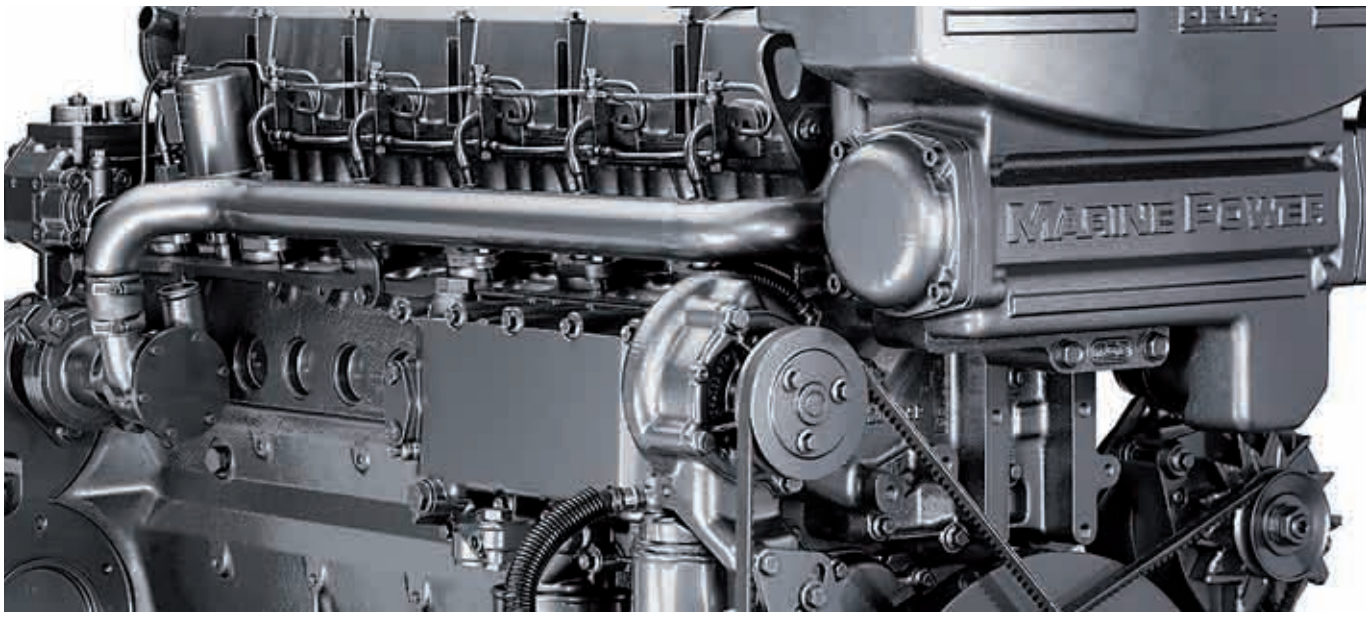


1013M

72–195 kW (96–261 bhp) at 1500–2300 rpm

The engine company.

DEUTZ®

Superiority is the sum of all the details.

