

Model: C33 D5 (X Series)
Frequency: 50
Fuel Type: Diesel

» Generator set data sheet



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Spec sheet:	SS19-CPGK
Noise data sheet (Open/enclosed):	ND50-OS550 / ND50-CS550
Airflow data sheet:	AF50-550
Derate data sheet (Open/enclosed):	DD50-OS550 / DD50-CS550
Transient data sheet:	TD50-550

Fuel consumption	Standby				Prime			
	kVA (kW)				kVA (kW)			
3-Phase Ratings	33 (26.4)				30 (24)			
1-Phase Ratings	28.3 (28.3)				25.7 (25.7)			
Load	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full
gph	0.7	1.0	1.4	2.0	0.5	0.8	1.2	1.6
L/hr	3	5	6	9	2	4	5	7

Engine	Standby rating	Prime rating
Engine manufacturer	Cummins	
Engine model	X 3.3 G1	
Configuration	4 Cycle; In-line; 4 Cylinder Diesel	
Aspiration	Naturally Aspirated	
Gross engine power output, kW/m	36	32
BMEP at set rated load, kPa	804	757
Bore, mm	91.4	
Stroke, mm	127	
Rated speed, rpm	1500	
Piston speed, m/s	6.35	
Compression ratio	18.5:1	
Lube oil capacity, L	6.5	
Overspeed limit, rpm	1725 ±25	
Regenerative power, kW	2.4	
Governor type	Mechanical	
Starting voltage	12 Volts DC	

Fuel flow	
Maximum fuel flow, L/hr	40
Maximum fuel inlet restriction, mm Hg	73
Maximum fuel inlet temperature (°C)	60

Air	
Combustion air, m³/min	1.90
Maximum air cleaner restriction, kPa	2.5

Exhaust	Standby rating	Prime rating
Exhaust gas flow at set rated load, m ³ /min	2.3	2.3
Exhaust gas temperature, C	600	550
Maximum exhaust back pressure, kPa	4.75	

Standard set-mounted radiator cooling		
Ambient design, °C	50	
Fan load, KW _m	0.9	
Coolant capacity (with radiator), L	9.6	
Cooling system air flow, m3/sec @ 12.7mmH2O	106	
Total heat rejection, BTU/min	1653	1539
Maximum cooling air flow static restriction mmH2O	0.3	

Open set derating factors kVA (kW)

Note: Standard open genset options running at 400V, 150m above sea level. For enclosed product derates, please refer to datasheet - DD50-CS550.

	27°C	40°C	45°C	50°C	55°C
Standby	33 (26.4)	33 (26.4)	31.5 (25.2)	29.9 (23.9)	29 (23.2)
Prime	30 (24)	30 (24)	29.1 (23.3)	28.3 (22.6)	27.3 (21.8)

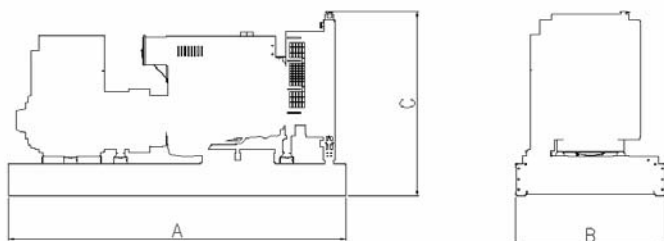
Weights*	Open	Enclosed
Unit dry weight kgs	710	1070
Unit wet weight kgs	875	1235

* Weights represent a set with standard features. See outline drawing for weights of other configurations

Dimensions	Length	Width	Height
Standard open set dimensions	1753	930	1250
Enclosed set standard dimensions	2242	967	1513

Genset outline

Open set



Enclosed set



Outlines are for illustrative purposes only. Please refer to the genset outline drawing for an exact representation of this model.

Alternator data

Feature code	Connection ¹	Temp rise degrees C	Duty ²	Alternator	Voltage
TBC	Wye, 3 Phase	163/125	S/P	PI144G	380-440V

Ratings definitions

Emergency Standby Power (ESP)	Limited-Time running Power	Prime Power (PRP):	Base Load (Continuous) Power
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) in accordance with ISO 8528, ISO 3046, AS 2789, DIN 6271 and BS 5514.

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

$$\frac{\text{kW} \times \text{SingleP} \times \text{haseFactor} \times 1000}{\text{Voltage}}$$

See your distributor for more information.

