

## Generator Set Data Sheet



**Model:** DQFAA  
**Frequency:** 60 Hz  
**Fuel Type:** Diesel  
**kW Rating:** 750 Standby  
 680 Prime  
**Emissions Level:** EPA NSPS Stationary Emergency Tier 2

Exhaust emission data sheet:	EDS-1060
Exhaust emission compliance sheet:	EPA-1094
Sound performance data sheet:	MSP-1035
Cooling performance data sheet:	MCP-153
Prototype test summary data sheet:	PTS-266
Standard set-mounted radiator cooling outline:	A049K674
Optional remote radiator cooling outline:	A053G787

Fuel Consumption	Standby				Prime				Continuous
	kW (kVA)				kW (kVA)				kW (kVA)
Ratings	750 (938)				680 (850)				
Load	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full	Full
US gph	14.6	27.3	39.9	52.6	13.5	24.9	36.3	47.7	
L/hr	55.4	103.2	151.1	198.9	51.3	94.4	137.6	180.7	

Engine	Standby rating	Prime rating	Continuous rating
Engine manufacturer	Cummins Inc.		
Engine model	QST30-G5 NR2		
Configuration	Cast iron, V 12 cylinder		
Aspiration	Turbocharged and low temperature after-cooled		
Gross engine power output, kWm (bhp)	1112 (1490)	1007 (1350)	
BMEP at set rated load, kPa (psi)	1797 (261)	1629 (236)	
Bore, mm (in.)	140 (5.51)		
Stroke, mm (in.)	165 (6.5)		
Rated speed, rpm	1800		
Piston speed, m/s (ft/min)	9.91 (1950)		
Compression ratio	14.7:1		
Lube oil capacity, L (qt)	154 (162.8)		
Overspeed limit, rpm	2100 ±50		
Regenerative power, kW	82		

Fuel Flow		
Maximum fuel flow, L/hr (US gph)	570 (150)	
Maximum fuel inlet restriction, kPa (in Hg)	27 (8.0)	
Maximum fuel inlet temperature, °C (°F)	66 (150)	

<b>Air</b>	<b>Standby rating</b>	<b>Prime rating</b>	<b>Continuous rating</b>
Combustion air, m <sup>3</sup> /min (scfm)	69 (2472)	64 (2282)	
Maximum air cleaner restriction, kPa (in H <sub>2</sub> O)	6.2 (25)		
Alternator cooling air, m <sup>3</sup> /min (cfm)	204 (7300)		

### **Exhaust**

Exhaust flow at set rated load, m <sup>3</sup> /min (cfm)	177 (6310)	165 (5880)	
Exhaust temperature, °C (°F)	435 (816)	425 (798)	
Maximum back pressure, kPa (in H <sub>2</sub> O)	6.8 (27)		

### **Standard Set-Mounted Radiator Cooling**

Ambient design, °C (°F)	50 (122)		
Fan load, kW <sub>m</sub> (HP)	33.1 (44.4)		
Coolant capacity (with radiator), L (US gal)	167 (44)		
Cooling system air flow, m <sup>3</sup> /min (scfm)	1097.5 (38753)		
Total heat rejection, MJ/min (Btu/min)	36.3 (34468)	32.8 (31112)	
Maximum cooling air flow static restriction, kPa (in H <sub>2</sub> O)	0.12 (0.5)		
Maximum fuel return line restriction kPa (in Hg)	67.5 (20)		

### **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)			

<b>Optional Remote Radiator Cooling<sup>1</sup></b>	<b>Standby rating</b>	<b>Prime rating</b>	<b>Continuous rating</b>
Set coolant capacity, L (US gal)			
Max flow rate at max friction head, jacket water circuit, L/min (US gal/min)	992 (262)		
Max flow rate at max friction head, aftercooler circuit, L/min (US gal/min)	303 (80)		
Heat rejected, jacket water circuit, MJ/min (Btu/min)	18.52 (17564)	17.36 (16462)	
Heat rejected, aftercooler circuit, MJ/min (Btu/min)	11.49 (10894)	10.28 (9749)	
Heat rejected, fuel circuit, MJ/min (Btu/min)			
Total heat radiated to room, MJ/min (Btu/min)	6.1 (5753)	5.6 (5301)	
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)	14 (46)		
Maximum static head, aftercooler circuit, m (ft)	14 (46)		
Maximum jacket water outlet temp, °C (°F)	104 (220)	100 (212)	
Maximum aftercooler inlet temp at 25 °C (77 °F) ambient, °C (°F)	41 (105)		
Maximum aftercooler inlet temp, °C (°F)	62 (143)	56 (133)	
Maximum fuel flow, L/hr (US gph)			
Maximum fuel return line restriction, kPa (in Hg)	67.5 (20)		

## Weights<sup>2</sup>

Unit dry weight kgs (lbs)	6633 (14625)
Unit wet weight kgs (lbs)	6896 (15205)

### Notes:

<sup>1</sup> For non-standard remote installations contact your local Cummins representative.

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

## Derating Factors

<b>Standby</b>	Engine power available up to 3200 m (10500 ft) at ambient temperatures up to 40 °C (104 °F) and 2200 m (7217 ft) at ambient temperatures up to 50 °C (122 °F). Above these elevations, derate at 3.5% per 305 m (1000 ft) and 7% per 10 °C (18 °F).
<b>Prime</b>	Engine power available up to 3150 m (10335 ft) at ambient temperatures up to 40 °C (104 °F) and 2630 m (8628 ft) at ambient temperatures up to 50 °C (122 °F). Above these elevations, derate at 3.5% per 305 m (1000 ft) and 7% per 10 °C (18 °F).
<b>Continuous</b>	

## 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.

## Alternator Data

Voltage	Connection <sup>1</sup>	Temp rise degrees C	Duty <sup>2</sup>	Single phase factor <sup>3</sup>	Max surge kVA <sup>4</sup>	Winding No.	Alternator data sheet	Feature code
277/480	12-lead	125/105	S/P		2944	772	ADS-309	B246
120/208-139/240	12-lead	125/105	S/P		3313	774	ADS-310	B252
240/416-277/480	12-lead	125/105	S/P		3313	774	ADS-310	B252
110/190-139/240	12-lead	125/105	S/P		3313	770	ADS-310	B258
220/380-277/480	12-lead	125/105	S/P		3313	770	ADS-310	B258
110/190-139/240	12-lead	105/80	S/P		3866	773	ADS-311	B259
220/380-277/480	12-lead	105/80	S/P		3866	773	ADS-311	B259
277/480	Wye, 3-phase	125/105	S/P		2944	772	ADS-309	B276
220/380-277/480	Wye, 3-phase	125/105	S/P		3313	770	ADS-310	B282
347/600	Wye, 3-phase	125/105	S/P		2944	772	ADS-309	B300
347/600	Wye, 3-phase	105/80	S/P		3313	779	ADS-310	B301

### Notes:

<sup>1</sup> 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 Factor<sup>3</sup>. All single phase ratings are at unity power factor.

<sup>2</sup> Standby (S), Prime (P) and Continuous ratings (C).

<sup>3</sup> Factor for the *Single phase output from Three phase alternator* formula listed below.

<sup>4</sup> 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.

For more information contact your local Cummins distributor or visit [power.cummins.com](http://power.cummins.com)

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