



MARINE AUXILIARY PRODUCT GUIDE

GENERATOR CAPACITY : 10~1000kWe



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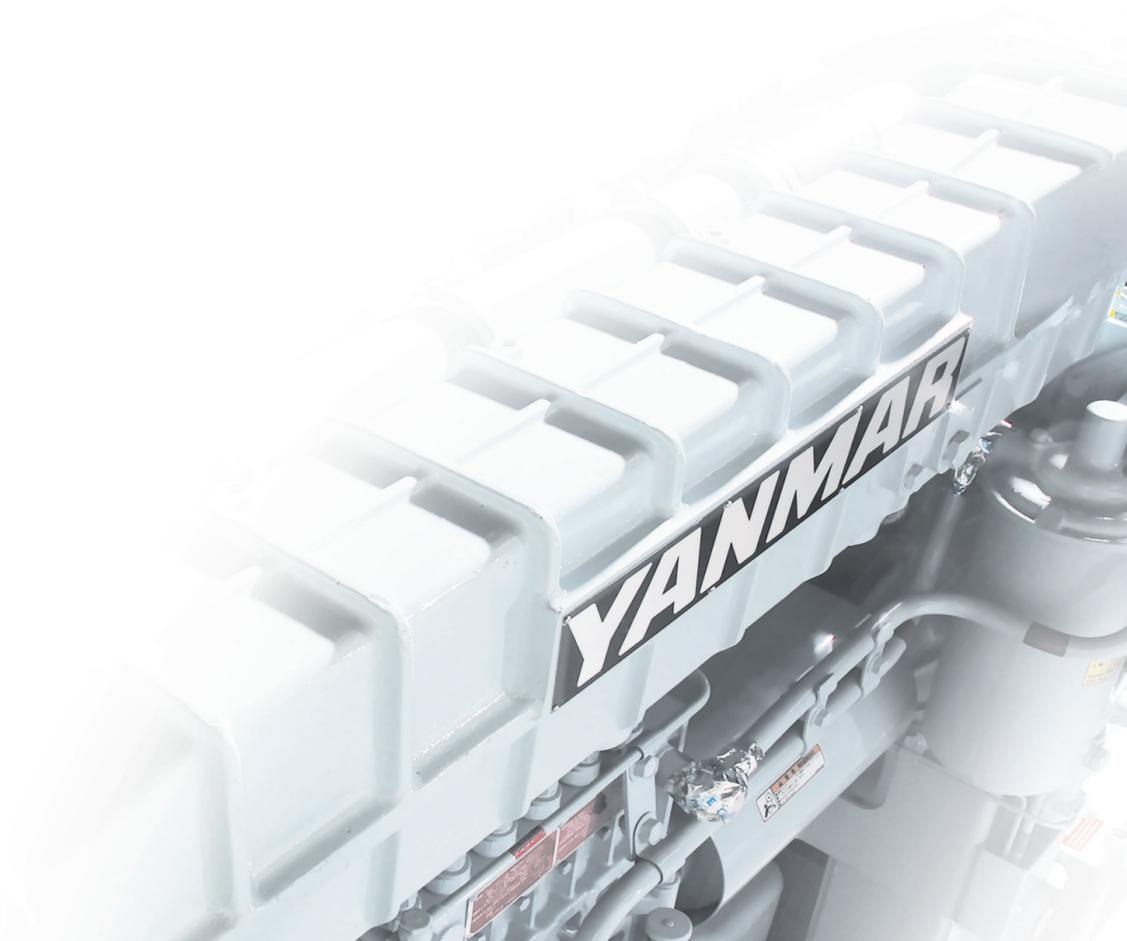
- Before using, be sure to read the handling instructions carefully and use correctly. • Be sure to conduct periodic inspection to preventing trouble and accidents. • Do not cut the seal and operate the engine forcibly. This will shorten the engine's life and may lead to trouble or accidents.
- Use the fuel and lube oils, fresh water, etc. recommended in our operation manual. Use of non-specified items can cause trouble or accidents.

• Specifications in this catalogue are subject to change without notice in order to incorporate improvements, etc.
• Product colors in this catalogue may differ slightly from those of actual products. • Photograph may show optional equipment.

