



**YANMAR**

MARINE DIESEL ENGINE

# 6AYEM-GT / 6AYEM-ET



Photograph may show optional equipment.

- Cammon Rail
- IMO TierII Compliant

# 1018mhp

# 749kW

**LONG  
STROKE**

## Control System

### 6AYEM Control System for VC10

Control system	VC10		
Classification	Non-Classified		
System type	Type 2	Type 3	Type 4
Bridge (Remote)			
Engine room (Local)			
	To M/G To engine	To M/G To engine	To M/G To engine
Function	YXH-240-7(12V) or other electrical gear		
Remote monitor size	7 inch	7 inch	7 inch
Gear shift	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shield harness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Monitor in local	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Start / Stop in local	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
R/L change in local	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Override	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety relay for SCS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 6AYEM Control System for Automaskin Panel

Control system	Automaskin Panel		
Classification	Non-Classified	Classified	
System type	Type 0	Type 1 (Basic, Premium)	Type 2 (Basic, Premium)
Bridge (Remote)			
Engine room (Local)			
	To engine To M/G	To engine To M/G	To engine To M/G
		Additional sensor/switch	Additional sensor/switch
		Note: Sensor is danfoss sensor. (For classification)	Note: Sensor is danfoss sensor. (For classification)
Function	YXH-240-7(24V) or other electrical gear		
Remote monitor size	5.7 inch	Basic: 5.7 inch Premium: 8.4 inch	Basic: 5.7 inch Premium: 8.4 inch
Gear shift	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shield harness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Monitor in local	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Start / Stop in local	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
R/L change in local	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Override	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safety relay for SCS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

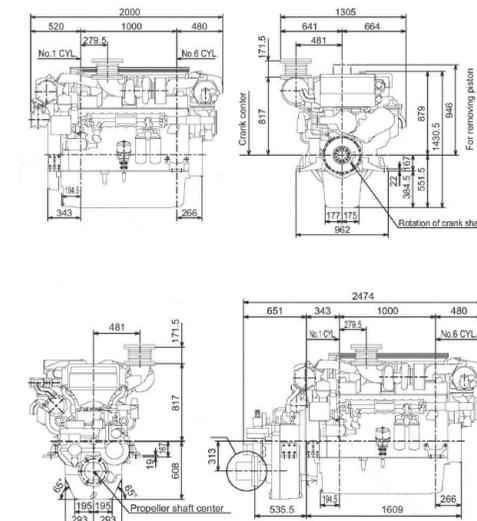
## Engine Specifications

Model	6AYEM-GT			6AYEM-ET	
Type	4-cycle, Vertical, Turbo-charged with sea water cooled inter cooler diesel engine				
No. of cylinders, Bore × Stroke mm	6 in-line, 155x180				
Displacement	lit. 20.38				
Rated Output	kW(mhp) / min <sup>-1</sup>	749(1018) / 2000	737(1002) / 2000	670(911) / 1938	610(829) / 1900
Emission	IMO Tier II				
Fuel consumption	gr/kW · hr	206 <sup>+5%</sup>			
Direction of rotation	Counterclockwise				
Combustion system	Direct Injection				
Cooling system	Constant High temperature cooling system [Optional] Single circuit keel cooling system				
Cooling water capacity	lit.	35(engine only) [optional HE:68]			
Lubricating system	Forced lubrication with gear pump				
Lubricating oil capacity	lit.	Normal type: 91, Shallow type: 53			
Lubricating oil grade	SAE40 or SAE15W-40				
Starting system	Electric start(DC24C-8kW) [Optional Air starting]				
Flywheel housing size	inch	SAE#0 and 18			
Dry weight	kg	2418			

