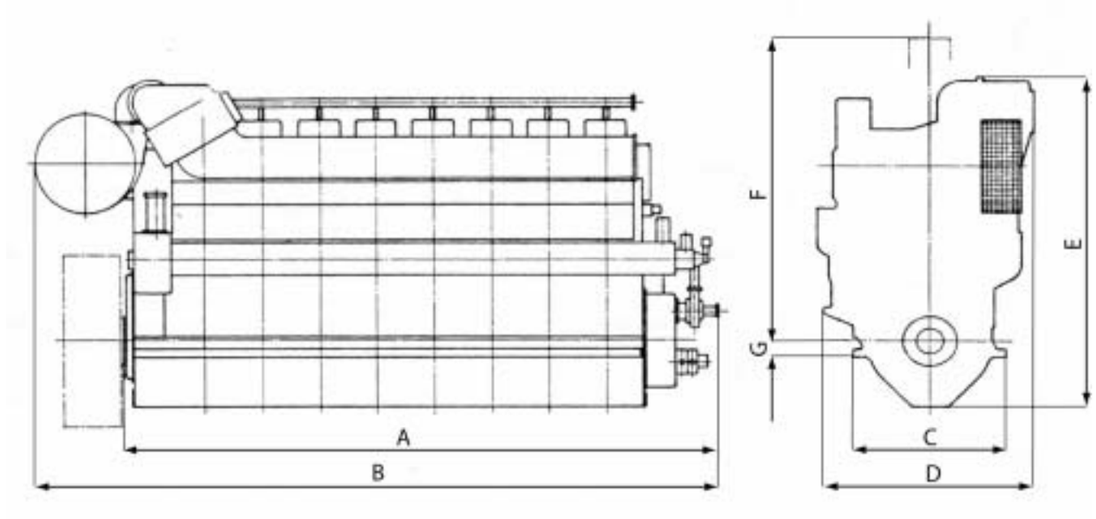
500

717-1765 kW at 375-514 min^{-1}

➢ Dimensions



Engine type[5]		A	B	C	D	E	F	G
T(B)D500-6(U)B/D/E/F/G	mm	4390	5030	1300	1830	3014	2800	150
T(B)D500-8(U)B/D/E/F/G	mm	5450	6235	1300	1830	3014	2800	150

Engine type	TD500-6	TBD500-6B	TBD500-6D	TBD500-6E	TBD500-6F	TBD500-6G
Weight, dry (t)	25.9	26.3	26.4	26.4	36.3	26.3

Engine type	TD500-8	TBD500-8B	TBD500-8D	TBD500-8E	TBD500-8F	TBD500-6G
Weight, dry (t)	32.3	33.0	33.0	33.2	33.3	33.3

[5] Designation of engine models:

TD	refers to diesel engine with turbocharger
TBD	refers to diesel engine with turbocharger and charge air cooling.
U	refers to direct reversing.
B	refers to engine type with max. speed 375 min^{-1}, uncooled piston, uncooled injector, turbocharger and for use with diesel fuel.
D	refers to engine type with max. speed 375 min^{-1}, cooled piston, uncooled injector, turbocharger and for use with diesel fuel.
E	refers to engine type with max. speed 514 min^{-1}, cooled piston, uncooled injector, turbocharger and for use with diesel fuel.
F	refers to engine type with max. speed 375 min^{-1}, built-up piston, cooled injector, turbocharger and for use with heavy fuel.
G	refers to engine type with max. speed 514 min^{-1}, built-up piston, cooled injector, turbocharger and for use with heavy fuel.

