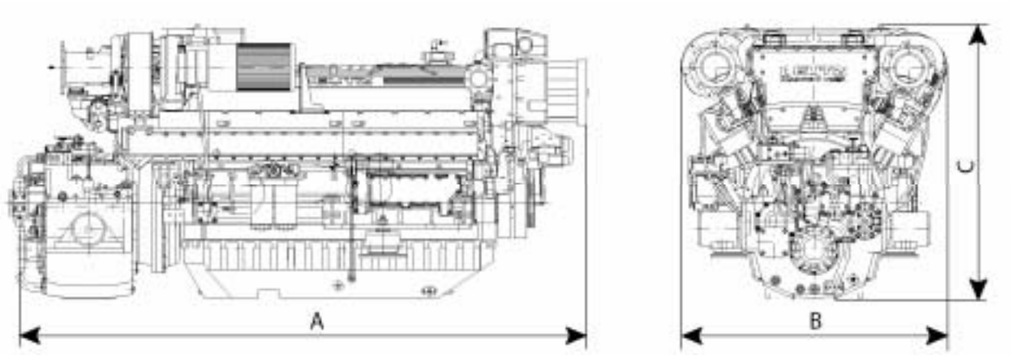
2016

1125-1500 kW at 2300 min^{-1}

➢ Dimensions



Engine type		A	B	C
TCD 2016 V12	mm	2365	1290	1390
TCD 2016 V16	mm	2830	1335	1400

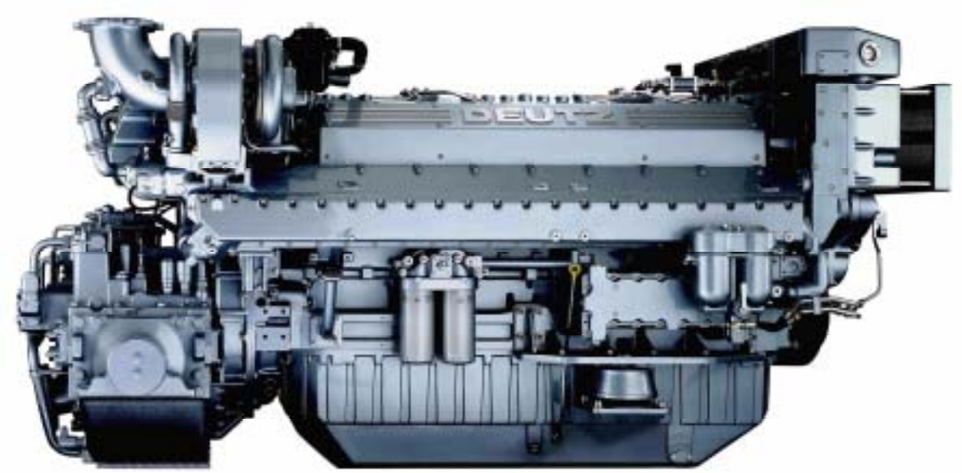
Engine type		TCD 2016 V12	TCD 2016 V16
Weight, dry	t	2.9	3.7

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

WÄRTSILÄ

Total Service



WÄRTSILÄ DEUTZ marine engines

Characteristics

- Modern water-cooled 12, 16 cylinder 60° V-engines with turbochargers and charge air cooler.
- Electronic monitoring system.
- Cylinder heads with four-valve technology.
- Charge air pressure controlled waste gate.
- Turbochargers and charge air cooler.
- Digital GAC regulating system.
- PEARL® exhaust system (Pulse Energy Advanced Recovery Line).
- New crankcase breathing system.

Benefits

- Electronic engine monitoring enhances safety and reliability of your engine.
- Operating cost reduction due to low fuel consumption.
- Outstanding power-to-weight ratio.
- Compact engine.
- High performance.
- High reliability.
- Outstanding acceleration due to waste gate.
- Improved exhaust gas emission.

