Greenpower DEUTZ diesel engine

1500 RPM	Type GP 20DZa

The engine with integrated air cooling system.

Engine: F3L2011
Alternator: ECO28-1L/4

These are the characteristics of the **F3L2011** Gen:

3 cylinder naturally aspirated in-line engines.
4 cylinder model also with turbocharging.
Displacement: 0.78 l/cylinder.
Integrated oil cooling (engine is delivered complete with cooler).
Acoustically optimized crankcase.
All service points on the same engine side.
Electronic engine governor (option).
Compact design and low weight.
Worldwide service network with over 1,000 locations.

Your benefits:

- Low noise emission, cost savings as no noise attenuation measures are required.
- Long service intervals: 1,000-hour oil change intervals and low fuel consumption bring savings in operating costs.
- Low installation costs.
- Excellent load takeover characteristics ensure prompt power supply.
- Combined oil cooling and lubrication prevents corrosion and cavitation. High reliability and durability together with reduced maintenance requirement and wear parts.

Rating table: **F3L2011** The Genset Engine. 50 Hz

Engine type		F 3L2011
Speed	min ^{1} | rpm	1500
Frequency	Hz	50
Engine/genset ratings		
Continuous power, ICN (COP)	kW | hp	18,1 | 24.6
Prime power, ICN (PRP)[3)]	kW | hp	19,0 | 25.8
Limited time running power, IFN (LTP)	kW | hp	20,0 | 27.2
Typical generator power output		
Typical generator power output (COP)	kVA	19,0
Typical generator power output (PRP)	kVA	20,0
Typical generator power output (LTP)	kVA	20,9
Spec. fuel consumption PRP (LTP)		
100 % load	g /kWh lb/hp hr	225 | 0.365
75 % load	g /kWh lb/hp hr	230 | 0.373
50 % load	g /kWh lb/hp-hr	260 | 0.421
25 % load	g/kWh lb/hp hr	450 | 0.729

Standard specification

Standard engine:	Flywheel housing SAE 4 (5 for n = 3000 min^{-1} rpm); flywheel with 6.5" connection.
Cooling system:	Integrated cooling system, V- belt guard.
Filter:	Dry air cleaner with mechanical restriction indicator, fuel filter.
Engine electrics:	Alternator 14 V, 60 A; starter motor with 12 V, 2.2 kW.
Governor:	Mechanical (Bosch).

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.

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.

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.

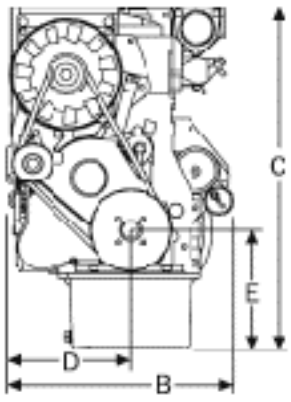
Technical Data

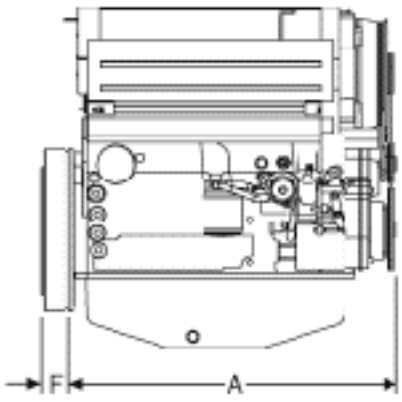
Engine type		F3L2011
Numer of cylinder		3
Bore/stroke	mm	94/112
Displacement	l	2.33
Compression ratio		18.5
Max. rated speed	rpm	2800
Mean piston speed	m/s	10.45

Power ratings for construction equipment engines

Power ratings for automotive- and industrial engines		
	kW	35.8
at speed	rpm	2800
Mean effective pressure	bar	6.58
Power ratings for cont. operation	kW	34.0
at speed	rpm	2800
Mean effective pressure	bar	6.25
Max. torque	Nm	137
at speed	rpm	1700
Minimum idle speed	rpm	900
Specific fuel consumption	g/kWh	218
Weight to DIN 70020, Part 7A	kg	216