**YANMAR POWER SOLUTIONS CO.,LTD.
Marine Products Sales and Marketing Division**

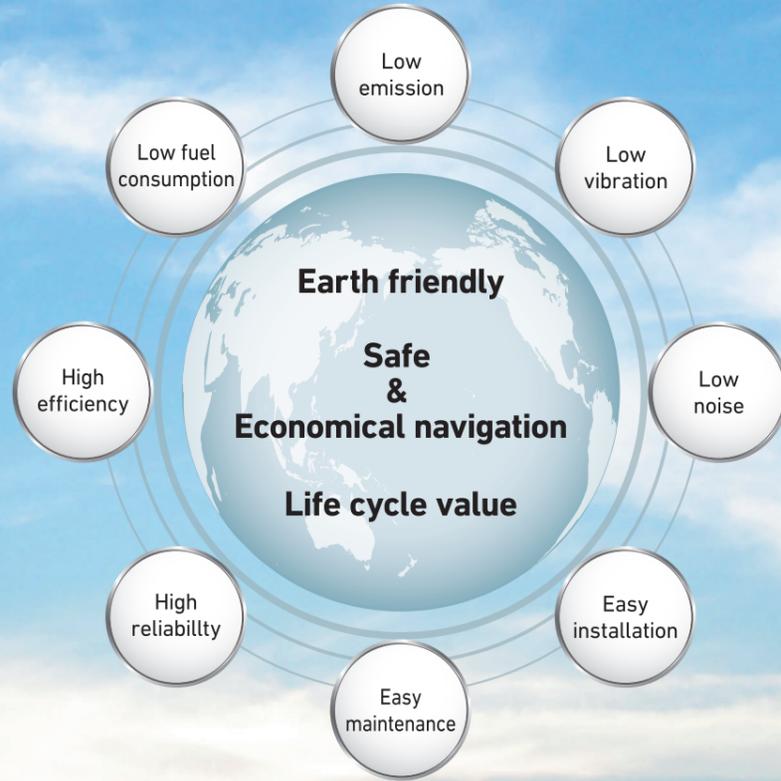
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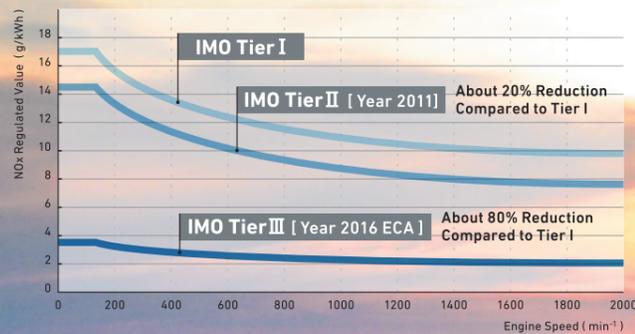
YANMAR Power Solution contributes to work “ Life Cycle Value ” and “ Harmony with the environment ”

Nowadays, as atmospheric pollution damages the environment and global warming has begun to effect the ecosystem, protecting the environment has become a vital global issue. YANMAR has been dedicated to developing its own new technologies and products in pursuit of resource and energy efficiency since YANMAR was founded with the sprit of 'grateful to serve for a better world'. In order to realize that hope, we are developing engines in harmony with the environment by reducing NOx, CO2, SOx, and other emissions and reducing the use of environmentally damaging substances. Furthermore, YANMAR has pursued the continuous improvement of Life Cycle Value for the customer throughout a long product life by developing products that embody reliability, durability and low-cost operation. YANMAR Power Solution, it's all for your business and the world tomorrow.



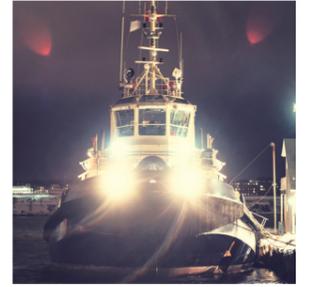
Harmony with the Environment — IMO Emission Limits —

