

# MAN

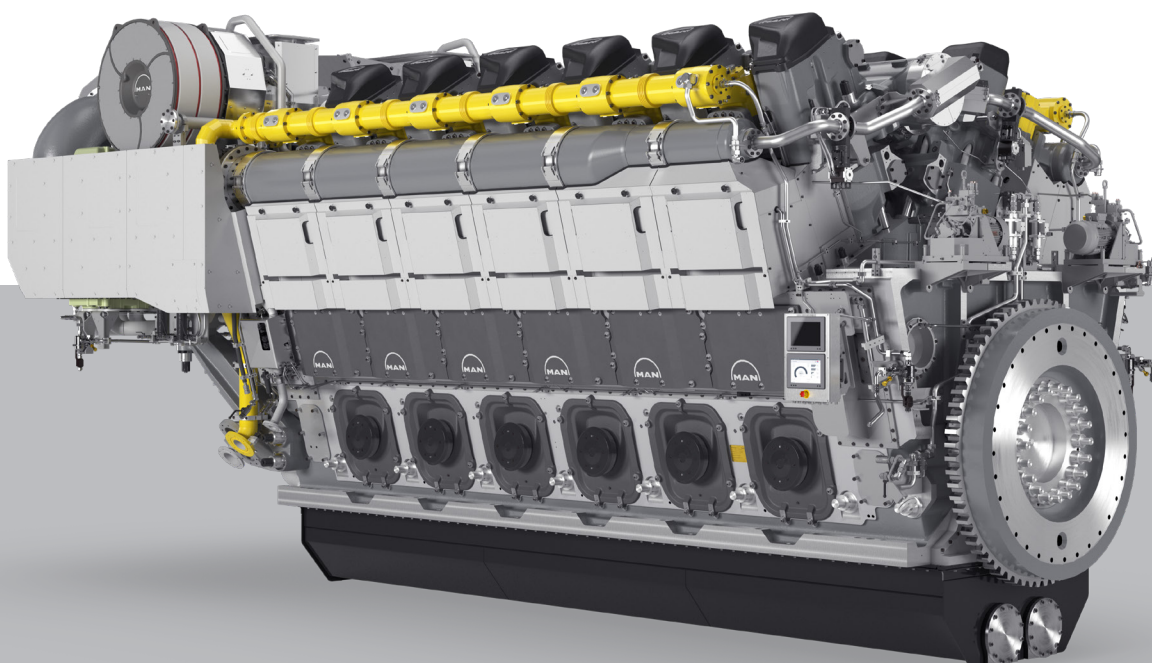
# V49/60DF

## Propulsion

The MAN 49/60DF is future-proof in multiple ways. Its benchmark fuel efficiency guarantees competitive vessel operation. The very low level of methane emissions ensures long-term CO<sub>2</sub> emission compliance. A modern engine platform with next-generation engine automation system can harness the benefits of a digitized marine operation. For this platform MAN Energy Solutions plans upgrades to future fuels.

### Benefits at a glance

- Benchmark efficiency
- Robust performance in gas mode based on next-generation combustion control ACC 2.0
- Next-generation engine automation ready for future tasks such as cybersecurity
- Compact design by increased power density
- Very low methane emissions



# MAN V49/60DF

## Propulsion

### Dimensions

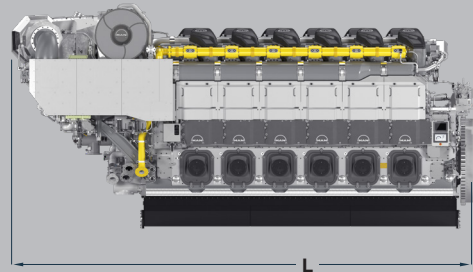
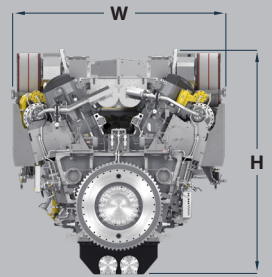
| Cyl. No.  |    | 12V    | 14V    |
|-----------|----|--------|--------|
| L         | mm | 10,800 | 11,800 |
| W         | mm | 4,960  | 4,960  |
| H         | mm | 5,237  | 5,237  |
| Dry mass* | t  | 217    | 245    |

### Output

|                |     |        |
|----------------|-----|--------|
| Speed          | rpm | 600    |
| mep            | bar | 23     |
| MAN 12V49/60DF | kW  | 15,600 |
| MAN 14V49/60DF | kW  | 18,200 |

\* Drawing & dimensions without flywheel seating  
Minimum centerline distance for twin-engine installation: 5,050 mm

Last updated July 2022



### General

- Engine cycle: four-stroke
- No. of cylinders: 12V, 14V
- Bore: 490 mm – Stroke: 600 mm
- Swept volume per cyl: 113.14 dm<sup>3</sup>

### Fuel consumption at 85 % MCR\*

- Liquid fuel mode: 171.0g/kWh
- Gas mode: 6,990kJ/kWh

### Cylinder output (MCR)

- At 600 rpm: 1,300 kW
- Power-to-weight ratio:  
13.5 – 13.9 kg/kW

### Compliance with emission regulations

- Gas mode: IMO Tier III
- Liquid mode: IMO Tier II und IMO Tier III with MAN SCR-LP

### Main features

#### Turbocharging system

- High efficiency MAN TCT and MAN TCX two-stage turbocharging system

#### Engine automation and control

- Next-generation in-house developed safety and control system MAN SaCoS 5000
- Next-generation combustion control

#### Fuel system

- Cylinder individual solenoid gas admission valves for gas injection into charge air
- Next-generation MAN Common Rail injection system for liquid main fuel or HFO, developed in-house
- Common rail pilot fuel oil system

#### Cooling system

- 2-string high and low temperature cooling water systems or alternatively a combined cooling water system

#### Starting system

- Starting air valves within cylinder heads

#### Engine mounting

- Resilient

### Optional equipment

- Additional insulation for maximum surface temperature of 110 °C
- High levels of cybersecurity compliance
- Engine variant for methane numbers down to MN 60

MCR= Maximum continuous rating  
SCR= Selective catalytic reduction  
\* According to IMO E2 test cycle

**MAN Energy Solutions**  
86224 Augsburg, Germany  
P + 49 821 322-0  
F + 49 821 322-3382  
info@man-es.com  
www.man-es.com