

Generator set data sheet

Model: DSKAB
Frequency: 60
Fuel type: Diesel
KW rating: 15 standby
 13.6 prime
Emissions level: EPA Nonroad Tier 3

Exhaust emission data sheet:	EDS-1094
Exhaust emission compliance sheet:	EPA-1128
Sound performance data sheet:	MSP-1074
Cooling performance data sheet:	MCP-181
Prototype test summary data sheet:	PTS-289
Standard set-mounted radiator cooling outline:	500-4863
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	15 (18.8)				13.6 (17)				
Load	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full	Full
US gph	0.34	0.69	1.03	1.37	0.31	0.62	0.93	1.24	
L/hr	1.3	2.6	3.9	5.2	1.2	2.3	3.5	4.7	

Engine	Standby rating	Prime rating	Continuous rating
Engine manufacturer	Kubota		
Engine model	D1703M		
Configuration	Cast iron, in-line, 3 cylinder		
Aspiration	Natural		
Gross engine power output, kWm (bhp)	20.1 (27.1)	18.3 (24.5)	
BMEP at set rated load, kPa (psi)	723.9 (105.0)	655.0 (95.0)	
Bore, mm (in)	87 (3.43)		
Stroke, mm (in)	92.4 (3.64)		
Rated speed, rpm	1800		
Piston speed, m/s (ft/min)	5.5 (1091.0)		
Compression ratio	23.0:1		
Lube oil capacity, L (qt)	7.0 (7.4)		
Overspeed limit, rpm	2100		
Regenerative power, kW	7.0		

Fuel flow

Maximum fuel flow, L/hr (US gph)	13.4 (3.5)	
Maximum fuel flow with C174, L/hr (US gph)		
Maximum fuel inlet restriction with clean filter, mm Hg (in Hg)	51 (2)	
Maximum return restriction, mm Hg (in Hg)	152 (6)	

Air	Standby rating	Prime rating	Continuous rating
Combustion air, m ³ /min (scfm)	1.3 (46)	TBD	
Maximum air cleaner restriction with clean filter, kPa (in H ₂ O)	3.7 (15)		
Alternator cooling air, m ³ /min (cfm)	7.1 (250)		

Exhaust

Exhaust flow at set rated load, m ³ /min (cfm)	3.6 (126)	3.3 (118)	
Exhaust temperature, °C (°F)	493 (919)	501 (934)	
Maximum back pressure, kPa (in H ₂ O)	10 (40)		

Standard set-mounted radiator cooling

Ambient design, °C (°F)	55 (131)		
Fan load, kW _m (HP)	0.6 (0.8)	0.6 (0.8)	
Coolant capacity (with radiator), L (US Gal)	7.9 (2.1)	7.9 (2.1)	
Cooling system air flow, m ³ /min (scfm)	52 (1819)	52 (1819)	
Total heat rejection, MJ/min (Btu/min)	1.30 (1236)	1.19 (1128)	
Maximum cooling air flow static restriction, kPa (in H ₂ O)	0.12 (0.5)		

Optional set-mounted radiator cooling

Ambient design, °C (°F)			
Fan load, kW _m (HP)			
Coolant capacity (with radiator), L (US gal)			
Cooling system air flow, m ³ /min (scfm)			
Total heat rejection, MJ/min (Btu/min)			
Maximum cooling air flow static restriction, kPa (in H ₂ O)			

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)			

Optional remote radiator cooling¹	Standby rating	Prime rating	Continuous rating
Set coolant capacity, L (US gal)			
Max flow rate at max friction head, jacket water circuit, L/min (US gal/min)			
Max flow rate at max friction head, aftercooler circuit, L/min (US gal/min)			
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 friction head, jacket water circuit, kPa (psi)			
Maximum friction head, aftercooler circuit, kPa (psi)			
Maximum static head, jacket water circuit, m (ft)			
Maximum static head, aftercooler circuit, m (ft)			
Maximum jacket water outlet temp, °C (°F)			
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)			

Weights²

Unit dry weight kgs (lbs)	490 (1080)
Unit wet weight kgs (lbs)	508 (1120)

Notes:

¹ For non-standard remote installations contact your local Cummins Power Generation 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 1000 m (3300 ft) at ambient temperature up to 25 °C (77 °F). Consult your Cummins Power Generation distributor for temperature and ambient requirements outside these parameters.
Prime	Engine power available up to 1400 m (4600 ft) at ambient temperature up to 25 °C (77 °F). Consult your Cummins Power Generation distributor for temperature and ambient requirements outside these parameters.
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 Table¹		80 °C	80 °C	80 °C	80 °C	105 °C	105 °C	105 °C	105 °C	125 °C	125 °C	125 °C	125 °C
Feature Code		B269	B257	B386	B305	B268	B256	B385	B304	B255	B267	B384	B303
Voltage Ranges		120/208 Thru 139/240 240/416 Thru 277/480	120/208 Thru 139/240 240/416 Thru 277/480	220/380	347/600	120/208 Thru 139/240 240/416 Thru 277/480	120/208 Thru 139/240 240/416 Thru 277/480	220/380	347/600	120/208 Thru 139/240 240/416 Thru 277/480	120/208 Thru 139/240 240/416 Thru 277/480	220/380	347/600
Surge kW		16	16	16	16	16	16	16	16	16	16	16	16
Motor Starting kVA (at 90% sustained voltage)	Shunt	120	120	72	72	120	120	60	60	120	120	60	60
Full Load Current Amps at Standby Rating		<u>120/208</u> 52	<u>139/240</u> 45	<u>220/380</u> 29	<u>240/416</u> 26	<u>277/480</u> 23	<u>347/600</u> 18						

Single Phase Table		80 °C	80 °C	80 °C	105 °C	105 °C	105 °C	125 °C	125 °C	125 °C			
Feature Code		B275	B269	B257	B274	B256	B268	B273	B255	B267			
Voltage Ranges		120/240 ³	120/240 ³	120/240 ³	120/240 ³	120/240 ³	120/240 ³	120/240 ³	120/240 ³	120/240 ³			
Surge kW		16	16	16	16	16	16	16	16	16			
Motor Starting kVA (at 90% sustained voltage)	Shunt	87	87	87	87	87	87	87	87	87			
Full Load Current Amps at Standby Rating		<u>120/240²</u> 42	<u>120/240³</u> 63										

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.

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