MARINE DIESEL ENGINE

Marine Propulsion Power Range [374–4500kW]
Marine Auxiliary Generator Capacity [180–4600kWe]
A SUSTAINABLE FUTURE

Low Emission
Low Vibration
Low Fuel Consumption
Low Noise
High Efficiency
Easy Installation
High Reliability
Easy Maintenance

Earth Friendly
Safe & Economical Navigation
Life Cycle Value

CONTENTS

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With respect for nature, YANMAR will be your reliable partner for a long voyage.

We will keep close communication with our customers once we deliver our products, in addition to development and production of our wide range of marine engines. We promote "Life Cycle Value" to our customers for their comfortable and safe voyage over a long period of time, while we pursue many possible ways to achieve low engine costs and to be in harmony with the environment, we strive to provide the best possible solution for our customers.

We separately adopt the exhaust gas selective catalytic reduction system in compliance with the new environmental regulations, IMO Tier III.

**SCR System**
- SCR System: How it works
  Urea solution safe to be used is injected into exhaust gas. By this, the generated ammonia reacts with NOx through catalyst, resulting in non-toxic nitrogen and water being discharged into open air.

  \[ 4\text{NO} + 4\text{NH}_2\cdot\text{H}_2\cdot\text{O} \rightarrow 4\text{N}_2 + 6\text{H}_2\cdot\text{O} \]

- Compact Design: Unified catalytic line and bypass

**YANMAR EcoDiesel** is addressing the stricter IMO Tier II regulation NOx limits with improvements to combustion technologies of engine.

**ASSIGN Combustion System**
- Staggered Layout Multi-Hole Nozzle
  By staggering the layout and using multiple injection holes, this design achieves sufficient total injection area and improves air utilization.

- Air Flow Motion
  The optimally shaped air intake port generates a suitable swirl (turbulent flow) in the combustion chamber as well as a squish in the compression stroke. This promotes fuel/air mixing, improving combustion efficiency.

**High Pressure Miller Cycle System**
- Miller Type Cam
  By finishing the intake stroke earlier, the intake air expands and temperature in the cylinder decreases, and by reducing air temperature before combustion in the next compression stroke, the NOx emission is reduced.

- High Pressure Ratio Turbocharger
  Increasing the intake pressure by high pressure ratio turbocharger during the short intake stroke ensures the quantity of charged air and fixes the cylinder pressure to restrain the increase of the specific fuel consumption.
## MARINE PROPULSION DIESEL ENGINE LINE-UP

### Power Range

<table>
<thead>
<tr>
<th>Series</th>
<th>Models</th>
<th>Output (kW)</th>
<th>Gear</th>
<th>Dimensions (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4EY17W</td>
<td>4EY17W</td>
<td>210-310</td>
<td>500</td>
<td>400-450</td>
</tr>
<tr>
<td>4EY22W</td>
<td>4EY22W</td>
<td>235-300</td>
<td>500</td>
<td>400-450</td>
</tr>
<tr>
<td>4EY22AW</td>
<td>4EY22AW</td>
<td>235-300</td>
<td>500</td>
<td>400-450</td>
</tr>
<tr>
<td>4EY32W</td>
<td>4EY32W</td>
<td>260-350</td>
<td>500</td>
<td>400-450</td>
</tr>
<tr>
<td>4EY32AW</td>
<td>4EY32AW</td>
<td>260-350</td>
<td>500</td>
<td>400-450</td>
</tr>
<tr>
<td>4EY33W</td>
<td>4EY33W</td>
<td>290-400</td>
<td>500</td>
<td>400-450</td>
</tr>
<tr>
<td>4EY33AW</td>
<td>4EY33AW</td>
<td>290-400</td>
<td>500</td>
<td>400-450</td>
</tr>
<tr>
<td>4EY36W</td>
<td>4EY36W</td>
<td>320-450</td>
<td>500</td>
<td>400-450</td>
</tr>
<tr>
<td>4EY36AW</td>
<td>4EY36AW</td>
<td>320-450</td>
<td>500</td>
<td>400-450</td>
</tr>
<tr>
<td>4EY38W</td>
<td>4EY38W</td>
<td>350-500</td>
<td>500</td>
<td>400-450</td>
</tr>
<tr>
<td>4EY38AW</td>
<td>4EY38AW</td>
<td>350-500</td>
<td>500</td>
<td>400-450</td>
</tr>
<tr>
<td>4EY42W</td>
<td>4EY42W</td>
<td>400-550</td>
<td>500</td>
<td>400-450</td>
</tr>
<tr>
<td>4EY42AW</td>
<td>4EY42AW</td>
<td>400-550</td>
<td>500</td>
<td>400-450</td>
</tr>
<tr>
<td>4EY48W</td>
<td>4EY48W</td>
<td>500-750</td>
<td>500</td>
<td>400-450</td>
</tr>
<tr>
<td>4EY48AW</td>
<td>4EY48AW</td>
<td>500-750</td>
<td>500</td>
<td>400-450</td>
</tr>
</tbody>
</table>

