

60Hz/1800 r.p.m-P.F.0.8					Prime Power	Standby Power	Rated Current
Genset	Engine	Alternator	Voltage (V)	PH	kW/kVA	kW/kVA	Amps
FC400X-K	P158LE-1	LSA47.2VS2 HCI 444F FPA31-3007	380/220	3	320/400	352/440	607.8
		LSA47.2VS2 HCI 444E FPA31-2806	208/120	3	320/400	352/440	1110.3
		LSA47.2VS2 HCI 444E FPA31-2806	220/127	3	320/400	352/440	1049.8
		LSA47.2VS1 HCI 444E FPA31-2806	230/132	3	320/400	352/440	1004.1
		LSA47.2VS1 HCI444ES FPA31-2806	480/277	3	320/400	352/440	481.0

Ratings: All three Phase generator sets are rated at 0.8 power factor. All single-phase generator sets are rated at 0.8 or 1.0 power factor. POWERGEN reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever.

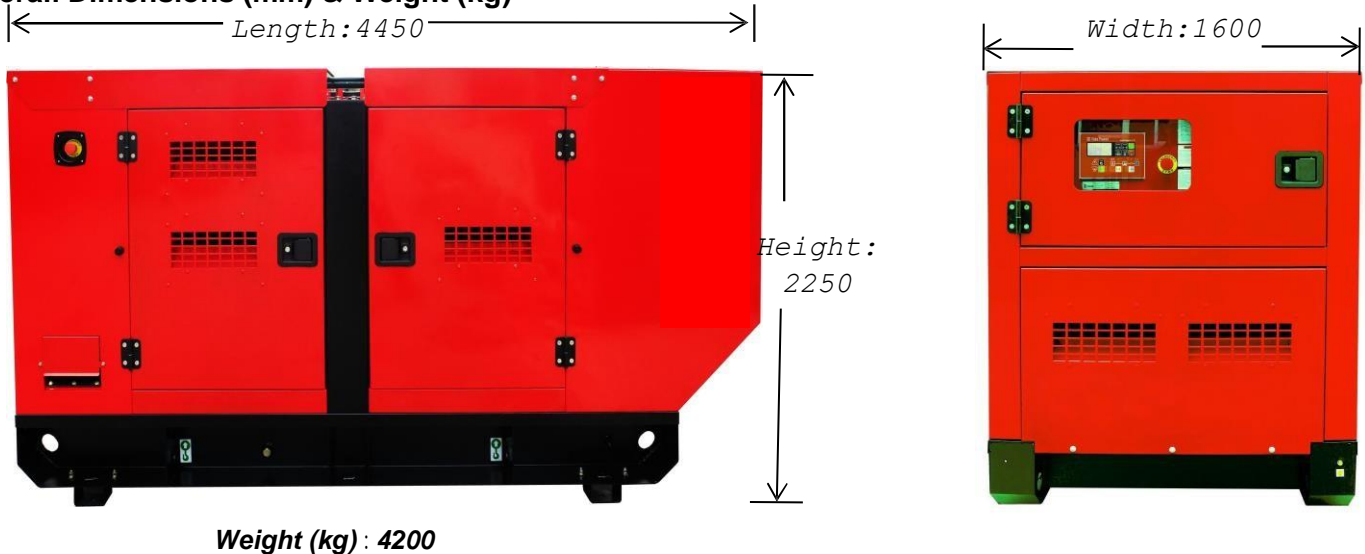
Prime Power:

Available continuously at variable load in lieu of commercially purchased power for an unlimited number of hours per year in accordance with ISO8528-1, and an overload of 10% permitted for one hour in every twelve hours of operation in accordance with ISO 3046-1.

Standby Power:

Emergency Standby Power in variable load applications in accordance with ISO8528-1 in the event of a utility power failure. No overload available for this service as relevant alternators are peak continuous rated at 27°C.

Overall Dimensions (mm) & Weight (kg)



