Diesel Generator

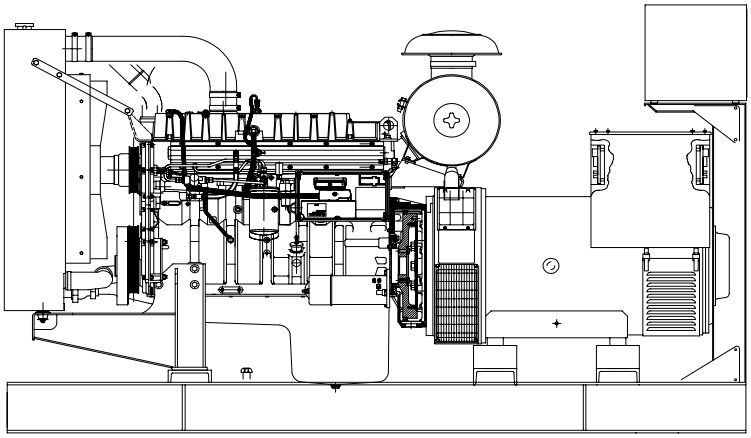
CJ250PN

CUKUROVA GENERATOR SYSTEMS

1500 Rpm, 50Hz, 400V

Perkins 1306C-E87TAG4 diesel engine

Newage/Stamford HCI444C alternator



ISO 9001:2000

Cukurova is a fully accrediated ISO 9001:2000 company

This generator is available with CE certification

Cukurova is accrediated with Gost certification

Standard Generator Features

- AMF, Automatic mains failure unit
- Heavy duty type, 6 cylinder, water cooled engine
- 50°C tropical type radiator
- Starter motor
- Lead acid battery
- Charging alternator
- Battery charge redressor
- Heavy duty, brushless type alternator
- Base frame with anti-vibration units
- Industrial type silencers
- Flexible exhaust compensator
- Block water heater unit
- Control panel with digital-automatic main control module
- Fan, fan drive, charging alternator drive and all rotating parts covered
- Radiator matrix covered by metal mesh against the mechanical damages
- Fabricated and welded steel base frame
- Anti-vibration mountings
- Engine and alternator manufacturer test reports
- Factory load, performance and function tests

Optional Features

- Automatic load transfer panel
- Automatic syncronization and power sharing systems
- Soundproof canopy
- Container type enclosers
- Road trailer
- Job-site trailer
- Protection circuit breaker
- Air start
- Remote type radiator
- Base fuel tank
- External type fuel tank
- Automatic fuel transfer system
- Residential silencer

Model	Standby		Prime	
	kVA	kW	kVA	kW
CJ250PN	**251**	**201**	**229**	**183**

APPLICATION DATA

Perkins 1306C-E87TAG4 Engine

Standard Features

High Performance Productive Power

◇Hydraulically actuated Electronically controlled Unit Injectors-high-pressure fuel injection gives consistent, reliable high performance.

◇Constant electronic engine management and monitoring enable precise fuel metering and injection timing to ensure reliable low temperature starting, superb economy with performance and very close governing.

Quiet, Clean Power

◇A rigid structure minimises noise transmission and helically cut gears provide quiet power transfer to auxiliaries.

◇Forced induction and electronic fuel injection control combine to reduce combustion noise while electronically optimised fuel/air mixing ensures complete combustion resulting in virtually smoke free operation with emissions capability matching current and future emissions legislation.

Durable Power

◇A fully balanced induction-hardened steel crankshaft gives smooth performance with minimised bearing loads.

◇Oil cooled pistons with keystone top and second rings give longer life while positive rotational valves and roller cam followers reduce wear on valve seats, tappets and cam lobes.

Reliable Power

◇Cylinder head coolant is directed to valve bridges and injectors and lub oil is cooled in a high efficiency oil cooler, both features enhancing engine reliability.

◇Electronic safety shutdown option protects the engine while event and fault warning codes protect operations.

