

TCD 2010

The Construction Equipment Engine

50–85 kW | 67–114 hp at 2600 min⁻¹ | rpm

EU Stage III B / US EPA Tier 4 interim

The engine company.



Tier 4 – our driving force, your advantage.

Starting January 2011, diesel engines of mobile construction machines with power classes ranging from 56 to < 130 kW must meet European regulations on exhaust emissions according to EU Stage III B or US EPA Tier 4 interim. These emission standards will require considerable reductions in particulate matter and NO_x emissions.

The considerable reduction of pollutant emission requires that engines be equipped with additional exhaust emission treatment equipment that is adapted to the respective combustion principle.

The individual solution counts

Our goal as engine specialists is to provide our customers with engines that not only meet all of their power needs but also comply with the various emission regulations worldwide while meeting their demands for efficient and economical engine operation. We are therefore developing solutions oriented to meet individual customer requirements.

The modular DVERT® system developed by DEUTZ enables us to implement different emission-reducing techniques specifically tailored to fulfill requirements while maintaining the proverbial criteria of our engines, which includes high economy, dependability, and long life.

The diesel oxidation catalytic converter combined with diesel particulate filter is one of the DVERT® modules we use. This is the standard technology we implement for 2010-series engines that must comply with the EU exhaust emission stage III B and the Tier 4 Interim in the United States.

The diesel oxidation catalytic converter initially oxidizes gaseous pollutants such as HC, CO, and NO. Soot particulates are then captured in an enclosed diesel particulate filter installed after the catalytic converter.

Regeneration of the diesel particulate filter

A continuous catalytic reaction regenerates the filter. The NO₂ produced in the diesel oxidation catalytic converter oxidizes in the diesel particulate filter thereby generating the temperature required to burn off the deposits of soot. This type of filter regeneration is possible for virtually all load patterns and represents by far the most cost-effective solution.

As an alternative, DEUTZ also offers for this engine series a burner solution combined with an enclosed DOC/DPF system where the filter is regenerated by a burner combined with an exothermic reaction in the diesel oxidation catalytic converter. The burner creates a primary flame that is used to vaporize additionally injected fuel. The exothermic reaction of this fuel vapor in the downstream oxidation catalytic converter ensures that the temperature of the exhaust is increased to the level necessary for regenerating the diesel particulate filter. This optional solution enables regeneration of the diesel particulate filter for all load patterns and is therefore suitable for all possible applications.

DVERT® – solutions for the future

Only after exhaust emission stage EU IV / US EPA Tier 4 take effect, will it be necessary to equip engines of this model series with an additional SCR system. When the time comes, DEUTZ will be able to draw on its cache of DVERT® modules already available today.

Characteristics

4 cylinder in-line engines turbocharging and charge air-cooling | Liquid-cooled | Compact engine design | Advanced fuel injection and combustion system | Full line customized options | Cold starting ability for extreme climatic conditions | Full power at flywheel end for axial or radial drives | Two optional PTOs from gear end cover

Your Benefits

- Compact engine, for low cost and space saving installations.
- Competitive power to weight ratio.
- The 2010 complies with emissions controls for mobile machinery in accordance with EU Nonroad 2004/26/EU Stage III B and US EPA Tier 4 interim.
- Simple design with high reliability.
- Long maintenance intervals reducing after sales cost for your customers.

