Engine Datasheet BFM3 1800 min^{-1}

Engine						
Type		BFM3	BFM3	BFM3T	BFM3T	BFM3C
Speed	[min^{-1}]	1800	1800	1800	1800	1800
Net frequency	Hz	60	60	60	60	60
Power standard				LTP		
Power level		G3	G4	G1	G2	G1
Exhaust emission standard				Fuel optimized		
General						
Aspiration		Natural	Natural	Turbo	Turbo	CAC
No of cylinders		4	4	4	4	4
Configuration		in-line	in-line	in-line	in-line	in-line
Injection system		In line pump	In line pump	In line pump	In line pump	In line pump
Displacement	[L]	2.72	2.72	2.72	2.72	2.72
Bore	[mm]	93	93	93	93	93
Stroke	[mm]	100	100	100	100	100
Compression ratio				18.3:1		
Mean effective pressure	[bar]	6.1	7.1	8.6	11.0	13.5
Piston speed	[m/s]	6	6	6	6	6
Rotation (looking at flywheel)		CCW	CCW	CCW	CCW	CCW
No of teeth on flywheel ring gear		109	109	109	109	109
Governor performance						
Speed droop (static) electr. gov.	[%]	0-3	0-3	0-3	0-3	0-3
Governing standards						
to ISO 8528 Parts 1 and 5		G2	G2	G2	G2	G2
Moment of inertia						
Flywheel (standard genset spec.)	[kg m²]					
Max. step load acceptance, 1st step	[%]	-				
Sound power at full load, incl. cooling system[5]	[dB(A)]	104	104.5	102	102.5	101
Sound press. (1m average, full load), incl. cool. syst.	[dB(A)]	92	92.5	91	91.5	90
Weight						
Engine dry, w/o cooling system	[kg]	220	220	240	240	240
Lubrication system						
Oil specification				CF-4		
Oil consumption (as % of fuel consumption)	[%]	0.5	0.5	0.5	0.5	0.5
Oil capacity (sump)	[L]	7	7	7	7	7
Min. oil pressure (warning)	[bar]	1.5	1.5	1.5	1.5	1.5
Min. oil pressure (shut down)	[bar]	1.0	1.0	1.0	1.0	1.0
Max. permissible oil temperature (oil pan)	[°C]	120	120	120	120	120
Output						
Gross output(LTP or StandBy Power)[1]	[kW]	28	32	39	50	60
Fan reduction	[kW]	2	2	3	3	3
Net flywheel	[kW]	26	30	36	47	57
Electrical output[2]	[kVA]/[kWe]	28	33	40	52	63
Alternator efficiency	[%]	87	87	87	87	87
Gross output(PRP or Prime Power)[1a]	[kW]	25	29	35	45	55
Gross output(Continous Power)[1b]	[kW]	22.5	26.1	31.5	40.5	49.5
Fuel System						
Fuel consumption						
25% load[3]	[l/h]	1.9	2.2	2.5	3.2	3.8
50% load[3]	[l/h]	3.6	4.1	4.8	6.2	7.7
75% load[3]	[l/h]	5.2	6.0	6.9	8.8	10.6
100% load[3]	[l/h]	6.6	7.6	8.9	11.3	13.8
25% load	[g/kWh]	263	262	246	245	235
50% load	[g/kWh]	242	240	235	235	237
75% load	[g/kWh]	234	233	223	222	218

100% load	[g/kWh]	224	223	215	214	213
Max. suction head of fuel feed pump	[m]	1.0	1.0	1.0	1.0	1.0
Cooling System						
General engine cooling data						
Max. perm. coolant outlet temperature	[°C]	103	103	103	103	103
Max. perm. flow resistance (cool. syst. and piping)	[bar]	0.5	0.5	0.5	0.5	0.5
Max. temperature of coolant (warning)	[°C]	97	97	97	97	97
Max. temperature of coolant (shutdown)	[°C]	103	103	103	103	103
Temperature at which thermostat starts to open	[°C]	78	78	78	78	78
Temperature at which thermostat is fully open	[°C]	90	90	90	90	90
Delivery of coolant pump	[m^3/h]	5	5	5	5	5
Min. pressure before coolant pump	[bar]	0.15	0.15	0.15	0.15	0.15
DEUTZ cooling system						
Coolant capacity (engine)	[L]	4.8	4.8	4.8	4.8	4.8
Coolant capacity (incl. cooling unit)	[L]					
Air to boil (max. permissible cool. air temp. at fan)	[°C]	50	50	50	50	50
Fan power consumption[4]	[kW]	2	2	3	3	3
Cooling air flow	[m^3/h]	4644	4644	5086	5086	5086
Air pressure loss						
Heat Balance						
Heat dissipation (engine radiator)[6]	[kW]	27	29	35	37	45
Heat dissipation (CAC)[6]	[kW]					9.8
Inlet / Exhaust Data						
Max. intake depression (Switch setting)	[mbar]	30	30	30	30	30
Combustion air volume	[m^3/h]	150	158.4	170.4	183.6	204
Max. exhaust back pressure	[mbar]	100	100	100	100	100
Max. exhaust gas temperature	[°C]	440	460	449	476	495
Exhaust gas flow (at above temp)	[m^3/h]	618	624	642	660	672
Exhaust flange / pipe diameter	[mm]	50	50	50	50	50
Electrical System						
Voltage	[V]	12	12	12	12	12
Starter	[kW]	3.5	3.5	3.5	3.5	3.5
Alternator output	[A]	50	50	50	50	50
Batteries (minimum capacity, cold start limit -5°C)	[Ah]	1*120	1*120	1*120	1*120	1*120

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 = kWe

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.

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