Dongfeng Cummins

Techical Operations

ENGINE MODEL： 6CTA8.3-M220

CURVE & DATASHEET： FR92809

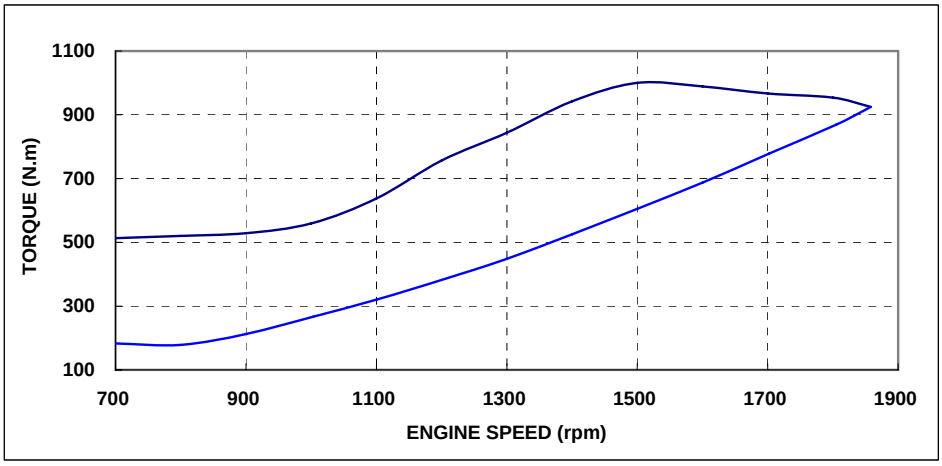
REV 00 25Apr2009

Marine Engine Performance Data Dongfeng Cummins Engine Co., Ltd. Xiangfan, Hubei Province, China http://www.dcec.com.cn	Basic Engine Model: **6CTA8.3-M220** **FR92809**	**220 BHP (164kW) @ 1800 RPM** **1000 N·m @ 1500 RPM**		
		Configuration **D413065MX03**	**CPL Code** **1153**	**Revision** **2009-4-25**

Compression Ratio:	**17.3:1**	Aspiration:	**Turbocharged & Aftercooled**
Bore:	**114 mm**	Displacement:	**8.3 L**
Storke:	**135 mm**	No. of Cylinders:	**6**
		Fuel System:	**BYC PB/RSV**

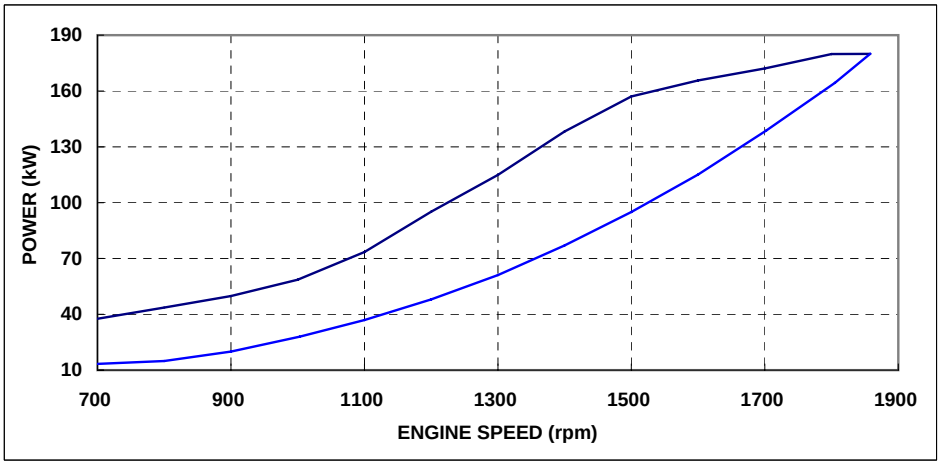
All data is based on the engine operating with fuel system, water pump, and 10 in H_2O (2.488 kPa) inlet air restriction with 5.98 in (152 mm) inner diameter, and with 2.01 in Hg (7 kPa) exhaust restriction with 4.02 in (102 mm) inner diameter; not included are alternator, fan, optional equipment and 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.

Performance curve



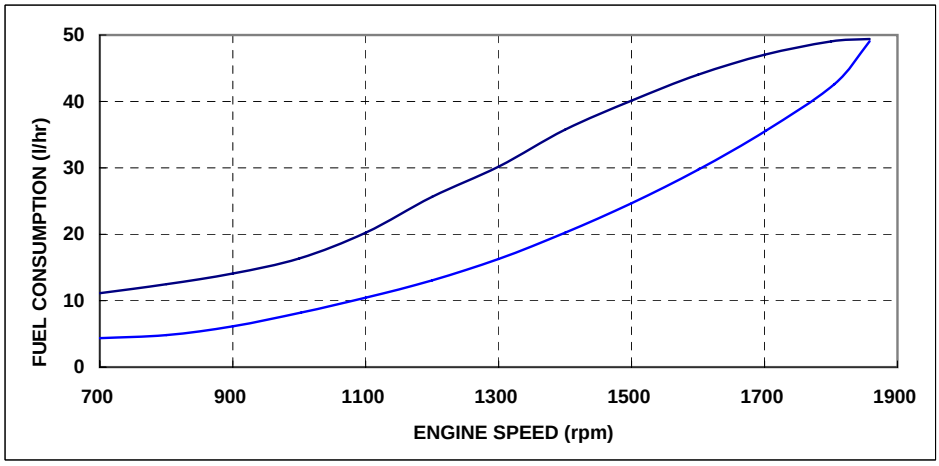
Torque Output

rpm	N.m
700	513
900	529
1100	638
1300	844
1500	1000
1600	989
1800	954
1858	925



Power Output

rpm	kW
700	38
900	50
1100	73
1300	115
1500	157
1600	166
1800	180
1858	180



Fuel Consumption

rpm	l/hr
700	11
900	14
1100	20
1300	30
1500	40
1600	44
1800	49
1858	49

Curves shown above represent gross engine performance capabilities obtained and corrected in accordance with GB/T18297 conditions of 100kPa (29.61 in. Hg) barometric pressure [80 m (263 ft.) altitude], 25°C (77°F) inlet air temperature, and 1 kPa (0.30 in. Hg) water vapor pressure with No.0# diesel fuel.

