

Marine

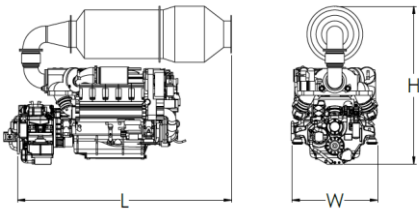
DIESEL ENGINES 8/10V 2000 M72

for fast vessels with high load factors (1B)



| Engine with SCR and gearbox | Dimensions (LxWxH) mm | Mass engine and gear, dry [kg] | Mass SCR system, dry [kg] |
|-----------------------------|-----------------------|--------------------------------|---------------------------|
| 8V/ZF 2000 | 2780x1160x2030 | 2410 | 278 ¹⁾ |
| 10V/ZF 3000 | 2880x1160x2120 | 2820 | 300 ¹⁾ |

1) Weight of complete SCR system including catalyst, mixer, 100 l urea tank (dry), control cabinet, wiring and dosing unit



Typical applications: Fast ferries, wind farm service vessels, SAR, Patrol vessels (catamarans, monohulls, surface effect ships) and displacement yachts

Optional equipment and finishing shown. Standard may vary
Location of mixer and catalyst can be adjusted to specific space requirement

| Engine type | | 8V 2000 M72 | 10V 2000 M72 |
|--|----------|--------------------------|--------------------------|
| Rated power ICFN | kW (bhp) | 720 (965) | 900 (1250) |
| Speed | rpm | 2250 | 2250 |
| No. of cylinders | | 8 | 10 |
| Bore stroke | mm | 135/156 | 135/156 |
| Displacement, total | l | 17,9 | 22,3 |
| Flywheel housing | | SAE 1 | SAE 1 |
| Gearbox type | | ZF 2000 i = 1,1 – 2,5 | ZF 3000 i = 1,1 – 3,0 |
| Aftertreatment system | | LD - type | LE - type |
| Max exhaust backpressure ²⁾ | mbar | 45 | 45 |
| Exhaust emissions | | IMO III | IMO III |

1) IMO – International Maritime Organization
2) Including SCR system

| Engine type | | 8V 2000 M72 | | | 10V 2000 M72 | | |
|---|-------|-------------|-------|------|--------------|-------|------|
| Speed | rpm | 2250 | 1950 | 1200 | 2250 | 1950 | 1200 |
| Maximum power | kW | 720 | 710 | 370 | 900 | 880 | 460 |
| | bhp | 965 | 950 | 495 | 1205 | 1180 | 615 |
| Power on propeller curve (n ³) | kW | 720 | 475 | 115 | 900 | 585 | 140 |
| | bhp | 965 | 635 | 155 | 1205 | 785 | 190 |
| Fuel consumption on propeller curve ¹⁾ | g/kWh | 214 | 215 | 219 | 213 | 211 | 208 |
| | l/hr | 185.6 | 123.0 | 30.3 | 321.0 | 148.7 | 35.1 |
| Urea consumption ²⁾ | g/kWh | 9.5 | 9.5 | 9.5 | 9.5 | 9.5 | 9.5 |

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

2) AdBlue 32,5% Urea, tolerance 5%

| Standard equipment | |
|--------------------------------|---|
| Exhaust after treatment system | SCR-system with integrated mixer and catalyst. Air assisted Urea injection. |
| Engine starting system | Electric starter 24V |
| Auxiliary PTO | Alternator, 80A, 28V, 2 pole |
| Engine oil system | Gear driven lube oil pump, lube-oil duplex filter with diverter valve, lube-oil heat exchanger, handpump for oil extraction |
| Engine fuel system | Fuel feed pump, fuel hand pump, fuel pre-filter, fuel main filter with diverter valve, on-engine fuel oil cooler, HP fuel pump, jacketed HP fuel lines, injection nozzles (CR system), flame proof hose lines, leak-off fuel tank level monitored |
| Engine cooling system | Coolant-to-raw water plate core heat exchanger, self-priming centrifugal raw water pump, gear driven coolant circulation pump |
| Engine combustion air system | Sequential turbocharging with 2 water-cooled exhaust-gas turbochargers, on-engine set of combustion-air filters |
| Engine exhaust system | Triple-walled, liquid-cooled, on-engine exhaust manifolds, single centrally located exhaust outlet, 1 exhaust bellow horizontal discharge |
| Engine mounting system | Resilient mounts at free end |
| Engine management system | Engine control and monitoring system (ADEC) |

| Optional equipment | |
|-----------------------------|--|
| Auxiliary PTO | Alternator, 140A, 28V, 2 pole, bilge pump, on-engine PTOs |
| Oil system | Centrifugal oil filter, oil replenishment system |
| Fuel system | Duplex fuel pre - filter |
| Cooling system | Coolant preheating system, integrated seawater gearbox piping |
| Exhaust system | 1 exhaust bellow vertical discharge |
| Mounting system | Resilient mounts at driving end |
| Engine Management system | In compliance with Classification Society Regulations |
| Monitoring / Control system | Smartline, Blueline, Bluevision, BlueVision New Generation, Callosum |
| 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 |

Reference conditions:

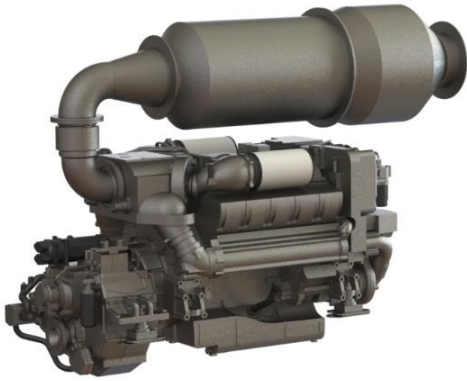
- > Power definition according ISO 3046
- > Intake air temperature 25°C/Sea water temperature 25°C
- > Intake air depression 15 mbar / Exhaust back pressure 30 mbar
- > Barometric pressure 1000 mbar
- > Power reduction at 45°C/32°C: none

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. may feature options not fitted as standard to standard engine.

