

N45 Tier4b / StageIV

## Engine Performance Data Sheet



Industrial Market

Number Cylinders: 4  
Displacement: 4.5 L

Aspiration: Turbocharged Charge Air Cooled  
Fuel System: Bosch HPCR

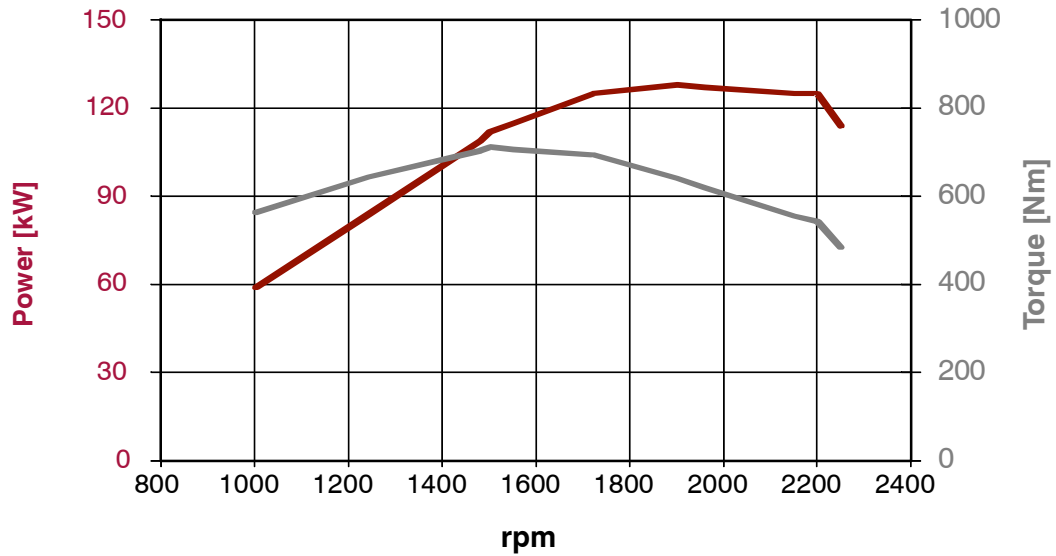
Revision: 39  
Data : 30/09/2014

Power : 125 kW @ 2200 rpm

Torque : 712 Nm @ 1500 rpm

Status for curves and data: Approved

Tolerance on values: ± 5% (N/A for Alpha/Beta/Preliminary Engines)

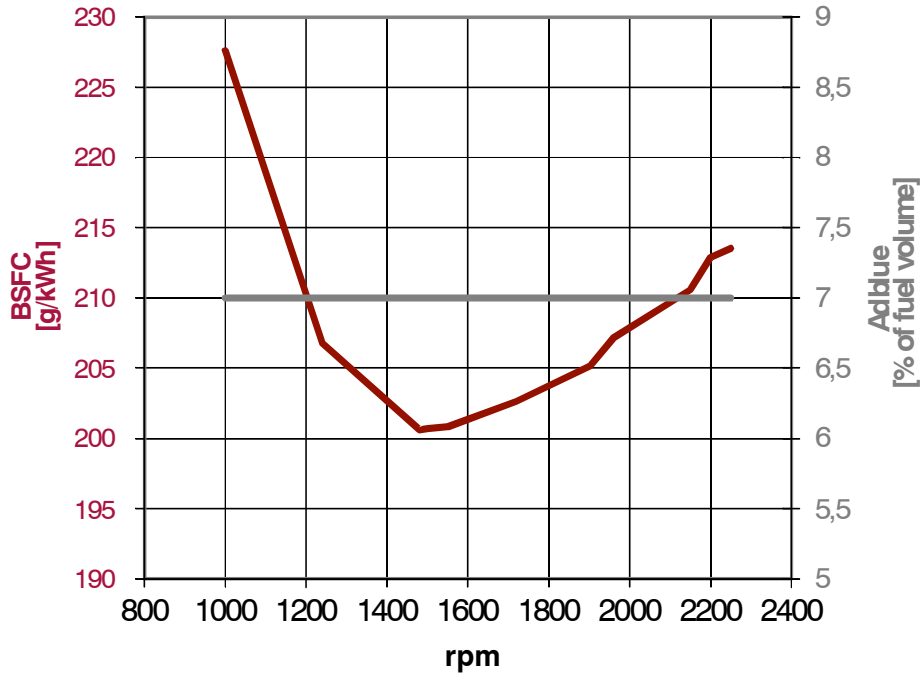


rpm	Power Output (kW)	Torque Output (Nm)
1000	59	564
1240	84	644
1480	109	704
1500	112	712
1550	115	707
1720	125	695
1900	128	641
1960	127	620
2150	125	556
2200	125	543
2250	114	485

