

Model: DSGAA
Frequency: 60
Fuel type: Diesel
KW rating: 100 standby
90 prime
Emissions level: EPA NSPS Stationary Emergency Tier 3

➤ **Generator set data sheet**



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Exhaust emission data sheet:	EDS-1083
Exhaust emission compliance sheet:	EPA-1117
Sound performance data sheet:	MSP-1055
Cooling performance data sheet:	MCP-170
Prototype test summary data sheet:	PTS-285
Standard set-mounted radiator cooling outline:	A035C611
Optional set-mounted radiator cooling outline:	
Optional heat exchanger cooling outline:	
Optional remote radiator cooling outline:	

Fuel consumption	Standby				Prime				Continuous
	kW (kVA)				kW (kVA)				kW (kVA)
Ratings	100 (125)				90 (113)				
Load	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full	Full
US gph	3.47	5.00	7.17	8.87	3.37	4.59	6.43	8.26	
L/hr	13.1	18.9	27.0	33.6	12.7	17.4	24.3	31.3	

Engine	Standby rating	Prime rating	Continuous rating
Engine manufacturer	Cummins		
Engine model	QSB7-G5 NR3		
Configuration	Cast iron, in-line, 6 cylinder		
Aspiration	Turbocharged and air-to-air aftercooled		
Gross engine power output, kWm (bhp)	242 (324)	208 (279)	
BMEP at set rated load, kPa (psi)	1204 (175)	1090 (158)	
Bore, mm (in)	107 (4.21)		
Stroke, mm (in)	124 (4.88)		
Rated speed, rpm	1800		
Piston speed, m/s (ft/min)	7.4 (1464)		
Compression ratio	17.2:1		
Lube oil capacity, L (qt)	17.5 (18.5)		
Overspeed limit, rpm	2100		
Regenerative power, kW	19		

Fuel flow		
Maximum fuel flow, L/hr (US gph)	106 (28)	
Maximum fuel flow with C174, L/hr (US gph)		
Maximum fuel inlet restriction with clean filter, mm Hg (in Hg)	127 (5)	
Maximum return restriction, mm Hg (in Hg)	152 (6)	

Air	Standby rating	Prime rating	Continuous rating
Combustion air, m ³ /min (scfm)	13.7 (486)	12.9 (456)	
Maximum air cleaner restriction with clean filter, kPa (in H ₂ O)	3.7 (15)		
Alternator cooling air, m ³ /min (cfm)	37.0 (1308)		

Exhaust

Exhaust flow at set rated load, m ³ /min (cfm)	31.3 (1105)	28.9 (1021.5)	
Exhaust temperature, °C (°F)	430 (807)	420 (788)	
Maximum back pressure, kPa (in H ₂ O)	10 (40)		

Standard set-mounted radiator cooling

Ambient design, °C (°F)	55 (131)		
Fan load, kW _m (HP)	9.7 (13.0)		
Coolant capacity (with radiator), L (US Gal)	23 (6.1)		
Cooling system air flow, m ³ /min (scfm)	351 (12400)		
Total heat rejection, MJ/min (Btu/min)	6.77 (6408)	6.14 (5813)	
Maximum cooling air flow static restriction, kPa (in H ₂ O)	0.12 (0.5)		

Optional set-mounted radiator cooling

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

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)			

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Optional remote radiator cooling¹

	Standby rating	Prime rating	Continuous rating
Set coolant capacity, L (US gal)			
Max flow rate at max friction head, jacket water circuit, L/min (US gal/min)			
Max flow rate at max friction head, aftercooler circuit, L/min (US gal/min)			
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 friction head, jacket water circuit, kPa (psi)			
Maximum friction head, aftercooler circuit, kPa (psi)			
Maximum static head, jacket water circuit, m (ft)			
Maximum static head, aftercooler circuit, m (ft)			
Maximum jacket water outlet temp, °C (°F)			
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)			

Weights²

Unit dry weight kgs (lbs.)	
Unit wet weight kgs (lbs.)	1180 (2602)

Notes:

¹ For non-standard remote installations contact your local Cummins Power Generation representative.

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

Derating factors

Standby	Engine power available up to 3048 m (10,000 ft) at ambient temperature up to 50° C (122° F). Consult your Cummins Power Generation distributor for temperature and ambient requirements outside these parameters.
Prime	Engine power available up to 3048 m (10,000 ft) at ambient temperature up to 40° C (104° F) and 2226 m (7300 ft) at 50° C (122° F). Consult your Cummins Power Generation distributor for temperature and ambient requirements outside these parameters.
Continuous	

Ratings definitions

Emergency standby power (ESP):	Limited-time running power (LTP):	Prime power (PRP):	Base load (continuous) power (COP):
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.

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Alternator data

Three Phase Table ¹		105° C	105° C	105° C	105° C	125° C	125° C	125° C	125° C	125° C	150° C	150° C	150° C
Feature Code		B418	B415	B268	B304	B417	B414	B267	B246	B303	B416	B413	B419
Alternator Data Sheet Number		208	208	210	207	207	207	209	206	207	206	207	206
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	139/240 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		155	155	157	154	152	152	156	151	154	151	152	153
Motor Starting kVA (at 90% sustained voltage)	Shunt	422	422	563	360	360	360	516	313	360	313	360	313
	PMG	497	497	663	423	423	423	607	368	423	368	423	368
Full Load Current - Amps at Standby Rating		<u>120/208</u> 347	<u>127/220</u> 328	<u>139/240</u> 301	<u>220/380</u> 190	<u>240/416</u> 174	<u>254/440</u> 164	<u>277/480</u> 151	<u>347/600</u> 120				

Single Phase Table		105° C	105° C	105° C	125° C	125° C	125° C	150° C					
Feature Code		B418	B415	B268	B417	B414	B267	B413					
Alternator Data Sheet Number		208	208	210	207	207	209	207					
Voltage Ranges		120/240 ²	120/240 ²	120/240 ³	120/240 ²	120/240 ²	120/240 ³	120/240 ²					
Surge kW		149	152	153	149	149	152	149					
Motor Starting kVA (at 90% sustained voltage)	Shunt	250	250	330	215	215	305	215					
	PMG	290	290	385	250	250	360	250					
Full Load Current - Amps at Standby Rating		<u>120/240²</u> 278	<u>120/240³</u> 417										

¹ 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.

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

³ 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

$$\frac{\text{kW} \times \text{Single Phase Factor} \times 1000}{\text{Voltage}}$$

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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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