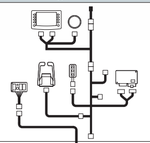
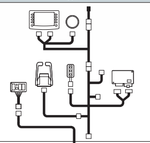
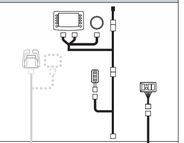
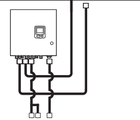
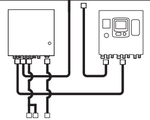
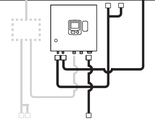
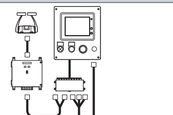
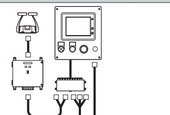
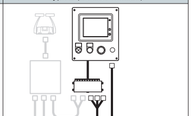
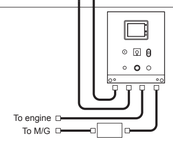
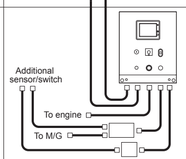
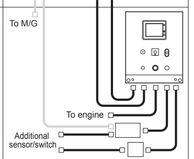
Control System

·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	Gear type	YXH-240-7(12V) or other electrical gear		Other electrical gear
	Remote monitor size	7 inch	7 inch	7 inch
	Gear shift	○	○	
	Shield harness	○	○	○
	Monitor in local	○	○	○
	Start / Stop in local		○	○
	R/L change in local			
	Override			
	Safety relay for SCS			

·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	 Additional sensor/switch To engine To M/G Note: Sensor is danfoss sensor. (For classification)	 To M/G To engine Additional sensor/switch Note: Sensor is danfoss sensor. (For classification)
Function	Gear type	YXH-240-7(24V) or other electrical gear		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	○	○	
	Shield harness	○	○	○
	Monitor in local	○	○	○
	Start / Stop in local	○	○	○
	R/L change in local	○	○	○
	Override	○	○	○
	Safety relay for SCS		○	○

YANMAR

MARINE DIESEL ENGINE

6AYEM-ET / 6AYEM-ST

- Cammon Rail
- EPA Tier III Compliant

Photograph may show optional equipment.

803mhp
599kW

LONG STROKE

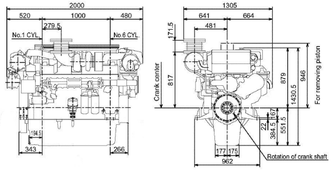
Engine Specifications

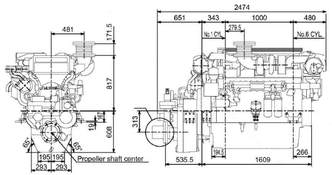
Model		6AYEM-ET	6AYEM-ST
Type		4-cycle, Vertical,Turbo-charged with sea water cooled inter cooler diesel engie	
No. of cylinders, Bore × Stroke	mm	6 in-line, 155x180	
Displacement	lit.	20.38	
Rated Output	kW(mhp) / min⁻¹	599(803) / 1900	485 / 1900
Emission		EPA Tier III	
Fuel comsumption	gr/kW · hr	215+5%	214+5%
Direction of rotation		Counterclockwise	
Combution system		Direct Injection	
Cooling system		Constant High temperature cooling system	
		[Optional]Dual 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	3.48
	Astern	1.95	2.27	2.56	3.03	3.48
Direction of rotation	Clockwise or Counter-clockwise					
Dry weight	kg	632				

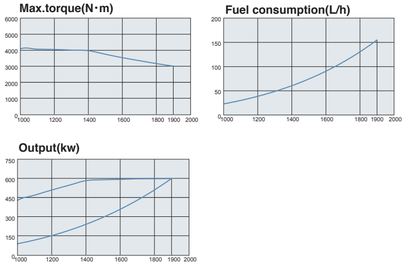
Dimensions [Unit : mm (in.)]





Performance Curves

EPA(599kW / 1900min⁻¹)



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

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

YANMAR POWER TECHNOLOGY CO., LTD.

Large Power Products Business

1-1-1,Nagasu-Higashidori,Amagasaki,Hyogo,Japan

Tel : +81-6489-8069 Fax : +81-6489-1082

yanmar.com

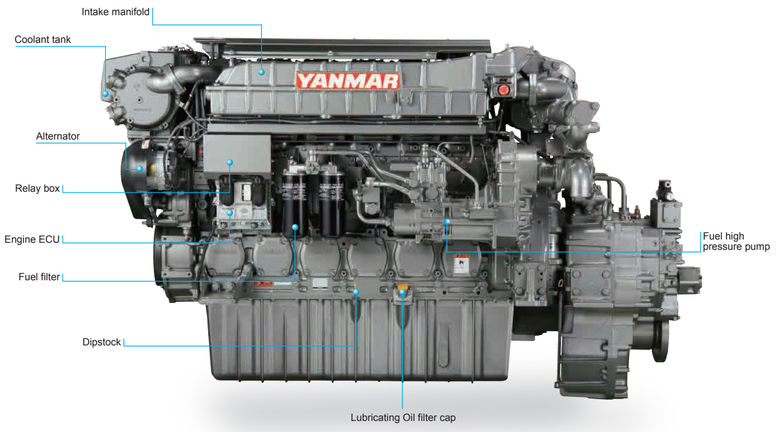
Note : All Data Subject to Change Without Notice.