## Marine Gear Specifications

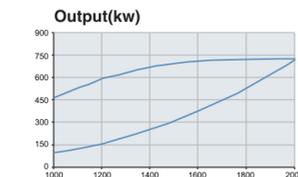
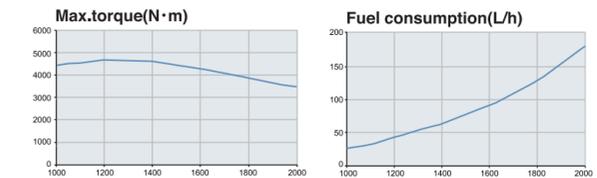
Marine Gear Model	YXH-240-7				
Type	Hydraulic multi-disc clutch				
Reduction ratio	Ahead	1.95	2.27	2.56	3.03
	Astern	1.95	2.27	2.56	3.03
Direction of rotation	Clockwise or Counter-clockwise				
Dry weight	kg	632			

## Dimensions [ Unit : mm (in.) ]



## Performance Curves

IMO(749kW / 2000min<sup>-1</sup>)



Rating definitions: hp=0.7355kW ratings are based on conditions of 100kPa, 30% relative humidity at 25°C

Fuel rates: Specific gravity 0.835g/cc, low calorific value 42700kj/kg(10200kcal/kg), Cetane No.45

## Yanmar Power Solutions Co., Ltd.

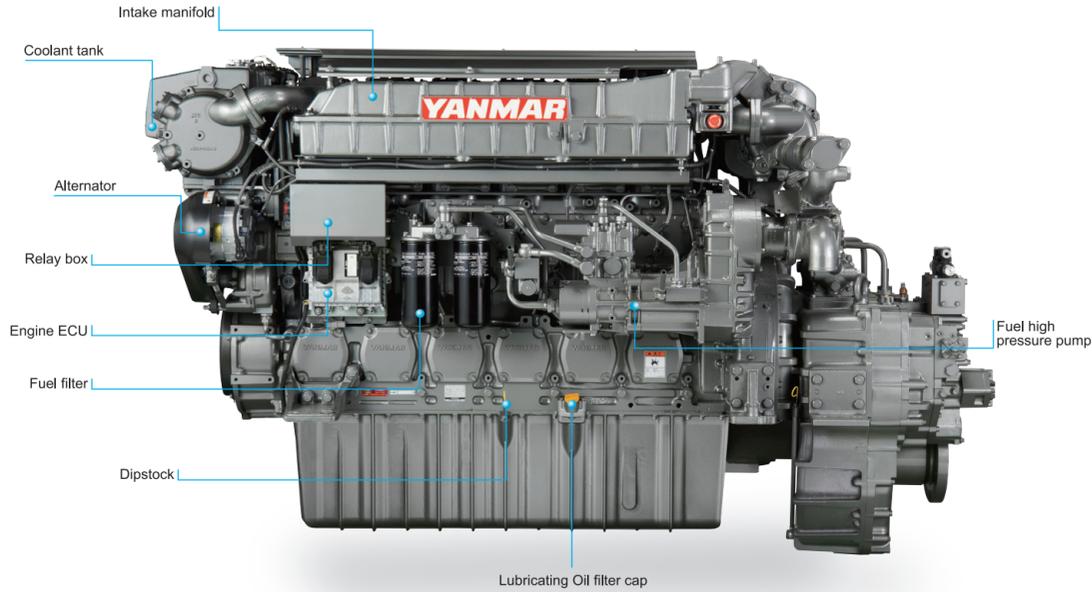
1-1-1, Nagasu-Higashidori, Amagasaki, Hyogo, Japan  
Tel : +81-6489-8069 Fax : +81-6489-1082  
yanmar.com

Note : All Data Subject to Change Without Notice.

