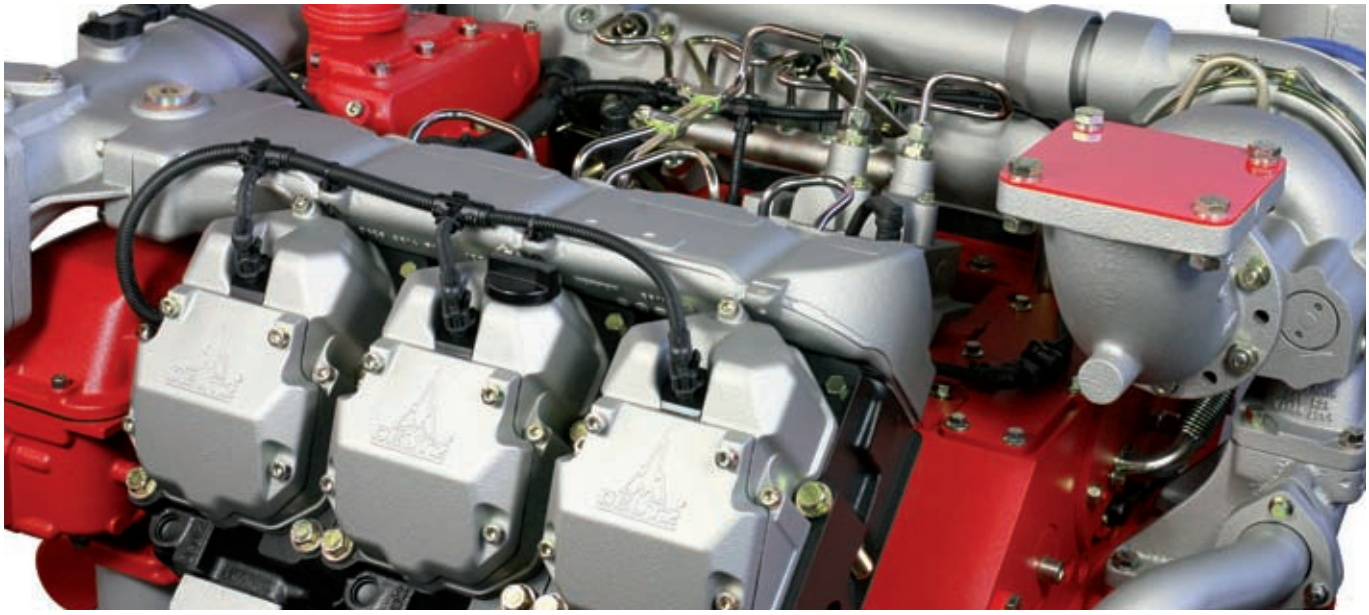


TCD 2015

The Construction Equipment Engine

300–520 kW | 402–697 hp at 2100 min^{-1} | rpm

EU Stage III B / US EPA Tier 4 interim

The engine company.

DEUTZ®

Tier 4 – our driving force, your advantage.

Starting January 2011, diesel engines of mobile construction machines with power classes ranging from 130 to < 560 kW must meet European regulations on exhaust emissions according to EU Stage III B and US EPA Tier 4 interim. These emission standards will require considerable reductions in particulate matter and NO_X emissions.

Accordingly, our engines will be receiving 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 to the greatest possible extent.

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

Selective catalytic reduction (SCR) is one of the standard DVERT® modules we use to highly efficiently reduce the NO_X emissions of our 2015-series engines, beginning with exhaust emission stages III B and EPA Tier 4 interim.

