

Generator set data sheet



Model: C60 D5R
Fuel type: Diesel
Document No.: EMERD-6043-EN

Fuel consumption 50 Hz	Standby				Prime			
	kVA (kW)				kVA (kW)			
Ratings	63 (50)				60 (48)			
Load	1/4	1/2	3/4	Full	1/4	1/2	3/4	Full
L/hr	6	9	13	16	5	8	12	15

Engine (EU stage IIIA)	Standby rating	Prime rating
Gross engine power output 50 Hz, kWm	68.9	62.6
BMEP at set rated load 50 Hz, kPa	1492	1344
Engine manufacturer	Cummins	
Engine model	4BTAA3.3 G11	
Configuration	4 cycle; in-line; 4 cylinder	
Aspiration	Turbo-charged and charge air cooled	
Bore, mm	95	
Stroke, mm115	115	
Rated speed 50 Hz, rpm	1500	
Piston speed 50 Hz, m/s	5.75	
Compression ratio	19:01	
Lube oil capacity, L	7.9	
Overspeed limit 50 Hz, rpm	N/A	
Regenerative power 50 Hz, kW	6	6
Governor type	Electronic governor	

Fuel flow

Maximum fuel flow, L/hr	17.41
Maximum fuel inlet restriction (clean/dirty filter), mm Hg	4/15
Maximum fuel inlet temperature, °C	70

Air

Combustion air 50 Hz, m ³ /min	4.46
Maximum air cleaner restriction (clean/dirty filter), kPa	2.5/6.2

Exhaust

Exhaust gas flow at set rated load 50 Hz, m ³ /min	4.98	4.62
Exhaust gas temperature 50 Hz, °C	550	535
Maximum exhaust back pressure, kPa	10	

Standard set-mounted radiator cooling

	Standby rating	Prime rating
Ambient design, °C	50	
Fan load, kWm 1500 rpm	2.9	
Coolant capacity (with radiator), L	12.5	
Cooling system air flow, m ³ /sec 1500 rpm	1.5	
Total heat rejection, Btu/min 1500 rpm	2162	1878
Max cooling air restriction, kPa	0.06	

Weights*

Unit dry weight kgs	1692
Unit wet weight kgs	1920

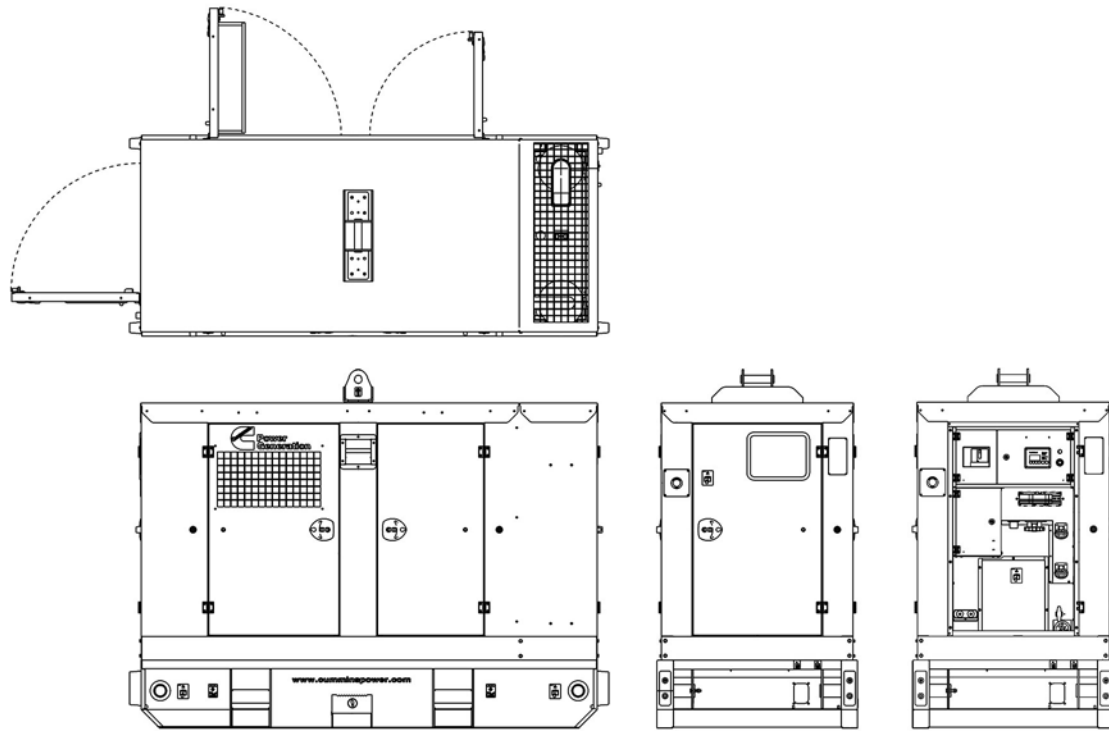
* Weights represent a set with standard features. See outline drawing for weights of other configurations.