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**Engine Speed (rpm)**: All the engines listed operate at a speed range between 210 and 450 rpm, with specific models having ranges from 260 to 480 rpm.
<table>
<thead>
<tr>
<th>Engine Model</th>
<th>6EY17W</th>
<th>6EY33W</th>
<th>6EY22AW</th>
<th>6EY33W</th>
<th>6EY26W</th>
<th>6EY33W</th>
<th>6N21AW</th>
<th>6EY26W</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power</strong></td>
<td>374-483kW</td>
<td>2500-3380kW</td>
<td>735-1370kW</td>
<td>3000-4500kW</td>
<td>1471-1920kW</td>
<td>1710-2140kW</td>
<td>302-950kW</td>
<td>2910-2560kW</td>
</tr>
<tr>
<td><strong>Cylinders</strong></td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td><strong>Cylinder Stroke (mm)</strong></td>
<td>154-239</td>
<td>206-440</td>
<td>270-293</td>
<td>300-440</td>
<td>250-395</td>
<td>280-395</td>
<td>530-600</td>
<td>250-395</td>
</tr>
<tr>
<td><strong>Rated Output (kW)</strong></td>
<td>1375 (1300)</td>
<td>2751 (3793)</td>
<td>1020 (1460)</td>
<td>1372 (1630)</td>
<td>1710 (2140)</td>
<td>1710 (2140)</td>
<td>330 (1300)</td>
<td>330 (1300)</td>
</tr>
<tr>
<td><strong>Engine Speed (rpm)</strong></td>
<td>1450</td>
<td>793</td>
<td>1450</td>
<td>793</td>
<td>1450</td>
<td>793</td>
<td>1450</td>
<td>1450</td>
</tr>
<tr>
<td><strong>Marine Gear Case</strong></td>
<td>Off/On</td>
<td>Off/On</td>
<td>Off/On</td>
<td>Off/On</td>
<td>Off/On</td>
<td>Off/On</td>
<td>Off/On</td>
<td>Off/On</td>
</tr>
<tr>
<td><strong>Reduction Gear</strong></td>
<td>2.0, 3.2, 4.3</td>
<td>2.0, 3.2, 4.3</td>
<td>2.0, 3.2, 4.3</td>
<td>2.0, 3.2, 4.3</td>
<td>2.0, 3.2, 4.3</td>
<td>2.0, 3.2, 4.3</td>
<td>2.0, 3.2, 4.3</td>
<td>2.0, 3.2, 4.3</td>
</tr>
<tr>
<td><strong>Dry Weight (kg)</strong></td>
<td>950</td>
<td>780</td>
<td>950</td>
<td>780</td>
<td>950</td>
<td>780</td>
<td>950</td>
<td>780</td>
</tr>
<tr>
<td><strong>Total Dry Weight with Marine Gear (kg)</strong></td>
<td>950</td>
<td>780</td>
<td>950</td>
<td>780</td>
<td>950</td>
<td>780</td>
<td>950</td>
<td>780</td>
</tr>
</tbody>
</table>

