.3	900	950	0.9	85.6	44.0	35.0	3250	1500
HGVO 040	TAD1640GE	405	369	3305	1415	1925	3910	4020	8	1450	1450	2.1	1500	900	1.4	96.2	93.0	48.0	3600	1700
HGVO 045	TAD1641GE	447	407	3305	1415	1925	3910	4020	8	1450	1450	2.1	1500	900	1.4	104.7	93.0	48.0	3600	1700
HGVO 050	TAD1642GE	504	456	3305	1415	1925	3920	4030	8	1450	1450	2.1	1500	900	1.4	130.0	93.0	48.0	3600	1700
HGVO 055	TWD1643GE	560	504	3305	1415	1925	3920	4030	8	1600	1600	2.6	1150	1500	1.8	131.8	128.0	48.0	3600	1700

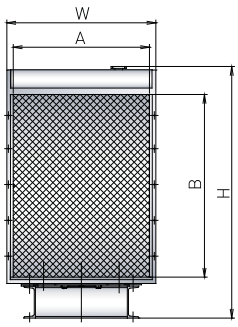
* Above specification may change without notice and rating is based on ISO 8528, standard reference condition.

High Speed Generator Set

PERKINS Engine (HGPE Series 90 ~ 750 kW)

Outline Drawing





DATA Sheet

1800rpm, 60Hz

GenSet Model	Engine Model	Emergency Output (kWe)	Prime Output (kWe)	Generator Sets (mm)			Weight (kg)		Exhaust Pipe (inch)	Air - Inlet Size			Air - Outlet Size			Fuel Consumption (liter/hr)	Cooling -Water Quantity (liter)	Lub-Oil Quantity (liter)	Foundaion Size (mm)	
				L	W	H	Dry	Wet		(WXH (mm))		M²	(AXB (mm))		M²				L	W
HGPE 010	1006TG2A	106	97	2605	709	1375	1294	1331	4	800	800	0.7	600	700	0.5	31.7	27.7	16.1	2900	1000
HGPE 013	1006TAG	133	121	2730	773	1315	1378	1422	4	900	900	0.9	650	650	0.5	37.6	37.2	19.0	3050	1100
HGPE 040	2206A-E13TAG6	400	350	3628	1120	1975	3084	3188	6	1350	1350	1.9	1050	1100	1.2	95.1	51.4	40.0	4000	1450
HGPE 045	2506C-E15TAG3	450	410	3875	1120	1968	3337	3418	6	1350	1350	1.9	1050	1100	1.2	105.9	58.0	62.0	4200	1450
HGPE 055	2806C-E18TAG1A	550	500	3785	1536	2058	3850	3958	6	1650	1650	2.8	1300	1400	1.9	133.9	61.0	62.0	4100	1850
HGPE 060	2806C-E18TAG3	600	545	3845	1536	2058	4288	4396	6	1650	1650	2.8	1300	1400	1.9	147.5	61.0	62.0	4150	1850
HGPE 067	4006-23TAG2A	675	600	4327	1706	2215	4870	5009	8	2000	2000	4.0	1600	1600	2.6	179.5	105.0	113.4	4650	2000
HGPE 075	4006-23TAG3A	750	675	4507	1706	2215	4926	5065	8	2000	2000	4.0	1600	1600	2.6	202.9	105.0	113.4	5100	2300

DATA Sheet

1500rpm, 50Hz

GenSet Model	Engine Model	Emergency Output (kWe)	Prime Output (kWe)	Generator Sets (mm)			Weight (kg)		Exhaust Pipe (inch)	Air - Inlet Size			Air - Outlet Size			Fuel Consumption (liter/hr)	Cooling -Water Quantity (liter)	Lub-Oil Quantity (liter)	Foundaion Size (mm)	
				L	W	H	Dry	Wet		(WXH (mm))		M²	(AXB (mm))		M²				L	W
HGPE 009	1006TG2A	90	82	2605	709	1375	1294	1331	4	800	800	0.7	600	700	0.5	27.1	27.7	16.1	2900	1000
HGPE 012	1006TAG	120	109	2730	773	1315	1378	1422	4	900	900	0.9	650	650	0.5	31.5	37.2	19.0	3050	1100
HGPE 032	2206A-E13TAG6	320	280	3628	1120	1975	3084	3188	6	1350	1350	1.9	1050	1100	1.2	78.0	51.4	40.0	4000	1450
HGPE 052	2806C-E18TAG1A	520	473	3785	1536	2058	3850	3958	6	1650	1650	2.8	1300	1400	1.9	125.4	61.0	62.0	4100	1850
HGPE 052	2806C-E18TAG3	520	480	3845	1536	2058	4288	4396	6	1650	1650	2.8	1300	1400	1.9	124.8	61.0	62.0	4150	1850
HGPE 064	4006-23TAG2A	640	584	4327	1706	2215	4870	5009	8	2000	2000	4.0	1600	1600	2.6	158.1	105.0	113.4	4650	2000
HGPE 072	4006-23TAG3A	720	640	4507	1706	2215	4926	5065	8	2000	2000	4.0	1600	1600	2.6	179.6	105.0	113.4	4800	2000

* Above specification may change without notice and rating is based on ISO 8528, standard reference condition.

Medium Speed Generator Set

Characteristic

Medium speed generator is designed to operate at 900rpm or bellow speed.
It is organized to variable system that is Excitation, Protection Device, Detector, etc. and manufactured according to specification (characteristic, type of drive and bearing) that is customer's requirement.

Application

Medium speed generator of Hyosung is supplied for main power source to industrial facilities, power plants, ships and applied to the use of engine, special purpose.

