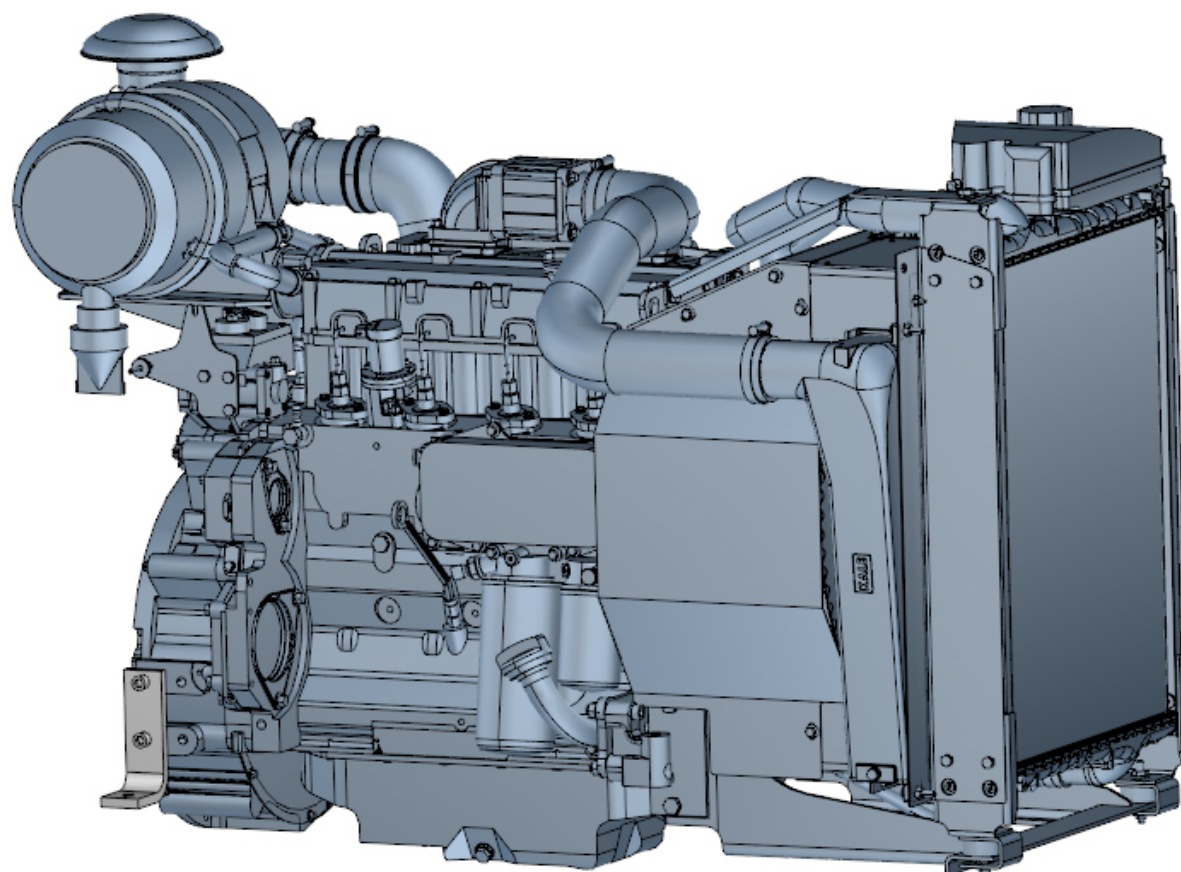


BF4M2012C (D20C74,9) - 50 Hz



BF4M2012C (D2OC74,9) - 50 Hz

Technical data

General engine data

Engine Type	BF4M2012C
EKZ	11372
Speed	1500 min ⁻¹
Net frequency	50 Hz
Exhaust emission standard	Stage II

Specific engine data

Aspiration	turbo, CAC
No of cylinders	4
Configuration	in-line
Injection system	single injection pumps
Displacement	4.0 l
Bore	101 mm
Stroke	126 mm
Compression ratio	18.4
Mean effective pressure (PRP)	14.8 bar
Piston speed	6.30 m/s
Rotation (looking at flywheel)	counter clock wise
No of teeth on flywheel ring gear	129
Governor type	mechanical
Frequency setting	single frequency
Governor performance: speed droop (static) mechanical governor	4 - 5 %
Governor performance: speed droop (static) electrical governor (EMR or GAC)	0 - 3 %
Governing standards ¹	G2

Moment of inertia

Engine without flywheel	0.2 kg m ²
Flywheel (standard genset specification)	1.2 kg m ²
Maximum step load acceptance, 1st step (in progress)	-
Sound power at full load, including cooling system ²	109 dB(A)
Sound pressure (1 m average distance, full load), including cooling system	96 dB(A)

Weight

Engine dry without cooling system ³	approx. 405 kg
Engine dry with cooling system	approx. 473 kg

Lubrication system

Oil specification	TR0199-99-1217
Oil consumption (as % of fuel consumption)	0.15 %
Oil capacity (sump)	8.5 l
Minimum oil pressure (warning)	1.8 bar

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Minimum oil pressure (shut down)	1.5 bar
Maximum permissible oil temperature (oil pan)	125 °C

