

Generator set data sheet

Model: DQGAR
Frequency: 60 Hz
Fuel type: Ultra Low Sulphur Diesel (15ppm sulphur)
KW rating: 1250 standby
 1135 prime
 1000 continuous
Emissions level: EPA Stationary Non-emergency Tier 4

Exhaust emission data sheet Tier4F:	EDS-1134
Exhaust emission compliance sheet Tier4F:	EPA-1196
Sound performance data sheet:	MSP-1120
Cooling performance data sheet:	MCP-218
Prototype test summary data sheet:	PTS-305
Standard set-mounted radiator cooling outline:	A029J185
Optional set-mounted radiator cooling outline:	A029P243
Optional remote radiator cooling outline:	A029P245
Aftertreatment outline drawing Tier4F:	A040X345

Fuel consumption	Standby				Prime				Continuous			
	kW (kVA)				kW (kVA)				kW (kVA)			
Ratings	1250 (1563)				1135 (1419)				1000 (1250)			
Load	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full
US gph	32	52.3	71.8	90.5	30.1	48.6	66.5	83.7	27.9	44.3	60.2	75.6
L/hr	121.2	197.9	271.7	342.5	114	184	251.6	316.8	105.5	167.6	227.8	266.1

DEF consumption	Standby				Prime				Continuous			
	kW (kVA)				kW (kVA)				kW (kVA)			
Ratings	1250 (1563)				1135 (1419)				1000 (1250)			
Load	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full
US gph	0.68	1.35	2.57	4.26	0.64	1.22	2.17	3.59	0.83	1.29	2.66	3.19
L/hr	2.57	5.10	9.71	16.10	2.42	4.61	8.20	13.57	3.14	4.88	10.05	12.06

Engine	Standby rating	Prime rating	Continuous rating
Engine manufacturer	Cummins Inc.		
Engine model	QSK50-G8		
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)	1830 (265)	1685 (244)	1744 (254)
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
Overspeed limit, rpm	2100 ±50		
Regenerative power, kW	168		

Fuel flow	Standby rating	Prime rating	Continuous rating
Maximum fuel flow, L/hr (US gph)	912 (241)		
Maximum fuel inlet restriction, kPa (in Hg)	16.9 (5)		
Maximum fuel inlet temperature, °C (°F)	70 (160)		

Air

Combustion air, m ³ /min (scfm)	126 (4460)	124 (4365)	123 (4345)
Maximum air cleaner restriction, kPa (in H ₂ O)	3.7 (15)		
Alternator cooling air, m ³ /min (cfm)	207 (7300)		

Exhaust

Exhaust flow at rated load, m ³ /min (cfm)	307 (10828)	296 (10438)	292 (10297)
Exhaust temperature, °C (°F)	473 (884)	462 (863)	451 (844)
Maximum back pressure, kPa (in H ₂ O)	6.78 (27)		

Standard set-mounted radiator cooling

Ambient design, °C (°F)	44.5 (112)		
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)	65064 (68.6)	60267 (63.6)	
Maximum cooling air flow static restriction, kPa (in H ₂ O)	0.12 (0.5)		
Heat radiated to room from aftertreatment (Btu/min)	150960		

Optional set-mounted radiator cooling

Ambient design, °C (°F)	52.6 (127)		
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)	68.6 (65064)	63.6 (60267)	57.5 (54794)
Maximum cooling air flow static restriction, kPa (in H ₂ O)	0.12 (0.5)		
Heat radiated to room from aftertreatment (Btu/min)	150960		

Optional remote radiator cooling¹

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)	35.62 (33760)	32.94 (31225)	30.28 (28842)
Heat rejected, aftercooler circuit, MJ/min (Btu/min)	21.56 (20435)	19.95 (18905)	18.75 (17858)
Total heat radiated to room, MJ/min (Btu/min)	11.2 (10662)	10.3 (9777.8)	9.2 (8739.8)
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)
Heat radiated to room from aftertreatment (Btu/min)	150960		

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

Aftertreatment system	T4F (SCR Only)	T4F (SCR + DPf)
Pressure drop across aftertreatment, kPa (in H ₂ O)	3 (12)	4 (16)
Available back pressure for exhaust system piping, kPa (in H ₂ O)	3.7 (15)	2 (11)
Exhaust heater rating (kW)	-	500
Exhaust heater input requirements (Amps at 480V)	-	600
Minimum unaided ambient operating temperature °C (°F)	2 (35)	2 (35)
Maximum ambient operating temperature (warning) °C (°F)	52 (125)	52 (125)
DEF tank capacity (usable) L (gal)	765 (202)	765 (202)
Heat radiated to room from aftertreatment (Btu/min)	150960	150960

