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# TCD 2011

# For mobile machinery

23 - 74.9 kW|31 - 100 hp at 1600 - 2800 min<sup>-1</sup>|rpm EU Stage IIIA / US EPA Tier 3

- 2, 3 and 4-cylinder engines and 4-cylinder engines with inline turbocharging, oil-cooled or optionally with an integrated cooling system. The 4-cylinder engine is also available with water cooling and charge air cooling.
- The compact engine design and an optional PTO drive reduce the installation costs and increase the number of applications.
- Best cold starting properties even under extreme conditions.



 The engines in the power range < 56 kW meets to the US EPA Tier 4 i.

- The robust engine design allows worldwide operation even with high sulphur fuels.
- All parts for maintenance on one side of the engine, long oil change intervals and easy changing of engine fluids reduce the running costs and increase the availability of the machinery.
- An efficient injection system and optimized combustion ensure optimum engine performance at low consumption.

#### Technical data

### air/oil-cooled with integrated cooling system

Engine type		D 2011 L2 I	D 2011 L3 I	D 2011 L4 I	TD 2011 L4 I
No. of cylinders		2	3	4	4
Bore/stroke	mm   in	94/112   3.7/4.41	94/112   3.7/4.41	96/125   3.78/4.92	96/125   3.78/4.92
Capacity	I   cu in	1.55  94.6	2.33  142.2	3.62   220.9	3.62   220.9
Compression ratio		19:1	19:1	19:1	18:1
Nominal speeds	min <sup>-1</sup>   rpm	2300 - 2800	2300 - 2800	2300 - 2600	2300 - 2600

Power output <sup>1)</sup>		D 2011 L2 I	D 2011 L3 I	D 2011 L4 I	TD 2011 L4 I
Power output as per ISO 14396	kW   hp	23  31	36.4  49	47.5  64	57.6  77.2
at speed	min <sup>-1</sup>   rpm	2800	2800	2600	2600
Max. torque	Nm   lb/ft	90  66.4	137  101	190  140.1	240   177
at speed	min <sup>-1</sup>   rpm	1700	1700	1700	1600
Minimum idling speed	min <sup>-1</sup>   rpm	900	900	900	900
Specific fuel consumption <sup>2)</sup>	g/kWh   lb/hph	227  0.373	225   0.370	226   0.372	233  0.383
Weight as per DIN 70020 Part 7A <sup>3)</sup>	kg   lb	175  386	217  478	270  595	270  595

- 1) Capacity data on flywheel net.
- 2) Best full load consumption refers to diesel with a density of 0.835 kg/dm³ at 15°C | 6.96 lb/US gallon at 60°F.
- 3) Without starter/dynamo, cooler and fluids but with flywheel and flywheel housing.

The data on this data sheet are for information purposes only and are not binding values. The data in the quotation is definitive.

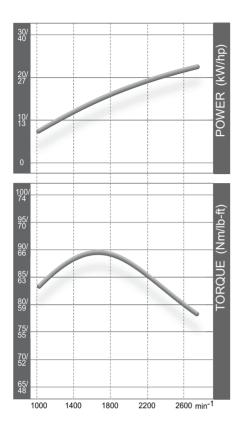


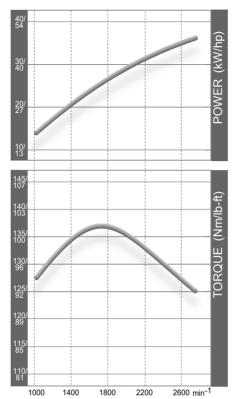
# Torque curve

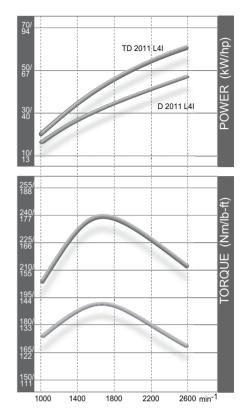
D 2011 L2 I - 23 kW|31 hp

D 2011 L3 I - 36.4 kW|49 hp

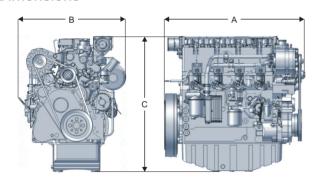
(T)D 2011 L4 I - (57.6 kW|77.2 hp) 47.5 kW|64 hp







# **Dimensions**





		Α	В	С
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air/oil-cooled with integrated cooling system				
D 2011 L2 I	mm   in	573  22.56	448   17.64	673   26.5
D 2011 L3 I	mm   in	612  24.09	448   17.64	673  26.5
D 2011 L4 I	mm   in	732   28.82	448   17.64	713  28.07
TD 2011 L4 I	mm   in	722  28.42	545  21.46	724  28.5
oil-cooled externally				
D 2011 L2	mm   in	478   18.82	448   17.64	673  26.5
D 2011 L3	mm   in	598  23.54	448   17.64	673   26.5
water-cooled externally				_
D 2011 L4 W	mm   in	720  28.35	486   19.13	711  27.99
TD 2011 L4 W	mm   in	720  28.35	521  20.51	711  27.99
TCD 2011 L4 W	mm   in	720  28.35	533  20.98	711  27.99

Note: The engine dimensions and weights vary depending on the scope of delivery.



