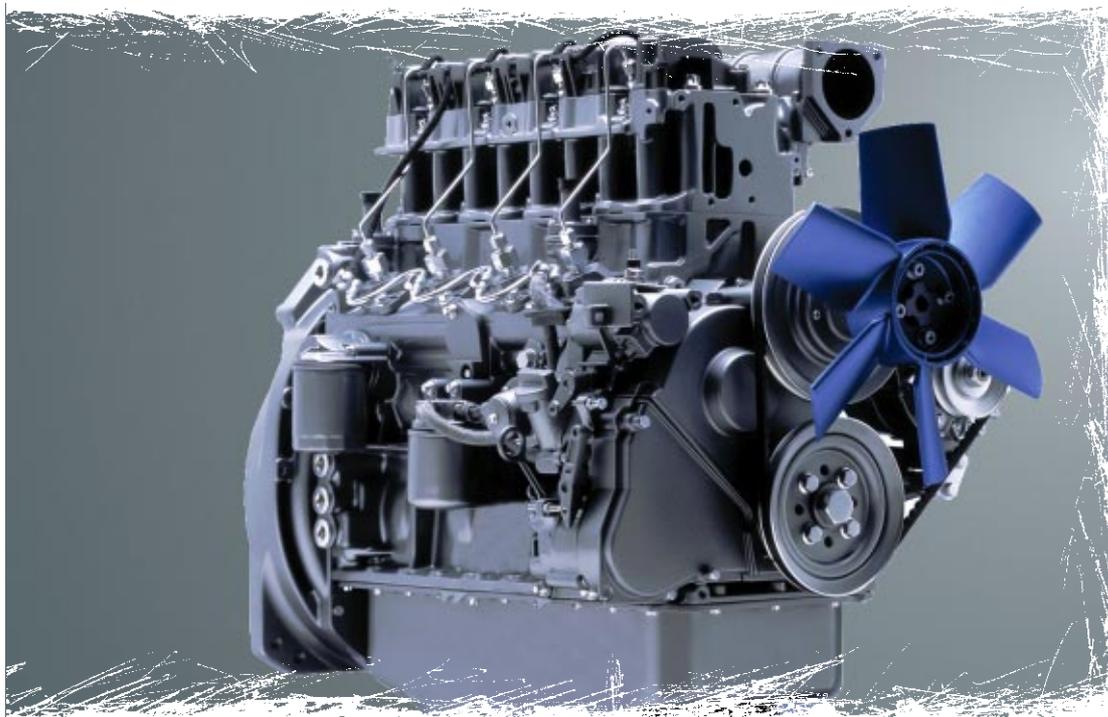




2011. The engine for construction equipment.



12.5 - 65 kW at 1500 - 2800 rpm



Engines with conventional cooling system.

These are the characteristics of the 2011:

2-, 3- and 4-cylinder naturally aspirated in-line engines.

3- and 4-cylinder engines also turbocharged.

Fully oil-cooled (with conventional cooling system).

Up to 13% more power in comparison to the successor 1011F.

100% extended belt change interval.

PTO for hydraulic pump drive is increased by 55% up to 28 kW/2800 rpm.

All service points on one engine side.

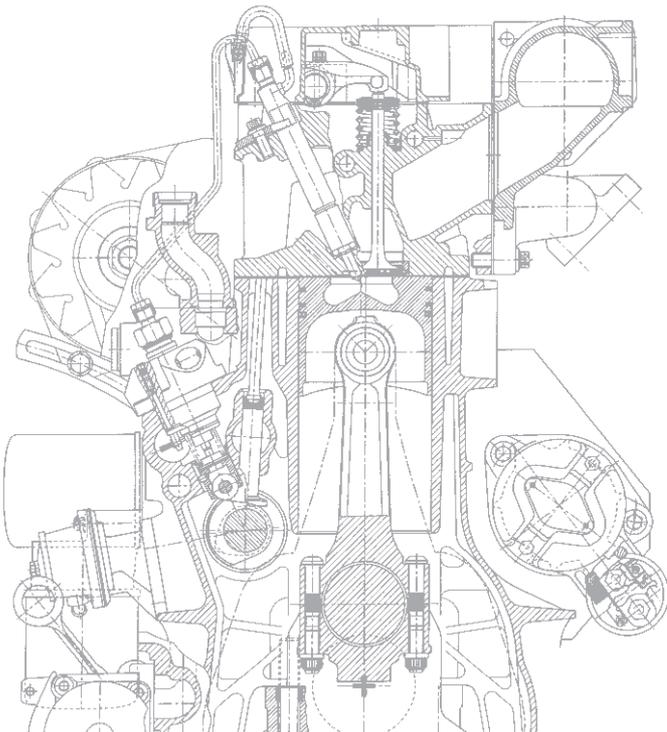
Compact engine design.

