

Cummins Technical Operations



ENGINE MODEL: 6LTAA8.9-M315

CURVE & DATASHEET: FR92291

REV 00 25Apr2009



Marine Engine Performance Data
Cummins Engine Co., Ltd.

Basic Engine Model:
6LTAA8.9-M315
FR92291

315 BHP (230kW) @ 2134 RPM
1350 N.m @ 1400 RPM

Configuration
D563014MX03

CPL Code
2724

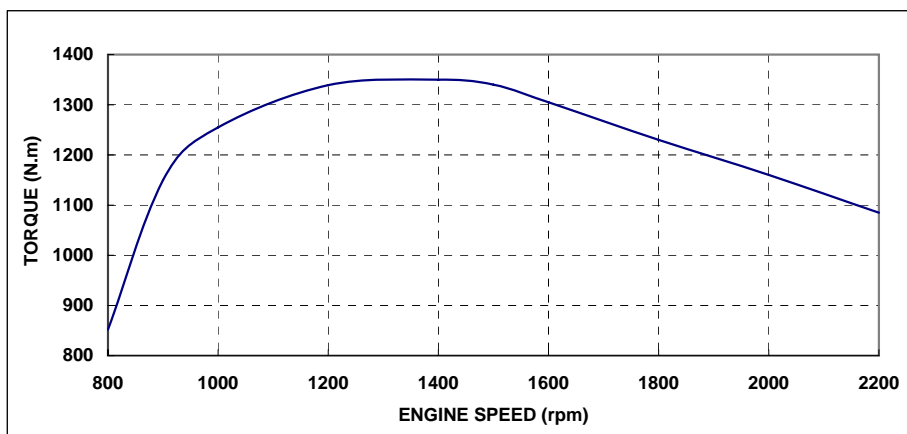
Revision
2009-4-25

Compression Ratio: **16.6:1**
Bore: **114 mm**
Stroke: **145 mm**

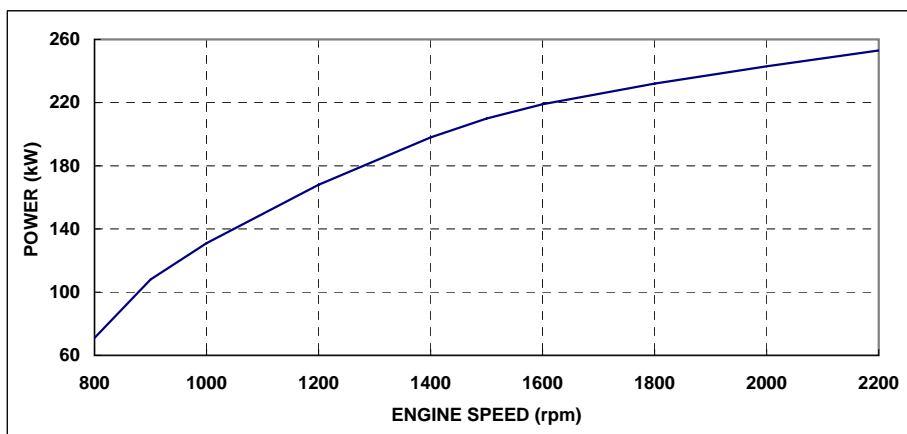
Aspiration: **Turbocharged and Charge Air Cooled**
Displacement: **8.9 L**
No. of Cylinders: **6**
Fuel System: **BOSCH P7100/RQV_K**

All data is based on the engine operating with fuel system, water pump, and 10 in H₂O (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.

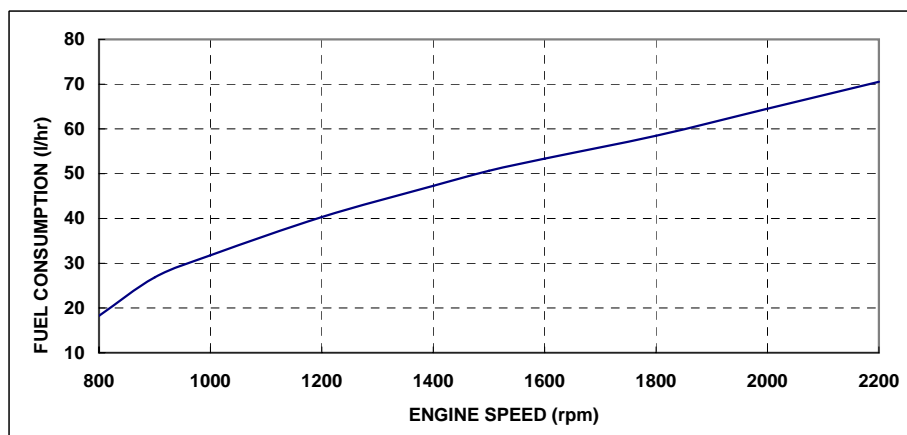
Performance curve



| Torque Output | |
|---------------|------|
| rpm | N.m |
| 800 | 852 |
| 900 | 1150 |
| 1000 | 1255 |
| 1200 | 1339 |
| 1400 | 1350 |
| 1500 | 1340 |
| 1600 | 1230 |
| 1800 | 1160 |
| 2000 | 1160 |
| 2200 | 1085 |