Power output³

Gross output (LTP) ⁴	74.9 kW
Fan power consumption ⁷ /reduction (LTP)	4.9 kW
Net flywheel (LTP)	70.0 kW
Gross output (PRP) ⁵	71.0 kW
Fan power consumption ⁷ /reduction (PRP)	4.9 kW
Net flywheel (PRP)	66.1 kW
Alternator efficiency ⁸	90 %
Electrical output kVA (LTP) ⁹	79 kVA
Electrical output kVA (PRP) ⁹	74 kVA
Gross output (COP) ⁶	64.0 kW

Fuel consumption (PRP)¹⁰

25% load	5.1 l/h
50% load	9.1 l/h
75% load	13.6 l/h
100% load	18.5 l/h
25% load	240 g/kWh
50% load	214 g/kWh
75% load	213 g/kWh
100% load	217 g/kWh
Maximum suction head of fuel feed pump	approx. 2 m

Engine cooling system

Maximum permitted coolant outlet temperature	105 °C
Maximum permitted flow resistance (cooling system and piping)	0.22 bar
Maximum temperature of coolant (warning)	108 °C
Maximum temperature of coolant (shutdown)	110 °C
Temperature at which thermostat starts to open	83 °C
Temperature at which thermostat is fully open	98 °C
Delivery of coolant pump	7.2 m ³ /h
Minimum pressure before coolant pump	0.3 bar
Temperature at charge air cooler outlet at standard conditions	40 °C
Coolant capacity (engine)	6 l
Coolant capacity (including cooling unit)	15.9 l
Air to boil (maximum permissible cooling air temperature at fan)	55 °C
Cooling air flow	4700 m ³ /h
Air pressure loss	1.5 mbar

Heat Balance

Heat dissipation (engine radiator) ¹¹	43.1 kW
Heat dissipation (charge air cooler) ¹¹	7.5 kW
Heat dissipation (convection)	7.5 kW

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Inlet/Exhaust Data (PRP)

Maximum intake depression (switch setting)	25 mbar
Combustion air volume	267.4 m ³ /h
Maximum exhaust back pressure	30 mbar
Maximum exhaust gas temperature	600 °C
Exhaust gas flow (at above temp)	829 m ³ /h
Exhaust flange / pipe diameter	92 mm

Electrical System

Voltage	12 V
Starter	4 kW
Alternator output	45 A
Battery: minimum capacity (for cold start limit -5°C)	110 Ah

Automatic power limitation at altitude

Altitude [m]	Temperature [°C]												
	0	5	10	15	20	25	30	35	40	45	50	55	60
0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.94	0.85	0.76	0.67
500	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.82	0.73	0.64
1000	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.87	0.79	0.70	0.62
1500	0.96	0.95	0.93	0.94	0.93	0.92	0.91	0.92	0.88	0.84	0.76	0.67	0.59
2000	0.90	0.89	0.89	0.88	0.87	0.87	0.86	0.87	0.84	0.80	0.73	0.65	0.57
2500	0.84	0.84	0.83	0.82	0.82	0.81	0.80	0.80	0.79	0.76	0.68	0.62	0.55
3000	0.79	0.78	0.78	0.77	0.76	0.75	0.75	0.74	0.74	0.71	0.66	0.60	0.52
3500	0.74	0.73	0.74	0.73	0.71	0.70	0.69	0.69	0.68	0.68	0.63	0.57	0.50
4000	0.70	0.70	0.70	0.69	0.66	0.64	0.64	0.64	0.63	0.63	0.61	0.55	0.48
4500	0.66	0.65	0.65	0.64	0.61	0.59	0.59	0.58	0.58	0.58	0.55	0.52	0.46
5000	0.60	0.61	0.60	0.58	0.56	0.54	0.54	0.53	0.53	0.52	0.50	0.49	0.44

¹ According to ISO 8528 Parts 1 and 5

² Sound power values measured in accordance with ISO 6798.

³ Technical data for BF2012, BF1013, BFM1015 refers to HT cooling system. For NT cooling system please see DEUTZ Technical Information System.

⁴ Limited time power 100%, which is capable for up to 500 h/year of which maximum of 300 h/year is continuous running, not exceedable, but required power for governing purpose only has to be considered. Necessary supply of engine power usually 10% for governing purpose only.

⁵ Prime power 100% , average power output ≤ 80%, no time limitation, plus 5% (at BFM 1015 plus 10%) additional power for governing purpose only (if 1 h overload within 12 h operation time is requested please contact head quarters).

⁶ Continuous power 100% , no time limitation, plus 10% additional power for governing purpose only.

⁷ Technical data and max. permissible torque for fan drive see data sheet.

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Assumed alternator efficiencies: 12 to 29 kVA: 89 %, 30 to 139 kVA: 90 %, 140 to 299 kVA: 92 %, 300 to 550 kVA: 93 %

⁹ Ratings in accordance with ISO 8528. Power factor $\cos \varphi = 0.8$.

¹⁰ At calorific value 42700 kJ/kg + 5 %, density 0.835 kg/dm³, at temperature 288 K.

¹¹ The heat quantities are valid for the dimensioning of the cooling system. They are given for the engine with the highest (overload) power output (LTP) at 3% tolerance of fuel consumption and a radiant heat percentage of 3 %.

Power output (kW) in accordance with DIN ISO 14396.

For further information please see DEUTZ Technical Information System.

All data are provided for informational purposes only and are subject to amendment.