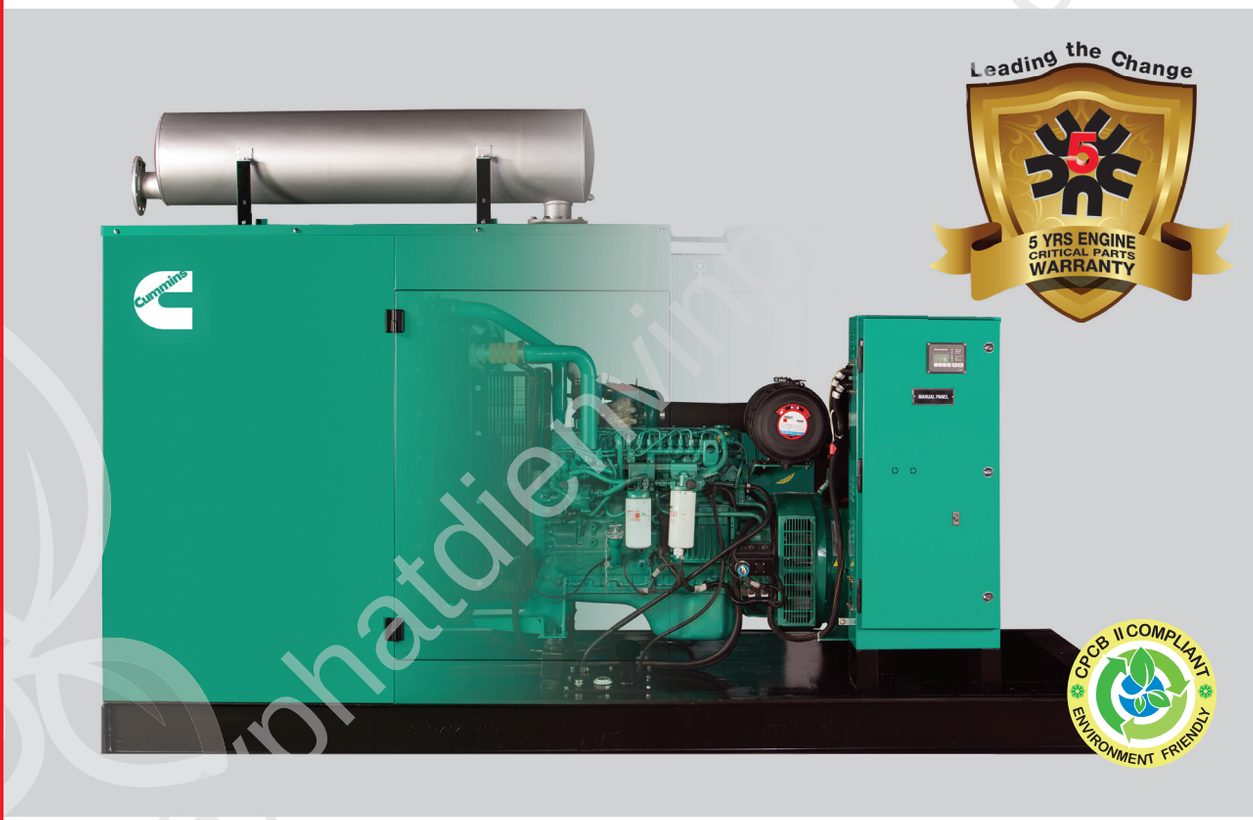
Diesel Generator Set

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

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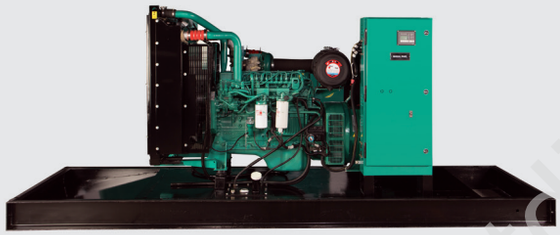
Engine

- 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
- 2 x 12 V DC batteries



Alternator

- Stamford UC27 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

Control Panel

Control panel is manufactured with 14/16 gauge CRCA sheet and is powder coated for weather-proof and long lasting finish. The control panel consists of the following parts:

- PowerCommand® 1.1 Controller
- Aluminum bus bars with suitable capacity with incoming/ outgoing terminals
- Indicating lamps for 'Load ON' and 'Set Running'
- Instrument fuses duly wired and ferruled
- MCCB of suitable rating with overload and short circuit protections

PowerCommand® 1.1 features

The PowerCommand® control system 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

- Intuitive operator interface which includes LED backlit LCD display with tactile feel soft-switches & generator set status LED lamps
- Digital AVR for shunt or PMG excitation with torque matching.
- Digital electronic governing with temperature compensation and smart starting.
- SAE J1939 interface to Full Authority Electronic (FAE) engines.
- Remote start-stop
- Engine metering: Oil pressure, Coolant temperature, Battery voltage, Engine speed
- AC Alternator metering: L-L Voltage and L-N Voltage, Current (1 and 3 phase), Volt-Amperes (phase and total) and Frequency.
- Engine protection: Low lube oil pressure, High/Low coolant temperature, Over speed, Battery Over/Under/Weak Volts, Fail to crank/start, Sensor failure.
- AC Alternator protection: Over/Under voltage, Over/Under frequency, Over current, Short circuit and Loss of AC sensing.
- Data logging: Engine hours, Control hours, Engine starts and upto 10 recent fault codes
- Configurable glow plug control
- Configurable cycle cranking
- 12 and 24 Volt DC operation
- Sleep mode
- Programmable I/Os (4 inputs and 2 outputs), expandable with AUX101/102 modules
- Modbus interface (RS485 RTU)
- InPower compatible (PC based service tool)
- Certifications - meets the requirement of relevant UL, NFPA, ISO, IEC, Mil Std., CE and CSA standards

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

Alternator: PMG

Microprocessor / relay based AMF

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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 / kWe	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	UCI274E	UCI274F
Enclosure	IP 23	IP 23
Voltage regulation (Max.)	±1%	±1%
Class of Insulation	H Class	H class
Winding Pitch	2/3 Pitch	2/3 Pitch
Stator Winding	Double layer lap	Double layer lap
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

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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.

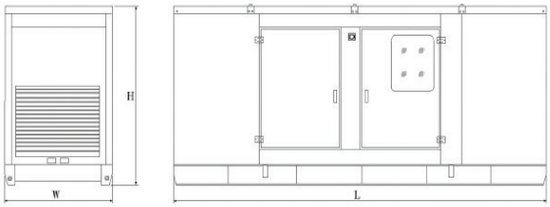
Conformance Standards

- 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 (litrr)
C140D5P	140	4000	1150	1850	2565	290
C160D5P	160	4000	1150	1850	2603	290

##Approximate Weight



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