# Technical data oil-cooled externally

Engine type		D 2011 L2	D 2011 L3
No. of cylinders		2	3
Bore/stroke	mm   in	94/112  3.7/4.41	94/112  3.7/4.41
Capacity	I   cu in	1.55  94.6	2.33  142.2
Compression ratio		19:1	19:1
Nominal speeds	min <sup>-1</sup>   rpm	2300 - 2800	2300 - 2800

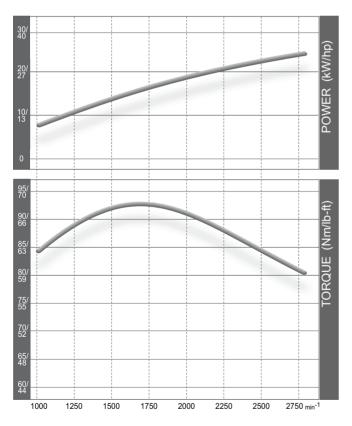
Power output <sup>1)</sup>		D 2011 L2	D 2011 L3
Power output as per ISO 14396	kW   hp	23.5   31.5	36.5  49
at speed	min <sup>-1</sup>   rpm	2800	2800
Max. torque	Nm   lb/ft	93  68.6	140  103.3
at speed	min <sup>-1</sup>   rpm	1700	1700
Minimum idling speed	min <sup>-1</sup>   rpm	900	900
Specific fuel consumption <sup>2)</sup>	g/kWh   lb/hph	230  0.378	230  0.378
Weight as per DIN 70020 Part 7A <sup>3)</sup>	kg   lb	169  373	210  463

- 1) Capacity data without deduction of fan capacity
- Best full load consumption refers to diesel with a density of 0.835 kg/dm³ at 15°C | 6.96 lb/US gallon at 60°F.
- 3) Without starter/dynamo, cooler and fluids but with flywheel and flywheel housing.

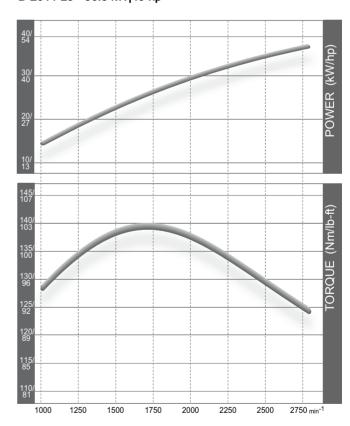
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## Torque curve

# D 2011 L2 - 23.5 kW|31.5 hp



#### D 2011 L3 - 36.5 kW|49 hp





# Technical data water-cooled externally

Engine type		D 2011 L4 W	TD 2011 L4 W	TCD 2011 L4 W
No. of cylinders		4	4	4
Bore/stroke	mm   in	96/125  3.78/4.92	96/125   3.78/4.92	96/125   3.78/4.92
Capacity	I   cu in	3.62  220.9	3.62   220.9	3.62   220.9
Compression ratio		19:1	18:1	18:1
Nominal speeds	min <sup>-1</sup>   rpm	2200 - 2600	2200 - 2600	2300 - 2600

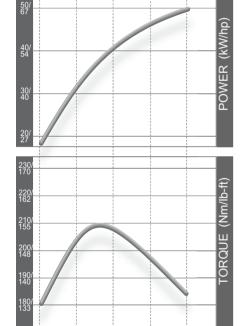
Power output <sup>1)</sup>		D 2011 L4 W	TD 2011 L4 W	TCD 2011 L4 W
Power output as per ISO 14396	kW   hp	50  67	68  91	74.9   100
at speed	min <sup>-1</sup>   rpm	2600	2600	2600
Max. torque	Nm   Ib/ft	210   154.9	280  206.5	350  258.2
at speed	min <sup>-1</sup>   rpm	1700	1600	1600
Minimum idling speed	min <sup>-1</sup>   rpm	900	900	900
Specific fuel consumption <sup>2)</sup>	g/kWh   Ib/hph	218  0.358	223   0.367	216  0.355
Weight as per DIN 70020 Part 7A <sup>3)</sup>	kg   lb	270  595	269   593	269  593

- 1) Capacity data without deduction of fan capacity
- 2) Best full load consumption refers to diesel with a density of 0.835 kg/dm³ at 15°C | 6.96 lb/US gallon at 60°F.
- 3) Without starter/dynamo, cooler and fluids but with flywheel and flywheel housing.

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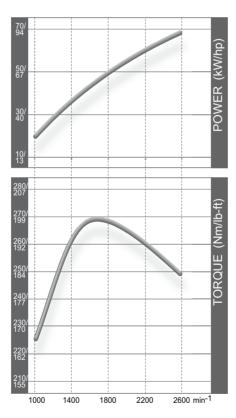
#### Torque curve

### D 2011 L4 W - 50 kW|67 hp

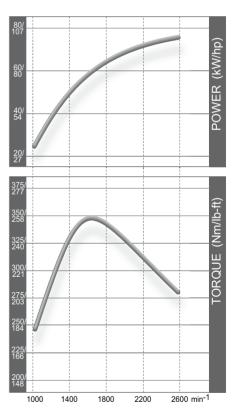


1400

### TD 2011 L4 W - 68 kW|91 hp



# TCD 2011 L4W - 74.9 kW|100 hp





2600 min-1