Engine Datasheet BF4M2012/C 1800 min^{-1}

Engine			
Type		BF 4M 2012	BF 4M 2012 C
Speed	[min^{-1}]	1800	1800
Net frequency	[Hz]	60	60
Power standard		LTP	LTP
Power level		-	-
Exhaust emission standard		COM II	COM II
General			
Aspiration		TC	turbo, CAC
No of cylinders		4	4
Configuration		in-line	in-line
Injection system		single injection pumps	single injection pumps
Displacement	[l]	4,04	4,04
Bore	[mm]	101	101
Stroke	[mm]	126	126
Compression ratio		18,4	18,4
Mean effective pressure	[bar]	11,6	14,5
Piston speed	[m/s]	7,6	7,6
Rotation (looking at flywheel)		CCW	CCW
No of teeth on flywheel ring gear		129	129
Governor performance			
Speed droop (static) mech. gov.	[%]	4 - 5	4 - 5
Speed droop (static) electr. gov. (EMR/GAC)	[%]	0 - 3	0 - 3
Governing standards			
to ISO 8528 Parts 1 and 5		G2	G2
Moment of inertia			
Engine without flywheel	[kg m²]	0.16	0.16
Flywheel (standard genset spec.)	[kg m²]	1.2	1.2
Max. step load acceptance, 1st step	[%]	-	-
Sound power at full load, incl. cooling system [5]	[dB(A)]	111	114
Sound press. (1m average, full load), incl. cool. syst.	[dB(A)]	97,5	100,5
Weight			
Engine dry, w/o cooling system	[kg]	405	405
Engine with cooling system	[kg]	457	473
Lubrication system			
Oil specification		TR0199-99-3002/6	TR0199-99-3002/6
Oil consumption (as % of fuel consumption)		0.15	0.15
Oil capacity (sump)	[l]	8.5	8.5
Min. oil pressure (warning)	[bar]	2.1	2.1
Min. oil pressure (shut down)	[bar]	1.8	1.8
Max. permissible oil temperature (oil pan)	[°C]	125	125
Output			
Gross output(LTP or StandBy Power) [1]	[kW]	70	88
Fan reduction	[kW]	3,5	8,3
Net flywheel	[kW]	66,5	79,7
Electrical output [2]	[kVA]	75	90
Gross output(PRP or Prime Power) [1a]	[kW]	63	79
Gross output(Continous Power) [1b]	[kW]	60	75

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Engine			
Type		BF 4M 2012	BF 4M 2012 C
Fuel System			
Fuel consumption			
25% load[3]	[l/h]	5,5	6,5
50% load[3]	[l/h]	9,5	11,6
75% load[3]	[l/h]	13,9	17
100% load[3]	[l/h]	18,9	22,7
25% load	[g/kWh]	266	248
50% load	[g/kWh]	227	218
75% load	[g/kWh]	219	213
100% load	[g/kWh]	221	215
Max. suction head of fuel feed pump	[m]	-	-
Cooling System			
General engine cooling data			
Max. perm. coolant outlet temperature	[°C]	105	105
Max. perm. flow resistance (cool. syst. and piping)	[bar]	0,25	0,25
Max. temperature of coolant (warning)	[°C]	108	108
Max. temperature of coolant (shutdown)	[°C]	110	110
Temperature at which thermostat starts to open	[°C]	83	83
Temperature at which thermostat is fully open	[°C]	98	98
Delivery of coolant pump	[m^3/h]	8,6	8,6
Min. pressure before coolant pump	[bar]	0,3	0,3
Temperature at CAC outlet at standard conditions	[°C]	-	40
DEUTZ cooling system			
Coolant capacity (engine)	[l]	6,0	6,0
Coolant capacity (incl. cooling unit)	[l]	15,9	15,9
Air to boil (max. permissible cool. air temp. at fan)	[°C]	57	60
Fan power consumption[4]	[kW]	3,5	8,3
Cooling air flow	[m^3/h]	6500	5800
Air pressure loss, external	[mbar]	2,0	2,0
Heat Balance			
Heat dissipation (engine radiator)[6]	[kW]	45,4	42,3
Heat dissipation (CAC)[6]	[kW]	-	13,0
Heat dissipation (convection)	[kW]	7,0	9,0
Inlet / Exhaust Data			
Max. intake depression (Switch setting)	[mbar]	25	25
Combustion air volume	[m^3/h]	282,6	374,4
Max. exhaust back pressure	[mbar]	30	30
Max. exhaust gas temperature	[ºC]	600	540
Exhaust gas flow (at above temp)	[m^3/h]	871	1071
Exhaust flange / pipe diameter	[mm]	-	-

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Engine			
Type		BF 4M 2012	BF 4M 2012 C
Electrical System			
Voltage	[V]	12	12
Starter	[kW]	3	3
Alternator output	[A]	45	45
Batteries (minimum capacity, cold start limit -5°C)	[Ah]	110	110

[1] ISO 14396 This is the maximum power available for 500h/year (operation period max 300h) with a mean load factor of 90%.

[1a] ISO 14396 This is the maximum power available for unlimited number of hours per year with a mean load factor of 80%.
Overload is permissible for 1 hour every 12 hours of operation

[1b] ISO 14396 This is the maximum power available for unlimited number of hours per year with a mean load factor of 90%.
Overload is permissible for 1 hour every 12 hours of operation

[2] Ratings in accordance with ISO 8528-LTP, based on alternator efficiency of 90%.

[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 information see ELTAB / Pocket book.

For further application guidance see DEUTZ Installation Manual.

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