IMO NOx Emission Limits



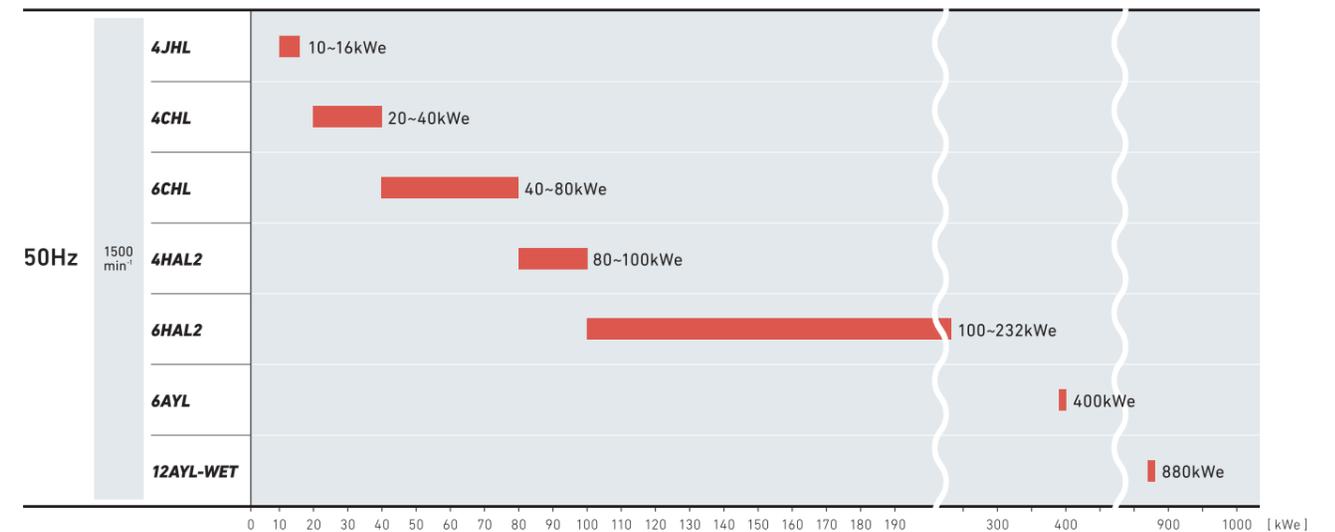
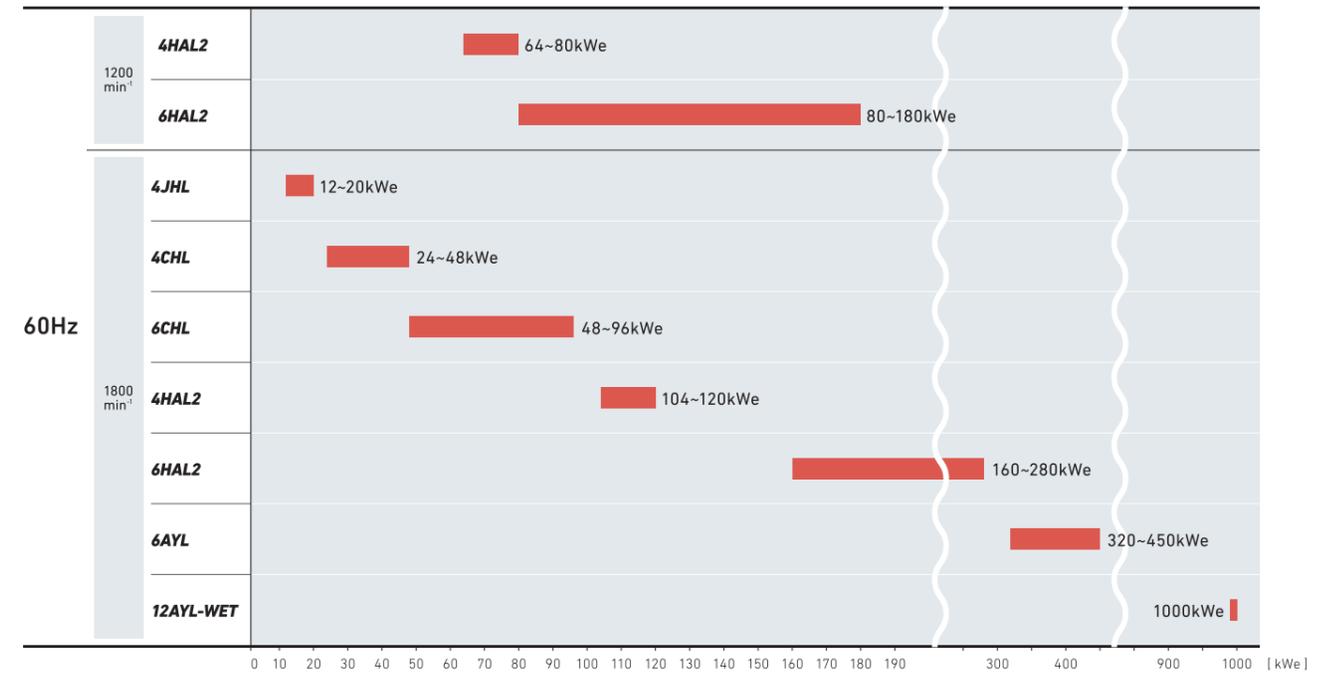
The pollution of the atmosphere by hazardous substances released from marine diesel engines has become a major global issue. The release of hazardous substances into the atmosphere by ships is regulated by the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78). Annex VI: Prevention of Air Pollution from Ships was later passed in September 1997. As a result, the regulation of NOx emission levels began for marine diesel engines with a power of above 130kW on vessels built on or after January 1,2000. A further amendment was passed in October, 2008 and engines mounted in vessels built on or after January 1,2011 face even stricter TierII regulations. Technological solutions have been developed to overcome these regulatory challenges including engine technologies, supplementary technologies and post processing technologies. Yanmar is addressing the stricter IMO TierII regulation NOx limits with improvements to combustion technologies of engine.