Your benefit:

- ▶ 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.

► Engine Description

- Type of cooling:** External 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:** Externally arranged (conventional)
- 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; 55 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



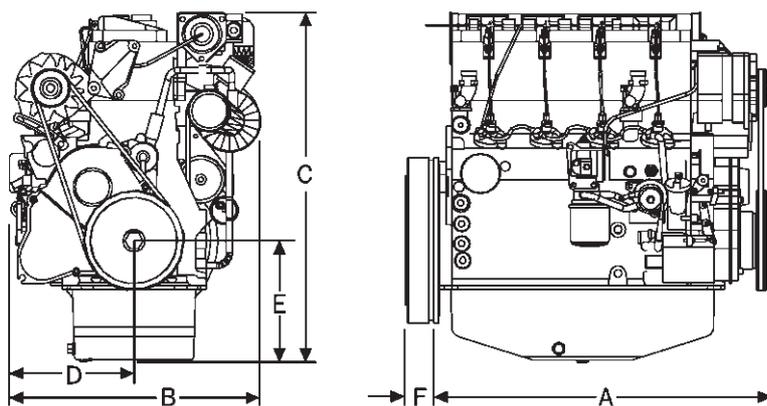
► Technical Data

Engine type		F2M2011	F3M2011	BF3M2011	F4M2011	BF4M2011
Number of cylinder		2	3	3	4	4
Bore/stroke	mm	94/112	94/112	94/112	94/112	94/112
Displacement	l	1.55	2.33	2.33	3.11	3.11
Compression ratio		18.5	18.5	17.5	18.5	17.5
Max. rated speed	rpm	2800	2800	2800	2800	2800
Mean piston speed	m/s	10.45	10.45	10.45	10.45	10.45

Power ratings for construction equipment engines¹⁾

Power ratings for automotive- and industrial engines ²⁾		kW	24.2	36.5	48.5	48.5	65
at speed		rpm	2800	2800	2800	2800	2800
Mean effective pressure		bar	6.69	6.71	8.92	6.69	8.96
Power ratings for cont. operation ³⁾		kW	23.0	34.7	46	46.1	62
at speed		rpm	2800	2800	2800	2800	2800
Mean effective pressure		bar	6.36	6.38	8.46	6.36	8.55
Max. torque	Nm	93	140	190	195	270	
at speed	rpm	1700	1700	1600	1700	1600	
Minimum idle speed		rpm	900	900	900	900	900
Specific fuel consumption ⁴⁾		g/kWh	224	219	210	213	205
Weight to DIN 70020, Part 7A ⁵⁾		kg	168	208	213	245	247

► Dimensions



Engine type		A	B	C*	D	E	F
F2M2011	mm	328	451	683	243	225	80
F3M2011	mm	519	451	678	243	220	80
BF3M2011	mm	519	495	678	243	220	93
F4M2011	mm	630	451	703	243	245	80
BF4M2011	mm	630	495	703	243	245	80

► Model designation

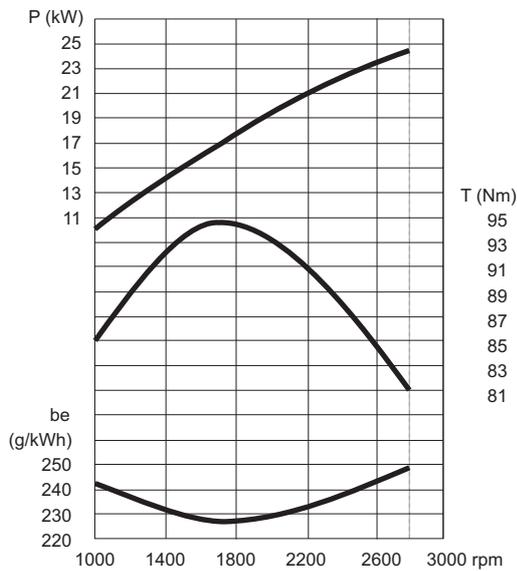
BF 4 M 2011

Engine family designation
M = Liquid cooled
Number of cylinder
B = Turbocharging
F = High-speed four-stroke engine

