

# Diesel Powered Generating Sets Power By Cummins Engine

## DIY-C110,50HZ,230/400V,3P/4W



### Standard Genset Features

#### Single Source Responsibility

Design, manufacture and testing of engine, alternator, control system and complete generating set are all produced by the companies with DIY Group.

- Single bearing alternator, class H/H
- Standard voltage 230/400 volts 50 Hz
- Exciter/Voltage reg - Torque Match as standard
- Standard ComAp AMF20 Auto start with AMF
- Steel base frame with A/V mounting,
- Engine, Alternator, Chassis & Control Box
- 3 pole Delixi Circuit Breaker
- 50 Degree Radiator
- Packing under shrunk plastic film
- Operation & Maintenance manual
- Standard set of labels
- Battery Charger 24V, 5A or 10A
- Floating Battery Charger 24V, 5A or 10A
- Seaworthy Plastic film packaging
- Maintenance-free battery

### Generator Performance

#### Voltage Regulation

Maintains voltage output to within  $\pm 1.0\%$ .  
At any power factor between 0.8 and 1.0  
At any variations from No load to Full load.  
At any variations from Cold to Hot.  
At speed droop variations up to 4.5%.

#### Frequency Regulation

Isochronous under varying loads from no load to 100% full load when electronic governor is fitted

#### Random Frequency Variation

Will not exceed  $\pm 0.25\%$  of its mean value for constant loads – no load to full load.

#### Waveform

Total harmonic distortion open circuit voltage waveform in the order of 1.8%. Three-phase balanced load in the order of 5.0%.

#### Telephone Influence Factor (TIF)

TIF better than 50.  
THF to BS 4999 Part 40 better than 2%.

#### Alternator Temperature Rise

Class H insulation.

#### Radio Interference

In compliance with BS 800 and VDE levels G and N.

### Generator Set Options

#### Fuel options

Fuel Tank under 8 working hours capacity

#### Exhaust Options

- Exhaust Silencer - Industrial In-Line
- Exhaust Bellows
- Exhaust Silencer - Residential , In-Line
- Installation Kit - Industrial Silencer
- Installation Kit - Residential Silencer

#### Voltage Connections

240/416V, 230/400V, 220/380V,

#### Miscellaneous Options

- 3 pole or 4 pole Circuit Breaker
- Optional Set mounted starting batteries
- Coolant Heater 240V
- Battery Charger 240V, 5A or 10A
- Automatic Transfer Switches
- Packing - Export Box

### Engine Specification

#### Type

Cummins water cooled Diesel engine, four cycle, turbocharged and low temperature aftercooled

#### Construction

Two valves per cylinder, forged steel crankshaft and connecting rods, cast iron block.

#### Starting

12/24 volt negative earth. Battery charging alternator 35 amp on engine. Cranking current 1800 amps at 0°C.

#### Fuel System

12/24 volt fail safe actuator. Spin-on paper element fuel filters with fuel pump injection system with integral electronic governor. Dual flexible fuel lines and connectors. Standard fuel water separator.

#### Filters

Air cleaner with dry element.  
Spin-on full flow lube oil filter.

#### Cooling

40°C ambient temperature standard  
Stone guard. Drain Tap

### Alternator Specification

#### Type

Brushless single bearing, revolving field, pole, drip proof, screen protected.  
Class H Insulation, IP23 Protection  
Fully interconnected damper winding.  
AC exciter and rotating rectifier unit.  
Epoxy coated stator winding.  
Rotor and exciter impregnated with tropical grade insulating oil and acid resisting polyester resin. Dynamically balanced rotor BS 5625 grade 2.5.  
Sealed for life bearings.  
Layer wound mechanically wedged rotor.

#### Exciter

Triple dipped in moisture, oil and acid resisting polyester varnish and coated with anti-tracking varnish.

Output windings with 2/3 pitch for improved harmonics and paralleling ability.  
Close coupled engine/alternator for perfect alignment.

### Quality Standards

To BS4999/5000 pt 99,  
VDE 0530, UTE5100,  
NEMA MG1-22, CEMA,  
IEC 34, CSA A22.2,  
AS1359, BS 5514,  
ISO 3046 and ISO 8528  
ISO9001:2000, ISO14000,  
CE Compliance



#### Engine Performance Data @ 1500 RPM

OUTPUT POWER			FUEL CONSUMPTION	
%	kW	HP	g/kWh	L/h
STANDBY POWER				
100	106	142	209	26.9
PRIME POWER				
100	96	129	208	24.2
75	72	96	208	18.2
50	48	64	215	12.5
25	24	32	250	7.3
CONTINUOUS POWER				
TBD	TBD	TBD	TBD	TBD