Standard and optional accessories

System	Standard ●	Optional ○
Air Intake System	<ul style="list-style-type: none"> ● Standard air filter ● Air filter overload alarm 	<ul style="list-style-type: none"> ○ Air prefilter ○ Heavy air filter
Cooling System	<ul style="list-style-type: none"> ● 50°C radiator ● Low water level alarm ● Fan and belt guard 	<ul style="list-style-type: none"> ○ Antifreeze ○ Water jacket heater
Exhaust System	<ul style="list-style-type: none"> ● Discharge valve ● Stainless steel bellow ● Residential silencer ● Complete exhaust pipe 	<ul style="list-style-type: none"> ○ Stainless steel silencer ○ Stainless steel exhaust pipe
Fuel System	<ul style="list-style-type: none"> ● Rain cap ● 8 Hours integrated base fuel tank ● Standard fuel filter ● Fuel level gauge 	<ul style="list-style-type: none"> ○ 6 Hours double wall base fuel tank ○ Fuel-water separator ○ Oil level sensor ① ② ○ Automatic fuel top up system ①
Lubrication System	<ul style="list-style-type: none"> ● Fuel filling cap ● Fuel hose ● Standard oil filter ● Manual oil pump and drain 	<ul style="list-style-type: none"> ○ Oil heater ○ Lube oil level indicator
Alternator and Electric Switch	<ul style="list-style-type: none"> ● Shunt or self excited ● Class H insulation ● H class temperature rise ● DELIXI MCCB ● Terminal connection lugs (L1, L2, L3, LN) 	<ul style="list-style-type: none"> ○ Oil temperature indicator ① ○ PMG or AREP (Leroy-Somer only) ○ Alternator space heaters ○ PT100 winding temperature sensors ○ Weaver AVR ○ Weaver prolapse transformer <ul style="list-style-type: none"> ○ F class temperature rise ○ 4 Pole circuit breaker with leakage protection ○ Circuit breaker - 4 pole <ul style="list-style-type: none"> ○ ABB MCCB ○ MCCB auxiliary contact and shunt tripping device
Control System	<ul style="list-style-type: none"> ● Comap Nano Plus for 4 cylinders engine ● Comap IntelliLite AMF20 for 6 cylinders or ECU engine 	<ul style="list-style-type: none"> ○ Panel lighting
Silent / Base	<ul style="list-style-type: none"> ● 67-72 db(A) @ 3 meters ● 4mm -6mm Steel base ● Transportation support leg ● Single hook ● Power coating enclosure ● Anti-vibration mounting between engine /alternator and baseframe ● Emergency stop mounted outside the 	<ul style="list-style-type: none"> ○ Forklift holes ○ Enclosure color: ○ Trailer for off road or on road
Start / Charge	<ul style="list-style-type: none"> ● canopy ● Standard color: Ral 3020 ● Battery with bracket and cables ● Engine battery charger 	<ul style="list-style-type: none"> ○ Low temperature starting batteries ○ Battery switch ○ High current charger (10A, 20A)
Remark:	<ul style="list-style-type: none"> ● 3A Mains charger 	

① When you need the automatic oil top up system, you have to use the electrical oil level sensor.

② You can choose either electrical oil level sensor or oil temperature sensor.

Engine

Engine specifications	
Manufacture	DOOSAN DAEWOO
Engine Model	P158LE-1
Engine Type	4-Cycle, V-type
Engine Speed	1800 r.p.m
Prime Power	366 kW
Standby Power	402 kW
Governor Type	Electronic
Aspiration	Turbo charged & intercooled (air to air)
Displacement	14.618 L
Bore * Stroke	128mm x 142mm
NO. of Cylinders	8
Compression Ratio	15.0:1
Intake Air Flow	31.6 m3/min
Rotation	Counter clockwise viewed from flywheel
Mean Piston Speed	8.5 m/s
Noise Level @3m	67-72 dBA

Exhaust System	
Exhaust Gas Flow	73.5 m3/min
Exhaust Gas Temperature	500°C
Maximum Back Pressure	5.9 kPa
Exhaust Pipe Size	N/A

Air Intake System	
Max. static pressure after Radiator	0.125 kPa
Maximum Intake Air Restriction	
. With Clean Filter Element	2.16 kPa
. With Dirty Filter Element	6.23 kPa

Alternator

General Data	
Power Factor	Cos φ = 0.8
Excitation	Shunt / Brushless

Lubrication System	
Oil Capacity (Max.- Min.)	21-17 Litre
Lubrication Method	Fully forced pressure feed type
Oil Pump	Gear Type Driven by Crank-shaft Gear
Maximum oil temperature	120°C

Fuel System	
Type Injection System	Direct Injection
Fuel Feed Pump Capacity	315 liters / h
Fuel Consumption at 100% Standby Power	100.4 Litres/hour
Fuel Consumption at 100% Prime Power	91.3 Litres/hour
Fuel Consumption at 75% Prime Power	67.5 Litres/hour
Fuel Consumption at 50% Prime Power	46.5 Litres/hour
Fuel Consumption at 25% Prime Power	25.2 Litres/hour
Fuel Tank Capacity	6 hours

Cooling System	
Coolant Capacity- Engine Only	20 Litre
Coolant Capacity - with Radiator	80 Litre
Standard Thermostat (Modulating) Range	71-85°C
Maximum for Standby and Prime	103°C
Coolant Flow Rate	600 liters / min

Electric System	
Electrical System Voltage	24V
Battery	Maintenance-free
Connecting Cables	Available

Thermal Data	
Radiated Heat to Ambient	32.6-36.1 kW
Heat Rejection to Coolant	139.9-154.7 kW
Heat Rejection to Exhaust	321.7-355.9 kW

