

C13 Tier4b / StageIV

Engine Performance Data Sheet



Industrial Market

Number Cylinders: 6
Displacement: 12.9 L

Aspiration: Turbocharged Charge Air Cooled
Fuel System: Bosch HPCR

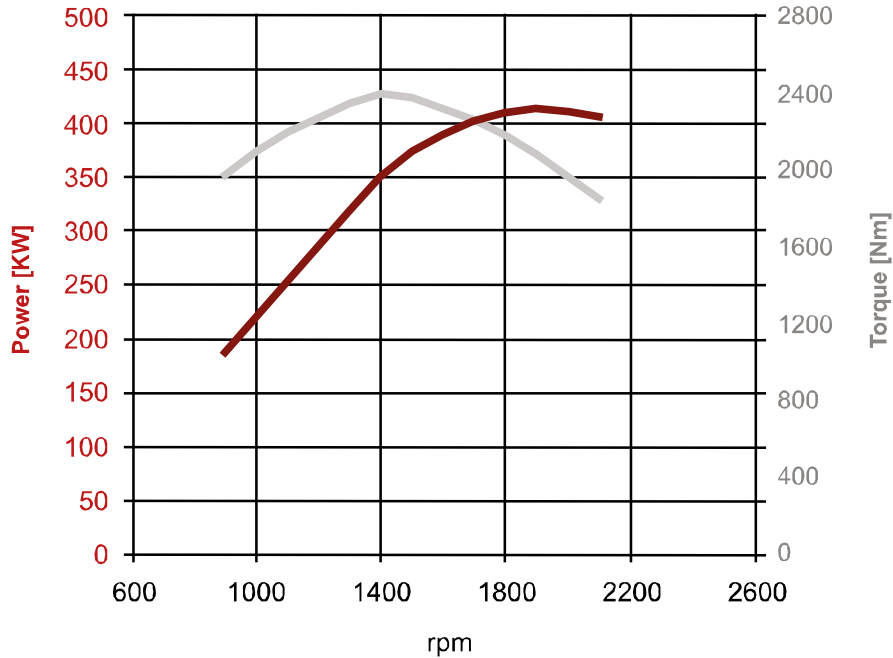
Second Release - Revision: 1.0
Data : 31/03/2015

Power : 407 kW @ 2100 rpm

Torque : 2401 Nm @ 1400 rpm

Status for curves and data: Approved

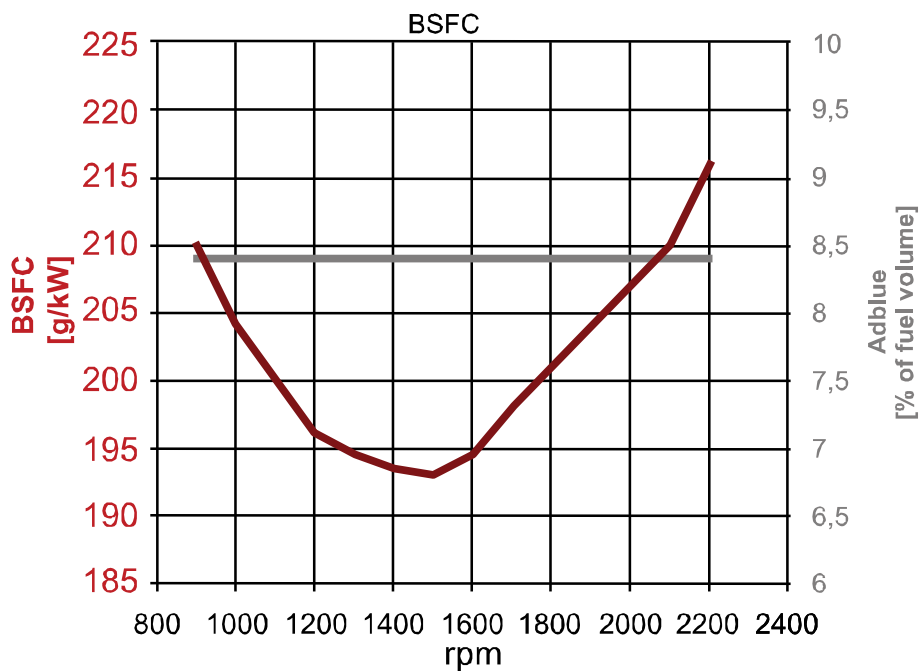
Tolerance on values: ± 5% (N/A for Alpha/Beta/Preliminary Engines)



rpm	Power Output (kW)	Torque Output (Nm)
900	187	1984
1000	220	2101
1100	253	2196
1200	286	2276
1300	320	2351
1400	352	2401
1500	374	2381
1600	390	2328
1700	403	2264
1800	411	2180
1900	415	2084
2000	412	1967
2100	407	1850

Engine Performance data

Rated Power (*)	kW (CV)	407
Rated speed	rpm	2100
Specific Power (rated)	kW/l	31.6
Max Power (peak)	kW (CV)	415
Power speed (peak)	rpm	1900
Specific Power (peak)	kW/l	31.6
BMEP @max Power	bar	18
Mean Piston Speed	m/s	10.5
Max Torque	Nm	2401
Max Torque speed	rpm	1400
Specific Torque	Nm/l	186.4
BMEP @ max Torque	bar	23
Torque rise	%	29.8
Torque @ 1000 rpm	Nm	2101
Max no load governor speed	rpm	2350±50
Nominal idling speed	rpm	850±100
Best Point BSFC	g/kWh	193
Oil consumption @ rated speed	g/kWh	0.11
Engine brake power @ rated speed	kW	63
Engine brake power in over speed	kW	97



Lubrication System

Min oil pressure @ low idle (engine oil temp at 120°C)	kPa (bar)	350
Min oil pressure @ rated speed (engine oil temp at 120°C)	kPa (bar)	250
Max oil pressure @ rated speed (engine oil temp at 120°C)	kPa (bar)	600

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	101.8
No load @ Low Idle	dBA	88.2

Maximum Rating Performance Data (*)

		Rated speed	Max power	Peak Torque
Power output	kW	407	415	352
Torque	Nm	1850	2084	2401
Speed	rpm	2100	1900	1400
Ambient Temperature	°C	22	22	22
Frictional torque	Nm	283	257	198
Fuel Flow	g/s	23.7	23.5	19
Fuel consumption (BSFC)	g/kWh	210.0	204.0	193.5
AdBlue consumption	% fuel Volume	8.0	8.4	8.0
Charge Air Flow	g/s	570	560	400
Exhaust Gas Flow	g/s	593.7	583.5	419
Boost Pressure (compressor outlet)	kPa	165	175	165
Temperature after HP-Compressor	°C	na	na	na
Boost Temperature (includes EGR effect)	°C	180	180	166
Exhaust Gas Temp between HP-TC	°C	na	na	na
Exhaust Gas Temp (after TC)	°C	530	550	580
Power LP-CAC (engine water)	kW	na	na	na
Total Water cooling power of engine	kW	160	155	130
Total Pump water flow	l/s	8.9	8.1	6
Radiator Coolant Flow (**)	l/min	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	75	70	50

- (*) 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 $25^{\circ}C$, 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
1.0		31/03/2015