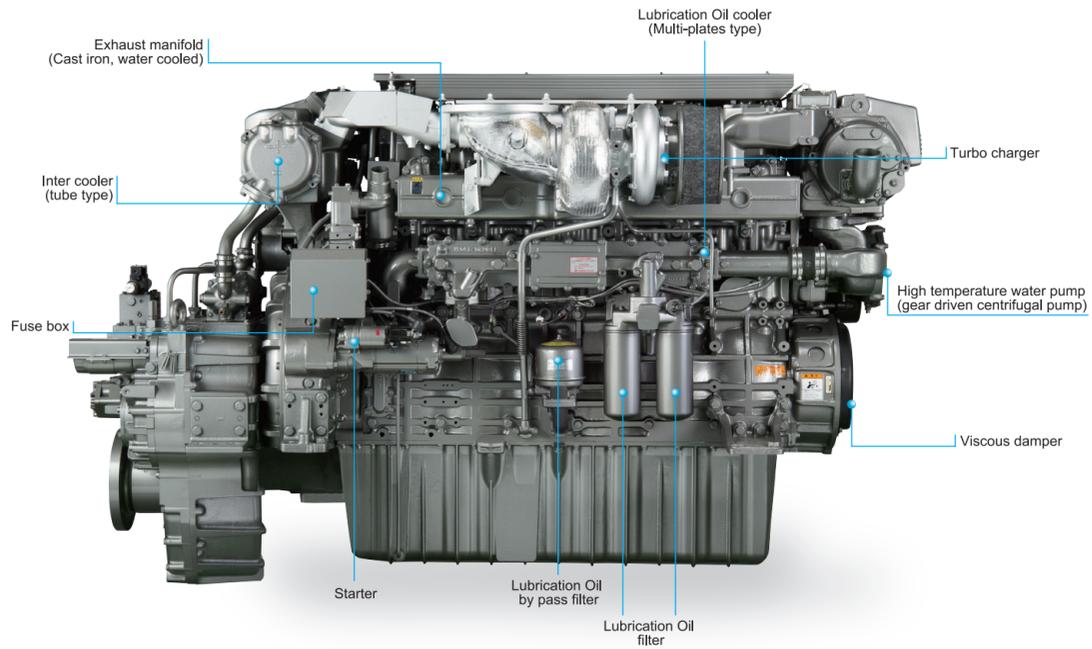
Please consult YANMAR or local distributors for the details.

# Born for "Pure Marine" By Over 60 years experience.

## Operation side



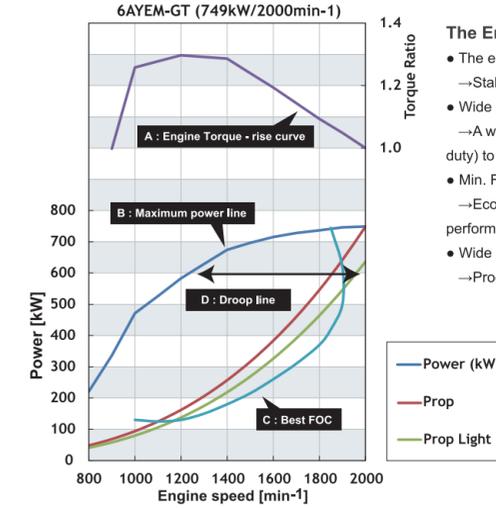
## Non operation side



Photograph may show optional equipment.

## High Torque

Excellent Torque-Rise Characteristics in High Speed and High Load Range Enable Stable Performance of Job Duties even at High Load.

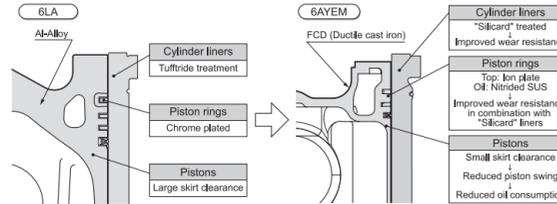


### The Engine Performance Gives the Following Advantages:

- The engine torque-rise characteristics having much in reserve, ( Line A )  
→ Stable cruising with least speed reduction against sudden load changes.
- Wide Max. Power Range, ( Line B )  
→ A wide range propeller matching, from the passenger ship (light/medium duty) to tug boat (heavy duty), is possible.
- Min. Fuel Consumption Range is Wide, ( Line C )  
→ Economical with wide min. fuel consumption range both during cruising or performing job duties.
- Wide Medium Load Range, ( Line D )  
→ Produces stable engine performance even when doing other job duties.

## Toughness

1. Low, stable LOC (Lubricating Oil Consumption) and long overhaul interval, thanks to sillicard\*\* (kind of artificial ceramic) treatment cylinder liner and nitrided stainless steel rings and the finely judged clearance between piston and liner. No cylinder kit replacement concept in YANMAR overhaul program.
2. Purpose built marine engine with long stroke, optimized flywheel weight, water cooled exhaust manifold and special treatment injection nozzle. A Leak-free engine.