IMO = International Maritime Organization (國際海事機關)
NOx = 氮素氧化物 SOx = 硫黃氧化物



MARINE AUXILIARY DIESEL ENGINE LINE-UP

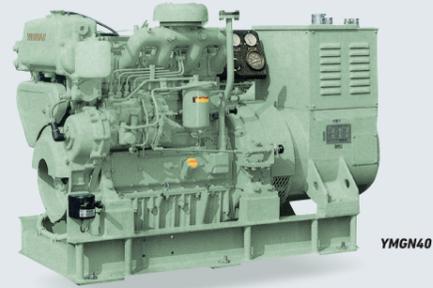
Generator Capacity



Marine Diesel Generator Set

YMGN series

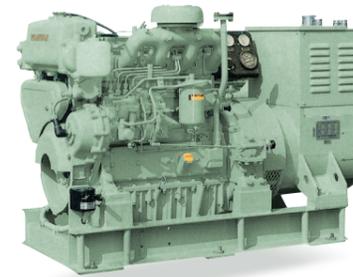
Generator Capacity
12~32kWe[60Hz]



Set Model	YMGN15B	YMGN20B	YMGN25B	YMGN30B	YMGN40B
Generator	Brushless AC Generator [Taiyo Electric Co., Ltd.]				
Type	3 φ 4wire				
No. of Phases	60				
Frequency [Hz]	12 (15)				
Generator Capacity [kWe (kVA)]	16 (20)	20 (25)	24 (30)	32 (40)	
Voltage [V]	225 / 130				
Current [A]	38.5	51.3	64.2	77	102.6
Engine	Vertical, Water-cooled, 4-stroke Diesel				
Type	4JHL-N	4JHL-TN	4JHL-HTN	4CHL-N	
Model	14.7 (20)	19.1 (26)	23.5 (32)	36.8 (50)	
Continuous Rated Output [kW (PS)]	1800				
Engine Speed [min ⁻¹]	Direct Injection				
Combustion Method	455	460	485	940	990
Set	Total Weight (Gen. Set) [kg]				

4CHL

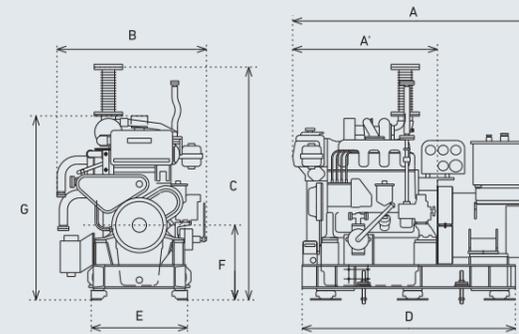
Generator Capacity 20~48kWe



Specifications

Engine Model	4CHL-N		4CHL-TN		4CHL-TNA	
Type	Vertical, Water-cooled, 4-stroke Diesel					
No. of Cylinders	In-line 4					
Cylinder Bore×Stroke [mm]	105×125					
Continuous Rated Output [kW (PS)]	27.9 (38)	36.8 (50)	36.8 (50)	45.6 (62)	45.6 (62)	54.4 (74)
Generator Capacity [kWe (kVA)]	20 (25)	24 (30)	32 (40)	32 (40)	40 (50)	48 (60)
Engine Speed [min ⁻¹]	1500	1800	1500	1800	1500	1800
Combustion system	Direct injection					
Starting system	Electric Starting or Air-motor starting					
Dry Weight [kg]	500			520		
Total Weight (Gen.Set) [kg]	940	990	1040	1090		

