

Greenpower DEUTZ diesel engine

1500 RPM

Type GP 75DZ

Engine: BF4M2012C

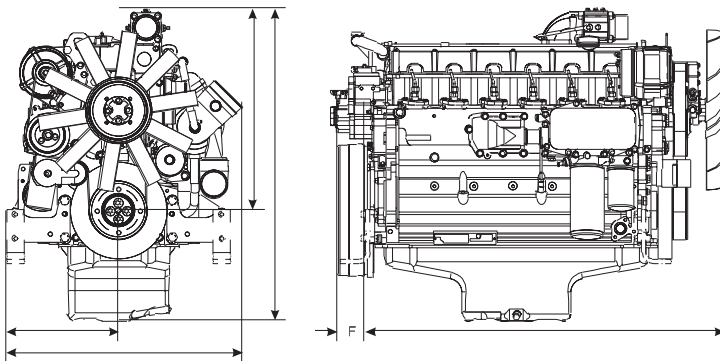
These are the characteristics of the BF4M2012C

- Modern water-cooled 4 cylinder in-line engines.
- 1 litre displacement per cylinder. Compact design and high power-to-volume-ratio.
- Turbocharging and turbocharging with charge air cooling.
- High-pressure fuel injection up to 1600 bar.
- Electronic engine governor with diagnostic facilities and CAN-bus optional.
- 3 separate mounting options for gear-driven hydraulic pumps.
- Easy accessible service points on one engine side.
- Wedge ribbed belt drive with automatic belt tensioner optional.

Your benefits:

- ▶ Fast and powerful response to changing operating duties, dynamic power development.
- ▶ Low cost for noise insulation measures. High comfort in the driver's cab because of low noise level. Low noise emission, low environmental impact.
- ▶ High operating economy thanks to low fuel consumption, long oil change intervals and low maintenance requirement.
- ▶ Low exhaust emission for a clean environment. Meets exhaust regulation EU-RL 97/68 (Step 2) and US-EPA Nonroad (Tier 2).
- ▶ High reliability even under extreme working conditions.

▶ Dimensions



| Engine with belt drive | A | B | C | D | E | F |
|------------------------|-----|-----|-----|-----|-----|-----|
| BF 4 M 2012 C mm | 742 | 643 | 835 | 300 | 600 | 105 |

► Ratingtable: **BF4M2012C** TheGensetEngine **50Hz**

| Engine type | BF4M2012C |
|---|------------------------------|
| Speed | 1500 min ⁻¹ rpm |
| Frequency | 50 Hz |
| Rated Power/Speed | 71kW @ 1500rpm |
| Standby Power/Speed | 74.9kW @ 1500rpm |
| Piston speed | 6.3m/s |
| Fuel Consumption @ Continous Power | 214 g/kWh |
| Fuel Consumption @ Rated Power | 217 g/kWh |
| Fuel Consumption @ Standby Power | 219 g/kWh |
| Max. intake depression (Switch setting) | 25 [mbar] |
| Combustion air volume | 267,4 [m ³ /h] |
| Max. exhaust back pressure | 30 [mbar] |
| Max. exhaust gas temperature | 600 [°C] |
| Exhaust gas flow (at above temp) | 829 [m ³ /h] |

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.

Engine Datasheet BF4M2012/C 1500 min⁻¹

| Engine | | |
|---|----------------------|------------------------|
| Type | | BF 4M 2012 C |
| Speed | [min ⁻¹] | 1500 |
| Net frequency | [Hz] | 50 |
| Power standard | | LTP |
| Exhaust emission standard | | COM II |
| General | | |
| Aspiration | | turbo, CAC |
| No of cylinders | | 4 |
| Configuration | | in-line |
| Injection system | | single injection pumps |
| Displacement | [l] | 4,04 |
| Bore | [mm] | 101 |
| Stroke | [mm] | 126 |
| Compression ratio | | 18,4 |
| Mean effective pressure | [bar] | 14,8 |
| Piston speed | [m/s] | 6.3 |
| Rotation (looking at flywheel) | | CCW |
| No of teeth on flywheel ring gear | | 129 |
| Governor performance | | |
| Speed droop (static) mech. gov. | [%] | 4 - 5 |
| Speed droop (static) electr. gov. (EMR/GAC) | [%] | 0 - 3 |
| Governing standards | | |
| to ISO 8528 Parts 1 and 5 | | G2 |
| Moment of inertia | | |
| Engine without flywheel | [kg m ²] | 0.16 |
| Flywheel (standard genset spec.) | [kg m ²] | 1.2 |
| Max. step load acceptance, 1st step | [%] | - |
| Sound power at full load, incl. cooling system ⁵ | [dB(A)] | 109 |
| Sound press. (1m average, full load), incl. cool. syst. | [dB(A)] | 95,5 |
| Weight | | |
| Engine dry, w/o cooling system | [kg] | 405 |
| Engine with cooling system | [kg] | 473 |
| Lubrication system | | |
| Oil specification | | TR0199-99-3002/6 |
| Oil consumption (as % of fuel consumption) | | 0.15 |
| Oil capacity (sump) | [l] | 8.5 |
| Min. oil pressure (warning) | [bar] | 1.8 |
| Min. oil pressure (shut down) | [bar] | 1.5 |
| Max. permissible oil temperature (oil pan) | [°C] | 125 |
| Output | | |
| Gross output(LTP or StandBy Power) ¹ | [kW] | 74,9 |
| Fan reduction | [kW] | 4,9 |
| Net flywheel | [kW] | 70,0 |
| Electrical output ² | [kVA] | 79 |
| Gross output(PRP or Prime Power) ^{1a} | [kW] | 71 |
| Gross output(Continuous Power) ^{1b} | [kW] | 68 |
| Electrical System | | |
| Voltage | [V] | 12 |
| Starter | [kW] | 3 |
| Alternator output | [A] | 45 |
| Batteries (minimum capacity, cold start limit -5°C) | [Ah] | 110 |

