# Diesel Engines 12V/16V 2000 M90

for Fast Vessels with Low Load Factors (1DS)

**Typical applications:**
Fast Yachts, Fast Patrol Boats, Police Craft and Fire-Fighting Vessels

<table>
<thead>
<tr>
<th>Engine Model</th>
<th>12V 2000 M90</th>
<th>16V 2000 M90</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated power ICFN kW (bhp)</td>
<td>1007 (1350)</td>
<td>1343 (1800)</td>
</tr>
<tr>
<td>Speed rpm</td>
<td>2300</td>
<td>2300</td>
</tr>
<tr>
<td>No. of cylinders</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>Bore/stroke mm (in)</td>
<td>130/150 (5.1/5.9)</td>
<td>130/150 (5.1/5.9)</td>
</tr>
<tr>
<td>Displacement, total l (cu in)</td>
<td>23.9 (1458)</td>
<td>31.8 (1943)</td>
</tr>
<tr>
<td>Flywheel housing</td>
<td>SAE 1</td>
<td>SAE 0</td>
</tr>
<tr>
<td>Gearbox model</td>
<td>ZF 2050 A (i = 1.2 \ldots 2.5)</td>
<td>ZF 3055 (i = 1.5 \ldots 2.7)</td>
</tr>
</tbody>
</table>

## Performance and Fuel Consumption

| Speed rpm | 2300 | 1800 | 1200 | 2300 | 1800 | 1200 |
| Maximum power kW | 1007 | 940 | 500 | 1343 | 1245 | 790 |
| bhp | 1350 | 1267 | 671 | 1800 | 1670 | 1187 |
| Power on propeller curve kW | 1007 | 480 | 145 | 1343 | 625 | 190 |
| bhp | 1350 | 664 | 194 | 1800 | 865 | 255 |
| Fuel consumption g/kWh | 218 | 207 | 220 | 217 | 207 | 213 |
| on propeller curve \(l/h\) | 264.5 | 119.7 | 38.4 | 351.1 | 155.9 | 48.8 |
| \(gal/h\) | 69.9 | 31.6 | 10.2 | 92.8 | 41.2 | 12.9 |

1) Tolerance +5% per ISO 3046, Diesel fuel to DIN EN 590 with a min L.H.V. of 42800kJ/kg (18390 BTU/lb) ³ 3.0 exponent
### Standard Equipment

**Starting System**
- Electric starter motor 24 V
- Charging generator, 140A, 28V, 2 pole

**Auxiliary PTO**
- Gear driven lube oil pump, lube-oil duplex filter with diverter valve, lube-oil heat exchanger, handpump for oil extraction
- Fuel feed pump, fuel hand pump, fuel pre-filter, fuel main filter with diverter valve, on-engine fuel oil cooler, individual HP injection pumps, jacketed HP fuel lines, injection nozzles (PLN system), flame proof hose lines, leak-off fuel tank level monitored

**Oil System**
- Gear driven lube oil pump, lube-oil duplex filter with diverter valve, lube-oil heat exchanger, handpump for oil extraction
- Coolant-to-raw water plate core heat exchanger, self priming centrifugal raw water pump, gear driven coolant circulation pump

**Fuel System**
- Fuel feed pump, fuel hand pump, fuel pre-filter, fuel main filter with diverter valve, on-engine fuel oil cooler, individual HP injection pumps, jacketed HP fuel lines, injection nozzles (PLN system), flame proof hose lines, leak-off fuel tank level monitored
- Sequential turbocharging with 2 water-cooled exhaust-gas turbochargers, on-engine set of combustion-air filters

**Cooling System**
- Coolant preheating system, integr. seawater gearbox piping

**Combustion Air System**
- In compliance with Classification Society Regulations (EMU + GMU) blueLine, MCS-5, RCS-5

**Exhaust System**
- Triple-walled, liquid-cooled, on-engine exhaust manifolds, 2 exhaust bellows vertical discharge
- 2 exhaust bellows horizontal discharge
- Resilient mounts at driving end

**Mounting System**
- Resilient mounts at free end
- Engine and gearbox control and monitoring system (MDEC)

**Engine Management System**
- In compliance with Classification Society Regulations (EMU + GMU)

### Optional Equipment

**Auxiliary PTO**
- Bilgepump, on-engine PTOs

**Oil System**
- Centrifugal oil filter, oil replenishment system
- Duplex fuel pre-filter

**Fuel System**
- Coolant preheating system, integr. seawater gearbox piping

**Cooling System**
- 2 exhaust bellows horizontal discharge
- Resilient mounts at driving end

**Exhaust System**
- In compliance with Classification Society Regulations (EMU + GMU) blueLine, MCS-5, RCS-5

**Mounting System**
- Torsionally resilient coupling

**Engine Management System**
- Reverse reduction gearbox, el. actuated, gearbox mounts, trolling mode for dead-slow propulsion, free auxiliary PTO, hydraulic pump drives

**Power Transmission**
- ABS, BV, CCS, DNV, GL, KR, LG, NK, RINA

### Dimensions and Masses (incl. gearbox)

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<th>Engine Model</th>
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<tr>
<td>Length [L] [mm (in)]</td>
<td>2600 (102.4)</td>
<td>3075 (121.1)</td>
</tr>
<tr>
<td>Width [W] [mm (in)]</td>
<td>1890 (74.4)</td>
<td>1400 (55.1)</td>
</tr>
<tr>
<td>Height [H] [mm (in)]</td>
<td>1290 (50.8)</td>
<td>1290 (50.8)</td>
</tr>
<tr>
<td>Mass [dry] [kg (lbs)]</td>
<td>3480 (7672)</td>
<td>4300 (9480)</td>
</tr>
</tbody>
</table>

Specifications are subject to change without notice. All dimensions are approximate. For complete information refer to installation drawing. For further information consult your MTU or MTU Detroit Diesel distributor/dealer.

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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
All engines fulfil IMO emission regulation, certificate on request

Subject to modification in the interest of technical progress.