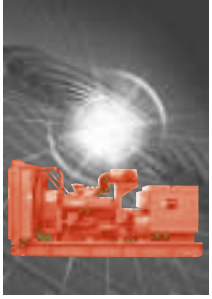


Power Generation

Diesel Powered Generating Sets 580 kW - 833 kW 50 Hz QST30 Series Engines

Typical model with options fitted

Standard Genset Features

Single Source Responsibility
Design, manufacture and testing of engine, alternator, control system and complete generating set are all produced by companies within the Cummins Group

International Integrity
Assurance and strength of a worldwide major corporation backing the product

Global Backing
24 hour spares and service availability in 72 countries

Single Source Warranty
Total product guaranteed by Cummins Power Generation

Packaged Self-Contained Units
Integrated unit with built-in anti-vibration system, control panel, starting system and provision for base fuel tank and other accessories

Cummins Engine
- Heavy duty 4 cycle water cooled engine
- Electronic governor control

Cooling System
- **40°C cooling package (50°C option)**

T.A. Luft Compliance
Models shown on this datasheet meet T.A.Luft <2g/nm3

Alternator
- Brushless Group made machine
- Close voltage regulation
- Rotor and exciter impregnated with oil and acid resisting resin
- 12 lead reconnectable
- Exceptional short circuit capability
- Low waveform distortion with non linear loads
- Permanent magnet exciter with MX321 AVR fitted as standard

Ratings
All kW Power ratings based on a 40°C ambient temperature reference. No derating necessary up to 40°C

Chassis
Built-in anti-vibration system
Bonded rubber units fitted as standard eliminates need for rubber mats or spring mountings

Standard PCC PowerCommand Control System
- Microprocessor control
- Integrates governor and voltage regulation systems
- Superior alternator and genset protection system
- Accurate battery monitoring system
- Totally reliable and proven system

Quality Assurance
Registered Firm Certificate Number FM509 in accordance with: BS EN ISO 9001

Quality Assurance Schedule 3420/1

One Source Alternator Control Engine Generating Set One Name

Cummins Power Generation, Cummins Engines and Newage Alternators are all part of the same group

50 Hz Ratings						
New Model Prime	**1999 Model Prime**	**Prime kW** (kVA)	**New Model Standby**	**1999 Model Standby**	**Standby kW** (kVA)	**Engine Model**
580 DFHE	**CP700-5**	**580** (725)	**640 DFHE**	**CS800-5**	**640** (800)	**QST30G6**
640 DFHF	**CP800-5**	**640** (800)	**713 DFHF**	**CS900-5**	**713** (891)	**QST30G7**
751 DFHG	**CP900-5**	**751** (939)	**833 DFHG**	**CS1000-5**	**833** (1041	**QST30G8**

A Single Source for *all* Power System Solutions

Specifications

Generator Set Performance

Voltage Regulation
Maintains voltage output to within ±0.5%.
At any power factor between 0.8 lagging and unity.
At any variations from No load to Full load.
At any variations from Cold to Hot.
At speed droop variations up to 4.5%.

Frequency Regulation
Isochronous under varying loads from no load to 100% full load.

Random Frequency Variation
Will not exceed ±0.25% of its mean value for constant loads – no load to full load.

Waveform
Total harmonic distortion open circuit voltage waveform in the order of 1.5%. Three-phase balanced load in the order of 5.0%.

Telephone Influence Factor
TIF better than 50.
THF to BS4999 Part 40 better than 2%.

Alternator Insulation
Class H insulation.

Radio Interference
In compliance with BS800 and VDE levels G and N.

Engine

Cummins QST30G1, G2, G3 and G4, twelve-cylinder vee formation, direct injection, four-cycle diesel engines.

Type
Water cooled, turbocharged and aftercooled.

Construction
Four valves per cylinder, forged steel crankshaft and connecting rods, cast iron pistons and block, with hardened liners.

Starting
24 volt negative earth, battery charging 35 amp alternator. Cranking current 1280 amps at 0°C.

Fuel System
24 volt fail safe solenoid, dual spin-on paper element fuel filters, Cummins electronic fuel injection system with integral electronic governor. Dual flexible fuel lines with connectors.

Filters
Dry element air filters with restriction indicator and four spin-on paper element full flow and two by pass lube oil filters. Spin on corrosion resistor filter.

Cooling
High ambient 40°C radiator as standard with 50°C ambient as option. Oil cooler.

