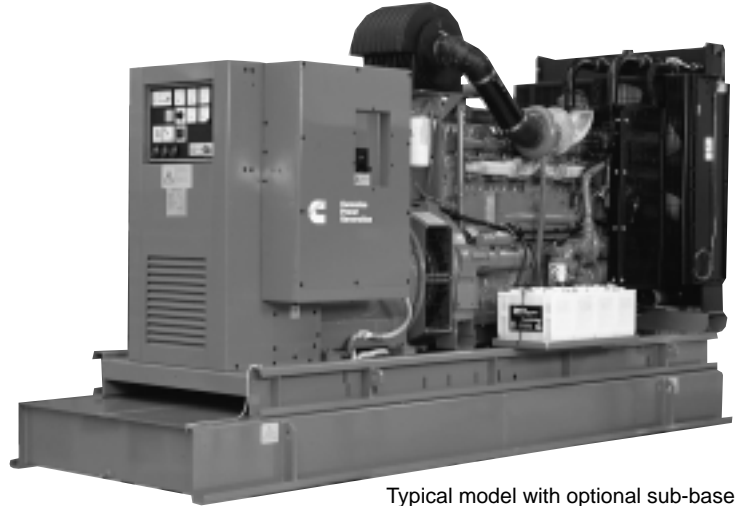


## Diesel Powered Generating Sets 351 kW - 501 kW 60 Hz K19 Series Engines



Typical model with optional sub-base fuel tank and circuit breaker

### 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

- 50°C cooling package

#### 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

#### Ratings

All kW Power ratings based on a 40°C ambient temperature reference.

#### Chassis

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

#### Integrated Control System

- Totally integrated design
- Full AC instrumentation
- Safety shutdowns
- Local or Remote starting
- Emergency stop button (optional)
- CE and non CE options

#### Optional 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



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

60 Hz Ratings				
Model Prime	Prime kW (kVA)	Model Standby	Standby kW (kVA)	Engine Model
351 DFEB	351 (439)	400 DFEB	400 (500)	KTA19G2
403 DFEL	403 (504)	450 DFEL	450 (562)	KTA19G3
449 DFED	449 (561)	501 DFED	501 (626)	KTA19G4

## A Single Source for *all* Power System Solutions

# Specifications

## Generator Set Performance

### Voltage Regulation

Maintains voltage output to within  $\pm 1.0\%$ .  
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)

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

### Alternator Temperature Rise

Class H insulation. Temperature rise up to 125°C permitted.

### Radio Interference

In compliance with BS800 and VDE levels G and N.

## Engine

Cummins KTA19G2, G3 and G4 direct injection engines. Six-cylinder, in-line.

### Type

Water cooled, four cycle, turbo charged and aftercooled.

### Construction

Four valves per cylinder, forged steel crankshaft and connecting rods, cast iron block, replaceable wet liners.

### Starting

24 volt negative earth. Battery charging 35 amp alternator. Cranking current 610 amps at 0°C on K engines.

### Fuel System

24 volt fail safe fuel actuator. Dual spin-on paper element fuel filters. Cummins PT fuel injection system with integral electronic governor. Dual flexible fuel lines and connectors.

### Filters

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

### Cooling

50°C radiator as standard. 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

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 paralleling 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, BSS 5514,  
ISO 3046 and ISO 8528

## Chassis

Fabricated and welded steel chassis  
Built-in anti-vibration mountings  
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 green

### General

Complete set of operating and instruction manuals

## Generator Set Options

### Engine

- Heavy duty air cleaner
- Coolant heater and thermostat
- Fuel water separator
- Lead acid batteries, cable and fitted tray
- NiCad batteries
- Sump drain pump
- Oil and water drain taps
- CE Compliance (guarding)
- Exhaust temperature monitoring (PCC only)
- Tool kit
- Compliance to TA Luft

### Cooling

- Remote radiator cooling (built to order)
- Oil temperature indication

### Alternator

- Anti-Condensation heater
- Thermistors
- PMG Exciter and MX321 AVR
- 105°C rise alternator

### Exhaust System

- Industrial type silencer
- Residential type silencer
- Length of flexible exhaust and bellows

### Fuel System

- Sub-base tanks
- Hand fuel transfer pump
- Automatic fuel transfer pump
- Free-standing 450, 900 and 1350 litre fuel tanks with stand
- Fuel tank level switch
- High fuel level warning
- Low fuel level warning
- Low fuel level shutdown

### Generator Set

- Weather protective enclosures
- Silenced enclosures

### Control Panel

- See separate list on Control Panel page
- 3 or 4 pole circuit breaker
- Battery charger 5 amp or 10 amp
- CE Compliance PCL and PCC systems
- Cable entrance box
- Switch disconnect 3P or 4P