## Specification

Model	DIY-C110	Alternator Manufacture	LeroySomer
Standby Power	110kVA/88kW	Alternator Model	LSA44.2VS45
Prime Power	100kVA/80kW	Standby Power	110kVA/88kW
Engine Manufacture	DCEC CUMMINS	Prime Power	105kVA/84kW
Engine Model	Cummins 6BT5.9-G2	Alternator Voltage Regulation	AVR R250
Number of Cylinders	6L	Alternator Insulation	H
Air intake way	Turbocharged and Charge Air Cooled	Protection Class	IP23
Borexstroke	102mm X 120mm	Fuel Consumption at 100% Output (Standby)	26.9L/h
Compression Ratio	17.3:1	Fuel Consumption at 100% Output (Prime)	24.2L/h
Displacement	5.9L	Intake Air Flow	110L/S
Engine Standby Output	106KW(50HZ)	Exhaust Gas Temperature(Standby)	540°C
Engine Prime Output	96kW	Radiated Heat to Ambient(Standby)	21
Speed	1500 rpm	Fuel Tank Capacity	216L/57 US Gallon
Lubrication Capacity	14.2 liter	Coolant Capacity	7.9 liter

In accordance with ISO 8528, 3046, BS5514

### PRIME POWER

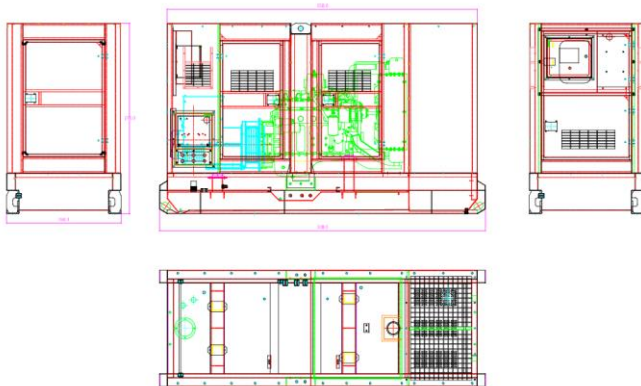
Prime Power is available continuously during the period of power outage in a variable load application. Variable load should not exceed a 70% average of the prime power rating during any 24 hour period.

A 10% overload capability is available for a period of 1 hour within a 12 hour period of operation.

### STANDBY POWER

The Standby Power is applicable for supplying emergency power for the duration of a utility power interruption. No overload, utility parallel or negotiated outage operation capability is available at this rating.

## Canopy diagram



1500 rmp400v 3P 4W/60HZ/0.8F			Open type Dimensions & Weight				Canopy type Dimensions & Weight			
Genset Model	Cummins	Original Stamford	Length mm	Width mm	Height mm	Weight(dry) kg	Length mm	Width mm	Height mm	Weight(dry) kg
DIY-C88R5	6BT5.9G1	UCI224G	2200	980	1550	1780	3100	1090	1730	1780
DIY-C110R5	6BT5.9G2	UCI274C	2160	980	1150	1830	3100	1090	1730	1830

### Robust Corrosion Resistant Construction

- Δ Black finish stainless steel lock and hinges
- Δ body made from steel components treated with polyester powder coating

### Excellent Access for Maintenance

- Δ radiator fill access plate
- Δ lube oil and cooling water drains pipes to exterior of the enclosure
- Δ adding cooling water from top of canopy
- Δ LED light will be lighting automatically when open the door

### Security and Safety

- Δ control panel viewing window in a lockable access door
- Δ emergency stop push button (red) mounted on enclosure interior
- Δ cooling fan and battery charging alternator fully guarded
- Δ exhaust silencing system totally enclosed for operator safety
- Δ Control panel and cable design in different directions, all the connection wiring in control panel are more neater and firmer.

### Note:

Rating Definitions (Operation at Altitude ≤1000m, Ambient temperature ≤ 40°C) Continuous Power. These ratings are applicable for supplying continuous electrical power (at variable load) in lieu of commercially purchased power.

## Control Panel -ComAp

The base mounted control panel in a vibration isolated sheet steel enclosure. The control panel is equipped as follows:

- a) Instruments: V, A (3 phase), Hz, kW, kVAR, kWh.
- b) Controls: Push buttons and LEDs for simple control.
- c) Control module: Standard collocation is ComAp AMF20 Auto start with AMF.

### Main Features:

- Δ Support of engines equipped with Electronic Control Unit J1939 interface (25) 1
- Δ Remote Start operation available
- Δ Active SMS / E-mails
- Δ Comprehensive diagnostic messages; SPN / FMI codes; KWP2000 support
- Δ Automatic or manual start / stop of the gen-set
- Δ Graphic back-lit LCD display
- Δ Parameters adjustable via keyboard or PC
- Δ Selectable protections alarm / shutdown
- Δ Configurable analog inputs and outputs
- Δ Battery voltage, engine speed (pickup) measurement
- Δ Configurable programmable binary inputs and outputs
- Δ Event based history file
- Δ Warm-up and cooling functions
- Δ Generator C.B. and Mains C.B. control with feedback and return timer
- Δ Power and temperature switching binary output
- Δ Wide range of communication interfaces



ISO  
9001  
QUALITY  
ASSURANCE

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