

Dongfeng Cummins Technical Operations



ENGINE MODEL: 4B3.9-G1
CURVE & DATASHEET: FR92340

REV 00 15APR2009



Generator Engine Performance Data
DONGFENG CUMMINS ENGINE Co.,LTD

Basic Engine Model:
4B3.9-G1
FR92340

| | | |
|---------------------------|-----------------|-----------------|
| FR92340 @ 1500 RPM | | |
| Configuration | CPL Code | Revision |
| D381004GX02 | CPL: 3114 | 2009-4-15 |

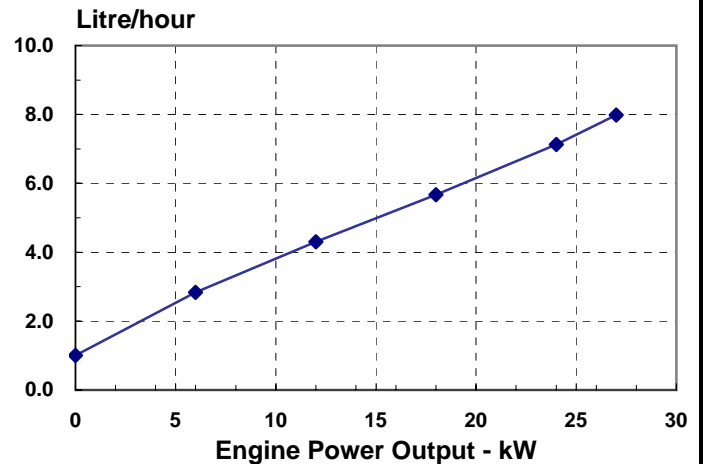
| | | | |
|----------------------|---------------|-------------------|-----------------------------|
| Compression Ratio: | 17.3:1 | Aspiration: | Naturally Aspirated |
| Bore: | 102 mm | Displacement: | 3.9 L |
| Stroke: | 120 mm | No. of Cylinders: | 4 |
| Governor Regulation: | ≤8% | Fuel System: | BYC A/RSV Mechanical |

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 (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 RPM | Standby Power | | Prime Power | | Continuous Power | |
|---------------------|---------------|----|-------------|----|------------------|-----|
| | kW | HP | kW | HP | kW | HP |
| 1500 | 27 | 36 | 24 | 32 | TBD | TBD |

Engine Performance Data @ 1500 RPM

| OUTPUT POWER | | | FUEL CONSUMPTION | |
|-------------------------|-----|-----|------------------|-----|
| % | kW | HP | g/kW.h | L/h |
| STANDBY POWER | | | | |
| 100 | 27 | 36 | 244 | 8.0 |
| PRIME POWER | | | | |
| 100 | 24 | 32 | 245 | 7.1 |
| 75 | 18 | 24 | 260 | 5.7 |
| 50 | 12 | 16 | 296 | 4.3 |
| 25 | 6 | 8 | 390 | 2.8 |
| CONTINUOUS POWER | | | | |
| 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 | 308 |
| Mass Moment of Inertia of Rotating Components (No Flywheel)..... | -kg·m ² | 0.143 |
| Center of Gravity from Rear Face of Block..... | -mm | 373 |
| Center of Gravity above Crankshaft Centerline..... | -mm | 163 |
| 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 ² | 16.5 |
| — Pitch Axis..... | -kg·m ² | 41.1 |
| — Yaw Axis..... | -kg·m ² | 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 | 9.5 - 8.5 |
| Minimum Required Lube System Capacity - Sump plus Filters..... | -litre | 10.9 |
| 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 A 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 | 7.2 |
| 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 | 625 | (312) |

Fuel Rating Option used for these Data: **FR92340**

| | |
|-----------------------------------|-------------|
| 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. |
| Radiated Heat to Ambient..... | -kW |
| Heat Rejection to Coolant..... | -kW |
| Heat Rejection to Exhaust..... | -kW |

| STANDBY POWER | | PRIME POWER | |
|---------------|------------|-------------|------------|
| 1800 | 1500 | 1800 | 1500 |
| N/A | 950 - 1050 | N/A | 950 - 1050 |
| | 27 | | 24 |
| | 6 | | 6 |
| | 8.2 | | 8.2 |
| | 2.2 | | 2.2 |
| | 33 | | 33 |
| | 410 | | 380 |
| | 71 | | 68 |
| | TBD | | TBD |
| | 29 | | 25.9 |
| TBD | TBD | | |

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.