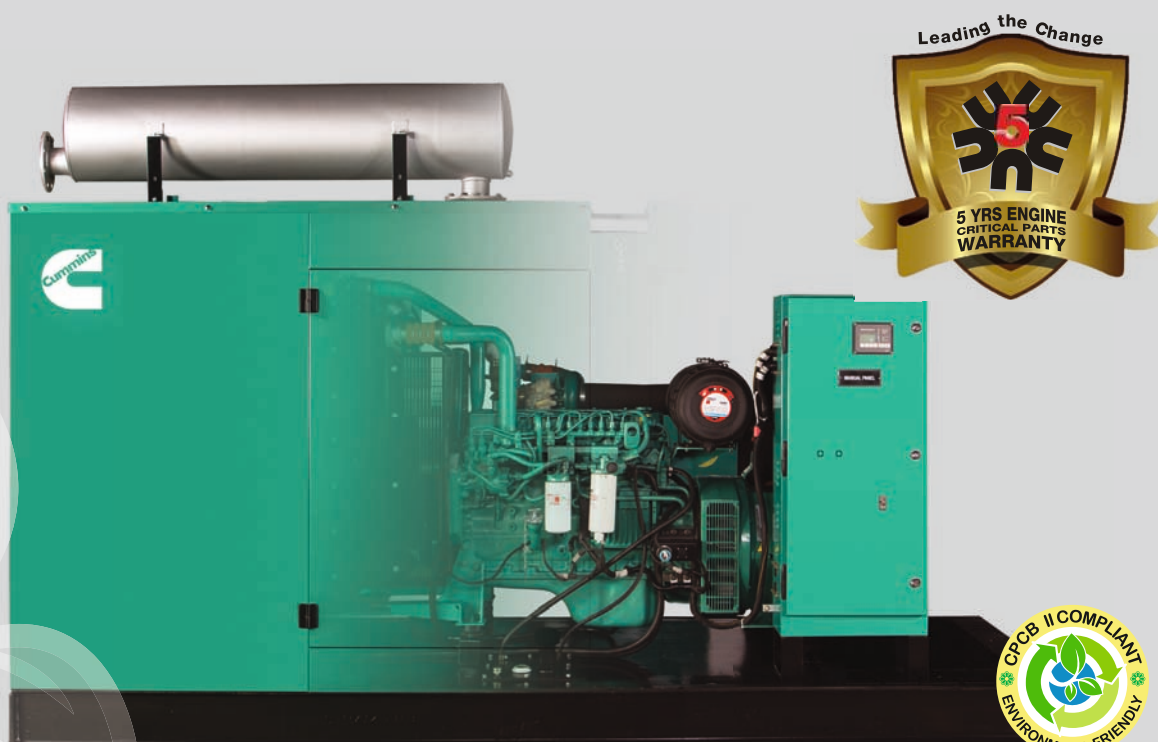




Diesel Generator Set

QSB5.9 Series

140-160 kVA, 112-128 kWe Prime



Specification Sheet

Latest Technology Product with Global Cummins® Platform

- The Cummins® QSB5.9 series heavy-duty engine and world class Stamford alternator powered diesel generator set
- Class defining Quantum engine technology with fully integrated subsystems
- Full Authority Electronic Engine
- 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

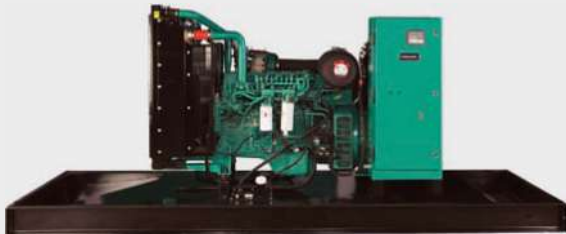
- Highly reliable and durable product
- All elements are designed to work together to maximize efficiency even at part loads, offering the advantage of lowest operating costs.
- 500 Hours/ 1 Year service interval
- Industry acknowledged best-in-class comprehensive warranty on the entire package including 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® QSB5.9 series, 6 cylinder, in-line 4 stroke, radiator cooled engine
- Full Authority Electronic Engine
- Well designed air handling system with
 - Dry type, Heavy duty, Replaceable paper element air cleaner with restriction indicator
 - Air to air aftercooling
 - Optimised turbocharger for increased altitude capabilities
- Best in class fuel economy with
 - Bosch HPCR 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
- 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 S3L1D alternator frames from Cummins Generator Technologies
- Brushless type, screen protected, revolving field, self excited alternator conforming to IS/IEC 60034-1
- 3 Phase dedicated winding with 6 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
- Digital Automatic Voltage Regulator

