Technical Data

Operational simplicity and engine characteristics:
- Key attributes of the M46 DF are class leading efficiency and loading capacity as well as the operational simplicity which is supported by a fully automated engine control.
- Fast service access as well as service and maintenance simplicity are supported by a modular engine concept and the monitoring and diagnostic system.
- Operation on natural gas with min. methane number of 55 possible 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 product support network with Marine focus.

- Conversion of M43 C to M46 DF engines are supported by similar dimensions and system interfaces.

All mentioned data is preliminary!

### Engine Dimensions and Weights

<table>
<thead>
<tr>
<th>Cylinder</th>
<th>L1 (mm)</th>
<th>L2 (mm)</th>
<th>L3 (mm)</th>
<th>L4 (mm)</th>
<th>H1 (mm)</th>
<th>H2 (mm)</th>
<th>H3 (mm)</th>
<th>W1 (t)</th>
<th>W2 (t)</th>
<th>t* (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 M46 DF</td>
<td>8330</td>
<td>1086</td>
<td>1255</td>
<td>1723</td>
<td>3734</td>
<td>1396</td>
<td>750</td>
<td>2961</td>
<td>215</td>
<td>94</td>
</tr>
<tr>
<td>7 M46 DF</td>
<td>9068</td>
<td>1119</td>
<td>1255</td>
<td>1740</td>
<td>4105</td>
<td>1396</td>
<td>750</td>
<td>2961</td>
<td>232</td>
<td>107</td>
</tr>
<tr>
<td>8 M46 DF</td>
<td>9798</td>
<td>1119</td>
<td>1255</td>
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<td>1396</td>
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<td>750</td>
<td>2961</td>
<td>232</td>
<td>127</td>
</tr>
</tbody>
</table>

### Emission

<table>
<thead>
<tr>
<th>Mode</th>
<th>IMO III</th>
<th>IMO III</th>
<th>IMO II</th>
<th>IMO II</th>
</tr>
</thead>
</table>

### Bore

| mm | 460 | 460 | 460 | 460 |

### Stroke

| mm | 610 | 610 | 610 | 610 |

### Speed

| rpm | 500/514 | 500/514 | 500/514 | 500/514 |

### Power

| kW/cyl. | 900 | 965 | 900 | 965 |

### BMEP

| bar | 21.3/20.7 | 22.8/22.2 | 21.3/20.7 | 22.8/22.2 |

### Liquid fuel consumption

| g/kWh @100% | 1.9 | 1.8 | 186 | 185 |

### Gas fuel consumption

| kJ/kWh @100% | 7,200 | 7,275 | – | – |

### Efficiency

| % | 50.0 | 49.5 | 45.3 | 45.6 |

Without engine driven pumps. Tolerance for SFOC and efficiency +/-5%.
Fuel Flexibility and High Efficiency: A new Generation of Engines built by Caterpillar Motoren!

The Dual Fuel Engine Concept

Based on the successful M 43 C, MaK designed the M 46 DF to meet and exceed the M 43 C in reliability, with higher service and maintenance potential, with regard to the opportunity to retrofit M 43 C engines.

With its state-of-the-art design the M 46 DF does after test and easy access to system and components, supporting the operation service and maintenance simplicity, MaK products are known for.

Designed to operate on gas- as well as liquid (BMS OIL Es) fuel the M 46 DF will meet IMO II emission limits while operating in gas mode, injecting a small amount of ignition fuel to control combustion.

The M 46 DF will comply with IMO II emission limits while operating in gas mode, injecting a small amount of ignition fuel to control combustion.

MaK Dual Fuel Engines

Building on its proven engine legacy, Caterpillar Motoren designed the M 46 DF for a variety of marine applications without sacrificing the typical MaK marine engine attributes like operational reliability and efficiency as well as maintainability.

Designing into the inherent conditions of operating emission and fuel sulfur regulations the M 46 DF will provide maximum flexibility for vessel operators in regulated and unregulated areas without significant change in engine size or the exhaust gas system, maintaining installation and certification simplicity at the same time.

The low emission fuel system (gas) in combination with high efficiency and reliability makes the M 46 DF an ideal propulsion engine for service, in- and outside of environmental protected areas as well as waters with fuel sulfur regulations.

Upcoming IMO III emission regulations, selected operation profiles and diesel fuel costs make the M 46 DF a preferred engine regarding lowest cost of operation.

Designed for Reliable Operation

The flexibility in operation and minimum component life time in gas and diesel mode.

Growth potential to customers demand for a safe and reliable operation at varying engine loads and gas qualities.

The operator-friendly service and maintenance potential regarding service and maintenance access.

The high efficiency and reliability make the M 46 DF a preferred engine regarding lowest cost of operation.

This operator-friendly service and maintenance concept is supported by the modular engine design.

State-of-the-art material ensures long life of components.

Flexibility to switch in intervals diesel and gas operation while allowing operation on a variety of different diesel and gas qualities.

Engine attributes like operational reliability and efficiency as well as service and maintenance access.

By the modular engine design.

The flexible camshaft technology (FCT) allows fast and easy access to system and components, supporting the operation service and maintenance simplicity, MaK products are known for.

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