Alternator

Type
Brushless, single bearing, revolving field, 4-pole, drip proof, screen protected.
Class H insulation.
Enclosed to IP22 (NEMA 1) standard.
IC 01 cooling system.
Fully interconnected damper winding.
AC exciter and rotating rectifier unit.
Epoxy coated stator winding.
Rotor and exciter impregnated with tropical grade insulating oil and acid resisting polyester resin. Dynamically balanced rotor to BS5625 grade 2.5.
Sealed for life bearings.
Layer wound mechanically wedged rotor.

Exciter
Permanent magnet exciter.
Triple dipped in moisture, oil and acid resisting polyester varnish and coated with anti-tracking varnish.
Sealed solid state automatic voltage regulator – self-exciting, self-regulating.
Output windings with 2/3 pitch for improved harmonics and parallelling ability.
Close coupled engine/alternator for perfect alignment.

Compliance Standards

To BS4999/5000 pt 99,
VDE 0530, UTE5100,
NEMA MG1-22, CEMA,
IEC 34, CSA A22.2,
AS1359, BS5514,
ISO 3046 and ISO 8528

Skid Base

Fabricated and welded steel chassis
Built-in anti-vibration mountings
Integral lifting points
Optional sub-base fuel tank with eight hour capacity, dual flexible fuel lines, dial type fuel gauge and drain bung

Finish
Etch undercoated and finished in high gloss durable musell jade green

General
Complete set of operating and instruction manuals

Generator Set Options

Engine
- ☐ Heavy duty air cleaner with safety element
- ☐ 120 volt coolant heater (thermostatically controlled)
- ☐ 240 volt coolant heater (thermostatically controlled)
- ☐ Low coolant level – warning or shutdown
- ☐ Water separator
- ☐ Sump evacuation pump
- ☐ Exhaust gas temperature monitoring (PCC only)
- ☐ Tool kit

Alternator
- ☐ Anti-condensation heater
- ☐ 105°C rise alternator

Control Panel
- ☐ Refer to literature option list on Control Panel pages

Exhaust System
- ☐ Industrial-grade exhaust silencer
- ☐ Residential-grade exhaust silencer
- ☐ Length of flexible exhaust pipe
- ☐ Bellows

Fuel System
- ☐ 8hr sub-base fuel tank and gauge
- ☐ Free-standing 450, 900 or 1350 litre fuel tanks
- ☐ High/low/shutdowns and warnings
- ☐ Electric fuel transfer
- ☐ Manual transfer pump

Generator Set
- ☐ Main line circuit breaker
- ☐ Auxiliary contacts
- ☐ Shunt trip
- ☐ Disconnect switch
- ☐ Cable entrance box
- ☐ Battery charger, 5 amp and 10 amp
- ☐ Batteries lead acid or ni-cad
- ☐ Audible DC alarm (loose)
- ☐ Export box packaging
- ☐ CE compliance

Enclosures
- ☐ Silenced and Supersilenced
- ☐ Weather protective enclosure with mounted silencer

Standard PowerCommand Control System (PCC)

PCC PowerCommand Control –
standard configuration with optional contactor buttons shown

PowerCommand® Control with AmpSentry™ Protection

- Integrated automatic voltage regulator and engine speed governor
- AmpSentry Protection guards the electrical integrity of the alternator and power system from the effects of overcurrent, over/under voltage, under frequency and overload conditions
- Control components designed to withstand the vibration levels typical in generator sets

Standard Control Description

- Analog % of current meter (amps)
- Analog AC frequency meter
- Analog AC voltage meter
- Analog % of load meter (kW)
- Cycle cranking control
- Digital display panel
- Emergency stop switch
- Idle mode control
- Menu switch
- Panel backlighting
- Remote starting
- Reset switch
- Run-Off-Auto switch
- Sealed front panel, gasketed door
- Self diagnostics
- Separate customer interconnection box
- Voltmeter/Ammeter phase selector switch

Standard Performance Data

AC Alternator Data

- Current by Phase
- Kilowatts
- Kilowatt Hours
- Power Factor
- Voltage Line to Line
- Voltage Line to Neutral

Engine Data

- Battery Voltage
- Coolant Temperature
- Engine Running Hours
- Engine Starts counter
- Oil Pressure
- RPM
- Oil Temperature

EMC Compliance

The PCC control system meets EMC Shield Regulations.