60Hz/1800R.P.M

Insulation Class	H
Bearing	Single
Altitude	≤ 1000 m

Ratings

Brand	Alternator	Number of wires	AVR Model	PH	Voltage (V)	Prime Power	Standby Power
						kW/kVA	kW/kVA
Leroy-Somer	LSA47.2VS2	12	R250	3	380/220	339/424	375/469
Stamford	HCI 444F		400/500			440/550	
Tide	FPA31-3007		330/413			363/454	
Leroy-Somer	LSA47.2VS2	12	R250	3	208/120	363/454	400/500
Stamford	HCI 444F		320/400			348/435	
Tide	FPA31-2806		336/420			370/463	
Leroy-Somer	LSA47.2VS2	12	R250	3	220/127	365/456	414/518
Stamford	HCI 444E		336/420			364/455	
Tide	FPA31-2806		336/420			370/463	
Leroy-Somer	LSA47.2VS1	12	R230	3	230/132	318/398	365/456
Stamford	HCI 444E		352/440			380/475	
Tide	FPA31-2806		336/420			370/463	

Leroy-Somer LSA47.2VS1

R230

Stamford	HCI444ES	12	AS440			322/402	374/467
				3	480/277	335/419	365/456
Tide	FPA31-2806		SX440			336/420	370/463



Comap Nano Plus

Comap IntelliLite AMF20

Comap IntelliLite AMF25

Viewable parameters	Phase voltage	3	3	3
	Wire voltage	3	3	3
	Current	Instrument	3	3
	Frequency	●	●	●
	Active power	×	●	●
	Reactive power	×	●	●
	Apparent power	×	●	●
	Power factor	×	●	●
Generator protection	Electric energy metering	×	×	●
	Abnormal voltage	●	●	●
	Over-current warning	×	●	● Over
	current protection	×	●	● Over
	Frequency protection	●	●	● Short
Engine figure	circuit protection	MCCB	MCCB+o	MCCB+o
	Oil pressure	●	●	●
	Water temperature	●	●	●
	Fuel level	○	○	○
	Speed	●	●	●
	Battery voltage	●	●	●
Engine protection	Elapsed time	●	●	● Low
	oil pressure warning	●	●	● Low oil
	pressure protection	●	●	● High
	temperature warning	●	●	●
	High temperature protection	●	●	●
	Overspeed warning	●	●	●
	Overspeed protection	●	●	●
Function	Charge fault	●	●	●
	Remote start-stop	●	●	●
	AMF	●	●	●
	Programmable input	3	7	7
	Programmable output	6	7	7
	Port extension	USB	○	○
	Remote monitoring	×	○	○
	Communication port	×	○	○ CAN
	● ○ ● Start/Stop time control			×
	× ● Maintenance tips		×	×
● Fault record	×	×	●	
Multi-language function	×	●	●	
Remark:	● Standard	○ Optional	×	NA

(Safety Installation: Detect - Control – Switch System)

POWERGEN offers not only a changeover switch but also an integrated mains detection and switch system for your 24 Hour Power Protection. The system enables automatic start-up and operation of the generating set in the event of a mains power failure, overvoltage or loss of phase; and also mains automatic re-transfer once it come back. The system has a wide application such as hospital, bank, telecom, air port, broadcasting station and hotels.

System Advantages

- Automatically transfer and re-transfer load from main power to gen-power without operator intervention.operation. (Both automatic and manual)
- ATS Controller (AMF function), seamless integration with Intelligent 5.0
- Available from 32 – 3200A, better protection for 4 pole switch.
- Available in standard, bypass isolation and service-entrance configurations.
- Configurable in open, closed and programmed transition operating modes.
- Designed to interface seamlessly with POWERGEN generators and switchgear.
- Drip Proof IP23 Enclosure.
- Easy Installation: Wall-mounted & Floor standing
- Comes fully loaded with the technology to do the job.



Rated Current	Breakey Type			
	A	Chinese	ABB	Socomec
32	x		B	x
63	A		B	B
80	x		x	B
100	A		B	B
125	x		B	B
160	B		B	B
200	x		B	x
250	C		B	B
300	x		x	x
315	x		C	x
400	C		C	C
630	C		D	D
800	D		D	D
1000	D		D	D
1250	D		D	D
1600	D		D	E
2000	E		E	E
2500	E		E	E
3200	E		x	E

Dimensions : mm

A : 400x200x500

B : 500x300x650

C : 600x400x1200

D : 800x600x1400

E : 1000x800x1600



Controller

StandardParameters

- Gen phase voltage
- Generator frequency
- Engine speed
- Battery voltage
- Engine running hours counter
- Engine temperature
- Oil pressure



WarningandShutdownAlarms

- Low oil pressure
- High engine temperature
- Over speed
- Under speed
- Start failure
- Stop failure
- Emergency stop
- High/low battery voltage
- Aux. shutdown alarm
- Aux. Warning