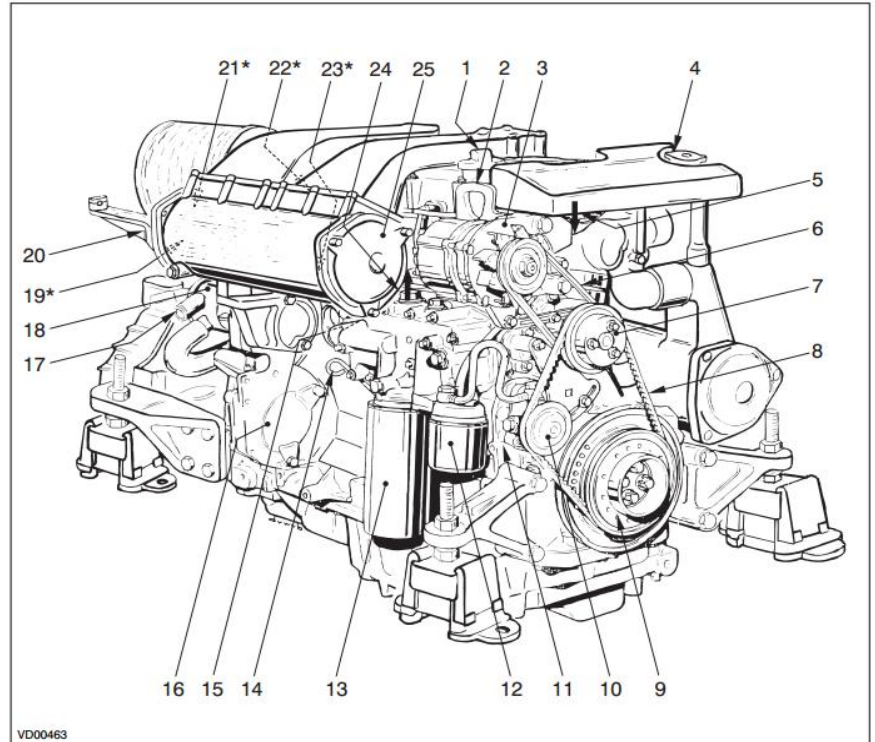
► Engine description

| | |
|-------------------------------|---|
| Type of cooling: | Liquid cooling, thermostatically controlled at engine outlet. Charge-air-cooled engines with air-to-air charge air cooler. |
| Crankcase: | High grey cast iron crankcase, for monobloc construction. |
| Mass balance shafts: | 4-cylinder optional with full mass balance by 2 shafts integrated into the crankcase. |
| Crankcase breather: | Closed-circuit crankcase breather. |
| Cylinder head: | Grey cast block-type cylinder head. |
| Valve arrangement/ timing: | Two valves per cylinder, actuated from gear driven camshaft via tappets, push rods and rocker arms. |
| Piston: | Three-ring aluminium piston. |
| Piston cooling: | Oil cooled with spray nozzles. |
| Connecting rod: | Forged steel rod. |
| Crankshaft: | Forged steel shaft with integral counterweights, 4-cylinder version with integral mass balancing shafts. |
| Camshaft: | Steel shaft. |
| Lubrication system: | Forced-feed circulation lubrication with gear pump. |
| Lube oil cooler: | Oil cooler integrated in coolant circuit. |
| Oil and fuel filter: | Paper-type microfilter as replaceable cartridge, optional exchangeable cup-shaped filter cartridges for environmentally compatible filter change from above. |
| Injection pump/ governor: | Single injection pumps integrated in crankcase. Mechanical centrifugal governor (standard); electronic engine governor (EMR) optional. |
| Fuel lift pump: | Mechanical gear pump integrated in v-belt drive. |
| Injection nozzle: | Six-hole nozzle, without leakoil. |
| Alternator: | Three-phase alternator 12 V or 24 V. |
| Starter motor: | 12 V or 24 V. |
| old starting facilities: | Electric intake air preheater for spontaneous and environmentally compatible cold starting characteristics. |
| Heating system: | Optional connection for cab heating to engine cooling circuit. |
| Options: | Intake manifold, exhaust manifold, turbocharger positions, air compressor, hydraulic pump installation positions, SAE 2/3/4 flywheel housings, flywheels, 12 V or 24 V electrics, oil pans. |