WÄRTSILÄ

➢ Engine description

Crankcase	The crankcase is particularly strong.
Crankshaft	The crankshaft is high-alloyed and has counterweights, bolted at the crank webs. At the opposite end of the flywheel a V-belt pulley is mounted, which drives two three-phase current generators, if mounted.
Torsional vibration damper	A viscous-fluid damper is mounted on the engine.
Connecting rod	The connecting rod has been split obliquely. The bearing cap is mounted at the connecting rod foot by 2 bolts. The big end bearings are of the sputtered type
Piston	The piston is made of aluminium and has 3 piston ring grooves. The piston is internally cooled by lubricating oil.
Cylinder head	The cylinder head has two inlet and two exhaust valves per cylinder, actuated via rocker arms. The injection valve is mounted in the centre of the cylinder head. Coolant is fed through the cooling channels in the cylinder head above all to cool the valve seats and injection valve.
Camshaft	The camshaft is centrally arranged in V-space.
Governor	Digital GAC regulating system, which consists of a control unit, an actuator and an engine speed frequency generator
Fuel system	Parts, which are mounted in the fuel system, are a fuel supply pump, a fuel hand pump, fuel filter, block pump, overflow valve and an injection valve.
Lubricating oil system	A bypass valve is installed in the lube oil cooler to avoid the flow of lube oil being interrupted in a cold start. The overpressure valve opens when the lube oil pressure is sufficiently high and allows the surplus lube oil to flow back into the oil tray.
Starting air system	The engine is started with an air starter motor.
Cooling water system	A single circuit mixed cooling, which consists of an engine mounted plate-type heat exchanger, a charge air cooler, heat shield of exhaust pipes, a coolant circulating pump, lubricating oil cooler, thermostats.
Charge air system	The intake manifolds are arranged in V-space and have integrated coolant return-pipes. A charge air cooler is mounted in the charge air system.
Exhaust gas system	PEARL® exhaust system. A water-cooled heat shield protects us against the hot surface of the exhaust pipe.
Turbochargers	The engine has two Holset turbochargers. A waste gate is mounted in the exhaust gas system to control the maximum permissible charge air pressure.
Crankcase breather	The engine has a closed circuit system. This is called a crankcase bleed system. The fumes of the crankcase are separated in the crankcase bleed unit. After passing the filter element, the purified residual gases are fed into the suction air pipe of the turbocharger.
Optional	Hydraulic pump, three-phase current generator(s), gearbox etceteras.
Classification	By all established classification societies.

➢ Technical Data

Engine type		TCD 2016 V12	TCD 2016 V16
Model		60° V-engine	60° V-engine
Cylinder configuration		12	16
Bore / stroke	mm	132/160	132/160
Displacement	l	26.27	35.04
Compression ratio		15	15
Direction of rotation		counter-clockwise	counter-clockwise

Power ratings for marine propulsion units and on board generating sets

According to power category D[1)]			
At 2300 min^{-1}	kW	1125	1500
Fuel consumption at rated power[2)]	g/kWh	215	216
Fuel consumption at max. efficiency[2)]	g/kWh	191	196

[1)] Nominal power according to DEUTZ Power category D for Yachts and fast patrol:
- Typical operating time per year 1000 h
- Operating period with more than 90% of nominal power max. 10%
- Average load max. 40%

The power is given for the ISO 3046 conditions: 25 °C air-intake temperature, 50 °C charge air coolant intake temperature, 1000 mbar air pressure and 30% relative air humidity.
For the following conditions according to IACS a power reduction of 2.5% applies: 45 °C air intake temperature, 50 °C charge air coolant intake temperature, 1000 mbar air pressure and 60% relative air humidity.

[2)] Specific fuel consumption with a tolerance of 5% including all engine driven pumps at nominal rating and for the following conditions: 25 °C air intake temperature, 50 °C charge air coolant intake temperature, 1000 mbar air pressure and 30% relative air humidity.