

Generator set data sheet

Model:	DQKAL
Frequency:	60 Hz
Fuel type:	Ultra Low Sulphur Diesel (15ppm sulphur)
KW rating:	2000 standby 1825 prime 1600 continuous
Emissions level:	EPA Stationary Non-emergency Tier 4 interim

Exhaust emission data sheet Tier4i:	EDS-1157
Exhaust emission compliance sheet Tier4i:	EPA-1227
Exhaust emission data sheet Tier4F:	EDS-1137
Exhaust emission compliance sheet Tier4F:	EPA-1199
Sound performance data sheet:	MSP-1123
Cooling performance data sheet:	MCP-221
Prototype test summary data sheet:	PTS-306
Standard set-mounted radiator cooling outline:	A034T734
Optional set-mounted radiator cooling outline:	A034H896
Optional remote radiator cooling outline:	A034U921
Aftertreatment outline drawing Tier4i:	A041C271
Aftertreatment outline drawing Tier4i w/ILB:	A041V765
Aftertreatment outline drawing Tier4F:	A040X345

Fuel consumption	Standby				Prime				Continuous			
	kW (kVA)				kW (kVA)				kW (kVA)			
Ratings	2000 (2500)				1825 (2281)				1600 (2000)			
Load	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full
US gph	46.5	82	107.4	141.4	43.5	75.1	100.6	124.1	39.3	67.7	91.8	111.6
L/hr	176	310	407	535	165	284	381	470	149	256	348	422

DEF consumption	Standby				Prime				Continuous			
	kW (kVA)				kW (kVA)				kW (kVA)			
Ratings	2000 (2500)				1825 (2281)				1600 (2000)			
Load	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full
US gph	1.11	2.45	4.98	7.54	1.06	2.21	4.30	6.62	1.00	1.91	3.46	5.49
L/hr	4.20	9.26	18.82	28.50	4.01	8.35	16.25	25.02	3.78	7.22	13.08	20.75

Engine	Standby rating	Prime rating	Continuous rating
Engine manufacturer	Cummins Inc.		
Engine model	QSK60-G16		
Configuration	Cast iron, V 16 cylinder		
Aspiration	Turbocharged and low temperature aftercooled		
Gross engine power output, kWm (bhp)	2179 (2922)	1974 (2647)	1739 (2332)
BMEP at set rated load, kPa (psi)	2420 (351)	2193 (318)	1931 (280)
Bore, mm (in)	159 (6.25)		
Stroke, mm (in)	190 (7.48)		
Rated speed, rpm	1800		
Piston speed, m/s (ft/min)	11.4 (2243)		
Compression ratio	14.5:1		
Lube oil capacity, L (qt)	261 (276)	378 (400)	378 (400)
Overspeed limit, rpm	2070		
Regenerative power, kW	277		

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Fuel flow	Standby rating	Prime rating	Continuous rating
Maximum fuel flow, L/hr (US gph)	1037 (274)		
Maximum fuel inlet restriction, kPa (in Hg)	30 (9.0)		
Maximum fuel inlet temperature, °C (°F)	71 (160)		

Air

Combustion air, m ³ /min (scfm)	178 (6295)	159 (5615)	150 (5290)
Maximum air cleaner restriction, kPa (in H ₂ O)	6.2 (25)		
Alternator cooling air, m ³ /min (cfm)	222 (7840)		

Exhaust

Exhaust flow at rated load, m ³ /min (cfm)	436 (15385)	385 (13580)	359 (12665)
Exhaust temperature, °C (°F)	482 (900)	466 (870)	454 (850)
Maximum back pressure, kPa (in H ₂ O)	6.7 (27)		