Please consult YANMAR or local distributors for the details.

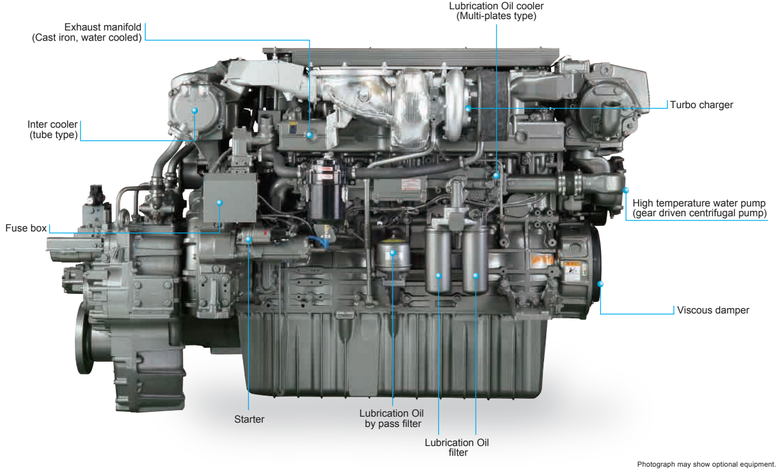
Printed in Japan 001M0-G00611 1710 ⓝ

Born for “Pure Marine”
By Over 60 years experience.

Operation side



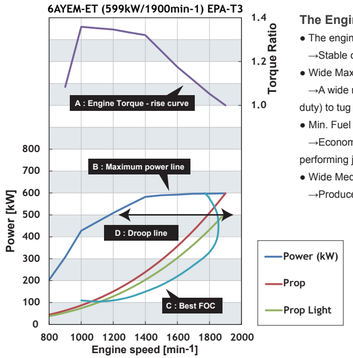
Non operation side



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.

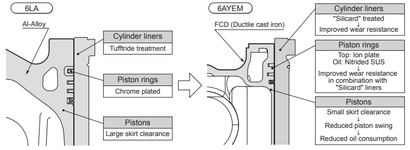


The Engine Performance Gives the Following Advantages:

- 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.

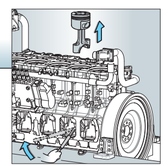


** SiliCard is a surface treatment that uses a special method to embed powdered Silicon Carbide (SiC), an artificial ceramic second only to diamond in hardness, to provide superior wear resistance and durability.

Lower Down Time

Easier Routine Inspection, Easier Maintenance.

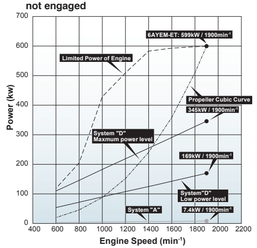
1. Large inspection windows on the side of the block allow in-site replacement of pistons.
2. Full mechanical engine management avoids the chance of delicate and expensive electronics failing in hot, marine engine room conditions.
3. 500 hours service interval.
4. Individual cylinder heads for each cylinder.



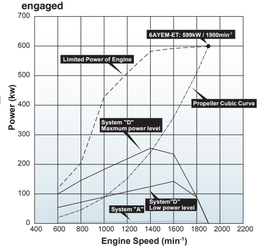
High capacity front PTO

6AYEM-ET(599kW) When propeller is not engaged.

not engaged



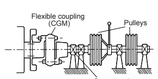
engaged



Take Off Method

A
Belt-driven without an outer bearing

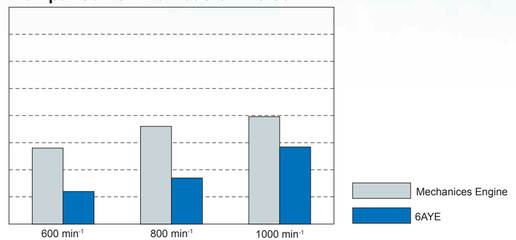
D
Shall have the support for bearing at both ends through the intermediary of flexible coupling (CG fubber coupling)



Strategies to obtain Low noise

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

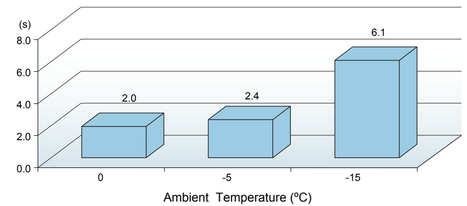
Comparison of Combusion Noise



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_2 & Nox Emissions
- High power with low stroke

Multi-Stage Fuel Injection Pattern