



BFM 3 Series

4 CYLINDER TECHNICAL DATA SHEET

Application Rating

Genset Engines



Features:

- > Water-cooled 4-cylinder in-line engine.
- > Naturally aspirated, turbocharging and turbocharging with charge air cooling.
- > Modern high-pressure fuel injection system with single injection pumps.
- > Electronic governor (option).
- > All servicing points on one side.
- > Compact design and low weight

Benefits:

- > Low noise radiation. This eliminates the need for costly noise attenuation measures.
- > Exemplarily low fuel and oil consumption, long service intervals save operating costs.
- > Easy and cost-effective installation with minimum weight and small space requirement.
- > Outstanding load acceptance ensures immediate power supply.
- > Incomparably low exhaust emission, meets all industrial exhaust regulations.

Engine	Type	BFM3 G1	BFM3 G2	BFM3T	BFM3C
Speed	[min ⁻¹]	1500	1500	1500	1500
Net frequency	[Hz]	50	50	50	50
Power standard		PRP	PRP	PRP	PRP
Power level		G1	G2		

Output	Type	BFM3 G1	BFM3 G2	BFM3T	BFM3C
Gross output (LTP or Stand-By Power) ¹	[kW]	22	32	44	50
Fan reduction	[kW]	2	2	3	3
Electrical output ^{2a}	[kVA]	20	31	42	50
Gross output (PRP or Prime Power) ^{1a}	[kW]	20	29	40	45
Gross output (Continuous Power) ^{1b}	[kW]	19	26	36	42

Fuel System (PRP)	Type	BFM3 G1	BFM3 G2	BFM3T	BFM3C
Fuel consumption					
25% load ³	[l/h]	1.6	2.3	3.0	3.2
50% load ³	[l/h]	2.8	3.9	5.5	6.0
75% load ³	[l/h]	4.0	5.8	8.0	8.7
100% load ³	[l/h]	5.4	7.7	10.3	11.2
25% load	[g/kWh]	260	258	252	238
50% load	[g/kWh]	234	228	234	228
75% load	[g/kWh]	228	228	226	220
100% load	[g/kWh]	228	226	218	212
Max. suction head of fuel feed pump	[m]	1.0	1.0	1.0	1.0

Powers (kW) in accordance with DIN ISO 14396.

1 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.

1a Prime power 100%, average power output ≤ 80%, no time limitation, plus 5% additional power for governing purpose only.

1b Continuous power 100%, no time limitation, plus 10% power for governing purpose only.

2 Ratings in accordance with ISO 8525 LTP. Alternator efficiency please see datasheet. 1500 min-1 = kVA, 1800 min-1 = kW

3 At calorific value 42700 kJ/kg + 5 %, density 0.835 kg/dm³, temperature 280 K.

4 Technical data and max. permissible torque for fan drive see data sheet. 5 Sound power values measured in accordance with ISO 6798.

6 The heat quantities are valid for the dimensioning of the cooling system. They are given for the engine with the highest fuel consumption.

For further application guidance see DEUTZ Installation Manual.

General					
Mechanical	Type	BFM3 G1	BFM3 G2	BFM3T	BFM3C
Aspiration		Natural	Natural	Turbo	CAC
No of cylinders		4	4	4	4
Configuration		in-line	in-line	in-line	in-line
Injection system		in-line pump			
Displacement	[L]	3,168	3,168	3,168	3,168
Bore	[mm]	98	98	98	98
Stroke	[mm]	105	105	105	105
Compression ratio		18.5	18.5	18.5	18.5
Mean effective pressure	[bar]	5.6	8.3	11.1	12.6
Piston speed	[m/s]	5.25	5.25	5.25	5.25
Rotation (looking at flywheel)		ccw	ccw	ccw	ccw
No of teeth on flywheel ring gear		129	129	129	129