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MAKAWA POWER GENERATOR

WEBSITE : [HTTP://MAKAWA.VN](http://MAKAWA.VN)

HOTLINE : 0985.898.950

Specification sheet



Diesel generator set X3.3 series engine

25 kVA - 38 kVA 50 Hz
27 kW - 35 kW 60 Hz



Description

This Cummins® Power Generation commercial generator set is a fully integrated power generation system, providing optimum performance, reliability, and versatility for stationary standby, prime power, and continuous duty applications.

Features

Cummins® engine - Rugged 4-cycle delivers reliable power, and fast response to load changes.

Alternator – Several alternator sizes offer selectable motor starting capability with low reactance 2/3 pitch windings; low waveform distortion with non-linear loads and fault clearing short-circuits capability.

Control system – The PowerCommand® 1.1 electronic control is standard equipment and provides total Genset system integration, including automatic remote starting/stopping, alarm and status message display.

Cooling system - Standard integral set-mounted radiator system, designed and tested for rated ambient temperatures, simplifies facility design requirements for rejected heat.

Enclosures - Optional weather-protective and sound-attenuated enclosure is available.

Fuel tank - In-skid, fuel tank of 175 litre capacity and provided with 110% Fluid Retention capability.

Warranty and service - Backed by a comprehensive warranty and worldwide distributor network.

Model	3-Phase ratings				1-Phase ratings*				Data sheet
	Standby rating		Prime rating		Standby rating		Prime rating		
	50 Hz kVA (kW)	60 Hz kW (kVA)	50 Hz kVA (kW)	60 Hz kW (kVA)	50 Hz kVA (kW)	60 Hz kW (kVA)	50 Hz kVA (kW)	60 Hz kW (kVA)	
C33 D5	33 (26.4)		30 (24)		28.3 (28.3)		25.7 (25.7)		DS93-CPGK
C38 D5	38 (30.4)		35 (28)		30 (30)		27 (27)		DS94-CPGK
C30 D6		30 (37.5)		27 (33.8)		30 (30)		27 (27)	DS95-CPGK
C35 D6		35 (43.8)		32 (40)		33 (33)		30 (30)	DS96-CPGK

*1.0 PF

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Generator set specifications

Governor regulation class	ISO 8528 Part 1 Class G2
Voltage regulation, no load to full load	± 1%
Random voltage variation	± 1%
Frequency regulation	Droop
Random frequency variation	± 0.25%

Engine specifications

Design	4 cycle, in-line, naturally aspirated
Bore	91.4 mm (3.6 in.)
Stroke	127 mm (5.3 in.)
Displacement	3.3 liter (201 in)
Cylinder block	Alloy cast iron, in-line, 4 cylinder
Battery capacity	88 ampere-hour
Battery charger alternator	36 amps.
Starting voltage	12 volt, negative ground
Fuel system	Direct injection: Number 2 diesel fuel
Fuel filter	Single element, Spin-on fuel cum Water Separator, Filtration efficiency 25 micron 99% (min), Water separation efficiency 90% (min)
Air cleaner type	Dry replaceable element
Lube oil filter type(s)	Spin on full flow filter, filtration efficiency 25 micron 99% (min)
Standard cooling system	122 °F (50 °C) ambient radiator with coolant recovery system

Alternator specifications

Design	Brushless, 4 pole, revolving field
Stator	2/3 pitch
Rotor	Single bearing, flexible disc
Insulation system	Class H
Standard temperature rise	163 °C standby @ 27 °C ambient
Exciter type	Torque match (shunt) standard, EBS optional EBS (Excitation Boost System)
Phase rotation	A (U), B (V), C (W)
Alternator cooling	Direct drive centrifugal blower fan
AC waveform total harmonic distortion	< 5% no load to full linear load, < 3% for any single harmonic
Telephone influence factor (TIF)	< 50 per NEMA MG1-22.43
Telephone harmonic factor (THF)	< 3

Available voltages

50 Hz		60 Hz	
3-phase line-line/line-neutral	Single phase	3-phase line-line/line-neutral	Single phase
400/230 380/220 208/120 190/110	416/240 220/127 440/255 200/115	240 230 220	480/277 440/255 416/240 240/120 220/127 230/115 220/110

Note: Consult factory for other voltages.