DEF flow

Maximum supply flow, L/hr (US gph)	208 (55)
Maximum return flow, L/hr (US gph)	189 (50)
Maximum static head (from pump to injector), m (ft)	6.4 (21)

Weights¹

Unit dry weight kgs (lbs)	12089 (26651)
Unit wet weight kgs (lbs)	12722 (28047)
Aftertreatment weight kgs (lbs)	3962 (8734)

Derating factors²

Standby	<p><u>Standard Cooling System:</u> Full rated power available up to 2646m (8679 ft) elevation at ambient temperatures up to 40 °C (104 °F). Above these conditions derate by 3.6% per 305m (1000 ft), and derate by an additional 8.0% per 10 °C (18 °F).</p> <p><u>Enhanced Cooling System:</u> Full rated power available up to 2558.4m (8391.4 ft) elevation at ambient temperatures up to 40 °C (104 °F). Above these conditions derate by 4.6% per 305m (1000 ft). Full rated power available up to 2342.1m (7682.1 ft) elevation at ambient temperatures up to 50 °C (122 °F). Above these conditions derate by 3.6% per 305m (1000 ft). At higher ambient temperatures, derate by additional 8% per 10 °C (18 °F).</p>
Prime	Full rated power available up to 2114m (6933 ft) elevation at ambient temperature up to 40 °C (104 °F). Above these elevations, at 40 °C (104 °F), derate by 5.5% per 305m (1000 ft). Full rated power available up to 1334.2m (4376 ft) at ambient temperatures up to 50 °C (122 °F). Above these elevations, at 50 °C (122 °F), derate by an additional 5.5% per 305m (1000 ft). At higher ambient temperatures, derate by an additional 14% per 10 °C (18 °F).
Continuous	Full rated power available up to 1840.3m (6036 ft) elevation at ambient temperature up to 40 °C (104 °F). Above these elevations, at 40 °C (104 °F), derate by 5.3% per 305m (1000 ft). Full rated power available up to 1288.7m (4227 ft) at ambient temperatures up to 50 °C (122 °F). Above these elevations, at 50 °C (122 °F), derate by an additional 5.3% per 305m (1000 ft). At higher ambient temperatures, derate by an additional 10% per 10 °C (18 °F).

Notes:

¹ Weights represent a set with standard features. See outline drawing for weights of other configurations.

² Derating factors do not include aftertreatment system.

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	S/P		5521	312	ADS-331	B799-2
380	Wye, 3-phase	125/80	S/P/C		5743	312	ADS-332	B598-2
380	Wye, 3-phase	105/80	S/P		6716	312	ADS-333	B599-2
380	Wye, 3-phase	80	S		6716	312	ADS-333	B660-2
416	Wye, 3-phase	105/80	S/P		5521	312	ADS-331	B715-2
440	Wye, 3-phase	150/125	S/P		4602	312	ADS-330	B691-2
440	Wye, 3-phase	125/80	S/P/C		4602	312	ADS-330	B663-2
440	Wye, 3-phase	105/80	S/P		5521	312	ADS-331	B664-2
440	Wye, 3-phase	80	S		5521	312	ADS-331	B688-2
480	Wye, 3-phase	150	S		4602	312	ADS-330	B816-2
480	Wye, 3-phase	125/105	S/P		4602	312	ADS-330	B276-2
480	Wye, 3-phase	105/80	S/P		4602	312	ADS-330	B600-2
480	Wye, 3-phase	80	S		5521	312	ADS-331	B601-2
480	Wye, 3-phase	80	S/P		5743	312	ADS-332	B903-2
600	Wye, 3-phase	150 ⁵	S		4602	07	ADS-330	B817-2
600	Wye, 3-phase	125/105/80	S/P/C		4602	07	ADS-330	B602-2
600	Wye, 3-phase	105/80	S/P		4602	07	ADS-330	B603-2
600	Wye, 3-phase	80	S		5521	07	ADS-331	B604-2
600	Wye, 3-phase	80	S/P		5743	07	ADS-332	B904-2
4160	Wye, 3-phase	105	S/P		6204	51	ADS-322	B920-2
4160	Wye, 3-phase	80	S/P		7005	51	ADS-323	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.

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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