Dimensions



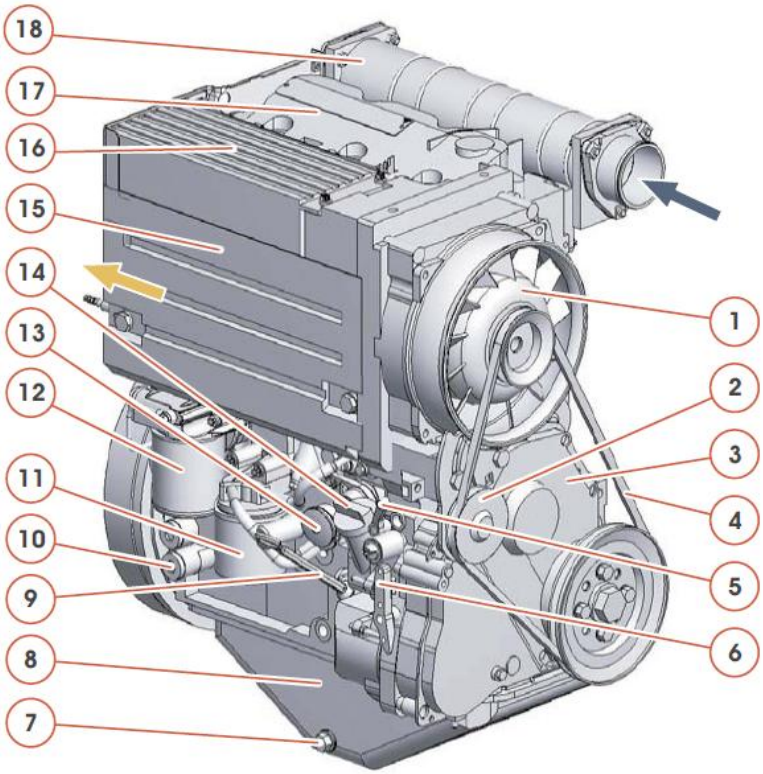


Engine type		A	B	C*	D	E	F
F3L2011	mm	519	451	678	243	220	80

► Engine Description

Type of cooling:	Integrated oil cooling
Crankcase:	Grey cast iron
Crankcase breather:	Closed-circuit breather
Cylinder head:	Block type cast iron cylinder head
Valve arrangement/ Timing:	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.
Piston:	Three-ring piston, two compressions rings and one oil scraper ring
Piston cooling:	Oil cooled with spray nozzles
Connecting rod:	Drop-forged steel rod
Crankshaft and big-end bearings:	Ready-to-install plain bearings
Crankshaft:	Modular cast iron
Camshaft:	Steel shaft in bi metal bearings
Lubrication system:	Forged-feed circulation lubrication with rotary pump which feeds both lubrication and cooling systems (and cab heating if fitted)
Lube oil cooler:	Integrated, of light metal
Lube oil filter:	Paper type micro filter as replaceable cartridge full flow filter
injection pump/ Governor:	Single injection pumps with mechanical centrifugal governor
Fuel lift pump:	Serviceable, with integrated strainer
injection nozzle:	Five hole nozzle
Fuel filter:	Replaceable cartridge
Alternator:	Three phase alternator, 14 V; 60 A (Standard)
Starter motor:	2,3 kW; 12 V
Heating system:	Optional connection for cab heating
Options:	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

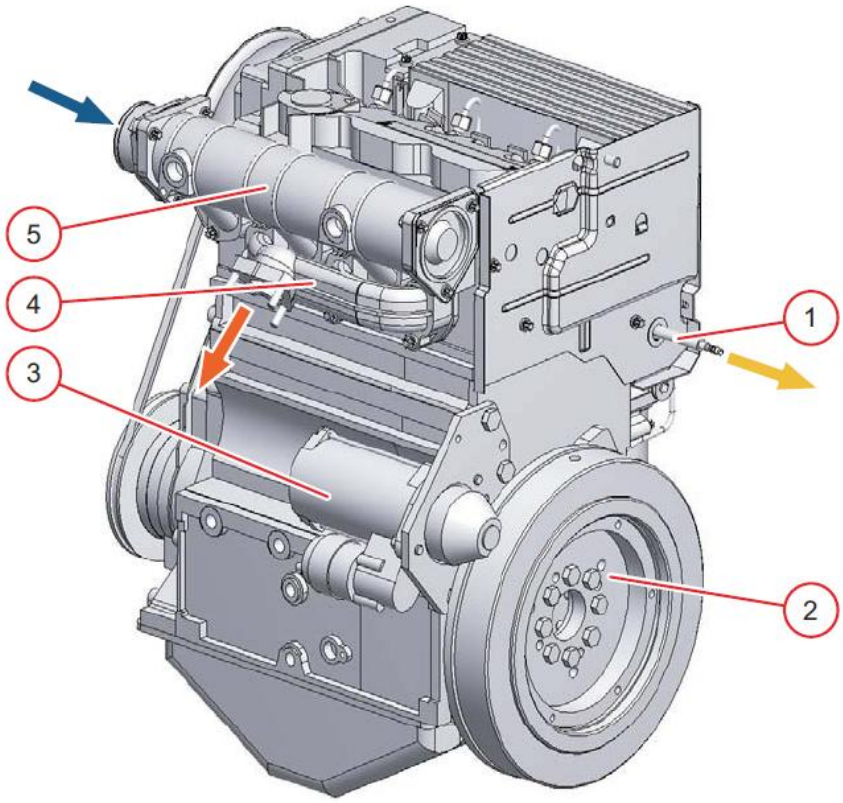


Engine description

F3L 2011

View from right (example)

1 Cooling fan (with integrated generator)
2 Tension pulley
3 Toothed belt cover
4 V-belt (fan)
5 Stop lever
6 Speed adjusting lever
7 Lubricating oil drain plug
8 Lubricating oil sump
9 Lubricating oil dipstick
10 Connection possibility for cab heating
11 Exchangeable fuel filter
12 Lube oil replacement filter
13 Fuel supply pump with integrated screen filter
14 Lubricating oil filling
15 Removable air guidance cowling (access to fuel injectors)
16 Lube oil cooler
17 Cylinder head cover
18 Air intake pipe



F3L 2011

View from left (example)

1 Fuel return to fuel tank
2 Flywheel
3 Starter
4 Exhaust manifold line
5 Air intake pipe

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