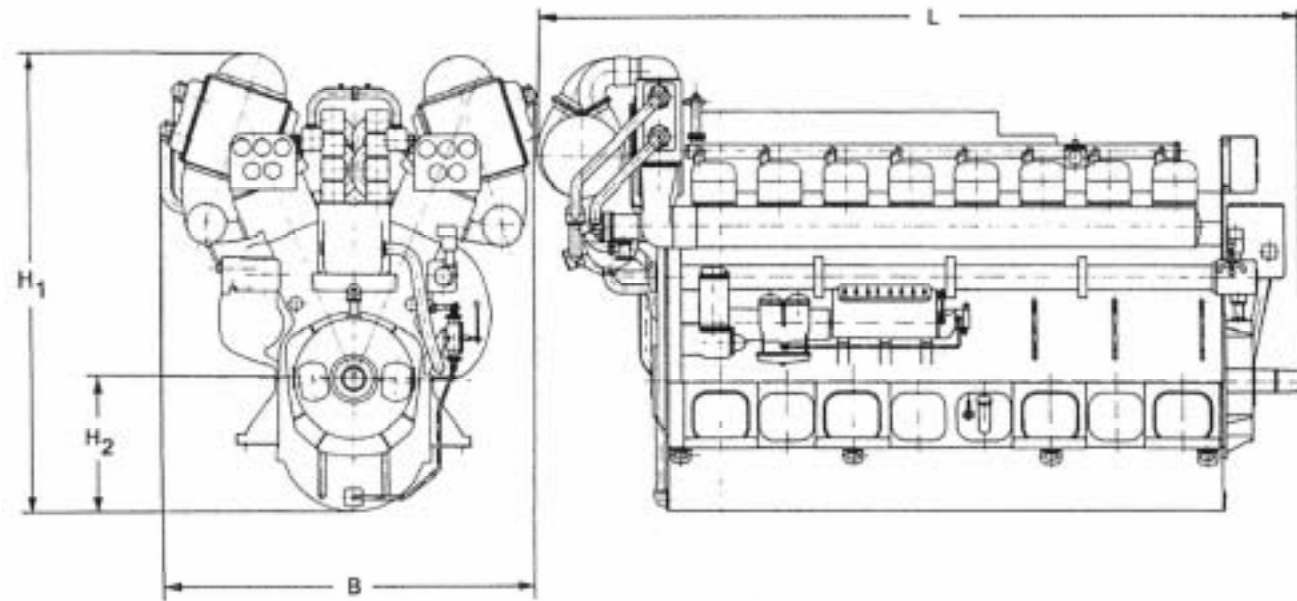


➤ Dimensions



Engine type		B	H ₁	H ₂	L
D441-V12	mm	2400	2230	740	3410
D441-V16	mm	2400	2230	740	4150
TD441-V12	mm	2400	2560	740	3305
TD441-V16	mm	2400	2560	740	4045
TBD441-V12(K)	mm	2400	2710	740	3910
TBD441-V16(K)	mm	2400	2710	740	4650

Engine type	Weight ⁴⁾ (t)
D441-V12	10.3
D441-V16	13.0
TD441-V12	10.7
TD441-V16	13.4
TBD441-V12(K)	11.5
TBD441-V16(K)	14.0

⁴⁾ Dry

WÄRTSILÄ® and DEUTZ® are registered trademarks. Copyright © 2006 Wärtsilä Nederland B.V.

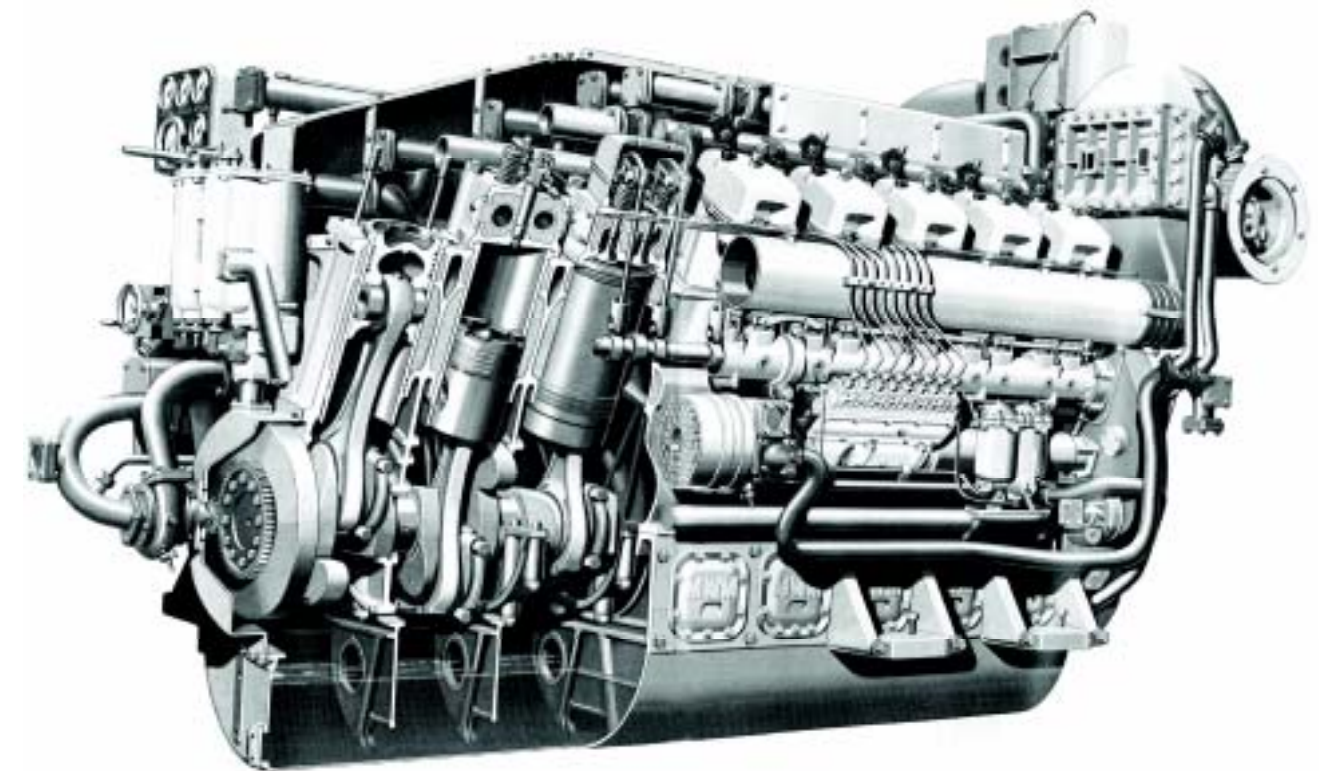
Wärtsilä Nederland B.V.