MEDIUM SPEED GENERATOR

Medium Speed Generator Set

General Data Sheet

6 POLE (1200 r/min)

at 450V, 60Hz, Amb. Temperature : 45°C, p.f 0.8

Type		Output		Weight (kg)	Moment of Inertica (kg·m²)	Rated Current (A)
		kVA	kW			
HMD	400S	563	450	2050	10.1	722
	400M	625	500	2150	10.9	802
	400L	688	550	2250	11.7	883
	450S	875	700	2500	18.3	1123
	450M	1000	800	2750	19.7	1284
	450L	1063	850	3000	21.1	1364
	500S	1500	1200	3250	29.2	1925
	500M	1688	1350	3500	35.1	2166
	500L	1875	1500	3700	42.1	2406
	560S	1938	1550	4600	55.4	2486
	560M	2188	1750	4900	62.1	2807
	560L	2375	1900	5200	67.2	3048
	630S	2625	2100	6600	117	3368
	630M	3000	2400	6900	129	3850
	630L	3375	2700	7200	138	4331
	630G	3625	2900	7550	149	4651
	710S	4125	3300	9000	198	5293
	710M	4500	3600	9500	220	5774
	710L	4875	3900	10000	243	6255
	710G	5250	4200	10500	265	6736

* Above specification may change without notice and rating is based on ISO 8528, standard reference condition.

8 POLE (900 r/min)

at 450V, 60Hz, Amb. Temperature : 45°C, p.f 0.8

Type		Output		Weight (kg)	Moment of Inertica (kg·m²)	Rated Current (A)
		kVA	kW			
HMD	500S	1063	850	3250	29.2	1364
	500M	1125	900	3500	35.1	1444
	500L	1188	950	3700	42.1	1524
	560S	1375	1100	4600	55.4	1765
	560M	1563	1250	4900	62.1	2005
	560L	1750	1400	5200	67.2	2246
	630S	1875	1500	6600	117	2406
	630M	2250	1800	6900	129	2887
	630L	2625	2100	7200	138	3368
	630G	3000	2400	7550	149	3850
	710S	3500	2800	9000	198	4491
	710M	3750	3000	9500	220	4812
	710L	4000	3200	10000	243	5133
	710G	4375	3500	10500	280	5614
	800S	5000	4000	11000	400	6416
	800M	5375	4300	11900	420	6897
	800L	5875	4700	12800	450	7538
	800G	6125	4900	13500	490	7859

10 POLE (720 r/min)

at 450V, 60Hz, Amb. Temperature : 45°C, p.f 0.8

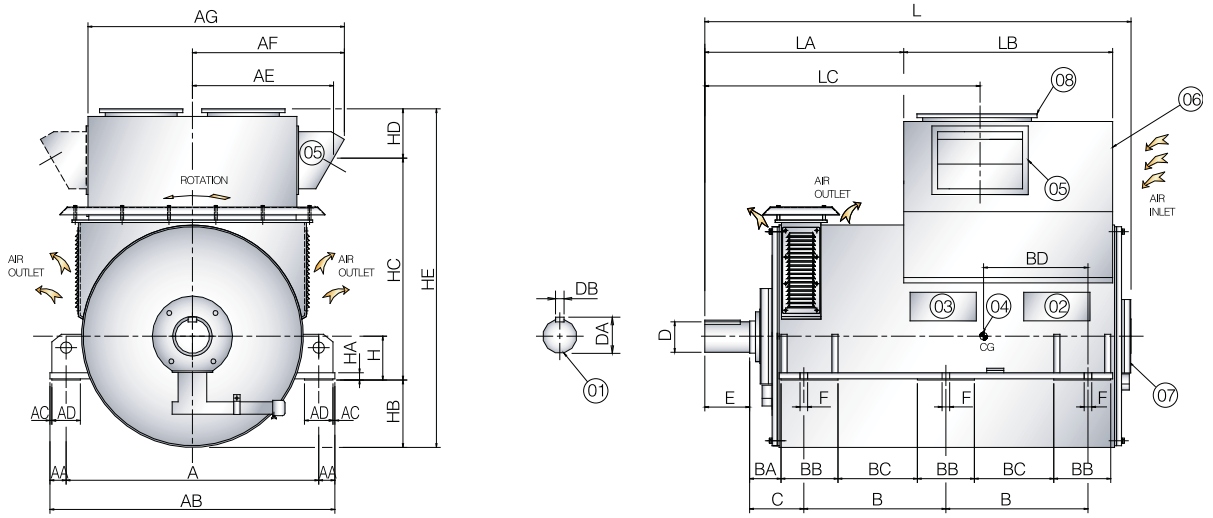
Type		Output		Weight (kg)	Moment of Inertica (kg·m²)	Rated Current (A)
		kVA	kW			
HMD	500S	688	550	3250	29.2	883
	500M	850	680	3500	35.1	1091
	500L	1032	825	3700	42.1	1324
	560S	1188	950	4600	55.4	1524
	560M	1438	1150	4900	62.1	1845
	560L	1750	1400	5200	67.2	2246
	630S	1875	1500	6600	117	2406
	630M	2075	1660	6900	129	2663
	630L	2275	1820	7700	138	2919
	630G	2500	2000	8400	149	3208
	710S	2750	2200	9000	198	3529
	710M	3063	2450	9500	220	3930
	710L	3313	2650	10000	243	4250
	710G	3625	2900	10500	280	4651
	800S	3750	3000	11000	400	4812
	800M	4375	3500	11900	420	5614
	800L	5000	4000	12800	450	6416
	800G	5625	4500	13500	490	7217

* Above specification may change without notice and rating is based on ISO 8528, standard reference condition.