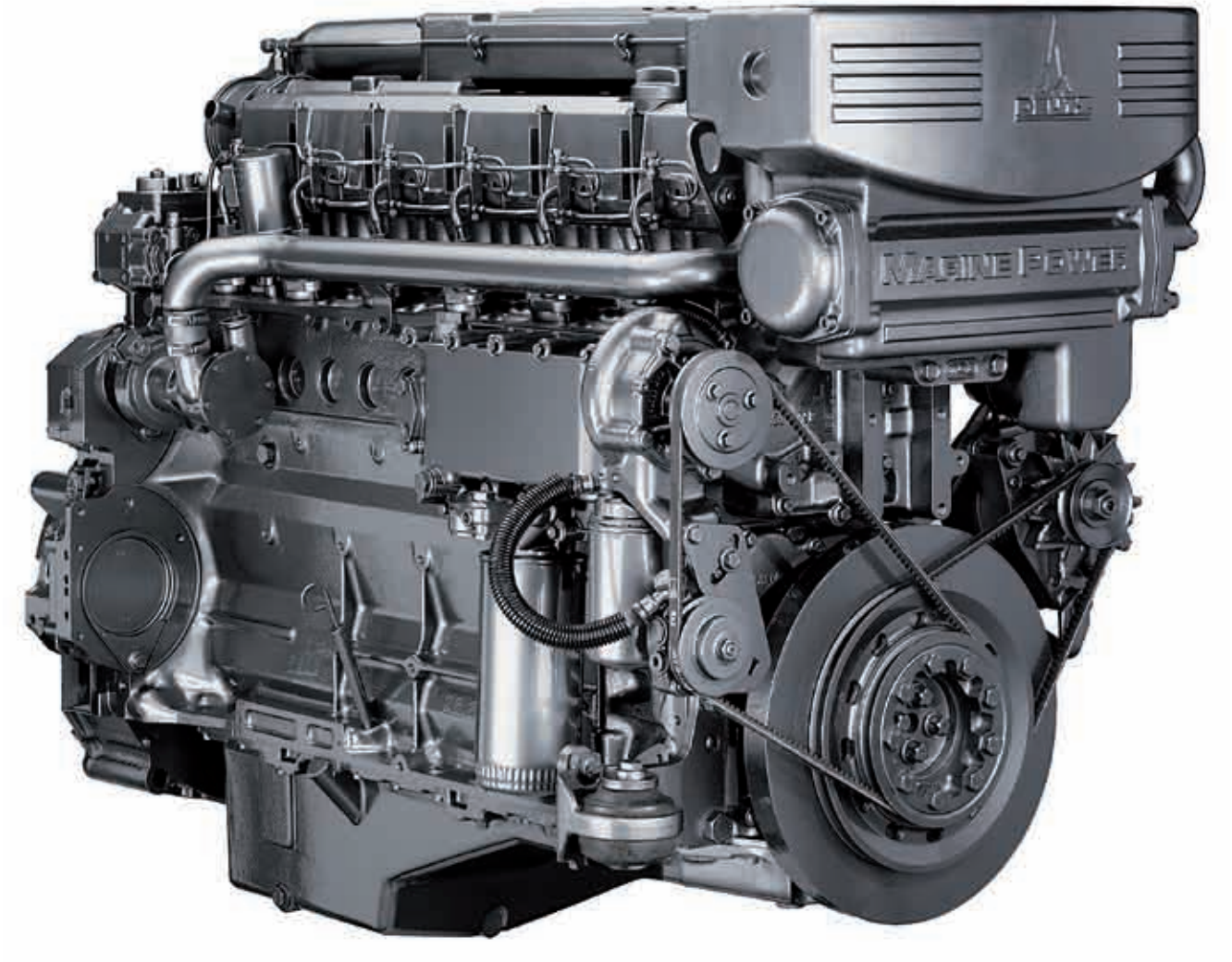
With a long maritime tradition and the sound basis of a leading engine manufacturer DEUTZ engines have an international reputation as reliable, durable and efficient propulsion units for work boats as well as commercial vessels and their auxiliary drives.

The requirements of the engines for the main and auxiliary drives of ships vary. But the key expectations are quite simple: Economy and availability are of the most important for every application.

In order to strengthen our customers‘ position in the maritime sector we have concentrated on the field of compact engines for marine propulsion and auxiliary drives. The 1013M series reflects the engine manufacturer know-how of DEUTZ in marine applications.

Technically mature and state-of-the-art in engine development, our engines offer the security and reliability in everyday use that our customers demand.

DEUTZ drives also set high standards where economy is concerned. Because in addition to state-of-the-art engine construction criteria and a practical design our drives also feature an exemplary cost/benefit ratio. Great economic values and excellent exhaust gas emissions for the benefit of the environment are all part of the DEUTZ standard.