Identification of engine parts

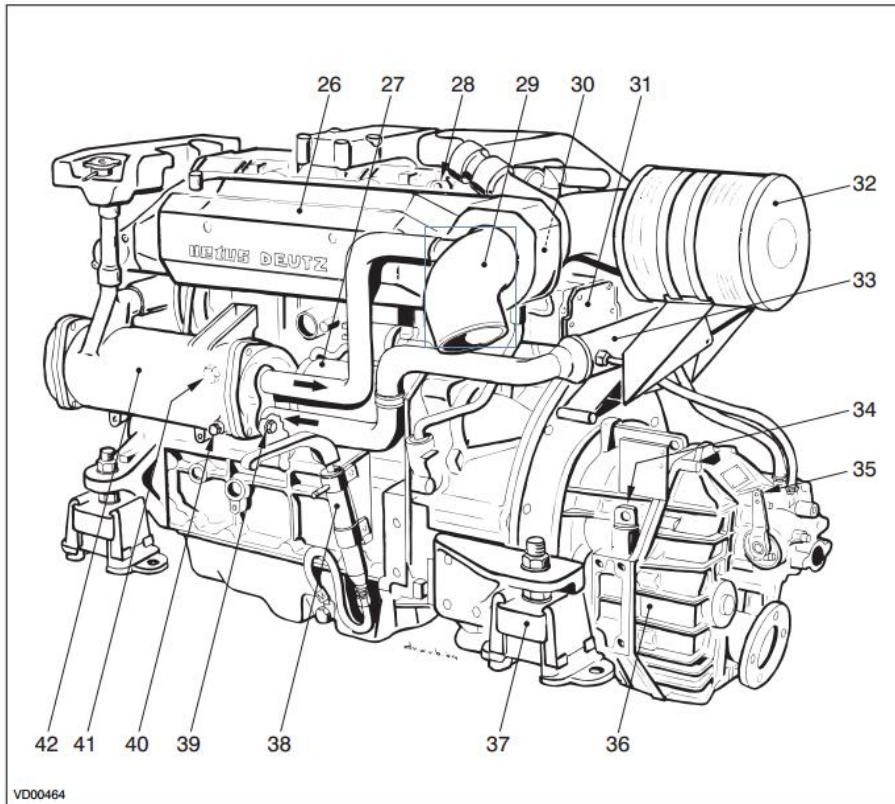
Service side **BF4M2012C**

- 1 Oil filler cap
- 2 Lifting eye
- 3 Alternator
- 4 Filler cap for cooling system
- 5 Calorifier connection, engine 'IN'
- 6 V-belt alternator
- 7 Coolant pump
- 8 V-belt alternator fuel pump / coolant pump
- 9 P.T.O. (Mounting facility for extra belt pulley)
- 10 Fuel lift pump
- 11 Fuel supply pipe connection \varnothing 12 mm
- 12 Fuel filter
- 13 Oil filter
- 14 Oil dipstick
- 15 Oil cooler
- 16 P.T.O. (Mounting facility for hydraulic pumps)
- 17 Raw water inlet \varnothing 32 mm
- 18 Raw water pump
- 19 Circuitbreaker
- 20 Electrical system connector
- 21 Connection for throttle push-pull cable
- 22 Manual operated stop



Identification of engine parts

Starter side *BF4M2012C*



- 23 Fuel return pipe connection
ø 10 mm
- 24 Calorifier connection, engine 'OUT'
- 25 Aftercooler
- 26 Exhaust insulator
- 27 Starter motor
- 28 Lifting eye
- 29 Exhaust injection bend
- 30 Turbocharger
- 31 Speed governor
- 32 Air intake filter
- 33 Gearbox lube oil cooler
- 34 Gearbox filler cap/ oil dipstick
- 35 Connection for gearbox push-pull cable
- 36 Gearbox
- 37 Flexible engine mounts
- 38 Oil sump drain pump
- 39 Cooling system drain plug, heat
exchanger cover
- 40 Cooling system drain plug, heat
exchanger
- 41 Cooling system drain plug, block
- 42 Heat exchanger