

# Diesel Powered Generating Sets X Range - 50Hz (1 Phase)



Standard Genset Features	Generator Set Performance	Generator Set Options
<p>Cummins water cooled Diesel engine, Oil filter, standard fuel filter with water separator facility Lube-oil drain valve fitted Electric starter &amp; Charge alternator 12V D.C. Mechanical governor Heavy duty air filter Single bearing alternator, class H/H, IP23 Standard voltage 220 volts 50 Hz Exciter/Voltage reg - Torque Match as std PCC0300 with display unit 2/3 pole MCB Welded steel base frame with A/V mounting FRP fuel tank Tank capacity of min. 12 hours operation at 70% standby load Loose 14 dB(A) silencer Set mounted starting battery Engine &amp; Alternator Munsell Jade Green Radiator and Guarding black Packing under plastic bag Operation &amp; Maintenance manual Standard set of labels</p>	<p><b>Voltage Regulation</b> Maintains voltage output to within <math>\pm 1\%</math>. At any power factor between 0.8 and 1.0 At any variations from no load to full load. At any variations from Cold to Hot. At speed droop variations up to 4.0%. <b>Frequency Regulation</b> Isochronous under varying loads from no load to 100% full load when electronic governor is fitted. <b>Random Frequency Variation</b> Will not exceed <math>\pm 0.25\%</math> of its mean value for constant loads – no load to full load. <b>Waveform</b> Total voltage harmonic distortion on open circuit is less than 1.8%. With 3 Phase non distorting balanced linear load is less than 5.0%. <b>Telephone Influence Factor (TIF)</b> TIF less than 50. THF to BS 4999 Part 40 less than 2%. <b>Alternator Temperature Rise</b> Class H insulation.</p>	<p>1) PCC 1301 controller 2) Coolant heater 230V, 300W 3) CE Marking 4) Fitted Battery 12V 88 AH 5) Battery Charger     12V 6 amps 6) Electronic Governor 7) Sound attenuated canopy,     80 dB(A) at 1 meter 8) 500 ltrs fuel tank</p> <p><b>Voltage Connections</b> 220/240V, 1 Phase</p>
<p><b>Engine Specification</b> Cummins X1.7G1/X2.5G1/X2.5G2 In-line direct injection 2/3-cylinder diesel engine. <b>Type</b> Water cooled, four cycle, naturally aspirated <b>Construction</b> Two valves per cylinder, forged steel crankshaft and connecting rods, cast iron block. <b>Starting</b> 12 volt negative earth. Battery charging alternator 36 amp on engine. Cranking current 550 amps at 0°C. <b>Fuel System</b> 12 volt shut down coil. Spin-on paper element fuel filters with Bosch fuel pump injection system with integral mechanical governor. Dual flexible fuel lines and connectors. Standard fuel filter with water separator facility <b>Filters</b> Air cleaner with dry element and restriction indicator. Full flow lube oil filter. <b>Cooling</b> 50°C radiator as std. Drain Tap</p>	<p><b>Radio Interference</b> In compliance with BS EN 61000-6 and VDE levels G and N.</p>	
	<p><b>Alternator Specification</b> <b>Type</b> Brushless single bearing, revolving field, pole, drip proof, screen protected. Class H Insulation, IP23 Protection 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 BS 5625 grade 2.5. Sealed for life bearings. Layer wound mechanically wedged rotor.</p> <p><b>Exciter</b> Dip Impregnated, oil and acid resisting polyester varnish and coated with anti-tracking varnish.</p> <p>Output windings with 2/3 pitch for improved harmonics and paralleling ability. Close coupled engine/alternator for perfect alignment.</p>	<p><b>Compliance Standards</b> To BS4999/5000 pt 99, VDE 0530, UTE5100, NEMA MG1-22, CEMA, IEC 34, CSAA22.2, AS1359, BS 5514, ISO 3046 and ISO 8528</p>

