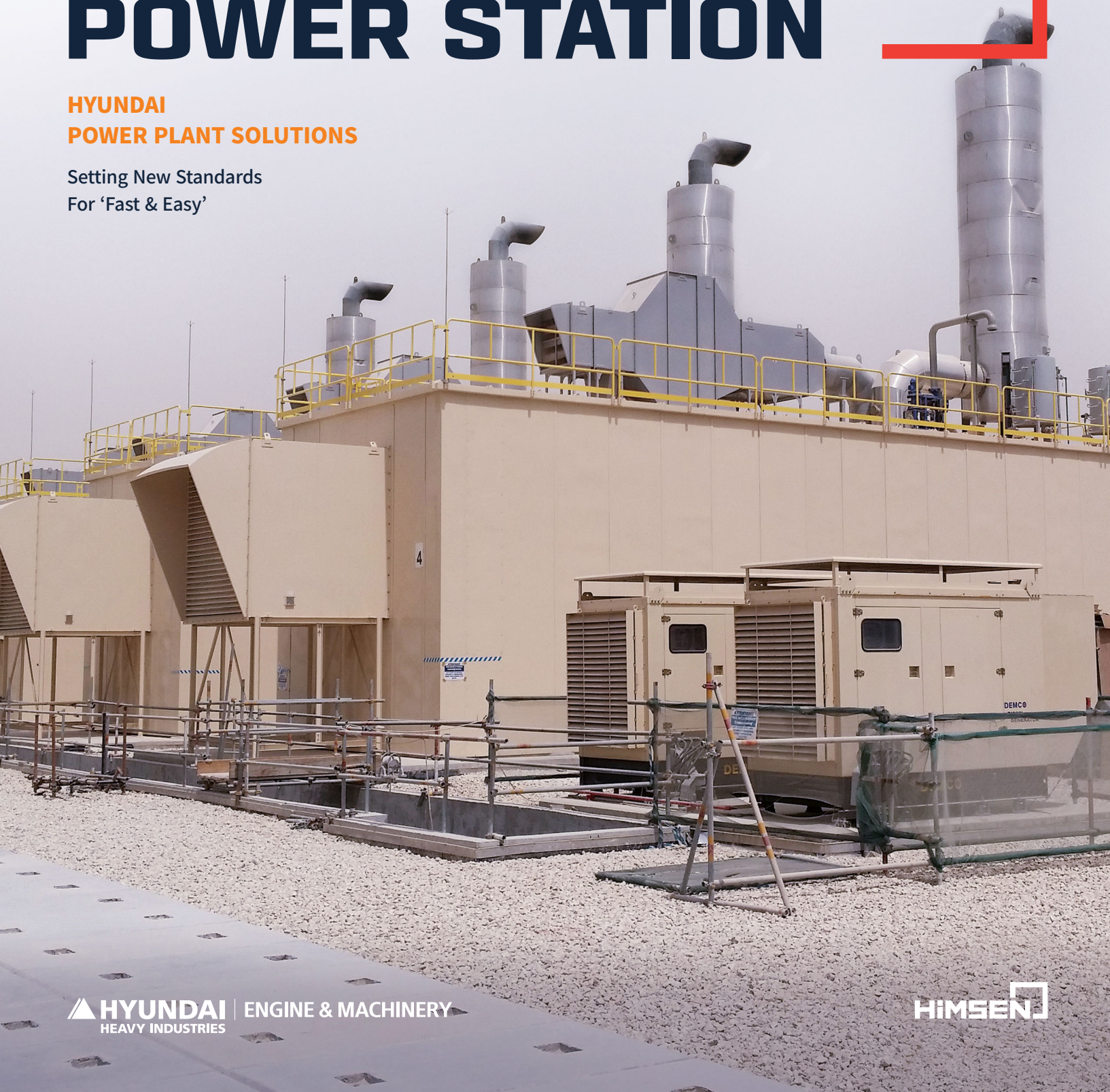


MODULAR POWER PLANT & PACKAGED POWER STATION

HYUNDAI
POWER PLANT SOLUTIONS

Setting New Standards
For 'Fast & Easy'



ENERGY FOR REVOLUTION

CUBA

The Cuban government decided to illustrate HYUNDAI's Packaged Power Station(PPS) on their 10 peso note with the quote "Revolution Energetica(Energy Revolution)".



Packaged Power Station & Diesel Power Plant



In the mid 2000s, Cuba experienced chronic electricity shortages resulting in frequent power outages. To deal with the energy crisis, it set up a plan of upgrading its power infrastructure based on a contract with a foreign supplier. While many companies gave up the project, HYUNDAI eventually won the deal in 2005 and met urgent requirements of Cuba with 576MW Packaged power station and 310MW Diesel power plant across the country. For the first time in history, a company product was illustrated on country's currency.