The engine dry weight and outline may differ depending upon the specifications and attached accessories.
MARINE AUXILIARY DIESEL ENGINE LINE-UP
### MARINE AUXILIARY DIESEL ENGINE

**6NY16LW**
- **Generator Capacity:** 180-400kWe

<table>
<thead>
<tr>
<th>Engine Model</th>
<th>6NY16L-WF</th>
<th>6NY16L-LW</th>
<th>6NY16L-GF</th>
<th>6NY16L-2WF</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Cylinders</td>
<td>6</td>
<td></td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Cylinder Bore x Stroke (mm)</td>
<td>210 (127)</td>
<td>260 (165)</td>
<td>290 (165)</td>
<td>350 (140)</td>
</tr>
<tr>
<td>Rated Output [kW(kVA)]</td>
<td>260 (320)</td>
<td>330 (425)</td>
<td>400 (540)</td>
<td>480 (660)</td>
</tr>
<tr>
<td>Generator Capacity [kW(kVA)]</td>
<td>320 (425)</td>
<td>400 (540)</td>
<td>480 (660)</td>
<td>560 (750)</td>
</tr>
<tr>
<td>Engine Speed [rpm]</td>
<td>1000</td>
<td>1200</td>
<td>1200</td>
<td>1200</td>
</tr>
<tr>
<td>Dry Weight (kg)</td>
<td>8680</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Weight (Gen. Set) (kg)</td>
<td>10400</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**6N165LW**
- **Generator Capacity:** 320-480kWe

<table>
<thead>
<tr>
<th>Engine Model</th>
<th>6N165L-WF</th>
<th>6N165L-LW</th>
<th>6N165L-GF</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Cylinders</td>
<td>6</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Cylinder Bore x Stroke (mm)</td>
<td>210 (127)</td>
<td>260 (165)</td>
<td>350 (140)</td>
</tr>
<tr>
<td>Rated Output [kW(kVA)]</td>
<td>260 (320)</td>
<td>330 (425)</td>
<td>480 (660)</td>
</tr>
<tr>
<td>Generator Capacity [kW(kVA)]</td>
<td>400 (540)</td>
<td>560 (750)</td>
<td></td>
</tr>
<tr>
<td>Engine Speed [rpm]</td>
<td>1000</td>
<td>1200</td>
<td>1200</td>
</tr>
<tr>
<td>Dry Weight (kg)</td>
<td>7712</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Weight (Gen. Set) (kg)</td>
<td>9648</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**6EY181A1/LW**
- **Generator Capacity:** 360-750kWe

<table>
<thead>
<tr>
<th>Engine Model</th>
<th>6EY181A/LW</th>
<th>6EY181A/LW</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Cylinders</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Cylinder Bore x Stroke (mm)</td>
<td>210 (127)</td>
<td>260 (165)</td>
</tr>
<tr>
<td>Rated Output [kW(kVA)]</td>
<td>260 (320)</td>
<td>330 (425)</td>
</tr>
<tr>
<td>Generator Capacity [kW(kVA)]</td>
<td>400 (540)</td>
<td>560 (750)</td>
</tr>
<tr>
<td>Engine Speed [rpm]</td>
<td>1000</td>
<td>1200</td>
</tr>
<tr>
<td>Dry Weight (kg)</td>
<td>8680</td>
<td></td>
</tr>
<tr>
<td>Total Weight (Gen. Set) (kg)</td>
<td>11200</td>
<td></td>
</tr>
</tbody>
</table>

**6EY221A1/LW**
- **Generator Capacity:** 600-1300kWe

<table>
<thead>
<tr>
<th>Engine Model</th>
<th>6EY221A/LW</th>
<th>6EY221A/LW</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Cylinders</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Cylinder Bore x Stroke (mm)</td>
<td>235 (140)</td>
<td>300 (185)</td>
</tr>
<tr>
<td>Rated Output [kW(kVA)]</td>
<td>260 (320)</td>
<td>400 (540)</td>
</tr>
<tr>
<td>Generator Capacity [kW(kVA)]</td>
<td>400 (540)</td>
<td>560 (750)</td>
</tr>
<tr>
<td>Engine Speed [rpm]</td>
<td>750-775</td>
<td></td>
</tr>
<tr>
<td>Dry Weight (kg)</td>
<td>9560</td>
<td></td>
</tr>
<tr>
<td>Total Weight (Gen. Set) (kg)</td>
<td>11900</td>
<td></td>
</tr>
</tbody>
</table>