Medium Speed Generator Set

Outline Dimension Drawing

Double Anti Friction Bearing Type (DP)



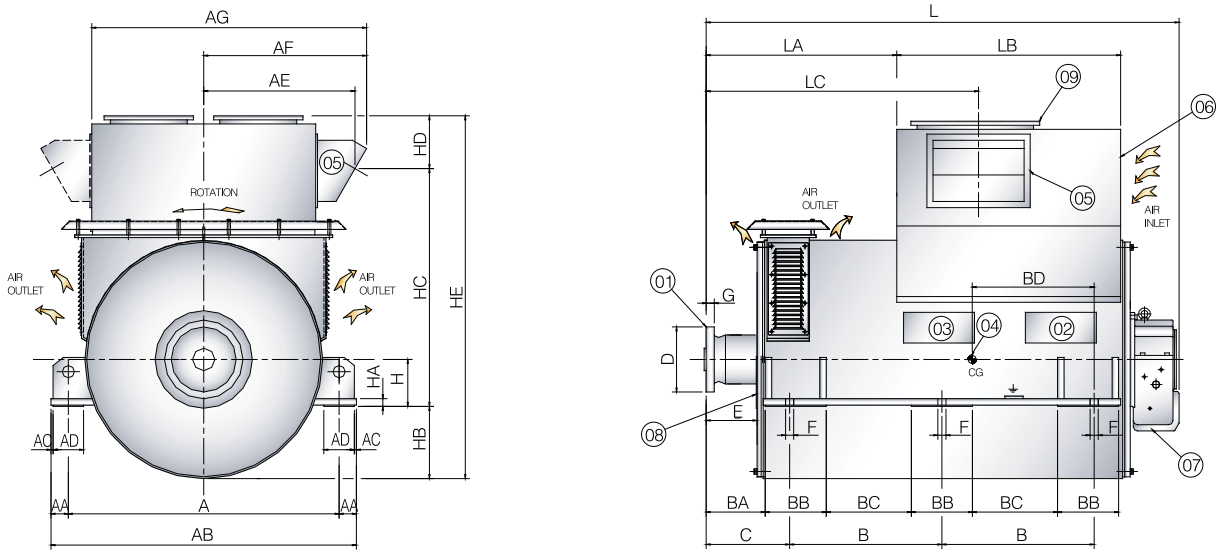
01 Shaft Coupling Detail 02 Cover for Rotating Rectifier 03 Cover for Space Heater 04 Center of Gravity 05 Cable Gland Box 06 Air Inlet Filter
07 Ball/Roller Bearing 08 Cover for Main Terminal Box

Unit : mm

Type		No.of Poles	A	AA	AB	AC	AD	AE	AF	AG	B	BA	BB	BC	BD	C	H	HA	HB	HC	HD	HE	L	LA	LB	LC	F	Shaft End			
																												D	E	DB	DA
HMD	400S	6~8	980	85	1130	10	150	605	660	1080	585	105	300	245	565	214	230	41	195	920	210	1320	1800	795	900	1070	36	110	210	28	116
	400M										635			295	615								1900	895		1170					
	400L										685			345	665								2000	995		1270					
	450S	6~8	1120	85	1290	10	150	640	696	1180	670	107	300	340	640	227	230	41	253	915	280	1448	1995	1000	900	1295	36	110	210	28	116
	450M										720			390	690								2055	1100		1395					
	450L										770			440	740								2155	1200		1495					
	500S	6~10	1280	85	1450	10	150	685	1770	1280	705	132	300	373	710	250	230	41	290	975	310	1575	2110	960	1000	1255	42	125	220	32	132
	500M										755			423	760								2210	1060		1355					
	500L										805			473	810								2310	1160		1455					
	560S	6~10	1350	85	1520	10	150	750	835	1385	745	142	300	383	760	260	230	41	350	1055	310	1715	2220	980	1100	1285	42	140	230	36	148
	560M										795			433	810								2180	886		1138					
	560L										845			483	860								2280	986		1238					
	630S	6~10	1470	85	1640	10	150	820	875	1525	663	150	300	332	550	270	230	41	425	1235	260	1920	2100	880	1100	1280	42	160	250	40	169
	630M										713			382	600								2200	980		1380					
	630L										763			432	650								2300	1080		1480					
	710S	6~10	1650	85	1820	10	200	865	925	1620	678	150	300	348	550	270	310	41	385	1425	260	2070	2180	960	1100	1360	42	200	300	45	210
	710M										728			398	600								2280	1060		1460					
	710L										778			448	650								2380	1160		1560					

* Above specification may change without notice and rating is based on ISO 8528, standard reference condition.

Single Sleeve Bearing Type (DP)



01 Shaft Coupling Detail 02 Cover for Rotating Rectifier 03 Cover for Space Heater 04 Center of Gravity 05 Cable Gland Box 06 Air Inlet Filter
07 Sleeve Bearing 08 Shaft Holding Device 09 Cover for Main Terminal Box