Features

Water-cooled, four-stroke, 4 and 6-cylinder in-line engines | water-cooled turbocharger and exhaust pipes | gear-driven power take-offs | modern high-pressure injection system with single injection pumps | charge air cooling by engine coolant in keel cooled configuartion or raw water cooled | compact dimensions | easily accessible maintenance and service points on one side of the engine

Your benefits

- High operating economy due to low fuel and oil consumption.
- A compact design makes installations easy and saves installation costs.
- Intelligent concept with identical components saves costs for repairs and general overhauling.
- Low noise emissions eliminate complex attenuation.
- Classification by all leading classification societies.
- All 1013M engines comply with IMO directives. Engines with charge air cooler (MC/MCP) fulfil ZKR II, EU Stage II (2004/26/EC) and US-EPA Marine Tier 2.
- The particle emissions in the MC and MCP engine types fall below the limit value specified in the German ZKR II by 30 %.

Engine description

Type of cooling:	1) Two-circuit cooling as indirect cooling with mounted sea water heat exchanger, coolant circulation pump, compensation tank, thermostats and raw water pump 2) Keel cooling with coolant circulation pump and integrated thermostats
Crankcase:	raised cast-iron crankcase; structure capable of supporting block construction, “wet” (exchangeable) liners
Crankcase breather:	closed breather
Cylinder head:	cast iron block head
Valve arrangement/ control:	one inlet and outlet valve, actuated by tappets, push-rods and rocker arms, gear driven camshaft drive
Piston:	three-ring piston: two compression rings, one oil wiping ring
Piston cooling:	by cooling oil by means of spray nozzles
Con rod:	made of forged steel
Crankshaft:	drop forged with integrated counterweights
Crankshaft and big end bearing:	tri metal plain bearing
Camshaft:	steel camshaft
Turbocharging:	water-cooled turbocharger, MC/MCP engines with charge air cooler
Exhaust pipe:	water-cooled exhaust manifold
Torsional vibration damper:	viscosity vibration damper
Lubricating oil system:	pressure circulation lubrication with gear pump, lubricating oil cooler integrated in the engine, paper fine filters exchangeable cartridge in the main lubricating oil stream, duplex change over filter optional
Injection pump/ controller:	single injection pumps for every cylinder arranged in the crankcase with mechanical engine governer
Injection lines:	double walled injection lines for high pressure injection as an option
Fuel system:	fuel supply pump integrated into the V-belt clamping roller, exchangeable cartridge for fuel filter, duplex change over filter optional
Generator:	three-phase current generator, 14 V or 28 V, 2-pole
Starter:	electric starter, 12 V or 24 V, 2-pole
Heater:	connection possibility for heater or hot water boiler to the engine cooling circuit
Range of variants:	compressor, hydraulic pumps, flywheels 10”/11½” standard, 14” optional, connection housing SAE 3 standard, SAE 2 and 1 optional, oil pans, cold start devices, air filters, engine feet, starters, generators

Technical data

Engine type		BF4M1013M	BF4M1013MC	BF6M1013M	BF6M1013MC	BF6M1013MCP
Number of cylinders		4	4	6	6	6
Bore/stroke	mm | in	108/130 | 4.25/5.12	108/130 | 4.25/5.12	108/130 | 4.25/5.12	108/130 | 4.25/5.12	108/130 | 4.25/5.12
Capacity	l | cuin	4.76 | 290	4.76 | 290	7.15 | 436	7.15 | 436	7.15 | 436
Compression ratio		17.5	17.5	17.5	17.5	17.5

Powers for ship engines		BF4M1013M	BF4M1013MC	BF6M1013M	BF6M1013MC	BF6M1013MCP
acc. to power group A						
at 1800 rpm	kW | bhp	—	—	—	—	141 | 189
at 1900 rpm	kW | bhp	72 | 96	89 | 119	108 | 145	130 | 174	145 | 194
at 2300 rpm	kW | bhp	81 | 109	102 | 137	123 | 165	148 | 198	166 | 222
acc. to power group B*						
at 1900 rpm	kW | bhp	83 | 111	103 | 138	126 | 169	153 | 205	169 | 226
at 2100 rpm	kW | bhp	—	—	—	—	182 | 243
at 2300 rpm	kW | bhp	95 | 127	118 | 158	130 | 174	174 | 233	195 | 261

Powers for on-board units		BF4M1013M	BF4M1013MC	BF6M1013M	BF6M1013MC	BF6M1013MCP
at 1500 rpm – “G” (“N”)*	kW | bhp	77 (81) | 103 (109)	92 (97) | 123 (130)	116 (122) | 155 | (163)	139 (146) | 186 (196)	NA
at 1800 rpm – “G” (“N”)*	kW | bhp	81 (85) | 109 (114)	100 (105) | 134 (141)	122 (128) | 163 (172)	148 (155) | 198 (208)	NA

* “B” and “N” powers are not classifiable

Power group A: Blocked useful power for unlimited continuous operation, SCFN (ICFN**) or MCFN according to ISO 3046-1. Utilisation > 70 %, operating time > 3,000 hours.