Cuban currency, 10 pesos

THE FIRST TIME IN HISTORY, A COMPANY PRODUCT ILLUSTRATED ON A COUNTRY'S CURRENCY

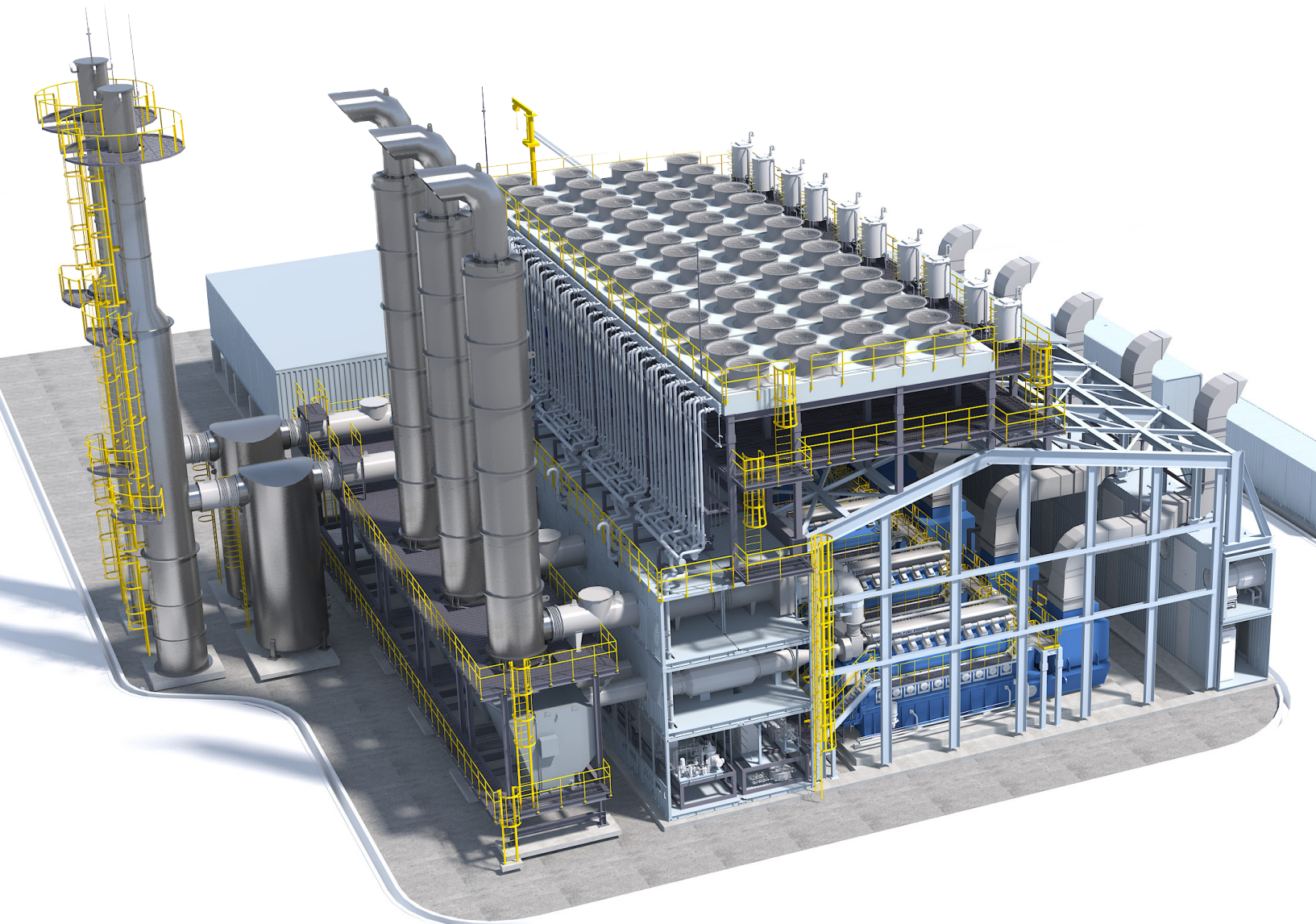


KEY FIGURES

Total Output	576MW(PPS)	310MW(DPP)
Customer	Energó Import	
Operating Mode	Continuous	
Gensets	9H21/32 x 340sets	9H25/33 x 124sets
Fuel	HFO	
Scope	EP	
Delivered	2005~2009	

MODULAR POWER PLANT

Containerized Type Power Plant



Who Is It For?

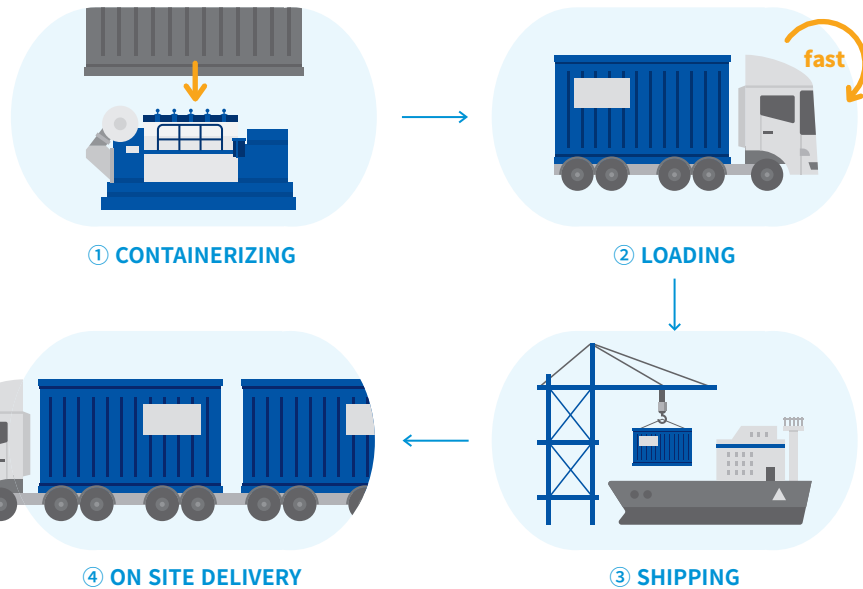
- Small IPPs (Independent Power Producers) who can afford small investment to start their businesses
- Those who need power sources fast track
- Those who are not connected to the national grid
- Places where it is difficult to have infrastructure (e.g. high voltage transmission line)
- Small towns and isolated areas

Why Are They Good?

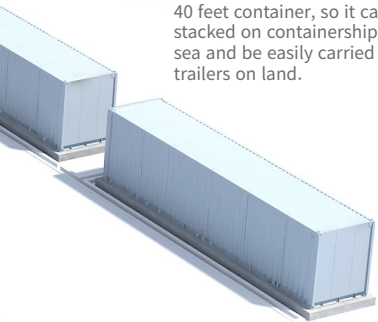
1. FAST DELIVERY AND INSTALLATION

All the process of manufacturing, transportation, installation, and commissioning for a 20MW PPS takes just 9 months.

EASY TO TRANSPORT



The PPS can be installed in a 40 feet container, so it can be stacked on containerships at sea and be easily carried by trailers on land.



**Simple installation steps
give time savings.**

5 months for manufacturing, 1.5 months for transportation, 1.5 months for installation, 1 months for commissioning.

2. EASILY TRANFERABLE

Reinstallation of 1 PPS unit takes just 2 weeks. Even with more units, no additional time is required.