Unit : mm

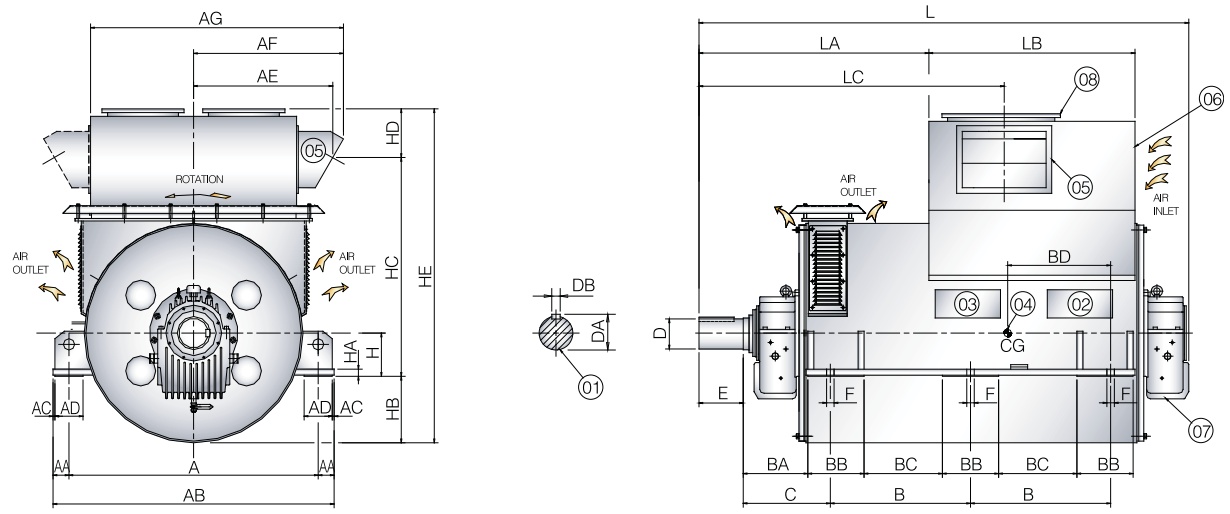
Type		No.of Poles	A	AA	AB	AC	AD	AE	AF	AG	B	BA	BB	BC	BD	C	H	HA	HB	HC	HD	HE	L	LA	LB	LC	F	Shaft End		
																												D	E	G
HMD	400S	6~8	980	85	1130	10	150	605	660	1080	585	105	300	245	565	320	230	41	195	920	210	1320	1850	690	900	970	36	260	160	32
	400M										635			295	615								1950	790		1070				
	400L										685			345	665								2050	890		1170				
	450S	6~8	1120	85	1290	10	150	640	696	1180	670	107	300	340	640	400	230	41	253	915	280	1448	2120	965	900	1240	36	319	240	40
	450M										720			390	690								2220	1065		1340				
	450L										770			440	740								2320	1165		1440				
	500S	6~10	1280	85	1450	10	150	685	1770	1280	705	280	300	373	710	395	230	41	290	975	310	1575	2215	885	1000	1170	42	319	240	40
	500M										755			423	760								2315	985		1270				
	500L										805			473	810								2415	1085		1370				
	560S	6~10	1350	85	1520	10	150	750	835	1385	745	290	300	383	760	410	230	41	350	1055	310	1715	2300	895	1100	1202	42	319	250	40
	560M										795			433	810								2400	995		1302				
	560L										845			483	860								2500	1095		1402				
	630S	6~10	1470	85	1640	10	150	820	875	1525	663	350	300	332	550	470	230	41	425	1235	260	1920	2215	826	1100	1228	42	400	300	50
	630M										713			382	600								2315	926		1328				
	630L										763			432	650								2415	1026		1428				
	710S	6~10	1650	85	1820	10	200	865	925	1620	678	350	300	348	550	470	310	41	385	1425	260	2070	2245	858	1100	1260	42	400	300	50
	710M										728			398	600								2345	958		1360				
	710L										778			448	650								2445	1058		1460				

* Above specification may change without notice and rating is based on ISO 8528, standard reference condition.

Medium Speed Generator Set

Outline Dimension Drawing

Double Sleeve Bearing Type (DP)



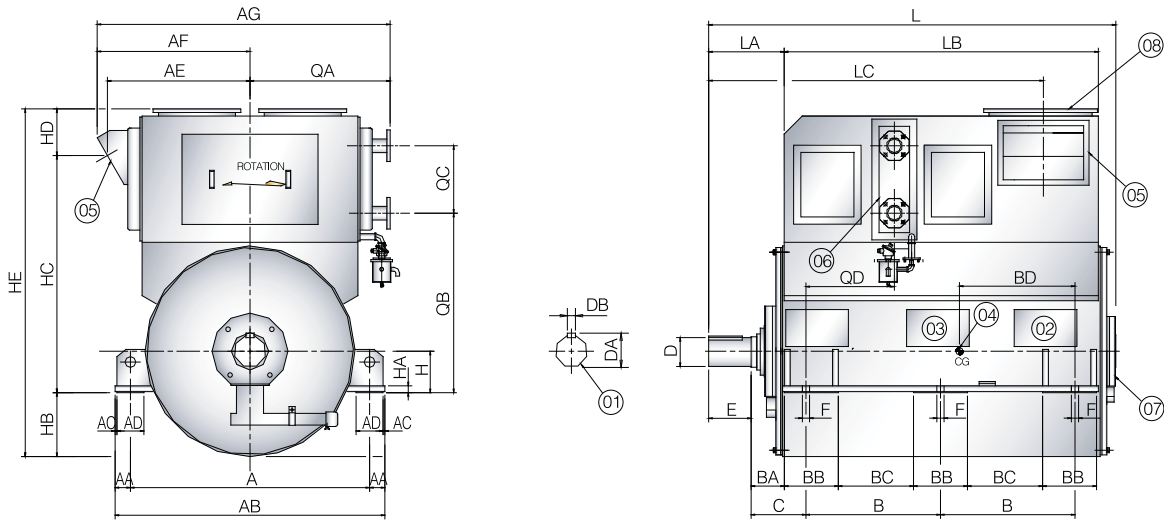
01 Shaft Coupling Detail 02 Cover for Rotating Rectifier 03 Cover for Space Heater 04 Center of Gravity 05 Cable Gland Box
06 Air Inlet Filter 07 Sleeve Bearing 08 Cover for Main Terminal Box