### MARINE AUXILIARY DIESEL ENGINE

**6EY26LW**
- **Generator Capacity:** 1300-1720kWe

<table>
<thead>
<tr>
<th>Engine Model</th>
<th>6EY26LW</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Cylinders</td>
<td>6</td>
</tr>
<tr>
<td>Cylinder Bore x Stroke (mm)</td>
<td>265 (165)</td>
</tr>
<tr>
<td>Rated Output [kW(kVA)]</td>
<td>1460 (1950)</td>
</tr>
<tr>
<td>Generator Capacity [kW(kVA)]</td>
<td>1800 (2400)</td>
</tr>
<tr>
<td>Engine Speed [rpm]</td>
<td>770-750</td>
</tr>
<tr>
<td>Dry Weight (kg)</td>
<td>1800</td>
</tr>
<tr>
<td>Total Weight (Gen. Set) (kg)</td>
<td>25900</td>
</tr>
</tbody>
</table>

**8EY26LW**
- **Generator Capacity:** 1800-2300kWe

<table>
<thead>
<tr>
<th>Engine Model</th>
<th>8EY26LW</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Cylinders</td>
<td>8</td>
</tr>
<tr>
<td>Cylinder Bore x Stroke (mm)</td>
<td>300 (185)</td>
</tr>
<tr>
<td>Rated Output [kW(kVA)]</td>
<td>2710 (3770)</td>
</tr>
<tr>
<td>Generator Capacity [kW(kVA)]</td>
<td>3200 (4580)</td>
</tr>
<tr>
<td>Engine Speed [rpm]</td>
<td>721-770</td>
</tr>
<tr>
<td>Dry Weight (kg)</td>
<td>24320</td>
</tr>
<tr>
<td>Total Weight (Gen. Set) (kg)</td>
<td>48000</td>
</tr>
</tbody>
</table>

**6EY33LW**
- **Generator Capacity:** 2250-3400kWe

<table>
<thead>
<tr>
<th>Engine Model</th>
<th>6EY33LW</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Cylinders</td>
<td>6</td>
</tr>
<tr>
<td>Cylinder Bore x Stroke (mm)</td>
<td>300 (185)</td>
</tr>
<tr>
<td>Rated Output [kW(kVA)]</td>
<td>2750 (3770)</td>
</tr>
<tr>
<td>Generator Capacity [kW(kVA)]</td>
<td>3200 (4580)</td>
</tr>
<tr>
<td>Engine Speed [rpm]</td>
<td>721-770</td>
</tr>
<tr>
<td>Dry Weight (kg)</td>
<td>28500</td>
</tr>
<tr>
<td>Total Weight (Gen. Set) (kg)</td>
<td>63000</td>
</tr>
</tbody>
</table>

**8EY33LW**
- **Generator Capacity:** 3750-4600kWe

<table>
<thead>
<tr>
<th>Engine Model</th>
<th>8EY33LW</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Cylinders</td>
<td>8</td>
</tr>
<tr>
<td>Cylinder Bore x Stroke (mm)</td>
<td>300 (185)</td>
</tr>
<tr>
<td>Rated Output [kW(kVA)]</td>
<td>4000 (5400)</td>
</tr>
<tr>
<td>Generator Capacity [kW(kVA)]</td>
<td>4800 (6600)</td>
</tr>
<tr>
<td>Engine Speed [rpm]</td>
<td>721-770</td>
</tr>
<tr>
<td>Dry Weight (kg)</td>
<td>30000</td>
</tr>
<tr>
<td>Total Weight (Gen. Set) (kg)</td>
<td>60300</td>
</tr>
</tbody>
</table>

The engine dry weights may differ depending on the specific functions and attached accessories. Always consult your generator capacity with your supplier to ensure actual generator efficiency.
POWER SOLUTION BUSINESS AMAGASAKI PLANT

Amagasaki factory started in 1936 as world’s first factory to produce small sized diesel engines. Today, the factory mass produces large-sized diesel engines for marine and generator use, and also produces diesel and gas engines for land use and general power source. From 1963, the factory also produces gas turbines, and continues to produce high quality products ever since.