The engine dry weight may differ depending upon the specifications and attached accessories.
Above generator capacity will vary according to actual generator efficiency.
• In case of 4CHL-TNA, continuous load operation shall be 80% or below of rated power, and 100% load operation shall be within 2 hours per 12 hours.



Dimensions [mm]

Models	4CHL-N	4CHL-TN	4CHL-TNA
A	1552	1532	1572
A'	917	917	917
B	947	947	947
C	1350.5	1473	1473
D	1350	1350	1420
E	610	610	610
F	473	473	473
G	1164	1164	1164

G : Minimum Height for Removing Piston (Not included the dimension for bolt fitting to piston remove.)

Depending on the specifications or options that have been chosen, your model may differ slightly from the one in the photograph and outline.

4JHL

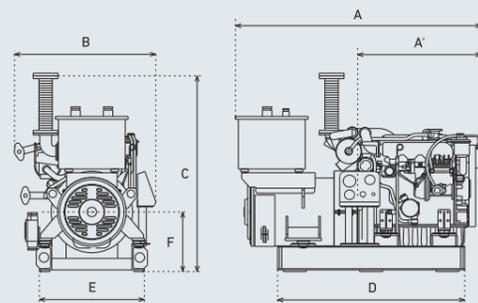
Generator Capacity 10~20kWe



Specifications

Engine Model	4JHL-N		4JHL-TN		4JHL-HTN	
Type	Vertical, Water-cooled, 4-stroke Diesel					
No. of Cylinders	In-line 4					
Cylinder Bore×Stroke [mm]	78×86					
Continuous Rated Output [kW (PS)]	12.1 (16.5)	14.7 (20)	14.7 (20)	19.1 (26)	19.1 (26)	23.5 (32)
Generator Capacity [kWe (kVA)]	10 (12.5)	12 (15)	12 (15)	16 (20)	16 (20)	20 (25)
Engine Speed [min ⁻¹]	1500	1800	1500	1800	1500	1800
Combustion system	Direct injection					
Starting system	Electric Starting					
Dry Weight [kg]	205		210		215	
Total Weight (Gen.Set) [kg]	455		460		485	

The engine dry weight may differ depending upon the specifications and attached accessories.
Above generator capacity will vary according to actual generator efficiency.



Dimensions [mm]

Models	4JHL-N	4JHL-TN	4JHL-HTN
A	1258	1258	1288
A'	648	648	648
B	708	708	740
C	1050	1025	1025
D	980	980	980
E	550	550	550
F	312	312	312
G	-	-	-

Piston cannot be removed unless rotate engine.

Depending on the specifications or options that have been chosen, your model may differ slightly from the one in the photograph and outline.

6CHL

Generator Capacity 40~96kWe

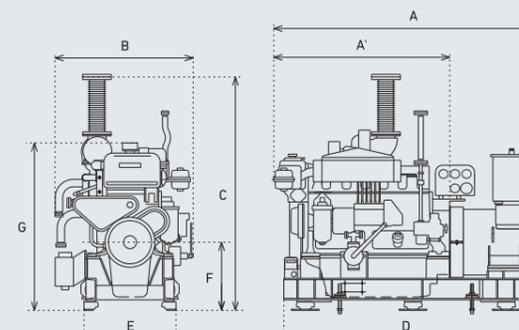


Specifications

Engine Model	6CHL-N		6CHL-TN		6CHL-TNA		6CHL-HTN		6CHL-HTNA	
Type	Vertical, Water-cooled, 4-stroke Diesel									
No. of Cylinders	In-line 6									
Cylinder Bore×Stroke [mm]	105×125									
Continuous Rated Output [kW (PS)]	45.6 (62)	54.4 (74)	54.4 (74)	73.6 (100)	67.7 (92)	89.7 (122)	73.6 (100)	88.3 (120)	91.9 (125)	107 (145)
Generator Capacity [kWe (kVA)]	40 (50)	48 (60)	48 (60)	64 (80)	60 (75)	80 (100)	64 (80)	80 (100)	80 (100)	96 (120)
Engine Speed [min ⁻¹]	1500	1800	1500	1800	1500	1800	1500	1800	1500	1800
Combustion system	Direct injection									
Starting system	Electric Starting or Air-motor starting									
Dry Weight [kg]	625		645		645		675		675	
Total Weight (Gen.Set) [kg]	1220		1350		1350		1380		1540	

The engine dry weight may differ depending upon the specifications and attached accessories.
Above generator capacity will vary according to actual generator efficiency.