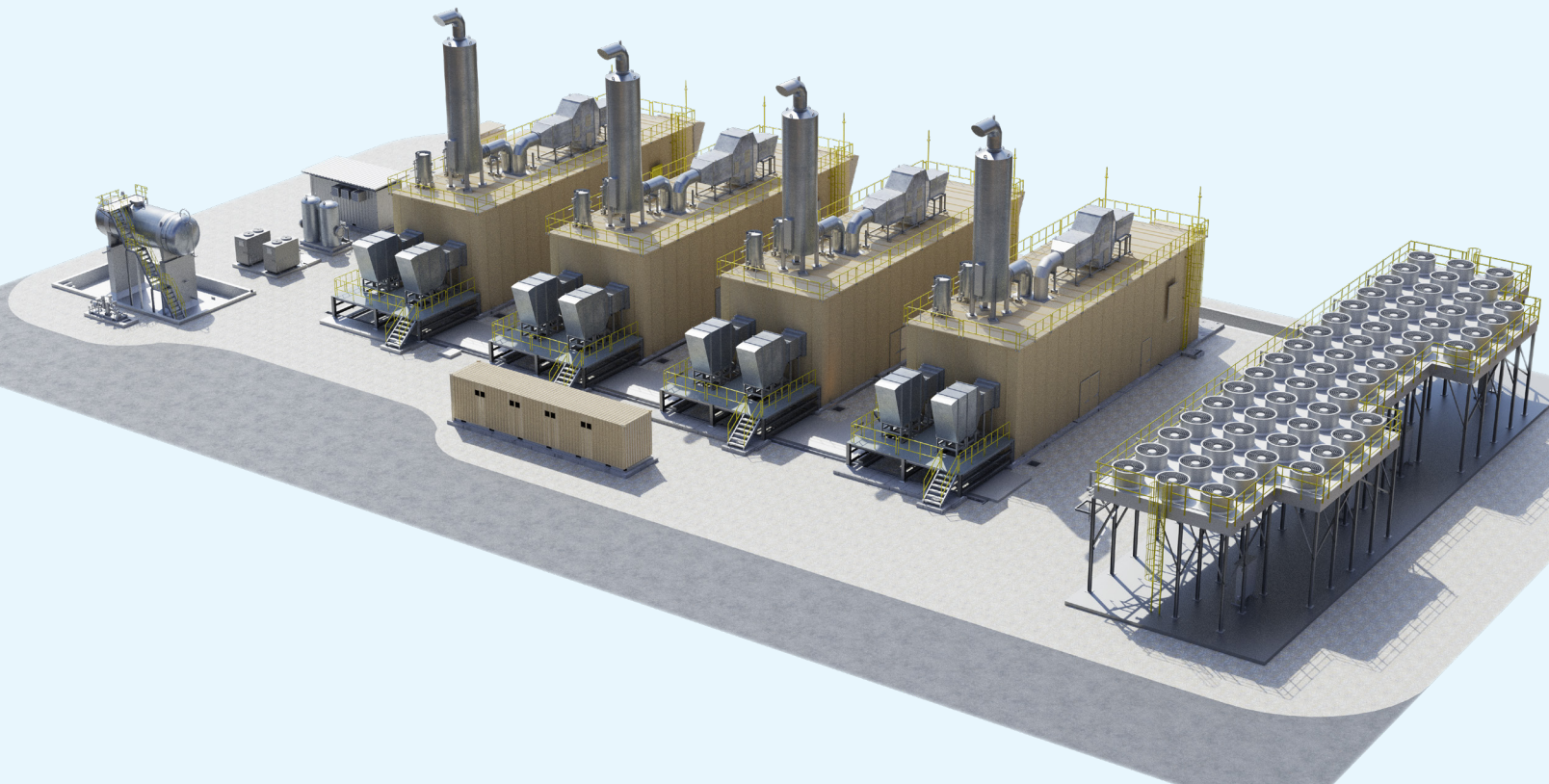
3. LOW OPERATION COST

30~70% lower operation cost compared to high speed gensets.

4. EASY OPERATION

The smart control system gives easy & efficient site operation for O&M managers.

Enclosure Type Power Plant



Case ① : Enclosure type power plant

UHP 16MW Black Start Diesel Generator Qatar

WHEREVER POWER SUPPLY FOR HOT AND HUMID DESSERT

Power plant for a 50°C desert in Qatar only took 3 months to construct.

In 2015, HYUNDAI provided 16MW black start emergency diesel generator of Facility D project in Qatar. It is the fully equipped enclosure type of BSEGD. HYUNDAI has supplied diesel generator as pre-fabricated type of enclosure with engine auxiliary system which can be built on the engine for easy and fast installation at site. In order to maximize compatibility, it is ensured when auxiliary systems are delivered together with the main engine and generator sets. It can be standardized and grouped in modules depending on the engine type and application.

Total Output	16MW
Customer	Samsung C&T
Operating Mode	Black Start
Gensets	9H32/40 x 4sets
Fuel	Diesel Oil
Scope	Genset + Equipment supply
Delivered	2015

