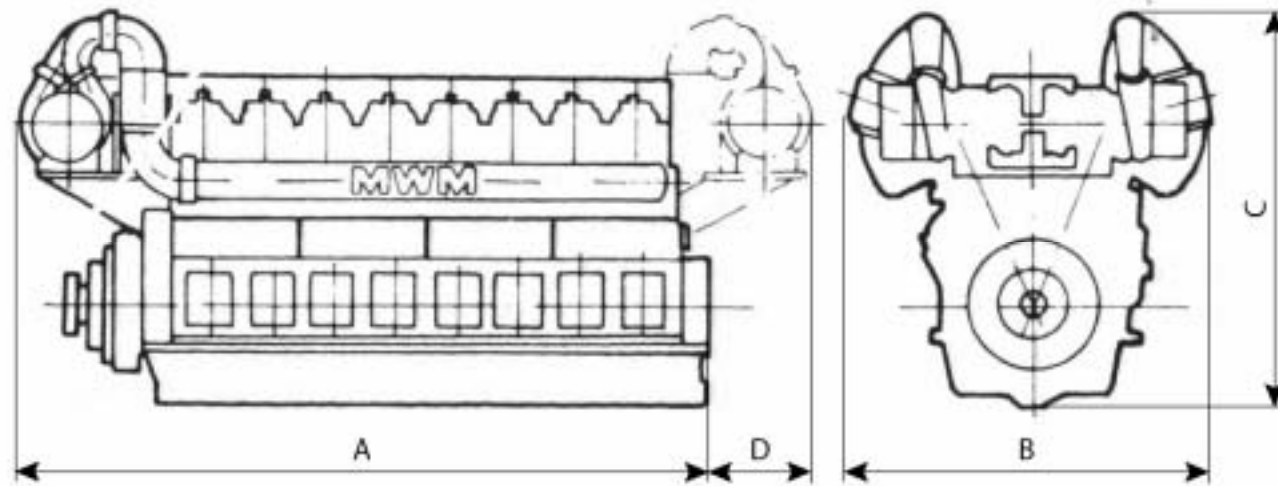


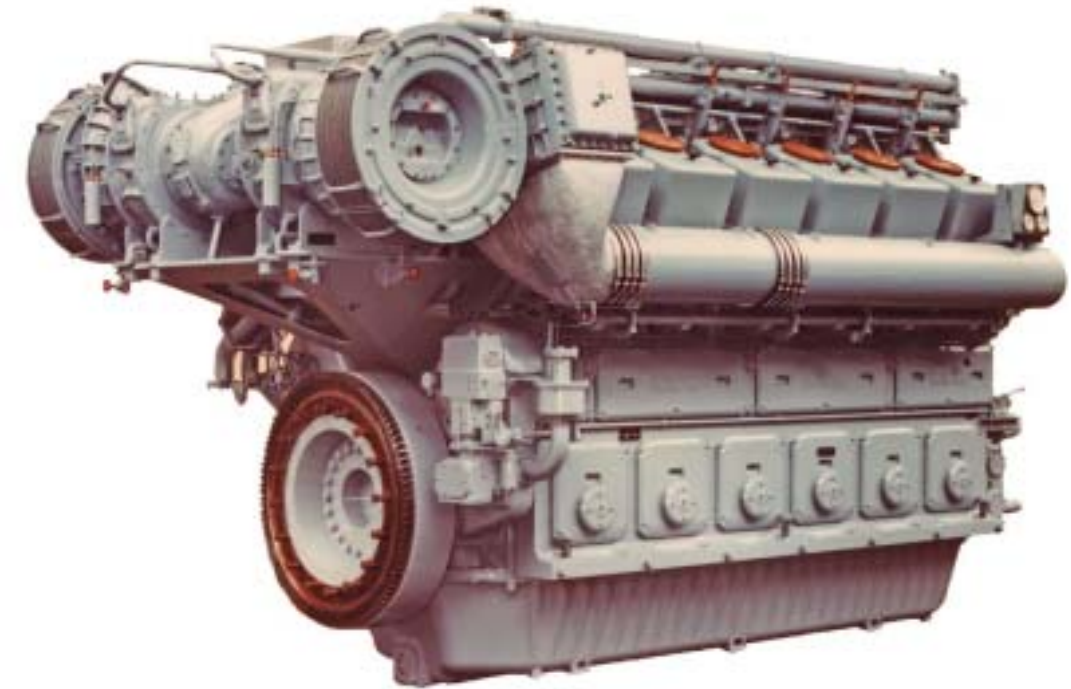
➤ Dimensions



Engine type		A	B	C	D
TBD511 V12	mm	5240	3030	3655	1090
TBD511 V16	mm	6380	3030	3655	1090

Engine type		TBD511 V12	TBD511 V16
Weight (dry)	t	38.0	48.0

# Total Service



## WÄRTSILÄ DEUTZ marine engines

### Characteristics

- Water-cooled engines.
- Turbochargers.
- Air cooler.
- Cylinder heads with four-valve technology and exhaust valve housings.
- High-pressure fuel injection.
- Mechanical-hydraulic governing.