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

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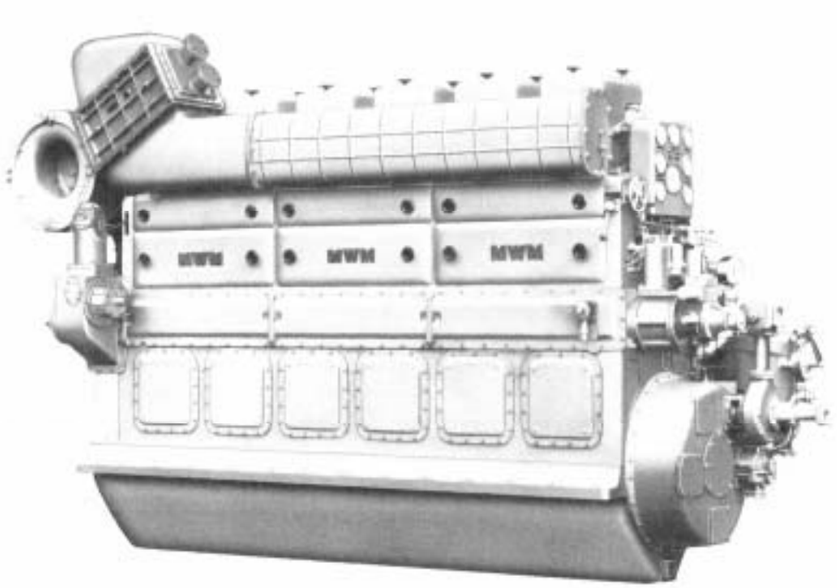
WÄRTSILÄ

Total Service



WÄRTSILÄ DEUTZ marine engines

Characteristics

- Water-cooled 6 and 8 cylinder in-line engine.
- Direct fuel injection.
- Engine with turbocharger.
- One inlet and one exhaust valve per cylinder head.

Benefits

- Engine can be furnished for direct reversing.
- Running on gas oil, marine diesel oil or heavy fuel oil.

WÄRTSILÄ

➢ Engine description

Crankcase
The crankcase and bedplate are made of cast iron.
The bedplate is mounted to the frame with bolts.

Crankshaft
The crankshaft is solid forged.
Full power take-off is possible at both ends of the crankshaft.

Torsional vibration damper
Viscous-fluid vibration damper.

Cylinder liner
The cylinder liner is made of high wear-resistant cast iron.

Connecting rod
The drop forged connecting rod has 4 connecting rod bolts.
The main and big end bearings are precision-type bearings consisting of steel back with copper-lead lining and a galvanic plated running layer.

Piston
The piston is made of forged light metal and has 5 piston rings.
On the engine types TBD500-B, TBD500-D and TBD500-E the piston is cooled by oil supplied through the piston pin and the connecting rod.
The engine types TD500 and TBD500 have an uncooled piston.
The engine types TBD500-F and TBD500-G have an oil cooled composite type piston.

Cylinder head
The cylinder head is made of special cast iron and contains one inlet and one exhaust valve, an injection valve, a starting valve and a safety valve.
The inlet and exhaust valve are provided with valve cages.
For heavy fuel oil operation the valve seat rings are hard alloy faced and the exhaust valves have cooled valve seats.

Camshaft
On the direct reversible engine the camshaft can be shifted longitudinally and is equipped with cams for 'forward' or 'reverse'.

Injection pump
The engine has single injection pumps which are actuated by the camshaft.

Governor
The engine has a hydraulic-mechanical governor.

Fuel system
An electrically fuel supply pump, individual vertical injection pumps and a change-over duplex fuel filter is mounted in the fuel system.
The injection pumps are constantly circulated with fuel; the fuel is warmed up to the most suitable injection temperature by means of viscosity controlled heating elements.

Lubricating oil system
Forced oil circulation by engine mounted gear lubricating pump.
The system is provided with a change-over duplex filter and an oil cooler mounted on the engine.
Pre-lubrication before starting, optionally by hand pump or electric pump.

Lubricating oil filter
Change-over duplex filter.

Starting system
The engine starts with compressed air via starting air valves in the cylinder head.

Cooling water system
Indirect cooling (two circuits) with fresh water centrifugal pump and raw water pump, heat exchanger and thermostat.
If required, an additional cooler is included in the raw water circuit for cooling accessory equipment.

Turbocharging
The engine has a water-cooled turbocharger.
The charge air is cooled by means of an intercooler in the raw water circuit.
The exhaust turbocharger can be installed at driving end or at free end.
The manifolds are heat insulated.

Optional
Engine driven fuel supply pump; suction pump for service oil tank mounted separately; free-standing thrust bearing; electric lubricating oil pumps; charge air cooling control by thermostats; safety valves for engine crankcase; water filters; etceteras.