| Power Output | |
|--------------|-----|
| rpm | kW |
| 800 | 71 |
| 900 | 108 |
| 1000 | 131 |
| 1200 | 168 |
| 1400 | 198 |
| 1500 | 210 |
| 1600 | 219 |
| 1800 | 232 |
| 2000 | 243 |
| 2200 | 253 |



| Fuel Consumption | |
|------------------|------|
| rpm | l/hr |
| 800 | 18 |
| 900 | 27 |
| 1000 | 32 |
| 1200 | 40 |
| 1400 | 47 |
| 1500 | 51 |
| 1600 | 53 |
| 1800 | 58 |
| 2000 | 65 |
| 2200 | 71 |

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..... | 6LTAA8.9-M315 |
| Rating Type | Continuous |
| Rated Engine Power..... | -kW [bhp] 230kW (315 BHP) |
| Rated Engine Speed..... | -rpm 2134 |
| Max Power..... | -kW 253 |
| Max Power Speed..... | -rpm 2200 |
| Peak Engine Torque @ 1400 rpm | -N•m 1350 |
| Idle Speed Setting..... | -rpm 600-800 |
| High Idle Speed | -rpm 2430 |
| Compression Ratio | 16.6:1 |
| Piston Speed* | -m/sec 10.3 |
| Firing Order..... | 1-5-3-6-2-4 |
| Weight (Dry) Engine only - Average..... | -kg 650 |
| 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 Rear Face of Block..... | -N•m 1356 |
| Installation/Operating Angles - Engine Installation Angles | |
| -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 10.1 |
| Exhaust Gas Flow..... | -litre/sec TBD |
| Exhaust Gas Temperature Turbine Out..... | -°C 480 |
| Exhaust Pipe Size Normally Acceptable..... | -mm 100 |
| 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 Duty Air Cleaner..... | -g/cfm 53 |
| Maximum Temperature Rise from Ambient to the Inlet of the Turbocharger.. | -°C 17 |
| Intake Air Flow*..... | -litre/sec TBD |
| Heat Rejection to Ambient | -kW TBD |
| Recommended intake piping size (inner diameter)..... | -mm 125 |

CHARGE AIR COOLING SYSTE

| | |
|---|---------|
| Maximum allowable pressure drop across charge air cooler and OEM CAC piping(IMPD):..... | |
| | -kPa 14 |
| Maximum Intake Manifold Temperature Differential (Ambient to IMT) (IMTD) .. | -°C 35 |
| Intake manifold temperature for Fan-ON..... | -°C 60 |

FUEL SYSTEM

| | |
|--|---------------|
| Maximum Fuel Flow on the Supply Side of the Fuel Pump..... | -litre/hr 300 |
| Maximum fuel supply restriction at fuel pump inlet | |
| — with clean fuel filter element(s) at maximum fuel flow..... | -kPa 13.6 |
| — with dirty fuel filter element(s) at maximum fuel flow | -kPa 27.1 |
| Maximum fuel drain restriction (total head) | |
| — before (or without) check valve..... | -kPa 69 |
| Maximum fuel inlet temperature..... | -°C 60 |

COOLING SYSTEM*

| | | |
|---|--------|-------|
| Coolant capacity - engine only..... | -litre | 11.1 |
| 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 | TBD |
| Minimum pressure cap rating at sea level..... | -kPa | 50 |
| Maximum coolant operating temperature at engine outlet (max. top tank temp):..... | -°C | 100 |
| Minimum operating block coolant temperature..... | -°C | 70 |
| 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 | 93.3 |

LUBRICATION SYSTEM

| | | |
|--|-------------|------|
| Normal Operating Oil Pressure Range | | |
| — minimum low idle..... | -kPa | 69 |
| —maximum rated speed..... | -kPa | 426 |
| Maximum Lube Oil Flow for Engine Accessories..... | -litre/min. | 7.6 |
| Maximum Sump Oil Temperature..... | -°C | 138 |
| Minimum Required Lube System Capacity - Sump plus Filters..... | -litre | 27.6 |
| By-pass Filtration Required..... | -Yes/No | Yes |
| Angularity of Standard Oil Pan: (Values stated are for intermittent operation only): | | |
| — Front Down..... | - ° | 30 |
| — Front Up..... | - ° | 30 |
| — Side to Side..... | - ° | 30 |

CRANKING SYSTEM

| | | | |
|--|---------|---------|-------|
| Minimum Battery Capacity - Cold Soak at 0°F (-18°C) or Above | | 12V | 24V |
| — Engine Only - Cold Cranking Amperes..... | -CCA | 1500 | 750 |
| — Engine Only - Reserve Capacity..... | -min. | 360 | 180 |
| Maximum Starting Circuit Voltage Drop..... | -Volts | TBD | |
| Minimum Ambient Temperature for Unaided Cold Start..... | -°C(°F) | -12 | (10) |
| Minimum Cranking Speed Required for Unaided Cold Start..... | -rpm | 150 | |
| 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.