GENERAL ENGINE DATA

Engine Model		6CTA8.3-M220
Rating Type		Continuous
Rated Engine Power	-kW [bhp]	164kW (220 BHP)
Rated Engine Speed	-rpm	1800
Max Power	-kW	180
Max Power Speed	-rpm	1858
Peak Engine Torque @ 1500 rpm	-N•m	1000
Idle Speed Setting	-rpm	630-730
High Idle Speed	-rpm	2125
Compression Ratio		17.3:1
Piston Speed*	-m/sec	8.4
Firing Order		1-5-3-6-2-4
Weight (Dry) Engine only - Average	-kg	637
Center of Gravity from Front Face of Block	-mm	541
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 Rear Fac 541	-N•m	1356
Installation/Operating Angles - Engine Installati 17.3:1		
-In-Line drive: Installation: Static Installed Engine Pitch Angle		
-Engine Front Up From Horizontal	Min.	0°
-Engine Front Up From Horizontal	Max.	12°
-Vee Drive: Installation: Static Installed Engine Pitch		
-Engine Front Up From Horizontal	Min.	2°
-Engine Front Up From Horizontal	Max.	12°

EXHAUST SYSTEM*

Maximum Back Pressure	-kPa	10
Exhaust Gas Flow	-litre/sec	660
Exhaust Gas Temperature Turbine In Manifold	-°C	620
Exhaust Gas Temperature Turbine Out	-°C	480
Exhaust Pipe Size Normally Acceptable	-mm	75
Maximum Static Supported Weight at the Turbocharger Outlet Flange	-N•m	14

AIR INTAKE SYSTEM

Maximum Intake Air Restriction with Heavy Duty Air Cleaner		
— Dirty Element	-kPa	6
— Clean Element	-kPa	4
Minimum Dirt Holding Capacity with Heavy Dut 660	-g/cfm	53
Maximum Temperature Rise from Ambient to the Inlet of the Turbocharger	-℃	17
Intake Air Flow*	-litre/sec	265
Heat Rejection to Ambient	-kW	TBD
Recommended intake piping size (inner diameter)	-mm	75

FUEL SYSTEM

Maximum Fuel Flow on the Supply Side of the Fuel Pump	-litre/hr	259
Maximum fuel supply restriction at fuel pump inlet		
— with clean fuel filter element(s) at maximum fuel flow	-kPa	8.5
— with dirty fuel filter element(s) at maximum fuel flow	-kPa	13.3
Maximum fuel drain restriction (total head)		
— before (or without) check valve	-kPa	69
Maximum fuel inlet temperature	**-℃**	**60**
Approximate Fuel Return to Tank Temperature	**-℃**	**42**

COOLING SYSTEM*

Coolant capacity - engine only	-litre	12.3
Minimum water pump inlet pressure with non-deaerating or partially deaerating cooling system	-kPa	TBD
Maximum static head of coolant above crankshaft centerline	-m	TBD
Standard (modulating) Thermostat Range	-℃	82-95
Max. Allowable Block Coolant System Pressure	-kPa	103
Minimum pressure cap rating at sea level	-kPa	69
Maximum coolant operating temperature at engine outlet (max. top tank temp):	-℃	96
Minimum operating block coolant temperature	-℃	79.4
Minimum coolant expansion space (@12.3	- %	5
Heat Rejection to Coolant	-kW	TBD
Maximum recommended external coolant flow restriction in engine circuit:	-kPa	35
Maximum deaeration time	-min.	25
Minimum drawdown (% total cooling system capacity)	- %	11
Full ON Fan engine coolant outlet temperature	-℃	93

LUBRICATION SYSTEM

Normal Operating Oil Pressure Range		
— minimum low idle	-kPa	103
—maximum rated speed	-kPa	414
Maximum Lube Oil Flow for Engine Accessories	-litre/min.	7.6
Maximum Sump Oil Temperature	-℃	121
Minimum Required Lube System Capacity - Sump plus Filters	-litre	21.9
By-pass Filtration Required	-Yes/No	Yes
Angularity of Standard Oil Pan: (Values stated are for intermittent operation only):		
— Front Down	- º	45
— Front Up	- º	45
— Side to Side	- º	45

CRANKING SYSTEM

		12V	24V
Minimum Battery Capacity - Cold Soak at 0°F (–18°C) or Above			
— Engine Only - Cold Cranking Amperes	-CCA	1250	625
— Engine Only - Reserve Capacity	-min.	360	180
Maximum Starting Circuit Voltage Drop	-Volts	TBD	
Minimum Ambient Temperature for Unaided Cold Start	-℃(℉)	-12	
Minimum Cranking Speed Required for Unaided Cold Start	-rpm	120	
Maximum starting circuit resistance	-Ohm	0.00075	0.002

EMISSIONS DATA

NO_X(Oxides of Nitrogen)	-g/kW.h	TBD

*All Data at Rated Conditions

ALL DATA CERTIFIED WITHIN 5%

TBD = To Be Decided N/A = Not Applicable N.A. = Not Available

All data is subject to change without notice, sorry for inform.

Dongfeng Cummins Engine Co., Ltd.