• In case of 6CHL-TNA / 6CHL-HTNA, continuous load operation shall be 80% or below of rated power, and 100% load operation shall be within 2 hours per 12 hours.



Dimensions [mm]

Models	6CHL-N	6CHL-TN	6CHL-TNA	6CHL-HTN	6CHL-HTNA
A	1861	1926	1926	1946	2051
A'	1206	1206	1206	1256	1256
B	962	962	962	962	962
C	1382	1624	1624	1624	1634
D	1650	1700	1700	1700	1900
E	640	640	640	640	640
F	474	474	474	474	484
G	1165	1165	1165	1165	1175

G : Minimum Height for Removing Piston (Not included the dimension for bolt fitting to piston remove.)

Depending on the specifications or options that have been chosen, your model may differ slightly from the one in the photograph and outline.

4HAL2

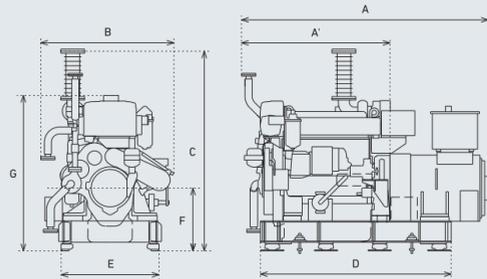
Generator Capacity 64~120kWe



Specifications

Engine Model	4HAL2-TN1			4HAL2-TN		4HAL2-WT
Type	Vertical, Water-cooled, 4-stroke Diesel					
No. of Cylinders	In-line 4					
Cylinder Bore×Stroke (mm)	130×165					
Continuous Rated Output [kW (PS)]	72 (98)	89 (121)	116 (157)	90 (122)	115 (156)	135 (183)
Generator Capacity [kWe (kVA)]	64 (80)	80 (100)	104 (130)	80 (100)	100 (125)	120 (150)
Engine Speed [min-1]	1200	1500	1800	1200	1500	1800
Combustion system	Direct injection					
Starting system	Electric Starting or Air-motor starting					
Dry Weight [kg]	1030					
Total Weight (Gen.Set) [kg]	1855					

The engine dry weight may differ depending upon the specifications and attached accessories. Above generator capacity will vary according to actual generator efficiency.



G : Minimum Height for Removing Piston (Not included the dimension for bolt fitting to piston remove.)

Depending on the specifications or options that have been chosen, your model may differ slightly from the one in the photograph and outline.

Dimensions [mm]

Models	4HAL2-TN1	4HAL2-TN	4HAL2-WT
A	2070	2070	2070
A'	1245	1245	1245
B	1117	1117	1117
C	1685	1685	1685
D	1600	1600	1600
E	820	820	820
F	529	529	529
G	1312	1312	1312

6AYL [IMO Tier III]

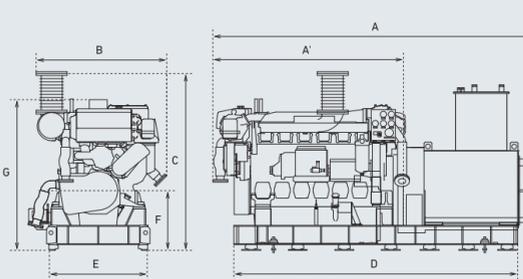
Generator Capacity 320~450kWe



Specifications

Engine Model	6AYL-WST		6AYL-WET	
Type	Vertical, Water-cooled, 4-stroke Diesel			
No. of Cylinders	In-line 6			
Cylinder Bore×Stroke (mm)	155×180			
Continuous Rated Output [kW (PS)]	353 (480)	438 (596)	491 (668)	
Generator Capacity [kWe (kVA)]	320 (400)	400 (500)	450 (562.5)	
Engine Speed [min-1]	1800		1800	
Combustion system	Direct injection			
Starting system	Electric Starting or Air-motor starting			
Dry Weight [kg]	2475		2475	
Total Weight (Gen.Set) [kg]	4600		4750	

The engine dry weight may differ depending upon the specifications and attached accessories. Above generator capacity will vary according to actual generator efficiency.