Power group B: Blocked useful power for unlimited continuous operation, SCFN (ICFN**) according to ISO 3046-1. Utilisation < 70 %, operating time < 3,000 hours.

Powers for on-board units: “G” continuous power, SCXN (ICXN**) or MCXN according to ISO 3046-1. Overloadable by 10 % for 1 hr. within 12 hour operation.

“N” continuous power, SCXN (ICXN**) according to ISO 3046-1. Overloadable by 5 % for 1 hr. within 12 hr. operation. Perm. av. utilisation ≤ 80 %.

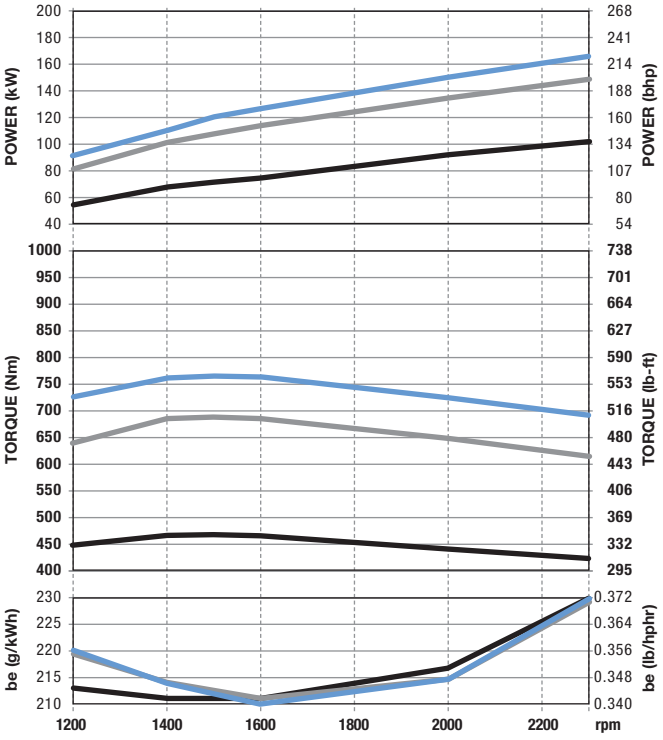
** valid for engines without charge air cooler (standard reference conditions)