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.
- **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
- Sleepmode
- Mod bus interface (RS485 RTU)
- In Power 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 drain plug, air vent, inlet and outlet connection, level indicator and provision for cleaning

Optional

- **Engine:** Coolant heater.
- **Alternator:** PMG.
- **Control Panel:** PC3.3, Bargraph For PC3.3 Panel with kW, Power factor, Frequency, Current, Voltage Microprocessor / relay based AMF

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 (PU Foam) complying to IS 8183
- Two point lifting for easy handling at customer site
- Designed to have optimum serviceability
- Air inlet louvers specially designed to operate at rated load
- 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 | C140D5P | C160D5P |
| Duty | Prime | Prime |
| Power Rating kVA / kW | 140/112 | 160/128 |
| No. of Phases | 3 | 3 |
| Output Voltage and Frequency (V and Hz) | 415 V, 50 Hz | 415 V, 50 Hz |
| Power Factor | 0.8 (lagging) | 0.8 (lagging) |
| Current (A) | 195 | 223 |
| RPM | 1500 | 1500 |

Engine Specification:

| | | |
|---|-----------------------------------|-----------------------------------|
| Make | Cummins® | Cummins® |
| Model | QSB5.9-G1 | QSB5.9-G2 |
| MoEF Certified Power (bhp) | 184 | 206 |
| Required Power for Rated kVA (bhp) | 175 | 197 |
| Cooling | Liquid Cooled (EG Compleat 50:50) | Liquid Cooled (EG Compleat 50:50) |
| Aspiration | Turbocharged, Charge Air Cooled | Turbocharged, Charge Air Cooled |
| No. of cylinders | 6, In-line | 6, In-line |
| Bore (mm) x Stroke (mm) | 102 x 120 | 102 x 120 |
| Compression ratio | 16.5:1 | 16.5:1 |
| Displacement (litre) | 5.88 | 5.88 |
| Fuel | High Speed Diesel | High Speed Diesel |
| Fuel consumption @75% load with radiator and fan* (litre/hr) | 25.92 | 29.93 |
| Fuel consumption @100% load with radiator and fan* (litre/hr) | 31.91 | 35.95 |
| Performance class of generator set | ISO 8528-5 G2 | ISO 8528-5 G2 |
| Starting system | 24 V DC Electrical | 24 V DC Electrical |
| Lube oil specification | CI4+ 15W40 | CI4+ 15W40 |
| Lube oil sump capacity, High-Low level (litre) | 14.2- 12.3 | 14.2- 12.3 |
| Total lubrication system capacity (litre) | 15.7 | 15.7 |
| Total coolant capacity (litre) | 25.6 | 25.6 |
| Exhaust pipe size (inch) | 4 | 4 |
| Total wet weight (Engine+Radiator)** (kg) | 552 | 552 |
| Length x Width x Height (Engine) (mm) | 1066 x 642 x 1029 | 1066 x 642 x 1029 |
| Mean piston speed (m/s) | 6 | 6 |
| Combustion air intake @100% load (±5%) (cfm) | 382 | 400 |
| Exhaust Temperature (°C) | 496 | 522 |

Alternator Specification:

| | | |
|---|--|--|
| Make | STAMFORD (CGT) | STAMFORD (CGT) |
| Alternator Frame | S3L1D-E | S3L1D-F |
| Enclosure | IP 23 | IP 23 |
| Voltage regulation | ±0.5% | ±0.5% |
| Class of Insulation | H Class | H class |
| Winding Pitch | 2/3 Pitch | 2/3 Pitch |
| Stator Winding | Double layer Concentric | Double layer Concentric |
| Rotor | Dynamically Balanced | Dynamically Balanced |
| Waveform distortion / Total Harmonic Distortion | No load < 1.5 %, Non distorting balanced linear load < 5 % | No load < 1.5 %, Non distorting balanced linear load < 5 % |
| Maximum Unbalanced Load across phases# | less than or equal to 25% | less than or equal to 25% |
| Telephonic Harmonic factor | < 2% | < 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.

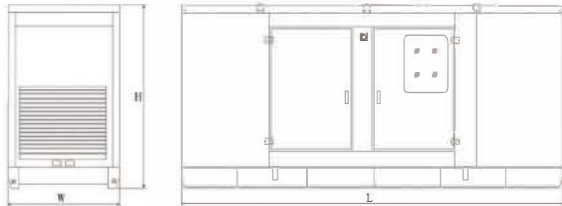
Conformance Standards

- 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) |
|--------------|--------------|-------------|------------|-------------|-------------------|-------------------------------------|
| C140D5P | 140 | 4000 | 1150 | 1850 | 2528 | 290 |
| C160D5P | 160 | 4000 | 1150 | 1850 | 2528 | 290 |

Approximate Weight



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