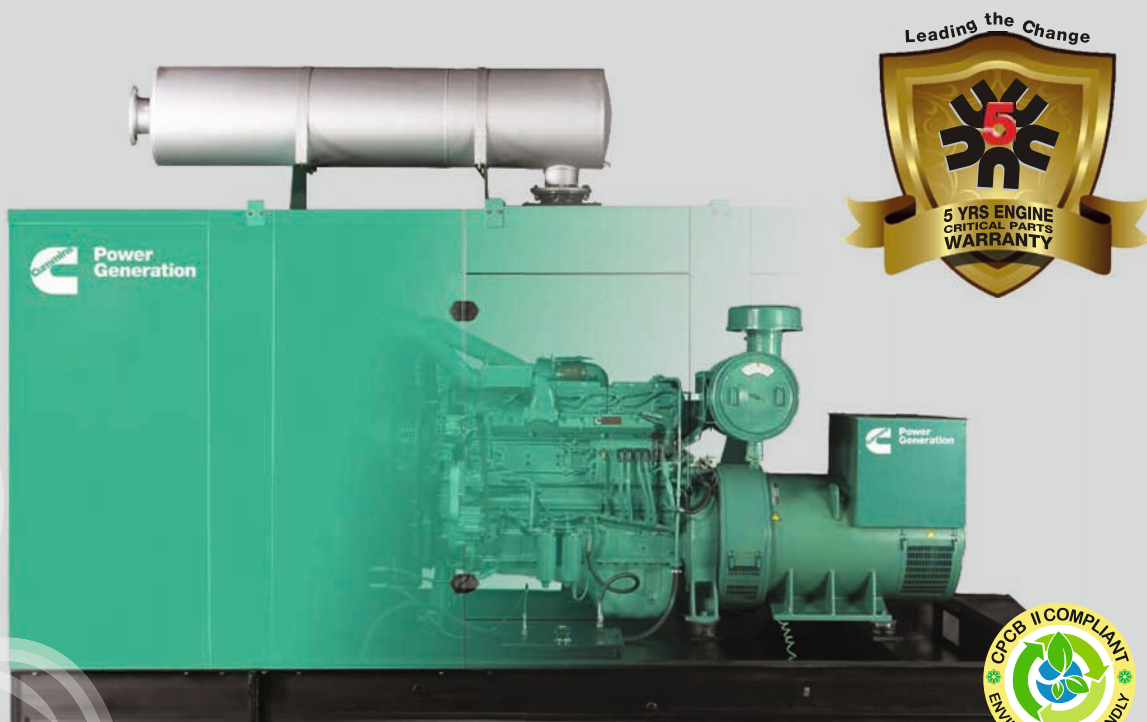




# Diesel Generator Set

## QSN14 Series

400 kVA, 320 kW Prime



Specification Sheet

### Latest Technology Product with Global Cummins® Platform

- The Cummins® QSN14 series heavy-duty engine and world class Stamford alternator powered diesel generator set
- Class defining Quantum engine technology with fully integrated subsystems
- Advanced in-cylinder technology to meet latest emission norms without any after-treatment device
- Smart aesthetic and superior finish
- Compact in size with optimum power to weight ratio

### Environment Friendly Power

- Class defining technology engine is designed to meet stringent exhaust emission tests as per revised MoEF norms, thus offering environment friendly power.
- The Cummins® diesel generator sets are available with the lowest noise levels in its range

### Lowest Operating Cost and Comprehensive Warranty

- Highly reliable and durable product
- All elements are designed to work together to maximize efficiency even at part loads, offering the advantage of lowest operating costs.
- 500 Hours / 1 year service interval
- Industry acknowledged best-in-class comprehensive warranty on the entire package including rubber components

### Single Source Power Assurance

- All the major components - the engine, alternator, control system and canopy are designed, manufactured and tested by Cummins India.
- Best and largest customer support network in India, capable of providing round-the-clock service and spares support
- All these things put together, Cummins® offers you SINGLE SOURCE POWER ASSURANCE

### Engine

- Cummins® QSN14 series, 6 cylinder, In-line 4 stroke, radiator cooled engine
- Well designed air handling system with
  - Dry type, Replaceable paper element air cleaner with restriction indicator
  - Air to air aftercooling
  - Optimised Turbocharger for increased altitude capabilities
- Best in class fuel economy with
  - CELECT fuel system with A1 class electronic governing
  - Dual fuel filter system: Pre filter including water separator and Water In Fuel (WIF) sensor and main filter
- Electrical lift pump for faster response
- Standard integral set-mounted radiator system, designed and tested for 50°C ambient temperature
- Full flow spin on lube oil filter
- Plate type lube oil cooler
- First fill of lube oil and coolant
- Electrical starter motor with soft start engagement feature
- Battery charging alternator
- 2x12 V DC batteries



### Alternator

- Stamford HC alternator frames from Cummins Generator Technologies
- Brushless type, Screen protected, Revolving field, Self excited alternator conforming to IS/IEC 60034-1
- 3 Phase reconnectable winding with 12 terminals brought out for connection
- Better motor starting capability
- Best in class efficiency
- Compact design with sealed bearings for longer life and lesser maintenance
- Impregnation on all wound components for better mechanical strength

### PS0602 Features

Cummins® PowerStart™ PS0602 control is a microprocessor based generator set monitoring, metering and control system with LCD display designed to meet the demands of today's engine driven generator sets



