



شرکت مهندسی کاراسهند
Engineering KARA SAHAND



Diesel Powered Generating Sets 580 kW - 888 kW 50 Hz QST30 Series Engines



Typical model with options fitted

Standard Genset Features

Single Source Responsibility

- Design, manufacturer and test of all components and accessories are made by Cummins Power Generation and Cummins companies

International Integrity

- Assurance and strength of a worldwide, world class corporation

Global Backing

- 24-hour spares and service support – in 72 countries

Single Source Warranty

- Complete genset covered by Cummins Power Generation comprehensive warranty

Packaged Self-Contained Units

- Units with built in antivibration systems, control panels, starting systems with 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)

Ready Filled

- Every set comes filled with lube oil and anti-freeze

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

PCC PowerCommand® Control System

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



50 Hz Ratings				
Model Prime	Prime kW (kVA)	Model Standby	Standby kW (kVA)	Engine Model
580 DFHA	580 (725)	640 DFHA	640 (800)	QST30G1
640 DFHB	640 (800)	713 DFHB	713 (891)	QST30G2
751 DFHC	751 (939)	833 DFHC	833 (1041)	QST30G3
800 DFHD	800 (1000)	888 DFHD	888 (1110)	QST30G4

A Single Source for all Power System Solutions

Specifications May Change Without Notice

04/03 QST30 Bulletin No. 4095274



نشانی: تهران، بلوار آفریقا (چردن)، نرسیده به الهیه، نبش خیابان طاهری

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Specifications

Generator Set Performance

Voltage Regulation

Maintains voltage output to within $\pm 0.5\%$.
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 $\pm 0.25\%$ 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. Standard fuel water separator.

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
- Sump evacuation pump
- Exhaust gas temperature monitoring
- Tool kit
- Compliance to TA Luft

Alternator

- Anti-condensation heater
- 105°C rise alternator

Control Panel

- Refer to literature option list in Control Panel data sheet

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



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Technical Data

Generating Sets – 50 Hz

Set output	380-440 V 50 Hz	380-440 V 50 Hz	380-440 V 50 Hz	380-440 V 50 Hz
Prime at 40°C ambient	580 kWe 725 kVA	640 kWe 800 kVA	751 kWe 939 kVA	800 kWe 1000 kVA
Model (Prime)	580 DFHA	640 DFHB	751 DFHC	800 DFHD
Standby at 40°C ambient	640 kWe 800 kVA	713 kWe 891 kVA	833 kWe 1041 kVA	888 kWe 1110 kVA
Model (Standby)	640 DFHA	713 DFHB	833 DFHC	888 DFHD
Engine Make	Cummins	Cummins	Cummins	Cummins
Model	QST30G1	QST30G2	QST30G3	QST30G4
Cylinders	Twelve	Twelve	Twelve	Twelve
Engine build	Vee	Vee	Vee	Vee
Governor/Class	Electronic/A1	Electronic/A1	Electronic/A1	Electronic/A1
Aspiration and cooling	Turbo Aftercooled	Turbo Aftercooled	Turbo Aftercooled	Turbo Aftercooled
Bore and stroke	140 mm x 165 mm	140 mm x 165 mm	140 mm x 165 mm	140 mm x 165 mm
Compression ratio	14:1	14:1	14:1	14:1
Cubic capacity	30.48 Litres	30.48 Litres	30.48 Litres	30.48 Litres
Starting/Min °C	Unaided/1°C	Unaided/1°C	Unaided/7°C	Unaided/7°C
Battery capacity	254 A/hr	254 A/hr	254 A/hr	254 A/hr
Engine output – Prime	634 kWm	697 kWm	806 kWm	880 kWm
Engine output – Standby	701 kWm	768 kWm	895 kWm	970 kWm
*Maximum load acceptance – single step	570 kWe	570 kWe	583 kWe	622 kWe
Speed	1500 rpm	1500 rpm	1500 rpm	1500 rpm
Alternator voltage regulation	±0.5%	±0.5%	±0.5%	±0.5%
Alternator insulation class	H	H	H	H
Single load step to NFPA110	100%	100%	100%	100%
Fuel consumption (Prime) 100% load	153 l/hr	168 l/hr	184 l/hr	202 l/hr
Fuel consumption (Standby) 100% load	169 l/hr	187 l/hr	204 l/hr	224 l/hr
Lubrication oil capacity (inc. filters)	154 Litres	154 Litres	154 Litres	154 Litres
Base fuel tank capacity – open set	1700 Litres	1700 Litres	1700 Litres	1700 Litres
Coolant capacity – radiator and engine (40°C)	169 Litres	169 Litres	169 Litres	302 Litres
Coolant capacity – radiator and engine (50°C)	175 Litres	175 Litres	175 Litres	342 Litres
Exhaust temp – full load prime	527°C	538°C	541°C	565°C
Exhaust gas flow – full load prime	7812 m ³ /hr	7977 m ³ /hr	8748 m ³ /hr	10728 m ³ /hr
Exhaust gas back pressure max	76 mm Hg	76 mm Hg	76 mm Hg	51 mm Hg
Air flow – radiator (40°C ambient)**	15.5 m ³ /s	15.5 m ³ /s	15.5 m ³ /s	18 m ³ /s
Pusher fan head (duct allowance) 40°C**	13 mm Wg	13 mm Wg	**13 mm Wg	**13 mm Wg
Air intake – engine	2544 m ³ /hr	2794 m ³ /hr	3114 m ³ /hr	3402 m ³ /hr
Air flow – radiator (50°C ambient)**	17.6 m ³ /s	17.6 m ³ /s	18.1 m ³ /s	24.8 m ³ /s
Pusher fan head (duct allowance) 50°C**	13 mm Wg	13 mm Wg	13 mm Wg	13 mm Wg
Total heat radiated to ambient	126 kW	137 kW	137 kW	152 kW
Engine derating – altitude	RTF	RTF	RTF	RTF
Engine derating – temperature	RTF	RTF	RTF	RTF

