Generator set data sheet

Model:	**DGDB**
Frequency:	**60 Hz**
Fuel type:	**Diesel**
kW rating:	**100 Standby** **90 Prime**
Emissions level:	**EPA Nonroad Tier 1**

Exhaust emission data sheet:	**EDS-105**
Exhaust emission compliance sheet:	
Sound performance data sheet:	**MSP-109**
Cooling performance data sheet:	
Prototype test summary data sheet:	**PTS-105**
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	100 (125)				90 (113)				
Load	**1/4**	**1/2**	**3/4**	**Full**	**1/4**	**1/2**	**3/4**	**Full**	**Full**
US gph	2.6	4.1	5.8	7.5	2.4	3.8	5.3	6.8	
L/hr	10	16	22	28	9	14	20	26	

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)	126.8 (170.0)	115.6 (155.0)	
BMEP at set rated load, kPa (psi)	1316.9 (191.0)	1192.8 (173.0)	
Bore, mm (in.)	102.1 (4.02)		
Stroke, mm (in.)	119.9 (4.72)		
Rated speed, rpm	1800		
Piston speed, m/s (ft/min)	7.2 (1416.0)		
Compression ratio	16.5:1		
Lube oil capacity, L (qt)	16.4 (17.3)		
Overspeed limit, rpm	2100 ± 50		
Regenerative power, kW	16.40		

Fuel flow

Maximum fuel flow, L/hr (US gph)	60.2 (15.9)	
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)	7.6 (270.0)	7.4 (260.0)	
Maximum air cleaner restriction with clean filter, kPa (in H_2O)	2.5 (10)		
Alternator cooling air, m^3/min (cfm)	37.0 (1308.0)		

Exhaust

Exhaust flow at set rated load, m^3/min (cfm)	22.6 (800.0)	21.1 (745.0)	
Exhaust temperature, °C (°F)	571.1 (1060.0)	543.3 (1010.0)	
Maximum back pressure, kPa (in H_2O)	10.2 (41.0)		

Standard set-mounted radiator cooling (non-seismic)

Ambient design, °C (°F)	40 (104)		
Fan load, kW_m (HP)	6.3 (8.5)		
Coolant capacity (with radiator), L (US gal)	24.6 (6.5)		
Cooling system air flow, m^3/min (scfm)	150 (5300)		
Total heat rejection, MJ/min (Btu/min)	6.3 (5961)	5.6 (5355)	
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)	6.3 (8.5)		
Coolant capacity (with radiator), L (US gal)	24.6 (6.5)		
Cooling system air flow, m^3/min (scfm)	150 (5300)		
Total heat rejection, MJ/min (Btu/min)	6.3 (5961)	5.6 (5355)	
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, after-cooler 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, after-cooler 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, after-cooler 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, after-cooler circuit, kPa (psi)			
Raw water delta P at min flow, fuel circuit, kPa (psi)			
Maximum jacket water outlet temp, °C (°F)			
Maximum after-cooler inlet temp, °C (°F)			
Maximum after-cooler inlet temp at 25 °C (77 °F) ambient, °C (°F)			

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)	114 (30)		
Max flow rate at max friction head, after-cooler circuit, L/min (US gal/min)			
Heat rejected, jacket water circuit, MJ/min (Btu/min)	4.6 (4315)	4.1 (3900)	
Heat rejected, after-cooler circuit, MJ/min (Btu/min)			
Heat rejected, fuel circuit, MJ/min (Btu/min)			
Total heat radiated to room, MJ/min (Btu/min)	1.7 (1646)	1.5 (1455)	
Maximum friction head, jacket water circuit, kPa (psi)	35 (5)		
Maximum friction head, after-cooler circuit, kPa (psi)			
Maximum static head, jacket water circuit, m (ft)	14 (46)		
Maximum static head, after-cooler circuit, m (ft)			
Maximum jacket water outlet temp, °C (°F)	104 (220)	100 (212)	
Maximum after-cooler inlet temp at 25 °C (77 °F) ambient, °C (°F)			
Maximum after-cooler 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 2580 m (8460 ft) at ambient temperatures up to 40 °C (104 °F). Above 2580 m (8460 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 2580 m (8460 ft) at ambient temperatures up to 40 °C (104 °F). Above 2580 m (8460 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	105 °C	105 °C	125 °C	125 °C	125 °C	125 °C	150 °C	150 °C	150 °C
Feature code		B418	B415	B268	B304	B417	B414	B267	B303	B416	B413	B419
Alternator data sheet number		208	208	210	207	207	207	209	207	206	207	206
Voltage ranges		110/190 thru 120/208 220/380 thru 240/416	120/208 thru 139/240 240/416 thru 277/480	120/208 thru 139/240 240/416 thru 277/480	347/600	110/190 thru 120/208 220/380 thru 240/416	120/208 thru 139/240 240/416 thru 277/480	120/208 thru 139/240 240/416 thru 277/480	347/600	110/190 thru 120/208 220/380 thru 240/416	120/208 thru 139/240 240/416 thru 277/480	347/600
Surge kW		108	108	110	108	106	106	109	108	106	106	107
Motor starting kVA (at 90% sustained voltage)	Shunt	422	422	563	360	360	360	516	360	313	360	313
	PMG	497	497	663	423	423	423	607	423	368	423	368

Full load current - amps at Standby rating	120/208	127/220	139/240	240/416	254/440	277/480	347/600
	347	328	301	173	164	150	120

Single phase table		105 °C	105 °C	105 °C	105 °C	125 °C	125 °C	125 °C	125 °C
Feature code		B418	B415	B274	B268	B417	B414	B273	B267
Alternator data sheet number		208	208	209	210	207	207	208	209
Voltage ranges		120/240[2]	120/240[2]	120/240[2]	120/240[2]	120/240[2]	120/240[2]	120/240[2]	120/240[2]
Surge kW		107	107	109	107	105	105	107	106
Motor starting kVA (at 90% sustained voltage)	Shunt	250	250	305	330	215	215	250	305
	PMG	290	290	360	385	250	250	290	360

Full load current - amps at Standby rating	120/240[2]	120/240[3]
	278	417

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

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

For more information contact your local Cummins distributor or visit power.cummins.com

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