



Engine Performance Data
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Industrial
QSF3.8
FR95063

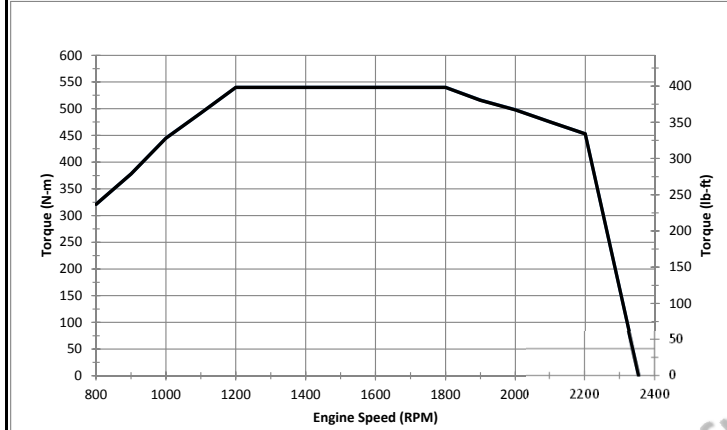
140 BHP (104kW) @ 2200 RPM
398 lb-ft (540 N-m) @ 1200 - 1800 RPM

Configuration: D0F3009CX03
 CPL Code: 4480
 Revision: 15-Apr-2015

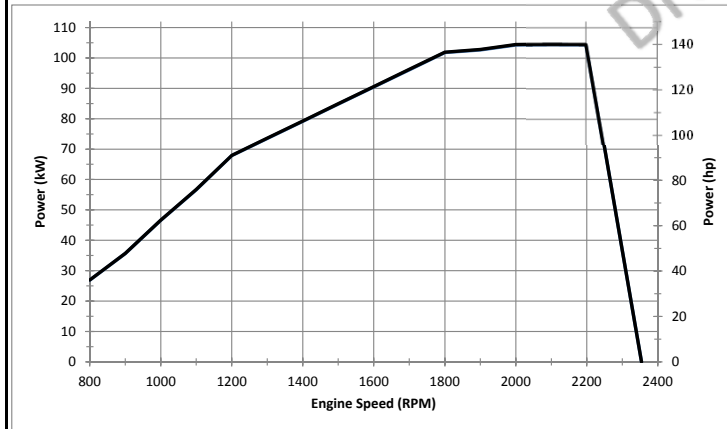
Compression Ratio: 17.2
 Fuel System: HPCR
 Emission Certification: EU Stage IIIA
 Displacement: 3.76L (229 in3)
 Aspiration: Turbocharged with CAC

All data is based on the engine operating with fuel system, water pump, and 15 in H2O (3.7 kPa) inlet air restriction with 4 in (102 mm) inner diameter, and with 3 in Hg (10 kPa) exhaust restriction with 3 in (76 mm) inner diameter; not included are alternator, fan, optional equipment and driven components. Coolant flows and heat rejection data based on coolants as 50% ethylene glycol/50% water. All data is subject to change without notice.

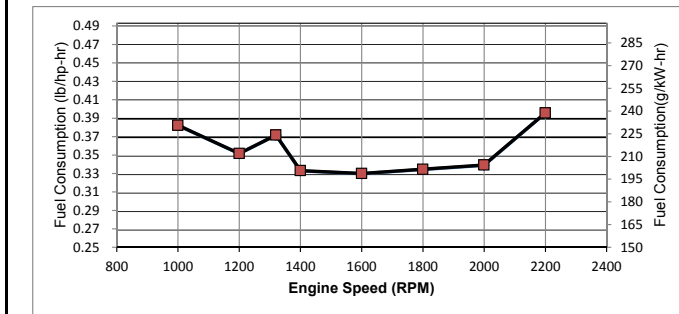
Rating Type: Intermittent



Torque Output		
RPM	N-m	lb-ft
800	321	237
900	378	279
1,000	445	328
1,100	492	363
1,200	540	398
1,300	540	398
1,400	540	398
1,500	540	398
1,600	540	398
1,700	540	398
1,800	540	398
1,900	516	381
2,000	498	367
2,100	475	350
2,200	453	334
2,354	0	0



Power Output		
RPM	kW	hp
800	27	36
900	36	48
1,000	47	62
1,100	57	76
1,200	68	91
1,300	74	99
1,400	79	106
1,500	85	114
1,600	90	121
1,700	96	129
1,800	102	136
1,900	103	138
2,000	104	140
2,100	104	140
2,200	104	140
2,354	0	0



Fuel Consumption		
RPM	lb/hp-hr	g/kW-hr
1000	0.38	231
1200	0.35	212
1320	0.37	224
1400	0.33	201
1600	0.33	199
1800	0.33	202
2000	0.34	204
2200	0.39	239

Curves shown above represent gross engine performance capabilities obtained and corrected in accordance with SAE J1995 conditions of 29.61 in Hg (100 kPa) barometric pressure [300ft (91m) altitude] 77 deg F (25 deg C) inlet air temperature, and 0.30 in Hg (1kPa) water vapor pressure with No. 2 diesel fuel.

