

Generator set data sheet

Model: DQGAF
Frequency: 60 Hz
Fuel type: Diesel
KW rating: 1500 standby
 1365 prime
 1100 continuous
Emissions level: EPA NSPS Stationary Emergency Tier 2

Exhaust emission data sheet:	EDS-1111
Exhaust emission compliance sheet:	EPA-1157
Sound performance data sheet:	
Cooling performance data sheet:	MCP-199
Prototype test summary data sheet:	
Standard set-mounted radiator cooling outline:	A029J185
Optional set-mounted radiator cooling outline:	A029P243
Optional heat exchanger cooling outline:	
Optional remote radiator cooling outline:	A029P245

Fuel consumption	Standby				Prime				Continuous			
	kW (kVA)				kW (kVA)				kW (kVA)			
Ratings	1500 (1875)				1365 (1706)				1100 (1375)			
Load	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full
US gph	34.1	61.9	84.1	109.9	31.6	56.0	76.7	98.0	29	52	71	89
L/hr	129.1	234.3	318.4	416.0	119.6	212.0	290.3	371.0	109.8	196.8	268.7	336.9

Engine	Standby rating	Prime rating	Continuous rating
Engine manufacturer	Cummins Inc.		
Engine model	QSK50-G5 NR2		
Configuration	Cast iron, V 16 cylinder		
Aspiration	Turbocharged and low temperature aftercooled		
Gross engine power output, kWm (bhp)	1656 (2220)	1470 (1971)	1323 (1774)
BMEP at set rated load, kPa (psi)	2192 (318)	1951 (283)	1744 (253)
Bore, mm (in)	159 (6.25)		
Stroke, mm (in)	159 (6.25)		
Rated speed, rpm	1800		
Piston speed, m/s (ft/min)	9.5 (1875)		
Compression ratio	15:1		
Lube oil capacity, L (qt)	235 (248)		205 (216)
Overspeed limit, rpm	2100 ±50		
Regenerative power, kW	168		

Fuel flow

Maximum fuel flow, L/hr (US gph)	757 (200)
Maximum fuel inlet restriction, kPa (in Hg)	30 (9.0)
Maximum fuel inlet temperature, °C (°F)	70 (160)

Air	Standby rating	Prime rating	Continuous rating
Combustion air, m ³ /min (scfm)	134 (4715)	129 (4550)	123 (4345)
Maximum air cleaner restriction, kPa (in H ₂ O)	6.2 (25)		
Alternator cooling air, m ³ /min (cfm)	207 (7300)		

Exhaust

Exhaust flow at rated load, m ³ /min (cfm)	343 (12105)	318 (11230)	292 (10297)
Exhaust temperature, °C (°F)	518 (965)	485 (905)	451 (844)
Maximum back pressure, kPa (in H ₂ O)	6.78 (27)		

Standard set-mounted radiator cooling

Ambient design, °C (°F)	41.2 (106.2)		
Fan load, kW _m (HP)	53.7 (72)		
Coolant capacity (with radiator), L (US gal)	401 (106)		
Cooling system air flow, m ³ /min (scfm)	1783 (62983)		
Total heat rejection, MJ/min (Btu/min)	82.7 (78390)	74.4 (70535)	57.5 (54794)
Maximum cooling air flow static restriction, kPa (in H ₂ O)	0.12 (0.5)		
Maximum fuel return line restriction kPa (in Hg)			

Optional set-mounted radiator cooling

Ambient design, °C (°F)	50 (122)		
Fan load, kW _m (HP)	45.5 (61)		
Coolant capacity (with radiator), L (US gal)	496 (131)		
Cooling system air flow, m ³ /min (scfm)	2094 (73937)		
Total heat rejection, MJ/min (Btu/min)	82.7 (78390)	74.4 (70535)	57.5 (54794)
Maximum cooling air flow static restriction, kPa (in H ₂ O)	0.12 (0.5)		
Maximum fuel return line restriction, kPa (in Hg)			

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)	
Maximum fuel return line restriction, kPa (in Hg)	