➢ Technical Data

Engine type		TD500-6(U)	TBD500-6(U)B	TBD500-6(U)D	TBD500-6(U)E	TBD500-6(U)F	TBD500-6(U)G
Model		in-line	in-line	in-line	in-line	in-line	in-line
Number of cylinders		6	6	6	6	6	6
Bore / stroke	mm	360/450	360/450	360/450	360/450	360/450	360/450
Displacement	l	275	275	275	275	275	275
Compression ratio		12.5	12.5	12.5	12.5	12.5	12.5
Direction of rotation		clockwise or counter-clockwise					
Power ratings for propulsion units and on board generating sets							
Continuous output A							
at 375 min^{-1}	kW	717	1030	1258	-	1030	-
at 514 min^{-1}	kW	956	-	-	1324	-	1214
Mean effective pressure							
at 375 min^{-1}	bar	8.35	11.90	14.70	-	11.99	10.39
at 514 min^{-1}	bar	8.10	-	-	11.24	-	-
Specific fuel consumption at full load[2]							
up to 375 min^{-1}	g/kWh	207	203	211	-	203	-
over 375 min^{-1}	g/kWh	209	-	-	209	-	203
Lubrication oil consumption[3]							
at 375 min^{-1}	kg/h	1.36	1.36	1.36	1.36	1.36	1.36
at 500 min^{-1}	kg/h	1.81	1.81	1.81	1.81	1.81	1.81
Idling speed	min^{-1}	140	120	120	140	120	140
Oil capacity[4]	l	50	50	50	50	50	50

Engine type		TD500-8(U)	TBD500-8(U)B	TBD500-8(U)D	TBD500-8(U)E	TBD500-8(U)F	TBD500-8(U)G
Model		in-line	in-line	in-line	in-line	in-line	in-line
Number of cylinders		8	8	8	8	8	8
Bore / stroke	mm	360/450	360/450	360/450	360/450	360/450	360/450
Displacement	l	367	367	367	367	367	367
Compression ratio		12.5	12.5	12.5	12.5	12.5	12.5
Direction of rotation		clockwise or counter-clockwise					
Power ratings for propulsion units and on board generating sets							
Continuous output A							
at 375 min^{-1}	kW	956	1379	1677	-	1379	-
at 514 min^{-1}	kW	1276	-	-	1765	-	1618
Mean effective pressure							
at 375 min^{-1}	bar	8.34	12.01	14.62	-	12.02	-
at 514 min^{-1}	bar	8.11	-	-	11.23	-	10.30
Specific fuel consumption at full load[2]							
up to 375 min^{-1}	g/kWh	207	203	211	-	215	-
over 375 min^{-1}	g/kWh	209	-	-	209	-	203
Lubrication oil consumption[3]							
at 375 min^{-1}	kg/h	1.81	1.36	1.36	1.36	1.81	1.81
at 500 min^{-1}	kg/h	2.45	2.45	2.45	2.45	2.45	2.45
Idling speed	min^{-1}	140	120	120	140	120	140
Oil capacity[4]	l	59	59	59	59	59	59

[1] Continuous output A as per DIN 6270 with a 10% overload permissible for duration of one hour within 6 hours.
Output measured at 736 mm Hg and 20 °C and 60% air humidity. The output figures include power required for coolant circulating pump.

[2] The fuel consumption figures are based on the engine output figures quoted when using a fuel with a calorific value lower than 10,000 kcal/kg. They are guaranteed only at full load according to DIN 6270 and BSS 649,1958, with a tolerance of 5% after completion of 100 hours running-in without deduction of the power requirements of auxiliaries installed.
Consumption evidence only on our test bank with calibrated brake.
Heavy fuel oil specification (permissible maximum values):

viscosity:	max. 1.4638 cm^2/s	ash:	max. 0.04% wt
spec. weight:	max. 0.97 gr/cm^3	sediments:	max. 0.1% wt
Carbon Conradson:	max. 9% wt	water:	max. 0.5% vol.
sulphur:	max. 3.5% wt	vanadium:	max. 150 ppm

[3] Without considering oil changes.

[4] Oil capacity of the engine ready for operation.