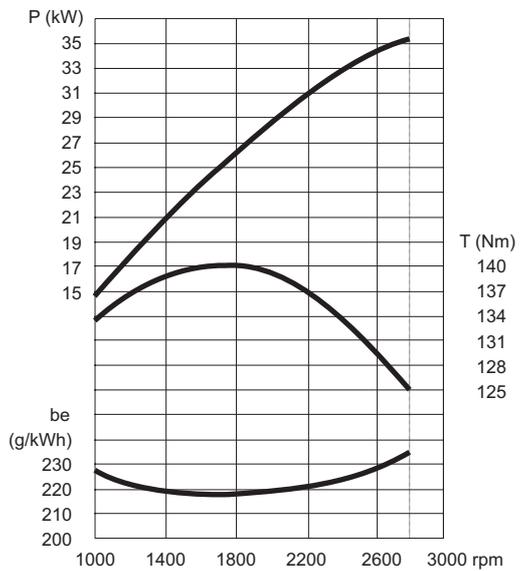
- 1) Power ratings at flywheel net, without cooling system.
 - 2) For intermittent operation to ISO 3046-1/ISO 1585.
 - 3) Fuel stop power acc. to 3046/1 (ICFN).
 - 4) At optimal operating point. Specific fuel consumption based on diesel fuel with a specific gravity of 0.835 kg/dm³ at 15°C.
 - 5) Without cooling system, dry weight.
- * With standard oil pan.

The values given in this data sheet are for information purposes only and not binding. The information given in the offer is decisive.

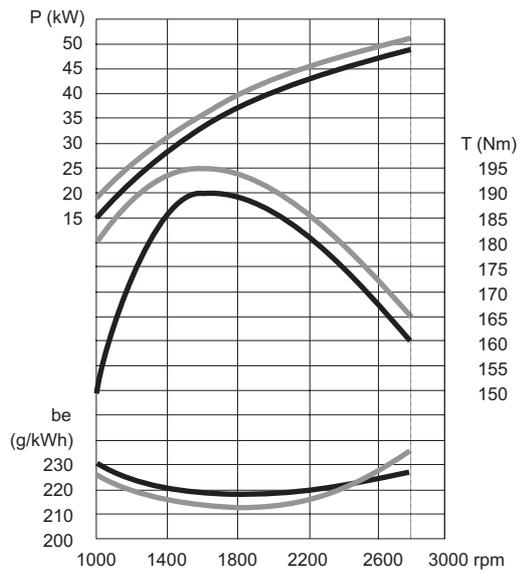
► **Standard engines**



► **F2M2011**

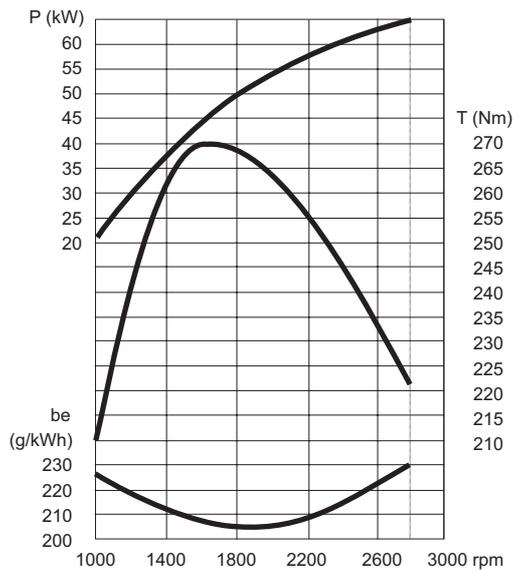


► **F3M2011**



► **BF3M2011**

► **F4M2011**



► **BF4M2011**



Knowing it's DEUTZ.

DEUTZ AG

Deutz-Mülheimer Str. 147-149

D-51057 Köln

Telefon: ++49 (0) 221-822-2510

Telefax: ++49 (0) 221-822-2529

Internet: <http://www.deutz.de>