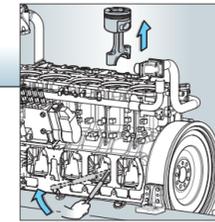


\*\* Sillicard is a surface treatment that uses a special method to embed powdered Silicon Carbide (SiC), an artificial ceramic second only to diamond in hardness, to provide superior wear resistance and durability.

## Lower Down Time

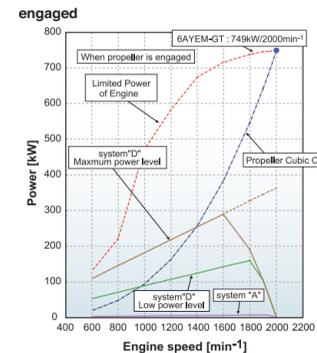
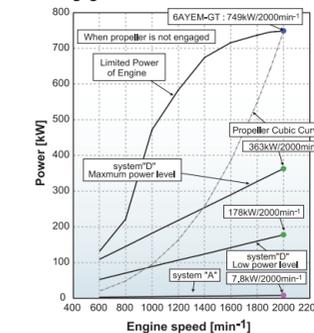
Easier Routine Inspection, Easier Maintenance.

1. Large inspection windows on the side of the block allow in-site replacement of pistons.
2. Full mechanical engine management avoids the chance of delicate and expensive electronics failing in hot, marine engine room conditions.
3. 500 hours service interval.
4. Individual cylinder heads for each cylinder.



## High capacity front PTO

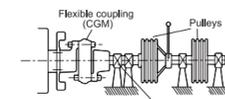
6AYEM-GT(749kW) Diagram of Allowable Power from Front P.T.O. not engaged



### Take Off Method

A Bell-driven without an outer bearing

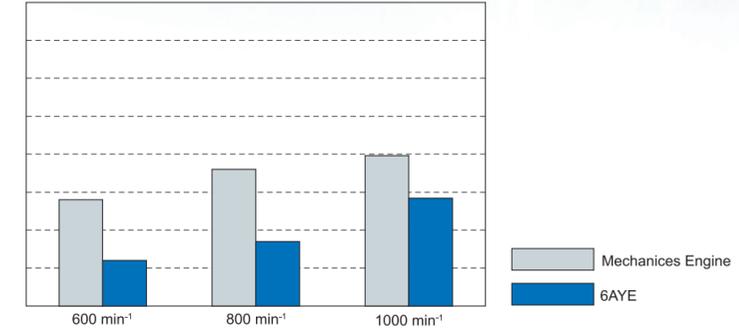
D Shall have the support for bearing at both ends through the intermediary of flexible coupling (CS rubber coupling)



## Strategies to obtain Low noise

- Realized the quietness at the low idle engine speed by multi-stage fuel injection pattern.

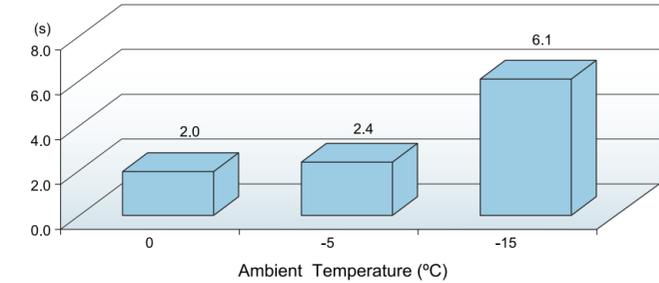
### Comparison of Combustion Noise



## Strategies to obtain good starting performance

- Ensured good starting performance by performing a normal or more multi-stage injection at start-up. So unrequired the heater was required in a conventional engine.

### Reaching Time until the idle engine speed



## Adoption of appropriate fuel injection pressure map

- Improve Fuel Economy
- Low CO<sub>2</sub> & Nox Emissions
- High power with low stroke

### Multi-Stage Fuel Injection Pattern