Tolerance: N/A for Alpha/Beta/Preliminary Engines.

Air Induction System					
Maximum allowable air temperature rise over ambient at Intake Manifold (Naturally Aspirated Engines) or Turbo Compressor inlet (Turbo-charged Engines): (This parameter impacts emissions, LAT and/or altitude capability)	30.6 delta deg F	17 delta deg C			
Exhaust System					
Maximum exhaust back pressure:	13.4 in-Hg	10 kPa			
Recommended exhaust piping size (inner diameter):	3 in	76 mm			
Cooling System					
Maximum CAC Outlet delta Temperature (CAC dT) at an ambient of ≥ 25 deg C(77 degF)	63 delta deg F	35 delta deg C			
Maximum allowable pressure drop across charge air cooler and OEM CAC piping(IMPD):	3.99 in-Hg	13.5 kPa			
Intake manifold temperature for full Fan-ON	140 deg F	60 deg C			
Maximum coolant temperature for engine protection controls	225 deg F	107 deg C			
Maximum coolant operating temperature at engine outlet (max. top tank temp):	225 deg F	107 deg C			
Lubrication System					
Nominal operating oil pressure					
@ minimum low idle	20 psi	138 kPa			
@ maximum rated speed	48-55 psi	330-380 kPa			
Minimum engine oil pressure for engine protection devices					
@ minimum low idle	10 psi	69 kPa			
Fuel System					
Fuel cooling requirements (with diesel fuel)					
Maximum heat rejection to return fuel at max. coolant and inlet fuel temperature:	TBD BTU/min	TBD kW			
@ fuel return flow rate of: 82 lb/hr	TBD lb/hr	TBD kg/hr			
@ fuel return temperature prior to cooler:	TBD deg F	TBD deg C			
Maximum supply fuel flow:	TBD lb/hr	TBD kg/hr			
Maximum return fuel flow:	TBD lb/hr	TBD kg/hr			
Engine fuel compatibility (consult Service Bulletin #3379001 for appropriate use of other fuels)	ULSD, B5, B20				
Maximum fuel inlet pressure:	TBD psi	TBD kPa			
Performance Data					
Maximum low idle speed:	1200 RPM				
Minimum low idle speed:	700 RPM				
Minimum engine speed for full load sustained operation:	1700 RPM				
Maximum Rating Performance Data					
Parameter	Rated Power		Maximum Power	Peak Torque	
Engine speed	2200 RPM			1320 RPM	
Output power	139.5 hp	104.0 kW		100.0 hp	74.6 kW
Torque	334.1 lb-ft	453.0 Nm		398.3 lb-ft	540.0 Nm
Friction Horsepower	26.7 hp	19.9 kW		11.5 hp	8.6 kW
Intake Manifold Pressure	45.0 in-Hg	152.4 kPa		40.4 in-Hg	136.8 kPa
Turbo Comp. Outlet Pressure	48.8 in-Hg	165.4 kPa		41.8 in-Hg	141.4 kPa
Turbo Comp. Outlet Temperature	327.2 Deg F	164.0 Deg C		313.0 Deg F	156.1 Deg C
Inlet air flow	286.9 ft ³ /min	135.4 L/s		165.5 ft ³ /min	78.1 L/s
Charge air flow	20.9 lb/min	9.5 kg/min		12.1 lb/min	5.5 kg/min
Exhaust Gas Flow	790.0 ft ³ /min	372.7 L/s		481.4 ft ³ /min	227.2 L/s
Exhaust gas temperature	1135.4 Deg F	613.0 Deg C		1085.0 Deg F	585.0 Deg C
Heat Rejection to coolant	2906.0 BTU/min	51.1 kW		2138.3 BTU/min	37.6 kW
Heat Rejection to charge air cooler	1018.0 BTU/min	17.9 kW		545.9 BTU/min	9.6 kW
**When operating Naturally Aspirated engines above SAE J1995 conditions, it should be noted that smoke levels will increase due to combustion inefficiencies associated with a reduction in the air to fuel mixture.					

Cranking System (Cold Starting Capability)

Unaided Cold Start:

Minimum cranking speed	120 RPM	
Minimum ambient temperature for unaided cold start	14 deg F	-10 deg C
Breakaway torque at minimum unaided cold start temperature:	247 lb-ft	335 N-m

Aided Cold Start:

Minimum ambient temperature with Grid Heater only	-4 deg F	-20 deg C
Minimum ambient temperature with Ether only	NA deg F	deg C
Minimum ambient temperature with coolant and lube heater only	NA deg F	deg C
Cold starting aids available	Intake Manifold Heater	
Maximum parasitic load at 10 deg F @ 800 RPM	125 lb-ft	169 N-m

Noise Emissions

Top	0 dBa
Right Side	0 dBa
Left Side	0 dBa
Front	0 dBa
Exhaust noise emissions	0 dBa

Estimated Free Field Sound Pressure Level at 3.28ft (1m) and Full-Load Governed Speed
(Excludes Noise from Intake, Exhaust, Cooling System and Driven Components)

End of Report