Highly quality and efficient production system

Amagasaki factory uses its unique, high performance devices and advanced machinery for automatic and labor-saving operation. Furthermore, a suitable order-entry system matching each product is applied and controlled with an accurate quality management system. Therefore, we are able to produce highly reliable products to customers. YANMAR is the only company that produces the entire engine integrity within one factory.

Research and development with advanced technology

YANMAR continues to research and develop environmental-friendly technology in a higher degree, such as developing cleaner emission gas, low fuel consumption, and less vibration and noise, based on our unique engine technology.

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). And in June 1997 under ISO 14001* for the first time as a plant producing large land and marine diesel engines. In addition, we also met IMO emissions control regulations (with NOx emission values) (Tier II in 2006 and Tier II in 2011) for the first time as a Japanese engine manufacturer. Our advanced technological capabilities for environmental conservation are highly recognized worldwide.

11 major ship certifications

The Amagasaki Plant has been certified by the world’s 11 major ship classification societies. Its voluntary inspection program was certified by the 11 ship classification societies for the first time in the world

1912
- Founded as Yamasaki Hitachiki Koubou Co., Ltd.

1936
- Founded as Yamasaki Nihonni (internal combustion engine) Company Ltd. with $1,000,000 investment in Nagaoka Otsuka-cho, Kameba-gun, Hyogo Pref. Manufacturing diesel engines together with Yamasaki Hitachiki Koubou Co., Ltd.

1952
- Name changed to Yamarin Diesel Engine Co., Ltd.

1968
- Awarded Deming Prize for pursuit of distinguished quality control.

1978
- Plant certified by ABS (American Bureau of Shipping) and LR (Lloyd’s Register of Shipping), becoming the first plant in Japan to be so honored by the major ship classification organizations of Japan, U.K. and U.S.A., the major marine transportation countries of the world.

1984
- Plant certified by Nisshin Gyosei (Nisshin Marine Classification Society).

1991
- Production level of large-sized engines reached 100,600 units.

1992
- Plant certified by RINA (Registro Italiano Navale).

1997

1998
- Three series of Yamarin marine engines certified first in Japan by the IMO (International Maritime Organization) for complying with its NOx emissions regulations.

1999
- Four new products of diesel engines named “SAYURI” series which advance of low NOx and low level of consumption are on the commercial.

2002
- The name of the company changed to YAMARIN Co., Ltd.

2005
- Received supervision for approved factories by BV (Bureau Veritas).

2006
- The Large Power Products Operating Business celebrated its 70th anniversary.

2007
- Completion of the Amagasaki Plant Development Laboratory, aimed at strengthening emissions standards and systems for developing new products as well as strengthening systems for producing large-sized products.

2008
- Received supervision for approved factories by KRS (Korean Register of Shipping).

2009
- Received supervision for approved factories by CCS (China Classification Society).

2010
- Received supervision for approved factories by DNV (Det Norske Veritas).

2012
- YANMAR celebrates the 100th anniversary of its founding.

2013
- Received supervision for approved factories by LR (Germanischer Lloyd).

2015
- Received supervision for approved factories by KRS (Korean Register of Shipping).

2016
- Received supervision for approved factories by DNV (Det Norske Veritas).

2016
- Received supervision for approved factories by DNV (Det Norske Veritas).

2017
- Received supervision for approved factories by BV (Bureau Veritas).

2018
- Received supervision for approved factories by LR (Germanischer Lloyd).

2018
- Received supervision for approved factories by Nippon Kaiji Kyokai (ClassNK).

2018
- Received supervision for approved factories by KR (Korean Register of Shipping).

2019
- Received supervision for approved factories by DNV (Det Norske Veritas).