Cummins

Techical Operations

ENGINE MODEL：6CTA8.3-C215

CURVE & DATASHEET：FR91639

Rev00 Feb/2004

Engine Performance Curve	Basic Engine Model: 6CTA8.3-C215	Curve Number: FR91639	Pg. No: 01
	Engine Family: D41 / CPL Code: 0722	Date: 2006-06	

Displacement: **8.3** L Aspiration: **Turbocharged & Aftercooled**

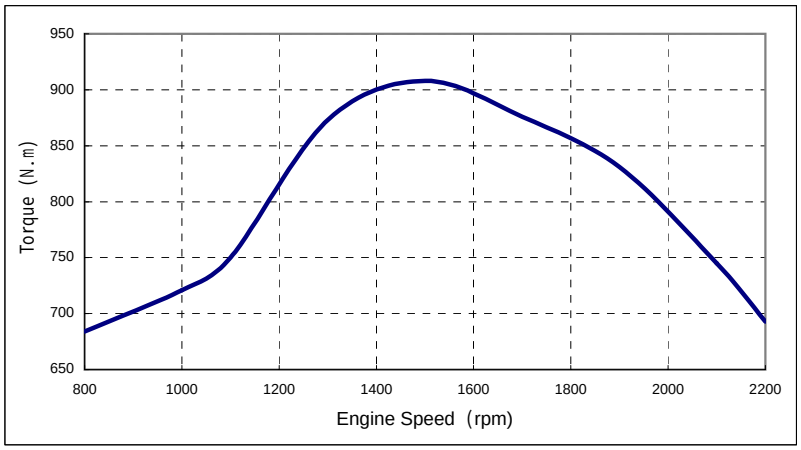
Bore: **114** mm kW (BHP) @ RPM

Stroke: **135** mm No.of Cylinders: **6** **160(215)** **2200**

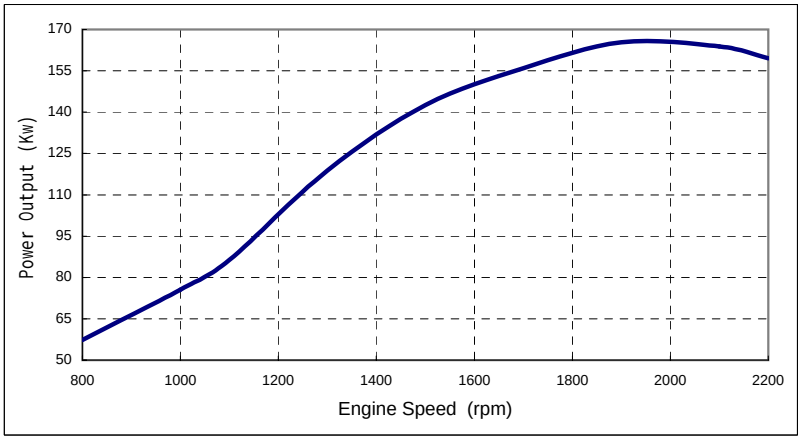
Emission Control: **EPA Tier1** Fuel System: **Weifu P7100/RSV** **8% Governor Regulation**

All data are based on the engine operating with fuel system,water pump,lubricating oil pump,and 250 mm H_2O inlet air restriction and with 50 mm Hg exhaust restriction; not included are altemator,fan,optional equipment and driven components.

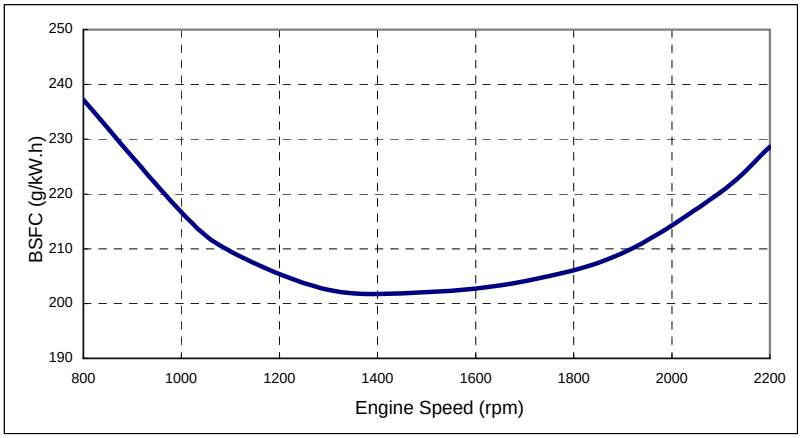
Performance Curve



TORQUE	
rpm	N.m
800	684
1000	721
1100	750
1300	873
1500	908
1700	876
1900	831
2100	745
2200	693



