For Harmonious Living with Global Environment

Normally, when NOx emissions are reduced, the fuel consumption and smoke generation will increase, For Harmonious Living with Global Environment which is designed to comply with marine environmental protection, the Yanmar diesel engine developer "Yanmar" which is designed to comply with marine environmental protection.

Reborn V12 power you can rely on, developed from years of experience with the latest technology.

Since the 12L and 16L series engines were first introduced in 1970, Yanmar diesel engines have supplied more than 2,000 units to the global market.

Based on this success, we have developed the new 12AYM series, a wide range of high-performance V12 enginesexpanding on an 1,100 series high-power technological background and Yanmar's long experience in diesel engine development.

The engine is a lightweight, high-speed, low-emission, 12-cylinder, in-line, four-stroke diesel engine. With a capacity of 35 liters, it is equipped with the Yanmar Proven Technology. Durable, easy to maintain, and lightweight, this engine will help reduce costs and reduce downtime.

Good Fuel Economy together with Low Emissions.

The micro-structured intake ports in the all-new 12AYM series engines provide a higher fuel-air ratio and reduced particulate matters, with deep combustion and reduced smoke emissions.

Maximum durability, and ease of maintenance. This engine boasts low NOx and fuel consumption thanks to Yanmar's advanced engine control. With its stable high torque, power, and large-scale cylinder chambers and new cylinder head shapes, and, combined with deep combustion and multiple combustion improvement, even with emission control, exhaust emissions and lower fuel consumption can be maintained across a far wider operating range.

M-AYM-WET

M-AYM-WET

12AYM-WET

Performance Curves

Note: 12 Data Subject to Change Without Notice

YANMAR POWER TECHNOLOGY CO., LTD.
Longer Project Products Business
1-1-7, Ohtori, Inage-ku, Chiba, Japan
Tel: +81-43-989-1000 Fax: +81-43-989-1582 yanmar.com
**YANMAR, Providing Quality Propulsion Engine Packages for Over 60 Years.**

- **Best F.O.C.**
- **Fuel injection Pump**

### Operation side
- Starter (B bank)
- Propulsion Engine Packages: **YANMAR**, Providing Quality
- Inter cooler (tube type)
- Alternator (cast-iron, water cooled)
- Intake manifold
- Fresh water collecting pipe (A bank)
- Fresh water pump (Multi-plates type)
- Starter (A bank)
- Seawater pump
- Dipstick

### Non-operation side
- Fuel return
- Impeller is option
- Gear driven, centrifugal
- Turbocharger (A bank)
- Fresh water cooler (plate type)
- Inter cooler (tube type)

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**Techniques for Complying with IMO Tier II Emission Standards:**

**Exhaust Gas Recirculation (EGR)**

- In the 12AY engine, the internal EGR system is used. The internal EGR system is designed to minimize the emissions of unburned hydrocarbons, carbon monoxide, and nitrogen oxides by recirculating exhaust gas from the turbine to the intake manifold. This reduces the amount of oxygen available for combustion and helps to lower emissions. The system is designed to operate under a wide range of engine conditions, ensuring compliance with emission standards across various applications.

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**Yanmar Original Heavy Duty Fuel Injection Pump**

-Wade by YANMAR Fuel Injection Pump Factory, Shinagawa, Tokyo, Japan

Uses the same fuel pump as the six-cylinder 6AY Series for improved serviceability.

- **High Torque**
  - Excellent Torque-Rise Characteristics in High Speed and High Load Range Exceed Performance of Job Duties even in High Load

**Toughness**

1. **Low, stable LOC (Lubricating Oil Consumption) and long overhaul interval, thanks to sillicard**
   - **SiliCard is a surface treatment that uses a special method to embed powdered Silicon Carbide (SiC), an artificial ceramic second only to diamond in hardness,**
   - No cylinder kit replacement concept in YANMAR overhaul program.
   - Treatment cylinder liner and nitrided stainless steel rings and the finely judged clearance between piston and liner.

2. **Wide Max. Power Range, (Line B)**
   - Economical with wide min. fuel consumption range both during duty) to tug boat (heavy duty), is possible.
   - A wide range reserve power, from the passenger ship (light/medium power) to large ship (full power).

3. **Min. Fuel Consumption Range is Wide, (Line C)**
   - Produces stable engine performance even doing other job duties.

4. **Wide Medium Load Range, (Line D)**
   - Produces stable engine performance even doing other job duties.

**Rubber mounts (option)**

- **Side jack**
- **Front jack**
- **Rear jack**

**Engine speed min⁻¹**

- **Engine torque-rise curve**
- **Left curve:**
  - Resistance increased hull
  - Engine speed: 1100-1300 min⁻¹

**Propeller**

- Engine speed min⁻¹
- Max. Output

**Supercharger**

- Engine bed
- Isolating rubber
- Vib ratio
- Part no.

**Techniques for Complying with IMO Tier II Emission Standards:**

**Exhaust Gas Recirculation (EGR)**

- In the 12AY engine, exhaust gas recirculation is employed to reduce the emissions of nitrogen oxides. This is achieved by recirculating a portion of the exhaust gas back into the intake manifold, diluting the incoming air-fuel mixture and lowering the temperature at which combustion occurs. This technique is effective in reducing the formation of nitrogen oxides, which are a major contributor to smog and acid rain.

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**Internal EGR system (YANMAR)**

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   - Excellent Torque-Rise Characteristics in High Speed and High Load Range Exceed Performance of Job Duties even in High Load

**Toughness**

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