Prime Model:P20P
Emergency Model:P22E

DIESEL GENERATOR SET 190V-440V 3P4W

ISO 9001:2000

SWT DIESEL GENERATOR SET

Rating Range

		1500RPM 50Hz
Standby:	kW	17.6
	kVA	22
Prime:	kW	16
	kVA	20

GENERATOR SET RATINGS

Alternator Model	BCI184E(STAMFORD)				LSA 42.2 S5(LEROY SOMER)		
Frequency and Speed	50Hz 1500rpm				50Hz 1500rpm		
Prime Power Data							
Class-TEMP Rise(℃)	Cont.H -125K/40℃				Cont.H -125K/40℃		
Voltage series star	380	400	415	440	380	400	415
Voltage parallel star	190	200	208	220	190	200	208
Voltage series delta	220	230	240	254	220	230	240
Rating capacity(kVA)	22.5	22.5	22.5	17.5	20.0	20.0	20.0
Rating power(kW)	18.0	18.0	18.0	14.0	16.0	16.0	16.0
Power efficiency(%)	83.7	84.2	84.5	84.9	87.0	87.0	87.0
Input power(kW)	21.5	21.4	21.3	21.2	18.4	18.4	18.4

Standby Power Data

Class-TEMP Rise(℃)	Standby.H -150K/40℃				Standby.H -150K/40℃		
Voltage series star	380	400	415	440	380	400	415
Voltage parallel star	190	200	208	220	190	200	208
Voltage series delta	220	230	240	254	220	230	240
Rating capacity(kVA)	N/A				24.0	24.0	24.0
Rating power(kW)					19.0	19.0	19.0
Power efficiency(%)					87.0	87.0	87.0
Input power(kW)					21.9	21.9	21.9

Standard Features and Characteristics

● QUALITY STANDARDS

- ○ The SUPERWATT generator set compliance with all main standards, such as ISO8528（GB/T2820-97), GB755, BS5000, VDE0530, ISO3046, IEC34-1, CSA22-2, AS1359, ISO14001.
- ○ Diesel engine and alternator OEM authorization certificate and their quality assurance.
- ○ Other standards and certifications can be considered on request.

● ASSEMBLY

- ○ The engine and alternator are close coupled by means of an SAE flange . A full torsional analysis has been carried out to guarantee no harmful vibration will occur。
- ○ Anti-vibration pads are affixed between engine alternator feet and the baseframe. Thus ensuring complete vibration isolation of the rotating assemblies and enabling the machine to be placed on an uneven surface without any detrimental effects.
- ○ For durability and corrosion resistance, all iron and steel surfaces of canopy fabrications have been treated for coating by grit blast cleaning. Then covered by a polyester powder paint which provides an excellent corrosion resistant surface.

● CONTROL SYSTEM AND PROTECTION

- ○ Controllers are available for all applications. The controller system is used to start and stop the engine , indicate electric date and protect the generator set.See controller features inside.
- ○ The revolving parts are covered by safety net , and the place which easy to scald and got an electric shock all to have the obvious warning slogan

● WARRANTY

- ○ SUPERWATT Company provides one-source responsibility for the generator set and accessories.
- ○ Each SUPERWATT generating set has been got through 2 hours load test for running 0%,25%,50%,75%,100% and 110% load, all protective devices and control function are stimulated and checked before dispatch.
- ○ All equipment is guaranteed for the period of 1000 hours or 12 mouths from the date of commissioning or 18 months from shipping, whichever occurs first.
- ○ Convenience for operation and maintenance, backed by PERKINS ,NEWAGE(CUMMINS) and LEROY SOMER global service network.

RATINGS: All three-phase units are rated at 0.8 power factor. **Standby ratings :** Standby ratings apply to installations served by a reliable utility source. The standby rating is for this rating. Ratings are in according with ISO-3046/1,BS 5514 ,AS 2789 , and DIN 6271. **Prime Power Ratings:** Prime power ratings apply to installations where utility power is unavailable or unreliable. At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528/1, overload capacity in accordance with ISO-3046/1,BS 5514, AS 2789, and DIN 6271. For limited running time and base load ratings, consult the factory. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. **GENERAL GUIDELINES FOR DERATION: Altitude:** Derate 2.0% per 300m(984 ft.) elevation above 1000m(3279 ft.) up to a maximum elevation of 2450m(8000 ft.).More than 2450m(8000ft), please contacts with us or our dealer seek the help. **Temperature:** Derate 6.0% per 11 ℃ (20℉) temperature above 40℃ (104℉).