### Benefits

- Compact engine.
- Easy maintenance.
- Low maintenance and operating costs.
- Full power take-off on both ends of crankshaft.
- Reversible running direction of the engine.

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**Wärtsilä Nederland B.V.**

P.O. Box 10608  
8000 GB Zwolle  
Office: Hanzelaan 95  
8017 JE Zwolle  
The Netherlands

Tel. +31 38 425 32 53 (24 hrs)  
Fax +31 38 425 34 71  
service.sales.nl@wartsila.com  
www.wartsila.com



## ➤ Engine description

<b>Crankcase</b>	The crankcase with cast-on engine feet is made of spheroidal iron.
<b>Crankshaft</b>	The crankshaft is drop forged and has bolted counterweights. It is fitted in the crankcase in underslung arrangement.
<b>Torsional vibration damper</b>	The torsional vibration damper is of the viscous-fluid type.
<b>Cylinder liner</b>	The water-cooled cylinder liner is made of cast iron.
<b>Connecting rod</b>	The obliquely split connecting rod has a serrated joint. The lubricating oil to the small-end bearing and piston is supplied via an oilway in the connecting rod.
<b>Piston</b>	The piston is cooled with lubricating oil. The piston crown is made of steel. Engines running with reduced B.M.E.P. can contain 'pipe coil pistons', otherwise they contain pistons, which make use of the shaker cooling principle.
<b>Cylinder head</b>	The cylinder head is made of special cast iron. An exhaust valve is fitted in an exhaust valve housing. The cylinder head has two inlet and two exhaust valves. An injection, starting air, safety and indicator valve are fitted in/on the cylinder head.
<b>Camshaft</b>	Clamping rings fasten the inlet and exhaust cams at the camshaft. The fuel cams can be adjusted by using high oil pressure. The camshaft can be displaced pneumatically in case of reversible engines.
<b>Injection pump</b>	Single injection pump, i.e. each cylinder has its own fuel injection pump.
<b>Governor</b>	Mechanical-hydraulic governing.
<b>Fuel system</b>	The engine has a separate fuel supply pump, a duplex filter and single injection pumps.
<b>Lubricating oil system</b>	Force-feed lubrication system by engine driven lubricating oil gear pump. A lubricating oil filter is built on the engine.
<b>Starting system</b>	The engine is started by compressed air via starting valves fitted in the cylinder head.
<b>Cooling water system</b>	Indirect cooling. Separate heat exchanger and thermostat. Electric pumps for fresh and sea water.
<b>Exhaust gas system</b>	Metal sheeting covers the exhaust gas lines.
<b>Turbocharging</b>	Water-cooled turbocharger(s). Optional on driving end or free end.

## ➤ Technical Data

<b>Engine type<sup>1)</sup></b>		<b>TBD511 V12</b>	<b>TBD511 V16</b>
Model		45° V-engine	45° V-engine
Number of cylinders		12	16
Bore / stroke	mm	330/360	330/360
Displacement	l	369.6	492.8
Compression ratio		12.7	12.7
Direction of rotation		clockwise or counter-clockwise	

### Power ratings for marine propulsion units

Engine output <sup>2)</sup> at 600-750 min <sup>-1</sup>	kW	3530-4410	4710-5880
BMEP	bar	18	18
Specific fuel consumption <sup>3)</sup>	g/kWh	210	210
Lubricating oil consumption <sup>4)</sup>	kg/h	4.1	5.6
Idling speed	min <sup>-1</sup>	200	200

<sup>1)</sup> Explanation of model designation:

- T = Engine with turbocharger(s)
- B = Engine with air cooler
- D = Diesel engine
- 511 = Engine group code
- V = V-engine

<sup>2)</sup> For marine propulsion engines, the MCR (maximum continuous rating) is taken as the operating output, a continuous net brake power blocked at full load:

Conditions:	
Intake air temperature	45 °C
Cooling-water temperature before intercooler	40 °C
Air pressure	1000 mbar
Relative humidity	60%.

<sup>3)</sup> Marine distillate fuels according to ISO-8217:2005; category ISO-F-DMC.

The fuel consumption values refer to DIN 6271 with a tolerance of +5%, without mounted pumps and using a fuel with a lower calorific value of 42,700 kJ/kg (10,200 kcal/kg).

<sup>4)</sup> Without taking into account lube oil changes.

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