

Specification sheet

Diesel Generator Set QSK50 Series

1750 kVA (Rad) - 1800 kVA (HE) Prime



Reliable and durable

Cummins® 'QSK50 series' diesel engine is a V 16 cylinder engine with a 50 litre displacement. Cummins heavy-duty engine, Robust Platform - Rugged 4-cycle, industrial diesel delivers reliable power, low emissions and fast response to load changes. High pressure fuel pump, Modular Common Rail fuel System (MCRS) and state of the art integrated electronic control system provide superior diagnostics. Enhanced reliability of the engine through a more powerful filtration system. This Quantum series utilizes sophisticated electronics and premium engineering to provide outstanding performance levels, reliability and versatility. Each component has been specifically developed and rigorously tested for G-Drive products, ensuring high performance, durability and reliability.

Unmatched warranty

-Cummins® 'QSK50 series' diesel engine generating sets are a truly cost effective solution to long term power need backed by industry best, 2 years / 5000 hrs warranty for Prime Rated Gensets

- With superior experience in technology, design capability and commitment reliability and quality we offer an unmatched 5 years or 1500 hours warranty coverage on 5 critical components (5C) of the engine – Cylinder Head, Camshaft, Crankshaft, Cylinder Block, Connecting Rod against manufacturing defect



Cummins advantage

Special features of Cummins® 'QSK50 series' engines like full authority electronic injection, low temperature aftercooler, optimised turbocharging and precision injection timing make these engines the ultimate in exceptional fuel efficiency all across the operating range.

Single source power assurance

Design, manufacture and testing of engine, alternator and other accessories is done by Cummins Group of companies for optimum performance and is backed by a countrywide product support network with a single source responsibility for the entire package.

Standard scope

Engine: Cummins® 'QSK50 series' full authority electronic injection, water cooled engine, 16 cylinder, 4 stroke, rated at 1500 RPM, conforming to ISO 3046 / IS 13018 has the following specifications:

- Cummins Full Authority electronics
- Cummins MCRS - Fuel System
- Cummins turbocharger, pulse tuned exhaust manifold, stainless steel exhaust flexible connections (2 Turbos)
- Radiator or heat exchanger or remote cooled
- Plate type lube oil coolant inhibitor
- Outboard aftercoolers
- Full flow paper element filters - fuel, lube oil
- Dry type replaceable paper element air cleaner with restriction indicator
- Flywheel housing & flywheel to suit single / double (optional) bearing alternator
- Starting motor – Electric
- Battery charging alternator
- Cummins PowerCommand® microprocessor based genset controller
- First fill of lube oil and coolant

Alternator: Stamford brushless alternator

- Separately excited, self-regulated
- Salient pole revolving field
- Single / double bearing
- VPI epoxy impregnated insulation technology
- Re-greasable deep groove Single bearing
- Excitation - PMG based brushless

Accessories:

- Silencer suitably optimized to reduce noise
- Sturdy base rail
- 990 ltrs. free standing fuel tank
- Batteries with connecting leads and terminals

Optionals

Engine: Lube oil / Coolant heater with thermostatic switch, Air Starter

Alternator: Space heater, RTDs (Std. for HT), BTDs, Double Bearing

Control Panel: AMF control panel, Battery charger, Remote/Auto start panel, Auto/Manual synchronizing panel, Audio/Visual annunciation for faults

Control panel: PowerCommand® PC 3.3



An integrated microprocessor based generator set control system providing voltage regulation, engine protection, alternator protection, operator interface and isochronous governing.

AmpSentry – Includes integral AmpSentry protection, which provides a full range of alternator protection function which are matched to the alternator provided.

Power management – Control function provides battery monitoring, testing and a smart starting control system.

Advanced control methodology – Three phase sensing, FET based full wave rectified voltage regulation and a PWM output for stable operation with all load types.

Communications interface – Control comes standard with PCCNet and Modbus interface.

Regulation compliant – Prototype tested: UL, CSA and CE compliant.

Service - InPower™ PC-based service tool available for detailed diagnostics, setup, data logging and fault simulation.

Reliable design – For reliable operations in harsh environment.

Multi-language support

Independent of PC/ laptop for setting up

Operator panel features

Operator panel features – The operator panel, in addition to the alternator, displays the Utility/ AC Bus data.

Operator/ display functions

- 320 x 240 pixels graphic LED backlight LCD with bar graph for displaying electrical parameters
- Auto, manual, start, stop, fault reset and lamp test/panel lamp switches
- Alpha-numeric display with pushbuttons
- LED lamps indicating genset running, remote start, not in auto, common shutdown, common warning, manual run mode, auto mode and stop

Paralleling control functions

- Digital frequency synchronization and voltage matching
- Isochronous kW and kvar load sharing controls
- Droop kW and kvar control
- Sync check
- Extended paralleling (Peak Shave/Base Load)
- Digital power transfer control (AMF) provides load transfer operation in open or closed transition or soft (ramping) transfer mode

Alternator data

- Line-to-neutral and line-to-line AC volts
- 3-phase AC current
- Frequency
- kW, kvar, power factor kVA (three phase and total)