ALTERNATOR

Specification	1500RPM 50Hz
Type	4-Pole, Rotating Field
Exciter type	Brushless, Self excited
Voltage regulator	Solid State, Volts/Hz
Voltage regulation	≤1.5%
Insulation	Class H
Protection	IP23
Rated power factor	0.8
Stator winding	Double layer concentric
Winding pitch	Two thirds
Winding leads	12
Maximum overspeed	2250 Rev/min
Sustained short circuit	Self excited machines do not sustain a short circuit current
Waveform distortion	No load < 1.5%
	Non-distorting balanced linear load < 5.0%
Altitude	≤1000 m

- Alternators meet the requirement of BS EN 60034 and the relevant section of other international standards such as BS5000, VDE 0530, NEMA MG1-32, IEC34, CSAC22.2-100, As1359, and other standards and certifications can be considered on request.
- The 2/3 pitch design avoids excessive neutral currents. With the 2/3 pitch and carefully selected pole and tooth designs, ensures very low waveform distortion.
- Brushless alternator with brushless pilot exciter for excellent load response.
- The insulation system is class H, easy paralleling with mains or other generators, standard 2/3 pitch stator windings avoid excessive neutral currents.
- Backed by worldwide service network

DIESEL ENGINE

- 404D-22G diesel engines are manufactured by Perkins Engines Company Limited(UK).

Engine Specifications	1500RPM 50Hz
Manufacturer	Perkins(UK)
Number of cylinders	4
Cylinder arrangement	Vertical in-line
Cycle	Four stroke
Induction system	Naturally aspirated
Compression ratio	23.3:1
Bore	84 mm (3.3 in)
Stroke	100 mm (3.9 in)
Cubic capacity	2.216 litres (135 in^3)
Direction of rotation	Clockwise viewed from front
Firing order	1, 3, 4, 2
Max.Power at rated rpm,kW	20.6
Estimated total weight (dry)	242 kg (533 lb)
Frequency regulation,steady state	+0.25%
Frequency	Fixed
Air cleaner type,al lmodels	Dry
Mean piston speed	5 (16.4) m/s (ft/s)
Combustion air flow	1,45 m^3 /min

Exhaust

Exhaust System	1500RPM 50Hz
Maximum back pressure	10,2 kPa (3.0 in Hg)
Exhaust outlet size	42 mm (1.65 in)
Exhaust gas flow (max)	3,94m /min
Exhaust gas temperature (max)	505℃(914℉)

Lubrication

Lubrication system	1500RPM 50Hz
Total system	10.6 litres
Minimum	8.9 litres
Relief valve opens	304 - 500 kPa (44.1 - 72.5 lbf/in^2)
Normal oil temperature	125℃ (257 ℉)

Engine Electrical

Engine Electrical System	1500RPM 50Hz
Battery charging alternator:	
Ground(negative/positive)	Negative
Volts(DC)	12V
Ampere rating	15A
Starter motor rated voltage(DC)	12V
Starter motor rated Capability	1.1KW
Battery voltage	12V

Fuel

Fuel System	1500RPM 50Hz
Type of injection	Indirect injection
Fuel injection pump	Cassette type
Fuel injector	Pintle nozzle
Nozzle opening pressure	14,7 MPa (2133 lbf/in^2)

Fuel lift pump	1500RPM 50Hz
Flow/hour	63 litres/hr (16.6 UK gals/hr)
Pressure	10 kPa (1.45 lbf/in^2)
Maximum suction head	0,8 m (2.6 ft)
Maximum static pressure head	3 m (9.84 ft)
Governor type	Mechanical
Fuel specification	
Density (kg/l @ 15 ℃)	0,835 - 0,855
Viscosity (mm^2/s @ 40℃)	2,0 - 4,5
Sulphur Content	0.2% mass, maximum
Cetane Number	45 minimum

