

## Generator set data sheet

**Model:** DGBB  
**Frequency:** 60  
**Fuel type:** Diesel  
**KW rating:** 35 standby  
 32 prime  
**Emissions level:** EPA Nonroad Tier 1

<b>Exhaust emission data sheet:</b>	<b>EDS-138</b>
<b>Exhaust emission compliance sheet:</b>	
<b>Sound performance data sheet:</b>	<b>MSP-104</b>
<b>Cooling performance data sheet:</b>	
<b>Prototype test summary data sheet:</b>	<b>PTS-104</b>
<b>Standard set-mounted radiator cooling outline:</b>	<b>0500-3304</b>
<b>Optional set-mounted radiator cooling outline:</b>	
<b>Optional heat exchanger cooling outline:</b>	
<b>Optional remote radiator cooling outline:</b>	

<b>Fuel consumption</b>	<b>Standby</b>				<b>Prime</b>				<b>Continuous</b>
	<b>kW (kVA)</b>				<b>kW (kVA)</b>				<b>kW (kVA)</b>
<b>Ratings</b>	35 (44)				32 (40)				
<b>Load</b>	<b>1/4</b>	<b>1/2</b>	<b>3/4</b>	<b>Full</b>	<b>1/4</b>	<b>1/2</b>	<b>3/4</b>	<b>Full</b>	<b>Full</b>
<b>US gph</b>	1.2	1.8	2.4	2.9	1.2	1.7	2.2	2.7	
<b>L/hr</b>	4.5	6.8	9.0	11.0	4.5	6.4	8.3	10.2	

<b>Engine</b>	<b>Standby rating</b>	<b>Prime rating</b>	<b>Continuous rating</b>
Engine manufacturer	Cummins Inc.		
Engine model	4B3.9-G2		
Configuration	Cast iron, in-line 4 cylinder		
Aspiration	Naturally aspirated		
Gross engine power output, kWm (bhp)	50.7 (68.0)	44.8 (60.0)	
BMEP at set rated load, kPa (psi)	712.2 (103.3)	656.4 (95.2)	
Bore, mm (in)	102.1 (4.02)		
Stroke, mm (in)	119.9 (4.72)		
Rated speed, rpm	1800		
Piston speed, m/s (ft/min)	7.2 (1416.0)		
Compression ratio	17.3:1		
Lube oil capacity, L (qt)	10.9 (11.5)		
Overspeed limit, rpm	2100 ± 50		
Regenerative power, kW	11.90		

### Fuel flow

Fuel flow at rated load, L/hr (US gph)	41.3 (10.9)	40.5 (10.7)	
Maximum inlet restriction, mm Hg (in Hg)	101.6 (4.0)		
Maximum return restriction, mm Hg (in Hg)	254.0 (10.0)		

<b>Air</b>	<b>Standby rating</b>	<b>Prime rating</b>	<b>Continuous rating</b>
Combustion air, m <sup>3</sup> /min (scfm)	3.0 (105.0)	3.0 (105.0)	
Maximum air cleaner restriction with clean filter, kPa (in H <sub>2</sub> O)	2.5 (10.0)		
Alternator cooling air, m <sup>3</sup> /min (cfm)	18.0 (635.0)		

## Exhaust

Exhaust flow at set rated load, m <sup>3</sup> /min (cfm)	7.6 (270.0)	7.1 (250.0)	
Exhaust temperature, °C (°F)	571.1 (1060.0)	504.4 (940.0)	
Maximum back pressure, kPa (in H <sub>2</sub> O)	10.2 (41.0)		

## Standard set-mounted radiator cooling

Ambient design, °C (°F)	40 (104)		
Fan load, kW <sub>m</sub> (HP)	3.4 (4.6)		
Coolant capacity (with radiator), L (US Gal)	16.9 (4.5)		
Cooling system air flow, m <sup>3</sup> /min (scfm)	139 (4900)		
Total heat rejection, MJ/min (Btu/min)	3.1 (2857)	2.7 (2515)	
Maximum cooling air flow static restriction, kPa (in H <sub>2</sub> O)	0.12 (0.5)		