### Engine Performance data

Rated Power (*)	kW (CV)	125
Rated speed	rpm	2200
Specific Power (rated)	kW/l	27.9
Max Power (peak)	kW (CV)	127
Power speed (peak)	rpm	1900
Specific Power (peak)	kW/l	28.3
BMEP @max Power	bar	15
Mean Piston Speed	m/s	9.68
Max Torque	Nm	710
Max Torque speed	rpm	1500
Specific Torque	Nm/l	158.3
BMEP @ max Torque	bar	20
Torque rise	%	31
Torque @ 1000 rpm	Nm	564
Max no load governor speed	rpm	2375±50
Nominal idling speed	rpm	750±100
Best Point BSFC	g/kWh	200
Oil consumption @ rated speed	g/kWh	0.14
Engine brake power @ rated speed	kW	20
Engine brake power in over speed	kW	44

### BSFC



### Lubrication System

Min oil pressure @ low idle (engine oil temp at 120°C)	kPa (bar)	60
Min oil pressure @ rated speed (engine oil temp at 120°C)	kPa (bar)	200
Max oil pressure @ rated speed (engine oil temp at 120°C)	kPa (bar)	350

### Cooling System

Maximum coolant temperature (engine out) with 100 kPa pressure cap	°C	106
Engine out coolant to ambient @ rated speed	delta °C	na
Engine out coolant to ambient @ torque speed	delta °C	na
Charge air cooler outlet to ambient @ max rpm - CAC dT	delta °C	25
Maximum Air intake Manifold Temperature	°C	75-90

### Engine Noise

Full load @ Rated Speed (top rating)	dBA	88.9
No load @ Low Idle	dBA	79.1

**Maximum Rating Performance Data (\*)**

		<b>Rated speed</b>	<b>Max power</b>	<b>Peak Torque</b>
Power output	kW	125	127	115
Torque	Nm	543	641	710
Speed	rpm	2200	1900	1500
Ambient Temperature	°C	22	22	22
EGR Rate	%	na	na	na
Frictional torque	Nm	87.4	77.5	61
Fuel Flow	g/s	7.3	7.1	7
Fuel consumption (BSFC)	g/kWh	212	205	201
AdBlue consumption	% fuel Volume	7	7	7
Charge Air Flow	g/s	190	174	143
Exhaust Gas Flow	g/s	197	182	149
EGR flow	g/s	na	na	na
EGR Pressure	kPa	na	na	na
Boost Pressure (compressor outlet)	kPa	163	166	153
Temperature after HP-Compressor	°C	na	na	na
Boost Temperature (includes EGR effect)	°C	158	160	155
Exhaust Gas Temp between HP-TC	°C	na	na	na
Exhaust Gas Temp (after TC)	°C	500	530	525
Power engine coolant without EGR & CAC	kW	na	na	na
Power high Temperature EGR Cooler (engine water)	kW	na	na	na
Power LP-CAC (engine water)	kW	na	na	na
Total Water cooling power of engine	kW	63	64	55
Total Pump water flow	l/s	3.7	3.0	2.5
Radiator Coolant Flow (**)	l/min	na	na	na
EGR Cooler water flow (for $\Delta T=6^{\circ}C$ )	l/s	na	na	na
LP-CAC water flow (for $\Delta T=6^{\circ}C$ )	l/s	na	na	na
Power of HP CAC	kW	na	na	na
Total CAC power (air to air)	kW	21.5	22	16

(\*) Power at flywheel according dir. 97/68 EC (w/o fan), after 50 hours of run-in, tolerance  $\pm 3\%$ , fuel EN 590; Test according ISO 3046/1, turbo air inlet temperature 25°C, atmospheric pressure 100 kPa, humidity 30 % - According also to DIN 6271, BS 5514, SAE J1349. All data is based on the engine operating with fuel system, water pump, lubricating oil pump with inlet and exhaust restriction at or below Datasheet limits. Accessory loads assumed at 20 N-m across from idle to rated rpm. Fan duty cycle must be lower than 20% Radiator Coolant Flow is approximately 5% less with a continuously deaerating system. Coolant: 50/50 - Ethylene Glycol/Water by volume.

(\*\*) Radiator Coolant Flow is approximately 5% less with a continuously deaerating system. Coolant: 50/50 - Ethylene Glycol/Water by volume.

All data is subject to change without notice

Revision	Description	Date
33	First document release	31/01/2014
34		28/02/2014
35		31/03/2014
37		30/04/2014
38		30/06/2014
38.1		31/07/2014
39		30/09/2014