Fuel consumption 1500RPM 50Hz

Power rating %			
g/kWh (litres/hr)			
110	100	75	50
254 (6.2)	243 (5.4)	243 (4.0)	265 (2.9)

Cooling System

Radiator	1500RPM 50Hz
Face area	0.167 m (1.58 ft^2)
Rows and materials	2 Rows, Aluminium
Matrix density and material	14,5 FPI Aluminium
Width of matrix	334 mm
Height of matrix	500 mm
Pressure cap setting	90 kPa (13.05 lb/in^2)
Estimated cooling air flow reserve	0.125 kPa

Fan	1500RPM 50Hz
Diameter	320 mm (12.6 in)
Drive ratio	1.25:1
Number of blades	7
Material	Plastic
Type	Pusher

Coolant	1500RPM 50Hz
Total system capacity	
with radiator	7.0 litres
without radiator	3.6 litres
Drain down capacity	TBA litres (UK pints)
Maximum top tank temperature	110 ℃ (230℉)
Minimum temperature to engine	TBA ℃ (℉)
Temperature rise across engine	TBA ℃ (℉)
Max permissible external system resistance	TBA kPa (lbf/in^2)
Thermostat operation range	82 - 95℃

Recommended coolant:

50% ethylene glycol with a corrosion inhibitor (BS 6580 :1992 or ASTM D3306-89 or AS2108) and 50% clean fresh water.

CONTROLLERS

DSE 702 MANUAL CONTROLLER

The Model 702 is a Manual Engine Control Module designed to control the engine via a key switch and pushbuttons on the front panel. The module is used to start and stop the engine and indicate fault conditions, automatically shutting down the engine and indicating the engine failure by LED, giving true, first up fault annunciation.

Panel introduction:

- Indicator type frequency, voltmeter and ampere meter demonstration unit's electrical parameter.
- The voltage change-over switch and the rheotrope uses for to choose the different phase voltage and current to display.
- The big red button uses for the operator to stop the genset peremptorily
- The oil pressure gauge, coolant temperature gauge and the battery voltage gauge.
- The controller. And an integral anti-tamper LCD hours run counter is also provided.
- If the customer needs to use the preheating function, we will be able to increase the preheating button.

Protection:

Low Oil Pressure
High Engine Temperature
Auxiliary Shutdown
Over speed

DC Supply: 8 to 35 V Continuous.

DSE 704 AMF CONTROLLER

The DSE704 is an Automatic Mains Failure module with generator monitoring, protection and start facilities. It utilises advanced surface mount construction techniques to provide a compact yet highly specified module. This model can start the unit automatically when the MAINS failure and than control the ATS turn to the genset side. Operation of the module is via three pushbuttons mounted on the front panel with STOP, MANUAL and AUTO positions.

Panel introduction:

- Indicator type frequency, voltmeter and ampere meter demonstration unit's electrical parameter.
- The voltage change-over switch and the rheotrope uses for to choose the different phase voltage and current to display.
- The oil pressure gauge, coolant temperature gauge and the battery voltage gauge.
- The controller.
- Preheating button.

Protection:

Over Speed Shutdown.
Low Oil Pressure Shutdown.
High Engine Temp Shutdown.
Charger failure alarm.
Mains failure alarm.
Optional Under speed Protection.

DC Supply: 8 to 35 V Continuous.

PCRC210/220 INTELLIGENT CONTROL SYSTEM

The AMF25 is an Automatic Mains Failure module with generator monitoring, protection and start facilities. The controller has a large LCD screen, display the generator's each parameter, running and alarm information. The off/replacement button, mode switch button , start/stop button and the LED indicator light, makes the user easy to operate and maintain the generator.

Panel introduction:

- Indicator or digital type frequency, voltmeter and ampere meter demonstration unit's electrical parameter.
- The big red button uses for the operator to stop the genset peremptorily
- The controller.

Function:

- Communication: RS232 connection, uses the industry rank MODBUS protocol can easily communicate with others intelligence control system.
- Display function: LCD screen can display the generator's parameter and the control system's running information.
- Set up parameter: Engineer can set up the controller parameter from the control panel or through the PC, 6 programmable fan-out may satisfy the user each kind of demand.
- Protection: The control system can protect the generator set , manage each kind of electrical failure.
- Control Function of ATS.