Dimensions

	Length	Width	Height
Enclosed set standard dimensions, m	2.5	1.1	1.8

Genset outline

Enclosed set



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

Alternator	Connection	Temp rise °C	Duty	Voltage 50 Hz, L-L
UC224E	Series Star, 3Ph	163/27 / 125/40	Standby/Prime	380, 400, 415

Noise data 50Hz

Enclosed set sound power level, LwA	91
Enclosed set sound pressure level, dB(A) @ 75% PRP, 1m	71
Enclosed set sound pressure level, dB(A) @ 75% PRP, 7m	62

Control options

- Cummins PowerCommand® 1.1 control system
- DSEgenset® DSE7310 auto start control module
- ComAp IntelliLite® MRS 16 manual and remote controller

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.

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

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

See your distributor for more information.

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 EMERD-6043a-EN (1/15)

Rental Power 4BTAA3.3 series engine



40/60 kVA 50 Hz Prime

Description

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

Cummins® heavy-duty engine - Rugged 4-cycle industrial diesel delivers reliable power, low emissions and fast response to load changes.

Permanent magnet generator (PMG) option - Offers enhanced motor starting and fault clearing short circuit capability.

Alternator - Low reactance 2/3 pitch windings; low waveform distortion with non-linear loads, fault clearing short-circuits capability, and class H insulation.

Cooling system - Standard integral set-mounted radiator system, designed and tested for rated ambient temperatures.

Control system - The PowerCommand® electronic control is standard equipment and provides total system integration, including auto remote start/stop, alarm and status message display.

Enclosures - Sound-attenuated with built in fork pockets and easy access to serviceable items including controls, cable entry and radiator.

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

Model	Standby rating	Prime rating	Emissions compliance	Controller	Datasheet
	50 Hz kVA (kW)	50 Hz kVA (kW)			
C40 D5R	44 (35)	40 (32)	EU SIIIA	PCC1.1 DSE7310 COMRS16	EMERD-6041-EN
C60 D5R	63 (50)	60 (48)	EU SIIIA	PCC1.1 DSE7310 COMRS16	EMERD-6043-EN

Generator set specifications

Governor regulation class	ISO 8528
Voltage regulation, no load to full load	± 1%
Random voltage variation	± 1%
Frequency regulation	Isochronous
Random frequency variation	± 1%
EMC compatibility	BS EN 61000-6-3 / BS EN 61000-6-1

Engine specifications

Design	4 cycle, in-line, 4-cylinder, turbo charged, charge air cooled
Bore	95 mm
Stroke	115 mm
Displacement	3.3 L
Cylinder block	Cast iron, 4 cylinder
Battery capacity	40 kVA: 44 AH, 60 kVA: 75 AH
Battery charging alternator	55A
Starting voltage	12V DC
Fuel system	Direct injection
Fuel filter	Spin on fuel filters with water separator
Air cleaner type	Dry replaceable element
Lube oil filter type(s)	Spin on full flow filter
Standard cooling system	50 °C ambient radiator

Alternator specifications

Design	Brushless, single bearing, revolving field
Stator	2/3 pitch
Rotor	Single bearing, flexible disc
Insulation system	Class H
Standard temperature rise	Prime 125 °C temp rise @ 40 °C ambient Standby 163 °C temp rise @ 27 °C ambient
Exciter type	Self excited or separately excited by PMG
Phase rotation	A (U), B (V), C (W)
Alternator cooling	Direct drive centrifugal blower fan
AC waveform total harmonic distortion (THDV)	No load <1.5%. Non distorting balanced linear load <5%
Telephone influence factor (TIF)	N/A
Telephone harmonic factor (THF)	<2%

Available voltages

50 Hz line – neutral / line - line

- 240/416
- 230/400
- 220/380

Generator set features*

Engine

- Heavy duty air cleaner
- OCV crankcase breather filter system
- Low coolant level shutdown
- Oil sump pump

Enclosure

- Sound attenuated canopy
- Earthing studs on each corner
- Power receptacle socket options
- Easy cleaning access to radiator
- Single point lift and forklift pockets
- Customised colour canopy option
- Facility to use dragging bar in base

Fuel tank

- Internal three way fuel valve with quick connects
- 40 kVA autonomy – 24 hours at 75% PRP
- 60 kVA autonomy – 18 hours at 75% PRP

- Dual wall 110% fully contained design
- Low fuel level shutdown
- Low fuel level alarm option
- Bund alarm and pump
- Low fuel warning
- Racor fuel/water separator option

Control panel

- End-facing control panel
- Adjustable earth differential protection
- PowerCommand 1.1
- DeepSea Electronics DSE7310 option
- ComAp IntelliLite MRS 16 option
- EDF Utilities pack option
- Shutdown audible alarm
- Accessible neutral-earth link
- Circuit breaker door open switch
- 40 kVA optional socket pack: 1 x 32A 3ph, 2 x 16A 1ph
- 60 kVA optional socket pack: 1 x 63A 3ph, 2 x 16A 1ph

Circuit breaker

- 4 pole main circuit breaker
- Aux contacts and trip alarm
- Shunt trip – 12 V DC

Alternator

- Exciter voltage regulator (PMG) option

Warranty

- Base warranty options – 1 year unlimited hours or 3 years 3000 hours
- Extended warranty options – contact us

Battery

- Optima Absorbed Glass Mat (AGM) maintenance-free battery
- Battery isolation switch standard
- Battery charger, coolant heater options
- Low battery voltage warning

*Note: Some features may not be available on all models - consult factory for availability.