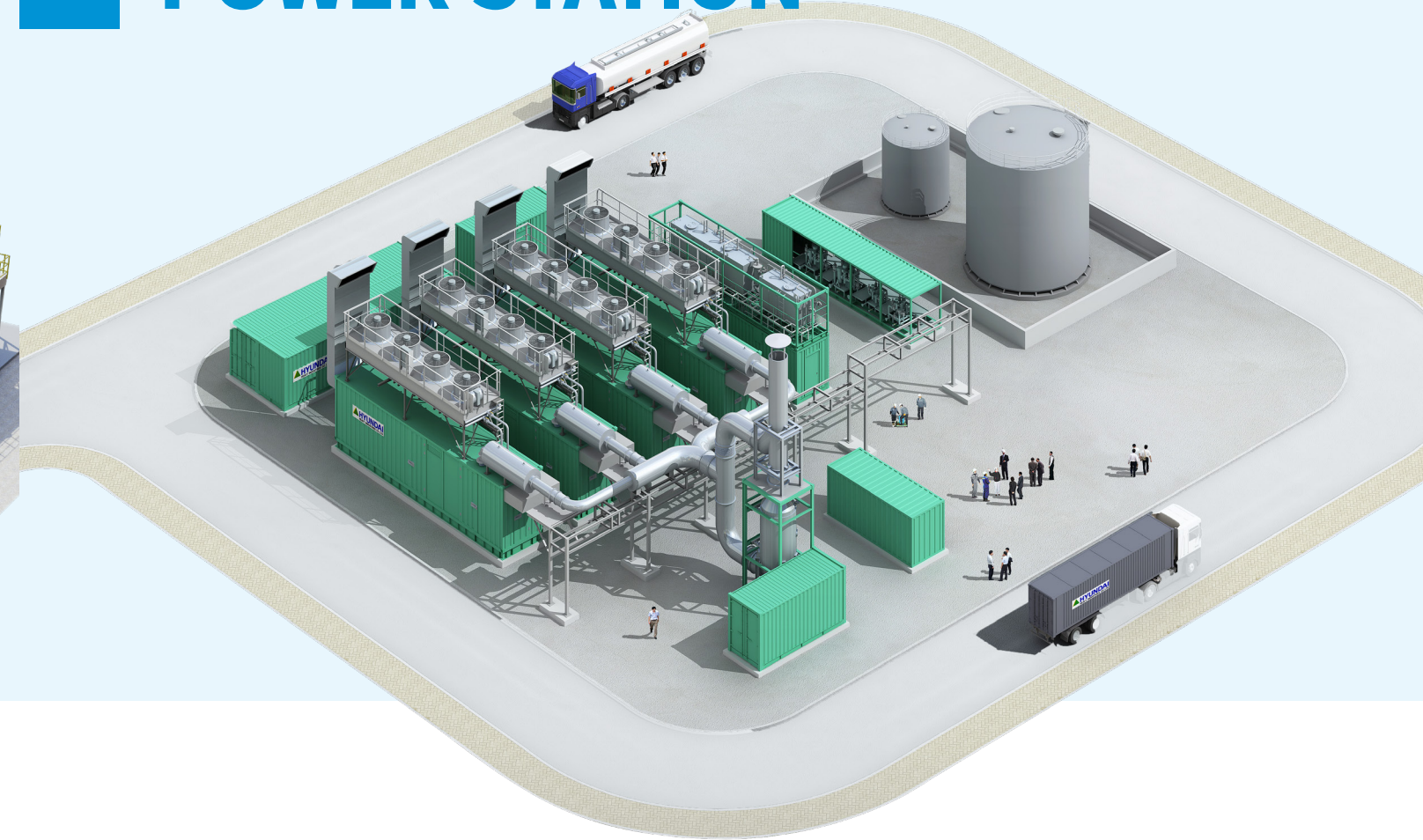


Plant View

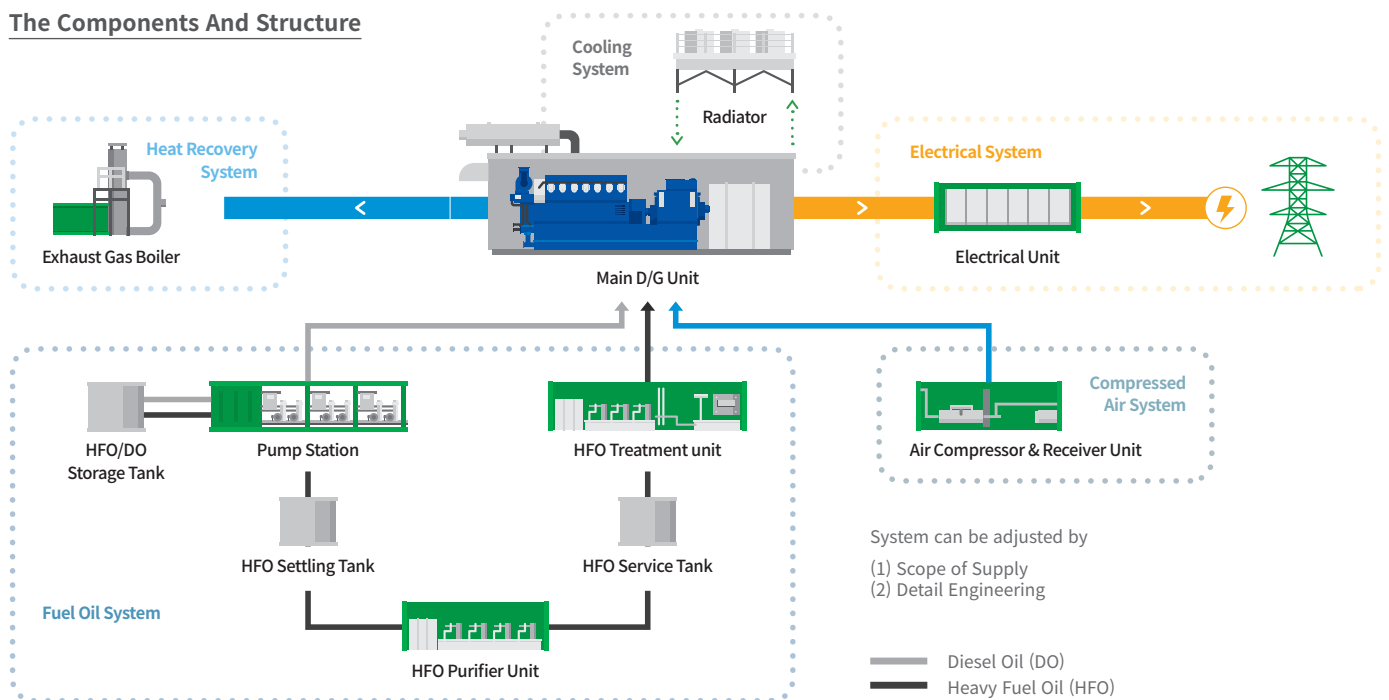


Inside view of Enclosure(Pre-fabricated type)

PACKAGED POWER STATION



The Components And Structure



Case ② : Packaged Power Station(PPS)

JINRO 57MW PPS Panama

FAST DELIVERY & INSTALLATION FOR CUSTOM REQUIREMENTS

“

We were in a hurry, and HYUNDAI's PPS made it possible to meet our short delivery time.

— Jinro, Project Manager

”

Total Output	57.8MW
Customer	JINRO POWER
Operating Mode	Base load
Gensets	9H21/32 x 34sets
Fuel	Heavy Fuel Oil
Scope	Genset + Equipment supply
Delivered	2015

Jinro Corporation bought their IPP which had a very short time until the COD(Commercial Operating Date). They wanted to find a company which could match their demands for fast procurement, fast construction, reasonable price and easy operation and decided to move forward with HYUNDAI.

With the products and full technical support by HYUNDAI, the power plant was successfully constructed in only 9 months after the contract.



Plant View



Fuel Tank

HAITI 61MW PPS Haiti

EARTHQUAKE-RESISTANT **RELIABLE** POWER PLANT

“

HYUNDAI's power stations were the only power stations to successfully supply power to areas near Haiti's capital Port-au-Prince, which damaged by the 7.0-magnitude quake in January.

— MK Business News

”

Total Output	61MW
Customer	EDH
Operating Mode	Grid Back-up
Gensets	9H21/32 x 36sets
Fuel	Heavy Fuel Oil
Scope	Genset + Equipment supply
Delivered	2008

HYUNDAI's PPS remained intact and well ran in its full capacity throughout the catastrophic earthquake of Haiti in 2010.

Many power facilities were damaged by 7-magnitude earthquake of Haiti in 2010. The sturdy power plant provided by HYUNDAI were undamaged and ran continuously. HYUNDAI gained trust for its stability and safety by the Haitian government.

