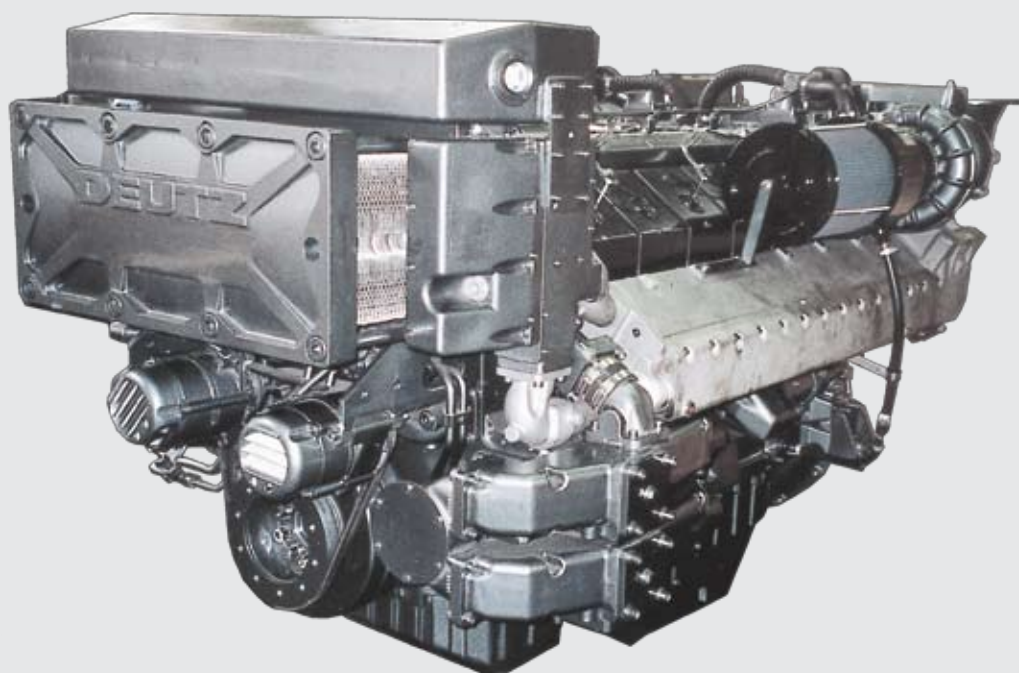


616

312-1217 kW at 1500-2235 min⁻¹

TOTAL SERVICE



WÄRTSILÄ DEUTZ MARINE ENGINES

CHARACTERISTICS

- Modern water-cooled 8-, 12- and 16-cylinder 60° V-engines.
- Water-cooled exhaust manifolds, water-cooled turbochargers and charge air cooling.
- Cylinder heads with four-valve technology and high-pressure fuel injection.
- Mechanical or electronic speed governing.

BENEFITS

- Electronic engine monitoring enhances safety and reliability of this compact engine.
- Operating cost reduction due to low fuel and oil consumption.
- Long maintenance intervals.
- The excellent power-to-weight ratio, particular for fast vessels, ensures optimum application possibilities.
- Active contribution towards environmental protection due to compliance with the IMO regulations.

ENGINE DESCRIPTION

Crankcase	The crankcase is made of grey cast iron, which has a high rigidity.
Main bearings	The main bearings are of the multilayer type.
Crankshaft	The crankshaft is made of drop forged steel and has two bolted counterweights per crankpin.
Torsional vibration damper	The torsional vibration damper is of the viscous-fluid type.
Engine block	The engine block is made of grey cast-iron with high rigidity.
Cylinder liner	The cylinder liner is made of centrifugal cast-iron.
Connecting rod	The connecting rod is made of forged Cr-steel. A trapezoidal small end bearing bush is fitted in the trapezoidal shaped small end of the connecting rod.
Piston	The piston is made of aluminium and has 3 piston ring grooves. The piston is internally cooled by lubricating oil, which is injected through nozzles into cooling channels of the piston.
Cylinder head	The cylinder head is made of grey cast-iron. The cylinder head has two inlet and two exhaust valves per cylinder, actuated via rocker arms and valve bridges.
Camshaft	The induction hardened camshaft is centrally arranged in V-space.
Injection pump	One or two block pumps are fitted on the engine.
Governor	Mechanical or electronic governor.
Fuel system	The fuel system uses: <ul style="list-style-type: none">• high-pressure block pump(s)• 8-holes (arranged in two levels) injection nozzles• a switch-over duplex filter with paper elements.
Lubricating oil system	The engine has: <ul style="list-style-type: none">• a forced-feed circulating pump• a switch-over duplex filter• an oil cooler. A centrifugal filter is optional.
Lubricating oil filter	6-, 8- and 12-cylinder engines contain a switch-over duplex filter in main flow and a centrifugal filter in partial flow. 16-cylinder engines contain a switch-over triplex filter in main flow and two centrifugal filters in partial flow.
Starting system	The engine is started by an electric or pneumatic starter on the flywheel.
Cooling water system	<ul style="list-style-type: none">• Single circuit mixed cooling• Circulation cooling• 2-circuit cooling.
Charge air system	The intake manifolds are made of aluminium and have integrated coolant return-pipes. The intake manifolds are arranged in V-space. The charge air cooler is mounted at driving end. A waste gate is optional.
Exhaust gas system	The exhaust gas system has integrated coolant return via the manifolds.
Turbocharger	The engine has two turbochargers.
Crankcase breather	The engine has a closed circuit system with low pressure indication.
Optional	Hydraulic pumps, various PTOs.
Classification	By all established classification societies.
EIAPP	The engine can be provided with an EIAPP certificate if it complies with the NO _x Technical Code according IMO regulations MARPOL 73/78 - Annex VI.