Unit : mm

Type		No.of Poles	A	AA	AB	AC	AD	AE	AF	AG	B	BA	BB	BC	BD	C	H	HA	HB	HC	HD	HE	L	LA	LB	LC	F	Shaft End			
																												D	E	DB	DA
HMD	450S	6~8	1120	85	1290	10	150	640	696	1180	670	290	300	340	640	410	230	41	195	920	210	1320	2343	1196	900	1490	42	110	210	28	116
	450M										720			390	690								2443	1296		1590					
	450L										770			440	740								2543	1336		1690					
	500S	6~10	1280	85	1450	10	150	685	1770	1280	705	325	300	373	710	440	230	41	253	915	280	1448	2472	1150	1000	1445	42	125	220	32	132
	500M										755			423	760								2572	1250		1545					
	500L										805			473	810								2672	1350		1645					
	560S	6~10	1350	85	1520	10	150	750	835	1385	745	325	300	383	760	440	230	41	290	975	310	1575	2566	1160	1100	1465	42	140	230	36	148
	560M										795			433	810								1666	1260		1565					
	560L										845			483	860								2766	1360		1665					
	630S	6~10	1470	85	1640	10	150	820	875	1525	663	400	300	332	550	520	230	41	350	1055	310	1715	2514	1130	1100	1530	42	160	250	40	169
	630M										713			382	600								2614	1230		1630					
	630L										763			432	650								2714	1330		1730					
	710S	6~10	1650	85	1820	10	200	865	925	1620	678	400	300	348	550	520	230	41	425	1235	260	1920	2642	1210	1100	1610	42	200	300	45	210
	710M										728			398	600								2742	1310		1710					
	710L										778			448	650								2842	1410		1810					
	800S	6~10	1850	85	2020	10	200	975	1035	1820	654	400	300	324	550	520	310	41	485	1525	260	2270	2595	1160	1100	1560	47	220	300	50	237
	800M										704			374	600								2685	1260		1660					
	800L										754			424	750								2795	1360		1760					

* Above specification may change without notice and rating is based on ISO 8528, standard reference condition.

Double Anti Friction Bearing Type (TE)



01 Shaft Coupling Detail 02 Cover for Rotating Rectifier 03 Cover for Space Heater 04 Center of Gravity 05 Cable Gland Box 06 Heat Exchanger
07 Sleeve Bearing 08 Cover for Main Terminal Box

Unit : mm

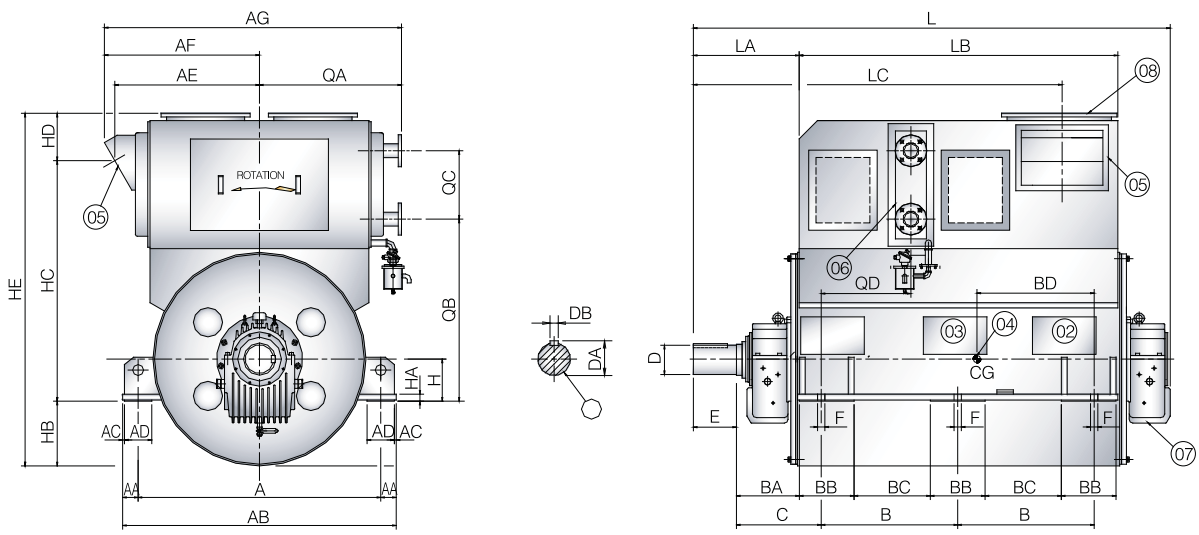
Type		No.of Poles	A	AA	AB	AC	AD	AE	AF	AG	B	BA	BB	BC	BD	C	H	HA	HB	HC	HD	HE	L	LB	LA	LC	F	Shaft End				Coolant			
																												D	E	DB	DA	QA	QB	QC	QD
HMT	560S	6~10	1350	85	1520	10	150	750	835	1385	745	142	300	383	760	260	230	41	350	315	260	1930	2220	1720	378	1790	42	140	230	36	148	780	935	500	400
	560M										795			433	810								2320	1820		1890									
	560L										845			483	860								2420	1920		1990									
	560G										895			533	910								2520	2020		2090									
	630S	6~10	1470	85	1640	10	150	820	875	1525	663	150	300	332	550	270	230	41	425	1385	260	2000	2100	1575	400	1670	42	160	250	40	169	820	1000	500	400
	630M										713			382	600								2200	1675		1770									
	630L										763			432	650								2300	1775		1870									
	630G										813			482	700								2400	1875		1970									
	710S	6~10	1650	85	1820	10	200	865	925	1620	678	150	300	348	550	270	310	41	385	1495	270	2170	2180	1645	450	1788	42	200	300	45	210	870	1120	500	400
	710M										728			398	600								2280	1745		1888									
	710L										778			448	650								2380	1845		1988									
	710G										828			498	700								2480	1945		2088									
	800S	6~10	1850	85	2020	10	200	975	1035	1820	654	400	300	324	550	520	310	41	485	1595	270	2350	2100	1530	450	1675	47	220	300	50	237	925	1220	500	400
	800M										704			374	600								2200	1630		1775									
	800L										754			424	750								2300	1730		1875									
	800G										804			464	800								2400	1830		1975									

* Above specification may change without notice and rating is based on ISO 8528, standard reference condition.