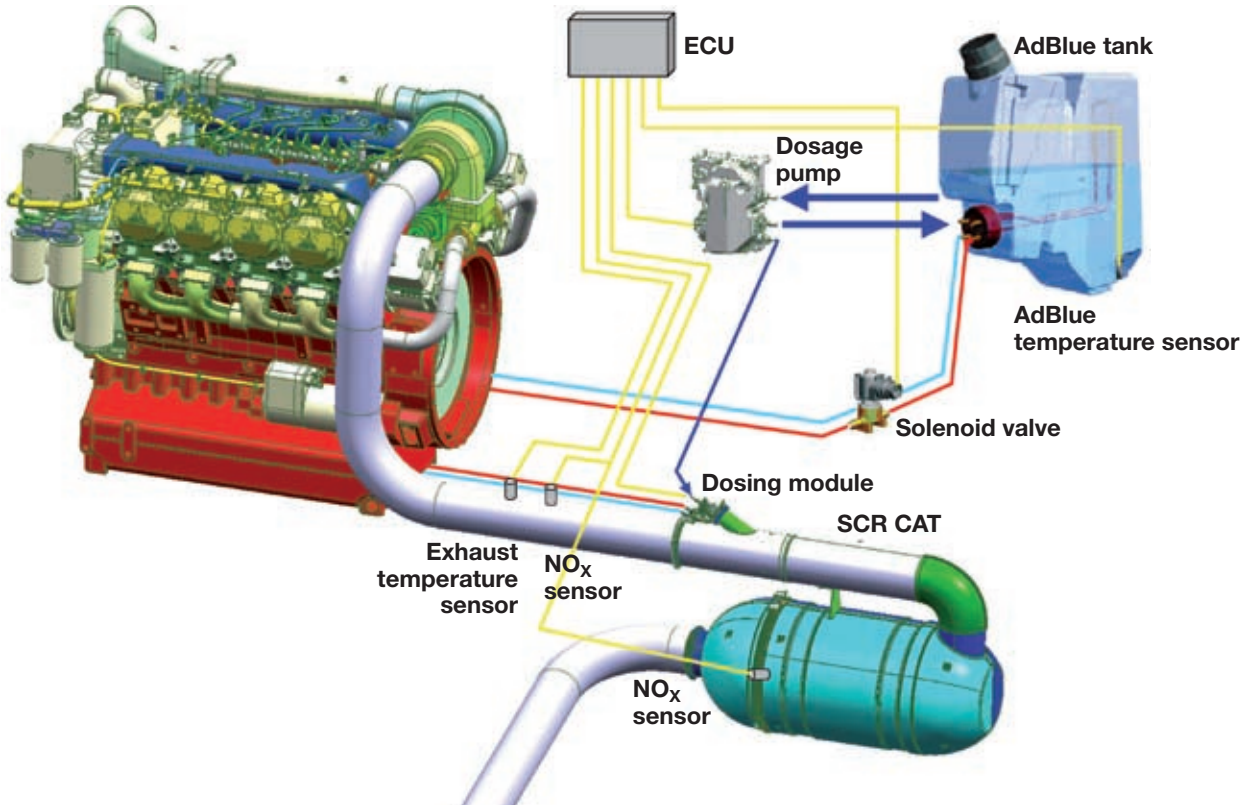
This method does not directly use the ammonia necessary for the selective catalytic reaction but instead injects it as a 35% water-based urea solution into the engine exhaust where the chemical reaction produces ammonia (NH_3) and carbon dioxide (CO_2). At the corresponding temperature, the ammonia formed in the SCR catalytic converter reacts with and reduces the nitrogen oxide (NO_X) in the exhaust. The amount of urea solution injected by a special injection nozzle depends on the amount of nitrogen oxide currently present at the engine operating point and thus the respective load and rpm. The urea consumption thus depends on the collective engine load and can range between 2% and 5% of the engine fuel consumption.

Higher performance and dynamics – lower fuel consumption

The customer benefits from using the SCR method in the 2015-series in that fuel and lubricating oil consumption remains at known low levels for his machines and no extra expense incurs for engine cooling. The SCR process, in conjunction with optimized injection and combustion technology, makes it possible to reduce particulate emission limits solely with the help of engine modifications.

DVERT® – solutions for the future

Only after exhaust emission stage EU IV / US EPA Tier 4 takes effect, will it be necessary to equip engines of this model series with combined particulate filter and $DeNO_X$ technology.



Characteristics

Modern liquid-cooled V6 and V8 cylinder, 90° engines | Optimized turbocharging with electronic control and intercooling | Four-valve technology | Exceptionally compact, powerful, and with a high power density | Electronic CR injection system (2000 bar) | Proven technology equipped with acoustically optimized components

Your Benefits

- Using proven technology with a high power density results in high equipment performance, availability, and dependability.
- The modern injection system ensures low fuel consumption and highly economical operation.
- Low noise emissions, running smoothness, and endurance are the result of tried and tested technology.
- The space-saving design of the compact 2015 engine reduces installation costs.
- The 2015 complies with emissions controls for mobile machinery in accordance with EU Nonroad 2004/26/EU Stage III B and US EPA Tier 4 interim.