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

Standard torque curves

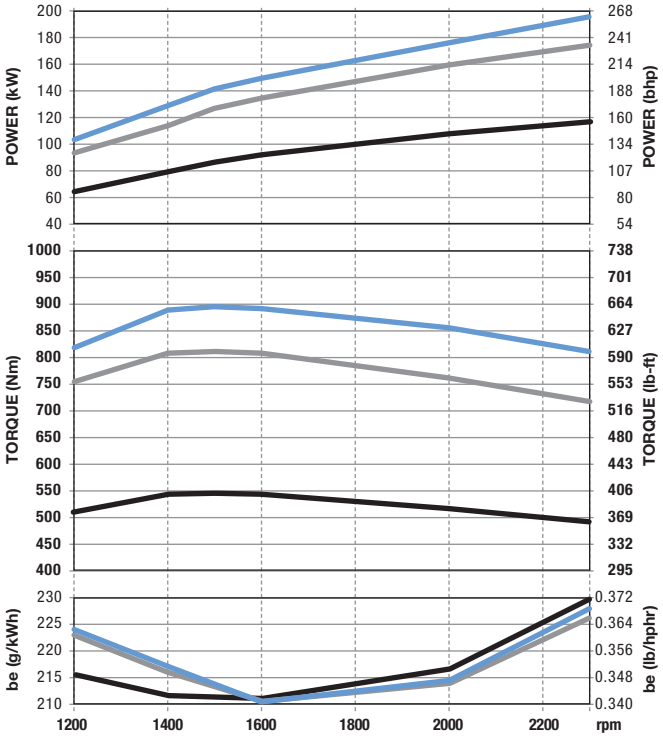
Power group A **2300 rpm**

BF4M1013MC | BF6M1013MC | BF6M1013MCP



Power group B **2300 rpm**

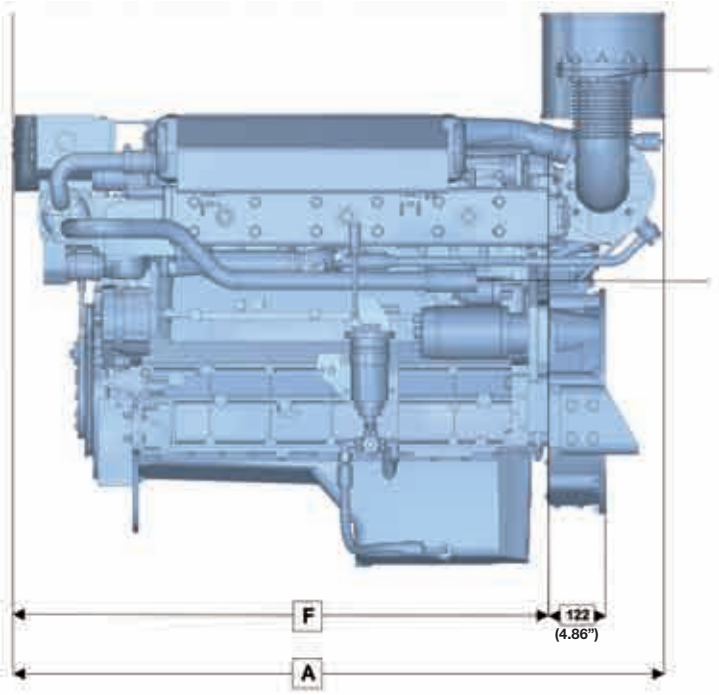
BF4M1013MC | BF6M1013MC | BF6M1013MCP



Raw water cooling

Dimensions		BF4M1013M	BF4M1013MC	BF6M1013M	BF6M1013MC	BF6M1013MCP
A	mm | in	1125 | 44.29	1125 | 44.29	1408 | 55.43	1408 | 55.43	1408 | 55.43
B	mm | in	666 | 26.22	666 | 26.22	850 | 33.46	850 | 33.46	850 | 33.46
C	mm | in	1185 | 46.65	1185 | 46.65	1197 | 47.13	1197 | 47.13	1197 | 47.13
D	mm | in	346 | 13.62	346 | 13.62	360 | 14.17	360 | 14.17	360 | 14.17
E	mm | in	839 | 33.03	839 | 33.03	837 | 32.95	837 | 32.95	837 | 32.95
F	mm | in	894 | 35.20	894 | 35.20	1158 | 45.59	1158 | 45.59	1158 | 45.59

Weight		BF4M1013M	BF4M1013MC	BF6M1013M	BF6M1013MC	BF6M1013MCP
Weight dry incl. heat exchanger	kg | lbs	560 | 1235	580 | 1280	730 | 1610	760 | 1675	760 | 1675



