

MARINE DIESEL ENGINES



6AYM-GTE 670kW(911mhp) L rating

To even further satisfy the expectation of workboat owners, Yanmar, with its long history as a supplier of high speed marine workboat engines, focused on the following:

Good Economy

Maximum fuel efficiency with low fuel consumption across a previously unheard-of range of use conditions.

Lower Emissions

Lower NOx,SOx,CO, less particulates, significantly less black smoke, particularly at idle or during hard acceleration.

High Torque

Stable high torque in middle and high speed ranges for reliable work performance.

Excellent Reliability and Durability

Outstanding engine durability made possible by extra-stable lube oil consumption and long life fuel valves at the tip of each injector.

Easy to Maintain

Because it's a Yanmar
The same compactness and ease of maintenance as ever



Photograph may show optional equipment.

Powerful and Friendly to People and Environment!

A Marine Diesel featuring Massive Power.

- High performance turbo, makes possible the supply of the ultimate volumes of fuel and air.
- Aiming to achieve the highest levels of fuel economy together with easiest maintenance requirements, this engine seeks to be easier on the environment and easier on the operator.
- A brilliant new high power engine to fill a wide range of needs, from fast fishing boats, to patrol boats, fast ferries etc.

PERFORMANCE

911hp(670kW) at 1938rpm in the L operating mode.

This 180 mm long stroker 20 liter class diesel, with big breathing valves for better airflow, the hi performance turbo for, less turbo lag, and better mixing at low revs, the all-new high efficiency intercooler for cooler, more compact air charging, and the numerous other performance features deliver power in large amounts over a wide operating range, especially under high load conditions.

Astonishing Accelerating

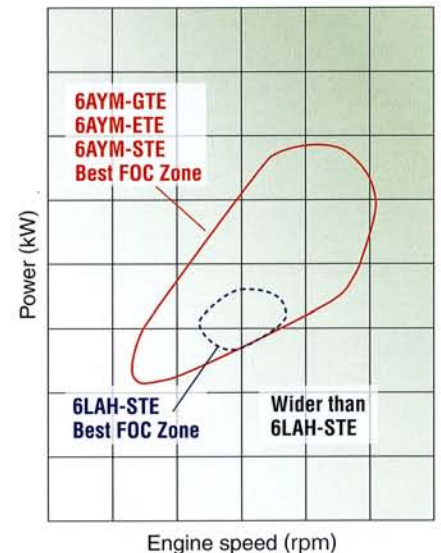
This large capacity engine will deliver smooth acceleration starting way down low and extending all the way up the rev range.

Good Fuel Economy together with Lower Emissions

The micro-sized multiple holes in the all-new injectors produce an even finer fuel-oil mist and, combined with new perfectly matched combustion chambers and new cylinder head shapes, produce even more power. It is power delivered smoothly, due to optimum combustion conditions being maintained across a far wider operating range.

And it leads directly to the bonus of lower exhaust emissions and lower fuel consumption. The boost compensator dramatically reduces black smoke under hard acceleration.

Good Fuel economy across a wide revolution range



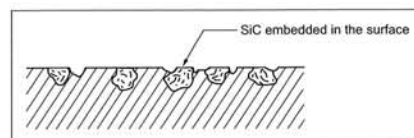
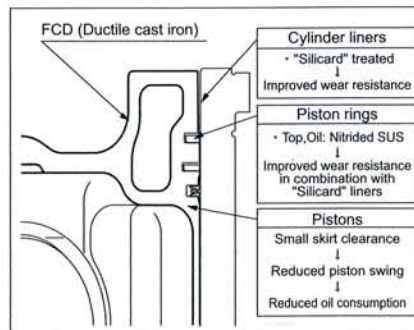
TOUGHNESS

A Tough, Reliable Engine

Toughness and reliability have moved ahead in large steps thanks to the steady progress of technology. Modern technology makes possible the hi-tech iron block and head, the special surface treatment of the cylinder liners, the advanced design of the water cooled manifold—in fact a whole host of new features which add substantially to the overall toughness and reliability of this engine.

This engine features a stronger cylinder block and cylinder head, stronger head bolt bosses, stronger cylinder liner rack for uniform rack face pressure, stronger main bearing caps.

Cylinder wear and lube oil consumption are both reduced by the specially treated cylinder liners, and by the nitrided SUS rings.



