

## DIESEL GENERATOR SET

### Rating Range

		1500RPM	50Hz
<b>Standby:</b>	kW	22	
	kVA	27	
<b>Prime:</b>	kW	20	
	kVA	25	



### GENERATOR SET RATINGS

Alternator Model	PI 114F (STAMFORD)
Frequency and Speed	50Hz 1500rpm

#### Prime Power Data

Class-TEMP Rise (°C)	Cont.H -125K/40°C			
	Voltage series star	380	400	415
Voltage parallel star	190	200	208	220
Voltage series delta	220	230	240	254
Rating capacity (kVA)	25.0	25.0	25.0	25.0
Rating power (kW)	20.0	20.0	20.0	18.0
Power efficiency (%)	85.3	85.8	86.0	86.4
Input power (kW)	22.8	22.6	22.6	21.8

#### Standby Power Data

Class-TEMP Rise (°C)	Cont.H -125K/40°C			
	Voltage series star	380	400	415
Voltage parallel star	190	200	208	220
Voltage series delta	220	230	240	254
Rating capacity (kVA)	27.0	27.0	27.0	25.0
Rating power (kW)	23.2	23.2	23.2	19.0
Power efficiency (%)	84.7	85.3	85.6	87.2
Input power (kW)	25.8	25.6	25.5	23.6

### Standard Features and Characteristics

#### ● QUALITY STANDARDS

- Diesel engine and alternator OEM authorization certificate and their quality assurance.

#### ● 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 base frame. 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 special three layers painting 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 data and protect the generator set. See controller features inside.
- The revolving parts are covered by safety net, and the place which is easy to scald and get an electric shock all to have been put on obvious warning slogan.

#### ● WARRANTY

- Company provides one-source responsibility for the generator set and accessories.
- Each 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 simulated and checked before dispatch.
- Engine and Alternator are guaranteed for a period of 12 months from the date of commissioning or 18 months from shipping, whichever occurs first.
- Convenience for operation and maintenance, backed by STAMFORD global service network.

**RATINGS:** All three-phase units are rated at 0.8 power factor. Standby ratings: Standby ratings apply to installation served by a reliable utility source. The standby rating is for this rating. Ratings are in accordance 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, AS2789, 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% per 300m (984ft.) elevation above 1000m (3279ft.) up to a maximum elevation 2450m (8000ft.). More than 2450m (8000ft.), please contact with us or our dealer seek the help.

**Temperature:** Derate 6.0% per 11°C (20°F) temperature above 40°C (104°F).

*Specifications are subject to change without prior notice.*

## DIESEL GENERATOR SET

### ALTERNATOR

<b>Alternator model</b>	<b>PI 114F</b>
Manufacturer	STAMFORD
Frequency and Speed	50Hz/1500rpm
Voltage (V)	230/400
Prime capacity (kVA)	27.5
Prime power (kW)	22
Power efficiency (%)	86.3
Input power (kW)	25.5
Voltage regulation	±1.0%
Rated power factor	0.8
Stator winding	2/3
Maximum over speed	2250min <sup>-1</sup>
Sustained short circuit	134Amps
Cooling Air (m <sup>3</sup> /s)	0.09

- 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, CSAC22.2.2-100, 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 generator, standard 2/3 pitch stator windings avoid excessive neutral currents.

### DIESEL ENGINE

#### Application Data

Engine Specification	1500RPM 50HZ
Model	4JB1
Type	Water-cooled, In-line Vertical 4-cycle, Direction injection.
Continuous power (kW)	24
Standby power (kW)	26
Aspiration	Natural
Bore x Stroke (mm)	93 x 102
Displacement (L)	2.771
Piston speed (m/s)	5.1
Compression ratio	18.2
Speed stability bandwidth	≤ ± 0.8%
Steady governing rate	≤ 5%
Exhaust temperature (°C)	500
Exhaust back pressure (KPa)	15
Lub. Temperature/capacity (°C /L)	120 / 5.5
BMEP (KPa)	750
Head injection to cooling (kW/min)	21.6
Cooling system volume (L)	4.5
Cooling air flow (m <sup>3</sup> /min)	96
Combustion air flow (m <sup>3</sup> /min)	2.08
Exhaust gas flow (m <sup>3</sup> /min)	5.24
Rating fuel consumption (L/h)	5.6

