

## Greenpower DEUTZ diesel engine

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<b>1500 RPM</b>	<b>Type GP 40DZo</b>
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**Engine:** BF4M2011

**Alternator:** ECO32-3S/4

These are the characteristics of the BF4M2011

- 4-cylinder naturally aspirated in-line engines.
- Displacement: 0.78 l/cylinder.
- Fully Oil-cooled (with conventional cooling system)
- Acoustically optimized crankcase.
- Electronic engine governor(option).
- All service points on one engine side.
- Compact engine design.

Your benefits:

- ▶ Designed specifically for construction equipment the dimensions of the engines are extremely compact. Thus reducing installation costs.
- ▶ The new engines, which display an exceptional power /weight ratio, perform brilliantly while at the same time complying with the stricter regulations on environmental protection.
- ▶ Cooling and lubrication with oil avoid corrosion and cavitation. High reliability combined with long maintenance intervals and less wear parts.
- ▶ Low noise emission, no expensive insulation measures for noise reduction.

## ► Rating table: **BF4M2011 TheGensetEngine 50Hz**

Engine type		BF4M2011
Speed	min <sup>-1</sup>   rpm	1500
Frequency	Hz	<b>50</b>
<b>Engine/genset ratings</b>		
Continuous power, ICN (COP)	kW   hp	35.6   48.4
Prime power, ICN (PRP)	kW   hp	37.4   50.9
Limited time running power, IFN (LTP)	kW   hp	39.2   53.3
<b>Typical generator power output</b>		
Typical generator power output (COP)	kVA	38.0
Typical generator power output (PRP)	kVA	40.0
Typical generator power output (LTP)	kVA	42.0
<b>Spec. fuel consumption PRP (LTP)</b>		
100 % load	g/kWh   lb/hp-hr	215   0.348
75 % load	g/kWh   lb/hp hr	210   0.340
50 % load	g/kWh   lb/hp-hr	225   0.365
25 % load	g/kWh   lb/hp hr	270   0.437

### Standard Specification:

Standard engine: Flywheel housing SAE 3; flywheel with 11.5" connection.  
 Cooling system: Cooling unit, V-belt guard, pusher-type fan.  
 Filter: Dry air cleaner with mechanical restriction indicator, fuel filter.  
 Engine electrics: Alternator 14 V, 55 A; starter motor with 12 V, 3.1 kW.

### Scope of Supply:

The engine and the alternator are mounted together forming a rigid monoblock, the shafts are connected by a flexible disc connection. The monoblock is mounted on a steel base frame via silent blocks. The base frame is including a fuel tank. Starting is electric and it includes a battery. The genset monitoring system consist of a control module.

#### PRP\* Kva/KW:

Available electrical power (at a variable load) with a medium of 80% of the indicated maximum power. A 10% overload capability is available

#### LTP\*\* Kva/KW:

Available electrical load (at a variable load) during a maximum of 500 hours per year. No overload capability is available.

## CONTROL PANEL

Manual or automatic start control panel

Manual or automatic remote boot controller, selector switch for Off, Man and Auto with the key.

Complete motor protection functions with alarms visualized via LEDs in the front.

The control unit 6 is set via DIP switches in the rear part of the case.

Standard circuit breaker and differential relay.