G : Minimum Height for Removing Piston (Not included the dimension for bolt fitting to piston remove.)

Depending on the specifications or options that have been chosen, your model may differ slightly from the one in the photograph and outline.

Dimensions [mm]

Models	6AYL-WST	6AYL-WET
A	2970	3040
A'	1860	1860
B	1445	1445
C	1836	1836
D	2540	2600
E	1030	1030
F	619	619
G	1565	1565

6HAL2

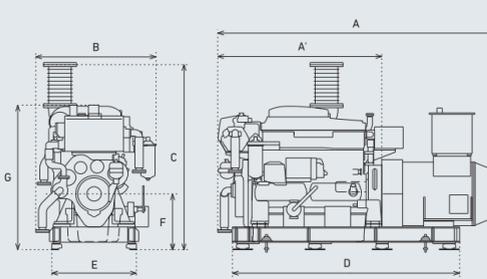
Generator Capacity 80~280kWe



Specifications

Engine Model	6HAL2-N		6HAL2-TN		6HAL2-WT		6HAL2-WHT		6HAL2-WDT		
Type	Vertical, Water-cooled, 4-stroke Diesel										
No. of Cylinders	In-line 6										
Cylinder Bore×Stroke (mm)	130×165										
Continuous Rated Output [kW (PS)]	90 (122)	115 (156)	120 (163)	150 (204)	180 (244)	160 (217)	220 (299)	265 (360)	200 (271)	255 (346)	305 (414)
Generator Capacity [kWe (kVA)]	80 (100)	100 (125)	104 (130)	136 (170)	160 (200)	144 (180)	200 (250)	240 (300)	180 (225)	232 (290)	280 (350)
Engine Speed [min-1]	1200	1500	1200	1500	1800	1200	1500	1800	1200	1500	1800
Combustion system	Direct injection										
Starting system	Electric Starting or Air-motor starting										
Dry Weight [kg]	1380		1422		1437		1447				
Total Weight (Gen.Set) [kg]	2360		2410		2750		2850				

The engine dry weight may differ depending upon the specifications and attached accessories. Above generator capacity will vary according to actual generator efficiency.



G : Minimum Height for Removing Piston (Not included the dimension for bolt fitting to piston remove.)

Depending on the specifications or options that have been chosen, your model may differ slightly from the one in the photograph and outline.

Dimensions [mm]

Models	6HAL2-N	6HAL2-TN	6HAL2-WT	6HAL2-WHT	6HAL2-WDT
A	2499	2499	2499	2574	2684
A'	1589	1589	1589	1589	1589
B	1164	1164	1164	1164	1164
C	1654	1774	1774	1804	1804
D	2100	2100	2100	2200	2200
E	820	820	820	820	820
F	544	544	544	544	544
G	1327	1327	1327	1327	1327

12AYL-WET [IMO Tier III]

Generator Capacity 880~1000kWe

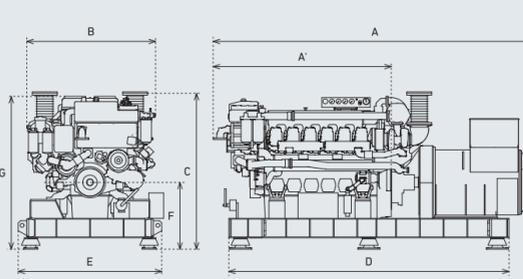


The Picture above shows the 6AYL model, which is different from

Specifications

Engine Model	12AYL-WET	
Type	Vertical, Water-cooled, 4-stroke Diesel	
No. of Cylinders	12	
Cylinder Bore×Stroke (mm)	155×180	
Continuous Rated Output [kW (PS)]	950 (1292)	1073 (1459)
Generator Capacity [kWe (kVA)]	880 (1100)	1000 (1250)
Engine Speed [min-1]	1500	
Combustion system	Direct injection	
Starting system	Electric Starting or Air-motor starting	
Dry Weight [kg]	4950	
Total Weight (Gen.Set) [kg]	9300	

The engine dry weight may differ depending upon the specifications and attached accessories. Above generator capacity will vary according to actual generator efficiency.



