


|  |   |   |                                    |  |
|--|---|---|------------------------------------|--|
|  | <b>Dongfeng Cummins Engine Company</b><br><b>Xiangyang - Hubei, China</b><br><b>Vehicle Engine Data Sheet</b> | <b>Engine Model</b><br><b>EQB160-20</b> | <b>Curve No.</b><br><b>FR91935</b> | <b>DCEC</b><br><br>Date<br><b>2005-8</b> |
|  |   |   | <b>CPL Code</b><br><b>40193</b>    |  |

Displacement: 5.9L

Bore: 102mm

Stroke: 120mm

Fuel System: Beijing Tianwei P7100 Pump

Cylinders: 6 Cylinders, in Line

Advertised Power: 118kW@2500 rpm

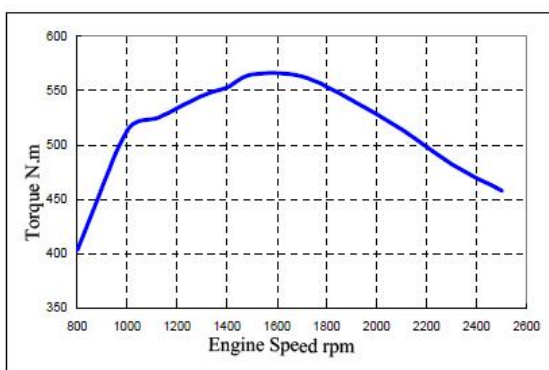
160HP@2500 rpm

Peak Torque: 565N.m@1400-1600rpm

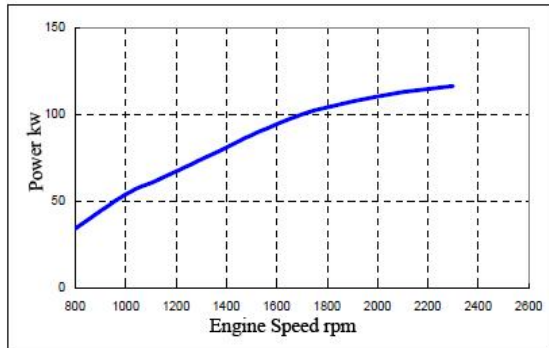
Aspiration: Turbocharged & Inter-cooled

Rating Type: Continuous

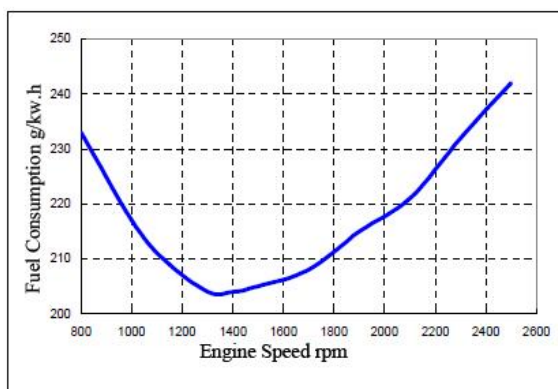
### Power Curve of Cummins EQB160-20 Diesel Engine



| Torque |     |
|--------|-----|
| rpm    | N.m |
| 800    | 403 |
| 1000   | 513 |
| 1125   | 525 |
| 1300   | 545 |
| 1400   | 553 |
| 1500   | 565 |
| 1700   | 563 |
| 1900   | 541 |
| 2100   | 514 |
| 2300   | 482 |
| 2500   | 458 |



| Power |     |
|-------|-----|
| rpm   | kW  |
| 800   | 34  |
| 1000  | 54  |
| 1125  | 62  |
| 1300  | 74  |
| 1400  | 81  |
| 1500  | 88  |
| 1700  | 100 |
| 1900  | 108 |
| 2100  | 113 |
| 2300  | 116 |
| 2500  | 122 |



| Fuel Consumption |        |
|------------------|--------|
| rpm              | g/kw.h |
| 800              | 233    |
| 1000             | 217    |
| 1125             | 210    |
| 1300             | 204    |
| 1400             | 204    |
| 1500             | 205    |
| 1700             | 208    |
| 1900             | 215    |
| 2100             | 221    |
| 2300             | 232    |
| 2500             | 242    |

Performance data obtain under normal conditions, according to GB/T18297-2001 test conditions



# Cummins Engine Co. Ltd

## Diesel Engine for Vehicle Performance Data

### Technical Request

|   |                             |
|---|-----------------------------|
| Aspiration:   | Turbocharged & Inter-cooled |
| Emission Certification  | GB17691/GB14761             |
| Net Weight:(with Flywheel and Alternator, without Starter Motor and Air Compressor) | 413kg                       |
| Wet Weight:   | 437kg                       |
| Compression Ratio:  | 17.3:1                      |
| Distance from Center of Gravity to the Front Engine Block                           | 328mm                       |
| Distance from Center of Gravity to the Crankshaft Centerline                        | 155mm                       |
| Maximum Bending Moment at Rear Face of Block  | 1356 N.m                    |
| Limit load of Thrust Bearing:   |                             |
| Instantaneous maximum:  | 3781 N                      |
| Continuous maximum  | 1780 N                      |
| <b>Performance Characteristic</b>   |                             |
| Idle Speed:   | 750±100rpm                  |
| Maximum non-load speed:   | 2750±50rpm                  |
| Over speed performance(within 15 seconds):  | 3750rpm                     |
| Maximum Altitude at Continuous Operation:   | 3000m                       |
| The clutch torque @ 800rpm:   | 380N.m                      |
| When install exhaust braking:   |                             |
| The limit exhaust pressure of Turbocharger export @3100 rpm                         | 614 kPa                     |