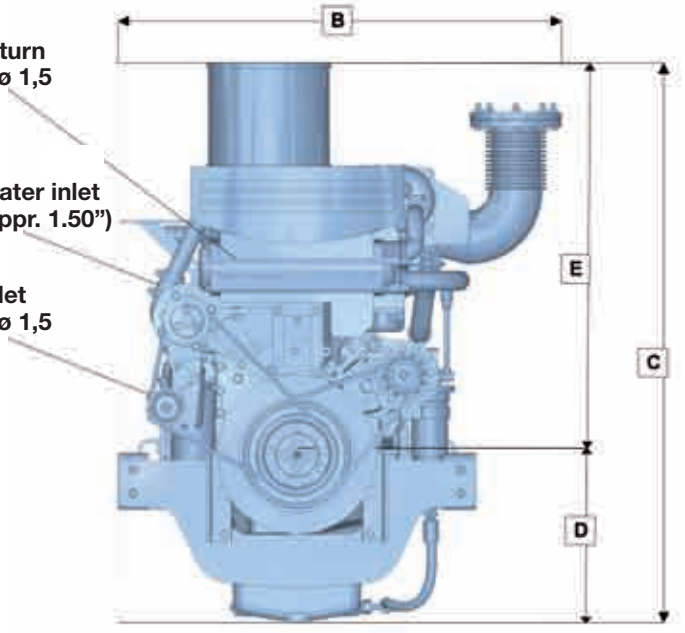
Exhaust flange diam.		4-cyl.	6-cyl.
inside	mm | in	77 | 3.03	115 | 4.52
outside	mm | in	138 | 5.43	196 | 7.72
bolt holes	mm | in	4x ø 14 | 0.55	8x ø 14 | 0.55

Raw water outlet
ø 42 (appr. 1.65")

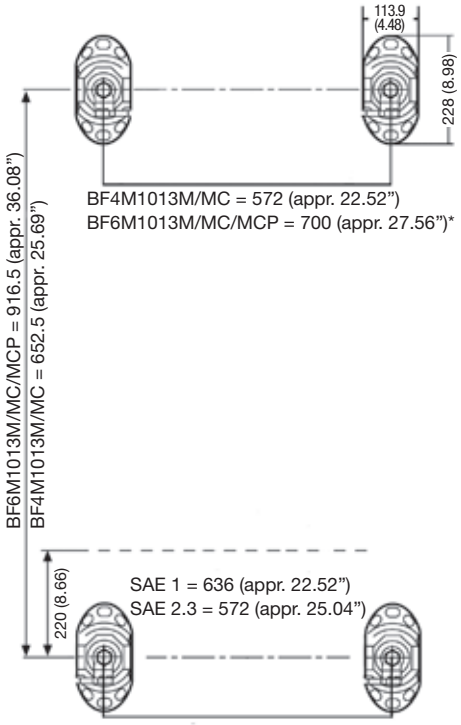
Fuel return
M18 x ø 1,5

Raw water inlet
ø 38 (appr. 1.50")

Fuel inlet
M16 x ø 1,5



Feet

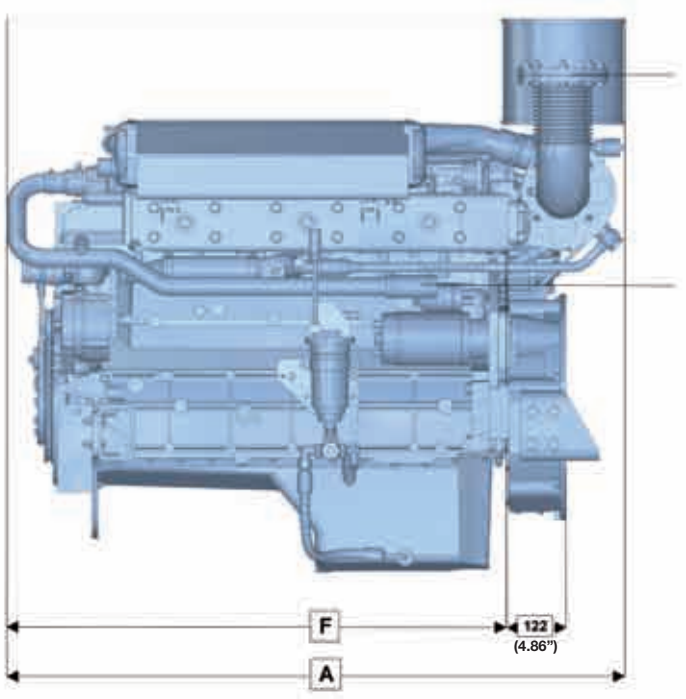


*6 cyl. Gen engine = 572 (appr. 22.52")