G : Minimum Height for Removing Piston (Not included the dimension for bolt fitting to piston remove.)

Depending on the specifications or options that have been chosen, your model may differ slightly from the one in the photograph and outline.

Dimensions [mm]

Models	12AYL-WET
A	4155
A'	2647
B	1655
C	2016
D	3600
E	1867
F	865.5
G	995

6HAL2-H

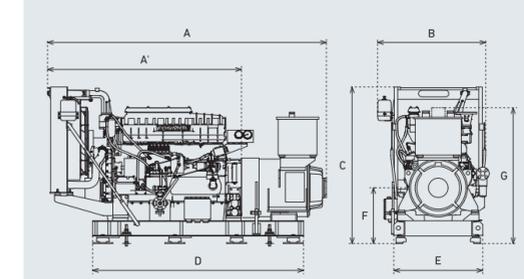
Generator Capacity 100~250kWe



Specifications

Engine Model	6HAL2-H		6HAL2-TH		6HAL2-HTH		6HAL2-DTH	
Type	Vertical, Water-cooled, 4-stroke Diesel							
No. of Cylinders	6							
Cylinder Bore×Stroke (mm)	130×165							
Continuous Rated Output [kW (PS)]	115 (156)	128 (174)	150 (204)	202 (275)	202 (275)	245 (333)	245 (333)	278 (378)
Generator Capacity [kWe (kVA)]	100 (125)	112 (140)	132 (165)	180 (225)	180 (225)	220 (275)	220 (275)	250 (312.5)
Engine Speed [min-1]	1500	1800	1500	1800	1500	1800	1500	1800
Combustion system	Direct injection							
Starting system	Electric Starting or Air-motor starting							
Dry Weight [kg]	1335		1370		1470		1470	
Total Weight (Gen.Set) [kg]	2270		2550		2790		2950	

The engine dry weight may differ depending upon the specifications and attached accessories. Above generator capacity will vary according to actual generator efficiency.



G : Minimum Height for Removing Piston (Not included the dimension for bolt fitting to piston remove.)

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Dimensions [mm]

Models	6HAL2-H	6HAL2-TH	6HAL2-HTH	6HAL2-DTH
A	2709	2819	2868.5	2978.5
A'	1884	1884	1884	1884
B	1085	1096	1168	1168
C	1684	1782	1812	1812
D	2050	2100	2161.5	2161.5
E	810	810	810	810
F	544	544	544	544
G	1327	1327	1327	1327

Global Hub Factory for Marine Diesel Engines

Tsukaguchi Plant



The Yanmar Marine Operations Division specializes in developing and producing small and medium-sized diesel engines mainly at the Tsukaguchi Plant. From processing of components for marine propulsion engines, marine auxiliary engines, land and industrial engines to assembly, rigging, and test runs, the Tsukaguchi Plant uses a consistent quality control system to produce a wide range of diesel engines. We deliver highly reliable products that thoroughly apply the technologies and expertise that we have fine-tuned over the years to markets in Japan and all over the world.

Certified by the six major classification societies.

The Tsukaguchi Plant has been certified by world's six most authoritative shipping classification associations, LRS(Lloyd's Register of Shipping), ABS(American Bureau of Shipping), NK (Nippon Kaiji Kyokai), BV(Bureau Veritas), RINA(Registro Italiano Navale) and KR(Korea Register of Shipping).



NK : Nippon Kaiji Kyokai
ABS : American Bureau of Shipping
LR : Lloyd's Register of Shipping
RINA : Registro Italiano Navale
BV : Bureau Veritas
KR : Korean Register of Shipping

Certifications of 6 major shipping classification societies

Internationally certified quality control and environmental response

In July 1992, Power Solution Business was certified under ISO 9001 by a certification authority in England, Lloyd's Register Quality Assurance Limited (LRQA). Responding swiftly to environmental issues, in June 1996 Amagasaki factory became one of the first land-use and marine diesel engine manufacturing facilities to be ISO 14001 certified. Furthermore, YANMAR instantaneously attained the International Maritime Organization (IMO) Tier II and III certification for the regulation of NOx emission levels. YANMAR maintains an internationally acclaimed reputation for leading edge technology that has environmental conservation at its forefront.