In 2008, HYUNDAI provided a 34MW power plant for Haiti's capital Port Au Prince. This power plant produces power with 40% less cost than other power plants do.



Plant View



Plant View

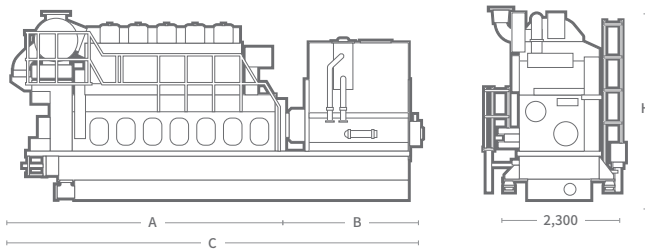


HIMSEN ENGINE LINE-UP FOR STATIONARY GENSETS

‘HiMSEN’[®] is the registered brand name of HYUNDAI’s own design engine and the abbreviation of ‘Hi-touch Marine & Stationary ENGINE’.

Gas Fuel

H35/40G Bore: 350mm Stroke: 400mm



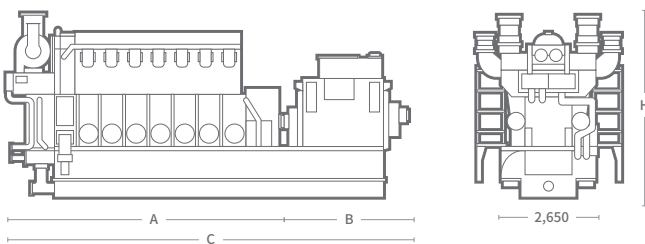
Main Data

Speed	720rpm		750rpm		Dimension(mm)				Dry Mass(ton)	
	60Hz		50Hz		A	B	C	H	Engine	GenSet
6H35/40G	2,880	2,764	2,880	2,764	5,760	3,130	8,890	3,959	33.7	68.6
7H35/40G	3,360	3,225	3,360	3,225	6,112	3,374	9,486	4,130	38.6	77.1
8H35/40G	3,840	3,686	3,840	3,686	6,602	3,594	10,196	4,130	41.5	82.0
9H35/40G	4,320	4,147	4,320	4,147	7,092	4,097	11,189	4,130	44.6	89.1

Based on alternator efficiency of 96%.

Dimensions

H35/40GV Bore: 350mm Stroke: 400mm



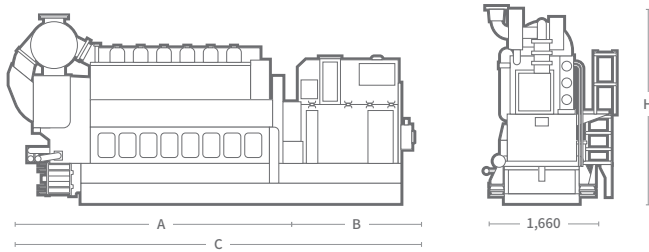
Main Data

Speed	720rpm		750rpm		Dimension(mm)				Dry Mass(ton)	
	60Hz		50Hz		A	B	C	H	Engine	GenSet
12H35/40GV	5,760	5,558	5,760	5,558	6,624	3,760	10,384	4,723	56.0	108.8
14H35/40GV	6,720	6,518	6,720	6,518	7,295	3,860	11,155	4,723	63.3	121.3
16H35/40GV	7,680	7,449	7,680	7,449	7,914	3,479	11,393	4,723	69.1	130.9
18H35/40GV	8,640	8,380	8,640	8,380	8,585	3,859	12,444	4,794	76.3	141.2
20H35/40GV	9,600	9,360	9,600	9,360	9,344	3,659	13,003	4,794	84.0	153.9

Based on alternator efficiency of 96.5-97.5%.

Dual Fuel

H27DF Bore: 270mm Stroke: 330mm



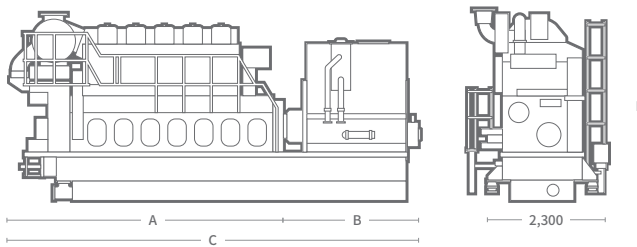
Main Data

Dimensions

Speed	900rpm		1,000rpm		Dimension(mm)				Dry Mass(ton)	
	60Hz		50Hz							
Frequency	Eng.(kW)	Gen.(kW)	Eng.(kW)	Gen.(kW)	A	B	C	H	Engine	GenSet
	6H27DF	1,710	1,624	1,860	1,767	4,414	2,262	6,676	3,103	23.5
7H27DF	1,995	1,895	2,170	2,061	4,797	2,262	7,059	3,241	27.7	37.7
8H27DF	2,280	2,177	2,480	2,368	5,311	2,340	7,651	3,371	34.0	44.8
9H27DF	2,565	2,462	2,790	2,678	5,691	2,490	8,181	3,371	36.2	47.2

Based on alternator efficiency of 95-96%.

H35DF Bore: 350mm Stroke: 400mm



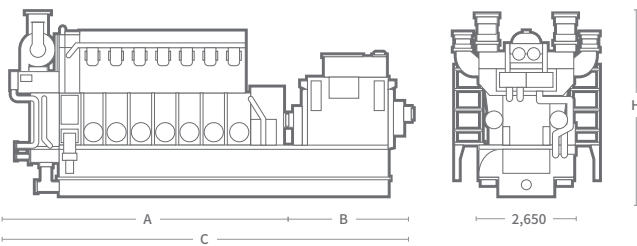
Main Data

Dimensions

Speed	720rpm		750rpm		Dimension(mm)				Dry Mass(ton)	
	60Hz		50Hz							
Frequency	Eng.(kW)	Gen.(kW)	Eng.(kW)	Gen.(kW)	A	B	C	H	Engine	GenSet
	6H35DF	2,880	2,764	2,880	2,764	5,760	3,130	8,890	3,959	33.7
7H35DF	3,360	3,225	3,360	3,225	6,112	3,374	9,486	4,130	38.6	77.1
8H35DF	3,840	3,686	3,840	3,686	6,602	3,594	10,196	4,130	41.5	82.0
9H35DF	4,320	4,147	4,320	4,147	7,092	4,097	11,189	4,130	44.6	89.1

Based on alternator efficiency of 96%.

