



ENGINE MODEL: 6BT5.9-G1  
CURVE & DATASHEET: FR92942

REV 00 15MAR2009



**Generator Engine Performance Data**

CUMMINS ENGINE Co.,LTD

Basic Engine Model:

**6BT5.9-G1**

**FR92942**

**92 kW @ 1500 RPM**

Configuration

D402078GX02

CPL Code

CPL: 3219

Revision

2009-3-15

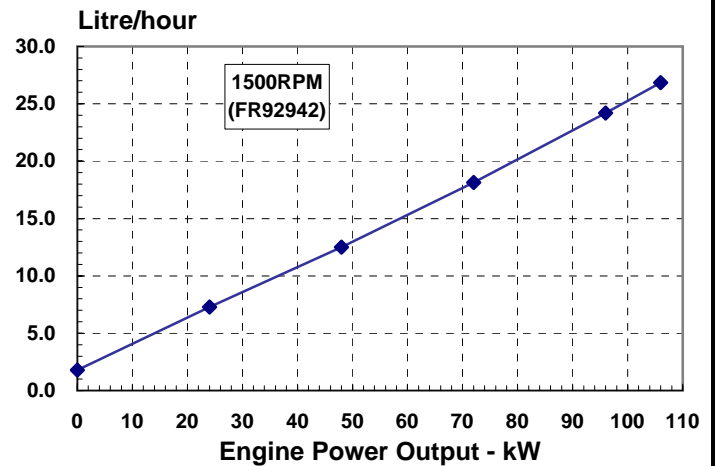
|                         |                    |                   |                              |
|-------------------------|--------------------|-------------------|------------------------------|
| Compression Ratio:      | <b>17.3:1</b>      | Aspiration:       | <b>Turbocharged</b>          |
| Bore:                   | <b>102 mm</b>      | Displacement:     | <b>5.9 L</b>                 |
| Stroke:                 | <b>120 mm</b>      | No. of Cylinders: | <b>6</b>                     |
| Emission Certification: | <b>MEP STAGE I</b> | Fuel System:      | <b>BYC PB/RSV Mechanical</b> |
| Governor Regulation:    | <b>≤8%</b>         |                   |                              |

All data is based on the engine operating with fuel system, water pump, and 10 in H<sub>2</sub>O (2.488 kPa) inlet air restriction with 5.98 in (152mm) 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.

| Engine Speed<br>RPM | Standby Power |     | Prime Power |     | Continuous Power |     |
|---------------------|---------------|-----|-------------|-----|------------------|-----|
|                     | kW            | HP  | kW          | HP  | kW               | HP  |
| 1500                | 106           | 142 | 96          | 129 | TBD              | TBD |

**Engine Performance Data @ 1500 RPM**

| OUTPUT POWER            |     |     | FUEL CONSUMPTION |      |
|-------------------------|-----|-----|------------------|------|
| %                       | kW  | HP  | g/kW.h           | L/h  |
| <b>STANDBY POWER</b>    |     |     |                  |      |
| 100                     | 106 | 142 | 209              | 26.9 |
| <b>PRIME POWER</b>      |     |     |                  |      |
| 100                     | 96  | 129 | 208              | 24.2 |
| 75                      | 72  | 96  | 208              | 18.2 |
| 50                      | 48  | 64  | 215              | 12.5 |
| 25                      | 24  | 32  | 250              | 7.3  |
| <b>CONTINUOUS POWER</b> |     |     |                  |      |
| TBD                     | TBD | TBD | TBD              | TBD  |



**Engine Performance Data @ 1800 RPM**

**Not Available at 1800 RPM**

**Not Available at 1800 RPM**

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. The engine may be operated without changing the fuel setting up to 2200 m (7218ft.) altitude.

**GENERAL ENGINE DATA**

|  |                    |      |
|--|--------------------|------|
| Approximate Engine Weight (wet).....                             | -kg                | 432  |
| Mass Moment of Inertia of Rotating Components (No Flywheel)..... | -kg·m <sup>2</sup> | 0.25 |
| Center of Gravity from Front Face of Block.....                  | -mm                | 391  |
| Center of Gravity above Crankshaft Centerline.....               | -mm                | 140  |
| Crankshaft Thrust Bearing Load Limit                             |                    |      |
| —Maximum Intermittent.....                                       | -N                 | 3425 |
| —Maximum Continuous.....   | -N                 | 1112 |

**ENGINE MOUNTING**

|  |                    |      |
|--|--------------------|------|
| Maximum (Static) Bending Moment at Front Support Mounting Surface..... | -N.m               | 435  |
| 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                                   |                    |      |
| — Roll Axis.....   | -kg·m <sup>2</sup> | 16.5 |
| — Pitch Axis.....  | -kg·m <sup>2</sup> | 41.1 |
| — Yaw Axis.....  | -kg·m <sup>2</sup> | 35.4 |