| Engine Speed (RPM) | Oil Pressure (kPa) | Air Flow (kg/min) | Air Pressurized |              | Exhaust Flow (kg/hr) | Exhaust Temperature (°C) | Fuel Consumption (kg/hr) | Heat Energy Loss |          |
|--------------------|--------------------|-------------------|-----------------|--------------|----------------------|--------------------------|--------------------------|------------------|----------|
|                    |                    |                   | Flow (kg/min)   | Pressure kPa |                      |                          |                          | Coolant (KW)     | Air (KW) |
| 2500               | 400                | 14                | 15.0            | 110          | 869.5                | 526                      | 29.2                     | 50.2             | 30       |
| 1500               | 350                | 8.0               | 10.3            | 81           | 498                  | 490                      | 18.0                     | 35               | 10       |

Engine Model: EQB160-20

Curve No.: FR91935

All values within ±5%.

## LUBRICATION SYSTEM

|                               |        |
|-------------------------------|--------|
| Oil Sump Capacity:            |        |
| Upper Limit:                  | 14.3L  |
| Lower Limit:                  | 12.3L  |
| Capacity of the whole system: | 16.4 L |

## AIR SYSTEM

|   |          |
|---|----------|
| Air intake maximum temperature rise from Outside to the Turbocharger                      | 15°C     |
| The allowable maximum restriction when use Dry Air Filter                                 |          |
| Medium: kPa (mmH <sub>2</sub> O)  | 2.9(300) |
| Heavy: kPa (mmH <sub>2</sub> O)   | 3.7(380) |
| The allowable maximum restriction when use dirty Filter Element: kPa (mmH <sub>2</sub> O) | 6.2(635) |

## TURBOCHARGED & INTERCOOLED

|  |                     |           |
|--|---------------------|-----------|
| Environment design parameters  | Stage II            | Stage III |
| The highest temperature of intake manifold:                                      | 55°C                | 50°C      |
| Temperature after the cooling of the intercooler                                 | 25°C                | 20°C      |
| The maximum allowable cold pressure difference before and after the intercooler: | 16.7(125) kPa(mmHg) |           |
| The allowable minimum diameter of the intake manifold:                           | 65mm                |           |

## EXHAUST SYSTEM

|   |          |
|---|----------|
| The maximum exhaust resistance with exhaust manifold and muffler: kPa(mmHg) | 10.0(75) |
| The allowable minimum diameter of the exhaust manifold:                     | 75mm     |

## FUEL SYSTEM

|   |         |
|---|---------|
| The maximum resistance of Fuel Pump when use clean filter | 150mmHg |
| Maximum fuel return oil resistance:                       | 520mmHg |

## COOLING SYSTEM

|   |                         |
|---|-------------------------|
| Engine Coolant Capacity:  | 9.0 L                   |
| The range of temperature adjustment for the Thermostat:                     | 83-95 °C                |
| The maximum pressure of Coolant(without pressure cap and thermostat closed) | 276kPa                  |
| The highest coolant temperature (at engine exports):                        | 100°C                   |
| Maximum degassing time  | 25mins                  |
| Maximum coolant flow to accessories   | 37 L/min                |
| The lowest coolant temperature  | 70°C                    |
| Minimum speed of water-filling  | 19 l/min                |
| Minimum coolant expansion volume relative to the system capacity            | 6 %                     |
| Water tank capacity without water expansion                                 | 5 L                     |
| Minimum allows pressure of pressure cap:                                    | 50 kPa                  |
| The alarm temperature of the coolant  | 100°C                   |
| The open temperature of louver  | N/A                     |
| Cooling ability of cooling system:  | Stage II      Stage III |

|   |                |         |
|---|----------------|---------|
| The limit environmental temperature at rated speed  | 45 °C          | 42 °C   |
| The limit environmental temperature at peak torque  | 40°C           | 37°C    |
| <b>24V ELECTRICAL SYSTEM</b>  |                |         |
| Maximum resistance of starting circuit  | 0.002Ω         |         |
| The cold start current when engine and the clutch separate: CCA   | 12V 500        | 24V 250 |
| <b>COLD STARTING SYSTEM</b>   |                |         |
| The lowest cold starting temperature without auxiliary starting device  | -12°C @ 120rpm |         |
| The lowest cold starting temperature with starting device   | -35°C @ 110rpm |         |
| <br><i>Cummins Engine Co. Ltd</i><br><i>All data is subject to change without notice- contact Cummins for most recent data.</i> |                |         |