H35DFV Bore: 350mm Stroke: 400mm



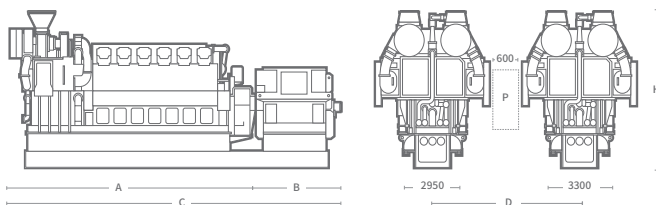
Main Data

Dimensions

Speed	720rpm		750rpm		Dimension(mm)				Dry Mass(ton)	
	60Hz		50Hz							
Frequency	Eng.(kW)	Gen.(kW)	Eng.(kW)	Gen.(kW)	A	B	C	H	Engine	GenSet
	12H35DFV	5,760	5,558	5,760	5,558	6,624	3,760	10,384	4,723	56.0
14H35DFV	6,720	6,518	6,720	6,518	7,295	3,860	11,155	4,723	63.3	121.3
16H35DFV	7,680	7,449	7,680	7,449	7,914	3,479	11,393	4,723	69.1	130.9
18H35DFV	8,640	8,380	8,640	8,380	8,585	3,859	12,444	4,794	76.3	141.2
20H35DFV	9,600	9,360	9,600	9,360	9,344	3,659	13,003	4,794	84.0	153.9

Based on alternator efficiency of 96.5-97.5%.

H54DFV Bore: 540mm Stroke: 600mm



Main Data

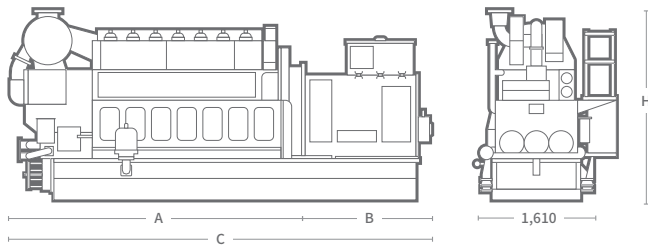
Dimensions

Speed	600rpm		Dimension(mm)				Dry Mass(ton)	
	50/60Hz							
Frequency	Eng.(kW)	Gen.(kW)	A	B	C	H	Engine	GenSet
	12H54DFV TSTC	17,640	17,199	12,416	4,393	16,809	8,319	300.9
14H54DFV TSTC	20,580	20,066	13,566	4,337	17,903	8,319	331.8	438.8
16H54DFV TSTC	23,520	22,932	14,991	4,522	19,513	8,614	371.1	488.8
18H54DFV TSTC	26,460	25,799	16,141	4,692	20,833	8,614	402.7	531.7

Based on alternator efficiency of 97.5%.

Liquid Fuel

H21/32 Bore: 210mm Stroke: 320mm



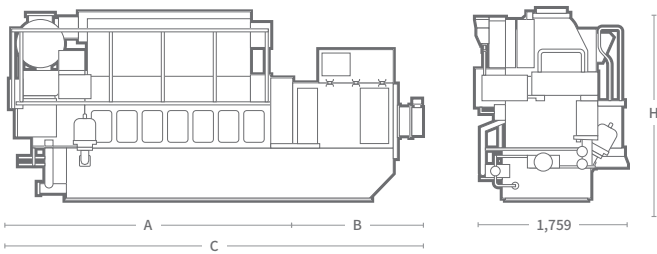
Main Data

Dimensions

Speed	900rpm		1,000rpm		Dimension(mm)				Dry Mass(ton)	
	60Hz		50Hz		A	B	C	H	Engine	GenSet
	Eng.(kw)	Gen.(kw)	Eng.(kw)	Gen.(kw)						
6H21/32	1,200	1,128	1,200	1,128	3,781	2,180	5,961	2,781	15.1	25.1
8H21/32	1,600	1,512	1,600	1,512	4,453	2,345	6,798	2,911	18.4	29.9
9H21/32	1,800	1,710	1,800	1,710	4,783	2,423	7,206	2,911	19.8	31.9

Based on alternator efficiency of 94-95%.

H21C Bore: 210mm Stroke: 330mm



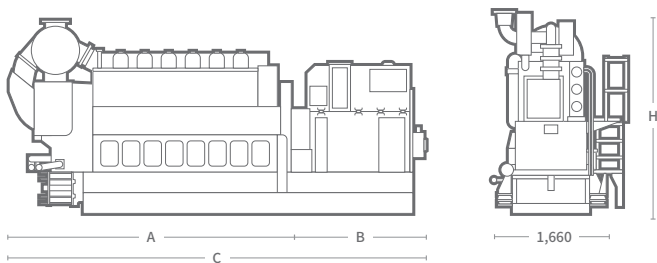
Main Data

Dimensions

Speed	900rpm		1,000rpm		Dimension(mm)				Dry Mass(ton)	
	60Hz		50Hz		A	B	C	H	Engine	GenSet
	Eng.(kw)	Gen.(kw)	Eng.(kw)	Gen.(kw)						
5H21C	1,200	1,128	1,200	1,128	3,735	2,249	5,984	2,600	14.3	22.1
6H21C	1,440	1,353	1,440	1,353	4,085	2,249	6,334	2,600	16.0	24.9
7H21C	1,680	1,587	1,680	1,587	4,435	2,305	6,740	2,600	17.8	28.3
8H21C	1,920	1,824	1,920	1,824	4,785	2,305	7,090	2,653	19.4	30.2
9H21C	2,160	2,052	2,160	2,052	5,135	2,450	7,585	2,653	21.0	33.6

Based on alternator efficiency of 94-95%.

H25/33 Bore: 250mm Stroke: 330mm



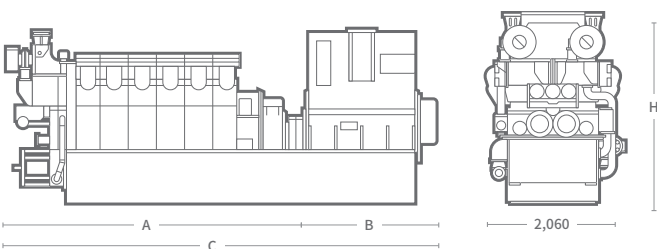
Main Data

Dimensions

Speed	900 rpm		1000 rpm		Dimension(mm)				Dry Mass(ton)	
	60 Hz		50 Hz		A	B	C	H	Engine	GenSet
	Eng.(kw)	Gen.(kw)	Eng.(kw)	Gen.(kw)						
6H25/33	1,740	1,653	1,800	1,710	4,414	2,262	6,676	2,961	20.2	30.2
7H25/33	2,030	1,928	2,100	1,995	4,797	2,262	7,059	3,241	22.5	32.7
8H25/33	2,320	2,215	2,400	2,292	5,311	2,340	7,651	3,371	24.1	34.9
9H25/33	2,610	2,505	2,700	2,592	5,691	2,490	8,181	3,371	26.2	37.2

Based on alternator efficiency of 95-96%.

