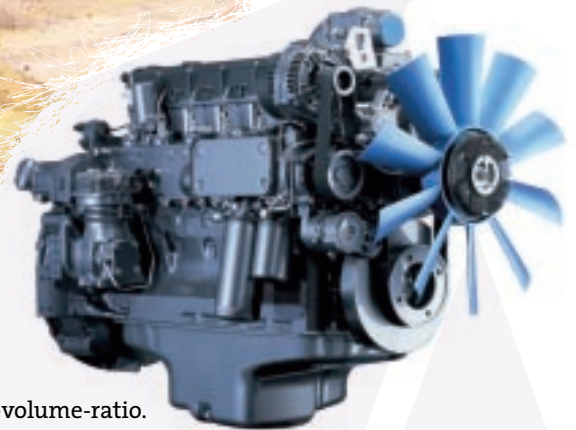




# 2012. The engine for construction equipment.



60 - 155 kW at 1500 - 2500 rpm



## The new 1 litre class.

### These are the characteristics of the 2012:

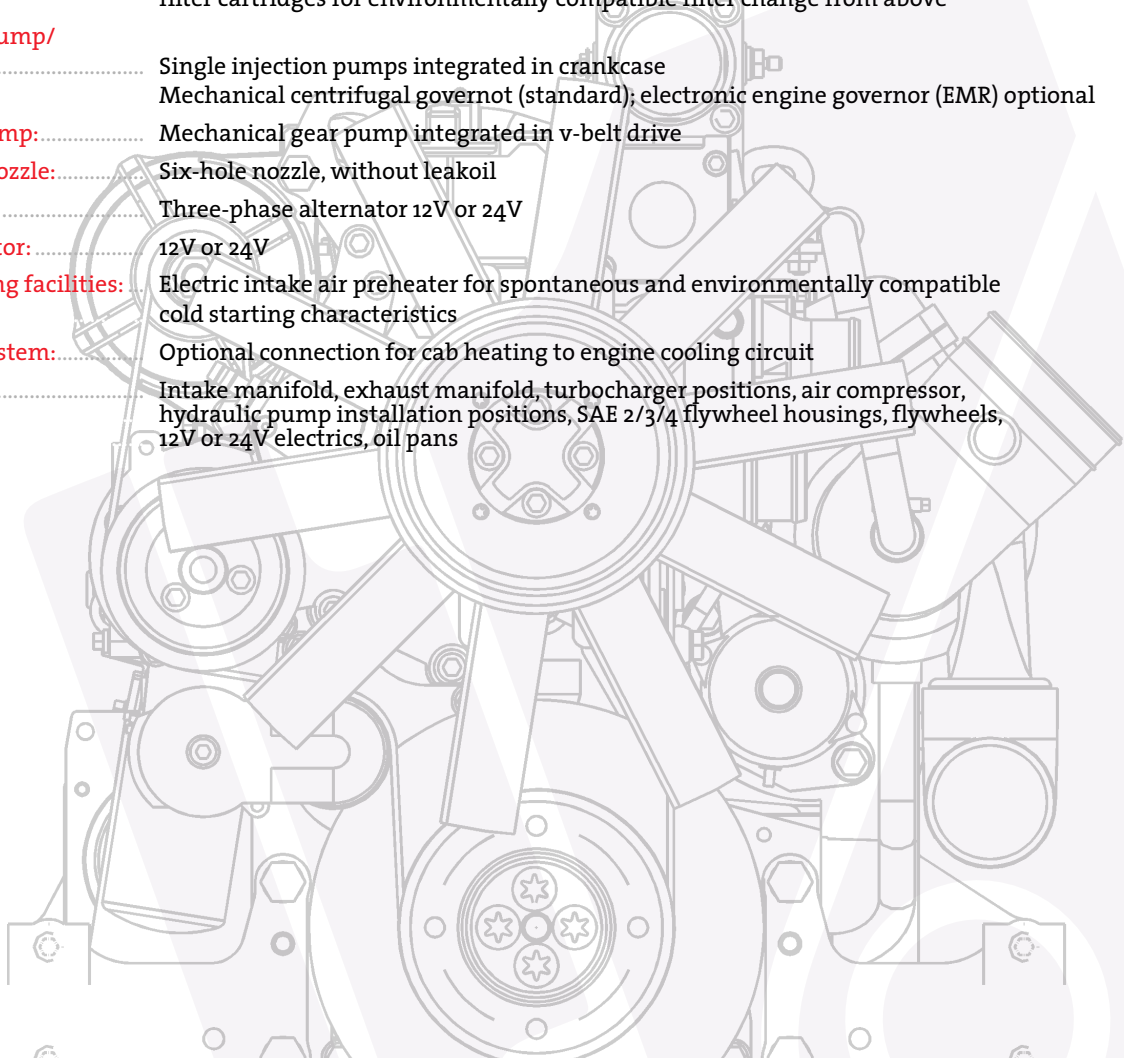
- Modern liquid-cooled 4- and 6-cylinder in-line engines.
- 1 litre displacement per cylinder. Compact design and high power-to-volume-ratio.
- Turbocharging and turbocharging with charge air cooling.
- “High torque” versions optional.
- High-pressure fuel injection up to 1600 bar.
- Electronic engine 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.