PowerCommand® 1.1 control system

The PowerCommand® control system is a microprocessor based generator set monitoring, metering and control system designed to meet the demands of today's engine driven generator sets.



The integration of all control functions into a single control system provides enhanced reliability and performance compared to conventional generator set control systems. These control systems have been designed and tested to meet the harsh environment in which generator sets are typically applied.

Key features include:

- 128 x 64 pixels graphic LED backlight LCD
- Digital voltage regulation – Single phase full wave SCR type regulator compatible with either shunt or PMG systems.
- Digital engine speed governing (where applicable) – provides isochronous frequency regulation.
- Generator set monitoring – monitors status of all critical engine and alternator functions.
- Advanced overcurrent protection.
- Modbus® interface for interconnecting to customer equipment.
- 12 and 24 VDC battery operation.
- Full authority engine communications (where applicable) – provides communication and control with the Engine Control Module (ECM).
- Common harnessing – with higher feature Cummins Power Generation control allows for easy field upgrades.
- Digital generator set metering (AC and DC).
- Generator set battery monitoring system – to sense and warn against a weak battery condition.
- Engine starting – includes relay drivers for starter, fuel shut off (FSO), glow plug/spark ignition power and switch B+ applications.
- Generator set protection – protects engine and alternator.
- Advanced serviceability – using InPower™, a PC-based software service tool.
- Environmental protection – the control system is designed for reliable operation in harsh environments.
- The main control board is a fully encapsulated module that is protected from the elements.
- Configurable inputs and outputs – four discrete inputs and two dry contact relay outputs.
- Warranty and service – backed by a comprehensive warranty and worldwide distributor service network.
- Certification – suitable for use on generator sets that are designed, manufactured, tested and certified to relevant UL, NFPA, ISO, IEC mil std., CE and CSA standards.

DeepSea Electronics 7310 option

The DSE7310 is an Auto Start Control Module suitable for a wide variety of single, diesel or gas generator set applications.



Key features include:

- 4-line backlit LCD text display
- Five key menu navigation
- Front panel editing with PIN protection
- LED and LCD alarm indication
- Power save mode
- 3 configurable maintenance alarms
- Configurable event log (250)
- Easy access diagnostic page
- CAN and magnetic pick-up/alt. sensing
- Fuel usage monitor and low fuel alarms
- Charge alternator failure alarm
- "Protections disabled" feature
- Power monitoring (kW h, kV Ar, kV A h, kV Ar h)
- Backed up real time clock
- Fully configurable via DSE Configuration Suite PC software
- Configurable display languages
- User selectable RS232 and RS485 communications
- Advanced SMS messaging (additional external modem required)

ComAp IntelliLite® MRS 16 option

IntelliLite® MRS 16 is a new integrated controller for single engine control and manual and remote start applications, featuring full generator set monitoring and protection.



Key features include:

- Support of engines equipped with Electronic Control Unit – J1939 interface
- Automatic or manual start/stop of the generator set
- Push buttons for simple control, lamp test
- Graphic backlit LCD display 128 x 64 pixels
- 3 LED indicators
- Parameters adjustable via keyboard or PC
- 3 phase generator protections
 - Over/under voltage
 - Over/under frequency
 - Current/voltage asymmetry
 - Overcurrent/overload
- Generator measurements (50/60 Hz): U1-U3, I1-I3, Hz, kW, kVAr, kVArh, kWh
- Selectable protections alarm/shutdown
- Analog oil pressure, water temperature, fuel level, battery voltage, engine speed (pick-up)
- Configurable programmable inputs and outputs
- Warm up and cooling functions
- Generator C.B. control
- RS232 interface
- Modem communication support

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, DIN 6271 and BS 5514.

Limited-time running power (LTP):

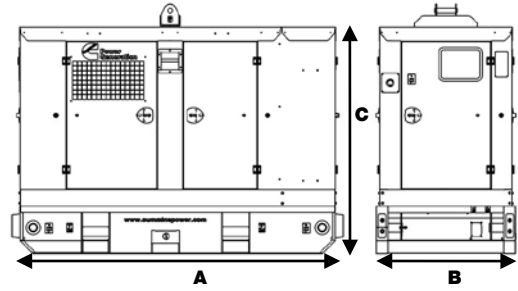
Applicable for supplying power to a constant electrical load for limited hours. Limited Time Running Power (LTP) is in accordance with ISO 8528.

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, DIN 6271 and BS 5514.

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, DIN 6271 and BS 5514.



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	Dim "A" m	Dim "B" m	Dim "C" m	Set Weight* dry kg	Set Weight* wet kg
C40 D5R	2.5	1.1	1.8	1634	1862
C60 D5R	2.5	1.1	1.8	1692	1920

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

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.	ISO 8528	This generator set has been designed to comply with ISO 8528 regulation.

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