TECHNICAL DATA

TECHNICAL DATA				
Engine type		TBD616V8	TBD616V12	TBD616V16
Model		60° V-engine	60° V-engine	60° V-engine
Number of cylinders		8	12	16
Bore / stroke	mm	132 / 160	132 / 160	132 / 160
Displacement	l	17.52	26.28	35.04
Compression ratio		15:1	15:1	15:1
Direction of rotation		Counter-clockwise		
Power ratings for marine propulsion units				
Power category A1 ¹⁾				
at 1500 min ⁻¹	kW	312	468	624
at 1650 min ⁻¹	kW	356	533	712
at 1800 min ⁻¹	kW	397	595	794
Power category A2 ¹⁾				
at 2100 min ⁻¹	kW	468	702	936
Power category B ²⁾ (Only available on request)				
at 2165 min ⁻¹	kW	-	839	1107
Power category C ³⁾ (Only available on request)				
at 2235 min ⁻¹	kW	-	922	1217
Power ratings for board generating sets				
Power category G ⁴⁾				
at 1500 min ⁻¹	kW	374	562	749
at 1800 min ⁻¹	kW	421	632	842
General data				
Specific fuel consumption ⁵⁾				
at 1500 min ⁻¹	g/kWh	190	190	190
at 1800 min ⁻¹	g/kWh	192	192	192
at 2100 min ⁻¹	g/kWh	202	202	202
IMO NO _x limit value ⁶⁾		fulfilled	fulfilled	fulfilled

1) Net brake fuel stop power for continuous operation unrestricted in time. SCFN to ISO 3046-7.

2) Net brake fuel stop power for continuous operation restricted in time. SCFN to ISO 3046-7.

3) Net brake fuel stop power for operation restricted in time. SFN to ISO 3046-7.

4) Continuous power for generating sets, exceedable by 10% for 1 hour within an operating period of 12 hours. SCXN to ISO 3046-7. Application: On-board generating sets. Running time: unrestricted.

5) At rated power point. Refers to power category A, consumption-optimized version to ISO 3046-1, without engine driven coolant pumps.

6) NO_x limit values to IMO MARPOL 73/78 Annex VI.

Power declarations based on the following ambient conditions:

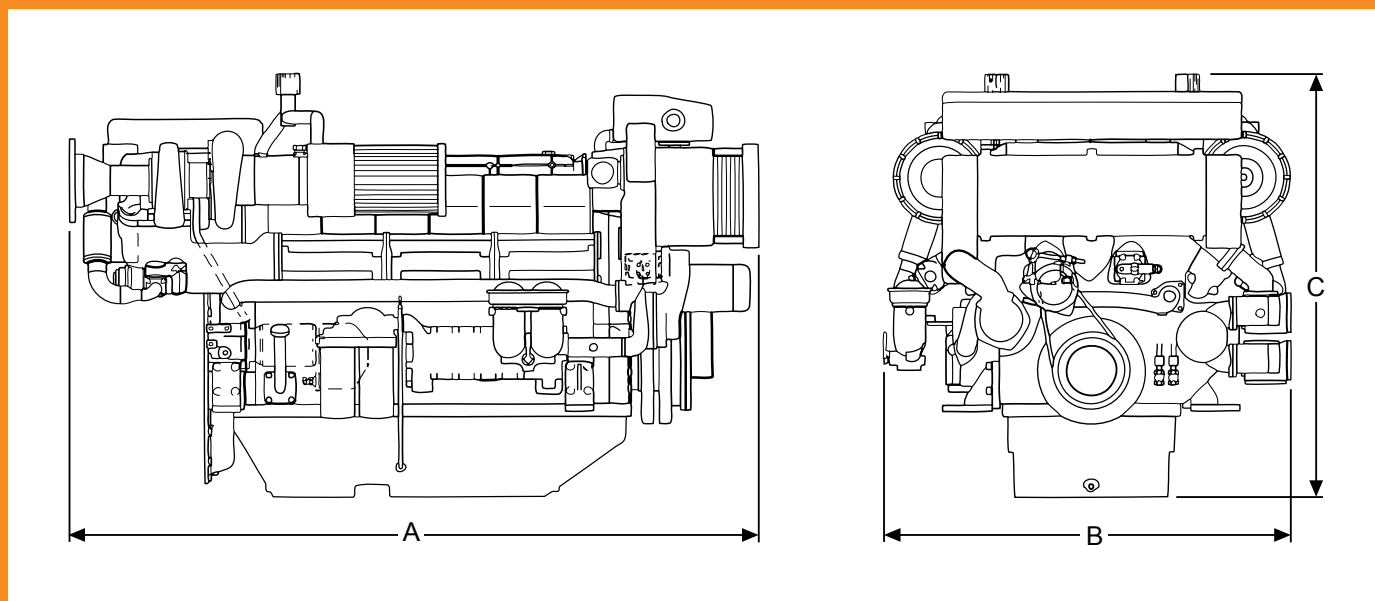
45 °C intake air temperature, 50 °C charge air coolant temperature, barometric pressure 1000 mbar, relative humidity 60%.

Note:

The values given in this document are for information purposes only and not binding.



DIMENSIONS



PRINCIPAL ENGINE DIMENSIONS (mm) AND WEIGHTS (t)

Engine type	A	B	C	Weight
TBD616V8	1800	1250	1275	1.9
TBD616V12	2180	1280	1275	2.5
TBD616V16	2550	1365	1355	3.0

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