Standard Protection Functions

Warnings

- High Coolant Temperature
- High DC Voltage
- Low Coolant Temperature
- Low DC Voltage
- Low Fuel – Day Tank
- Low Oil Pressure
- Over Current
- Oil Pressure Sender Fault
- Temperature Sender Fault
- Overload Load Shed Contacts
- Temperature Sender Fault
- Up to Four Customer Fault Inputs
- Weak Battery

Shutdowns

- Emergency Stop
- Fail to Crank
- Low Coolant Level (option for alarm only)
- Low Oil Pressure
- Magnetic Pickup Failure
- Overcrank
- Overcurrent
- Overspeed
- Short Circuit
- Underfrequency
- High/Low AC Voltage
- Shut down – low fuel level
- Earth fault. Shutdown
- High alternator temperature alarm/shutdown
- PowerCommand Digital Paralleling

Cummins Optional Network Communications

- Echelon LonWorks multidrop communication. Communication network up to 5000 feet (1523 m) in length
- Allows for local and remote communications with PowerCommand network products
- Power system monitoring and control using PowerCommand software
- Flexible for interface with other manufacturers' control and monitoring systems

Other PowerCommand Control options are available

*Floor mounted cubicle provided with air circuit breaker on ratings over 2000 amps.

Disconnector Switch*

The addition of a circuit breaker is considered unnecessary when PowerCommand with Amp Sentry protection is fitted. For isolation purposes a switch disconnector can be supplied and mounted in the normal circuit breaker position on either side of the control panel.

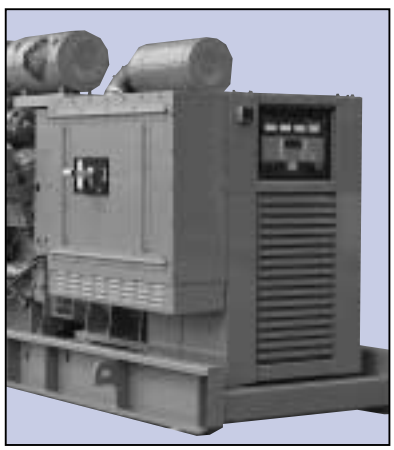
Voltage Regulation

±0.5% with PowerCommand fitted.

Options

Control panel PowerCommand options

- Audible alarm and shutdown
- Key switch-operating mode
- Shutdown alarm-relay
- Running relays 4 pole D.T.
- Warning low fuel/high fuel



Circuit breaker can be fitted either side of generator set.