## Optional set-mounted radiator cooling

Ambient design, °C (°F)	50 (122)		
Fan load, kW <sub>m</sub> (HP)	3.4 (4.6)		
Coolant capacity (with radiator), L (US gal)	16.9 (4.5)		
Cooling system air flow, m <sup>3</sup> /min (scfm)	139 (4900)		
Total heat rejection, MJ/min (Btu/min)	3.1 (2857)	2.7 (2515)	
Maximum cooling air flow static restriction, kPa (in H <sub>2</sub> O)	0.12 (0.5)		

## Optional heat exchanger cooling

Set coolant capacity, L (US Gal.)			
Heat rejected, jacket water circuit, MJ/min (Btu/min)			
Heat rejected, aftercooler circuit, MJ/min (Btu/min)			
Heat rejected, fuel circuit, MJ/min (Btu/min)			
Total heat radiated to room, MJ/min (Btu/min)			
Maximum raw water pressure, jacket water circuit, kPa (psi)			
Maximum raw water pressure, aftercooler circuit, kPa (psi)			
Maximum raw water pressure, fuel circuit, kPa (psi)			
Maximum raw water flow, jacket water circuit, L/min (US Gal/min)			
Maximum raw water flow, aftercooler circuit, L/min (US Gal/min)			
Maximum raw water flow, fuel circuit, L/min (US Gal/min)			
Minimum raw water flow at 27 °C (80 °F) inlet temp, jacket water circuit, L/min (US Gal/min)			
Minimum raw water flow at 27 °C (80 °F) inlet temp, aftercooler circuit, L/min (US Gal/min)			
Minimum raw water flow at 27 °C (80 °F) inlet temp, fuel circuit, L/min (US Gal/min)			
Raw water delta P at min flow, jacket water circuit, kPa (psi)			
Raw water delta P at min flow, aftercooler circuit, kPa (psi)			
Raw water delta P at min flow, fuel circuit, kPa (psi)			
Maximum jacket water outlet temp, °C (°F)			
Maximum aftercooler inlet temp, °C (°F)			
Maximum aftercooler inlet temp at 25 °C (77 °F) ambient, °C (°F)			

<b>Optional remote radiator cooling<sup>1</sup></b>	<b>Standby rating</b>	<b>Prime rating</b>	<b>Continuous rating</b>
Set coolant capacity, L (US gal)	7.2 (1.9)		
Max flow rate at max friction head, jacket water circuit, L/min (US gal/min)	133 (35)		
Max flow rate at max friction head, aftercooler circuit, L/min (US gal/min)			
Heat rejected, jacket water circuit, MJ/min (Btu/min)	2.3 (2130)	2.0 (1880)	
Heat rejected, aftercooler circuit, MJ/min (Btu/min)			
Heat rejected, fuel circuit, MJ/min (Btu/min)			
Total heat radiated to room, MJ/min (Btu/min)	0.8 (727)	0.7 (635)	
Maximum friction head, jacket water circuit, kPa (psi)	35 (5)		
Maximum friction head, aftercooler circuit, kPa (psi)			
Maximum static head, jacket water circuit, m (ft)	14 (46)		
Maximum static head, aftercooler circuit, m (ft)			
Maximum jacket water outlet temp, °C (°F)	104 (220)	100 (212)	
Maximum aftercooler inlet temp at 25 °C (77 °F) ambient, °C (°F)			
Maximum aftercooler inlet temp, °C (°F)			
Maximum fuel flow, L/hr (US gph)			
Maximum fuel return line restriction, kPa (in Hg)			

## Weights<sup>2</sup>

Unit dry weight kgs (lbs)	
Unit wet weight kgs (lbs)	757 (1668)

### Notes:

<sup>1</sup> For non-standard remote installations contact your local Cummins Power Generation representative.

<sup>2</sup> Weights represent a set with standard features. See outline drawing for weights of other configurations.