Governor performance	Type	BFM3 G1	BFM3 G2	BFM3T	BFM3C
Speed droop (static) mech. gov.	[%]	4 - 6	4 - 6	4 - 6	4 - 6
Speed droop (static) electr. gov. (EMR/DDE)	[%]	0-3	0-3	0-3	0-3
Governing standards					
to ISO 8528 Parts 1 and 5		G2	G2	G2	G2

Moment of inertia	Type	BFM3 G1	BFM3 G2	BFM3T	BFM3C
Engine without flywheel	[kg m ²]	5.4	5.4	5.5	5.5
Flywheel (standard genset spec.)	[kg m ²]	0.2	0.2	0.2	0.2
Max. step load acceptance, 1st step	[%]	-	-	-	-
Sound power at full load, incl. cooling system ⁵	[dB(A)]	102	102.5	100	99
Sound press. (1m average, full load)	[dB(A)]	90	90.5	88	87

Weight	Type	BFM3 G1	BFM3 G2	BFM3T	BFM3C
Engine dry, w/o cooling system	[kg]	245	245	265	265

Lubrication system	Type	BFM3 G1	BFM3 G2	BFM3T	BFM3C
Oil specification		CF-4			
Oil consumption	(as % of fuel consumption)	0.5	0.5	0.5	0.5
Oil capacity	(sump)	7.5	7.5	7.5	7.5
Min. oil pressure (warning)	[bar]	1.5	1.5	1.5	1.5
Min. oil pressure (shut down)	[bar]	1.0	1.1	1.2	1.3
Max. permissible oil temperature(oil pan)	[°C]	120	120	120	120

Engine					
Cooling System (PRP)	Type	BFM3 G1	BFM3 G2	BFM3T	BFM3C
General engine cooling data					
Max. perm. coolant outlet temperature	[°C]	103	103	103	103
Max. perm. flow resistance (cool. syst. and piping)	[bar]	0.5	0.5	0.5	0.5
Max. temperature of coolant (warning)	[°C]	97	97	97	97
Max. temperature of coolant (shutdown)	[°C]	103	103	103	103
Temperature at which thermostat starts to open	[°C]	78	78	78	78
Temperature at which thermostat is fully open	[°C]	90	90	90	90
Delivery of coolant pump	[m³/h]	4.2	4.2	4.2	4.2
Min. pressure before coolant pump	[bar]	0.15	0.15	0.15	0.15
Engine Cooling System					
Type	BFM3 G1	BFM3 G2	BFM3T	BFM3C	
Coolant capacity (engine)	[l]	4.8	4.8	4.8	4.8
Coolant capacity (incl. cooling unit)	[l]	-	-	-	-
Fan power consumption ⁴	[kW]	2	2	3	3
Air to boil (max. permissible cool. air temp. at fan)	[°C]	50	50	50	50
Air pressure loss, external	[mbar]	1.5	1.5	1.5	1.5
Cooling air flow	[m³/h]	3960	3960	4680	4680
Heat Balance					
Heat dissipation (engine radiator) ⁶	[kW]	25	36	48	60
Heat dissipation (CAC) ⁶	[kW]	-	-	-	4
Inlet / Exhaust Data					
Type	BFM3 G1	BFM3 G2	BFM3T	BFM3C	
Max. intake depression (Switch setting)	[mbar]	30	30	30	30
Combustion air volume	[m³/h]	132	142	153	170
Max. exhaust back pressure	[mbar]	100	100	100	100
Max. exhaust gas temperature	[°C]	530	530	560	560
Exhaust gas flow (at above temp)	[m³/h]	250	270	315	330
Electrical System					
Type	BFM3 G1	BFM3 G2	BFM3T	BFM3C	
Voltage	[V]	12	12	12	12
Starter	[kW]	3	3	3	3
Alternator output	[A]	55	55	55	55
Batteries [min capacity /cold start limit -5 Deg]	[AH]	1*150	1*150	1*150	1*150