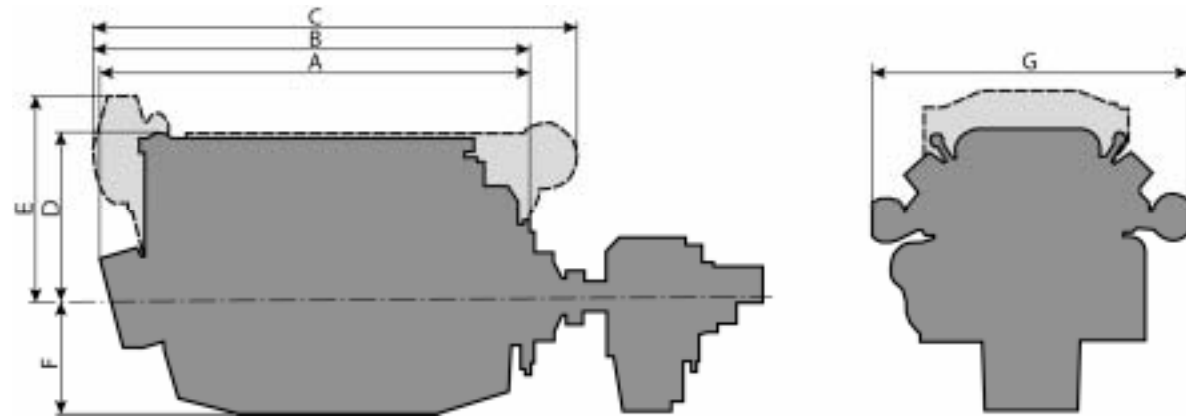


➤ Dimensions



Engine type		A	B	C	D	E	F	G
D602V12	mm	2100	2150	-	770	1050 ⁷⁾	550	1550
TD602V12	mm	2270 ⁶⁾	-	2300	1150 ⁸⁾	1150 ⁸⁾	550	1550
TD602V16	mm	2770 ⁶⁾	-	2870	1150 ⁸⁾	1150 ⁸⁾	550	1550
TBD602-V12(S) ⁵⁾	mm	2270 ⁶⁾	-	2300	1150 ⁸⁾	1150 ⁸⁾	550	1550
TBD602-V16(S) ⁵⁾	mm	2770 ⁶⁾	-	2870	1150 ⁸⁾	1150 ⁸⁾	550	1550
TBD602-V12K	mm	2270 ⁶⁾	-	2300	1150 ⁸⁾	1150 ⁸⁾	550	1550
TBD602-V16K	mm	2770	-	2870	1150 ⁸⁾	1150 ⁸⁾	550	1550

Engine type	Weight (t)
D602V12	3.75
TD602V12	4.25
TD602V16	5.10
TBD602-V12(S) ⁵⁾	4.35
TBD602-V16(S) ⁵⁾	5.20
TBD602-V12K	4.50
TBD602-V16K	5.80

⁶⁾ with turbochargers

⁷⁾ with heat exchanger

⁸⁾ with exhaust gas compensator

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Total Service



WÄRTSILÄ DEUTZ marine engines

Characteristics

- Water-cooled 12 and 16-cylinder 90° V-engines.
- Direct fuel injection.
- Mechanical or hydraulic governing.
- Two cooling water systems: indirect cooling and outboard/keel cooling.
- Turbochargers, air and piston cooling depends of the needed engine output.
- The engine block has internal oil channels.

Benefits

- Compact and robust engines designed for high-performances.
- Low maintenance costs due to good accessibility of all engine components.
- Operating costs reduction due to low fuel consumption.
- Easy engine operation.
- Easy maintenance.
- Easy overhaul.