**EXHAUST SYSTEM**

|  |         |      |
|--|---------|------|
| Maximum Back Pressure.....   | -kPa    | 10   |
| Exhaust Pipe Size Normally Acceptable.....                             | -mm     | 75   |
| Maximum Static Supported Weight at the Turbocharger Outlet Flange..... | -N.m    | 13.5 |
| Exhaust Manifold Insulation Acceptable.....                            | -Yes/No | No   |
| Turbocharger Insulation Acceptable.....                                | -Yes/No | No   |

**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 |
| Recommended intake piping size (inner diameter).....                        | -mm    | 76 |

**LUBRICATION SYSTEM**

|  |        |             |
|--|--------|-------------|
| Minimum Engine Oil Pressure for Engine Protection Devices:                           |        |             |
| —Idle Speed.....   | -kPa   | 207         |
| —Governed Speed.....   | -kPa   | 345         |
| Maximum Oil Temperature.....   | -°C    | 121         |
| Oil Capacity with OP 9006 Oil Pan : High - Low.....                                  | -litre | 14.2 - 12.3 |
| Minimum Required Lube System Capacity - Sump plus Filters.....                       | -litre | 16.4        |
| Angularity of Standard Oil Pan: (Values stated are for intermittent operation only): |        |             |
| — Front Down.....  | - °    | 40          |
| — Front Up.....  | - °    | 40          |
| — Side to Side.....  | - °    | 40          |

**FUEL SYSTEM**

|  |           |                         |
|--|-----------|-------------------------|
| Type Injection System.....   |           | BYC PB Direct Injection |
| Maximum Restriction at Lift Pump.....  | -mmHg     | 102                     |
| Maximum Allowable Head on Injector Return Line (Consisting of Friction Head and Static Head) |           |                         |
| .....  | -mmHg     | 508                     |
| Total Drain Flow (constant for all loads).....   | -litre/hr | 30                      |

**COOLING SYSTEM**

|  |        |           |
|--|--------|-----------|
| Coolant Capacity - Engine Only.....                                | -litre | 7.9       |
| Maximum Coolant Friction Head External to Engine... -1800 rpm..... | -kPa   | 35        |
| -1500 rpm.....   | -kPa   | 28        |
| Maximum Static Head of Coolant Above Engine Crank Centerline.....  | -m     | 14        |
| Standard Thermostat (Modulating) Range.....                        | -°C    | 82 - 95   |
| Minimum Pressure Cap.....  | -kPa   | 69        |
| Maximum Top Tank Temperature for Standby / Prime Power.....        | -°C    | 104 / 100 |

**ELECTRICAL SYSTEM**

|   |          |         |       |
|---|----------|---------|-------|
| Cranking Motor (Heavy Duty, Positive Engagement)..... | -volt    | 12V     | 24V   |
| Battery Charging System, Negative Ground.....         | -ampere  | 63      | 40    |
| Maximum Allowable Resistance of Cranking Circuit..... | -ohm     | 0.00075 | 0.002 |
| Minimum Recommended Battery Capacity                  |          |         |       |
| • Cold Soak @ 10 °F (-12 °C) and Above.....           | -0°F CCA | 800     | 400   |

**EMISSIONS**

Gaseous Emissions per GB 20891-2007, at 1500rpm:

|                                    |        |      |
|------------------------------------|--------|------|
| —Weight-Specific NOx.....          | g/kW.h | 9.2  |
| —Weight-Specific HC.....           | g/kW.h | 1.3  |
| —Weight-Specific CO.....           | g/kW.h | 5.0  |
| —Weight-Specific Particulates..... | g/kW.h | 0.54 |

Fuel Rating Option used for these Data: **FR92942**

|                                   |             |
|-----------------------------------|-------------|
| Governed Engine Speed.....        | -rpm        |
| Engine Idle Speed.....            | -rpm        |
| Gross Engine Power Output.....    | -kW         |
| Piston Speed.....                 | -m/s        |
| Friction Horsepower.....          | -kW         |
| Engine Water Flow to Engine:..... | -litre/sec. |
| Intake Air Flow.....              | -litre/sec. |
| Exhaust Gas Temperature.....      | -°C         |
| Exhaust Gas Flow.....             | -litre/sec. |
| Air to Fuel Ratio.....            | -air:fuel   |
| Radiated Heat to Ambient.....     | -kW         |
| Heat Rejection to Coolant.....    | -kW         |
| Heat Rejection to Exhaust.....    | -kW         |

| STANDBY POWER |           | PRIME POWER |           |
|---------------|-----------|-------------|-----------|
| 1800          | 1500      | 1800        | 1500      |
| <b>N/A</b>    | 850 - 950 | <b>N/A</b>  | 850 - 950 |
|               | 101       |             | 92        |
|               | 6         |             | 6         |
|               | 12.7      |             | 12.7      |
|               | 2.0       |             | 2.0       |
|               | 107       |             | 105       |
|               | 540       |             | 490       |
|               | 305       |             | 270       |
|               | 22.5 : 1  |             | 24.5 : 1  |
|               | 21        |             | 19        |
| 61            | 54        |             |           |
| 92            | 82        |             |           |

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.