

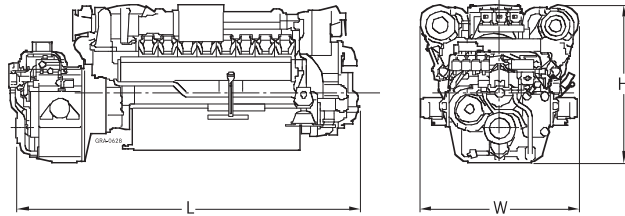
Diesel Engines 12V/16V 2000 M60

for Vessels with Unrestricted Continuous Operation (1A)



Dimensions and Masses

2000 M60 - with gearbox	Dimensions (LxWxH) mm (in)	Mass, dry kg (lbs)
12V/ZF 3311	2695x1400x1290 (106.1x55.1x50.8)	3600 (7937)
16V/ZF 3351	3110x1400x1290 (122.4x55.1x50.8)	4480 (9877)



Typical applications: Work Boats, Ferries, Governmental Vessels, Tugs, Barges and Large Sailing Yachts

Engine Model	12V 2000 M60	16V 2000 M60
Rated power ICFN kW (bhp)	600 (805)	800 (1070)
Speed rpm	1800	1800
No. of cylinders	12	16
Bore/stroke mm (in)	130/150 (5.1/5.9)	130/150 (5.1/5.9)
Displacement, total l (cu in)	23.9 (1458)	31.8 (1943)
Flywheel housing	SAE 0	SAE 0
Gearbox type	ZF 3311	ZF 3351
	i = 4.0 – 5.8	i = 1.2 – 3.0
Optimization of exhaust emissions ¹⁾	IMO I	IMO I

¹⁾ IMO - International Maritime Organization (MARPOL)



Performance & Fuel Consumption ¹⁾		12V 2000 M60			16V 2000 M60		
Speed	rpm	1800	1600	1200	1800	1600	1200
Maximum power	kW	600	600	400	800	800	540
	bhp	805	805	535	1070	1070	724
Power on propeller curve ²⁾	kW	600	420	175	800	560	235
	bhp	805	563	235	1070	751	315
Fuel consumption	g/kWh	203	200	216	200	202	214
	on propeller curve ²⁾						
	l/h	146.7	101.2	45.5	192.8	136.3	61.0
	gal/h	38.8	26.7	12.0	51.0	36.0	16.0

¹⁾ Tolerance +5% per ISO 3046, Diesel fuel to DIN EN 590 with a min L.H.V. of 42800kJ/kg (18390 BTU/lb) ²⁾ 3.0 exponent

Standard Equipment	
Starting system	Electric starter 24 V
Auxiliary PTO	Charging generator, 140A, 28V, 2 pole
Oil system	Gear driven lube oil pump, lube-oil duplex filter with diverter valve, lube-oil heat exchanger, handpump for oil extraction
Fuel system	Fuel feed pump, fuel hand pump, fuel pre-filter, fuel main filter with diverter valve, on-engine fuel oil cooler, individual HP injection pumps, jacketed HP fuel lines, injection nozzles (PLN system), flame proof hose lines, leak-off fuel tank level monitored
Cooling system	Coolant-to-raw water plate core heat exchanger, self priming centrifugal raw water pump, gear driven coolant circulation pump
Combustion air system	Turbocharging with 2 water-cooled exhaust-gas turbochargers, on-engine set of combustion-air filters
Exhaust system	Triple-walled, liquid-cooled, on-engine exhaust manifolds, 2 exhaust bellows vertical discharge
Mounting system	Resilient mounts at free end
Engine management system	Engine and gearbox control and monitoring system (MDEC)

Optional Equipment	
Auxiliary PTO	Bilgepump, on-engine PTOs
Oil System	Centrifugal oil filter, oil replenishment system
Fuel System	Duplex fuel pre-filter
Cooling System	Keel cooling, coolant preheating system, integr. seawater gearbox piping
Exhaust System	2 exhaust bellows horizontal discharge
Mounting System	Resilient mounts at driving end
Engine Management System	In compliance with Classification Society Regulations (EMU + GMU)
Monitoring/Control System	MCS-5, RCS-5
Power Transmission	Torsionally resilient coupling
Gearbox Options	Reverse reduction gearbox, el. actuated, gearbox mounts, trolling mode for dead-slow propulsion, free auxiliary PTO, hydraulic pump drives
Classification	ABS, BV, CCS, DNV, GL, KR, JG, LR, NK, RINA

> Power definition according ISO 3046

> Intake air depression 15 mbar/Exhaust back pressure 30 mbar

> Power reduction at 45°C/32°C: none

Specifications are subject to change without notice. All dimensions are approximate. For complete information refer to installations drawing. For further information consult your MTU distributor/dealer.

> Intake air temperature 25°C/Sea water temperature 25°C

> Barometric pressure 1000 mbar