Engine Specifications

Cooling system:	Liquid-cooled, water circulation pump driven by V-belt, thermostat and integrated bypass system
Crankcase:	Ribbed, thin-wall grey cast iron
Crankcase breather:	Closed-circuit system
Cylinder head:	Cast iron cross flow cylinder head with separate aluminum inlet manifold
Valve arrangement/ Timing:	Overhead valves in cylinder head, two valve per cylinder, actuated via rocker arms, push rods and hydraulic tappets, driven by low-noise helical cut gears and camshaft.
Charging:	One turbo charger on TD 2010 plus charge air cooling on TCD 2010
Piston:	Three-ring piston, two compressions rings and one oil scraper ring
Piston cooling:	Oil jet
Connecting rod:	Drop-forged steel rod, fracture split
Crankshaft and big end bearings:	Bi-metal shell bearings
Crankshaft:	Casted, made from high grade SG iron with cast-on counterweights, fillet-rolled
Camshaft:	Chilled cast iron
Lubrication system:	Gear driven lubricating oil pump
Lube oil cooler:	Internally arranged water-cooled
Lube oil filter:	Full flow spin-on cartridge filter
Fuel injection system:	Common Rail
Injection nozzle:	Multi hole nozzle
Governor:	Electronic governing
Fuel filter:	Replaceable cartridge with water trap
Alternator:	Three-phase alternator, 14 V / 50 A (Standard)
Starter motor:	12 V / 2.3 kW
Options:	Intake manifold connections, exhaust manifolds connections, hydraulic pumps drives, mass balancing gear, engine mounts, multi oil pan drains, dipsticks, SAE 4/5 flywheel housings, fly wheels, oil filter position horizontal, vertical and remote, oil filler in cylinder head cover and low level fill on side of crankcase, motor electric 12 V and 24 V, electrical fuel lift pump

Technical Data

Engine model		TD 2010 L4	TCD 2010 L4
Number of cylinders		4	4
Bore/stroke	mm in	98/120 3.86/4.72	98/120 3.86/4.72
Displacement	l cu in	3.62 221	3.62 221
Compression ratio		18 : 1	18 : 1
Rated speed	min ⁻¹ rpm	2600	2600
Mean piston speed	m/s ft-m	10.4 2047	10.4 2047

EU Stage III B / US EPA Tier 4 interim

Power ratings for mobile construction machines ¹⁾		TD 2010 L4	TCD 2010 L4
Power acc. to ISO 14396	kW hp	55.9 75	85 114
at engine speed	min ⁻¹ rpm	2600	2600
Mean effective pressure	bar psi	7.1 103	10.8 157
Max. torque	Nm ft-lb	330 243	404 298
at engine speed	min ⁻¹ rpm	1400	1400
Minimum idle speed	min ⁻¹ rpm	900	900
Specific fuel consumption ²⁾	g/kWh lb/hph	220 0.36	215 0.35
Weight acc. to DIN 70020, Part 7A ³⁾	kg lbs	270 595	270 595

1) Power ratings at flywheel gross, without cooling system.

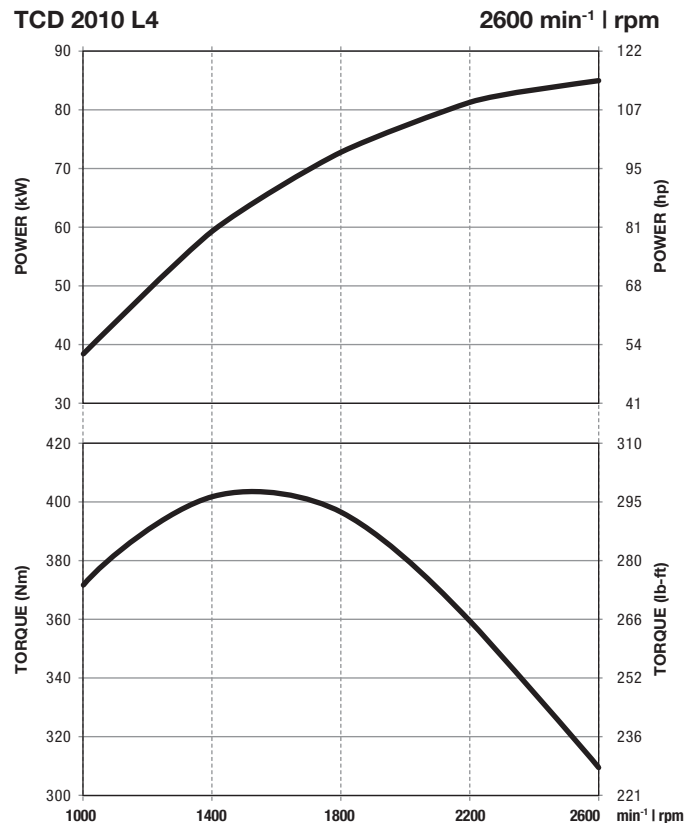
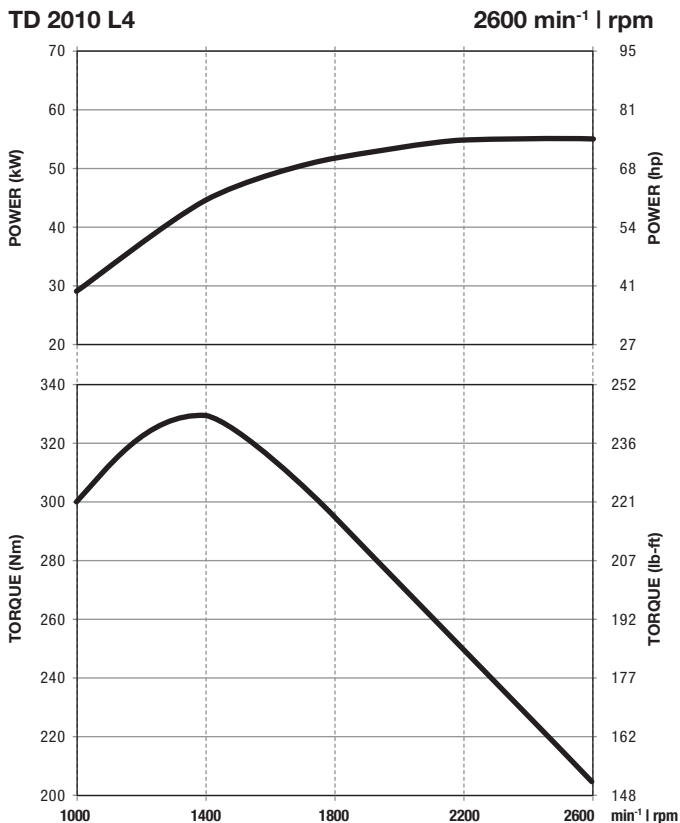
2) At optimal operating point. Specific fuel consumption based on diesel fuel with a specific gravity of 0.835 kg/dm³ at 15 °C (6.96 lb/US gallon at 60 °F).

