Dongfeng Cummins

Techical Operations

ENGINE MODEL： 6BT5.9-M120

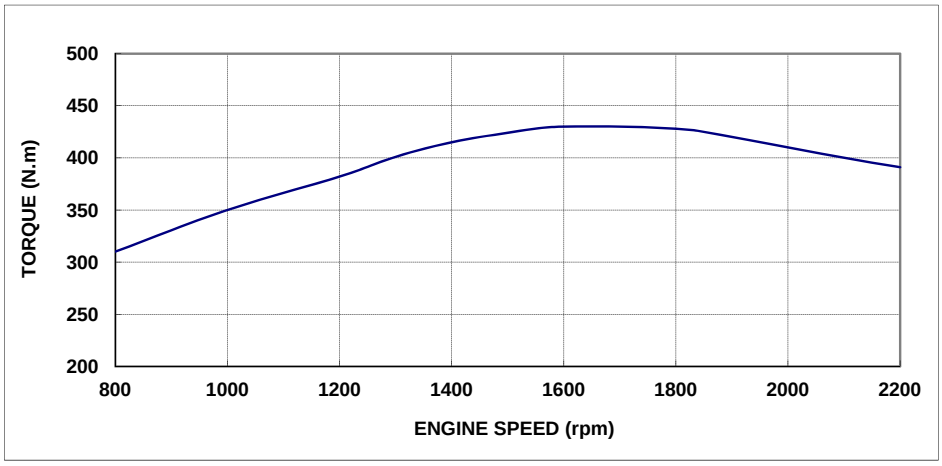
REV 00 25Mar2007

Marine Engine Performance Data Dongfeng Cummins Engine Co., Ltd. Xiangfan, Hubei Province, China http://www.dcec.com.cn	Basic Engine Model: **6BT5.9-M120**	**120 BHP (90kW) @ 2200 RPM**		
		Configuration	**CPL Code**	**Revision**
		D403045MX02	**3111**	**2007-3-25**

Compression Ratio:	**17.3:1**	Aspiration:	**Turbocharged**
Bore:	**102 mm**	Displacement:	**5.9 L**
Storke:	**120 mm**	No. of Cylinders:	**6**
		Fuel System:	**WEIFU AD/RSV**

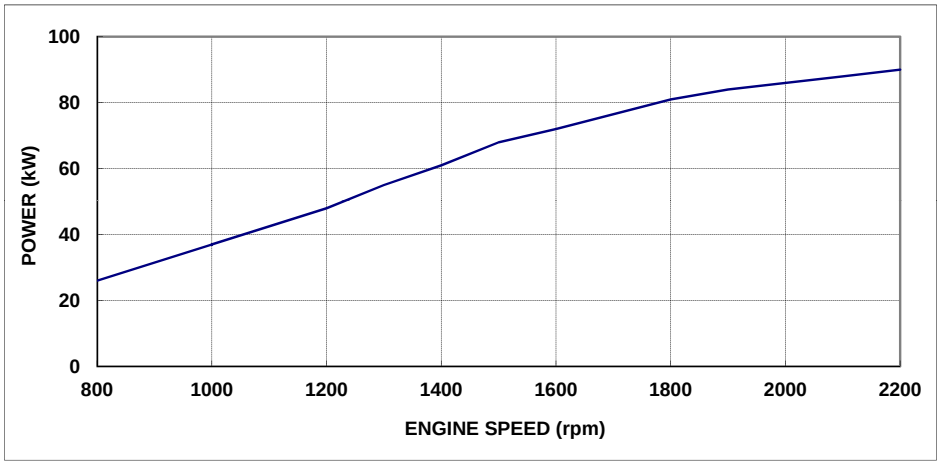
All data is based on the engine operating with fuel system, water pump, and 10 in H_2O (2.488 kPa) inlet air restriction with 5.98 in (152 mm) inner diameter, and with 2.01 in Hg (7 kPa) exhaust restriction with 4.02 in (102 mm) inner diameter; not included are alternator, fan, optional equipment and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



