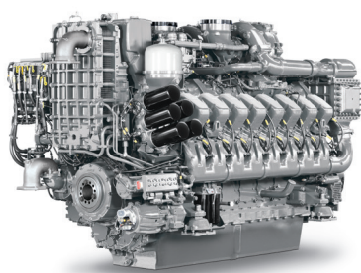




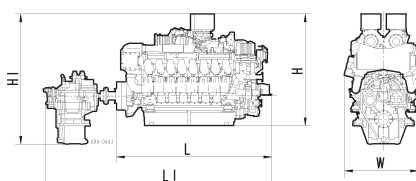
## Marine

# DIESEL ENGINES 8V/12V/16V 4000 M70

for fast vessels with high load factors (1B)



Engine with gearbox	Dimensions (LxWxH) mm (in)	Mass, dry kg (lbs)
8V/ZF 4540	3065x1380x1990 (120.7x54.3x78.3)	5610 (12368)
12V/ZF 4650	3620x1520x1835 (142.5x59.8x72.2)	7515 (16568)
16V/ZF 7600	4525x1520x1890 (178.1x59.8x74.4)	9060 (19974)



Typical applications: Ferries, Monohulls, Hydrofoils, Catamarans, Surface Effect Ships and Yachts

Engine type		8V 4000 M70	12V 4000 M70 <sup>2)</sup>	16V 4000 M70
Rated power ICFN	kW	1160	1740	2320
	(bhp)	(1555)	(2335)	(3110)
Speed	rpm	2000	2000	2000
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		ZF 4540	ZF 4650	ZF 7600
		i = 1.5 – 3.0	i = 1.5 – 2.6	i = 1.5 – 2.9
Optimization of exhaust emissions <sup>1)</sup>		IMO I <sup>3)</sup>	IMO I <sup>3)</sup>	IIMO I <sup>3)</sup>

1) IMO – International Maritime Organisation, EPA – US Marine Directive 40 CFR 94, EU RCD – EU Marine Directive for recreational crafts

2) 12V 4000 M70 available with 1680 kW (2250 bhp) also with EPA 2

3) available also with IMO-20%

Performance & fuel consumption <sup>1)</sup>		8V 4000 M70			12V 4000 M70			16V 4000 M70		
Speed	rpm	2000	1800	1200	2000	1800	1200	2000	1800	1200
Maximum power	kW	1160	1050	500	1740	1740	750	2320	2320	1110
	bhp	1555	1408	671	2335	2335	1006	3110	3110	1489
Power on propeller curve (n <sup>3</sup> )	kW	1160	850	250	1740	1270	370	2320	1700	500
	bhp	1555	1140	335	2335	1703	436	3110	2280	671
Fuel consumption	g/kWh	211	215	223	201	206	210	201	206	218
	l/h	294.9	220.2	67.2	421.4	315.2	93.6	561.8	422.0	131.3
	gal/h	77.9	58.2	17.7	111.3	83.3	24.7	148.4	111.5	34.7

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

Standard equipment	
Starting system	Electrical starter 24 VDC
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	Bilge pump
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
Classification	ABS, BV, CCS, CR, DNV, GL, KR, LR, NK, RINA incl. necessary extensions to scope of supply

Reference conditions:

- > 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.