3) Not including starter motor/alternator, radiator and operating fluids but including flywheel and flywheel housing.

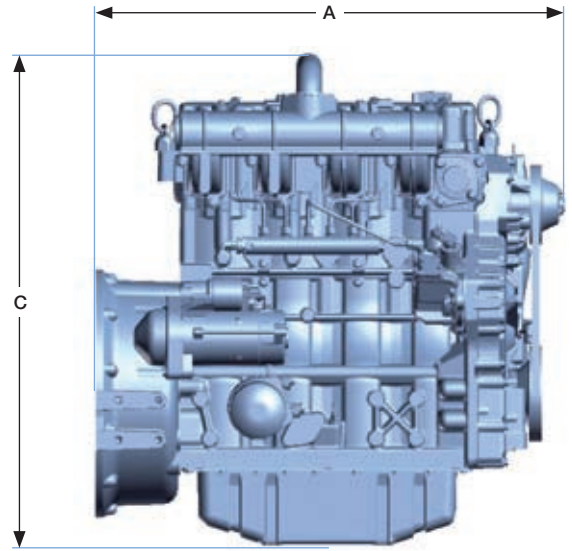
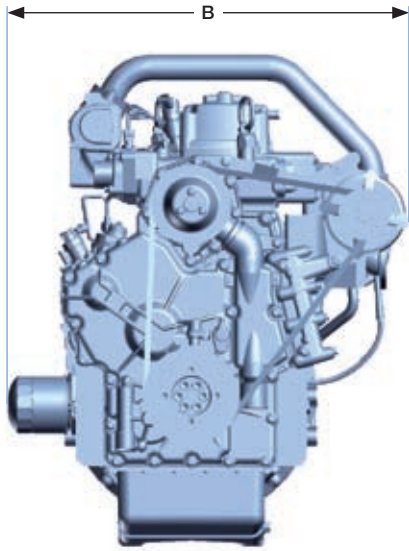
The values given in this data sheet are for information purposes only and not binding.

The information given in the offer is decisive.

Standard Engines



Dimensions		A	B	C
TD 2010 L4	mm in	713 28.1	564 22.2	732 28.8
TCD 2010 L4	mm in	713 28.1	564 22.2	732 28.8



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