Technical Specifications

Manufacturer	PERKINS
Model	1306C-E87TAG4
Type	4 cycle, water-cooled, diesel engine
Number of cylinders	6
Cylinder arrangement	Vertical In-line
Displacement, Liters	8.7
Bore X Stroke, mm	116.6 X 135.9
Compression Ratio	16.9:1
Combustion System	Direct injection
Aspiration	Turbocharged, air to air charge cooled
Rotation	Anti-clockwise, viewed on flywheel
Gross engine power, kWb	224
Fan Power, kWm	7
BMEP gross, bar	20.55
Combustion air flow, m³ / min	14.9
Exhaust gas temp.(after turbo), °C	526
Exhaust gas flow (after turbo),m³ / min	40.3
Mean piston speed, m / s	6.8

Cooling System

Type	Tropical, heavy duty type
Ambient temperature, °C	50
Engine+Radiator coolant cap., Liters	37.2
Pressure cap setting, kPa	68.9

◇Thermostatically controlled cooling system with belt-driven circulating pump and 24 inch belt-driven fan

◇Radiator mounted with all guards and pipes

◇Air/air charge cooler incorporated in radiator

◇Coolant filter/conditioner

Model	Standby kW		Prime kW	
	Gross	Net	Gross	Net
1306C-E87TAG4	**224**	**217**	**204**	**198**

Lubricating System

Type	Pressurized
Capacity, Liters	28.3
Lub oil pressure (min), kPa	552

◇Wet rear well steel sump with filler and disptick

◇Full-flow spin-on filter

◇Tube-type oil cooler thermostatically controlled

Fuel System

Type of injection system	Direct injection
Fuel atomiser	Heui
Fuel Feed Pump	Bosch
Hydraulic pump	Rexroth
Delivery/hour at 1500rev/min, Liters	180
Governor type	Electronic

◇Electronic governing to ISO3046-4 with stand alone isochronous or load sharing capabilities

◇Hydraulically actuated electronically controlled unit fuel injectors with full authority electronic control

◇Spin-on fuel filter with pre-filter and hand primer pump

Electrical System

Alternator	24 Volt Lucas AC5R, 45 Amp
Starter motor (DC)	24 Volt Lucas S115

◇Electronic Control Module mounted on engine with wiring looms and sensors

◇3 level engine protection system

Fuel Consumption

liters per hour	%110 Load	53 L
	%100 Load	48.5 L
	%75 Load	37.5 L
	%50 Load	26.1 L
grams per kWh	%110 Load	198.7 g/kWh
	%100 Load	199.7 g/kWh
	%75 Load	205.9 g/kWh
	%50 Load	214.9 g/kWh

Newage/Stamford HCI444C Alternator

Standard Features

Winding&Electrical Performance

All generator stators are wound to 2/3 pitch.This eliminates triplen (3rd, 9th, 15th...) harmonics on the voltage waveform and is found to be the optimum design for trouble-free supply of non-linear loads.The 2/3 pitch design avoids excessive neutral currents sometimes seen with higher winding pitches, when in parallel with the mains.A fully connected damper winding reduces oscillations during paralelling.This winding, with the 2/3 pitch and carefully selected pole and tooth designs, ensures very low waveform distortion.

SX440 AVR

With this self-excited system the main stator provides power via the Automatic Voltage Regulator (AVR) to the exciter stator. The high efficiency semi-conductors of the AVR ensure positive build-up from initial low levels of residual voltage.

The exciter rotor output is fed to the main rotor through a three-phase full-wave bridge rectifier. The rectifier is protected by a surge suppressor against surges caused, for example, by short circuit or out-of-phase paralleling.

The SX440 will support a range of electronic accessories, including a 'droop' Current Transformer (CT) to permit parallel operation with other ac generators. If 3-phase sensing is required with the self-excited system, the SX421 AVR must be used.

Terminals&Terminal Box

Standard generators are 3-phase reconnectable with 12 ends brought out to the terminals, Which are mounted on a cover at the non-drive end of the generator. A sheet steel terminal box contains the AVR and provides ample space for the customers wiring and gland arrangements.It has removable panels for easy access.

Shaft&Keys

All generator rotors are dynamically balanced to better than BS6861:Part 1 Grade 2.5 for minimum vibration in operation. Two bearing generators are balanced with a half key.

