MAN B&W two-stroke engines
Fuel-flexible efficiency

MAN two-stroke engines are superheroes with multiple powers, their first one being their multifuel operation. Originally developed for traditional liquid fuels, the engines also run on cleaner fuels like natural gas, LNG, methanol, and LPG, plus a wide range of biofuels. The next superpower of the MAN B&W two-stroke engines is their high efficiency. The engines’ efficiency levels are above 50% at MCRs of between 50% and 100%. Additional equipment like the turbo compound system or combined-cycle application can increase the efficiency even further.

Proven by the fact that our two-stroke engines move more than half of the world’s seagoing trade, their most valued superpower is their reliability.

Benefits at a glance
- High efficiency or high power performance settings
- High reliability
- Fuel and operational flexibility with liquid, gaseous, and liquid gas fuels
- Low maintenance costs
MAN B&W two-stroke engines

Fuel-flexible efficiency

Available cylinder versions

<table>
<thead>
<tr>
<th>Cyl. No.</th>
<th>7L</th>
<th>8L</th>
<th>9L</th>
<th>10L</th>
<th>11L</th>
<th>12L</th>
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</thead>
<tbody>
<tr>
<td>S60</td>
<td>✔</td>
<td>✔</td>
<td></td>
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<tr>
<td>S70</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S80</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td></td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>G90</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
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</tbody>
</table>

Output

<table>
<thead>
<tr>
<th>Engine type</th>
<th>S60ME-S</th>
<th>S60ME-GI-S</th>
<th>S60ME-LGI-S</th>
<th>S70ME-GI-S</th>
<th>S70ME-LGI-S</th>
<th>S80ME-GI-S</th>
<th>S80ME-LGI-S</th>
<th>G90ME-GI-S</th>
<th>G90ME-LGI-S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power range</td>
<td>kWm</td>
<td>13,860–18,720</td>
<td>19,250–26,160</td>
<td>26,460–38,700</td>
<td>34,300–67,680</td>
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<tr>
<td>Speed 50 Hz</td>
<td>r/min</td>
<td>103.4</td>
<td>90.9</td>
<td>76.9</td>
<td>83.3</td>
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<tr>
<td>Speed 60 Hz</td>
<td>r/min</td>
<td>102.9</td>
<td>90.0</td>
<td>78.3</td>
<td>83.7</td>
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</tbody>
</table>

Engine features

General data
- Engine cycle: two-stroke
- Engine type: S60, S70, S80, G90
- Fuel: Single fuel, dual fuel (liquid gas), dual fuel (gas)
- Electronically controlled stationary engine

Engine emissions
- WB2008
- Depending on fuel type even lower
- With available after-treatment solutions even much lower

Similarity between stationary and marine applications
- 95 % similarity between stationary and marine engines
- All technological improvements are shared

Engine efficiency vs. load

Power range

**Turbo compound system**
- Can be used on G90 and S60 engines
- Up to 3% reduction in combined heat rate

**Fuel type**
- All engines are available as single fuel and dual fuel versions

**ME-S (single fuel)**
- HFO
- Diesel (ISO 8217)
- MFO
- LSFO
- Crude biofuel
- Crude oil

**ME-GI-S (dual fuel, gas injection)**
- NG
- LNG
- Methane
- Ethane
- Pilot oil (liquid fuel as for single fuel version)

**ME-LGI-S (dual fuel, liquid gas injection)**
- Methanol
- LPG
- DME
- Ethanol
- Pilot oil (liquid fuel as for single fuel version)

**Energy sources of diesel engines**
- Heat from lube oil cooling
- Heat from jacket cooling
- Heat from scavenge cooling
- Heat from exhaust gas

**Applications**
- Base-load applications with high reliability and low maintenance costs
- Combined heat and power applications
- Fresh water generation
All data provided in this document is non-binding. This data serves informational purposes only and is not guaranteed in any way. Depending on the subsequent specific individual projects, the relevant data may be subject to changes and will be assessed and determined individually for each project. This will depend on the particular characteristics of each individual project, especially specific site and operational conditions.

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