Generator set data sheet

Model:	**DGDB**
Frequency:	**50 Hz**
Fuel type:	**Diesel**
kW rating:	**85 Standby** **80 Prime**
Emissions level:	**EPA Nonroad Tier 1**

Exhaust emission data sheet:	**EDS-205**
Exhaust emission compliance sheet:	
Sound performance data sheet:	**MSP-209**
Cooling performance data sheet:	
Prototype test summary data sheet:	**PTS-205**
Standard set-mounted radiator cooling outline:	**0500-3176**
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	85 (106)				80 (100)				
Load	**1/4**	**1/2**	**3/4**	**Full**	**1/4**	**1/2**	**3/4**	**Full**	**Full**
US gph	2.0	3.4	4.8	6.4	2.0	3.2	4.5	6.1	
L/hr	8	13	18	24	8	12	17	23	

Engine

	Standby rating	Prime rating	Continuous rating
Engine manufacturer	Cummins Inc.		
Engine model	6TB5.9-G6		
Configuration	Cast iron, in-line 6 cylinder		
Aspiration	Turbocharged		
Gross engine power output, kW_m (bhp)	106.7 (143.0)	97.0 (130.0)	
BMEP at set rated load, kPa (psi)	1323.8 (192.0)	1199.7 (174.0)	
Bore, mm (in.)	102.1 (4.02)		
Stroke, mm (in.)	119.9 (4.72)		
Rated speed, rpm	1500		
Piston speed, m/s (ft/min)	6.0 (1180.0)		
Compression ratio	16.5:1		
Lube oil capacity, L (qt)	16.4 (17.3)		
Overspeed limit, rpm	1850 ± 50		
Regenerative power, kW	12.70		

Fuel flow

Maximum fuel flow, L/hr (US gph)	57.2 (15.1)
Maximum fuel inlet restriction, mm Hg (in Hg)	101.6 (4.0)
Maximum return restriction, mm Hg (in Hg)	508.0 (20.0)

Air	Standby rating	Prime rating	Continuous rating
Combustion air, m^3/min (scfm)	5.9 (210.0)	5.7 (200.0)	
Maximum air cleaner restriction with clean filter, kPa (in H_2O)	2.5 (10)		
Alternator cooling air, m^3/min (cfm)	30.8 (1090.0)		

Exhaust

Exhaust flow at set rated load, m^3/min (cfm)	18.4 (650.0)	17.0 (600.0)	
Exhaust temperature, °C (°F)	610.0 (1130.0)	576.7 (1070.0)	
Maximum back pressure, kPa (in H_2O)	10.2 (41.0)		

Standard set-mounted radiator cooling

Ambient design, °C (°F)	40 (104)		
Fan load, kW_m (HP)	3.7 (5.0)		
Coolant capacity (with radiator), L (US gal)	24.6 (6.5)		
Cooling system air flow, m^3/min (scfm)	125 (4400)		
Total heat rejection, MJ/min (Btu/min)	5.6 (5284)	5.0 (4774)	
Maximum cooling air flow static restriction, kPa (in H_2O)	0.12 (0.5)		

Optional set-mounted radiator cooling

Ambient design, °C (°F)	50 (122)		
Fan load, kW_m (HP)	3.7 (5.0)		
Coolant capacity (with radiator), L (US gal)	24.6 (6.5)		
Cooling system air flow, m^3/min (scfm)	125 (4400)		
Total heat rejection, MJ/min (Btu/min)	5.6 (5284)	5.6 (5284)	
Maximum cooling air flow static restriction, kPa (in H_2O)	0.12 (0.5)		

Optional heat exchanger cooling	Standby rating	Prime rating	Continuous rating
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 cooling[1]

Set coolant capacity, L (US gal)	9.1 (2.4)		
Max flow rate at max friction head, jacket water circuit, L/min (US gal/min)	91 (24)		
Max flow rate at max friction head, aftercooler circuit, L/min (US gal/min)			
Heat rejected, jacket water circuit, MJ/min (Btu/min)	4.1 (3860)	3.7 (3510)	
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)	1.5 (1424)	1.3 (1264)	
Maximum friction head, jacket water circuit, kPa (psi)	28 (4)		
Maximum friction head, aftercooler circuit, kPa (psi)			
Maximum static head, jacket water circuit, m (ft)	14 (46)		
Maximum static head, aftercooler circuit, m (ft)			
Maximum jacket water outlet temp, °C (°F)	104 (220)	100 (212)	
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)			

Weights[2]

Unit dry weight kgs (lbs)	
Unit wet weight kgs (lbs)	1202 (2650)

Notes:
[1] For non-standard remote installations contact your local Cummins 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 595 m (1950 ft) at ambient temperatures up to 40 °C (104 °F). Above 595 m (1950 ft), derate at 4% per 305 m (1000 ft), and 2% per 11 °C (1% per 10 °F) above 40 °C (104°F).
Prime	Engine power available up to 595 m (1950 ft) at ambient temperatures up to 40 °C (104 °F). Above 595 m (1950 ft), derate at 4% per 305 m (1000 ft), and 2% per 11 °C (1% per 10 °F) above 40 °C (104°F).
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

Three phase table[1]		105 °C	105 °C	125 °C	125 °C	150 °C
Feature code		B328	B340	B327	B339	B420
Alternator data sheet number		208	209	207	208	207
Voltage ranges		110/190 thru 127/220 220/380 thru 254/440	110/190 thru 127/220 220/380 thru 254/440	110/190 thru 127/220 220/380 thru 254/440	110/190 thru 127/220 220/380 thru 254/440	110/190 thru 127/220 220/380 thru 254/440
Surge kW		95	96	93	95	93
Motor starting kVA (at 90% sustained voltage)	Shunt	331	367	244	311	244
	PMG	389	458	306	389	306

Full load current - amps at Standby rating	110/190	115/200	120/208	127/220	220/380	230/400	240/415	251/440
	323	307	295	279	161	153	148	139

Single phase table		105 °C	105 °C	125 °C	125 °C
Feature code		B328	B340	B327	B339
Alternator data sheet number		208	209	207	208
Voltage ranges		110/220 thru 120/240[2]	110/220 thru 120/240[3]	110/220 thru 120/240[2]	110/220 thru 120/240[3]
Surge kW		93	93	92	92
Motor starting kVA (at 90% sustained voltage)	Shunt	185	215	145	185
	PMG	230	270	180	230

Full load current - amps at Standby rating	110/220[2]	110/220[3]
	258	295

Notes:

[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

$$\frac{\text{kW} \times \text{SinglePhaseFactor} \times 1000}{\text{Voltage}}$$

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

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