

**Model: GGFD**  
**KW rating: 35 natural gas standby**  
**35 propane standby**  
**Frequency: 60**  
**Fuel type: Natural gas/propane**

> Generator set data sheet



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<b>Exhaust emission data sheet:</b>	<b>EDS-324</b>
<b>Exhaust emission compliance sheet:</b>	
<b>Sound performance data sheet:</b>	<b>MSP-180</b>
<b>Cooling performance data sheet:</b>	
<b>Prototype test summary data sheet:</b>	<b>PTS-146</b>
<b>Standard set-mounted radiator cooling outline:</b>	<b>0500-3429</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>Natural gas Standby</b>				<b>Prime</b>				<b>Propane Standby</b>				<b>Prime</b>			
	<b>kW (kVA)</b>				<b>kW (kVA)</b>				<b>kW (kVA)</b>				<b>kW (kVA)</b>			
<b>Ratings</b>	35 (44)				30 (37.5)				35 (44)				30 (37.5)			
<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>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>cfh</b>	199.0	292.0	399.0	494.0	184.0	264.0	352.0	436.0	79.0	116.0	156.0	191.0	74.0	106.0	139.0	172.0
<b>m<sup>3</sup>/hr</b>	5.6	8.3	11.3	14.0	5.2	7.5	10.0	12.3	2.2	3.3	4.4	5.4	2.1	3.0	3.9	4.9

<b>Engine</b>	<b>Natural gas Standby rating</b>	<b>Prime rating</b>	<b>Propane Standby rating</b>	<b>Prime rating</b>
Engine model	ESG-642			
Configuration	Cast iron, V 6 cylinder			
Aspiration	Naturally aspirated			
Gross engine power output, kWm (bhp)	50.0 (67.0)	43.3 (58.0)	55.2 (74.0)	47.0 (63.0)
BMEP at rated load, kPa (psi)	675.7 (98.0)	579.2 (84.0)	675.7 (98.0)	579.2 (84.0)
Bore, mm (in)	96.8 (3.81)			
Stroke, mm (in)	95.0 (3.74)			
Rated speed, rpm	1800			
Piston speed, m/s (ft/min)	5.7 (1122.0)			
Compression ratio	9.3:1			
Lube oil capacity, L (qt)	5.7 (6.0)	9.2 (9.7)	5.7 (6.0)	9.2 (9.7)
Overspeed limit, rpm	2250 ± 50			
Regenerative power, kW	12.00			

<b>Fuel flow</b>		
Minimum operating pressure, kPa (in H <sub>2</sub> O)	1.7 (7.0)	2.0 (7.0)
Maximum operating pressure, kPa (in H <sub>2</sub> O)	3.4 (13.6)	3.0 (14.0)

<b>Air</b>	<b>Natural gas Standby rating</b>	<b>Prime rating</b>	<b>Propane Standby rating</b>	<b>Prime rating</b>
Combustion air, m <sup>3</sup> /min (scfm)	2.6 (93.2)	2.4 (85.0)	2.4 (85.0)	2.2 (78.0)
Maximum air cleaner restriction, kPa (in H <sub>2</sub> O)	3.7 (15.0)			
Alternator cooling air, m <sup>3</sup> /min (scfm)	18.0 (635.0)			

## Exhaust

Exhaust flow at rated load, m <sup>3</sup> /min (cfm)	7.6 (268.0)	6.6 (234.0)	7.0 (247.0)	6.1 (216.0)
Exhaust temperature, °C (°F)	553.3 (1028.0)	527.2 (981.0)	553 (1028)	526 (979)
Maximum back pressure, kPa (in H <sub>2</sub> O)	7.5 (30.0)			

## Standard set-mounted radiator cooling

Ambient design, °C (°F)				
Fan load, kW (HP)	2.2 (3.0)			
Coolant capacity (with radiator), L (US gal)	26.5 (7.0)			
Coolant system air flow, m <sup>3</sup> /min (scfm)				
Total heat rejection, MJ/min (Btu/min)				
Maximum cooling air flow static restriction, kPa (in H <sub>2</sub> O)				

## Optional set-mounted radiator cooling

Ambient design, °C (°F)				
Fan load, kW (HP)				
Coolant capacity (with radiator), L (US gal)				
Cooling system air flow, m <sup>3</sup> /min (scfm)				
Total heat rejection, MJ/min (Btu/min)				
Maximum cooling air flow static restriction, kPa (in H <sub>2</sub> O)				

## Optional remote radiator cooling<sup>1</sup>

Set coolant capacity, L (US gal)				
Max flow rate @ max friction head, jacket water circuit, L/min (US gal/min)				
Heat rejected, jacket water circuit, MJ/min (Btu/min)				
Total heat radiated to room, MJ/min (Btu/min)				
Maximum friction head, jacket water circuit, kPa (psi)				
Maximum static head, jacket water circuit, m (ft)				
Maximum jacket water outlet temp, °C (°F)				

## Weights<sup>2</sup>

Unit dry weight kgs (lbs)	711 (1567)
Unit wet weight kgs (lbs)	743 (1637)

### 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.

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## Alternator data

<b>Natural gas 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		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		46.5	46.3	47.2	47	46.5	46.3	47.2	47	46.5	46.3	47
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>120/240</u> 105	<u>139/240</u> 105	<u>220/380</u> 66	<u>240/416</u> 61	<u>254/440</u> 58	<u>277/480</u> 53	<u>347/600</u> 42		

<b>Propane 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		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		49.1	48.9	49.9	49.6	49.1	48.9	49.9	49.6	49.1	48.9	49.6
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>120/240</u> 105	<u>139/240</u> 105	<u>220/380</u> 676	<u>240/416</u> 61	<u>254/440</u> 58	<u>277/480</u> 53	<u>347/600</u> 42		

<b>Natural gas 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		45.1	45.1	46.6	45.2	45.1	45.1	45.7	45.2			
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									

<b>Propane 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		47.7	47.7	49.3	47.7	47.7	47.7	48.3	47.7			
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:

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

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## Derating factors

### Natural gas

Standby/prime	Engine power available up to 1067 m (3500 ft) at ambient temperatures up to 40 °C (104 °F). Above 1067 m (3500 ft) derate at 4% per 305 m (1000 ft), and 2% per 11 °C (1% per 10 °F) above 40 °C (104 °F).
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### Propane

Standby/prime	Engine power available up to 1067 m (3500 ft) at ambient temperatures up to 40 °C (104 °F). Above 1067 m (3500 ft) derate at 4% per 305 m (1000 ft), and 2% per 11 °C (1% per 10 °F) above 40 °C (104 °F).
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## 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.

## 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

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

### Cummins Power Generation

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**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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