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



Total Service



WÄRTSILÄ DEUTZ marine engines

Characteristics

- Rigid engine.
- Crankshaft in underslung arrangement.
- Cylinder heads with four-valves technology.
- Direct injection.
- Engine with or without turbochargers and air cooler.

Benefits

- Reliable.
- Low fuel consumption.
- Easy maintenance.
- Long service life.



➤ Engine description

Crankcase	The crankcase is made of cast iron with heavily ribbed bracing of the underslung bearing pedestals, giving high rigidity of the engine.
Crankshaft	The crankshaft is made of forged steel, has hardened journal pins and has bolted counterweights. Power take-off at both crankshaft ends is possible.
Torsional vibration damper	Fluid-viscosity vibration damper.
Cylinder liner	The water-cooled cylinder liner is made of special wear-resistant centrifugally cast iron.
Connecting rod	The drop-forced obliquely split connection rod has a serrated joint. Two bolts tighten the bearing cap to the connecting rod foot.
Piston	The piston crown of the oil-cooled piston is made of light metal.
Cylinder head	The cylinder head is made of spherical graphite cast iron. Each cylinder head has two inlet and two exhaust valves with valve rotators. Four bolts secure the cylinder head to the crankcase.
Camshaft	The cams and bearing surfaces of the camshaft are hardened.
Injection pump	The engine has a block-type injection pump.
Governor	Hydraulic governor.
Fuel system	The engine has a fuel supply pump, a fuel transfer pump to fill the high service tank and a duplex change-over filter.
Lubricating oil system	The engine has a wet or a dry sump, gear pump and a lubricating oil filter. D-engines have a lubricating oil cooler attached to engine in case of a fresh-water cooling system. TBD-engines have a lubricating oil cooler in case of a low temperature or seawater circuit.
Starting system	The engine is started with compressed air via starting air valves, which are mounted in the cylinder heads.
Cooling water system	Options: <ul style="list-style-type: none"> • Single-circuit mixed cooling. • Twin-circuit central cooling. • Indirect cooling system.
Exhaust gas system	Engine type with a 'D' has a water-cooled exhaust manifold. Engine type with a 'T' has isolated exhaust lines.
Turbocharging	Engine type with TBD: The engine has a water-cooled turbocharger at driving end and a charge-air cooler.
Classification	By all established classification societies.

➤ Technical Data

Engine type ³⁾	D 441V12	D 441V16	TD 441V12	TD 441V16	TBD 441V12(K)	TBD 441V16(K)
Model	45° V-engine					
Number of cylinders	12	16	12	16	12	16
Bore / stroke	mm	230 / 270	230 / 270	230 / 270	230 / 270	230 / 270
Displacement	l	134.6	179.5	134.6	179.5	134.6
Compression ratio		15	15	14	14	13.3
Direction of rotation	clockwise and counter-clockwise					

Power ratings for marine propulsion units and on board generating sets

Rated output ¹⁾						
at 600 min ⁻¹	kW	400	530	600	800	960
at 1000 min ⁻¹	kW	630	840	940	1250	1800
Mean effective pressure	bar	5.7 - 5.9	5.7 - 5.9	8.6 - 9.0	8.6 - 9.0	11.8 - 15.4
Fuel consumption at full load ²⁾						
at 750 min ⁻¹	g/kWh	204	206	220	220	192
at 1000 min ⁻¹	g/kWh	209	213	222	222	201
Lubricating oil consumption	kg/h	1.6	2.2	1.72	2.28	1.8 - 2.2

¹⁾ ISO standard output (continuous net brake power) with a 10% overload capacity permissible for one hour within 12 hours. As per DIN 6271 or ISO 3046-I under the following conditions:

Air temperature	27 °C
Atmospheric pressure	1000 mbar
Relative humidity	60%
Cooling water temperature before charge air cooler	27 °C

For marine propulsion engines, the MCR (maximum continuous rating) is a service power, to be understood as a continuous net brake power blocked at 100% load.

This complies with the ISO standard output, but under the following conditions:

Air temperature	45 °C
Atmospheric pressure	1000 mbar
Relative humidity	60%
Cooling water temperature before charge air cooler	32 °C

²⁾ The fuel consumption values are related to the indicated engine output and full load as per DIN 6271 with a tolerance + 5%, when using a fuel with a lower calorific value of at least 42,700 kJ/kg (10,200 kcal/kg).

³⁾ Explanation of model designation:

T	= Engine with turbocharger(s)
B	= Engine with air cooler
D	= Diesel engine
K	= Increased power