Insulation / Impregnation

The insulation system is class 'H'

All wound components are impregnated with materials and processes designed specifically to provide the high build required for static windings and the high mechanical strength required for rotating components.

Standards

Newage Stamford industrial generators meet the requirements of **BS EN 60034** and the relevent section of other international standards such as **BS5000,VDE0530, NEMA MG1-32, IEC34, CSA C22.2-100, AS1359**
Other standards and certifications can be considered on request

Quaility Assurance

Generators are manufactured using production procedures having a quaility assurance level to BS EN ISO 9001.

Model	Standby		Prime	
	kVA	kW	kVA	kW
HCI444C	**268**	**214**	**250**	**200**

Technical Specifications

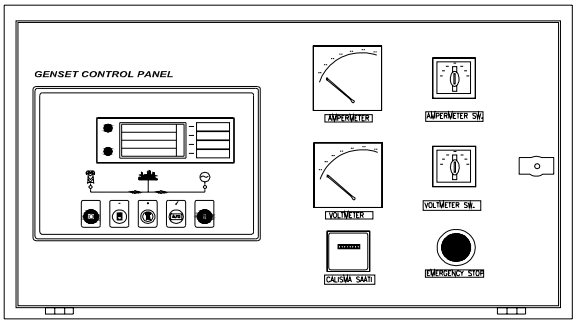
Manufacturer	NEWAGE / STAMFORD
Model	HCI444C
Type	4-Poles, Rotating Field, Brushless
Standby power at rated voltage, kVA	268
Efficiency, %	%92.4
Power factor	0.8
Phase	3
Frequency, Hz	50
Speed, Rpm	1500
Voltage, V	380/415
Excitation	Self excited
Stator windings	2/3 Pitch factor
Regulation	AVR, Automatic Voltage Regulator
Voltage Regulator	SX440
Voltage Regulation, %	± 1
R.F.I Suppression	BS EN 61000-6-2 & BS EN 61000-6-4 VDE0875G, VDE 0875N
Waveform distortion	No Load <1.5% Non distorting balanced linear load<5.0%
Rotor	Dynamic balanced
Overspeed, Rpm	2250
Short circuit current	< 300%
TIF	Less than 50
Insultion class	H
Construction	Single bearing, direct coupled
Coupling	Flexible
Stator winding	Double layer concentric
Connection	WYE
Protection class	IP23
Cooling air volume,m³ / sec	0.486

Optional Equipment

- Optional Permanent Magnet Generator (PMG) provides an isolated power supply to the excitation control system
- Anti Condensation Heaters
- Air Filters
- Temperature Indication RTD's
- Winding Protection Thermistors
- Quadrature Droop kit for Parallel Operation
- SX421 AVR with 3 Phase Sensing and improved Regulation 0.5%
- MX341 (PMG) 1% Regulation with 2 Phase Sensing
- MX321 (PMG) with 3 Phase Sensing and improved Regulation 0.5%

Control Panel

Standard Equipments



- Deeapse 5220 digital automatic control module
- Hourmeter
- Voltmeter
- Voltmeter commutator
- Ampermeter
- Ampermeter commutator
- Emergency stop button

Deepsea 5220 Control Module

Description

- The model 5220 is an Automatic Mains Failure Control module.
- The modul is used to monitor a mains supply and automaticlly start a standby generator set.
- The module also provides indication of operational status and fault conditions automaticly shutting down the genset and indicating failures by means of an LCD display, and appropriate flashing LED on the front panel.
- Selected timers and alarms can be altered by the user from the front panel.
- Alterations to the system are made using the 810 interface and a PC. This interface also provides real time diagnostic facilities

Specifications

- 240mm x 172mm dimensions
- 70mm x 40mm dimensions, 4 segment grafical LCD monitor
- Developed 16-bit Microprocessor design
- Easy comprehended display (Hid-Til-Lit SMD LED technology)
- LED mimic diagram
- SMS messaging capability with suitable GSM Modem
- PC software is MS Windows based and allows the operator to control the module from a remote location (P810 Software Kit necessary)
- Easy pushbutton controls
- System parameters can be adjusted manually from the front panel
- kVA,kW ve Cosφ measurements
- Communication with MODEM

