Engine Datasheet BF4M2012/C 1500-min^{-1}

Engine				
Type		BF4M2012	BF4M2012C	BF4M2012C
Speed	[min^{-1}]	1500	1500	1500
Net frequency	[Hz]	50	50	50
Power standard		LTP	LTP	LTP
Power level		–	G1	G2
Exhaust emission standard		COM II	COM II	Fuel optimized
General				
Aspiration		Turbo	Turbo, CAC	Turbo, CAC
No of cylinders		4	4	4
Configuration		in-line	in-line	in-line
Injection system			single injection pumps	
Displacement	[l]	4.04	4.04	4.04
Bore	[mm]	101	101	101
Stroke	[mm]	126	126	126
Compression ratio		19	19	18, 1
Mean effective pressure	[bar]	11.9	14.8	18.4
Piston speed	[m/s]	6.30	6.30	6.30
Rotation (looking at flywheel)		ccw	ccw	ccw
No of teeth on flywheel ring gear		129	129	129
Governor performance				
Speed droop (static) mech. gov.	[%]	4 - 5	4 - 5	4 - 5
Speed droop (static) electr. gov.(EMR/DDE)	[%]	0 - 3	0 - 3	0 - 3
Governing standards				
to ISO 8528 Parts 1 and 5		G2	G2	G2
Moment of inertia				
Engine without flywheel	[kg m²]	0.16	0.16	0.16
Flywheel (standard genset spec.)	[kg m²]	1.2	1.2	1.2
Max. step load acceptance, 1st step	[%]	–	–	–
Sound power at full load,incl. cooling system[5]	[dB(A)]	105.3	108.1	110
Sound press.(1m average,full load), incl.cool.syst.	[dB(A)]	92	94.5	96.7
Weight				
Engine dry, w/o cooling system	[kg]	405	405	405
Engine with cooling system	[kg]	457	473	473
Lubrication system				
Oil specification			TR0199-99-3002/6	
Oil consumption (as % of fuel consumption)		0.15	0.15	0.15
Oil capacity (sump)	[l]	8.5	8.5	8.5
Min. oil pressure (warning)	[bar]	1.8	1.8	1.8
Min. oil pressure (shut down)	[bar]	1.5	1.5	1.5
Max. permissible oil temperature(oil pan)	[°C]	125	125	125
Output				
Gross output(LTP or StandBy Power)[1]	[kW]	60	74.9	93
Fan reduction	[kW]	2.0	4.9	4.9
Net flywheel	[kW]	58.0	70.0	88.1
Electrical output[2]	[kVA]	65	80	100
Gross output(PRP or Prime Power)[1a]	[kW]	54	71	85
Gross output(Continous Power) [1b]	[kW]	51	64	78

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Engine				
Type		BF4M2012	BF4M2012C	BF4M2012C
Fuel System				
Fuel consumption				
25% load[3]	[l/h]	4.0	5.0	5.9
50% load[3]	[l/h]	7.0	8.9	10.8
75% load[3]	[l/h]	10.2	13.3	15.9
100% load[3]	[l/h]	13.7	18.1	21.3
25% load	[g/kWh]	256	240	236
50% load	[g/kWh]	221	214	215
75% load	[g/kWh]	214	213	212
100% load	[g/kWh]	216	217	213
Max. suction head of fuel feed pump	[m]	–	–	–
Cooling System				
General engine cooling data				
Max.perm.coolant outlet temperature	[°C]	105	105	105
Max. perm. flow resistance (cool. syst. and piping)	[bar]	0.22	0.22	0.22
Max.temperature of coolant (warning)	[°C]	108	108	108
Max. temperature of coolant (shutdown)	[°C]	110	110	110
Temperature at which thermostat starts to open	[°C]	83	83	83
Temperature at which thermostat is fully open	[°C]	98	98	98
Delivery of coolant pump	[m^3/h]	7.2	7.2	7.2
Min. pressure before coolant pump	[bar]	0.3	0.3	0.3
Temperature at CAC outlet at standard conditions	[°C]	–	40	40
DEUTZ Cooling System				
Coolant capacity (engine)	[l]	6.0	6.0	6.0
Coolant capacity (incl. cooling unit)	[l]	15.9	15.9	15.9
Air to boil (max. permissible cool. air temp. at fan)	[°C]	55	55	55
Fan power consumption[4]	[kW]	2.0	4.9	4.9
Cooling air flow	[m^3/h]	4700	5400	5400
Air pressure loss, external	[mbar]	1.5	1.5	1.5
Heat Balance				
Heat dissipation (engine radiator)[6]	[kW]	41.1	43.1	44.7
Heat dissipation (CAC)	[kW]	–	7.5	12.3
Heat dissipation (convection)	[kW]	6.0	7.5	10.4
Inlet / Exhaust Data				
Max. intake depression (Switch setting)	[mbar]	25	25	25
Combustion air volume	[m^3/h]	219.6	267.4	320.0
Max. exhaust back pressure	[mbar]	30	30	30
Max. exhaust gas temperature	[ºC]	610	600	600
Exhaust gas flow (at above temp)	[m^3/h]	526	829	1087
Exhaust flange / pipe diameter	[mm]	–	–	–

Engine Datasheet BF4M2012/C 1500-min $^{-1}$

Engine				
Type		BF4M2012	BF4M2012C	BF4M2012C
Electrical System				
Voltage	[V]	24	24	24
Starter	[kW]	6	6	6
Alternator output	[A]	35	35	35
Batteries(minimum capacity, cold start limit -5°C)	[Ah]	2*100	2*100	2*100

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.
For further application guidance see DEUTZ Installation Manual.

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