Medium Speed Generator Set

Outline Dimension Drawing

Double Sleeve Bearing Type (TE)



01 Shaft Coupling Detail 02 Cover for Rotating Rectifier 03 Cover for Space Heater 04 Center of Gravity 05 Cable Gland Box
06 Heat Exchanger 07 Sleeve Bearing 08 Cover for Main Terminal Box

Unit : mm

Type		No.of Poles	A	AA	AB	AC	AD	AE	AF	AG	B	BA	BB	BC	BD	C	H	HA	HB	HC	HD	HE	L	LB	LA	LC	F	Shaft End				Coolant			
																												D	E	DB	DA	QA	QB	QC	QD
HMT	560S	6~10	1350	85	1520	10	150	750	835	1385	745	142	300	383	760	260	230	41	350	1315	260	1930	2566	1720	558	1970	42	140	230	36	148	780	935	500	400
	560M										795			433	810								2666	1820		2070									
	560L										845			483	860								2766	1920		2170									
	560G										895			533	910								2876	2020		2270									
	630S	6~10	1470	85	1640	10	150	820	875	1525	663	150	300	332	550	270	230	41	425	1385	260	2000	2514	1575	650	1920	42	160	250	40	169	820	1000	500	400
	630M										713			382	600								2614	1675		2020									
	630L										763			432	650								2714	1775		2120									
	630G										813			482	700								2814	1875		2220									
	710S	6~10	1650	85	1820	10	200	865	925	1620	678	150	300	348	550	270	310	41	385	1495	270	2170	2642	1645	700	2038	42	200	300	45	210	870	1120	500	400
	710M										728			398	600								2742	1745		2138									
	710L										778			448	650								2842	1845		2238									
	710G										828			498	700								2942	1945		2338									
	800S	6~10	1850	85	2020	10	200	975	1035	1820	654	400	300	324	550	520	310	41	485	1595	270	2350	2560	1530	700	1925	47	220	300	50	237	925	1220	500	400
	800M										704			374	600								2660	1630		2025									
	800L										754			424	750								2760	1730		2125									
	800G										804			464	800								2860	1830		2225									

* Above specification may change without notice and rating is based on ISO 8528, standard reference condition.

Control Panel

General

Control panel apply to high quality electrical device according to customer's required specification.
It is possible to simply operate and check the condition of operation.

Main functions

- Auto sequencing
- Power monitoring
- Engine-generator set protection
- Parallel operation using RS485 (PC ↔ Digital controller)
- User interface
- ETC.

Characteristic

- Digital control using the MICOM
- The mass LCD (4 lines)
- Remote control and monitoring using computer
- Protection level (warning, shutdown)
- ETC.

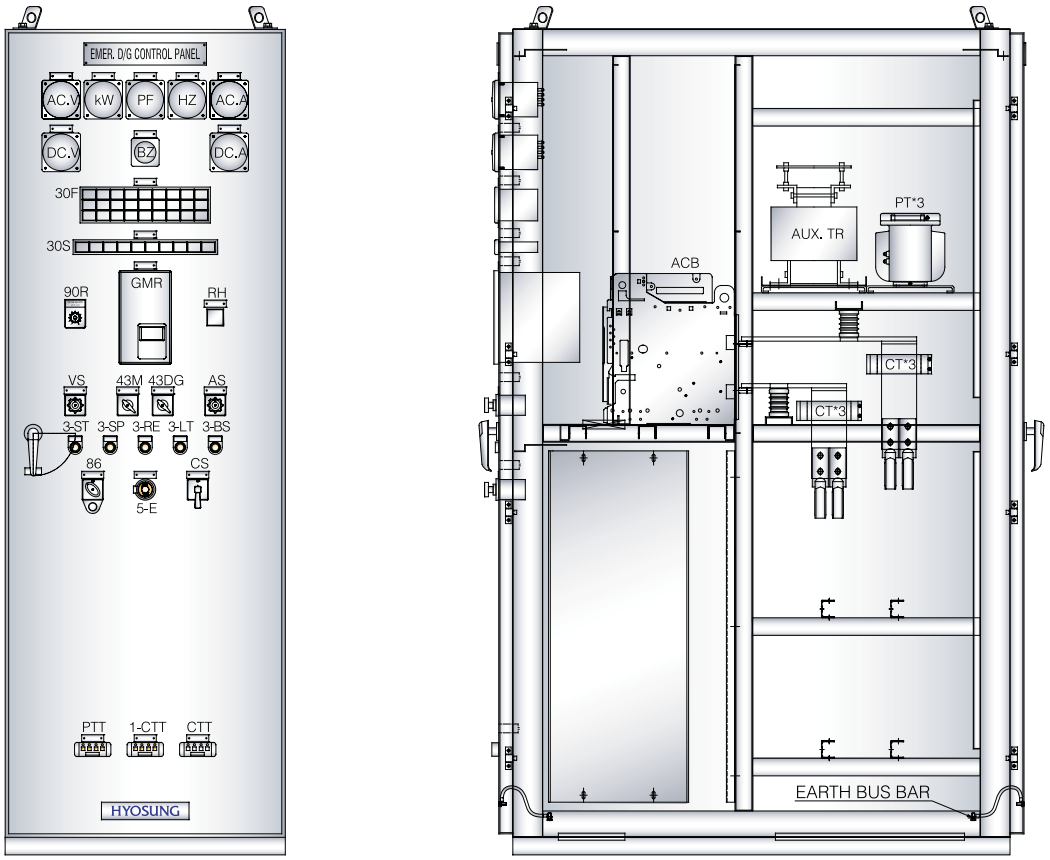
Protection

- Low Lube. oil pressure
- High coolant temperature
- Starting failure
- Overspeed
- Emergency stop
- ETC.

