

# BY-C110

Industrial Range  
Powered by CUMMINS



## Diesel Generating Set Specifications

|                                  |      | PRP                | ESP |
|----------------------------------|------|--------------------|-----|
| Power Rating                     | kVA  | 100                | 110 |
| Power Rating                     | kWe  | 80                 | 88  |
| Frequency / Phase / Power factor | Cosφ | 60Hz / 3P / PF=0.8 |     |
| Standard Voltage                 | V    | 127/220V           |     |
| Generator Current                | A    | 363.6              |     |
| Auto Transfer Switch Current     | A    | 400                |     |

## Gensets Dimensions & Weight & Fuel Tank Capacity:

|                                                            |                |        |      |
|------------------------------------------------------------|----------------|--------|------|
| Open type: LxWxH (mm), Dry Weight: (kg), Fuel tank ( L )   | TBA            | kg     | L    |
| Silent type: LxWxH (mm), Dry Weight: (kg), Fuel tank ( L ) | 2800*1080*1820 | 1410kg | 380L |

NOTE: Weights and dimensions based on standard products. According to 2000/14/CE , sound data is provided at 7m for 75% prime power. For actual installation, please contact the manufacturer.

## Prime Rated Power (PRP):

According to ISO 8528-1:2018, prime power is the maximum power which a generating set is capable of delivering continuously whilst supplying a variable electrical load when operated for an unlimited number of hours per year under the agreed operating conditions with the maintenance intervals and procedures being carried out as prescribed by the manufacturer. The permissible average power output over 24hrs of operation shall not exceed 70% of the PRP. 10% overload permissible for 1 hour in every 12 hours.

## Emergency Standby Power (ESP):

According to ISO 8528-1:2018, Emergency Standby Power is the maximum power available during a variable electrical power sequence, under the stated operating conditions, for which a generating set is capable of delivering in the event of a utility power outage or under test conditions for up to 200hrs of operation per year with the maintenance intervals and procedures being carried out as prescribed by the manufacturers. The permissible average power output over 24hrs of operation shall not exceed 70% of the ESP. There isn't any overload capability above stand by power rate.

## Standard Reference Conditions:

Output ratings are presented at air inlet temperature 25°C (77°F), barometric pressure 100 kPa (1 bar), relative humidity 30%, altitude 100m (328ft) A.S.L.

This generating set is designed to operate at high ambient temperatures (up to 50°C), humidity (up to 95%) and higher altitudes. In case of specific site conditions, genset output power may derate. For such conditions please consult your dealer to choose correct product. Some of the specifications are not standard on all genset models.

## Quality Standards:

|                                 |                       |
|---------------------------------|-----------------------|
| ISO9001:2000, ISO14000, ISO3046 | BS5514, AS1359, ICE34 |
| ISO8528, BS4999                 | CE Compliance         |

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| Engine Specifications          |                  | PRP                      |  | ESP   |
|--------------------------------|------------------|--------------------------|--|-------|
| Engine Brand                   |                  | CUMMINS                  |  |       |
| Engine Model                   |                  | 6BT5.9-G2                |  |       |
| Number of cylinders / Valves   |                  | 6                        |  |       |
| Cylinder arrangement           |                  | 4 stroke, L-Type, Diesel |  |       |
| Cooling System                 |                  | Water-cooled             |  |       |
| Aspiration Type                |                  | Turbocharged             |  |       |
| Compression Ratio              |                  | 17:3                     |  |       |
| Bore x Stroke                  | mm               | 102                      |  | 120   |
| Displacement                   | L                | 5.9                      |  |       |
| Engine Speed                   | r.p.m            | 1800                     |  |       |
| Gross Engine Output            | kWm              | 100                      |  | 110   |
| Speed Governor                 | Type             | Electronic               |  |       |
| Electrical System Voltage      | V                | 24 volt DC               |  |       |
| Coolant Capacity (engine only) | L                | 7.9                      |  |       |
| Lubrication System Capacity    | L                | 16.4                     |  |       |
| Flywheel housing               | S.A.E.No.        | SAE 3                    |  |       |
| Flywheel                       | S.A.E.No.        | SAE 11.5                 |  |       |
| Fuel Consumption               | 100% Load (L/hr) | 28.50                    |  | 31.30 |
| Fuel Consumption               | 75% Load (L/hr)  | 20.70                    |  |       |
| Fuel Consumption               | 50% Load (L/hr)  | 14.40                    |  |       |
| Fuel Consumption               | 25% Load (L/hr)  | 9.00                     |  |       |

**ENGINE:**

Industrial 4 stroke cooled diesel engine complete with air, fuel and oil filters, electric starting and charging equipment, engine protection against low water level.

**COOLING:**

Radiator and colling fan complete with protection guards, designed to cool engine at specified output in air temperatures upto 50°C, radiators suitable for higher temperatures are available. Low water level protection fitted as standard.

**ELECTRICAL SYSTEM:**

12/24V upto axial type starter motor, battery charging alternator, high capacity maintenance-free battery and battery tray mounted on the generator base frame, and heavy duty interconnecting cable with terminations.

