MAN Energy Solutions
Future in the making

MAN 51/60DF

High efficiency and high power

Gensets Output

Cyl. No.		6L		12V		18V	
Output	**kW**	6,130	6,710	12,310	13,480	18,465	20,220
Speed	**rpm**	500/514	500/514	500/514	500/514	500/514	500/514
Frequency	**Hz**	50/60	50/60	50/60	50/60	50/60	50/60

Nominal generator efficiency L-type: 97,3% V-type: 97,7%

Electr. Genset heat rate at 100% load

Cyl. No.		6L		12V		18V	
Liquid fuel (WB2007/2008)	kJ/kWh	7,602	7,602	7,543	7,543	7,528	7,528
Gas fuel (TA-Luft)	kJ/kWh	7,256	7,410	7,228	7,400	7,228	7,400
Electrical Efficiency	%	49.1	48.1	49.4	48.4	49.4	48.4

Liquid fuel: HFO or diesel fuel
Gas fuel: Incl. pilot fuel. methane no. ≥ 80

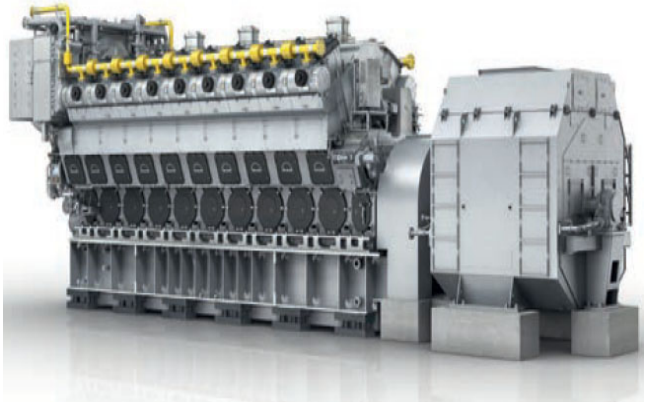
Lube oil consumption

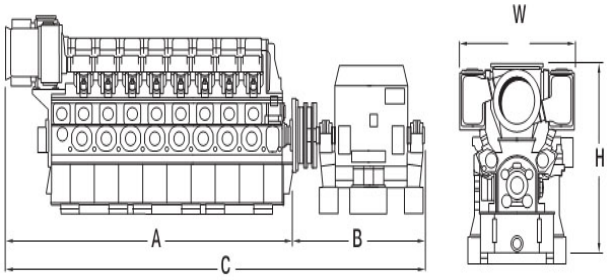
		6L		12V		18V	
Electrical Efficiency	kg/h	2.4	2.4	4.8	4.8	7.2	7.2

Gensets Dimensions

Cyl. No.		6L		12V		18V	
A	mm	8,464	8,464	9,970	10,134	13,489	13,489
B	mm	4,665	4,665	4,950	4,950	5,410	5,410
C	mm	13,129	13,129	14,920	14,920	18,899	18,899
W	mm	3,165	3,165	4,884	4,884	4,884	4,884
H	mm	5,807	5,807	6,450	6,450	6,450	6,450
Engine weight	t	171.6	171.6	293.8	297.6	416.8	416.8

Weights and dimensions are subject to final application





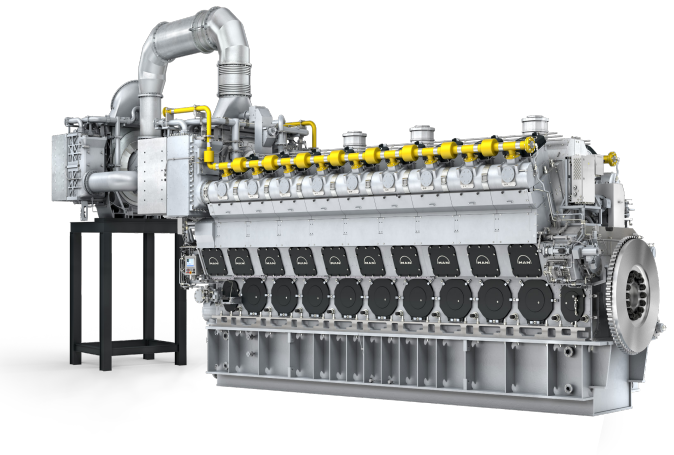
MAN 51/60DF

High efficiency with two-stage turbocharging

Gensets Output

Cyl. No.		18V
Output	**kW**	18,465
Speed	**rpm**	500/514
Frequency	**Hz**	50/60

Nominal generator efficiency V-type: 97.7%



Electr. Genset heat rate at 100% load

Cyl. No.		18V
Liquid fuel (WB2007/2008)	kJ/kWh	7,528
Gas fuel (TA-Luft)	kJ/kWh	7,228
Electrical Efficiency	%	50

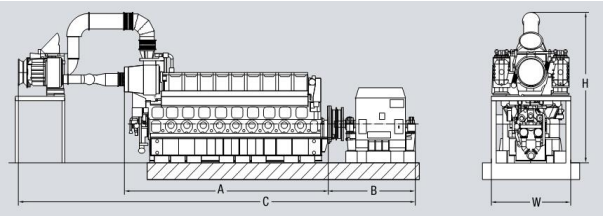
Liquid fuel: HFO or diesel fuel
Gas fuel: Incl. pilot fuel. methane no. ≥ 80

Lube oil consumption

		18V
Electrical Eficiency	kg/h	7.2

Gensets Dimensions

Cyl. No.		18V
A	mm	13,489
B	mm	5,410
C	mm	24,510
W	mm	4,700
H	mm	9,023
Engine weight	t	457.6

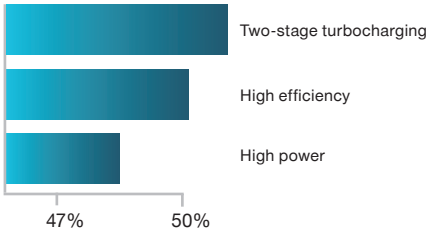


Weights and dimensions are subject to final application
Values according to ISO 3046-1:2002; ISO 15550:2002.

Engine Features

General data
- Engine cycle: four-stroke
- No. of cylinders: 6L, 12V, 18V
- Bore: 510 mm / 20.08 in, Stroke: 600 mm / 23.62 in

Fuel efficiency comparison



Engine automation and control
- MAN SaCoS$_{one}$ safety and control system on engine, developed by MAN

Turbocharging system
- 2-stage turbocharging improves efficiency significantly
- MAN constant pressure turbocharging system
- Individual engine / turbocharger optimization matching on site

Fuel & gas system
- Common rail pilot fuel injection system
- Amount of pilot fuel ~1%
- Robust conventional main injection system
- Low pressure gas system (5 bar(g) / 72.52 psi at inlet of gas valve unit)

Starting system
- Starting air valves in cylinder head

Applications
- Whenever fuel flexibility is of benefit
- Locations with non-constant gas supply
- Installations with gas operation at a later date
- Locations with highly volatile fuel prices

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