FREE-STANDING CONTROL PANEL

Control Panel

Generator Control Panel

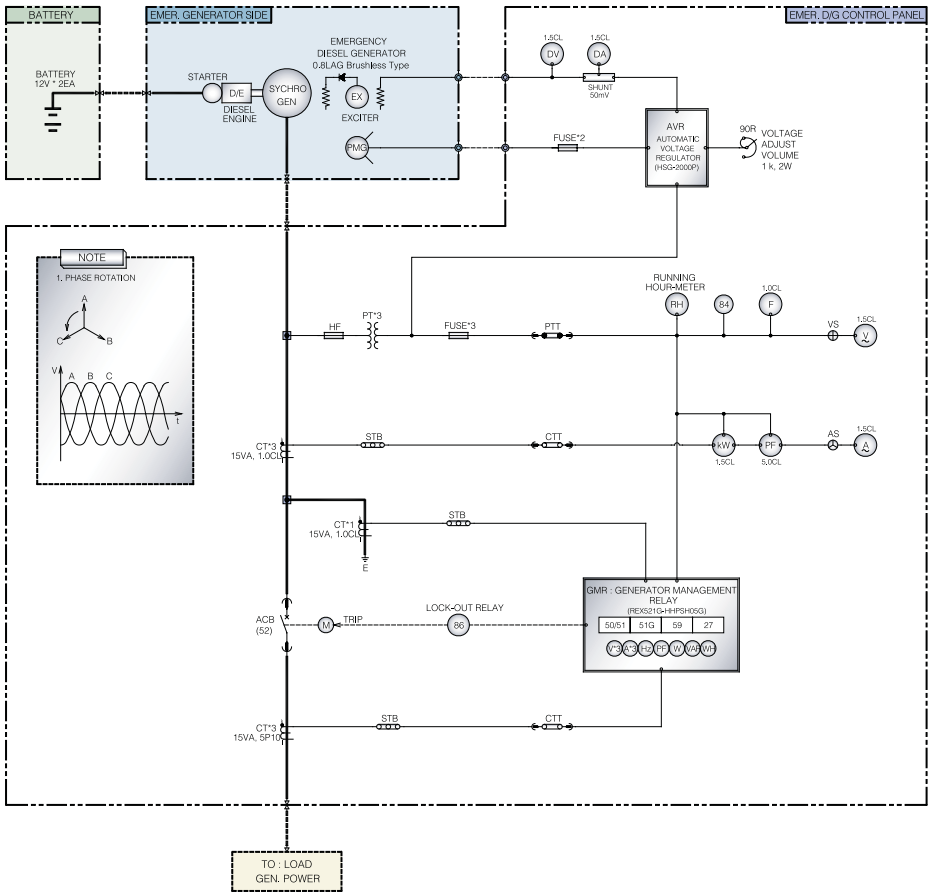


Control Power Source

Description	Voltage	Supplier
For Engine	DC 24V	Battery
For Sequence	DC 24V	Battery
For Circuit Breaker	DC 110V*	Customer
For Battery Charger	AC 220V*	Customer
For Heater & Lighting	AC 220V*	Customer

Note) *It can be changed as customer's requirement.

Control Panel Single Line Diagram



Protection

Description	Symbol	Eng Stop	CB Trip	Buzzer	Lamp
Over Speed	12	○	○	○	○
Water Temp High	26W	○	○	○	○
Oil Press Low	63Q	○	○	○	○
Starting Failure	48	○	○	○	○
Over Voltage	59	○	○	○	○
Under Voltage	27	×	○	○	○
Over Current	50/51	×	○	○	○
Ground Fault	51G	×	○	○	○

Note) It can be changed as customer's requirement.

MG Set

Characteristic

MG SET of Hyosung is manufactured variable type, supplying source of power according to required specification.
With superior ability of design both motor and generator, it is possible that we design related products to varieties of the standard.

Application

MG SET applies electric power supply device of CRDM (Control Rod Drive mechanism) at nuclear power plants.
In industry, it applies to electric power supply and regeneration device at particular test equipments.

MOTOR-GENERATOR SET

Motor-Generator Sets

Characteristic
- Variable voltage and frequency
- Uninterruptible power source by inertia effect
- Supply power source for test equipment
- Parallel operation system

Use
- Power source equipment for 50Hz
- Test equipment for electric power machinery
- Uninterruptible power source equipment

Output Range
- Output : 300kW ~ 10,000kW
- Voltage : 220V ~ 13,200V
- Pole : 4P ~ 12P

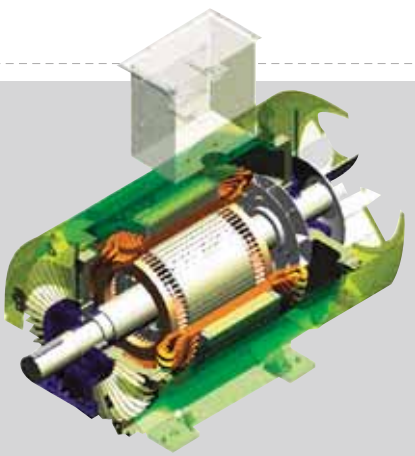
Type of Driver
- Induction Motor
- Synchronous Motor
- DC Motor

200kW MG Set for nuclear power plant

10MVA MG Set for test equipment of electric power machinery

Hyosung Motor is .....

Hyosung Motor is specialized motor maker that is possible to design Class 1E equipment, ensuring reliability and stability in severe environment. Hyosung Motor applies variable field that is nuclear power plants, ship driving and the defense industry. It is capable of manufacturing optimized design according to special specification.



Wind Turbine Generator

General

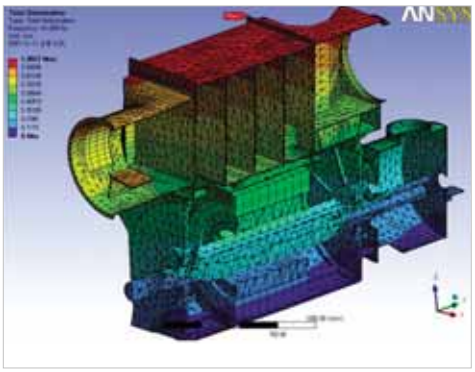
To provide optimum solutions for wind power generation systems, Hyosung manufactures and supplies various wind turbine power generators.