Pushbutton Controls

STOP / START
AUTO, TEST, MANUAL
LCD PAGE

Input Functions display on LCD

Generator Volts	Volts L1-N, L2-N, L3-N
Generator Volts	Volts L1-L2, L2-L3, L3-L1
Generator Amps	Amps L1, L2, L3
Generator Frequency	Hz
Mains Volts	Volts L1-N, L2-N, L3-N
Mains Volts	Volts L1-L2, L2-L3, L3-L1
Mains Frequency	Hz
Engine Speed	RPM
Plant Battery Volts	Volts
Engine Hours Run	Hour
Generator total power	kVA L1, L2, L3,total
Generator total power	kW L1, L2, L3,total
Generator power factor	Cosφ L1, L2, L3,total

Optional Input Functions

Engine Oil pressure	kPa
Fuel level	%
Engine Temperature	°C

Alarm Channels

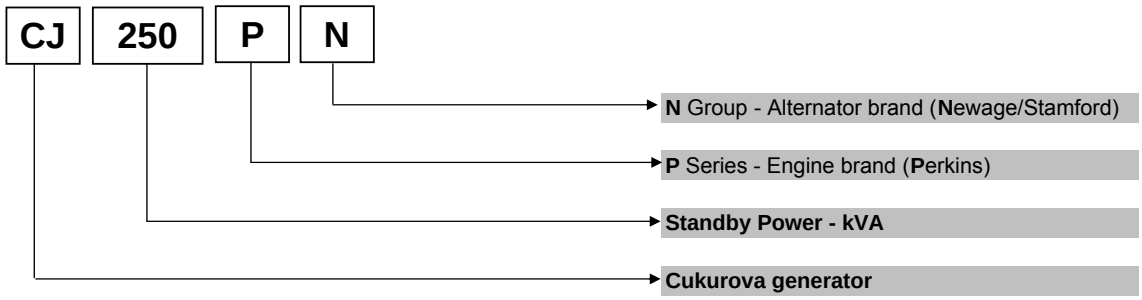
Under/over generator voltage
Over-current
Under/over generator frequency
Under/over speed
Charge fail
Emergency stop
Low oil pressure
High engine temperature
Fail to start
Low/high DC battery voltage
Reverse power
Generator phase rotation error
Generator short-circuit protection
Loss of speed sensing signal
Mains out of limits

Environmental Testing Standards

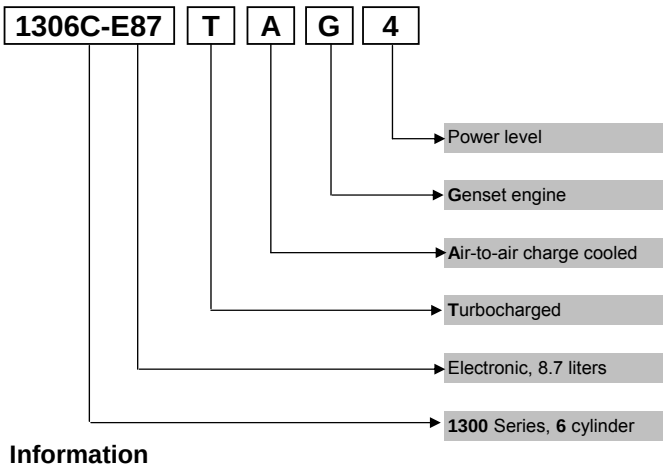
Electromagnetic Compatibility
BS EN 50081-2:1992 and EN 61000-6-4:2000 EMC, Emission Standards for the Industrial Environment
EN 61000-6-2:1999 EMC, Immunity Standards for the Industrial Environment
Vibration
BS EN 60068-2-6 Ten sweeps (up and back down) at 1 octave/minute in each of the three major axes.
5Hz to @ +/-7.5mm constant displacement.
8Hz to 500Hz 2gn constant acceleration.
Temperature
Cold : BS EN 60068-2-1 to -30°C
Hot : BS EN 60068-2-2 to 70°C
Humidity
BS EN 2011 part 2.1 93% RH @ 40° for 48 hours
Shock
BS EN 6068-2-27 Three half sine shocks in each of the three major axes 15gn amplitude.11mS duration.
Electrical Safety
BS EN 60950 Low Voltage Dirctive/Safety of information technology equipments, including electrical business equipment