POWER OUTPUT	
rpm	kW
800	57
1000	75
1100	86
1300	119
1500	143
1700	156
1900	165
2100	164
2200	160



FUEL CONSUMPTION	
rpm	g/kW.h
800	237
1000	217
1100	210
1300	203
1500	202
1700	204
1900	209
2100	220
2200	228

Base Engine Data Sheet

ENGINE MODEL： **6CTA8.3-C215** CPL NUMBER： **0722** DATA：2006-06-01
CONFIGURATION NUMBER： **D413061CX03** PERFORMANCE CURVE：**FR91639**
AFTERCOOLED SYSTEM： **JWAC** RATED POWER： **215** bhp @ **2200** rpm
FUEL SYSTEM： **Weifu P7100/RSV** **160** kW @ **2200** rpm

GENERAL ENGINE DATA

Engine Wet Weight (Pricing Configuration) ..... -kg	637
Moment of Inertia of Rotating Components(Excluding Flywheel) .....-kg·m^2	0.37
Center of Gravity from Front Face of Block ..... -mm	427
Center of Gravity above Crankshaft Centerline .....-mm	163

ENGINE MOUNTING

Maximum (Static) Bending Moment at Front Support Mounting Surface .....-N.m	495
Maximum (Static) Bending Moment at Side Pad Mounting Surface .....-N.m	TBD
Maximum (Static) Bending Moment at Rear Face of Block .....-N.m	1356
Moment of Inertia of Complete Engine	
- Roil Axis .....-kg.m^2	23.6
- Pitch Axis .....-kg.m^2	65.2
- Yaw Axis .....-kg.m^2	55.9

EXHAUST SYSTEM

Maximum Back Pressure .....-mmHg	76
Exhaust Pipe Size Normally Acceptable .....-mm	75
Maximum Static Supported Weight at the Turbocharger Outlet Flange .....-kg	22.7
Exhaust Manifold Insulation Acceptable .....-Yes/No	No
Turbocharger Insulation Acception .....-Yes/No	No

AIR INTAKE SYSTEM

Maximum Intake Air Restriction with Heavy Duty Air Cleaner	
-Clean Element .....-mmH_2O	381
-Dirty Element .....-mmH_2O	635
Minimum Dirt Holding Capacity with Heavy Duty Air Cleaner .....-g/litre/sec.	53
Maximum Temperature Rise from Ambient to the Inlet of the Turbocharger .....°C	17
Maximum Pressure Drop from the Turbocharger Outlet to the Intake Manifold .....-mmHg	N/A

LUBRICATION SYSTEM

Normal Operating Oil Pressure Range .....-kPa	276 - 345
Maximum Lube Oil Flow for Engine Accessories .....-litre/min.	7.6
Maximum Sump Oil Temperature .....-℃	121
Minimum Engine Oil Pressure for Engine Protection Devices:	
-At Rated Speed and Load .....-kPa	276
-At Torque Peak Speed and Load .....-kPa	207
-At Low Idle .....-kPa	69
Minimum Required Lube System Capacity - Sump plus Filters .....-litre	18
By-pass Filtration Required .....-Yes/No	Yes
Angularity of Standard Oil Pan:(Values stated are for intermittent operation only):OP	
-Front Down .....- degrees	45
-Front Up .....- degrees	45
-Side to Side .....- degrees	45

NOTE: Conditions refer to rated power and speed unless otherwise noted.
TBD - To Be Determined
N/A - Not Applicable

COOLING SYSTEM

Coolant Capacity - Engine Only ……-litre	9.8
Maximum Engine Cooling Circuit External Resistance ……-kPa	34
Minimum Pump Inlet Pressure with Open Thermostat and no Pressure Cap ……-mmHg	TBD
Maximum Static Head of Coolant Above Engine Crankshaft Centerline ……-m	TBD
Standard (modulating) Thermostat Range ……-°C	83 - 95
Maximum Block Coolant Pressure with Closed Thermostat and no Pressure Cap ……-kPa	276
Minimum Pressure Cap ……-kPa	50
Maximum Engine Coolant Temperature at Engine Outlet ……-°C	98.9
Maximum Engine Coolant Temperature for Engine Protection Devices ……-°C	104.4
Minimum Engine Coolant Temperature at……-°C	79.4
Minimum Fill Rate ……-litre/min.	19
Maximum Initial Fill Time ……-min.	5
Minimum Coolant Expansion Space ……- %	6
Maximum Deaeration Time ……-min.	25
Minimum Drawdown ……- %	11%
(Drawdown Must Exceed the Volume Not Filled at Initial Fill & Must Not Include Expansion Space)	
Fan-on Engine Coolant Outlet Temperature ……-°C	93
Shutter Opening Coolant Outlet Temperature ……-°C	93
Shutter Opening Intake Manifold Air Temperature ……-°C	无

