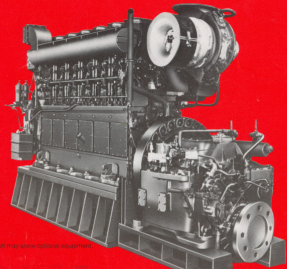
YANMAR DIESEL ENGINE For Marine Use

MODEL

Z280-ST/Z280-ET
8Z280-ST/8Z280-ET
1600~2400 HP



Photograph may show optional equipment.

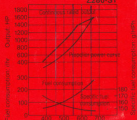
SPECIFICATIONS

Model		Z280-ST	Z280-ET	8Z280-ST	8Z280-ET
Type		4-cycle, vertical diesel engine			
Number of cylinders		6		8	
Bore × Stroke	mm	280 × 360			
Displacement	ℓ	133.0		177.3	
Continuous rated output	HP/rpm	1600/650	1800/650	2100/650	2400/650
Mean piston speed (cont. rated)	m/s	7.8			
Reduction ratio (forward)		2.24	2.49 2.79 3.01	2.06 2.29 2.56 2.77	
Propeller shaft speed (cont. rated)	rpm	290	261 233 216	316 284 254 235	
Direction of rotation	Crankshaft	Clockwise viewed from stern			
	Propeller shaft	Clockwise viewed from stern			
Compression ratio		12.6			
Combustion system		Direct injection			
Starting system		Compressed air			
Cooling system		Water cooling with centrifugal pump			
Lubricating system		Forced lubrication with gear pump			
Reduction/reversing gear		Helical gear reduction/reversing system with hydraulic wet type multi-disk clutch			
Turbocharge system		Exhaust gas turbine turbocharger & air cooler			
Dry weight with marine gear box	kg	15400 (*15850)	15500 (*15750)	20850 (*21050)	20900 (*21100)

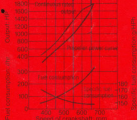
* with Co-Axial Type Clutch

PERFORMANCE CURVES

Z280-ST

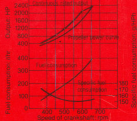


Z280-ET



8Z280-ST

8Z280-ET



Note: These curves show the average performance of respective engines in test operation at our plant without marine gears.

DESIGN FEATURES

Cylinder block
Cast iron. Water jacket & crankcase are cast in mono-block of high rigidity.

Cylinder liner
Special, highly wear-resistant cast iron.

Cylinder head
Cast iron, 4 valves type. The fuel valve for each is located at the center and surrounded with intake, exhaust & starting valves. The intake and exhaust valve seats are of heat resistant steel. High cooling efficiency between the exhaust valves.

Crankshaft
Carbon steel RR forged, giving 15% greater strength than free forgings. Journal and pin overlap is generous and induction hardened with precision finished.

Main bearing
Soft alloy plated Kelmet metal (3 layer) with steel back.

Piston
Aluminum alloy forming direct combustion chamber. Coiled-pipe for forced lubrication/cooling system is employed in piston crown. A built-up type piston with a steel crown and ductile cast iron skirt is available as an option.

Piston ring
Three compression and two oil rings. Advanced ring design keeps oil up to a minimum and reduces lub. oil consumption.

Connecting rod
Carbon steel "I" shaped shank, stamp forgings.

Valve
4 valves type. Made of heat resistant steel for high durability. Intake/Exhaust valves are plated with stellite.

Lubricating system
Gear type lub. oil pump driven from crankshaft. Auto-clean, woven-wire cloth lub. oil strainer and multi-fin tubes type oil cooler. Separate lub. oil circuit is used for valve arm lubrication.

Fuel system
Injection pumps are of the Bosch hi-pressure type and are located each cylinder at high position. Shortened high pressure pipes which are same length give better combustion characteristics. The fuel injection valve is multi-pin-hole, sealed, automatic type. Other system components include fuel oil sediment tank, notch-wire fuel oil strainer and fuel feed pump.

Governor system
Hydraulic, all-speed control type governor driven by the camshaft.

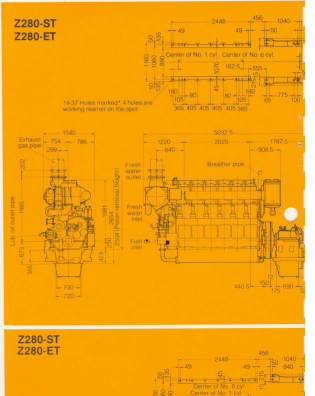
Cooling system
Centrifugal pump. Constant-temperature cooling by thermostat. Air inter cooler, lub. oil cooler and turbo-charger are cooled by independent centrifugal pump.