Model Codes and General Information

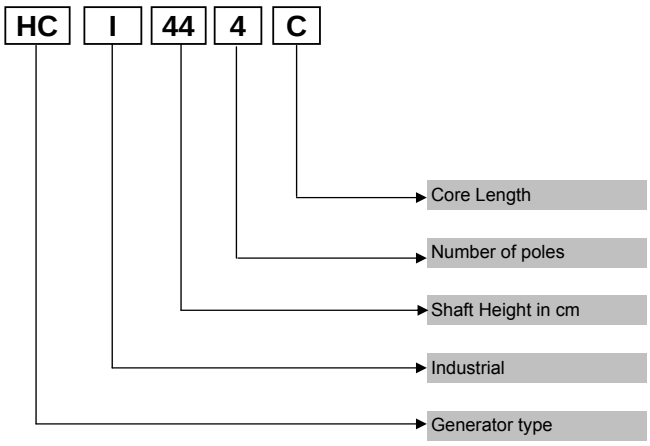
Cukurova Diesel Generator



Perkins 1300 Series Diesel Engine



Newage / Stamford Alternator



Information

Power Ratings

Standby power rating is for the supply of emergency power at variable load for the duration of the non-avalaibality of the mains power supply.No overload capacity is available at this rating.A standby rated engine should be sized for an avarage load factor of 80% based on published standby rating for 500 operating hours per year.Standby ratings should never be applied except in true emergency power failure conditions.

Prime power rating is available for unlimited hours per year with a variable load of which the average engine load factor is 80% of the published power rating, incorporation of a 10% overload for 1 hour in every 12 hours of operation which permitted

Continuous power rating is available for continuous full load operation.No overload is permitted.

Acc. to ISO 3046/1, BS 5514, DIN6271

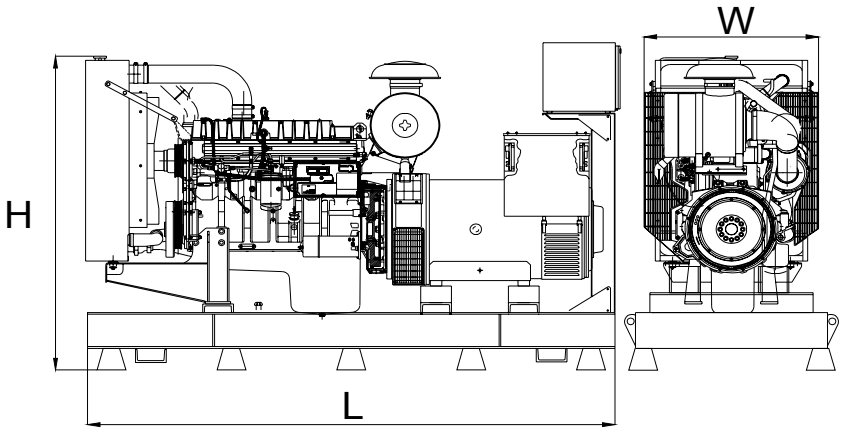
Electric Formulas

Values	Formula	
kWe	kWm X E	
kWe	(U x I x 1.73 x pf) / 1000	kVA x pf
kVA	(U x I x 1.73) / 1000	kWe / pf
I (Amp)	(kWe x 1000) / (U x 1.73 x pf)	(kVA x 1000) / (U x 1.73)
Frequency	(Rpm x N°Pole) / (2 x 60)	
Rpm	(2 x 60 x Frequency) / N°Pole	

kWm: Mechanical Power
kWe : Electrical Power
pf : Power factor
E : Alternator efficiency
I : Current (A)
U : Voltage (V)
kVA : Power
Rpm: Revolutions per minute