CRANKING SYSTEM

	12 Volt	24 Volt
Minimum Battery Capacity - Cold Soak at -18°C or Above		
-Engine Only - Cold Cranking Amperes ……-CCA	1250	625
-Engine Only - Reserve Capacity ……-min.	360	180
Maximum Starting Circuit Voltage Drop @ --- Amperes ……-Volts	TBD	
Minimum Ambient Temperature for Unaided Cold Start ……-°C	-12	
Minimum Cranking Speed Required for Unaided Cold Start ……-rpm	120	
Breakaway Torque at Minimum Unaided Start Temperature ……-N.m	1051	
Cranking Torque at Minimum Unaided Start Temperature……-N.m	508	
Cranking Torque at -10°C……-N.m	TBD	

FUEL SYSTEM

Maximum Fuel Flow on the Supply Side of the Fuel Pump ……-litre/hr	300
Maximum Fuel Inlet Restriction	
-with clean fuel filter ……-mmHg	102
-with dirty fuel filter ……-mmHg	203
Maximum Fuel Drain Restriction	
-with check valves ……-mmHg	510
-less check valves……-mmHg	TBD
Maximum Fuel Inlet Temperature ……-°C	71
Minimum Fuel Tank Air Venting Capability Required at 6 inH_2O Back Pressure ……-litre/hr	340

NOTE: Conditions refer to rated power and speed unless otherwise noted.
TBD - To Be Determined
N/A - Not Applicable

PERFORMANCE DATA

Minimum Low Idle Speed ……-rpm	900
Maximum Governed Speed……-rpm	2460
Maximum Overspeed Capability ……..-rpm	3750
Closed Throttle Torque @ 700 rpm（for 900 rpm Low Idle Speed) ……-N.m	243
Minimum Combined Converter and Hydraulic Stall Speed ……..-rpm	1600
Crankshaft Thrust Bearing Load Limit	
-Maximum Intermittent ……-N	1627
-Maximum Continuous ……-N	1085

EMISSIONS

Estimated Free Field Sound Pressure Level At 15m and Full Load Governed Speed（Excludes Noise from Intake,Exhaust,Cooling System and Driven Components）	
-Right Side ……-dBa	83
-Left Side ……-dBa	83
-Front ……-dBa	82
-Rear ……-dBa	TBD
Gaseous Emissions per ISO 8178:	
-NOx……-g/bhp-hr.	6.3
-HC……-g/bhp-hr.	0.28
-CO……-g/bhp-hr.	0.55
-Particulates……-g/bhp-hr.	0.21

Fuel Rating Option used for these Data：FR91451

	RATED	MAXIMUM POWER POINT	PEAK TORQUE
Engine Speed……-rpm	2200		1500
Gross Power Output……-kW	160		143
Torque ……-N.m	693		908
Intake Manifold Pressure ……-kPa	130		110
Motoring Friction Horsepower ……-kW	待定		待定
Turbocharger Compressor Outlet Pressure ……-kPa	135		115
Intake Air Flow ……-litre/sec.	285		168
Exhaust Gas Flow ……-litre/sec.	733		467
Turbocharger Compressor Outlet Temperature ……-℃	565		571
Exhaust Gas Temperature - Dry Stack ……-℃	433		459
Heat Rejection to Ambient（Dry Manifold） ……-kW	68		51
Heat Rejection to Coolant（Dry Manifold） ……-kW	91.0		75.0
Heat Rejection to Fuel ……-kW	0.56		0.43
Engine Coolant Flow ……-litre/sec.	4.5		3.0
@ External Cooling Circuit Resistance ……－kPa△ P	34.5		17.3
Altitude Limitations:			
-Intermittent……-m	TBD		TBD
-Continuous……-m	3800		3800
Steady State Smoke ……-Bosch	1		1.5

NOTE: Conditions refer to rated power and speed unless otherwise noted.
TBD - To Be Determined
N/A - Not Applicable