### These are the benefits for you:

- ▶ 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.

## ► Engine description

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

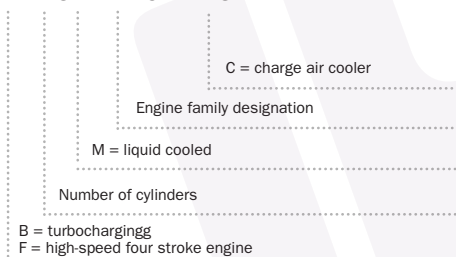


## ► Technical data

Engine type		BF4M2012	BF4M2012C	BF4M2012C*	BF6M2012C	BF6M2012C*
Number of cylinders		4	4	4	6	6
Bore/stroke	mm	101/126	101/126	101/126	101/126	101/126
Displacement	l	4,04	4,04	4,04	6,06	6,06
Compression ratio		19	19	19	19	19
Max. rated speed	rpm	2500	2500	2200	2500	2200
Mean piston speed	m/s	10.5	10.5	9.2	10.5	9.2
<b>Power ratings for construction equipment engines <sup>1)</sup></b>						
Power ratings for automotive engines <sup>2)</sup> kW		74.9	103	93	155	140
at speed		rpm	2500	2500	2200	2200
Mean effective pressure		bar	8.9	12.2	12.6	12.3
Power ratings for industrial engines <sup>3)</sup> kW		74.9	98	88	147	133
at speed		rpm	2500	2500	2500	2200
Mean effective pressure		bar	8.9	11.6	11.6	12.0
intermittent operation <sup>3)</sup> kW		74	93	84	140	126
at speed		rpm	2500	2500	2500	2200
Mean effective pressure		bar	8.8	8.87	11.43	9.02
Max. torque		Nm	390	493	550	743
at speed		rpm	1500	1500	1400	1500
Minimum idle speed		rpm	800	800	800	800
Specific fuel consumption <sup>4)</sup>		g/kWh	208	202	202	204
Weight to DIN 70020, part 7A <sup>5)</sup>		kg	391	391	391	509

## ► Model designation

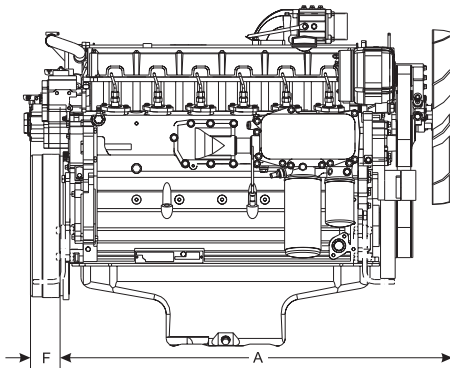
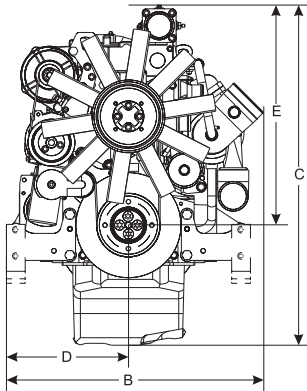
### BF 6 M 2012 C