*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 40°C (104°F) ambient temperature.

**Subject to factory verification.

†No temperature derating is applicable to any of these generator sets with a Class H alternator up to 50°C. For Class F alternators refer to factory.

RTF = Refer to factory.

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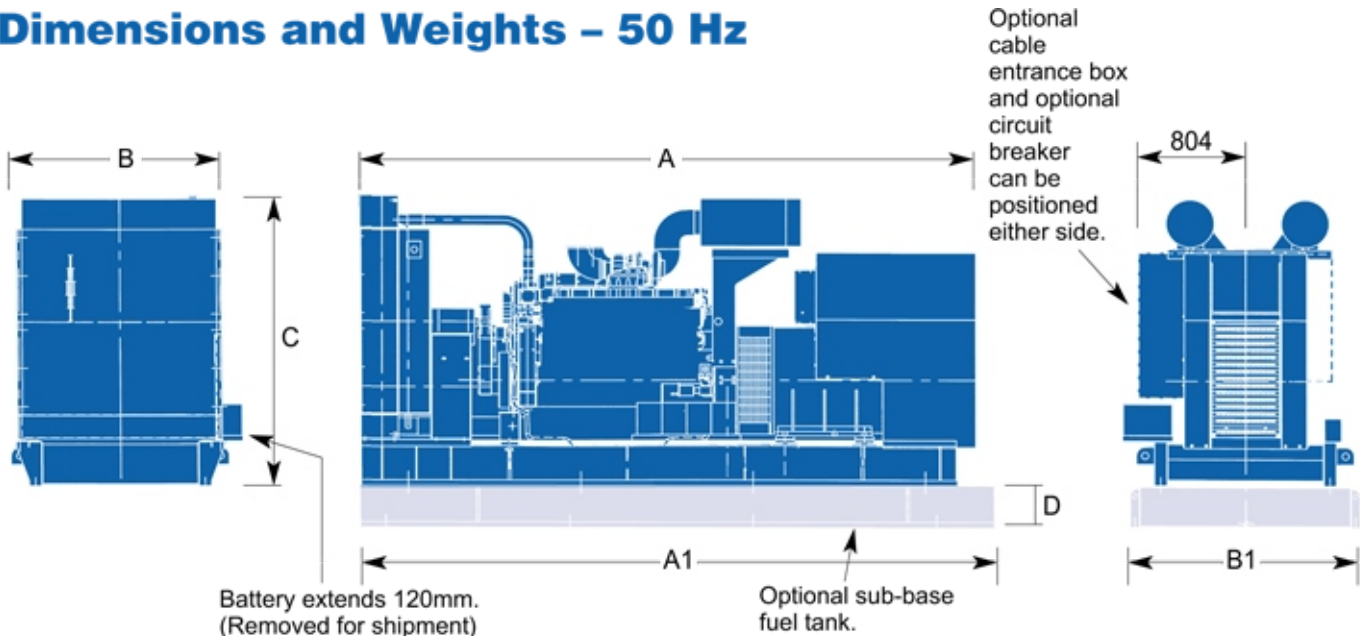
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Dimensions and Weights – 50 Hz



Model	Engine Type	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				
580 DFHA	QST30G1	4297	4460	1442	1640	2139	300	5812	5991	850	2210
640 DFHB	QST30G2	4297	4460	1442	1640	2139	300	6117	6296	850	2210
751 DFHC	QST30G3	4297	4460	1442	1640	2092	300	7195	7374	850	2210
800 DFHD	QST30G4	4547	4460	1722	1640	2332	300	6775	7053	850	2210

Weights shown are for the largest alternator frame size.

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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