## Technical Data

Generating Set	Genset Model	ES 17 D5	ES 22 D5	ES 28 D5
	Prime Power Rating kVA/kW	15/12	20/16	25/20
	Standby Rating kVA/kW	16.5/13	22/18	27.5/22
	Standby Rating Current (Amps)	74	102	125
	Make	Cummins Power Generation	Cummins Power Generation	Cummins Power Generation
	Specific Fuel Consumption (gms/bhp-hr) @ 100% Load	161	161	160
Engine	Model	X1.7G1	X2.5G1	X2.5G2
	BHP (Prime power)	20	32	32
	Cooling	Water cooled	Water cooled	Water cooled
	Aspiration	Natural	Natural	Natural
	No of Cylinders	2	3	3
	RPM	1500	1500	1500
	Bore (mm)	91.44	91.44	91.44
	Stroke (mm)	127	127	127
	Compression Ratio	18.5:1	18.5:1	18.5:1
	Displacement (ltrs)	1.7	2.5	2.5
	Fuel	No. 2D	No. 2D	No. 2D
	Governor	Mechanical A2	Mechanical A2	Mechanical A2
	Starting System	12V Electrical	12V Electrical	12V Electrical
	Lube Oil Specification	15W40	15W40	15W40
	Lube Oil Sump Capacity (ltrs)	5	6.5	6.5
Alternator	Make (Brand)	Newage (Stamford)	Newage (Stamford)	Newage (Stamford)
	Frame Size *	BC 184F	BC 184H	BC 184J
	Voltage	220 volts	220 volts	220 volts
	RPM/Frequency	1500rpm/50Hz	1500rpm/50Hz	1500rpm/50Hz
	No. Phases	1 phase	1 phase	1 phase
	Power Factor	0.8 (lag)	0.8 (lag)	0.8 (lag)
	Enclosure	IP 23	IP 23	IP 23
	Voltage Regulator (Max)	+/-1%	+/-1%	+/-1%
	Class of Insulation	H	H	H
	Recommended Cable size (Cu Armoured)	25 sq.mm (3 1/2 core)	35 sq.mm (3 1/2 core)	50 sq.mm (3 1/2 core)
Control Panel	Control	PCC 0300	PCC 0300	PCC 0300
	MCB /MCCB Rating	2 Pole, 80 amps	3 Pole, 100 amps	3 Pole, 125 amps
Fuel Tank	Capacity (ltrs)	55	55	55
Battery	Rating	12V 88 AH	12V 88 AH	12V 88 AH

\* Alternator Model/Frame size are subjected to change without notification. Please verify this at the time of order.

### Rating Definition:

#### Prime Power

Prime Power is available for an unlimited number of annual operating hours in variable load applications, in accordance with ISO8528-1.

A 10% overload capability is available for a period of 1 hour within 12-hour period of operation, in accordance with ISO3046-1

#### Standby Power Rating

The Standby Power Rating is applicable for supplying emergency power for the duration of a utility power interruption.

No overload, utility parallel or negotiated outage operation capability is available at this rating.

In installations served by unreliable utility sources (where outages last longer or occur more frequently), where operation is likely to exceed 200 hours per year, the prime power should be applied.

All ratings are based on the following reference conditions:

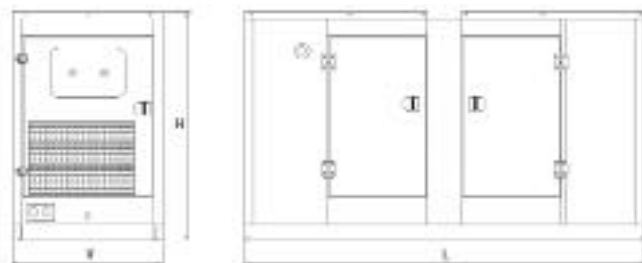
- Ambient temperature - 27°C

- Altitude above sea level - 150 metres

- Relative humidity - 60%

## Typical Genset Dimensions

Genset Model	Rating (kVA)	Length (mm)	Width (mm)	Height (mm)	Weight (kgs.) (Dry)
ES 17 D5	17	1305	680	1105	525
ES 22 D5	22	1400	680	1040	625
ES 28 D5	28	1515	680	1040	640



## Typical Acoustic Enclosure Dimensions

Genset Model	Length (mm)	Width (mm)	Height (mm)	Weight (kgs.) Dry
ES 17 D5	1850	900	1375	845
ES 22 D5	1850	900	1375	945
ES 28 D5	1850	900	1375	960