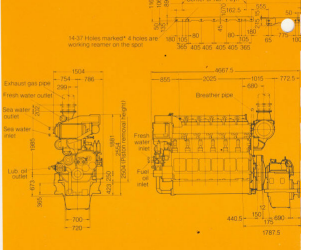
Gear system
Helical gear reduction & reversing gear with hydraulic, wet type multi-disc clutch made by Yanmar. Perfect combination with engine.

Turbocharger
High performance turbochager employing blower made of special materials.

Air inter cooler
Air cooler consists of multi-tubes with fins.

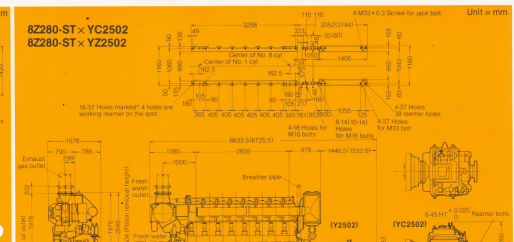
Remote control system
Optional remote control device for governor, clutch and etc.





Unit = mm

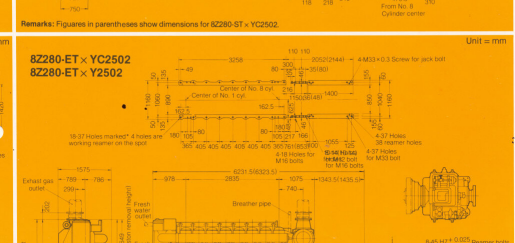
8Z280-ST × YC2502
8Z280-ST × YZ2502



Remarks: Figures in parentheses show dimensions for 8Z280-ST × YC2502.

Unit = mm

8Z280-ET × YC2502
8Z280-ET × YZ2502



Remarks: Figures in parentheses show dimensions for 8Z280-ET × YC2502.

STANDARD ACCESSORIES

Name of Accessories			Z280 (Q'ty)	8Z280 (Q'ty)
Lub. oil	Pump		1	1
	Priming device		1	1
	Cooler		1	1
	By-pass device (for Lub. oil cooler)		1	1
	Strainer (for Lub. oil pump outlet)		1	1
	Pressure adjusting valve		1	1
	Emergency 3-way joint		2	2
	Valve arm lub. device (separated from engine lub. circuit)		1	1
Cooling water	Pump (for engine & cooler cooling)		2 sets	2 sets
	Kingston valve		2	2
	Adjusting valve	Cylinder head outlet	6	8
		Clutch outlet	1	1
		Air intercooler inlet	1	1
	Returning device		1	1
	Thermostat (for engine cooling)		1	1
	Emergency 3-way joint		2	2
Fuel oil	Feed pump		1	1
	Strainer	Tank outlet	1	1
		Engine inlet	1	1
	Engine inlet valve		1	1
	Sediment tank		1	1
Air	Starting air reservoir		1 set	1 set
	Indicator cock		6	8
	Exhaust flexible joint (for turbocharger outlet)		1	1
	Crankcase mist vent		1	1
Thermometer	Lub. oil	Engine cooler inlet & outlet	2	2
		Clutch cooler outlet	1	1
	Cooling water	Cylinder head outlet	6	8
		Engine inlet & outlet	2	2
		Air inter cooler inlet	1	1
	Exhaust	Turbocharger inlet	2	3
		Cylinder head outlet	6	8
	Boost air	Air inter cooler outlet	1	1
Pressure gauge	Engine lub. oil		1	1
	Valve arm lub. oil		1	1
	Clutch lub. oil		1	1
	Clutch hydraulic oil		1	1
	Cooling water		2	2
	Fuel oil		1	1
	Boost air		1	1
Tachometer			1	1
Gauge board			1	1
Tools	Nozzle tester		1	1
	Turning bar		1	1
	Priming handle		1	1
	Disassembly tools		1	1
Others	Engine side operation device		1	1
	Front coupling (engine side)		1	1
	Intermediate shaft coupling (engine side)		1	1
	Flywheel cover		1	1
	Spare parts		1 set	1 set
	Piping joints		1 set	1 set
	Installation materials		1 set	1 set

OPTIONAL ACCESSORIES

(REMOTE CONTROL) Governor & clutch, Stopping, Starting, Parameter. (COMMON BED). (LUB. OIL) Emergency inlet Device, Emergency lub. oil pump for engine, Lub. oil pump for dry sump, Lub. oil flange for dry sump, Lub. oil by-pass device, Lub. oil temp. automatic adjusting valve. (COOLING WATER) Twin strainer, Automatic temp. adjusting valve for cooler, Emergency Inlet Device, Emergency pump. (FUEL OIL) Lift pump with motor, Fuel flow meter. (AIR) Intermediate valve for starting air, Cylinder safety valve, Deck silencer, Air compressor and driving motor, Air compressor. (OTHERS) Piping materials, Chain block, Indicator, Stern tube, intermediate shaft, propeller shaft, propeller

Note: All data subject to alteration without notice.