DC Supply: 8 to 35 V Continuous.

NOTE: More functions or please refer to website www.genset.cn. Extra demand please contacts our sales engineer.

Standard Features and Accessories

Standard Features

- Battery, Battery Rack and Battery Cables
- Integral Vibration Isolation
- Oil Drain Extension
- Air cleaner ,Heavy Duty
- 3 Pole Circuit Breaker
- Heavy duty industrial type exhaust silencer with flexible pipe(supplied loose).

Maintenance and Literature

- General Maintenance Literature Kit
- Test Certificate and design paper
- Quality certificate and Maintenance card

Accessories

Enclosed Unit

- ☐ Sound Enclosure
- ☐ Weather Enclosure (with enclosed critical silencer)
- ☐ Weather Housing (with roof-mounted critical silencer)
- ☐ Trailer(Causes the genset easily to move)

Open Unit

- ☐ Exhaust Silencer, Critical kit
- ☐ Flexible Exhaust Connector, Stainless Steel

Cooling System

- ☐ Block Heater (recommended for ambient temperatures below 0℃)
- ☐ Radiator Duct Flange
- ☐ Remote Radiator Cooling

Fuel System

- ☐ Auxiliary Fuel Pump
- ☐ Flexible Fuel Lines
- ☐ Mechanical dipstick or fuel level sensor
- ☐ Subbase Fuel Tank with Day Tank
- ☐ Fuel fill cap with breather
- ☐ 10 hours running tank
- ☐ Automatic fuel--providing device
- ☐ Hand primer pump

Electrical System

- ☐ Battery Charger, Equalize/Float Type

Engine and Alternator

- ☐ 3 or 4 Pole Circuit Breaker with Shunt Trip
- ☐ Fuel/Water Separator
- ☐ Oil Preheater
- ☐ Air Preheater
- ☐ Alternator Strip Heater

Maintenance and Literature

- ☐ Maintenance Kit (includes air, oil, and fuel filters)
- ☐ Overhaul Literature Kit

Paralleling System

- ☐ Reactive Droop Compensator
- ☐ Voltage Adjust Control
- ☐ Voltage Regulator Relocation Kit

Controller System

- ☐ Common Failure Relay Kit
- ☐ Customer Connection Kit(Except Open Style)
- ☐ Communications Products and PC Software
- ☐ Engine Pre-alarm Sender Kit
- ☐ Remote Annunciator Panel
- ☐ Remote Audiovisual Alarm Panel
- ☐ Remote Emergency Stop Kit
- ☐ PCRC series control system, with RS232 or RS485 communication connection and communication agreement.

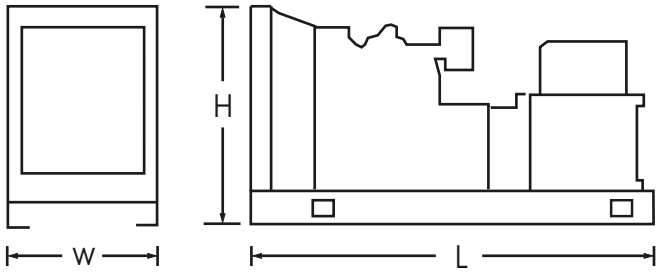
Miscellaneous Accessories

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

Dimensions and Weights

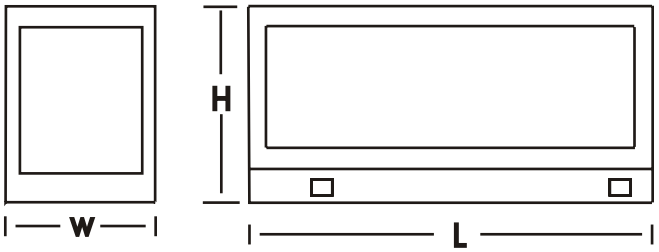
Open Style

Overall Size, L×W×H，mm	1550×730×1245
Weight(radiator model),net,Kg	460Kg



Soundproof Style

Overall Size, L×W×H，mm	1850×760×1150
Weight(radiator model),net,Kg	700Kg



NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

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