

Diesel Generator Set

QSL9 Series

320 kVA, 256 kWe Prime
CPCB IV+ Emission Compliant



SHAKTIMAN



Latest Technology and Unmatched Performance

- The Cummins® QSL9 series rugged engine and world class Stamford alternator powered diesel generator set
- Proven technology with Cummins New Electronic Fuel System
- Exhaust after-treatment and in-cylinder solution to meet stringent emission norms
- Superior finish and aesthetics
- Compact in size with optimum power to weight ratio

Environment Friendly Power

- Class defining and technologically advanced engine to meet stringent exhaust emission norms as per the latest MoEF notification
- 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
- Maximum 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, aftertreatment system, 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

Engine

- Cummins® QSL9 series, 6 cylinder, In-line 4 stroke, radiator cooled engine
- Robust and efficient air handling system with
 - Dry type, Heavy Duty and replaceable paper element air cleaner with restriction indicator
 - Optimized turbocharger for increased altitude capabilities
- Optimized fuel consumption with common rail electronic injection
- Spin on single fuel filter with water separator
- Cooling system is designed and tested for 50°C ambient conditions
- Full flow spin on lube oil filter
- First fill of lube oil and coolant
- Electrical starter motor with soft start engagement feature
- Battery charging alternator
- 2 x 12 V DC battery



Alternator

- STAMFORD HCI444D alternator frames from Cummins Generator Technologies
- Brushless type, Screen protected, Revolving field, Self-excited alternator conforming to IS/IEC 60034-1
- 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

EATS

- Single module architecture supplied by Cummins Emission Solutions
- Compact design enabling optimized genset size
- Integrated control module for engine and EATS
- Best in class Proven technology for meeting stringent emission norms

Control Panel

Control panel is powder coated for weather-proof and long-lasting finish. The control panel consists of the following parts:

- PS0602 Controller
- 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 short circuit protections
- AC/DC separation inside control panel for safety

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 set
- 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
- Audible & Visual warning for Inducement
- Suitable for FAE based engine architecture
- Engine Metering: Oil pressure, Engine temperature, Starting battery voltage, Engine running hours
- AC Alternator Metering: L-L Voltage and L-N Voltage, Current (phase and total), kVA (phase and total) and Frequency. kWh, Total & per phase (kW & kVA), PF, Utility Voltage and Freq
- Engine Protection: Low lube oil pressure, High/Low coolant temperature, Battery High/Low/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. Overspeed, Over Current, kW Overload
- 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)
- 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
- Fuel and DEF level visual display
- Exerciser scheduler

Silencer

- Hospital Grade Silencer inside canopy with rain cap suitably optimized to meet stringent noise limit
- Silencer specifically tuned to EATS

Mounting Arrangement

- Engine and alternator are mounted on a common MS fabricated base frame with AVM pads
- Skid mounted radiator
- Base frame with integral fuel tank and DEF tank is provided with drain plug, air vent, inlet and outlet connection and provision for cleaning

Optional

- Alternator : PMG and Space Heater
- Controller : PCC3.3

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 CRCA sheets in Munsell green shade and a structural/sheet metal base frame painted in black
- 11 tank pretreatment process and UV resistant powder coating of all parts to withstand extreme environment
- High quality noise absorbent and fire-retardant grade acoustic Insulation material (Rockwool) complying to IS 8183
- Top lifting for easy handling at customer site
- External fuel & DEF filling provision

Remote monitoring system

- Compact & robust device
- Real time DG status & monitoring
- 4G compatible
- Compatible for 12/24 V DC
- Reports & Notification – Alerts & Warning
- Isolated RS 485 interface
- Device location using triangulation

Technical Data

Generator Set Specification	
Model	CI 320D5P
Duty	Prime
Power Rating kVA / kWe	320/256
No. of Phases	3
Output Voltage and Frequency (V and Hz)	415 V, 50 Hz
Power Factor	0.8 (lagging)
Current (A)	445
RPM	1500

Engine Specification	
Make	Cummins®
Model	QSL9-G20
Required Certified Power for Rated kVA (hp)	395
Cooling	Liquid Cooled (EG Compleat 50:50)
DEF	AUS 32 (Premix) as per ISO 22241
Aspiration	Turbocharged, Charge Air Cooled
No. of cylinders	6, In-line
Bore (mm) x Stroke (mm)	114 x 145
Compression ratio	16.7:1
Displacement (litre)	8.9
Fuel	High Speed Diesel
Performance class of generator set	ISO 8528-5 G2
Starting system	24 V DC Electrical
Lube oil specification	CK4
Lube oil sump capacity, High-Low level (litre)	30-19.97
Total lubrication system capacity (Litre)	31.7
Total coolant capacity (litre)	36
Exhaust pipe size (inch)	6
Total wet weight (Engine+Radiator)* (kg)	918.2
Length X Width X Height (Coolpac) (mm)	1128 x 791 x 1277
Mean Piston speed (m/s)	7.2
Combustion air intake @100% load (±5%) (cfm)	689
Exhaust Temperature (°C)	539

Alternator Specification	
Make	STAMFORD(CGT)
Alternator Frame	HCI444D
Enclosure	IP 23
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%

Rating Definitions	Conformance Standards
<p>Prime Power (PRP): Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528.</p>	<ul style="list-style-type: none"> • IS/IEC 60034-1 • ISO 1460 • ISO 8528 • ISO 3046 • ISO 9001 • ISO 13018

Typical Enclosed Genset Dimensions							
Genset Model	Rating (kVA)	Length (mm)	Width (mm)	Height (mm)	Wet Weight ¹ (kg)	DEF Tank Capacity (litre)	Standard Fuel tank Capacity (litre)
CI 320D5P	320	5000	1500	2465	4530	60	515

¹ Approximate Weight

Authorised Representative

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