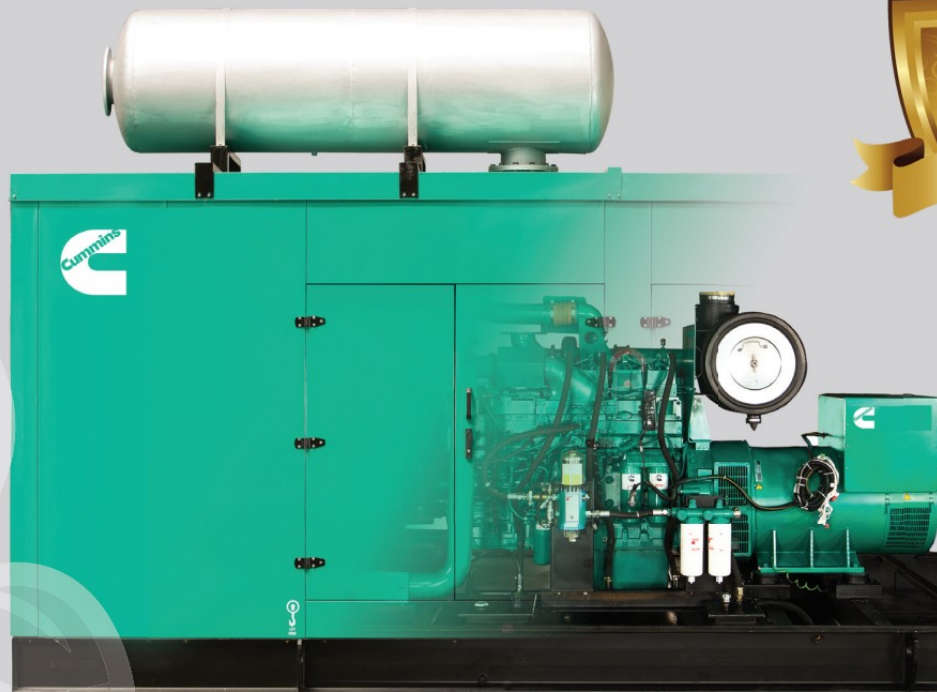


Diesel Generator Set

QSK19 Series

600-650 kVA, 480-520 kWe Prime



Latest Technology Product with Global Cummins® Platform

- The Cummins® QSK19 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

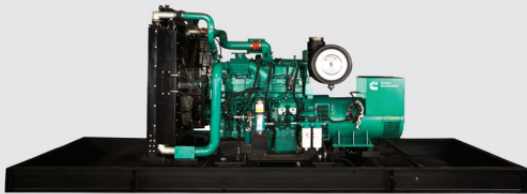
- Highly reliable and durable product
- All elements are designed to work together to maximize efficiency even at part loads, offering the advantage of lowest operating costs.
- 500 Hours / 1 year service interval
- Industry acknowledged best-in-class comprehensive warranty on the entire package including 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® QSK19 series, 6 cylinder, In-line, 4 stroke, radiator cooled engine
- Full Authority Electronic 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
 - Modular Common Rail (MCRS) 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
- Venturi combo 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 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

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® 1.2 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
- Air Circuit Breakers (ACB) of suitable rating with overload and short circuit protections

PowerCommand® 1.2 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 and 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:** Heat exchanger, No cool
- **Alternator:** PMG
- **Control Panel:** PC3.3, Microprocessor / relay based AMF control panel
- **Others:** Trolley mounted mobile sets