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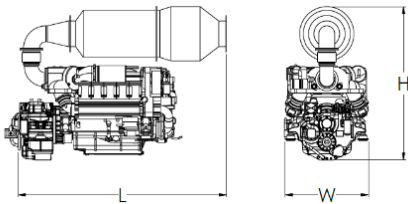
DIESEL ENGINES 12/16V 2000 M72

for fast vessels with high load factors (1B)



| Engine with SCR and gearbox | Dimensions (LxWxH) mm | Mass engine, dry [kg] | Mass SCR system, dry [kg] |
|-----------------------------|-----------------------|-----------------------|---------------------------|
| 12V/ZF 2000 | 2715x1280x2450 | 3680 | 340 ¹⁾ |
| 16V/ZF 3000 | 2920x1295x2560 | 4600 | 385 ¹⁾ |

1) Weight of complete SCR system including catalyst, mixer, 100 l urea tank (dry), control cabinet, wiring and dosing unit



Typical applications: Fast ferries, wind mill service vessels, SAR, Patrol vessels (catamarans monohulls, surface effect ships) and displacement yachts

Optional equipment and finishing shown. Standard may vary
Location of mixer and catalyst can be adjusted to specific space requirement

| Engine type | | 12V 2000 M72 | 16V 2000 M72 |
|--|-------------|--------------------------|--------------------------|
| Rated power ICFN | kW (bhp) | 1080 (1450) | 1440 (1930) |
| Speed | rpm | 2250 | 2250 |
| No. of cylinders | | 12 | 16 |
| Bore stroke | mm | 135/156 | 135/156 |
| Displacement, total | l | 26,8 | 35,7 |
| Flywheel housing | | SAE 0 | SAE 0 |
| Gearbox type | | ZF 3050 i = 1,3 – 3,0 | ZF 5000 i = 1,3 – 3,0 |
| Aftertreatment system | | LF - type | LG - type |
| Max exhaust backpressure ²⁾ | mbar | 45 | 45 |
| Exhaust emissions | | IMO III | IMO III |

1) IMO – International Maritime Organization

2) Including SCR system

| Engine type | | 12V 2000 M72 | | | 16V 2000 M72 | | |
|---|-------|--------------|-------|------|--------------|-------|------|
| Speed | rpm | 2250 | 1950 | 1200 | 2250 | 1950 | 1200 |
| Maximum power | kW | 1080 | 1060 | 525 | 1440 | 1420 | 690 |
| | bhp | 1450 | 1420 | 705 | 1930 | 1905 | 925 |
| Power on propeller curve (n ³) | kW | 1080 | 720 | 170 | 1440 | 950 | 225 |
| | bhp | 965 | 635 | 155 | 1930 | 1275 | 300 |
| Fuel consumption on propeller curve ¹⁾ | g/kWh | 208 | 217 | 218 | 208 | 209 | 218 |
| | l/hr | 270.7 | 188.2 | 44.6 | 360.9 | 239.2 | 59.1 |
| Urea consumption ²⁾ | g/kWh | 9.5 | 9.5 | 9.5 | 9.5 | 9.5 | 9.5 |

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

2) AdBlue 32,5% Urea, tolerance 5%

| Standard equipment | |
|--------------------------------|---|
| Exhaust after treatment system | SCR-system with integrated mixer and catalyst. Air assisted Urea injection. |
| Engine starting system | Electric starter 24V |
| Auxiliary PTO | Alternator, 80A, 28V, 2 pole |
| Engine oil system | Gear driven lube oil pump, lube-oil duplex filter with diverter valve, lube-oil heat exchanger, handpump for oil extraction |
| Engine fuel system | Fuel feed pump, fuel hand pump, fuel pre-filter, fuel main filter with diverter valve, on-engine fuel oil cooler, HP fuel pump, jacketed HP fuel lines, injection nozzles (CR system), flame proof hose lines, leak-off fuel tank level monitored |
| Engine cooling system | Coolant-to-raw water plate core heat exchanger, self-priming centrifugal raw water pump, gear driven coolant circulation pump |
| Engine combustion air system | Sequential turbocharging with 2 water-cooled exhaust-gas turbochargers, on-engine set of combustion-air filters |
| Engine exhaust system | Triple-walled, liquid-cooled, on-engine exhaust manifolds, single centrally located exhaust outlet, 1 exhaust bellow horizontal discharge |
| Engine mounting system | Resilient mounts at free end |
| Engine management system | Engine control and monitoring system (ADEC) |

| Optional equipment | |
|-----------------------------|--|
| Auxiliary PTO | Alternator, 140A, 28V, 2 pole, bilge pump, on-engine PTOs |
| Oil system | Centrifugal oil filter, oil replenishment system |
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| Engine Management system | In compliance with Classification Society Regulations |
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| 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 |
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