



## Engine Datasheet BF4M1013EC/FC 1500-min<sup>-1</sup>

<b>Engine</b>				
Type		BF4M1013EC	BF4M1013EC	BF4M1013FC
Speed	[min <sup>-1</sup> ]	1500	1500	1500
Net frequency	[Hz]	50	50	50
Power standard		LTP	LTP	LTP
Power level		G1	G2	-
Exhaust emission standard		COM II	Fuel optimized	COM II
<b>General</b>				
Aspiration		Turbo, CAC	Turbo, CAC	Turbo, CAC
No of cylinders		4	4	4
Configuration		in-line	in-line	in-line
Injection system		single injection pumps		
Displacement	[l]	4,76	4,76	4,76
Bore	[mm]	108	108	108
Stroke	[mm]	130	130	130
Compression ratio		19	19	18, 1
Mean effective pressure	[bar]	17,1	19.5	21,7
Piston speed	[m/s]	6.50	6.50	6.50
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 m <sup>2</sup> ]	0.23	0.23	0.23
Flywheel (standard genset spec.)	[kg m <sup>2</sup> ]	2.6	2.6	2.6
Max. step load acceptance, 1st step	[%]	-	-	-
Sound power at full load,incl. cooling system <sup>5</sup>	[dB(A)]	110,7	112.7	114,9
Sound press.(1m average,full load), incl.cool.syst.	[dB(A)]	97	99	101
Weight				
Engine dry, w/o cooling system	[kg]	526	526	526
Engine with cooling system	[kg]	560	560	575
Lubrication system				
Oil specification		TR0199-99-3002/6		
Oil consumption (as % of fuel consumption)		0.3	0.3	0.3
Oil capacity (sump)	[l]	11	11	11
Min. oil pressure (warning)	[bar]	2.7	2.7	2.7
Min. oil pressure (shut down)	[bar]	2	2	2
Max. permissible oil temperature(oil pan)	[°C]	130	130	130
<b>Output</b>				
Gross output(LTP or StandBy Power) <sup>1</sup>	[kW]	102	116	129
Fan reduction	[kW]	5.9	5.9	5.0
Net flywheel	[kW]	96.1	110.1	124.0
Electrical output <sup>2</sup>	[kVA]	110	125	140
Gross output(PRP or Prime Power) <sup>1a</sup>	[kW]	97	105	117
Gross output(Continous Power) <sup>1b</sup>	[kW]	92	96	106



## Engine Datasheet BF4M1013EC/FC 1500-min<sup>-1</sup>

### Engine

Type	BF4M1013EC	BF4M1013EC	BF4M1013FC
------	------------	------------	------------

### Fuel System

#### Fuel consumption

25% load <sup>3</sup>	[l/h]	6.7	7.1	7.6
50% load <sup>3</sup>	[l/h]	12.2	12.9	14.0
75% load <sup>3</sup>	[l/h]	18	19.3	20.9
100% load <sup>3</sup>	[l/h]	24.2	26.1	28.9
25% load	[g/kWh]	237	228	221
50% load	[g/kWh]	214	209	204
75% load	[g/kWh]	211	208	203
100% load	[g/kWh]	212	211	210
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]	0.25	0.25	0.25
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 <sup>3</sup> /h]	10.2	10.2	10.2
Min. pressure before coolant pump	[bar]	0.3	0.3	0.3
Temperature at CAC outlet at standard conditions	[°C]	40	40	40

#### DEUTZ Cooling System

Coolant capacity (engine)	[l]	7.4	7.4	7.4
Coolant capacity (incl. cooling unit)	[l]	19.7	19.7	19.7
Air to boil (max. permissible cool. air temp. at fan)	[°C]	54	54	55
Fan power consumption <sup>4</sup>	[kW]	5.9	5.9	5.0
Cooling air flow	[m <sup>3</sup> /h]	6100	6100	9000
Air pressure loss, external	[mbar]	1.5	1.5	1.5

#### Heat Balance

Heat dissipation (engine radiator) <sup>6</sup>	[kW]	52.5	56.5	62.7
Heat dissipation (CAC)	[kW]	13.1	18.4	23.7
Heat dissipation (convection)	[kW]	10.0	11.3	13.0

### Inlet / Exhaust Data

Max. intake depression (Switch setting)	[mbar]	25	25	25
Combustion air volume	[m <sup>3</sup> /h]	365	433	482
Max. exhaust back pressure	[mbar]	30	30	30
Max. exhaust gas temperature	[°C]	560	560	530
Exhaust gas flow (at above temp)	[m <sup>3</sup> /h]	1102	1225	1389
Exhaust flange / pipe diameter	[mm]	-	-	-



## Engine Datasheet BF4M1013EC/FC 1500-min<sup>-1</sup>

### Engine

Type	BF4M1013EC	BF4M1013EC	BF4M1013FC
------	------------	------------	------------

### Electrical System

Voltage	[V]	24	24	24
Starter	[kW]	6	6	6
Alternator output	[A]	35	35	35
Batteries	[Ah]	2*100	2*100	2*100

(minimum capacity, cold start limit -5°C)

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<sup>-1</sup> = kVA, 1800 min<sup>-1</sup> = kW<sub>e</sub>

3 At calorific value 42700 kJ/kg + 5 % , density 0.835 kg/dm<sup>3</sup>, 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 DPX Installation Manual.

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