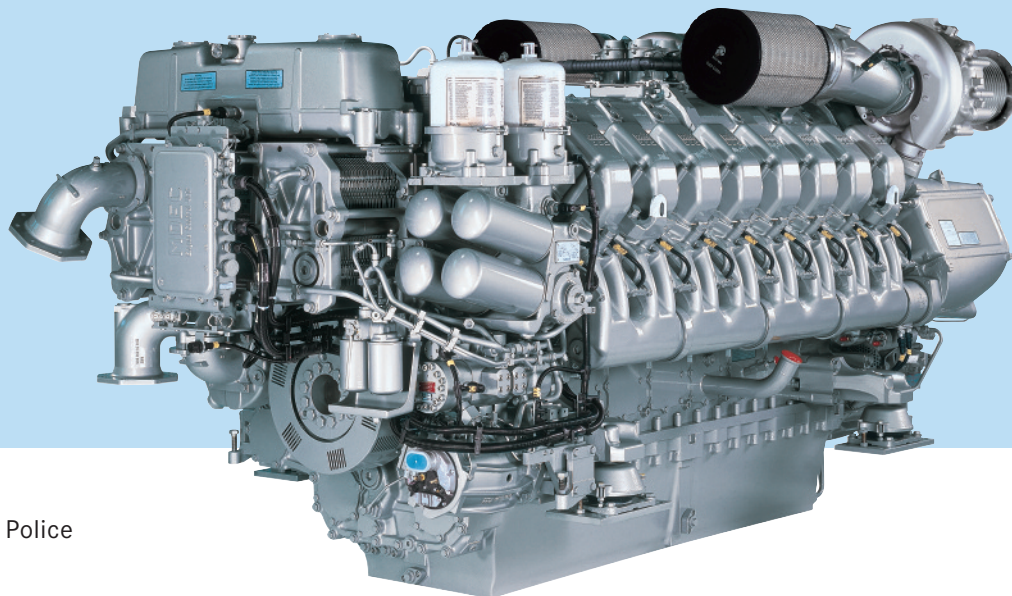


Diesel Engines 12V/16V 4000 M90

for Vessels

with Low Load Factors (1DS)



Typical applications:

Fast Yachts, Fast Patrol Boats, Police Craft and Fire-Fighting Vessels

Engine Model		12V 4000 M90	16V 4000 M90
Rated power ICFN	kW (bhp)	2040 (2735)	2720 (3650)
Speed	rpm	2100	2100
No. of cylinders		12	16
Bore/stroke	mm (in)	165/190 (6.5/7.5)	165/190 (6.5/7.5)
Displacement, total	l (cu in)	48.7 (2978)	65.0 (3967)
Flywheel housing		SAE 00	SAE 00
Gearbox model		ZF 4650 i = 1.5 - 2.5	ZF 7550 i = 1.5 - 3.0

Performance and Fuel Consumption		12V 4000 M90			16V 4000 M90		
Speed	rpm	2100	1800	1200	2100	1800	1200
Maximum power	kW	2040	1750	800	2720	2350	1150
	bhp	2735	2347	1073	3650	3151	1542
Power on propeller curve (n ³)	kW	2040	1280	380	2720	1700	460
	bhp	2735	1717	510	3650	2280	617
Fuel consumption on propeller curve ¹⁾	g/kWh	209	204	210	209	204	215
	l/h	513.7	430.1	96.1	685.0	405.5	119.2
	gal/h	135.7	113.6	25.4	181.0	107.1	31.5

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 motor 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 (horiz. 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)

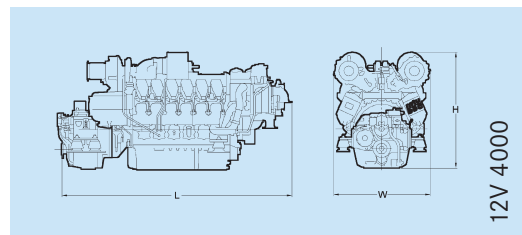
Optional Equipment

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 reverse reduction gearbox models, el. actuated, gearbox mounts, PTO for hydraulic pump at driving shaft or at mediate shaft, trolling, trailing pump, propeller shaft flange
Classification	Classification is available; please consult our Sales Center for detailed information.

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. All engines fulfill IMO emission regulation and are available with an EPA Recreational label (valid for vessels-yachts < 100 BRT with max. 6 paying passenger or vessels > 100 BRT with 1 paying passenger). Emission- and classification- certificates are available on request. 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.

Dimensions and Masses (incl. gearbox)

Engine Model		12V 4000 M90	16V 4000 M90
Length [L]	mm (in)	3620 (142.5)	4525 (178.1)
Width [W]	mm (in)	1520 (59.8)	1520 (59.8)
Height [H]	mm (in)	1835 (72.2)	1890 (74.4)
Mass [dry]	kg (lbs)	7715 (17008)	9070 (19996)



Tognum Group Companies

Europe / Middle East / Africa / Latin America

MTU Friedrichshafen GmbH
 88040 Friedrichshafen
 Germany
 Phone +49 7541 90 7003
 Fax +49 7541 90 7081
 marineregion1@mtu-online.com
 www.mtu-online.com

Asia / Australia / Pacific

MTU Asia Pte. Ltd.
 1, Benoi Place
 Singapore 629923, Republic of Singapore
 Phone +65 6861 5922
 Fax +65 6861 3615
 marineregion2@mtu-online.com
 www.mtu-online.com.sg

USA / Canada / Mexico

MTU Detroit Diesel, Inc.
 13400 Outer Drive West
 Detroit, Michigan 48239, USA
 Phone +1 313 592 7806
 Fax +1 313 592 5137
 marineregion3@mtu-online.com
 www.mtudetroitdiesel.com