**EXHAUST SYSTEM:**

Heavy duty industrial exhaust silencer with flexible piping.

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## Alternator Specifications

|                           |                                  |
|---------------------------|----------------------------------|
| Alternator Brand          | STAMFORD                         |
| Alternator Model          | <b>UCI 224G</b>                  |
| Excitation System         | Self-excited, Brushless          |
| AVR Type                  | Electronic AVR                   |
| Voltage Regulation        | ± 1%                             |
| Number of Poles           | 4                                |
| Connection Type           | Y (series star) connection       |
| Insulation Class          | Class H                          |
| Winding pitch             | 2/3                              |
| Coupling System           | Flexible disc                    |
| Coating Type              | Standard ( Vacuum impregnation ) |
| Underspeed Protection     | Standard                         |
| Ingress Protection Rating | IP23                             |
| Wave Form NEMA=TIF        | <50                              |

## Control System Specifications

### Auto Mains Failure Control Panel

Standard controller model: **DEEPSEA DSE6120 MKIII**

Δ Control with Auto Mains Failure (AMF) module

Δ Static battery charger

Δ Emergency stop push button



### a) Generating set control module features:

Δ The module is used to monitor main supply and starts and stops of a standby generating set

Δ Micro-processor based design

Δ Automatic control of main and generator contactors

Δ Monitors engine performan

Δ Front panel configuration of timers and alarm trip points

Δ CAN and magnetic pick-up versions(specify on ordering)

Δ Easy push button control

Δ STOP/RESET - MANUAL - AUTO - TEST - START

### c) Alarms:

Δ Over and Under Speed

Δ Low and High Battery Volt.

Δ Start and Stop Failure

Δ Charge failure

Δ Over Current

Δ Under / Over Generator Voltage

Δ Low Oil Pressure

Δ Emergency stop

Δ High engine temperature

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## b) Metering via LED display:

Δ Generator Volts (L-L / L-N)

Δ Engine oil pressure (PSI-Bar)

Δ Generator Ampere (L1, L2, L3)

Δ Engine temperature (°C & °F)

Δ Generator Frequency (Hz)

Δ Engine run hours

Δ Mains Volts (Ph-Ph / Ph-N)

Generator kVA

Generator kW

Generator Cos (φ)

## d) LED indications

Δ Mains available

Δ Generator available

Δ Mains on load

Δ Generator on load

## Voltage Regulation

Δ Voltage regulation maintained within ±0.5%

Δ Between 0.8 and 1.0 lagging and unity

Δ From no load to full load

Δ At speed droop variation upto 4.5%

## Frequency Adjustable Ratio

Change load from 0-100%, within 1.0% (electric speed regulator), within 4.5% (mechanical speed regulator).

## Frequency Undulation

Δ Load from 0-100%, frequency undulation within 0.25%

Δ No load wire volts max undulation ratio\ within 1.8%

Δ Three Phase balanced load in the order of 5%

Δ Effect factor of Telecom

Δ TIF better than 50

Δ THF to IEC60034 Part 40 better than 2%

## Robust Corrosion Resistant Construction

Δ Black finish stainless steel lock and hinges

Δ Body made from steel components treated with polyester powder coating

Δ Lube oil and cooling water drains pipes to exterior of the enclosure

Δ Two large doors on each side

## Security and Safety

Δ Control panel viewing window in a lockable access door

Δ Emergency stop button mounted on enclosure interior

Δ Cooling fan and battery charging alternator fully guarded

Δ Exhaust silencing system totally enclosed for operator safety

## Generating Sets Optional Features

| Engine                              | Alternator                                 | Generating Set           | Fuel System                     | Control System                                 |
|-------------------------------------|--------------------------------------------|--------------------------|---------------------------------|------------------------------------------------|
| Δ Water Jacket Preheater            | Δ Winding Temperature Measuring Instrument | Δ Auto Transfer Switch   | Δ Low Fuel Level Alarm Shutdown | Δ Synchronizing panel, remote control panel    |
| Δ Oil Preheater                     | Δ Alternator Preheater                     | Δ Trailer type Gensets   | Δ Automatic Fuel Feeding System | Δ RS485, RS232, 4G & GPS wireless,             |
| Δ Engine Oil Feeding and Drain Pump | Δ PMG / AREP excitation system             | Δ Super Silent Type      |                                 | Δ Additional digital/analog input/output       |
| Δ Heavy air filtration              | Δ Anti-Damp and Anti-Corrosion Treatment   | Δ Customized design      |                                 | Δ Monitoring software, mobile APP              |
| Δ Residential Silencer              | Δ Anti-Condensation Heater                 | Δ Bulk storage Fuel tank |                                 | Δ ATS, output, combining, distribution cabinet |
| Δ Remote radiator, heat exchanger   | Δ IP44 protection class                    | Δ External Fuel tank     |                                 | Δ ethernet communication card, etc.            |