# Technical Data

## Generating Sets – 60 Hz

Set output	220-480 V 60 Hz	220-480 V 60 Hz	220-480 V 60 Hz
Prime at 40°C ambient	351 kWe 439 kVA	403 kWe 504 kVA	449 kWe 561 kVA
Model (Prime)	351 DFEB	403 DFEL	449 DFED
Standby at 40°C ambient	400 kWe 500 kVA	450 kWe 562 kVA	501 kWe 626 kVA
Model (Standby)	400 DFEB	450 DFEL	501 DFED
Engine Make	Cummins	Cummins	Cummins
Model	KTA19G2	KTA19G3	KTA19G4
Cylinders	Six	Six	Six
Engine build	In-line	In-line	In-line
Governor/Class	Electronic/A1	Electronic/A1	Electronic/A1
Aspiration and cooling	Turbo Aftercooled	Turbo Aftercooled	Turbo Aftercooled
Bore and stroke	159 mm x 159 mm	159 mm x 159 mm	159 mm x 159 mm
Compression ratio	13.9:1	13.9:1	13.9:1
Cubic capacity	18.9 Litres	18.9 Litres	18.9 Litres
Starting/Min °C	Unaided/7°C	Unaided/7°C	Unaided/0°C
Battery capacity	190 Ah	190 Ah	190 Ah
Nett Engine output – Prime	373 kWm	429 kWm	473 kWm
Nett at flywheel – Standby	429 kWm	477 kWm	529 kWm
Speed	1800 rpm	1800 rpm	1800 rpm
Alternator voltage regulation	±1.0%	±1.0%	±1.0%
Alternator insulation class	H	H	H
Single load step to NFP/II0	100%	100%	100%
Fuel consumption (Prime) 100% load	98 l/hr	111 l/hr	120 l/hr
Fuel consumption (Standby) 100% load	113 l/hr	122 l/hr	133 l/hr
Lubrication oil capacity	50 Litres	50 Litres	50 Litres
Base fuel tank capacity – open set	1200 Litres	1200 Litres	1200 Litres
Coolant capacity – radiator and engine	105 Litres	105 Litres	105 Litres
Exhaust temp – full load prime	493°C	471°C	481°C
Exhaust gas flow – full load prime	5554 m <sup>3</sup> /hr	5684 m <sup>3</sup> /hr	6242 m <sup>3</sup> /hr
Exhaust gas back pressure max	76 mm Hg	76 mm Hg	76 mm Hg
Air intake – engine	2092 m <sup>3</sup> /hr	2199 m <sup>3</sup> /hr	2473 m <sup>3</sup> /hr
Air flow – radiator (50°C)*	11.3 m <sup>3</sup> /s	14.8 m <sup>3</sup> /s	14.8 m <sup>3</sup> /s
Pusher fan head (duct allowance) 50°C*	13 mm Wg	13 mm Wg	13 mm Wg
Total heat radiated to ambient	85 kW	95 kW	99 kW
Engine derating – altitude	4% per 300 m above 1525 m	4% per 300 m above 1525 m	4% per 300 m above 1525 m
Engine derating – temperature	2% per 11°C above 40°C	2% per 11°C above 40°C	2% per 11°C above 40°C

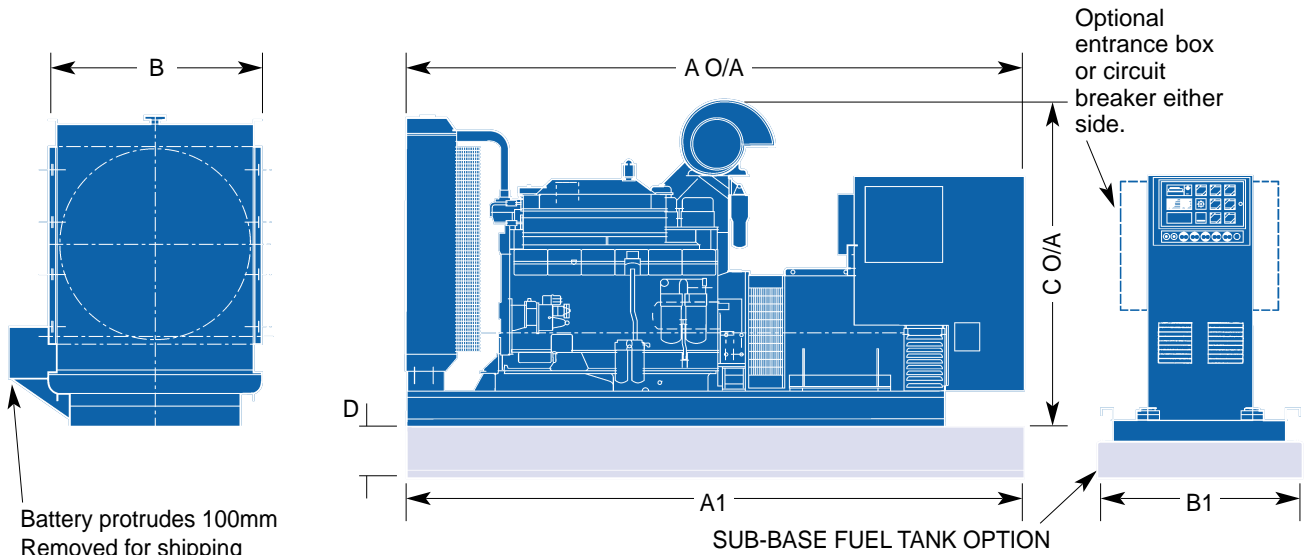
In accordance with ISO 8528, BS5514.

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.

\*Subject to factory verification.

# Dimensions and Weights – 60 Hz



Model	Engine	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				
DFEB	KTA19G2	3490	3875	1266	1350	1830	300	4136	4270	580	1580
DFEL	KTA19G3	3490	3875	1266	1350	1830	300	4276	4410	580	1580
DFED	KTA19G4	3490	3875	1266	1350	1830	300	4276	4410	580	1580

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.



See your distributor for more information.

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