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
- Base 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 | C600D5P | C625D5S | C650D5P |
| Duty | Prime | Prime | Prime |
| Power Rating kVA / kW | 600/480 | 625/500 | 650/520 |
| No. of Phases | 3 | 3 | 3 |
| Output Voltage and Frequency (V and Hz) | 415 V, 50 Hz | 415 V, 50 Hz | 415 V, 50 Hz |
| Power Factor | 0.8 (lagging) | 0.8 (lagging) | 0.8 (lagging) |
| Current (A) | 834 | 869 | 904 |
| RPM | 1500 | 1500 | 1500 |
| Engine Specification | | | |
| Make | Cummins® | Cummins® | Cummins® |
| Model | QSK19-G6 | QSK19-G6 | QSK19-G7 |
| MoEF Certified Power (bhp) | 782 | 782 | 828 |
| Required Power for Rated kVA (bhp) | 708 | 734 | 764 |
| Cooling | Liquid Cooled (EG Compleat 50:50) | Liquid Cooled (EG Compleat 50:50) | Liquid Cooled (EG Compleat 50:50) |
| Aspiration | Turbocharged, Charged Air Cooled | Turbocharged, Charged Air Cooled | Turbocharged, Charged Air Cooled |
| No. of cylinders | 6, In-line | 6, In-line | 6, In-line |
| Bore (mm) x Stroke (mm) | 159 x 159 | 159 x 159 | 159 x 159 |
| Compression ratio | 15.8:1 | 15.8:1 | 15.8:1 |
| Displacement (litre) | 19 | 19 | 19 |
| Fuel | High Speed Diesel | High Speed Diesel | High Speed Diesel |
| Fuel consumption @75% load with radiator and fan* (litre/hr) | 96.89 | 101 | 102.68 |
| Fuel consumption @100% load with radiator and fan* (litre/hr) | 124.35 | 128.2 | 132.38 |
| Performance class of generator set | ISO 8528-5 G2 | ISO 8528-5 G2 | ISO 8528-5 G2 |
| Starting system | 24 V DC Electrical | 24 V DC Electrical | 24 V DC Electrical |
| Lube oil specification | CH4 15W40 | CH4 15W40 | CH4 15W40 |
| Lube oil sump capacity, High-Low level (litre) | 72-64 | 72-64 | 72-64 |
| Total lubrication system capacity (litre) | 84.4 | 84.4 | 84.4 |
| Total coolant capacity (litre) | 97 | 97 | 97 |
| Exhaust pipe size (inch) | 10 | 10 | 10 |
| Total wet weight (Engine+Radiator)** (kg) | 2500 | 2500 | 2500 |
| Length x Width x Height (Engine) (mm) | 1664 x 993 x 1723 | 1664 x 993 x 1723 | 1664 x 993 x 1723 |
| Mean piston speed (m/s) | 7.95 | 7.95 | 7.95 |
| Combustion air intake @100% load (±5%) (cfm) | 1496 | 1525 | 1550 |
| Exhaust Temperature (°C) | 492 | 494 | 497 |
| Alternator Specification | | | |
| Make | Stamford (CGT) | Stamford (CGT) | Stamford (CGT) |
| Alternator frame | HCI544E | HCI544F | HCI544F |
| Enclosure | IP23 | IP23 | IP23 |
| Voltage regulation (Max.) | ±1% | ±1% | ±1% |
| Class of Insulation | H Class | H Class | H Class |
| Winding Pitch | 2/3 | 2/3 | 2/3 |
| Stator Winding | Double layer lap | Double layer lap | Double layer lap |
| Rotor | Dynamically Balanced | 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 % | 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% | less than or equal to 25% |
| Telephonic Harmonic factor | < 2% | < 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.

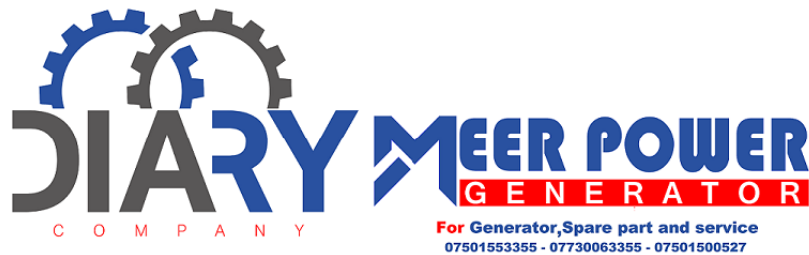
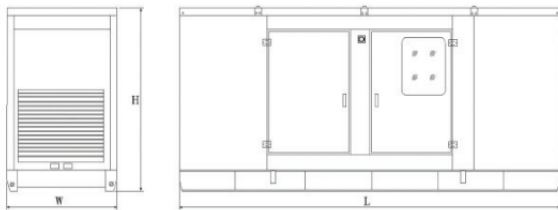
Conformance Standards

- 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) |
|--------------|--------------|-------------|------------|-------------|-------------------|-------------------------------------|
| C600D5P | 600 | 6500 | 2000 | 2775 | 8189 | 832 |
| C625D5S | 625 | 6500 | 2000 | 2775 | 8189 | 832 |
| C650D5P | 650 | 6500 | 2000 | 2775 | 8189 | 832 |

** Approximate weight





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MAILK MAHMUD RING ROAD | NEAR BINAHEY OIL STATION |
SULAIMANYA | KRG-IRAQ TEL: 0964 750 155 3355



ERBIL OFFICE

MAKHMOR ROAD | KURRAN | OPPOSITE KHDR SWARA
MOSQUE | ERBILKRG-IRAQ | TEL : 0964 750 150 0527

FACTORY

SOUTH INDUSTRIAL AREA | TRACTOR INDUSTRIAL| ERBIL | KRG-IRAQ
TEL: 0964 750 050 0490

MUSL OFFICE

POTATO'S STORE POINT | BEHAND INDUSTRIAL HIGH
SCHOOL |3RD STREET | MUSL | IRAQ
TEL: 0964 770 201 2305

SPARE PART SULI

SARKAREZ | NEAR ASOI DALAK INTERSECTION | SULAIMANYA | KRG-IRAQ
TEL: 0964 773 150 3655

SPARE PART ERBIL

SOUTH INDUSTRIAL AREA| MID OF 3RD STREET | ERBIL | KRG-IRAQ
TEL: 0964 750 300 3355

SERVICE WORKSHOP

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