Standard set-mounted radiator cooling

Ambient design, °C (°F)	40.7 (105.3)		
Fan load, kW _m (HP)	46 (61)		
Coolant capacity (with radiator), L (US gal)	537 (142)		
Cooling system air flow, m ³ /min (scfm)	2094 (73937)		
Total heat rejection, MJ/min (Btu/min)	102.6 (97249)	88.8 (84180)	80.1 (75892)
Maximum cooling air flow static restriction, kPa (in H ₂ O)	0.12 (0.5)		
Heat radiated to room from aftertreatment (Btu/hr)	198420		

Optional set-mounted radiator cooling

Ambient design, °C (°F)	50.6 (123.1)		
Fan load, kW _m (HP)	66 (88)		
Coolant capacity (with radiator), L (US gal)	606 (160)		
Cooling system air flow, m ³ /min (scfm)	2347 (82891)		
Total heat rejection, MJ/min (Btu/min)	102.6 (97249)	88.8 (84180)	80.1 (75892)
Maximum cooling air flow static restriction, kPa (in H ₂ O)	0.12 (0.5)		
Heat radiated to room from aftertreatment (Btu/hr)	198420		

Optional remote radiator cooling¹

Max flow rate at max friction head, jacket water circuit, L/min (US gal/min)	1900 (502)		
Max flow rate at max friction head, aftercooler circuit, L/min (US gal/min)	606 (160)		
Heat rejected, jacket water circuit, MJ/min (Btu/min)	48 (45500)	43.6 (41355)	40.4 (38310)
Heat rejected, aftercooler circuit, MJ/min (Btu/min)	36 (34145)	28.7 (27190)	24.9 (23625)
Total heat radiated to room, MJ/min (Btu/min)	18.6 (17604)	16.5 (15635)	14 (13957)
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 (60)		
Maximum static head, aftercooler circuit, m (ft)	18 (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/hr)	198420		

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

Aftertreatment system	T4i	T4i with heater	T4F
Pressure drop across aftertreatment, kPa (in H ₂ O)	4 (16)	4 (16)	6 (24)
Available back pressure for exhaust system piping, kPa (in H ₂ O)	2.7 (11)	2.7 (11)	0.7 (3)
Exhaust heater rating (kW)	-	500	500
Exhaust heater input requirements (Amps at 480V)	-	600	600
Minimum unaided ambient operating temperature °C (°F)	2 (35)	2 (35)	2 (35)
Maximum ambient operating temperature (warning) °C (°F)	52 (125)	52 (125)	52 (125)
DEF tank capacity (usable) L (gal)	765 (202)	765 (202)	765 (202)

DEF flow

Maximum supply flow, L/hr (US gph)	216 (57)
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)	18435 (40642)
Unit wet weight kgs (lbs)	19135 (42185)
Aftertreatment weight kgs (lbs) ²	1981 (4367)

Derating factors²

Standby	<p><u>Standard Cooling System:</u> Full rated power available up to 200m (656 ft) at ambient temperature up to 40°C (104 °F). Above these elevations, derate at 4.5% per 305m (1000 ft) and 12.5% per 10°C (18 °F).</p> <p><u>Enhanced Cooling System:</u> Full rated power available up to 716 m (2350 ft) at ambient temperature up to 40°C (104 °F) and derate at 4.5% per 305 m (1000 ft). Full engine power available up to 122 m (400 ft) at ambient temperature up to 50°C (122 °F) and derates at 3% per 305 m (1000 ft). For temperature above 50°C(122 °F) and altitude above 1402 m (4600 ft) derate an additional 1.5% per 305 m (1000 ft). Above these temperatures, derate at 8% per 10°C (18 °F)</p>
Prime	<p><u>Standard Cooling System:</u> Full rated power available at sea level at ambient temperature up to 40°C (104 °F). Above these elevations, derate at 5% per 305 m (1000 ft) and 14.6 % per 10°C (18 °F).</p> <p><u>Enhanced Cooling System:</u> Full rated power available up to 716 m (2350 ft) at ambient temperature up to 40°C (104 °F) and derate at 4.5% per 305 m (1000 ft). Full engine power available up to 122 m (400 ft) at ambient temperature up to 50°C (122 °F) and derates at 3% per 305 m (1000 ft). For temperature above 50°C(122 °F) and altitude above 1402 m (4600 ft) derate an additional 1.5% per 305 m (1000 ft). Above these temperatures, derate at 8% per 10°C (18 °F).</p>
Continuous	<p><u>Standard Cooling System:</u> Full rated power available at sea level at ambient temperature up to 36°C (97 °F). Above these elevations, derate 5.7% per 305 m (1000 ft) and 17.5 % per 10°C (18 °F).</p> <p><u>Enhanced Cooling System:</u> Full rated power available up to 488 m (1600 ft) at ambient temperature up to 40°C (104 °F). Above these elevations, derate at 4 % per 305 m (1000 ft) and 10% per 10°C (18 °F).</p>