Keel cooling

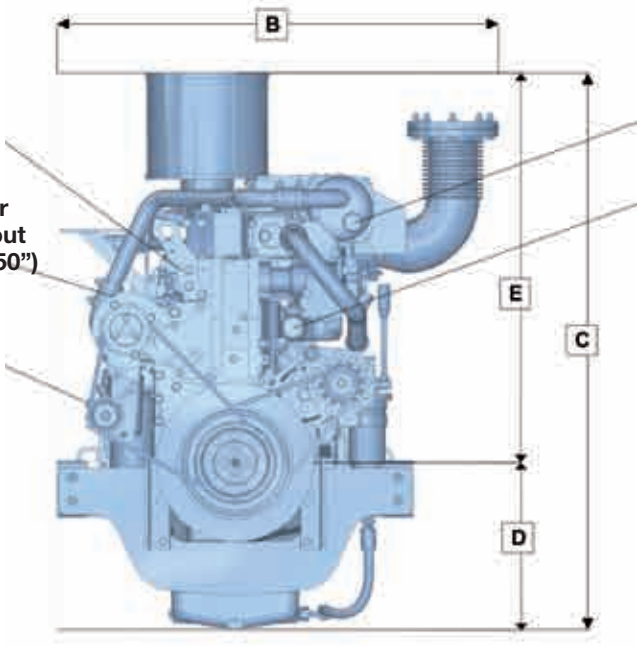
Dimensions		BF4M1013M	BF4M1013MC	BF6M1013M	BF6M1013MC	BF6M1013MCP
A	mm | in	1050 | 41.34	1050 | 41.34	1334 | 52.52	1334 | 52.52	1334 | 52.52
B	mm | in	666 | 26.22	666 | 26.22	850 | 33.46	850 | 33.46	850 | 33.46
C	mm | in	1185 | 46.65	1185 | 46.65	1197 | 47.13	1197 | 47.13	1197 | 47.13
D	mm | in	346 | 13.62	346 | 13.62	360 | 14.17	360 | 14.17	360 | 14.17
E	mm | in	839 | 33.03	839 | 33.03	837 | 32.95	837 | 32.95	837 | 32.95
F	mm | in	820 | 32.28	820 | 32.28	1084 | 42.68	1084 | 42.68	1084 | 42.68

Weight		BF4M1013M	BF4M1013MC	BF6M1013M	BF6M1013MC	BF6M1013MCP
Weight incl. keel cooling	kg | lbs	540 | 1190	560 | 1235	710 | 1565	740 | 1632	740 | 1632



Exhaust flange diam.		4-cyl.	6-cyl.
inside	mm | in	77 | 3.03	115 | 4.52
outside	mm | in	138 | 5.43	196 | 7.72
bolt holes	mm | in	4x ø 14 | 0.55	8x ø 14 | 0.55

Cooling water MC-circuit out
ø 42 (appr. 1.65")



Fuel return
M18 x ø 1,5

Cooling water
CAC-circuit out
ø 38 (appr. 1.50")

Fuel inlet
M16 x ø 1,5

CAC Cooling water out
ø 40 (appr. 1.57")

Cooling water MC-circuit in
ø 42 (appr. 1.65")

Good service is not a question but the answer.

Our customers demand highest product quality and a clearly predictable performance of our engines economically and ecologically. Everywhere in the world and under all conditions. We are well prepared for this because our service and after-sales departments have a broad, technically sound basis.

680 service partners in 130 countries serve our customers day and night supported by three Logistics Centres in which about 160,000 spare parts items ensure fast repair of the engine in all cases.

This guarantees optimum support of all DEUTZ engines throughout their lifecycle. Our intensively trained and highly motivated service personnel ensures competent consulting and fast assistance for all types of problems.

Individual service and maintenance contracts, quick delivery of spare parts and excellent training offers round off this convincing offer because at DEUTZ you buy more than just the engine.

Rely exclusively on original DEUTZ spare parts because they are specially designed and manufactured for DEUTZ engines as the original components upon delivery.

Our spare parts are tested and optimised continuously and have been designed for your special application in many cases and are not available in this form on the “grey” market by independent third party suppliers. Protect your warranty claims and the performance and life of your DEUTZ engine. Because your DEUTZ only stays a DEUTZ with original spare parts.

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