➤ Engine description

Crankcase	The crankcase with reinforced ribs is made of grey cast iron.
Crankshaft	The crankshaft is made of high-grade steel and inductive tempered at the bearing positions.
Torsional vibration damper	A viscous-fluid damper is mounted on the crankshaft.
Cylinder liner	The engine has a water-cooled cylinder liner made of a centrifugally cast iron alloy.
Connecting rod	The obliquely split connecting rod is made of heat-treated, forced Cr-steel. It can be dismantled via the cylinder liner. The big end bearing has a steel back.
Piston	The piston is made of a special light-metal alloy and has four piston ring grooves. It has three compression rings and one oil scraper ring. The upper compression ring is chrome plated.
Cylinder head	The cylinder head is made of special grey cast iron. The cylinder head has either two inlet and two exhaust valves or one inlet and one exhaust valve. This depends on the engine output. All valves are supplied with valve rotators.
Camshaft	The camshaft is hardened and grinded. The camshaft bearing bushes are interchangeable.
Injection pump	The engine has a block pump with internal camshaft.
Governor	A mechanical or hydraulic governor, mounted at the block pump, controls the engine speed.
Fuel system	A fuel supply pump and a single or duplex filter are mounted in the fuel system.
Lubricating oil system	Forced oil circulation by engine mounted gear lubricating oil pump. Pre-lubrication by hand. Automatic pre-lubrication is optional.
Lube oil filter	Single filter or duplex filter with paper inserts. Lubricating oil centrifuge in by-pass circuit.
Starting system	Electric starter (24 V). Compressed air starter is optional.
Cooling water system	The engine types can have the following cooling water systems: <ul style="list-style-type: none"> • Two-circuit cooling water with a freshwater centrifugal pump and a raw water pump, seawater resistant heat exchanger and cooling water thermostat. • Outboard cooling with freshwater pump and cooling water thermostat. Charge air cooling on engine types with a 'B' after the 'T'.
Turbochargers	Turbochargers are mounted on engine types beginning with a 'T'.
Optional	<ul style="list-style-type: none"> • Generator • Coupling • Etceteras
Classification	By all established classification societies.

➤ Technical Data

Engine type		D602V12	TD602V12	TD602V16
Model		90° V-engine	90° V-engine	90° V-engine
Number of cylinders		12	12	16
Bore / stroke	mm	160 / 165	160 / 165	160 / 165
Displacement	l	39.8	39.8	53.1
Compression ratio		16	15	15
Direction of rotation ¹⁾		counter-clockwise		

Power ratings for marine propulsion units and on board generating sets

Rated speed	min ⁻¹	1000-1800	1000-1800	1000-1500
Engine output ²⁾	kW	220-360	300-480	400-595
Mean effective pressure	bar	6.16-6.78	8.22-9.25	9.20-9.25
Fuel consumption ³⁾	g/kWh	215-231	212-224	212-214
Lubricating oil consumption ⁴⁾	kg/h	0.45-0.75	0.50-1.00	0.70-1.20
Idling speed	min ⁻¹	600	600	600
Total oil capacity of engine	l	175	175	190

Engine type		TBD602-V12(S) ⁵⁾	TBD602-V16(S) ⁵⁾	TBD602-V12K	TBD602-V16K
Model		90° V-engine	90° V-engine	90° V-engine	90° V-engine
Number of cylinders		12	16	12	16
Bore / stroke	mm	160 / 165	160 / 165	160 / 165	160 / 165
Displacement	l	39.8	53.1	39.8	53.1
Compression ratio		15	15	14.6	14.6
Direction of rotation ¹⁾		counter-clockwise			

Power ratings for marine propulsion units and on board generating sets

Rated speed	min ⁻¹	1000-1800	1000-1500	1200-1800	1200-1800
Engine output ²⁾	kW	370-640	495-750	570-850	760-1140
Mean effective pressure	bar	10.95-11.52	11.35-11.52	14.6	14.6
Fuel consumption ³⁾	g/kWh	209-218	154-211	211-218	211-218
Lubricating oil consumption ⁴⁾	kg/h	0.65-1.30	0.85-1.50	1.15-1.75	1.50-2.30
Idling speed	min ⁻¹	600	600	600	600
Total oil capacity of engine	l	175	190	175	190

¹⁾ According to ISO 1204.

²⁾ Continuous power according to DIN 6270, exceedable by 10% for 1 hour within operating period.

³⁾ Fuel consumption figures are based on the engine output, using a fuel with a calorific value of at least 41,868 kJ/kg (10,000 kcal/kg).

⁴⁾ Without taking into account lube oil changes.

⁵⁾ Indication 'S': engine with 2-valve cylinder head and piston cooling.

Indication 'K': engine with 4-valve cylinder head and piston cooling.

No indication: engine with 2-valve cylinder head and without piston cooling.