Engine data

- DC voltage
- Engine speed
- Lube oil pressure
- Coolant temperature/ low level
- Comprehensive FAE data (where applicable)

Other data

- Genset model data
- Start attempts, starts, running hours, kW hours
- Load profile (operating hours at % load in 5% increments)
- Fault history
- Data logging and fault simulation (requires InPower)

Standard control functions

Digital governing

- Integrated digital electronic isochronous governor
- Temperature dynamic governing

Digital voltage regulation

- Integrated digital electronic voltage regulator
- 3-phase, 4-wire line-to-line sensing
- Configurable torque matching

AmpSentry AC protection

- AmpSentry protective relay
- Over current and short circuit shutdown
- Over current warning
- Single and three phase fault regulation
- Over and under voltage shutdown
- Over and under frequency shutdown
- Overload warning with alarm contact
- Reverse power and reverse var shutdown
- Field overload

Engine protection

- Battery voltage monitoring, protection and testing
- Over speed shutdown
- Low oil pressure warning and shutdown
- High coolant temperature warning and shutdown
- Low coolant level warning or shutdown
- Low coolant temperature warning
- Fail to start (over crank) shutdown
- Fail to crank shutdown
- Cranking lockout
- Sensor failure indication
- Low fuel level warning or shutdown

Control functions

- Time delay start and cool down
- Real time clock for fault and event time stamping
- Exerciser clock and time of day start/stop
- Data logging
- Cycle cranking
- Load shed/ dump as per configurable priority
- Configurable inputs and outputs (4)
- Remote emergency stop

Options

- Auxiliary output relays (2)

Technical data

Generator set specifications

Model	C1750*D5P (Rad)/ C1800D5P (HE)
Rating	Prime
Power Rating kVA/Kwe	1750/ 1400 (Rad) 1800/1440 (HE)
Output Voltage and frequency	415 Volts- 50 Hz
Power Factor	0.8 (lag)
No of Phases	3

Engine specifications

Make	Cummins
Model	QSK 50 G10
No of cylinders	16 Vee
Aspiration	Turbocharged & Aftercooled
Bore X Stroke	159mmX159mm
Displacement	50 liters
Output	2000 BHP (1491KWm)
Fuel consumption @75% load	265 lph (Rad) 264.5 lph (HE)
Fuel consumption @100% load	349 lph (Rad) 348.5 lph (HE)
Typical oil Consumption @100% load	0.42 lph
Total wet weight (DG Set- Open)	Max 10709 kgs
Length X Width X Height (DG set- Open)	6098 mm X 2519 mm X 2067 mm
Compression Ratio	15:1
Piston Speed	7.95 meter/sec
Governor /Class	Electronic/A1
Lubricating oil system capacity	235 liters
Coolant Capacity (Engine only)	140.1 lits.
Combustion air intake @100 % load (+/- 5%)	4017 cfm / 114 m ³ /min
Fan air flow across radiator	RTF
Exhaust Temp.	484.4 °C

Alternator specifications

Make	Stamford-LT	Stamford-LT
Frame size/ model No.	PI734G	PI734F
Voltage Regulation	"±/-0.5%	"±/-0.5%
Insulation	Class H	Class H
Standard enclosure	IP23	IP23
Winding pitch	2/3 pitch	2/3 pitch
Stator winding	Double Layer lap, form wound	Double Layer lap, form wound
Rotor	Dynamically balanced with grade 2.5	Dynamically balanced with grade 2.5
Wave form Distortion	No load 1.5% non-distorting, balanced linear load <5%	No load 1.5% non-distorting, balanced linear load <5%
Total Harmonics factor	Better than 2%	Better than 2%*

*- With External Cooling system
RTF- Refer to Factory

Conformance standards

IS/IEC 60034, IS 1460, ISO 8528, ISO 13018, ISO 3046, ISO 9001

Rating definitions

Prime Power (PRP):

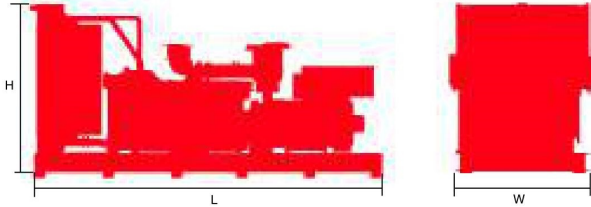
Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046 and IS 13018.

- Fuel consumption data is based on diesel having specific gravity of 0.85 and conforming to IS:1460
- Oil consumption data is based on oil having specific gravity of 0.89 and meeting CH4 API categories
- Fuel consumption tolerance is +5%

Standby power: Applicable for supplying power to varying electrical load for duration of power interrupting of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel stop power in accordance with ISO 3046 and IS 13018.

Typical diesel genset dimensions*

Genset Model	Length (mm)	Width (mm)	Height (mm)	Weight dry (kg)	Weight wet (kg)
C1750*D5P - C2000*D5S	6098	2519	2067	10232 (LV)	10709 (LV)



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