SAFETY

Easier Routine Inspection, Easier Maintenance.



Large inspection windows on the side of the block allow in-site replacement of pistons. Lube Oil filter is easy-to-replace cartridge type. Full mechanical engine management avoids the chance of delicate and expensive electronics failing in hot, marine engine room conditions. Maintenance is simplified, inspection and replacement costs are lower. Reliability and durability are enhanced. Engine is user-friendly.

For Harmonious Living with Global Environment

Eco Deisel



ASSIGN combustion system

Lower fuel consumption
Lower NOx emissios

Doing Our Bit for the World!

lower fuel consumption and lower NOx emissions At the Same Time

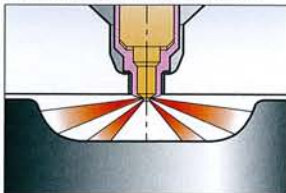
Normally, when NOx emissions are reduced, the fuel consumption and smoke generation will increase, adversely affecting both the environment and management. As a solution to this, YANMAR has developed "EcoDiesel SAVETEN", which is designed so as to comply with marine environmental protection. The "EcoDiesel SAVETEN" employs the ASSIGN combustion system, an innovative state-of-the-art technology, and other new features. It improves the fuel consumption and smoke generation in addition to reducing NOx emissions.

YANMAR ASSIGN Combustion System



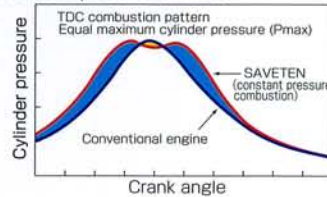
Staggered layout nozzle

The use of the staggered layout nozzles provides sufficient area for nozzle holes despite of small nozzle holes and improves available air rate. This enables both lower fuel consumption and reduced smoke generation.

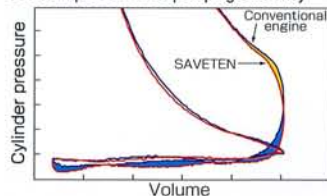


Increases in combustion work, suction and exhaust work

Increases in combustion work due to constant pressure combustion

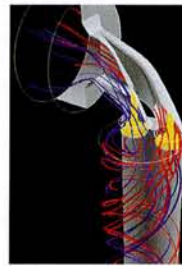


Increases in suction and exhaust work due to improvement of pumping efficiency

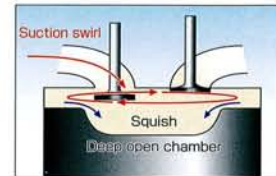


Air flow motion

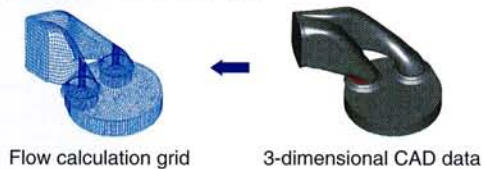
① Promotion of mixing air and fuel



② Suction swirl



③ Analysis result of swirl port



YANMAR original marine gear that can be adapted to a wide range of applications

YANMAR provides our original gearbox, which enables us to supply total marine engineering & servicing to customers!

New High-Performance Marine Gear

YXH-240 new high-performance lightweight marine gear is designed to draw out best performance of 6AY engine.



Easier Maintenance

The 3-part structure of the case enables the forward shaft and reverse shaft to be disassembled and reassembled while still installed on the boat. In addition, a cartridge system is now used for the L.O. filter.

Large Capacity & Long Service Life

A fiber friction plate delivers improved trolling performance and increased clutch capacity. In addition, a finer LO filter extends the service life of the bearings and moving parts.

Damping of Fluctuating Torque

High-performance coupling reduces the fluctuating torque that is input to the marine gear. They reduce rattling and prevent torsional vibration to protect the power transmission parts.