Engine Specifications

Type of cooling:	Liquid cooling system
Crankcase:	Gray cast iron crankcase with wet cylinder sleeves
Crankcase breather:	Vacuum-controlled, closed-circuit system
Cylinder head:	Individual cross-flow cylinder heads made of gray cast iron
Valve arrangement/ timing:	Overhead in the cylinder head, four valves per cylinder, actuated by tappets, pushrods, and rockers. Control is driven by gears and a central camshaft.
Turbocharging:	Turbocharger and intercooler
Pistons:	Three-ring pistons
Piston cooling:	Injected cooling oil. Cooling channel pistons with additional piston bottom cooling
Connecting rod:	Drop-forged steel rod with trapezoidal piston pin boss
Crankshaft:	Drop-forged steel rod with bolted counterweights
Crankshaft and big-end bearings:	Tri-metal friction bearings / sputter bearings
Camshaft:	Steel camshaft
Lubrication:	Forced-feed lubrication with gear pump
Lubricating oil cooler:	Integrated
Lubricating oil filter:	Replaceable paper microfilter cartridge in main lubricating oil flow
Fuel injection system:	BOSCH CR System (2000 bar) with in-line piston pump (2 plungers) with electronic control
Fuel feed pump:	Mechanical gear pump
Injector:	Centered, 8-hole injection nozzle
Fuel filter:	Replaceable cartridge
Alternator:	Three-phase alternator 28 V, 55 A, 80 A, 110 A
Starter:	24 V / 5.5 kW, 6.5 kW
Heating system:	Optional connection to engine cooling circuit for cab heating

Technical Data

Engine model		TCD 2015 V6	TCD 2015 V8
Number of cylinders		6	8
Bore/stroke	mm | in	132/145 | 5.2/5.7	132/145 | 5.2/5.7
Displacement	l | cu in	11.9 | 726.2	15.9 | 970.28
Rated RPM	min^{-1} | rpm	1800–2100	1800–2100
Minimum idle speed	min^{-1} | rpm	600	600
Mean piston speed	m/s | ft-sec	10.15 | 33.3	10.15 | 33.3

EU Stage III B / US EPA Tier 4 interim

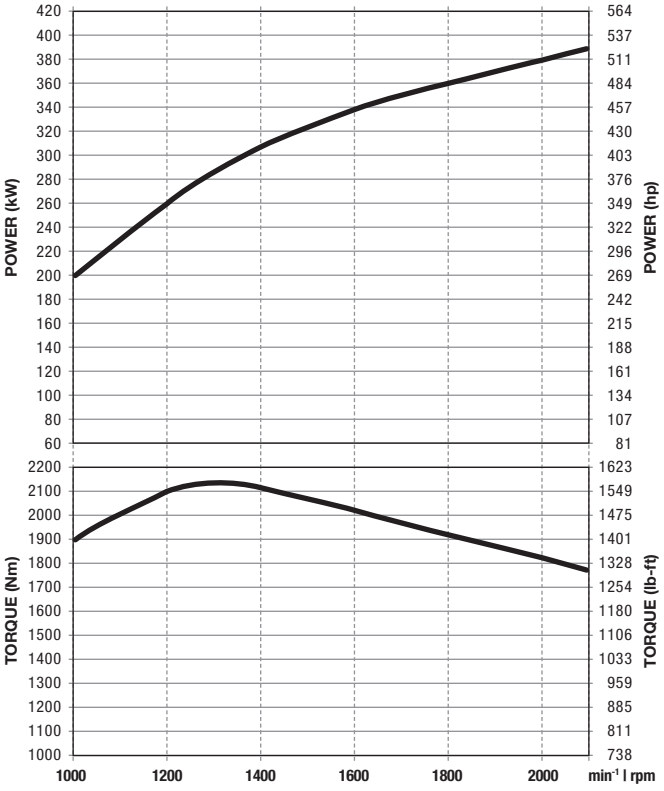
Power ratings for mobile construction maschines [1]		TCD 2015 V6	TCD 2015 V8
Power output acc. to ISO 14296	kW | hp	390 | 524	520 | 697
at engine speed	min^{-1} | rpm	2100	2100
At mean effective pressure	bar | psi	18.7 | 271.2	18.7 | 271.2
Max. torque	Nm | lb-ft	2130 | 1571.0	2890 | 2131.6
at engine speed	min^{-1} | rpm	1300	1400
Specific fuel consumption [2]	g/kWh | lb/hp-hr	211 | 0.347	212 | 0.348
Weight acc. to DIN 70020, Part 7A [3]	kg | lb	985 | 2171.55	1180 | 2601.45

1) Power ratings without cooling system
2) At WOT consumption without cooling system, based on diesel fuel with a density of 0.835 kg/dm³ at 15 °C.
3) Without starter/alternator but with flywheel and flywheel housing, lubricating oil and cooling system