## Derating factors

<b>Standby</b>	Engine power available up to 1305 m (4280 ft) at ambient temperatures up to 25 °C (77 °F). Above 1305 m (4280 ft), derate at 3% per 305 m (1000 ft), and 2% per 11 °C (1% per 10 °F) above 25 °C (77 °F).
<b>Prime</b>	Engine power available up to 1305 m (4280 ft) at ambient temperatures up to 25 °C (77 °F). Above 1305 m (4280 ft), derate at 3% per 305 m (1000 ft), and 2% per 11 °C (1% per 10 °F) above 25 °C (77 °F).
<b>Continuous</b>	

## Ratings definitions

<b>Emergency standby power (ESP):</b>	<b>Limited-time running power (LTP):</b>	<b>Prime power (PRP):</b>	<b>Base load (continuous) power (COP):</b>
Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel Stop power in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.	Applicable for supplying power to a constant electrical load for limited hours. Limited Time Running Power (LTP) is in accordance with ISO 8528.	Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.	Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) is in accordance with ISO 8528, ISO 3046, AS 2789, DIN 6271 and BS 5514.

## Alternator data

<b>Three Phase Table<sup>1</sup></b>		<b>105 °C</b>	<b>105 °C</b>	<b>105 °C</b>	<b>105 °C</b>	<b>125 °C</b>	<b>125 °C</b>	<b>125 °C</b>	<b>125 °C</b>	<b>150 °C</b>	<b>150 °C</b>	<b>150 °C</b>	
Feature Code		B418	B415	B268	B304	B417	B414	B267	B303	B416	B413	B419	
Alternator Data Sheet Number		201	201	202	201	201	201	202	201	201	201	201	
Voltage Ranges		110/190 Thru 120/208 220/380 Thru 240/416	120/208 Thru 139/240 240/416 Thru 277/480	120/208 Thru 139/240 240/416 Thru 277/480	347/600	110/190 Thru 120/208 220/380 Thru 240/416	120/208 Thru 139/240 240/416 Thru 277/480	120/208 Thru 139/240 240/416 Thru 277/480	347/600	110/190 Thru 120/208 220/380 Thru 240/416	120/208 Thru 139/240 240/416 Thru 277/480	347/600	
Surge kW		42	41	42	42	42	41	42	42	42	41	42	
Motor Starting kVA (at 90% sustained voltage)	Shunt	131	131	163	131	131	131	163	131	131	131	131	
	PMG	155	155	191	155	155	155	191	155	155	155	155	
Full Load Current Amps at Standby Rating		<u>120/208</u> 121	<u>127/220</u> 115	<u>139/240</u> 105	<u>220/380</u> 67	<u>240/416</u> 61	<u>277/480</u> 53	<u>347/600</u> 42					

<b>Single Phase Table</b>		<b>105 °C</b>	<b>105 °C</b>	<b>105 °C</b>	<b>105 °C</b>	<b>125 °C</b>	<b>125 °C</b>	<b>125 °C</b>	<b>125 °C</b>				
Feature Code		B418	B415	B274	B268	B417	B414	B273	B267				
Alternator Data Sheet Number		201	201	202	202	201	201	201	202				
Voltage Ranges		120/240 <sup>2</sup>	120/240 <sup>2</sup>	120/240 <sup>3</sup>	120/240 <sup>3</sup>	120/240 <sup>2</sup>	120/240 <sup>2</sup>	120/240 <sup>3</sup>	120/240 <sup>3</sup>				
Surge kW		40	40	42	40	39	39	41	40				
Motor Starting kVA (at 90% sustained voltage)	Shunt	72	72	95	95	72	72	72	95				
	PMG	85	85	112	112	85	85	85	112				
Full Load Current Amps at Standby Rating		<u>120/240<sup>2</sup></u> 97	<u>120/240<sup>3</sup></u> 146										

### Notes:

<sup>1</sup> Single phase power can be taken from a three phase generator set at up to 2/3 set rated 3-phase kW at 1.0 power factor. Also see Note 3 below.

<sup>2</sup> The broad range alternators can supply single phase output up to 2/3 set rated 3-phase kW at 1.0 power factor.

<sup>3</sup> The extended stack (full single phase output) and 4 lead alternators can supply single phase output up to full set rated 3-phase kW at 1.0 power factor.

## Formulas for calculating full load currents:

### Three phase output

$$\frac{\text{kW} \times 1000}{\text{Voltage} \times 1.73 \times 0.8}$$

### Single phase output

$$\frac{\text{kW} \times \text{SinglePhaseFactor} \times 1000}{\text{Voltage}}$$

**Warning:** Back feed to a utility system can cause electrocution and/or property damage. Do not connect to any building's electrical system except through an approved device or after building main switch is open.

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