#### Exhaust

Exhaust System	1500RPM 50HZ
Maximum back pressure	15.0 kPa
Exhaust gas flow (max)	5.24m <sup>3</sup> /min
Exhaust gas temperature (max)	500°C (1022°F)

#### Lubrication

Lubrication System	1500RPM 50HZ
Total System	5.5 liters
Normal oil pressure	0.3-0.55MPa
Normal oil temperature	120°C

#### Engine Electrical

Engine Electrical System	1500RPM 50HZ
Battery charging alternator:	
Ground (negative/positive)	Negative
Volts (DC)	24V
Ampere rating	TBAA
Starter motor rated voltage (DC)	12V
Starter motor rated Capability	TBA kW
Battery voltage	12V

#### Fuel

Fuel System	1500RPM 50HZ
Fuel injection opening pressure	18.6-19.6MPa
Fuel consumption at rating speed	5.6 liter/hour

#### Cooling System

Cooling System	1500RPM 50HZ
Total system capacity	
With radiator	20 liters
Without radiator	4.5 liters
Fan cooling air flow	1600 liters/s
Coolant outlet temperature	75-85°C
Maximum water tank temp.	100-105°C

#### NOTE:

All data is based on:

1. Engine operating with fuel system, water pump, lubricating oil pump, air cleaner and exhaust silencer; not included are battery charging alternator, fan, and optional driven components.

2. Engine operating with fuel corresponding to grade No. 2-D per ASTM D975.

3. ISO 3046, Part 1, Standard Reference Conditions of:

Barometric Pressure : 100 kPa (29.53 in Hg)

Air Temperature : 25°C (77°F)

Altitude : 110 m (361 ft)

Relative Humidity : 30%

Air Intake Restriction : 254 mm H<sub>2</sub>O (10 in H<sub>2</sub>O)

Exhaust Restriction : 51 mm Hg (2 in Hg)

TBA: To Be Determined

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## DIESEL GENERATOR SET

### CONTROLLERS

#### GCU-10 AUTOMATIC ENGINE CONTROL



The Model GCU-10 is an Automatic Engine Control Module, designed to meet the generator industry. The module starts and stops the generator and the fault conditions, if it senses a fault it will automatically shuts down the engine and indicates the engines failure by means of eight LED's. The technician can program the module according to different generator requirements complying with different conditions and protections.

Operation of the GCU-10 is by a three position waterproof switch, indicating AUTO, OOF, and MANUAL.

Two LED's indicate POWER ON and ENGINE RUNNING and the other eight LED's indicate the operational status and fault conditions of the genset. Each LED's indicates; engine start failure, high water temperature, low oil pressure, over sped, under speed, emergency stop, and low battery voltage. An extra LED and corresponding input can be defined by the technician as a failure; each LED has picture-graph that are universally recognized.

## DIESEL GENERATOR SET

### 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°C)
- Radiator Duct Flange
- Remote Radiator Cooling

#### Fuel System

- Auxiliary Fuel Pump
- Flexible Fuel Lines
- Mechanical dipstick or fuel level sensor
- Sub base 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
- Fuel/Water Separator
- Oil Preheated
- Air Preheated
- 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

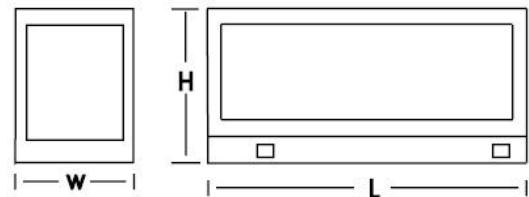
- Common Failure Relay Kit
- Customer Connection Kit (Except Open Style)
- Communications Products and PC Software
- Engine Pre-alarm Sender Kit
- Remote Annunciator Panel
- Remote Audiovisual Alarm Panel
- Remote Emergency Stop Kit
- PCRC series control system, with RS232 or RS485 communication connection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

#### Miscellaneous Accessories

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- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

### Dimensions and Weight

Soundproof Style	
Overall Size, L X W x H, mm	1985 x 725 x 1020
Weight (radiator model), net, Kg	880Kg



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

**DISTRIBUTED BY:**

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