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	150/125/105	S/P/C		7695	312	ADS-335	B595-2
380	Wye, 3-phase	125/105/80	S/P/C		7695	312	ADS-335	B598-2
380	Wye, 3-phase	105/80	S/P		7333	13	ADS-515	B599-2
380	Wye, 3-phase	80	S		7333	13	ADS-515	B660-2
416	Wye, 3-phase	105/80	S/P		7361	312	ADS-334	B715-2
440	Wye, 3-phase	150/125	S/P		6716	312	ADS-333	B691-2
440	Wye, 3-phase	125/105/80	S/P/C		6176	312	ADS-333	B663-2
440	Wye, 3-phase	105/80	S/P		7361	312	ADS-334	B664-2
440	Wye, 3-phase	80	S		7695	312	ADS-335	B688-2
480	Wye, 3-phase	150	S		6716	312	ADS-333	B816-2
480	Wye, 3-phase	125/105/80	S/P/C		6716	312	ADS-333	B801-2
480	Wye, 3-phase	105/80	S/P		7361	312	ADS-334	B600-2
480	Wye, 3-phase	80	S		7361	312	ADS-334	B601-2
480	Wye, 3-phase	80	S/P		7267	12	ADS-515	B903-2
600	Wye, 3-phase	150	S		6716	07	ADS-333	B817-2
600	Wye, 3-phase	125/105/80	S/P/C		6716	07	ADS-333	B602-2
600	Wye, 3-phase	105/80	S/P		7361	07	ADS-334	B603-2
600	Wye, 3-phase	80	S		7361	07	ADS-334	B604-2
600	Wye, 3-phase	80	S/P		7233	07	ADS-515	B904-2
4160	Wye, 3-phase	80	S/P		7295	51	ADS-519	B905-2
4160	Wye, 3-phase	125/105/80	S/P/C		6335	51	ADS-518	B467-2
4160	Wye, 3-phase	105/80	S/P		6335	51	ADS-518	B313-2
12470	Wye, 3-phase	125/105/80	S/P/C		5948	87	ADS-521	B448-2
12470	Wye, 3-phase	105/80	S/P		5948	87	ADS-521	B567-2
12470	Wye, 3-phase	80	S		5948	87	ADS-521	B607-2
12470	Wye, 3-phase	80	S/P		6800	87	ADS-522	B906-2
13200	Wye, 3-phase	80	S/P		6800	91	ADS-522	B907-2
13200	Wye, 3-phase	125/105/80	S/P/C		5948	91	ADS-521	B448-2
13200	Wye, 3-phase	105/80	S/P		5948	91	ADS-521	B612-2
13200	Wye, 3-phase	80	S		5948	91	ADS-521	B628-2
13800	Wye, 3-phase	125/105/80	S/P/C		5948	91	ADS-521	B448-2
13800	Wye, 3-phase	105/80	S/P		5948	91	ADS-521	B612-2
13800	Wye, 3-phase	80	S		5948	91	ADS-521	B628-2
13800	Wye, 3-phase	80	S/P		6800	91	ADS-522	B909-2

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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