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)	1893 (500)		
Max flow rate at max friction head, aftercooler circuit, L/min (US gal/min)	538 (142)		
Heat rejected, jacket water circuit, MJ/min (Btu/min)	43.04 (40790)	38.83 (36800)	30.28 (28842)
Heat rejected, aftercooler circuit, MJ/min (Btu/min)	26.01 (24655)	23.33 (22110)	18.75 (17858)
Heat rejected, fuel circuit, MJ/min (Btu/min)			
Total heat radiated to room, MJ/min (Btu/min)	13.66 (12945)	12.27 (11625)	7.95 (7572)
Maximum friction head, jacket water circuit, kPa (psi)	69 (10)		
Maximum friction head, aftercooler circuit, kPa (psi)	48 (7)		
Maximum static head, jacket water circuit, m (ft)	18.3 (60)		
Maximum static head, aftercooler circuit, m (ft)	18.3 (60)		
Maximum jacket water outlet temp, °C (°F)	104 (220)	100 (212)	100 (212)
Maximum aftercooler inlet temp at 25 °C (77 °F) ambient, °C (°F)	49 (120)		
Maximum aftercooler inlet temp, °C (°F)	71 (160)	66 (150)	66 (150)
Maximum fuel flow, L/hr (US gph)			
Maximum fuel return line restriction, kPa (in Hg)			

Weights²

Unit dry weight kgs (lbs)	11551 (25465)
Unit wet weight kgs (lbs)	12184 (26861)

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	<p>Standard Cooling System: Full rated power available up to 520m (1706 ft) at ambient temperature up to 40 °C (104 °F). Above these elevations, derate at 5.5% per 305 m (1000 ft) and 14.2% per 10 °C (18 °F).</p> <p>Enhanced Cooling System: Full rated power available up to 1128m (3700 ft) at ambient temperature up to 40 °C (104 °F) and 344m (1127 ft) at ambient temperature up to 50 °C (122 °F). Above these elevations, derate at 5.5% per 305m (1000 ft) and 14.2% per 10 °C (18 °F).</p>
Prime	<p>Standard Cooling System: Full rated power available up to 582 m (1909 ft) at ambient temperature up to 40 °C (104 °F). Above these elevations, derate at 6% per 305 m (1000 ft) and 14% per 10 °C (18 °F).</p> <p>Enhanced Cooling System: Full rated power available up to 1128m (3700 ft) at ambient temperature up to 40 °C (104 °F) and 344m (1127 ft) at ambient temperature up to 50 °C (122 °F). Above these elevations, derate at 5.5% per 305m (1000 ft) and 14.2% per 10 °C (18 °F).</p>
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.

Alternator data

Voltage	Connection ¹	Temp rise degrees C	Duty ²	Single phase factor ³	Max surge kVA ⁴	Winding No.	Alternator data sheet	Feature Code
380	Wye, 3-phase	150/125 ⁵	S/P		6716	312	ADS-333	B799-2
380	Wye, 3-phase	125/80	S/P/C		7361	312	ADS-334	B598-2
380	Wye, 3-phase	105/80	S/P		7361	312	ADS-334	B599-2
380	Wye, 3-phase	80	S		7695	312	ADS-335	B660-2
416	Wye, 3-phase	105/80	S/P		6716	312	ADS-333	B715-2
440	Wye, 3-phase	150/125 ⁵	S/P		5521	312	ADS-331	B691-2
440	Wye, 3-phase	125/80	S/P/C		5743	312	ADS-332	B663-2
440	Wye, 3-phase	105/80	S/P		6716	312	ADS-333	B664-2
440	Wye, 3-phase	80	S		6716	312	ADS-333	B688-2
480	Wye, 3-phase	150 ⁵	S		5521	312	ADS-331	B816-2
480	Wye, 3-phase	125/105	S/P		5521	312	ADS-331	B276-2
480	Wye, 3-phase	105/80	S/P		5743	312	ADS-332	B600-2
480	Wye, 3-phase	80	S		6716	312	ADS-333	B601-2
480	Wye, 3-phase	80	S/P		7361	312	ADS-334	B903-2
600	Wye, 3-phase	150 ⁵	S		5521	07	ADS-331	B817-2
600	Wye, 3-phase	125/105/80	S/P/C		5521	07	ADS-331	B602-2
600	Wye, 3-phase	105/80	S/P		5743	07	ADS-332	B603-2
600	Wye, 3-phase	80	S		6716	07	ADS-333	B604-2
600	Wye, 3-phase	80	S/P		7361	07	ADS-334	B904-2
4160	Wye, 3-phase	105	S/P		7005	51	ADS-323	B920-2
4160	Wye, 3-phase	80	S/P		7926	51	ADS-324	B919-2

Notes:

¹ Limited single phase capability is available from some three phase rated configurations. To obtain single phase rating, multiply the three phase kW rating by the Single Phase Factor³. All single phase ratings are at unity power factor.

² Standby (S), Prime (P) and Continuous ratings (C).

³ Factor for the *Single Phase Output from Three Phase Alternator* formula listed below.

⁴ Maximum rated starting kVA that results in a minimum of 90% of rated sustained voltage during starting.

⁵ Derate may be applicable. Please consult the factory for details.

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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D-3489a (8/12)



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