Generator set options and accessories

- | | | |
|---|--|--|
| ☐ Coolant heater | ☐ Excite boost system | ☐ Dual wall fuel tank |
| ☐ Residential grade silencer | ☐ 4 pole main circuit breaker | ☐ Optional warranty |
| ☐ Alternator heater | ☐ Literature language | ☐ Battery charger |
| ☐ Electronic governing | ☐ Sound attenuated enclosure | ☐ Maintenance kit |

Note: Options may not be available on all models - consult factory for availability.

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The PowerCommand® 1.1 - Generator Set Control

- The PowerCommand® 1.1 control is a microprocessorbased generator set monitoring control system. The control provides a simple operator interface to the generator set, digital voltage regulation, digital engine speed governing, start / stop control, and protectivefunctions.
- The PowerCommand® 1.1 generator set control is suitable for use on a wide range of generator sets in non-parallel applications.
- The PowerCommand Control can be configured for any frequency, voltage and power configuration from 120 to 600 VAC for 50 Hz or 60 Hz operation.
- Power for the control is derived from the generator set starting batteries. The control functions over a voltage range from 8 VDC to 35 VDC.

Major Features

- 12 or 24 VDC Battery Operation
- Digital Engine Speed Governing (optional) to provide isochronous frequency regulation.
- Digital Voltage Regulation full wave rectified single phase (line to line) sensing.
- Generator Set Monitoring. Monitors status of all critical engine and alternator conditions functions.
- Engine Starting includes relay drivers for start, fuel shut off (FSO), and glow plug.
- Configurable Inputs and Outputs. Two discrete inputs and two dry contact relay outputs.
- Generator Set Monitoring: Displays status of all critical engine & alternator generator set functions.
- Smart Starting Control System: Integrated fuel ramping to limit black smoke & frequency overshoot.
- Advanced Serviceability using INPOWER.

Control System

Includes all functions to locally or remotely start and stop, and protect the generator set.

Control Switch – RUN/OFF/AUTO

OFF Mode – the generator set is shut down & cannot be started; as well as resets faults.

RUN Mode – the generator set will execute its start sequence.

AUTO Mode – the generator set can be started with a start signal from a remote device.

Status Indications

The control has a lamp driver for external fault/status indication. Functions include:

- The lamp flashes during preheat (when used) and while the generator set is starting.
- READY TO LOAD - flashing until the set is at rated voltage and frequency, then on continuously.
- Fault conditions are displayed by flashing a two-digit fault code number.

LED Indicating Lamps - includes LED indicating lamps for the following functions;

Not in Auto
Remote Start
Warning
Shutdown
Auto
Run

Remote Emergency Stop Switch Input. Immediate shut down of the generator set on operation.

Base Engine Protection -

Low Oil Pressure Shutdown
High Engine Temperature Shutdown
Underspeed/Sensor Fail Shutdown
Fail to Start
Battery Charging Alternator Fail Warning

Options

Digital Engine Speed Governing to provide isochronous frequency regulation.



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Ratings definitions

Emergency standby power (ESP):

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 and DIN 6271.

Limited-time running power (LTP):

Applicable for supplying power to a constant electrical load for limited hours. Limited Time Running Power (LTP) is in accordance with ISO 8528.

Prime power (PRP):

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 and DIN 6271.

Base load (continuous) power (COP):

Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) in accordance with ISO 8528, ISO 3046, AS 2789 and DIN 6271.

OPEN



ENCLOSED



This outline drawing is to provide representative configuration details for Model series only.

See respective model data sheet for specific model outline drawing number.

Do not use for installation design

Model	Open set					Enclosed set				
	Dimensions (mm)			Weight (Kg)		Dimensions (mm)			Weight (Kg)	
	Length (A)	Width (B)	Height (C)	Dry	Wet	Length (A)	Width (B)	Height (C)	Dry	Wet
C33 D5	1753	930	1238	685	860	2253	969	1616	1045	1219
C38 D5	1753	930	1238	697	872	2253	969	1616	1057	1232
C30 D6	1753	930	1238	685	860	2253	969	1616	1045	1220
C35 D6	1753	930	1238	697	872	2253	969	1616	1057	1232

* **Note:** Weights represent a set with standard features.

Codes and standards

	This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.	2000/14/EC	All enclosed products are designed to meet or exceed EU noise legislation 2000/14/EC step 2006.
	This generator set is available with CE certification.	ISO8528	This generator set has been designed to meet or exceed ISO8528 regulation.

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