- 1) Power ratings without deduction of fan power requirement.
  - 2) Power to ISO 1585, or EG-RL80/1269/EWG and EG-RL88/195/EWG.
  - 3) Fuel stop power to ISO 3046/1 (IFN), or DIN 6271.
  - 4) Specific fuel consumption based on diesel fuel with a specific gravity of 0.835 kg/dm<sup>3</sup> at 15°C.
  - 5) Without starter motor/alternator, radiator and liquids, however with flywheel and flywheel housing.
- \* „High torque“ version with turbocharger and waste-gate

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

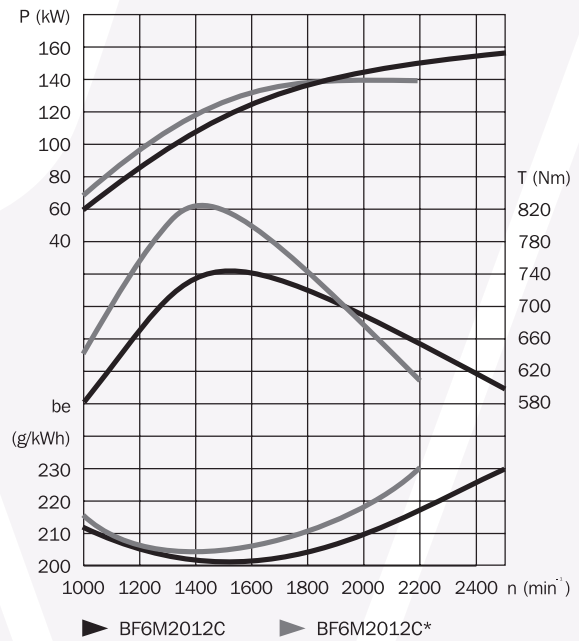
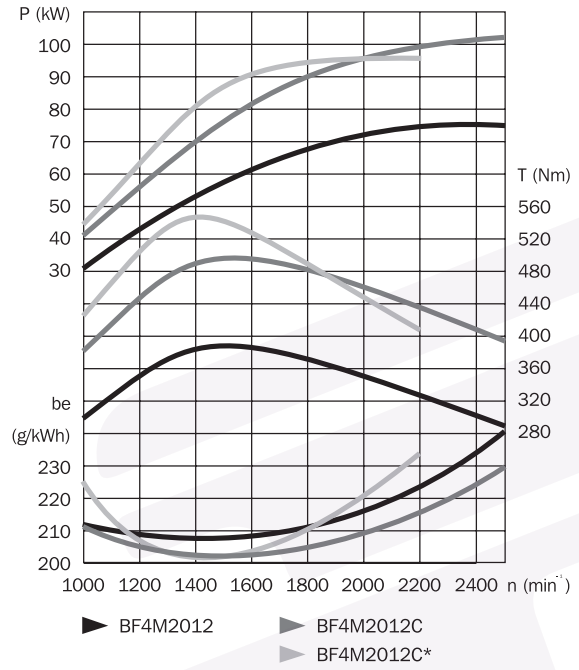
► **Dimensions**



Engine type		A	B	C	D	E	F
Versions with belt drive							
BF4M2012	mm	661	560	771	247	235	105
BF4M2012C	mm	661	560	832	247	235	105
BF4M2012C*	mm	661	560	832	247	235	105
BF6M2012C	mm	919	569	907	261	320	105
BF6M2012C*	mm	919	569	907	261	320	105

Engine type		A	B	C	D	E	F
Versions with wedge ribbed belt drive (Poly-V)							
BF4M2012	mm	694	601	771	287	235	105
BF4M2012C	mm	694	601	832	287	235	105
BF4M2012C*	mm	694	601	832	287	235	105
BF6M2012C	mm	922	595	907	287	320	105
BF6M2012C*	mm	922	595	907	287	320	105

► **Standard engines**





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