

Generator set data sheet



Model: C50 D6
Frequency: 60 Hz
Fuel type: Diesel
kW rating: 50 Standby
45 Prime
Emissions level: EPA Emission Stationary Standby

Exhaust emission data sheet:	EDS-1186
Exhaust emission compliance sheet:	EPA-1255
Sound performance data sheet:	MSP-1184
Cooling performance data sheet:	MCP-266
Prototype test summary data sheet:	PTS-430

Fuel consumption	Standby				Prime			
	kW (kVA)				kW (kVA)			
Ratings	50 (62.5)				45 (56.25)			
Load	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full
US gph	1.49	2.38	3.30	4.25	1.35	2.16	3.00	3.86
L/hr	5.64	9.01	12.49	16.09	5.11	8.18	11.36	14.61

Engine	Standby rating	Prime rating
Engine manufacturer	Cummins Inc.	
Engine model	4BTAA3.3-G7	
Configuration	Cast iron, in-line, 4 cylinder	
Aspiration	Turbocharged and charge air-cooled	
Gross engine power output, kWm (bhp)	73.8 (99)	67.1 (90)
BMEP at set rated load, kPa (psi)	1285.87 (186.5)	1167.9 (169.4)
Bore, mm (in.)	95 (3.74)	
Stroke, mm (in.)	115 (4.53)	
Rated speed, rpm	1800	
Piston speed, m/s (ft/min)	6.9 (1359)	
Compression ratio	17.3:1	
Lube oil capacity, L (qt)	7.9 (8.35)	
Overspeed limit, rpm	2250	

Fuel flow

Maximum fuel flow, L/hr (US gph)	56.39 (14.9)
Maximum fuel inlet restriction with clean filter, mm Hg (in Hg)	58.42 (2.3)
Maximum return restriction, mm Hg (in Hg)	375.92 (14.8)

Air	Standby rating	Prime rating
Combustion air, m ³ /min (scfm)	5.26 (186)	5.09 (180)
Maximum air cleaner restriction with clean filter, kPa (in H ₂ O)	1.25 (5)	
Alternator cooling air, m ³ /min (cfm)	16.84 (595)	

Exhaust

Exhaust flow at set rated load, m ³ /min (cfm)	12.85 (454)	12 (424)
Exhaust temperature, °C (°F)	444 (831)	419.4 (787)
Maximum back pressure, kPa (in H ₂ O)	10 (40.2)	10 (40.2)
Actual exhaust back pressure with CPG fitted muffler, kPa (in H ₂ O)	7.8 (31.3)	7.23 (29)

Standard set-mounted radiator cooling¹

Ambient design, °C (°F)	50 (122)	
Fan load, kW _m (HP)	2.83 (3.8)	
Coolant capacity (with radiator), L (US gal)	14.76 (3.9)	
Cooling system air flow, m ³ /min (scfm)	93.16 (3290)	
Total heat rejection, MJ/min (Btu/min)	2.56 (2431.7)	2.347 (2225)
Maximum cooling air flow static restriction, kPa (in H ₂ O)	0.12 (0.5)	

Weights²

Unit dry weight kgs (lbs)	698 (1538)
Unit wet weight kgs (lbs)	719 (1584)

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 1600 m (5,512 ft) and ambient temperatures up to 50 °C (122 °F). Above these conditions, derate at 6% per 300 m (985 ft) and 10% per 10 °C (18 °F).
Prime	Engine power available up to 3050 m (10,000 ft) and ambient temperatures up to 40 °C (104 °F). Above these conditions, derate at 6% per 300 m (985 ft) and 11% per 10 °C (18 °F).

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

Standard alternators		Single phase table	Three phase table			
Maximum temperature rise above 40 °C ambient		120 °C	120 °C	120 °C	120 °C	120 °C
Feature code		B949-2	B946-2	B986-2	B943-2	B952-2
Alternator data sheet number		ADS-582	ADS-581	ADS-581	ADS-581	ADS-581
Voltage ranges		120/240	120/208	120/240	277/480	347/600
Voltage feature code		R104-2	R098-2	R106-2	R002-2	R114-2
Surge kW		57.54	58.33	58.33	58.33	58.33
Motor starting kVA (at 90% sustained voltage)	Shunt	95	119	119	119	119
	PMG	150	181	181	181	181
Full load current amps at Standby rating		208	173.68	150.5	75.26	60.2

Optional alternators for improved motor-starting capability		Single phase table	Three phase table			
Maximum temperature rise above 40 °C ambient		120 °C	120 °C	120 °C	120 °C	120 °C
Feature code		B961-2	B958-2	B987-2	B955-2	B964-2
Alternator data sheet number		ADS-583	ADS-582	ADS-582	ADS-582	ADS-582
Voltage ranges		120/240	120/208	120/240	277/480	347/600
Voltage feature code		R104-2	R098-2	R106-2	R002-2	R114-2
Surge kW		59.19	59.39	59.39	59.39	59.39
Motor starting kVA (at 90% sustained voltage)	Shunt	170	212	95	212	212
	PMG	180	225	150	225	225
Full load current amps at Standby rating		208	173.68	150.5	75.26	60.2

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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