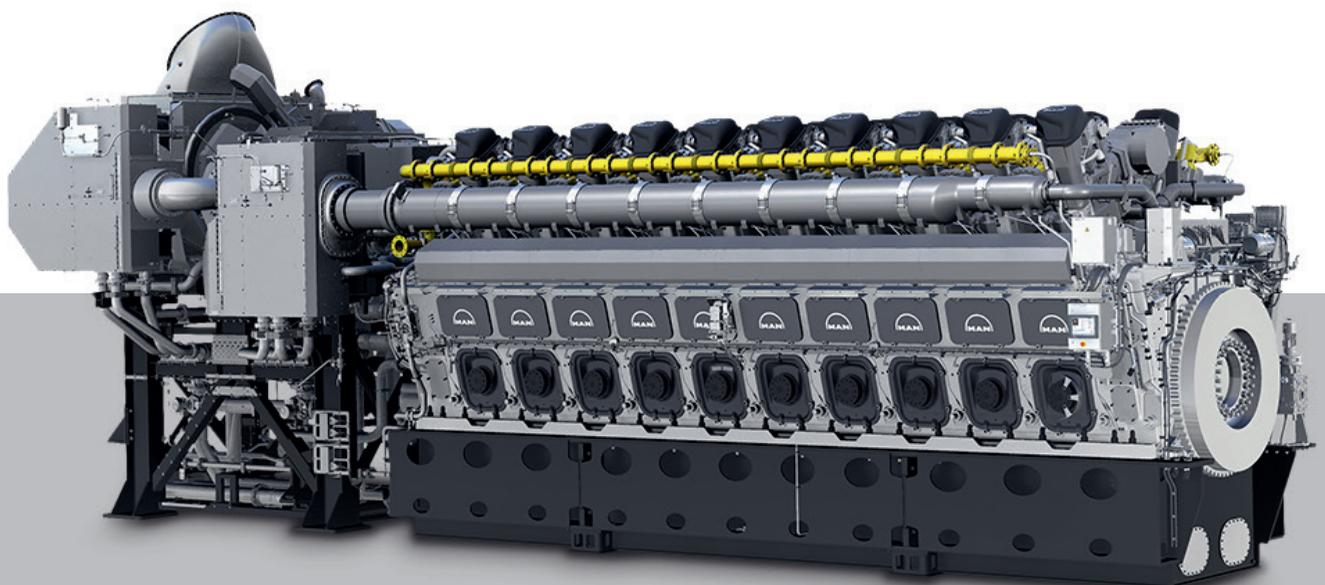


MAN 49/60DF

The MAN 49/60DF is benefitting from the excellent robustness and reliability of its predecessors. It comes with higher cylinder output, lower emissions and higher efficiency. It is the first derivative of the new 49/60 platform of MAN Energy Solutions which provides various upgrade possibilities and therefore granting future-proofness in multiple ways.

Benefits at a glance

- Higher power density and efficiency combined
- No derating at high altitudes or temperatures
- Gas start capability and switch between gas and liquid mode and vice versa at any load
- Very low methane emissions
- Excellent dynamic behavior
- Easy retrofit to pure gas and future fuels

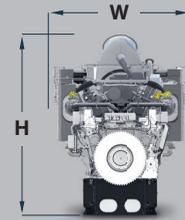


MAN 49/60DF

with two-stage turbocharging

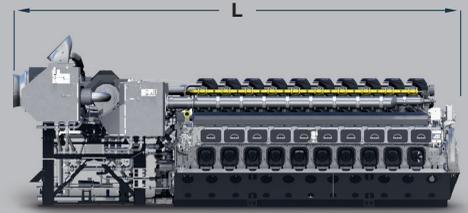
Dimensions

Cyl. No.	9L		14V		20V	
L	16,242 mm	639.4 in	17,205 mm	677.4 in	23,919 mm	941.7 in
H	6,047 mm	238.1 in	5,959 mm	234.6 in	6,572 mm	258.7 in
W	4,200 mm	165.4 in	5,635 mm	221.9 in	5,635 mm	221.9 in
Engine weight *	190 t	418,878 lb	265 t	584,224 lb	330 t	727,525 lb



Output

Cyl. No.	9L		14V		20V	
Output mech.	kW	11,700	18,200	26,000		
Speed	rpm	600	600	600		
Frequency	Hz	50/60	50/60	50/60		



Dimensions and weight +/-10%

* transport weight engine as indicative value incl. base frame w/o alternator, coupling, fly wheel and for 20 V w/o TUMO (steel construction, LP-TC, HP-TC)

Values according to ISO 3046-1:2002; ISO 15550:2002. Status December 2023

Engine features

General data

- Engine cycle: four-stroke
- No. of cylinders: 9L, 14V, 20V
- Bore: 490 mm / 19.29 in, Stroke: 600 mm / 23.62 in

Applications

- An integral part of the energy transition
- Whenever fuel flexibility is of benefit
- Areas with non-constant gas supply
- Areas with highly volatile fuel prices
- Baseload, Balancing, as well as Industrial Selfgeneration

Fuel Flexibility

- E-methane
- Natural gas with MN > 65
- Up to 25 % H2 blending in natural gas (e-methane)
- Biofuels
- Retrofit to future fuels at a later stage possible

Turbocharging system

- New MAN TCX and TCT two-stage exhaust gas turbocharging system for a significant increase in efficiency
- Enables outstanding load response and extended operating range

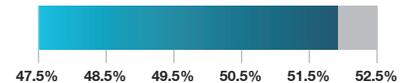
Fuel & gas system

- Next generation Common Rail 2.2 injection system; developed in-house
- Individual cylinder low pressure gas admission system for gas injection into charge air

Engine automation and control

- MAN SaCoS₅₀₀₀ safety and control system on engine with build-in cybersecurity for future proof digital services and remote solutions
- Automatic Combustion Control (ACC) 2.0 automatically adapts to changing ambient conditions, wide range of fuel qualities with best performance and improved dynamic behaviour

Fuel efficiency*



*max. fuel efficiency possible, mech. efficiency in gas mode, 5% tol. acc. ISO3046, w/o att. pumps, MN80, incl. pilot fuel

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