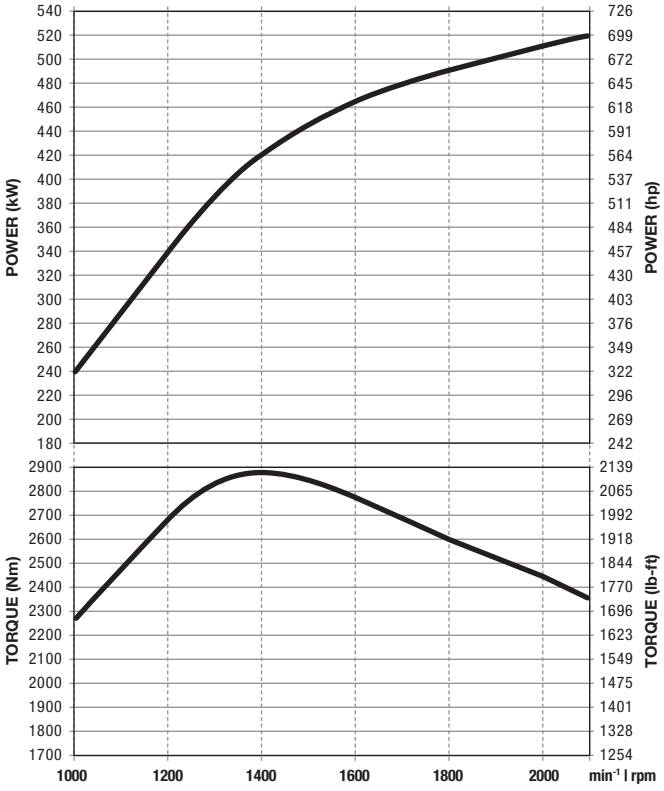
The figures indicated in this datasheet are for informational purposes only and are not binding.
The specifications in the quote are determinative.