- AMF Functionality
- Electronic Governing
- CAN (J1939) Compatible
- Sync Compatible (Capable to accept external speed signal from 3rd party sync controller)
- Intuitive operator interface which includes LED backlit 128X64 pixel graphic display with tactile feel soft- switches & generator set status LED lamps.
- Remote start-stop
- **Engine Metering:** Oil pressure, Engine temperature, battery voltage, Engine running hours
- **AC Alternator Metering:** L-L Voltage and L-N Voltage, Current (phase and total), kVA (phase and total), Frequency, kWh, kW and kVA (phase and total), PF, Utility Voltage and Freq.
- **Engine Protection:** Low lube oil pressure, High/ Low coolant temperature, Battery Over/ Under/ Weak Volts, Fail to Crank/ Start, Sensor failure, Cranking lockout, Low fuel level.
- **AC Alternator Protection:** Over/ Under Voltage, Over/ Under Frequency, Loss of AC Sensing, Over speed, Over Current.
- **Data Logging:** Engine Hours, Control Hours and upto 5 recent fault codes
- Configurable glow plug control
- 12/24 Volt DC operation
- Sleep mode
- Modbus interface (RS485 RTU)
- InPower compatible (PC based service tool)
- Certifications - meets the requirement of relevant ISO, EN, Mil Std. and CE standards Maintenance due alarm based on Engine Run Time and due date
- Exerciser scheduler

### Silencer

- Hospital grade silencer suitably optimized to meet stringent noise emission standards laid down by MoEF / CPCB

### Mounting Arrangement

- Engine and alternator are mounted on a common MS fabricated base frame with AVM pads.
- Base frame with integral fuel tank is provided with drainplug, air vent, inlet and outlet connection, level indicator and provision for cleaning

### Optional

- **Engine:** Coolant heater, Heat exchanger
- **Alternator:** PMG
- **Control Panel:**
  - PC3.3
  - Bargraph For PC3.3 Panel with kW, Power factor, Frequency, Current, Voltage
  - Remote HMI

### Acoustic Enclosure

- Specially designed to meet stringent MoEF/ CPCB norms of 75 dBA @ 1mtr at 75% load under free field conditions
- The acoustic enclosure is made of CRCA sheets in munsel green shade and a structural/ sheet metal base frame painted in black.
- High quality noise absorbant and fire-retardant grade acoustic insulation material (Rockwool) complying to IS 8183
- Air inlet louvers specially designed to operate at rated load
- Base lifting for easy handling at customer site
- Designed to have optimum serviceability
- Made on special purpose CNC machines for consistency in quality and workmanship
- 11 tank pretreatment process and UV resistant powder coating of all parts to withstand extreme environment
- Use of special hardware for longer life
- Flush styling - no projections
- Fluid drains for lube oil and fuel
- Fuel filling arrangement inside the enclosure

### Technical Data

#### Generator Set Specification:

Model	C400D5P
Duty	Prime
Power Rating kVA / kW	400/320
No. of Phases	3
Output Voltage and Frequency (V and Hz)	415 V, 50 Hz
Power Factor	0.8 (lagging)
Current (A)	556
RPM	1500

#### Engine Specification:

Make	Cummins®
Model	QSN14-G2
MoEF Certified Power (bhp)	487
Required Power for Rated kVA (bhp)	475
Cooling	Liquid Cooled (EG Compleat 50:50)
Aspiration	Turbocharged, Charge Air cooled
No. of cylinders	6, In-line
Bore (mm) x Stroke (mm)	140 x 152
Compression ratio	16.5: 1
Displacement (litre)	14
Fuel	High Speed Diesel
Fuel consumption @75% load with radiator and fan* (litre/hr)	67.85
Fuel consumption @100% load with radiator and fan* (litre/hr)	85.65
Performance class of generator set	ISO 8528-5 G2
Starting system	24 V DC Electrical
Lube oil specification	CI4+ 15W40
Lube oil sump capacity, High-Lon level (litre)	36-28.4
Total lubrication system capacity (litre)	38.6
Total coolant capacity (litre)	51
Exhaust pipe size (inch)	6
Total wet weight (Engine+Radiator) <sup>##</sup> (kg)	1706
Length x Width x Height (Engine) (mm)	1502 x 888 x 1219
Mean Piston speed (m/s)	7.5
Combustion air intake @100% load (±5%) (cfm)	1024
Exhaust Temperature (QC)	491

#### Alternator Specification:

Make	Stamford (CGT)
Alternator frame	HCI444F
Enclosure	IP23
Voltage regulation (Max.)	±1%
Class of Insulation	H Class
Winding Pitch	2/3
Stator Winding	Double layer lap
Rotor	Dynamically Balanced
Waveform distortion/ Total Harmonic Distortion	No load < 1.5 %, Non distorting balanced linear load < 5 %
Maximum Unbalanced Load across phases#	less than or equal to 25%
Telephonic Harmonic factor	< 2%

\*Fuel consumption data is based on diesel having specific gravity of 0.85 and conforming to IS:1460. Fuel consumption tolerance is +5%  
 ##With the condition that none of the phases exceeds its rated current

### Rating Definitions

**Prime Power (PRP):**

Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528.

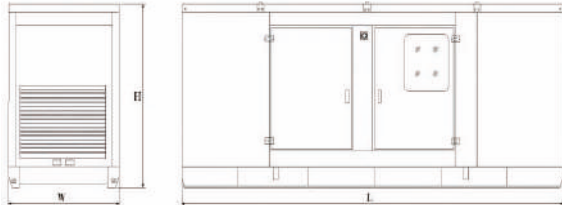
### Conformance Standards

- IS/IEC 60034-1    ■ IS 1460    ■ ISO 8528
- ISO 3046        ■ ISO 9001    ■ IS 13018

### Typical Enclosed Genset Dimensions

Genset Model	Rating (kVA)	Length (mm)	Width (mm)	Height (mm)	Wet Weight## (kg)	Standard Fuel tank Capacity (litre)
C400D5P	400	5500	1900	2150	6165	450


## Approximate Weight






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