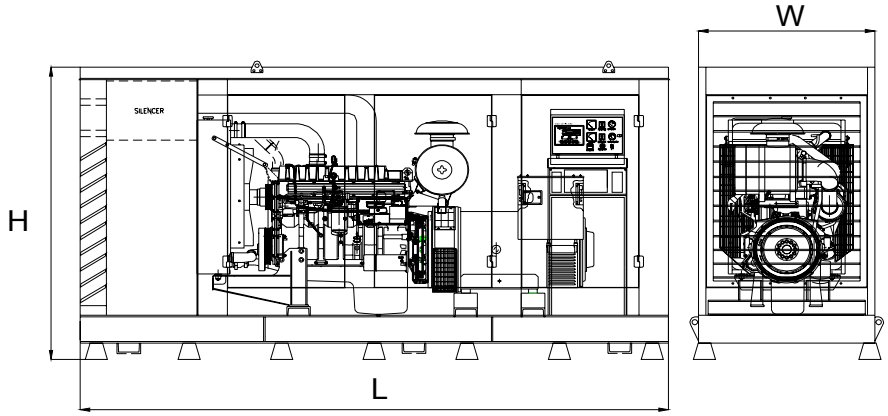
General Dimensions

Standard Generator



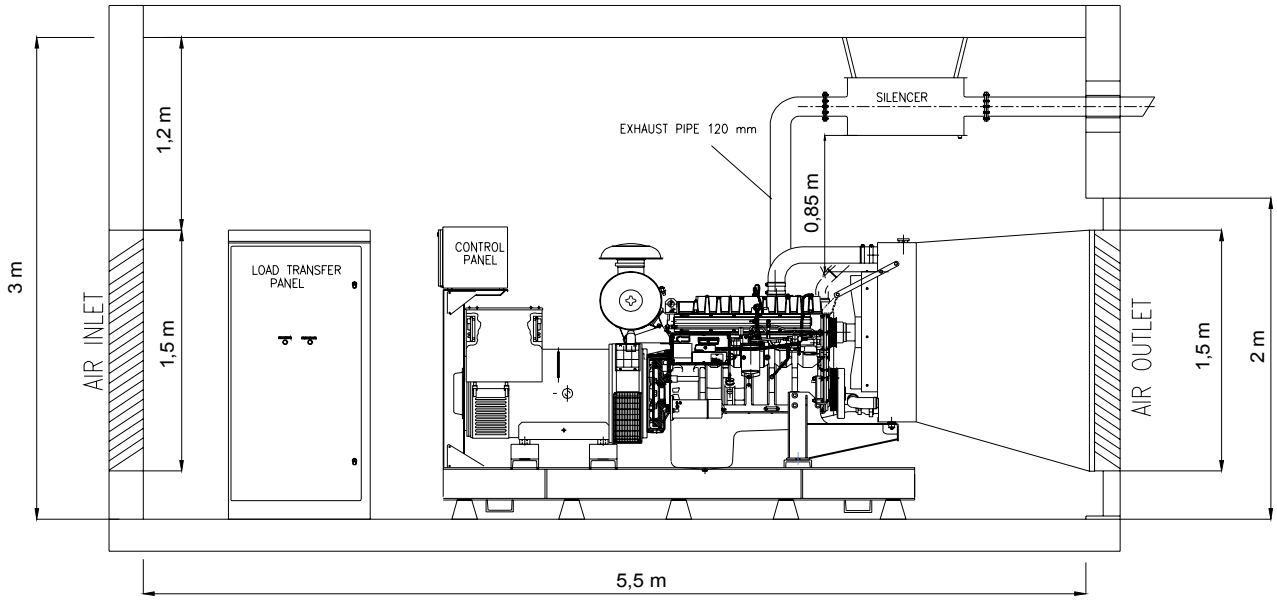
Length, L	2,75 m
Heigth, H	1,8 m
Width, W	1 m
Weight, Total	2200 kg

Generator with Soundproof Canopy



Length, L	4 m
Heigth, H	2,2 m
Width, W	1,2 m
Weight, Total	2950 kg

Generator Room Layout



Above drawings dimensions and weights are only for guidence.For installation design of your specific application, necessary certified drawings, at site consultancy service as well as maintenance and installations manuals will be provided by Cukurova without any charge.

Specifications may change without notice

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