Standard Engines

TCD 2015 V6 — **2100 min^{-1} | rpm**

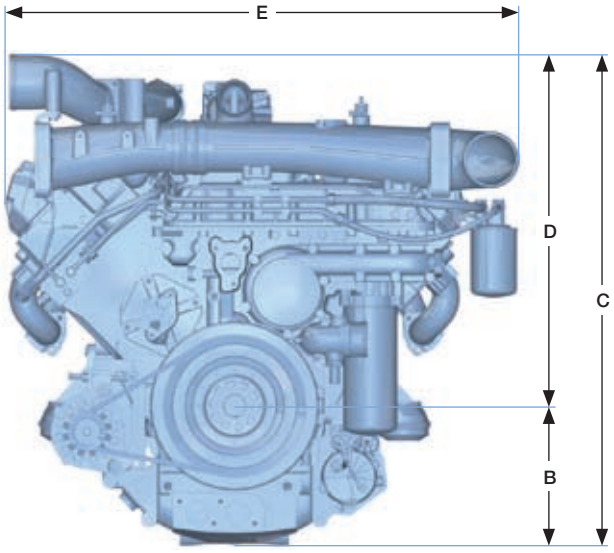


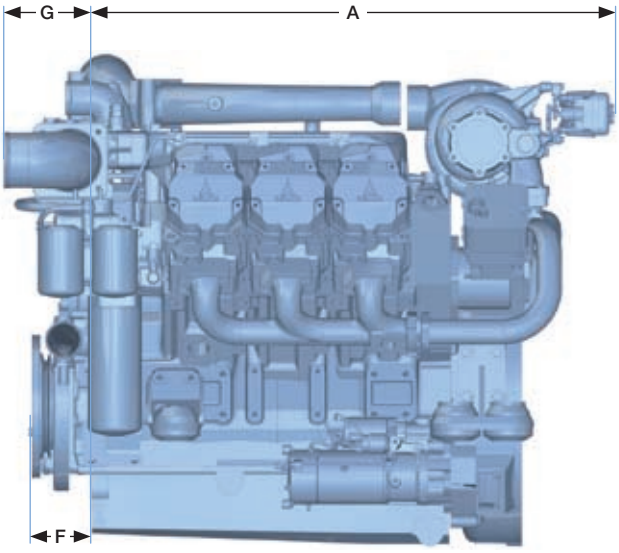
TCD 2015 V8 — **2100 min^{-1} | rpm**



TCD 2015 CR – Standard Engine

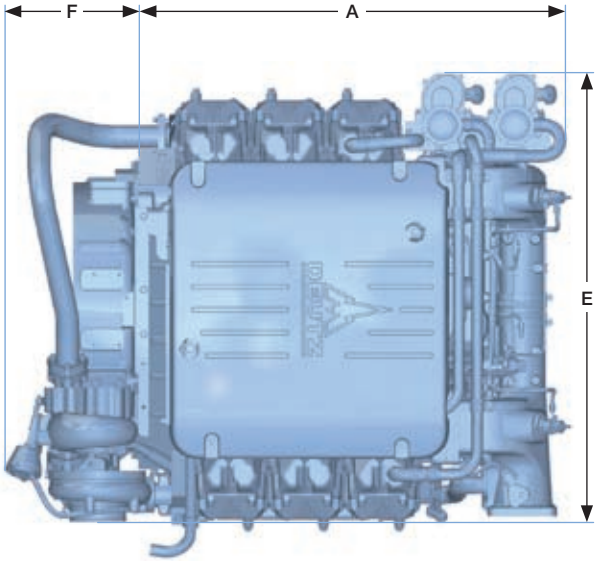
Dimensions		A	B	C	D	E	F	G
TCD 2015 CR V6	mm | in	850 | 33.5	460 | 18.1	1160 | 45.7	700 | 27.6	930 | 36.6	143 | 5.6	255 | 10.0
TCD 2015 CR V8	mm | in	1045 | 41.1	465 | 18.3	1185 | 46.7	720 | 28.4	930 | 36.6	143 | 5.6	230 | 9.1

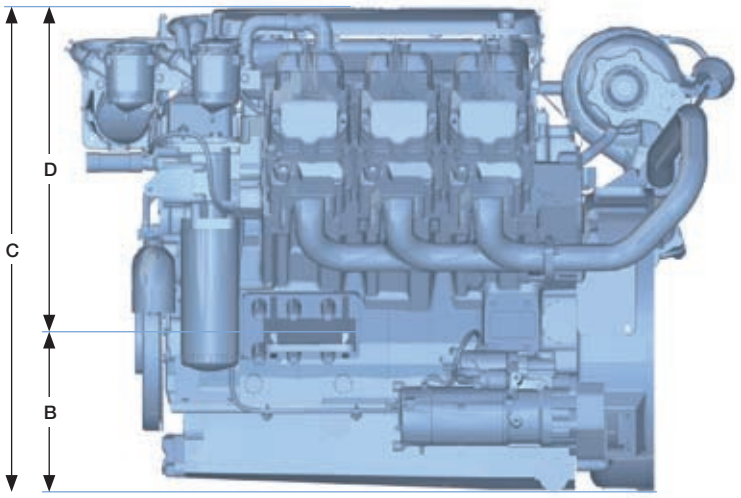




TCD 2015 CR – Flat Engine

Dimensions		A	B	C	D	E	F
TCD 2015 CR V6	mm | in	660 | 25.9	280 | 11.0	952 | 37.5	672 | 26.5	940 | 37.0	250 | 9.8
TCD 2015 CR V8	mm | in	805 | 31.7	280 | 11.0	952 | 37.5	672 | 26.5	940 | 37.0	250 | 9.8





DEUTZ worldwide:

www.deutz.com

DEUTZ AG
Ottostr. 1
51149 Cologne, Germany
Phone: +49 (0) 221 822-0
Telefax: +49 (0) 221 822-3525
E-Mail: info@deutz.com
www.deutz.com

DEUTZ Corporation
3883 Steve Reynolds Blvd.
Norcross, GA 30093, USA
Phone: +1 770 564 7100
Telefax: +1 770 564 7222
E-Mail: engines@deutzusa.com
www.deutzusa.com

DEUTZ AG Beijing Office
207 CITIC Building
Jian Guo Men Wai Dajie,
100004 Beijing, P.R. China
Phone: +86 10 65 00 64 44
Telefax: +86 10 65 12 00 42
E-Mail: dbj@deutz.com.cn
www.deutz.com.cn

DEUTZ Asia-Pacific (Pte) Ltd.
11 Kian Teck Road
628768 Singapore
Phone: +65 62 68 53 11
Telefax: +65 62 64 17 79
E-Mail: dap@deutz.com
www.deutz.com

DEUTZ Australia Pty. Ltd.
41 Woodlands Drive
3195 Braeside Vic, Australia
Phone: +61 3 9586 9600
Telefax: +61 3 9580 4090
E-Mail: deutzoz@deutz.com
www.deutz.com

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The engine company.