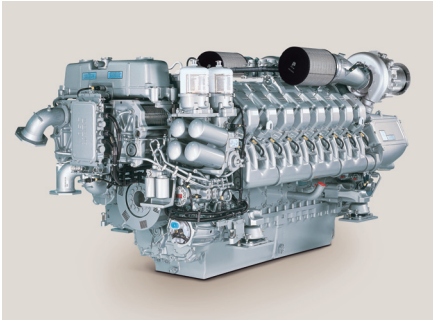


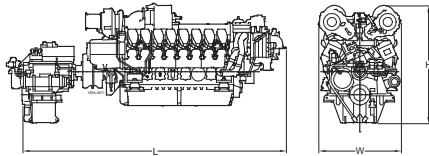
Marine

Diesel Engines 8V/12V/16V 4000 M60 for Vessels with Unrestricted Continuous Operation (1A)



Dimensions and Masses

4000 M60 - with gearbox	Dimensions (LxWxH) mm (in)	Mass, dry kg (lbs)
8V/WAF 562L	3305x1380x2250 (130.1x54.3x88.6)	6400 (14109)
12V/WAF 665	3970x1520x2125 (156.3x59.8x83.7)	8565 (18882)
16V/WAF 763	4330x1520x2225 (170.5x59.8x87.6)	10365 (22851)



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

Engine Model		8V 4000 M60 ²⁾	12V 4000 M60	16V 4000 M60
Rated power ICFN	kW (bhp)	880 (1180)	1320 (1770)	1760 (2360)
Speed	rpm	1800	1800	1800
No. of cylinders		8	12	16
Bore/stroke	mm (in)	165/190 (6.5/7.5)	165/190 (6.5/7.5)	165/190 (6.5/7.5)
Displacement, total	l (cu in)	32.5 (1983)	48.7 (2972)	65.0 (3967)
Flywheel housing		SAE 00	SAE 00	SAE 00
Gearbox type		WAF 562L i = 5.0 – 5.9	WAF 665 i = 4.6 – 5.5	WAF 763 i = 4.6 – 5.7
Optimization of exhaust emissions ¹⁾		IMO I ³⁾	IMO I ³⁾ /EPA 2/CCNR II	IMO I ³⁾ /EPA 2/CCNR II

¹⁾ IMO - International Maritime Organization (MARPOL)
EPA - US marine directive 40 CFR 94
RheinSchUO - CCNR, Stage II

²⁾ 8V 4000 M60 available with 850 kW (1140 bhp) also with EPA 2 and CCNR II

³⁾ available also with IMO-40% (only E3-Cycle or on request)



Power. Passion. Partnership.

Performance and Fuel Consumption ¹⁾		8V 2000 M60			12V 2000 M60			16V 2000 M60		
Speed	rpm	1800	1600	1200	1800	1600	1200	1800	1600	1200
Maximum power	kW	880	880	560	1320	1320	730	1760	1760	1050
	bhp	1180	1180	751	1770	1770	979	2360	2360	1408
Power on propeller curve (n ³)	kW	880	630	260	1320	930	400	1760	1250	520
	bhp	1180	845	349	1770	1247	536	2360	1676	697
Fuel consumption on propeller curve ¹⁾	g/kWh	213	212	225	205	212	214	202	210	217
	l/h	225.8	160.9	70.5	326.0	237.5	103.1	428.3	316.3	136.0
	gal/h	59.7	42.5	18.6	86.1	62.8	27.2	113.2	83.6	36.0

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

Standard Equipment	
Starting system	Electric starter 24 V, 2 pole
Oil system	Gear driven lube oil pump, lube-oil duplex filter with diverter valve, centrifugal oil filter, lube-oil heat exchanger, handpump for oil extraction
Fuel system	Fuel delivery pump, fuel duplex filter with diverter valve, "Common Rail" fuel injection system with high-pressure pump, pressure accumulator and electronic fuel injection with cylinder cutout system, jacketed HP fuel lines, flame proof hose lines, leak-off fuel tank level monitored, fuel hand pump, fuel pre-filter with water separator
Cooling system	MTU-split-circuit coolant system, coolant-to-raw water plate core heat exchanger, self priming centrifugal raw water pump, gear driven coolant circulation pump, raw-water connection for gearbox cooling
Combustion air system	Engine coolant temperature-controlled intercooler, sequential turbocharging with 2 water-cooled turbochargers, on-engine set of seawater-resistant combustion-air filters
Exhaust system	Triple-walled, liquid-cooled, on-engine exhaust manifolds, exhaust bellows (horizontal discharge)
Mounting system	Resilient mounts
Power Transmission	Torsional and offset compensating couplings
Auxiliary PTO	Charging generator, 120A, 28V, 2 pole
Engine management system	Engine control and monitoring system (MDEC), interface to gearbox control, interface to remote control and monitoring system, local operating panel (LOP)

Optional Equipment	
Starting system	Coolant preheating system
Oil system	Lube oil priming system
Cooling System	Engine version for sealed engine coolant system in conjunction with ship`s side recooling system
Exhaust System	Exhaust outlet elbow (45°, 70°, 90°)
Auxiliary PTO	Bilgepump
Engine management system	In compliance with Classification Society Regulations
Monitoring / Control system	Fuel consumption measurement device (KRAL), monitoring and control system MCS-5, remote control system RCS-5
Gearbox Options	Various reserve reduction gearbox models, elec. actuated, gearbox mounts, PTO for hydraulic pump at driving shaft or at mediate shaft, trolling, trailing pump, propeller shaft flange
Classification	ABS, BV, CCS, CR, DNV, GL, KR, LR, NK, RINA including necessary extensions to scope of supply.

> The rated power corresponds to ISO 3046-1:2002 (E) and ISO 15550:2002(E)

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

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

> Barometric pressure 1000 mbar

The power produced at the flywheel will be within the tolerance of ±3% - according to ISO 15550:2002(E)- up to 45°C (113°F) combustion air temperature measured at the air cleaner inlet and up to 32°C (89,6°F) sea or raw water temperature measured at the sea water pump suction inlet. Specifications are subject to change without notice. All dimensions are approximate. For complete information refer to installation drawing. For further information consult your MTU dealer.

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