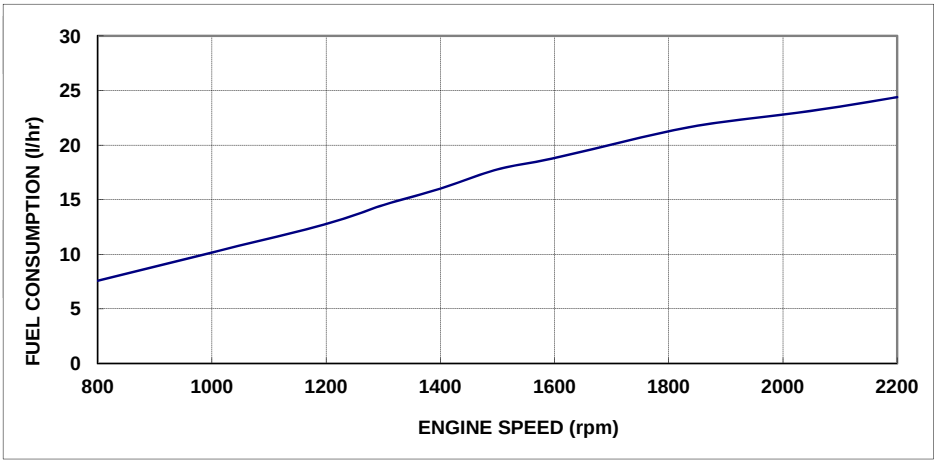
Torque Output

rpm	N.m
2200	391
2000	410
1800	428
1500	424
1300	401
1200	382
800	310



Power Output

rpm	kW
2200	90
2000	86
1800	81
1500	68
1300	55
1200	48
800	26



Fuel Consumption

rpm	l/hr
2200	24
2000	23
1800	21
1500	18
1300	15
1200	13
800	8

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		6BT5.9-M120
Rating Type		Continuous
Rated Engine Power	-kW [bhp]	90kW (120 BHP)
Rated Engine Speed	-rpm	2200
Max Power	-kW	100
Max Power Speed	-rpm	2270
Idle Speed Setting	-rpm	750±100
High Idle Speed	-rpm	2460
Compression Ratio		17.3:1
Piston Speed*	-m/sec	8.8
Firing Order		1-5-3-6-2-4
Weight (Dry) Engine only - Average	-kg	443
Center of Gravity from Front Face of Block	-mm	391
Center of Gravity above Crankshaft Centerline	-mm	140

ENGINE MOUNTING

Maximum (Static) Bending Moment at Front Support Mounting Surface	-N•m	432
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.	12°
-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	365
Exhaust Gas Temperature Turbine In Manifold	-°C	520
Exhaust Gas Temperature Turbine Out	-°C	420
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	6.2
— Clean Element	-kPa	3.7
Maximum Temperature Rise from Ambient to the Inlet of the Turbocharger	-°C	17
Intake Air Flow*	-kg/h	700
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	190
Maximum fuel supply restriction at fuel pump inlet		
— with clean fuel filter element(s) at maximum fuel flow	-kPa	14
— with dirty fuel filter element(s) at maximum fuel flow	-kPa	27
Maximum fuel drain restriction (total head)		
— before (or without) check valve	-kPa	69
Maximum fuel inlet temperature	**-°C**	**60**
Approximate Fuel Return to Tank Temperature	**-°C**	**46**

COOLING SYSTEM*

Coolant capacity - engine only	-litre	9.9
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	-˚C	82-93
Max. Allowable Block Coolant System Pressure	-kPa	276
Minimum pressure cap rating at sea level	-kPa	50
Maximum coolant operating temperature at engine outlet (max. top tank temp):	-˚C	101.6
Minimum operating block coolant temperature	-˚C	71
Minimum coolant expansion space (% of system capacity)	- %	6
Heat Rejection to Coolant	-kW	TBD
Maximum recommended external coolant flow restriction in engine circuit:	-kPa	34
Maximum deaeration time	-min.	25
Minimum drawdown (% total cooling system capacity)	- %	11
Full ON Fan engine coolant outlet temperature	-˚C	93

LUBRICATION SYSTEM

Normal Operating Oil Pressure Range		
— minimum low idle	-kPa	69
—maximum rated speed	-kPa	345
Maximum Lube Oil Flow for Engine Accessories	-litre/min.	4.0
Maximum Sump Oil Temperature	-˚C	127
Minimum Required Lube System Capacity - Sump plus Filters	-litre	16.3
By-pass Filtration Required	-Yes/No	No
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	950	475
— Engine Only - Reserve Capacity	-min.	260	130
Maximum Starting Circuit Voltage Drop	-Volts	TBD	
Minimum Ambient Temperature for Unaided Cold Start	-˚C(˚F)	-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.