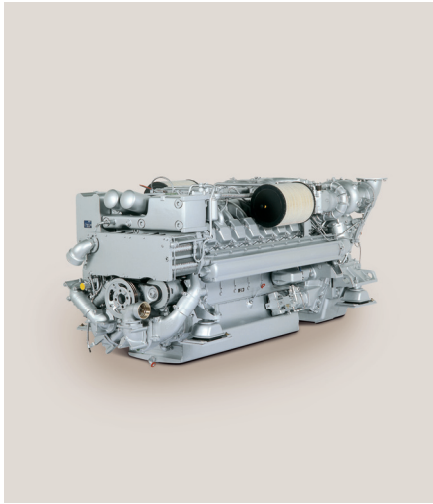


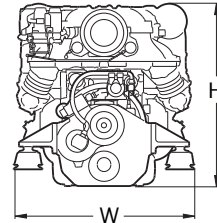
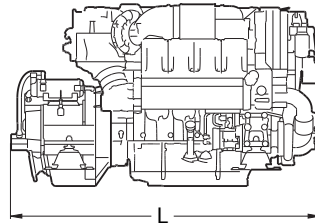
Diesel Engines 12V/16V 2000 M90

for Fast Vessels with Low Load Factors (1DS)



Dimensions and Masses

2000 M90 - with gearbox	Dimensions (LxWxH) mm (in)	Mass, dry kg (lbs)
12V/ZF 550	2600x1890x1290 (102.4x74.4x50.8)	3480 (7672)
16V/ZF 3055	3075x1400x1290 (121.1x55.1x50.8)	4300 (9480)



Typical applications: Fast yachts, fast patrolboats, police craft and fire-fighting vessels

Engine Model	12V 2000 M90	16V 2000 M90
Rated power ICFN kW (bhp)	1007 (1350)	1343 (1800)
Speed rpm	2300	2300
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 1	SAE 0
Gearbox type	ZF 550	ZF 3055
	i = 1.2 – 2.5	i = 1.5 – 2.7
Optimization of exhaust emissions ¹⁾	IMO I	IMO I

¹⁾ IMO – International Maritime Organization (MARPOL)



Performance and Fuel Consumption ¹⁾		12V 2000 M90			16V 2000 M90		
Speed	rpm	2300	1800	1200	2300	1800	1200
Maximum power	kW	1007	940	500	1343	1245	790
	bhp	1350	1267	671	1800	1670	1187
Power on propeller curve ²⁾	kW	1007	480	145	1343	625	190
	bhp	1350	664	194	1800	865	255
Fuel consumption on propeller curve ²⁾	g/kWh	218	207	220	217	207	213
	l/h	264.5	119.7	38.4	351.1	155.9	48.8
	gal/h	69.9	31.6	10.2	92.8	41.2	12.9

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	Sequential 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 (ADEC)

Optional Equipment	
Auxiliary PTO	Bilgepump, on-engine PTOs
Oil System	Centrifugal oil filter, oil replenishment system
Fuel System	Duplex fuel pre-filter
Cooling System	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	blueLine , 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