## TECHNICAL DATA

Engine		Alternator	
Engine type:	BF4M2011	Alternator Type:	ECO32-3S/4
Eng. Power kW COP:	34,6	Nº of poles:	4
Eng. Power kW PRP:	36,4	Eff. At 3/4 %:	89,1
Eng. Power kW LTP:	38,2	Eff. At 4/4 %:	88,6
Nº Cylinders:	4	Alt. rating PRP kVA III Kw II:	40
Displacement cm3:	3110	Alt. rating LTP kVA III kW II:	44
Bore/stroke (mm/mm):	94/112	Output Power PRP kVA III kW II:	40
Compression ratio:	17,5	Output Power LTP kVA III kW II:	42,3
Cooling:	OIL	Current Amp PRP:	57,6
Injection:	DIRECT	Current Amp LTP:	60,8
Aspiration:	TURBO	Standard Circuit Breaker (Amp):	63 IV
Standard governor:	MECHANICAL	Xd (%):	190
Governing control quality:	G2	X'd (%):	14,3
Speed droop mech gov. (%):	5	X:	10
Exhaust gases temperature (°C):	510	Nº of wires:	12
Exhaust gases flow (m3/h):	432	Insulation:	H
Max Exh. Back pres. (mbar):	30	Regulator AVR:	SR7/2
Coolant capacity (lit.):	10	Protection:	IP21
Cooling air flow (m3/h):	2370		
Max allow. Intake dep. (mbar):	20		
Combustion air flow (m3/h):	151		
Oil cap. (Litres):	10		
Oil cons. (kg/hr or % of fuel cons):	0,50%		
Min oil press warning (bar):	2,1		
Fuel cons. 25% lit/h:	3,4		
Fuel cons. 50% lit/h:	5,2		
Fuel cons. 75% lit/h:	6,8		
Fuel cons. 100% lit/h:	9,3		
Electric system VDC:	12		
Type:	Neg to ground.		
Battery (Ah):	96		
Starting motor (kW):	3		
Flywheel Housing:	SAE3/11,5		

## ► Engine Description

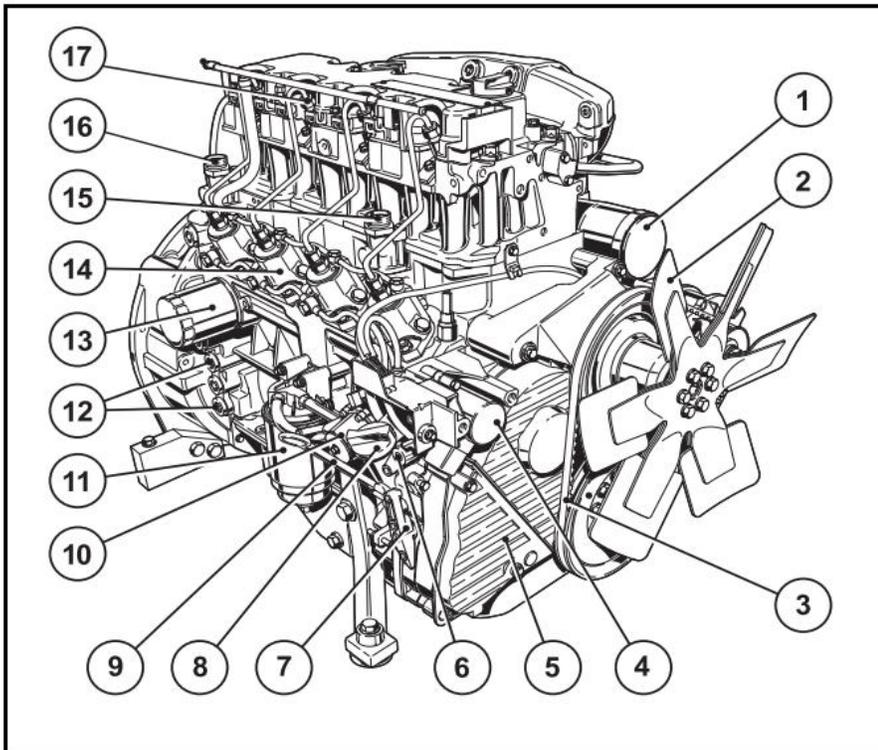
<b>Type of cooling:</b> .....	External oil cooling
<b>Crankcase:</b> .....	Grey cast iron
<b>Crankcase breather:</b> .....	Closed-circuit breather
<b>Cylinder head:</b> .....	Block-type cast iron cylinder head
<b>Valve arrangement/ Timing:</b> .....	Overhead valves in cylinder head, one inlet and one exhaust valve per cylinder, actuated via tappets, push rods and rocker arms, driven by toothed belt and camshaft, automatic tensioner.
<b>Piston:</b> .....	Three-ring piston, two compressions rings and one oil scraper ring
<b>Piston cooling:</b> .....	Oil-cooled with spray nozzles
<b>Connecting rod:</b> .....	Drop-forged steel rod
<b>Crankshaft and big-end bearings:</b> ..	Ready-to-install plain bearings
<b>Crankshaft:</b> .....	Modular cast iron
<b>Camshaft:</b> .....	Steel shaft in bi-metal bearings
<b>Lubrication system:</b> .....	Forged-feed circulation lubrication with rotary pump which feeds both lubrication and cooling systems (and cab heating if fitted)
<b>Lube oil cooler:</b> .....	Externally arranged (conventional)
<b>Lube oil filter:</b> .....	Paper-type micro-filter as replaceable cartridge full flow filter
<b>Injection pump/ Governor:</b> .....	Single injection pumps with mechanical centrifugal governor
<b>Fuel lift pump:</b> .....	Serviceable, with integrated strainer
<b>Injection nozzle:</b> .....	Five-hole nozzle
<b>Fuel filter:</b> .....	Replaceable cartridge
<b>Alternator:</b> .....	Three-phase alternator, 14 V; 55 A (Standard)
<b>Starter motor:</b> .....	2.3 kW; 12 V
<b>Heating system:</b> .....	Optional connection for cab heating
<b>Options:</b> .....	Intake manifold connections, exhaust manifolds connections, hydraulic pumps, engine mounts rigid and flexible, oil pans, dipsticks, SAE 3/4/5/6 flywheel housings, alternators 12 and 24 V, oil filter positions horizontal and vertical, oil filler neck on side of crankcase or cylinder head cover

