**M 34 DF – Technical Data**

<table>
<thead>
<tr>
<th></th>
<th>Diesel Mode</th>
<th>Gas Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emission</td>
<td>IMO II</td>
<td>IMO III*</td>
</tr>
<tr>
<td>Bore</td>
<td>mm 340</td>
<td>mm 340</td>
</tr>
<tr>
<td>Stroke</td>
<td>mm 460</td>
<td>mm 460</td>
</tr>
<tr>
<td>Speed</td>
<td>720/750</td>
<td>720/750</td>
</tr>
<tr>
<td>Power</td>
<td>500 kW/cyl.</td>
<td>500 kW/cyl.</td>
</tr>
<tr>
<td>BMEP</td>
<td>19.9/19.1</td>
<td>19.9/19.1</td>
</tr>
<tr>
<td>Liquid fuel consumption</td>
<td>188 kg/kWh</td>
<td>188 kg/kWh</td>
</tr>
<tr>
<td>Gas fuel consumption</td>
<td>–</td>
<td>1.88 kg/kWh</td>
</tr>
<tr>
<td>Efficiency (%)</td>
<td>44.8%</td>
<td>&gt; 46.7%</td>
</tr>
</tbody>
</table>

**M 34 DF Key Features and Key Values**

- Outstanding efficiency and loading capacity
- Operational simplicity – fully automated engine control
- Service and maintenance simplicity – modular engine design
- Conventional marine injection system and ignition fuel system
- MDO pilot fuel capable
- Minimal methane slip
- Operation on natural gas with time methane number at reduced load
- Supports HFO operation according to CIMAC H55/K55 in diesel mode
- Excellent support
  - Global application and installation support for engine and gas system periphery
  - Operator and technician training
  - Strong, global dealer support network with marine focus

**Caterpillar Marine Power Systems**

- Headquarters: Caterpillar Marine Power Systems
- Europe, Africa, Middle East: Caterpillar Marine Power Systems
- Americas: MaK Americas
- Asia Pacific: Caterpillar Marine Power Systems

For more information please visit our website: MARINE.CAT.COM

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All mentioned data is preliminary!
Dual Fuel Technology • M 34 DF

M 34 DF • Design

Gas System
- Double walled gas lines & bellows
- Leakage monitoring
- Gas valve unit
- Ignition injector
- Gas admission valve
- Gas valve unit
- Emergency gas detection
- Gas lines & bellows
- Double walled

Gas System
- Combustion chamber
- Engine M 34 DF
- Standard Cat Supply
- Recommended Cat Supply
- Gas Tank
- Fuel Oil
- Vacuum Module
- Double Walled Gas Pipe
- Ignition
- Gas Valve
- Module
- Engine M 34 DF
- Gas Fuel
- Liquid Fuel
- Turbocharger
- Gas admission valve
- Gas detection
- Gas pressure monitoring
- Gas exhaust system
- GMS System
- PMS System
- Pressure monitoring
- Gas detection
- Bearing temperature monitoring
- Explosion relief valves
- Inert gas supply
- Gas pipe leakage monitoring
- Gas detector
- Alarm & Monitoring System
- Ventilation
- Gas detector
- Separate exhaust pipe

M 34 DF • Safety Concept

Crankcase
- Explosion relief valves
- separate exhaust pipe
- Ventilation

Crankcase
- Explosion relief valves
- Inert gas supply
- Alarm & Monitoring System
- Gas detector
- Emergency gas detection
- Gas lines & bellows
- Double walled

Crankcase
- Explosion relief valves
- Inert gas supply
- Alarm & Monitoring System
- Gas detector
- Emergency gas detection
- Gas lines & bellows
- Double walled

Crankcase
- Explosion relief valves
- Inert gas supply
- Alarm & Monitoring System
- Gas detector
- Emergency gas detection
- Gas lines & bellows
- Double walled

M 34 DF • Preferred Choice for Gas Electrical and Mechanical Propulsion

- Optional use of expensive low sulfur MDO for ECA operation
- Alternative to scrubber installation
- Minimal impact on engine and exhaust systems
- LNG infrastructure being developed
- Low operational cost

High efficiency and proven reliability make the M 34 DF an excellent propulsion engine for operation in and outside of environmental protected areas as well as across with IMO 2020 limits. Due to selected equipment profiles and diesel fuel costs, the M 34 DF is a preferred engine regarding low cost of operation.

M 34 DF • Built-in fuel redundancy

- Diesel/gas operation
- New camshaft
- New outlet lever
- New eccentric shaft and lower valve train
- Reduced compression ratio
- Knock control
- Switchover
- Diesel mode
- Gas mode
- Engine M 34 DF

M 34 DF • New Flexible Camshaft Technology

- Reduced compression ratio
- New camshaft
- New outlet lever
- New eccentric shaft and lower valve train
- Reduced compression ratio
- Knock control
- Switchover
- Diesel mode
- Gas mode
- Engine M 34 DF

M 34 DF • Gas System

- Double walled gas lines & bellows
- Leakage monitoring
- Gas valve unit
- Ignition injector
- Gas admission valve
- Gas valve unit
- Emergency gas detection
- Gas lines & bellows
- Double walled

M 34 DF • Flexibility

- High efficiency and proven reliability make the M 34 DF an excellent propulsion engine for operation in and outside of environmental protected areas as well as across with IMO 2020 limits. Due to selected equipment profiles and diesel fuel costs, the M 34 DF is a preferred engine regarding low cost of operation.

M 34 DF • Mechanical Propulsion

- Preferred Choice for Gas Electrical and Mechanical Propulsion
- Optional use of expensive low sulfur MDO for ECA operation
- Alternative to scrubber installation
- Minimal impact on engine and exhaust systems
- LNG infrastructure being developed
- Low operational cost

High efficiency and proven reliability make the M 34 DF an excellent propulsion engine for operation in and outside of environmental protected areas as well as across with IMO 2020 limits. Due to selected equipment profiles and diesel fuel costs, the M 34 DF is a preferred engine regarding low cost of operation.