H25/33V Bore: 250mm Stroke: 330mm



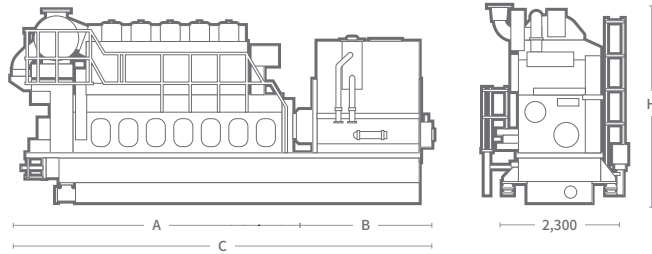
Main Data

Dimensions

Speed	900rpm		1000rpm		Dimension(mm)				Dry Mass(ton)	
	60Hz		50Hz		A	B	C	H	Engine	GenSet
	Eng.(kw)	Gen.(kw)	Eng.(kw)	Gen.(kw)						
12H25/33V	3,840	3,696	3,840	3,696	5,524	3,334	8,858	3,750	33.5	58.2
14H25/33V	4,480	4,300	4,480	4,300	5,944	3,504	9,448	3,750	36.5	63.4
16H25/33V	5,120	4,915	5,120	4,915	6,364	3,682	10,046	3,750	39.5	69.6
18H25/33V	5,760	5,558	5,760	5,558	6,784	3,772	10,556	3,750	42.5	77.5
20H25/33V	6,400	6,208	6,400	6,208	7,204	3,727	10,931	3,750	45.5	79.5

Based on alternator efficiency of 96-97%.

H32/40 Bore: 320mm Stroke: 400mm



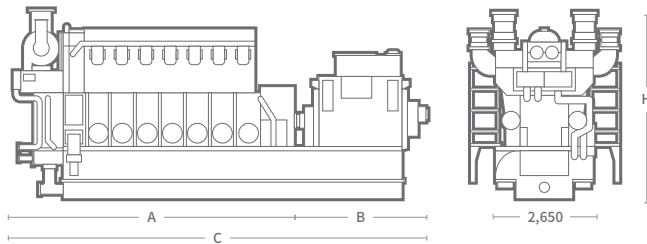
Main Data

Dimensions

Speed	720 rpm		750 rpm		Dimension(mm)				Dry Mass(ton)	
	60 Hz		50 Hz							
	Eng.(kW)	Gen.(kW)	Eng.(kW)	Gen.(kW)	A	B	C	H	Engine	GenSet
6H32/40	2,850	2,736	2,850	2,736	5,760	3,130	8,890	3,959	33.7	68.6
7H32/40	3,325	3,192	3,325	3,192	6,112	3,374	9,486	4,130	38.6	77.1
8H32/40	3,800	3,648	3,800	3,648	6,602	3,594	10,196	4,130	41.5	82.0
9H32/40	4,275	4,104	4,275	4,104	7,092	4,097	11,189	4,130	44.6	89.1

Based on alternator efficiency of 96%.

H32/40V Bore: 320mm Stroke: 400mm



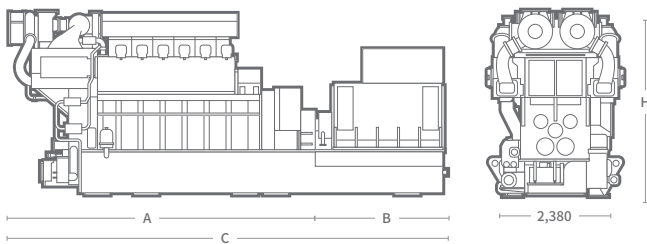
Main Data

Dimensions

Speed	720rpm		750rpm		Dimension(mm)				Dry Mass(ton)	
	60Hz		50Hz							
	Eng.(kW)	Gen.(kW)	Eng.(kW)	Gen.(kW)	A	B	C	H	Engine	GenSet
12H32/40V	5,700	5,500	5,700	5,500	6,624	3,760	10,384	4,723	56.0	108.8
14H32/40V	6,560	6,450	6,650	6,450	7,295	3,860	11,155	4,723	63.3	121.3
16H32/40V	7,600	7,372	7,600	7,372	7,914	3,479	11,393	4,723	69.1	130.9
18H32/40V	8,550	8,293	8,550	8,293	8,585	3,859	12,444	4,794	76.3	141.2
20H32/40V	9,500	9,262	9,500	9,262	9,344	3,659	13,003	4,794	84.0	153.9

Based on alternator efficiency of 96.5%.

H32CV Bore: 320mm Stroke: 450mm



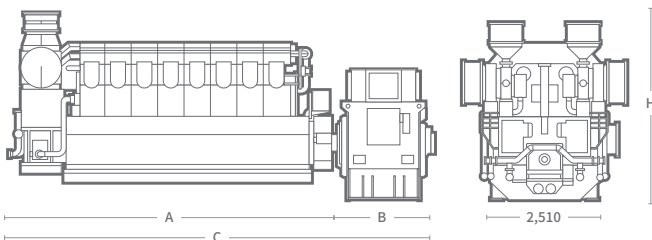
Main Data

Dimensions

Speed	720rpm		750rpm		Dimension(mm)				Dry Mass(ton)	
	60Hz		50Hz							
	Eng.(kW)	Gen.(kW)	Eng.(kW)	Gen.(kW)	A	B	C	H	Engine	GenSet
12H32CV	7,200	6,948	7,200	6,948	7,526	3,900	11,426	4,362	78.0	121.2
14H32CV	8,400	8,106	8,400	8,106	8,126	4,100	12,226	4,362	88.0	137.9
16H32CV	9,600	9,264	9,600	9,264	8,726	4,300	13,026	4,448	96.0	152.6
18H32CV	10,800	10,422	10,800	10,422	9,326	4,500	13,826	4,448	106.0	169.3

Based on alternator efficiency of 96.5%.