## Engine illustrations

## Engine description

### Operation side

### BF4M2011



#### BF4M 2011

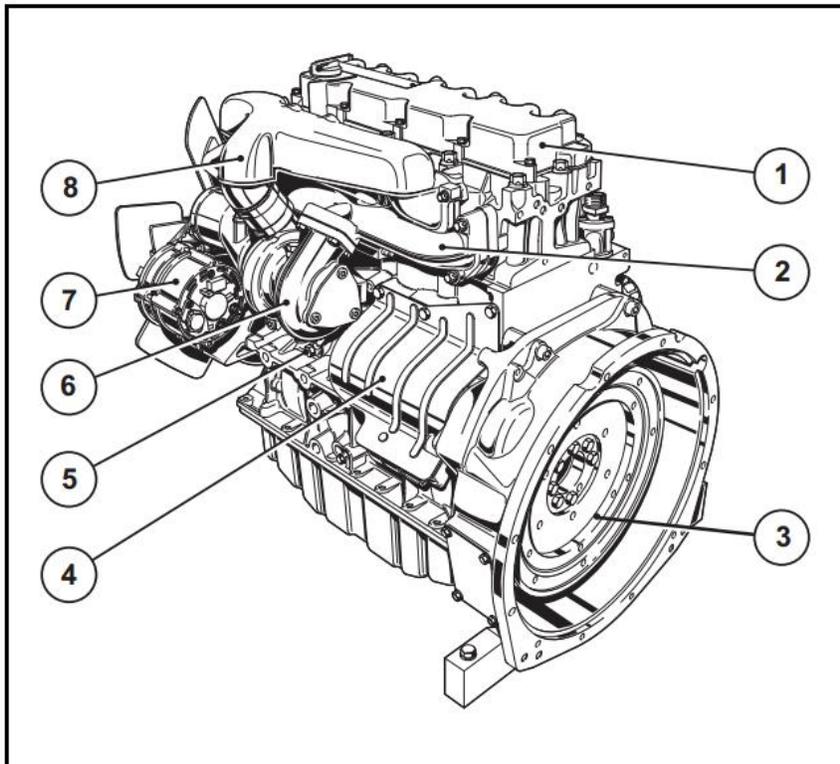
- 1 Air intake pipe
- 2 Fan
- 3 V-belts
- 4 Stop magnet
- 5 Toothed belt cover
- 6 Stop lever
- 7 Speed adjusting lever
- 8 Lubricating oil filling
- 9 Lubricating oil dipstick
- 10 Fuel supply pump with integrated screen filter
- 11 Exchangeable fuel filter
- 12 Connection possibility for cab heating
- 13 Lube oil replacement filter
- 14 Injection pump
- 15 Return from external lubricating oil cooler
- 16 Supply to external lubricating oil cooler
- 17 Injection valve

## Engine description

## Engine illustrations

Exhaust side

BF4M2011



### BF4M 2011

- 1 Cylinder head cover
- 2 Exhaust manifold line
- 3 Flywheel
- 4 Starter
- 5 Lubricating oil return line from the exhaust turbo-charger
- 6 Turbocharger
- 7 Generator
- 8 Charge air line