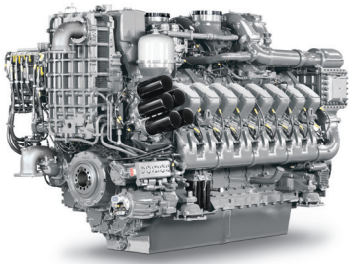




## Marine

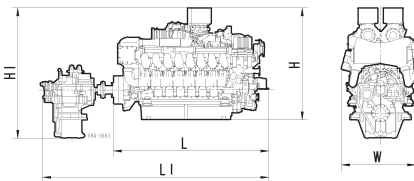
# DIESEL ENGINES 16V 4000 M53R/M53

for vessels with unrestricted continuous operation (1A)



Engine	Dimensions (LxWxH) mm (in)	Mass, dry kg (lbs)
M53R/M53	2990 x 1850 x 2070 (117.7 x 72.8 x 81.5)	8950 (18938)
Engine with stand. gearbox	Dimensions (L <sub>x</sub> W <sub>x</sub> H <sub>g</sub> ) mm (in)	Mass, dry kg (lbs)
M53R/M53	4785 x 1850 x 2570 (188.4 x 72.8 x 101.2)	11085 (24438)

\* gear ratio on request



Typical applications: e.g. work boats, tugs, barges, ferries, governmental vessels

Optional equipment and finishing shown. Standard may vary.

Engine type		16V 4000 M53R	16V 4000 M53
Rated power ICFN	kW	1520	1840
	(bhp)	(2038) <sup>3)</sup>	(2467)
Speed	rpm	1600	1800 <sup>4)</sup>
No. of cylinders		16	16
Bore/stroke	mm (in)	170/210 (6.7/8.3)	170/210 (6.7/8.3)
Displacement, total	l (cu in)	76.3 (4656)	76.3 (4656)
Flywheel housing		SAE 00	SAE 00
Gearbox model, standard		WAF 763	WAF 863 L
Gearbox model, alternative		ZF 7610	ZF 7661
Optimization of exhaust emissions <sup>1)</sup>		IMO II/EPA 2/EU IIIA <sup>2)</sup>	IMO II/EPA 2/EU IIIA <sup>2)</sup>

1) IMO - International Maritime Organisation (MARPOL)  
EPA - US Marine Regulation 40 CFR 94  
EU - EU Nonroad Directive 97/68/EC

2) Recognition through the RheinSchUO (CCNR)

3) 1492 kW with 1600 rpm available on request

4) 1600 rpm available on request

M53 - unrestricted continuous duty with average load factors up to approximately 90%



A Rolls-Royce solution

Fuel Consumption *		16V 4000 M53R	16V 4000 M53
at rated power	g/kWh	199	199
	l/hr	364.4	44.2
	(gal/h)	(96.2)	(116.5)

\* 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 24V, 2 pole
Oil system	Gear driven lube oil pump, non switchable oil filter, Centrifugal oil filter, lube oil heat exchanger, pump for lube oil extraction, opened crankcase ventilation
Fuel system	Fuel conditioning system with water separator, Fuel delivery pump, duplex lube fuel 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 monitoring
Cooling system	Engine version for separate heat exchanger, gear driven coolant circulation pump
Combustion air system	Engine coolant temperature-controlled intercooler, turbocharging with 2 water-cooled turbochargers, on-engine seawater-resistant air filters
Exhaust system	Triple-walled, liquid-cooled, on-engine exhaust manifolds, 30° discharge elbow, exhaust bellows
Mounting system	Resilient mounts
Power transmission	Torsional resilient and off-set compensating coupling (Centa CX for D-Drive); Torsional resilient coupling with bearing housing (Centamax for T-Drive)
Auxiliary PTO	Charging generator 120A, 28V, 2-pole
Engine management system	Engine control and monitoring system (ADEC); engine interface module - EiM, engine mounted
Engine safety system	The scope of delivery for the engine fulfils SOLAS requirements for admissible surface temperature and shielding of fuel and lube oil lines

Optional equipment	
Starting system	Coolant preheating system; air starter
Oil system	Lube oil priming system, oil level monitoring, automatic oil replenishment system with basic scope of monitoring, switchable oil filter with extended scope of monitoring
Fuel System	Switchable pre-filter with water separator in conjunction with switchable additional secondary filter
Cooling system	Coolant-to-raw water plate core heat exchanger, self priming centrifugal raw water pump, engine mounted coolant expansion tank, raw-water connection for gearbox cooling
Combustion air system	Intake air silencer
Exhaust system	90° discharge elbow
Auxiliary PTO	Bilgepump (as secondary coolant pump), PTOs at free end of engine
Engine management system	Expansion In compliance with extended scope of monitoring (individual exhaust temperature monitoring)
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.

Reference conditions:

- > The rated power of the stated diesel engines 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
  - > No power reduction at 54°C/32°C (increase fuel consumption: 2 %)
- Specifications are subject to change without notice. All dimensions are approximate. For complete information refer to installation drawing. For further information consult your MTU distributor/dealer.