H46/60V Bore: 460mm Stroke: 600mm



Main Data

Dimensions

Speed	600rpm		600rpm		Dimension(mm)				Dry Mass(ton)	
	60Hz		50Hz							
	Eng.(kW)	Gen.(kW)	Eng.(kW)	Gen.(kW)	A	B	C	H	Engine	GenSet
12H46/60V	14,400	14,040	14,400	14,040	10,410	3,627	14,037	4,975	205.3	256.4
16H46/60V	19,200	18,720	19,200	18,720	12,410	3,724	16,134	4,975	227.8	286.6
18H46/60V	21,610	21,060	21,600	21,060	13,410	3,625	17,035	5,288	239.0	313

Based on alternator efficiency of 97.5%.

1) Depending on alternator.

2) Without common base frame.

3) With common base frame & alternator (Maker: HHI-EES).

Note) All dimensions and weight are approximate value and subject to change without prior notice.

MODULAR DESIGN

‘FASTER, EASIER, AND EVEN BETTER.’

Compared with traditional design, HYUNDAI's prefabricated modules shorten and simplify the procurement and installation process, even with lower price.

TIME SAVING

Enable to reduce 5 to 6 months of time in planning and construction.

Planning



-3
months

Construction



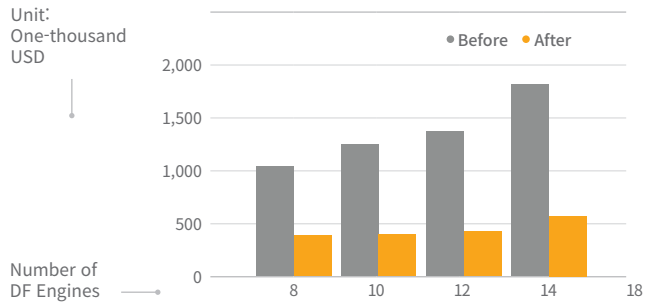
-2
months

• For 10(Ten) 20H35DF Engines

• For Engines Inside DG Building + Aux.Equipment + Piping

COST SAVING

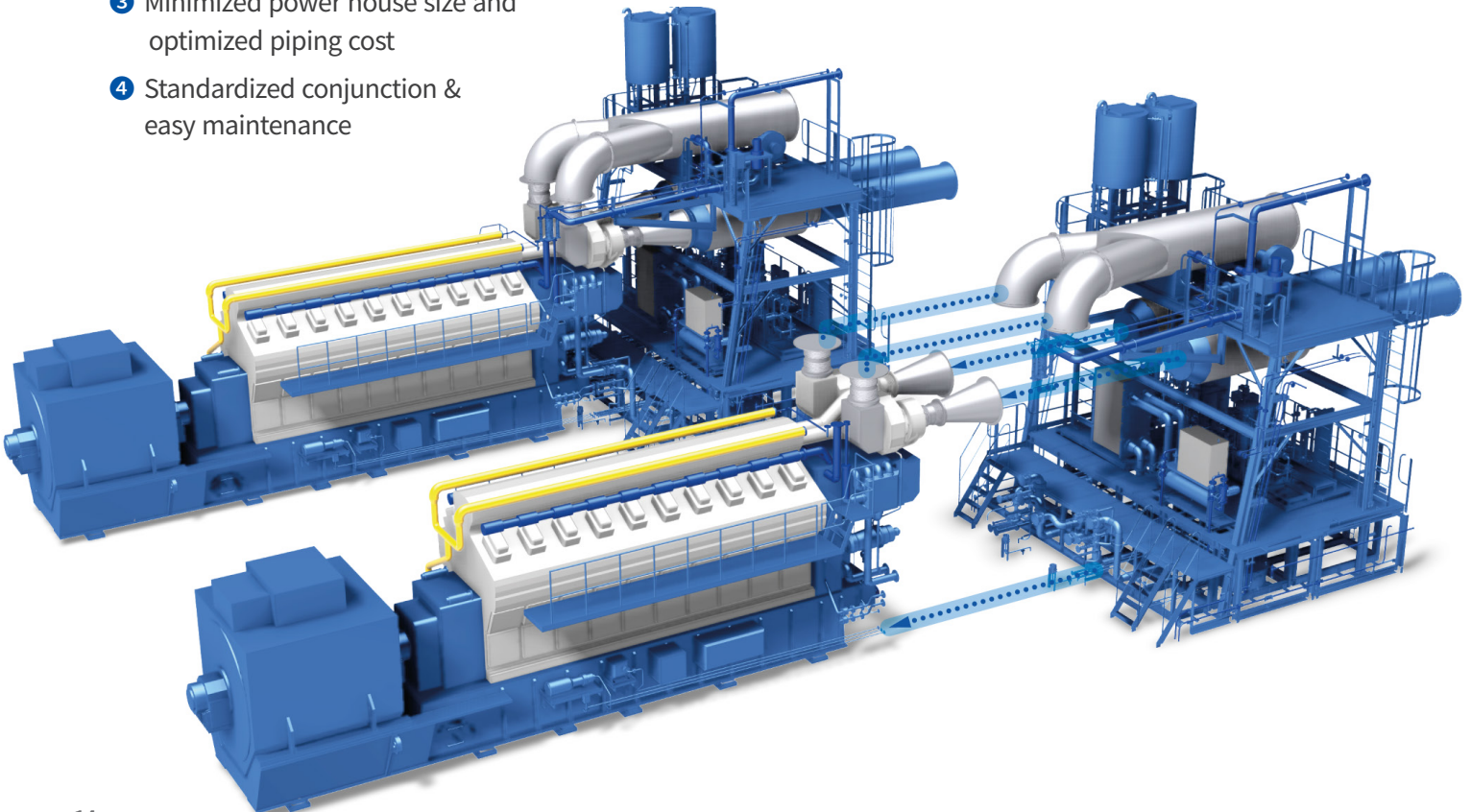
Unit:
One-thousand
USD



* The estimated numbers are for cases where there are IPP/EPC contracts (DF Engine), and it may differ among countries.

HiMSEN Aux. Module(HAM)

- 1 Faster and simple construction on site
- 2 Consistent control
- 3 Minimized power house size and optimized piping cost
- 4 Standardized conjunction & easy maintenance



RELIABLE & POWERFUL SUPPORT AROUND THE WORLD

- Optimized Solutions For Each Customer’s Needs
- Genuine Spare Parts From The Original Equipment Manufacturer
- Fast and Reliable Response Through Our Global Service Network
- 24/7, Immediate Support



Contact Us

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