Characteristic

Hyosung's wind turbine generators are designed to last and function reliably on every engineering aspects :
Mechanical, reliability, magnetic flux optimization and electrical efficiency.

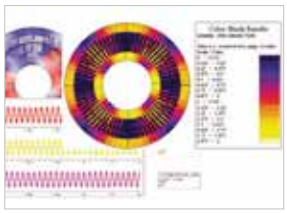
WIND TURBINE GENERATOR

Technology

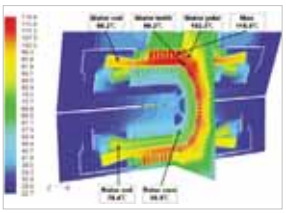


R&D department is composed of highly qualified staff, equipped with the latest IT resources. The generator development process involves the use of finite element and mechanical simulation software, Electromagnetic flow, fluid dynamics, etc.

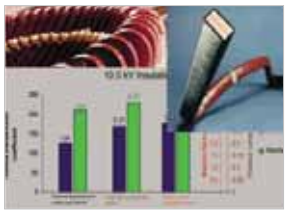
Structure Analysis



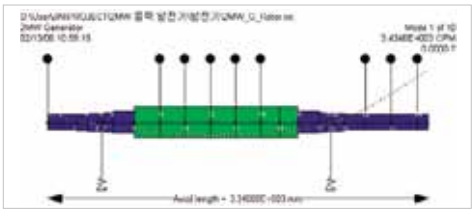
Electromagnetic Analysis



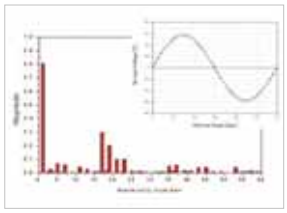
Temperature Rising Analysis



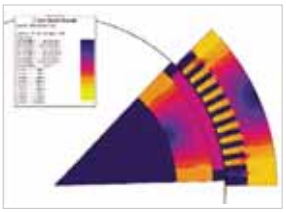
Insulation & Winding Design



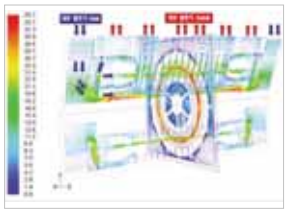
Natural Frequency Analysis



Current THD Calculation



Electromagnetic Field Analysis



Thermal and Flow Analysis

Features

- Realizing cost effectiveness by compact design
- Stable voltage output
- Less vibration and completely controlled noise level
- Easy maintenance
- Lifetime : 170,000hr (20 years)
- Certified by IEC, IEEE, NEMA , DEWI OCC, CSA...

Pictures

Wind Turbine Generator

Specification

DFIG (Doubly Fed Induction Generator)

Specification \ Model		750kW	2MW
Mechanical	Type	▶3-Phase Doubly Fed Induction Generator	▶3-Phase Doubly Fed Induction Generator
	Frame Size	400 Fr	500 Fr
	Cooling Type	IC 411	IC 616, IC 666
	Bearing Rating Life	175,000 hr	175,000 hr
	Protection	IP54	IP54
Electrical	Rated Power	Overall System Generator : 750 kW - Stator : 690 kW - Rotor : 60 kW	Overall System Generator : 2,000 kW - Stator : 1,810 kW - Rotor : 190 kW
	Voltage	690 V	690 V
	Winding Connection	Star	Star
	Frequency	50Hz, 60Hz	50Hz, 60Hz
	Insulation Class	Stator : F Rotor : F	Stator : F Rotor : F
	Revolution Speed	Synchronous Speed : 1,800 rpm Rated Speed : 1,980 rpm Speed Range : 1,350 ~ 2,250 rpm	Synchronous Speed : 1,800 rpm Rated Speed : 1,980 rpm Speed Range : 1,350 ~ 2,250 rpm
	Ambient Temp.	- 20 ~ 40 ℃	- 20 ~ 40 ℃

EESG (Electrically Excited Synchronous Generator)

Specification \ Model		2MW
Mechanical	Type	▶3-Phase Electrically Excited Synchronous Generator
	Frame Size	500 Fr
	Cooling Type	IC 616
	Bearing Rating Life	175,000 hr
	Protection	IP54
Electrical	Rated Power	2MW
	Voltage	4160 V
	Winding Connection	Star
	Frequency	50Hz, 60Hz
	Insulation Class	Stator : F Rotor : H
	Revolution Speed	Rated Speed : 1,800 rpm
	Ambient Temp.	- 20 ~ 40 ℃

* Above specification may change without notice and rating is based on ISO 8528, standard reference condition.

PMSG (Permanent Magnet Synchronous Generator)

Specification	Model	2MW
Mechanical	Type	▶3-Phase Permanent Magnet Syncronus Generator
	Frame Size	500 Fr
	Cooling Type	IC 666
	Bearing Rating Life	175,000 hr
	Protection	IP54
Electrical	Rated Power	2MW
	Voltage	690 V
	Winding Connection	Star
	Frequency	50Hz, 60Hz
	Insulation Class	Stator : F Rotor : F
	Revolution Speed	Rated Speed : 1,700 rpm
	Ambient Temp.	- 20 ~ 40 ℃

* Above specification may change without notice and rating is based on ISO 8528, standard reference condition.

Our Offerings

Induction Generator
Hyosung offers various induction generators, such as the fixed speed and the variable speed types, for various types of wind turbines.

Synchronous Generator
Hyosung is an expert in synchronous and permanent magnet generators and offers a total solution including direct drive and middle and high drives.

2013. 12

www.hyosungpni.com

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CHANGWON PLANT TEL : 82-55-279-7180~93 FAX : 82-55-268-9835

HYOSUNG CORPORATION
Power & Industrial Systems Performance Group