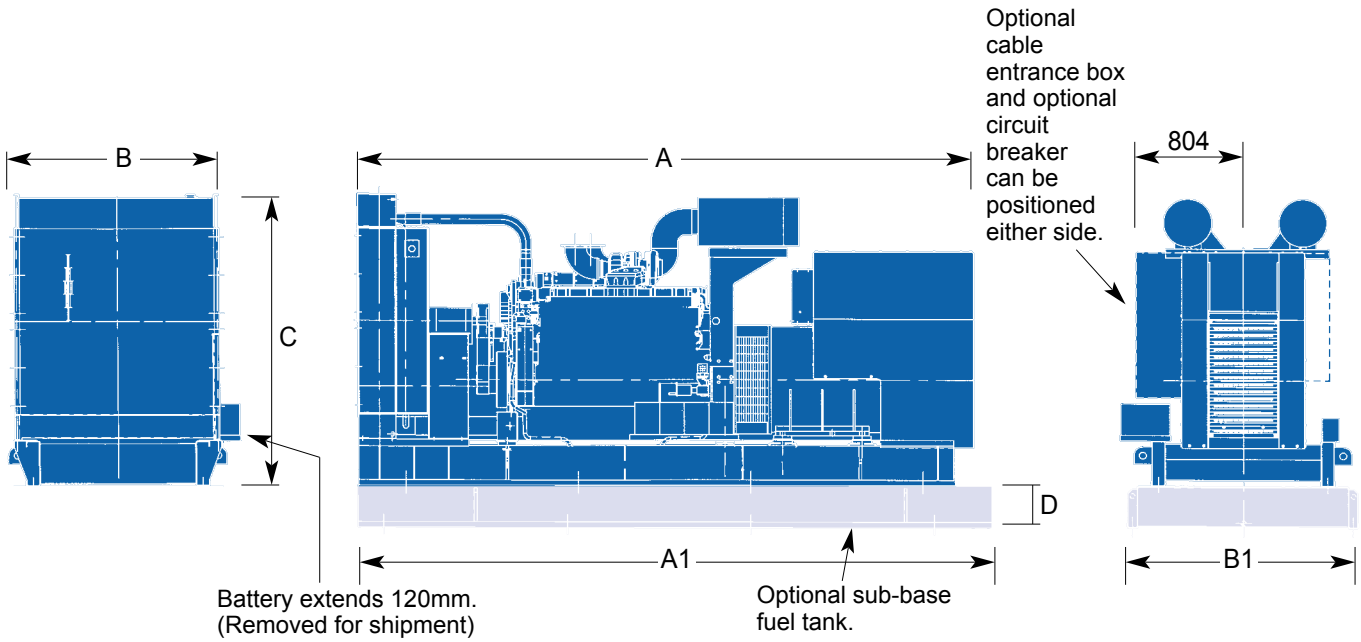
Technical Data

Generating Sets – 50 Hz

Set Output	380-440 V 50Hz	380-440 V 50Hz	380-440 V 50Hz
Prime at 40ºC	580 kWe 725 kVA	640 kWe 800 kVA	751 kWe 939 kVA
Model (prime)	580 DFHE	640 DFHF	751 DFHG
Standby at 40ºC	640 kWe 800kVa	713 kWe 891 kVA	888 kWe 1110 kVA
Model Standby	640 DFHE	713 DFHF	888 DFHG
Engine Make	Cummins	Cummins	Cummins
Model	QST30G6	QST30G7	QST30G8
Cylinders	Twelve	Twelve	Twelve
Engine Build	Vee	Vee	Vee
Governor/Class	Electronic/A1	Electronic/A1	Electronic/A1
Aspiration and Cooling	Turbo Aftercooled	Turbo Aftercooled	Turbo Aftercooled
Bore and Stroke	140 mm x 165 mm	140 mm x 165 mm	140 mm x 165 mm
Compression Ration	14:1	14:1	14:1
Cubic Capacity	30.48 Litres	30.48 Litres	30.48 Litres
Starting/MinºC	Unaided/7ºC	Unaided/7ºC	Unaided/7ºC
Battery Capacity	245 a/hr	245 a/hr	245 a/hr
Engine Output-Prime	634 kWm	697 kWm	806 kWm
Engine Output-Standby	701 kWm	768 kWm	895 kWm
Maximum Load Acceptance – single step	490 kWe	537 kWe	626 kWe
Speed	1500 rpm	1500 rpm	1500 rpm
Alternator Voltage Regulation	±0.5%	±0.5%	±0.5%
Alternator insulation class	H	H	H
Single load step to NFPA110	100%	100%	100%
Fuel Consumption (Prime) 100% load	155 l/hr	171 l/hr	200 l/hr
Fuel Consumption (Standby) 100% load	172 l/hr	189 l/hr	228 l/hr
Lubrication Oil Capacity	154 Litres	154 Litres	154 Litres
Base fuel tank capacity – open set	1700 Litres	1700 Litres	1700 Litres
Coolant capacity –radiator and engine (40ºC)	304 Litres	304 Litres	304 Litres
Exhaust temp –full load prime	437ºC	446ºC	472ºC
Exhaust gas flow – full load prime	8089 m^3/hr	9903 m^3/hr	10 368 m^3/hr
Exhaust gas back pressure max	51 mm Hg	51 mm Hg	51 mm Hg
Air flow – radiator (40ºC Ambient)	21 m^3/s	21 m^3/s	21 m^3/s
Pusher head fan (duct allowance) 40ºC	13 mm Wg	13 mm Wg	13 mm Wg
Air intake engine	3686 m^3/hr	3934 m^3/hr	4315 m^3/hr
Pusher head fan (duct allowance) 50ºC	13 mm Wg	13 mm Wg	13 mm Wg
Total heat radiated to ambient (engine only)	86 kW	95 kW	115 kW
Engine derating – altitude	5% per 300 m above 1000 m	5% per 300 m above 1000 m	5% per 300 m above 1000 m
Engine derating – temperature	4% per 5ºC above 40ºC	4% per 5ºC above 40ºC	4% per 5ºC above 40ºC

In accordance with ISO 8528, BS5514.
Prime: Continuous running at variable load for unlimited periods with 10% overload available for 1 hour in any 12 hour period.
Standby: Continuous running at variable load for duration of an emergency.
Prime and standby ratings are outputs at 40ºC (104ºF) ambient temperature.

Dimensions and Weights – 50 Hz



New Model	Engine	50 Hz Model	Dimensions and Weights (mm/kg)						Set Weight kg Dry	Set Weight kg Wet	Tank Weight kg (dry)	Tank Weight kg (wet)
			A	A1	B	B1	C	D				
DFHE	CP700-5	QST30G6	4297	4460	1442	1640	2092	300	6552	6850	850	2210
DFHF	CP800-5	QST30G7	4297	4460	1442	1640	2092	300	6702	7000	850	2210
DFHG	CP900-5	QST30G8	4297	4460	1442	1640	2092	300	7152	7450	850	2210

Set weights are **without** sub-base tank.
Dimensions and weights are for **guidance** only. Do not use for installation design. Ask for certified drawings on your specific application.
Specifications may change without notice.

Power Generation

See your distributor for more information.

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Standard and custom made generating sets from 30 kVA to 2000 kVA