ENGINE SPECIFICATIONS

Model	6AYM-GTE	
Type	4-cycle, vertical, turbo-charged diesel engine	
Number of cylinders	6 in-line	
Bore x stroke	mm	155 x 180
Displacement	lit.	20.379
Rated output	kW(hp)/min ⁻¹	L : 670 (911)/1938 at flywheel
Fuel consumption	g/kW-h	205 (at rated output)
Direction of rotation	Counter-clockwise viewed from stern	
Combustion system	Direct injection	
Governor	Mechanical	
Volume of cooling fresh water	lit.	68 (coolers & jacket)
Volume of lubricating oil (in engine piping line : 20)	lit.	max.:91 min. : 48 (Standard oilpan) max.:53 min. : 31 (Shallow oilpan)
Dry mass	kg	2365 (without marine gear)
Starting motor	DC24V-7.0kW	
Alternator	DC24V-600W or 1000W	

MARINE GEAR SPECIFICATIONS

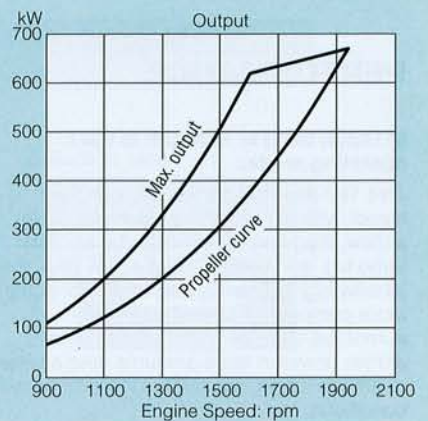
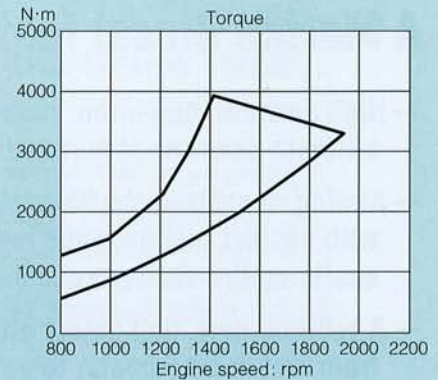
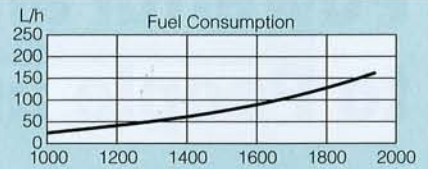
Model	YXH-240	
Type	Hydraulic multi-disc clutch	
Reduction ratio (Ahead)	1.95 2.27 2.56 3.03 3.48	
Direction of rotation (propeller shaft)	Clockwise or counterclockwise	
Dry weight	kg	645

Note: hp≒0.7355kW Rating are based on condition of 100 kPa, 30% relative humidity at 25°.

Fuel rates: Specific gravity 0.835g/cc, Low calorific value 42700kJ/kg (10200 kcal/kg), Cetane No.45, Fuel consumption has a tolerance of +5%

L=For applications where use of rated power is less than 2 hours continuous and operation in less than 2000 hours per year.

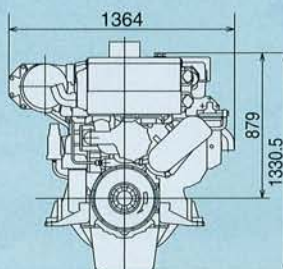
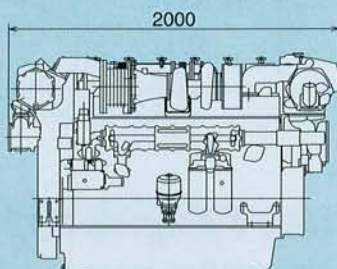
PERFORMANCE CURVES



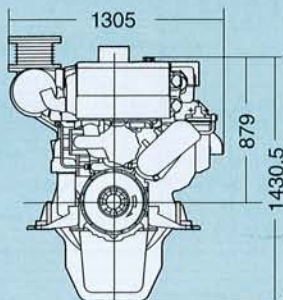
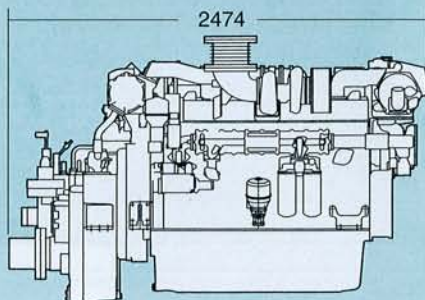
DIMENSIONS

Shallow oilpan, exhaust to stern

Unit: mm



Standard oilpan, with YXH-240 gearbox



Note: All data subject to alteration without notice.

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