YANMAR

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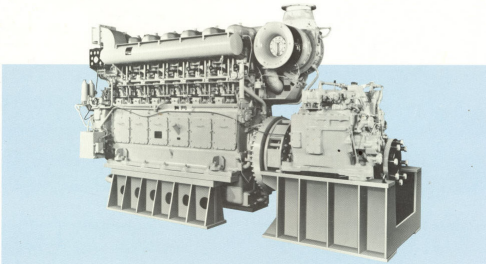
YANMAR

MARINE PROPULSION DIESEL ENGINE

1600~2900PS Z280/8Z280



Powering into Marine History

The result of Yanmar's intensive research into improved combustion efficiency, the Z280/8Z280 series of diesel engines are compatible with the use of heavy fuel oils and large propellers to meet the demands of today's maritime operations.

Fuel Economy
All possible fuel conservation techniques are incorporated in this series, resulting in an astonishingly low fuel consumption of 145g/PS•h (engine bare unit specific fuel consumption).

Dependability
Yanmar's latest manufacturing techniques and production facilities, reinforced by stringent quality control, ensure engines of superb reliability and durability. They can run for over 10,000 hours continuously without a major overhaul.

Simplified Servicing
The bedplate main bearing construction and sensibly arranged parts enable handling, inspecting and servicing to be accomplished hindrance-free.

Compact Construction
The neat compact engine design saves more valuable engine room space.

Full Output
For maximum energy-saving, low cost engine power can be utilized for multiple purposes through the front PTO.

Heavy Fuel Compatible
Trouble-free running on heavy fuel of up to 380 cSt/50°C is a further advantage of the Z280/8Z280 series, and underlines Yanmar's commitment to energy conservation.

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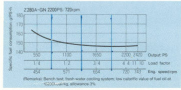


FOR MARINE USE

YANMAR

MARINE PROPULSION DIESEL ENGINE

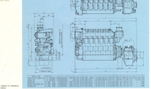
Z280/8Z280

Specifications

Engine model			Z280-SN	Z280-EN	Z280A-EN	Z280A-GN	8Z280-SN	8Z280-EN	8Z280A-EN	8Z280A-GN
Type		—	Vertical water-cooled 4-cycle diesel engine							
Number of cylinders		—	in-line 6				in-line 8			
Cylinder bore × stroke		mm	280 × 360							
Continuous rated output		PS(kW)	1600(1180)	1800(1320)	2000(1470)	2200(1620)	2100(1540)	2400(1770)	2600(1910)	2900(2130)
Rated engine speed		rpm	650		720		650		720	
Marine gear model		—	Y-2002(offset type)•YC-2002(coaxial type)			[illegible]	YX-3000(offset type)			
Reduction ratio (ahead)		—	2.24/2.49/2.79/3.01			[illegible]	2.52/2.80/3.12/3.50			
Propeller shaft speed (at C.R.)		rpm	290/261/233/216		321/289/258/239	321/289/258/239	258/232/209/186		285/258/231/206	
Direction of rotation	Crank shaft	—	Clockwise viewed from stern							
	Propeller shaft	—	Clockwise viewed from stern							
Side of operation		—	Left side viewed from stern							
Combustion system		—	Direct injection							
Lubrication system		—	Forced lubrication							
Cooling system		—	Fresh water cooling for eng. W/sea water cooling for cooler							
Aspiration		—	Turbocharged & air cooled							
Starting system		—	Compressed air							
Fuel oil		—	Marine diesel oil							
Engine dry weight		kg	15500			15700	15800		17550	19800
Total weight with marine gear		kg	18550(offset)·19800(coaxial)		[illegible]	[illegible]	22600		24350	26600

Dimensions

(Unit: mm)



Engine model	Marine gear	Dimensions
Z280-SN·EN, Z280A-EN	Y-2002	[illegible]
Z280A-GN	[illegible]	[illegible]
8Z280-SN	YX-3000	[illegible]
8Z280-EN, 8Z280A-EN	YX-3000	[illegible]
8Z280A-GN	YX-3000	[illegible]

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