Let your fuel take you further.
By combining diesel and gas technologies in one engine, the MAN 51/60DF gives you absolute fuel flexibility. There’s no better way to keep your engine running effectively and economically. Full steam ahead.

**Benefits at a glance**
- High power output
- Lowest fuel consumption over entire engine load
- Full fuel flexibility
- High reliability and long TBOs
- Gas start capability
- Full power output down to MN70
**MAN V51/60DF**

**Propulsion – High efficiency**

### General
- Engine cycle: four-stroke
- No. of cylinders: 12, 14, 16, 18
- Bore: 510 mm – Stroke: 600 mm
- Swept volume per cyl: 122.6 dm³

### Fuel consumption at 85 % MCR
- Liquid fuel mode: 177 g/kWh
- Gas mode: 7,200 kJ/kWh

### Cylinder output (MCR)
- At 500/514 rpm: 1,050 kW
- Power-to-weight ratio: 14.0 – 14.8 kg/kW

### Compliance with emission regulations
- IMO Tier II
- IMO Tier III (gas mode)
- IMO Tier III (diesel mode with MAN SCR-LP)

### Output

<table>
<thead>
<tr>
<th>Speed rpm</th>
<th>MCR</th>
<th>514</th>
<th>500</th>
</tr>
</thead>
<tbody>
<tr>
<td>mep bar</td>
<td>kW</td>
<td>kW</td>
<td>kW</td>
</tr>
<tr>
<td>MAN 12V51/60DF</td>
<td>12,600</td>
<td>12,600</td>
<td></td>
</tr>
<tr>
<td>MAN 14V51/60DF</td>
<td>14,700</td>
<td>14,700</td>
<td></td>
</tr>
<tr>
<td>MAN 16V51/60DF</td>
<td>16,800</td>
<td>16,800</td>
<td></td>
</tr>
<tr>
<td>MAN 18V51/60DF</td>
<td>18,900</td>
<td>18,900</td>
<td></td>
</tr>
</tbody>
</table>

Minimum centerline distance for twin engine installation: 4,800 mm

LHV of fuel gas ≥ 28,000 kJ/Nm³

(Nm³ corresponds to one cubic meter of gas at 0 °C and 1.013 bar)

Last updated July 2018

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**Turbocharging system**
- High efficiency constant pressure MAN TCA series exhaust turbocharging system

**Engine automation and control**
- MAN in-house developed engine attached safety and control system MAN SaCoSone

**Air management**
- Variable turbine area allowing improved adaption for diesel and gas mode operation while maintaining highest turbocharger efficiency over entire engine load

**Fuel system**
- Common rail pilot fuel injection system
- Conventional main injection system
- Variable injection timing for lowest fuel consumption while meeting IMO Tier II emission limits in diesel mode

**Gas system**
- Cylinder individual low pressure gas admission system, 5.7 bar(g) at inlet of gas valve unit

**Cooling system**
- 2-string high and low temperature cooling water systems

**Starting system**
- Starting air valves within cylinder heads

**Engine mounting**
- Resilient or rigid mounting

**Optional equipment**
- Fuel sharing mode for highest fuel flexibility
- Gas start capability
- 100 % power take-off at engine free end available
- Variable inlet valve timing for improved combustion in part load operation

MCR = Maximum continuous rating
SCR-LP = Selective catalytic reduction (low pressure)

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