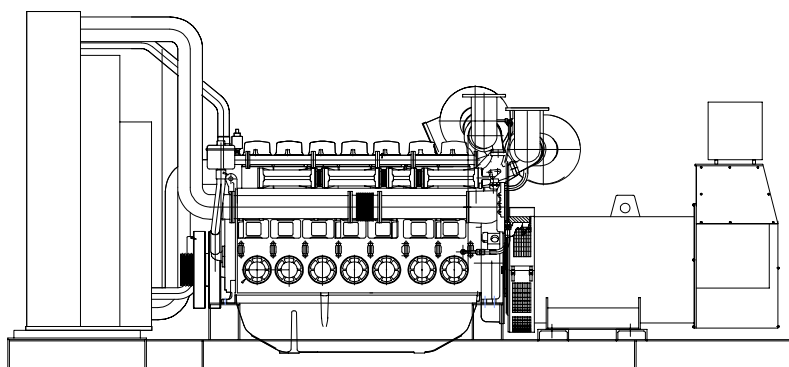




Perkins 4008TAG2A diesel engine

Stamford HCI634J alternator



## Standard Generator Features

- ◊ AMF, Automatic mains failure unit
- ◊ Heavy duty type, 8 cylinder, water cooled engine
- ◊ 52°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 synchronization and power sharing systems
- ◊ Soundproof canopy
- ◊ Container type enclosures
- ◊ 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



	Standby		Prime	
	kVA	kW	kVA	kW
	<b>1110</b>	<b>888</b>	<b>1024</b>	<b>819</b>

## Perkins 4008TAG2A Engine

### Standard Features

#### Economic power

◊ Individual four valve per cylinder heads give optimised gas flows, whilst digitally governed unit fuel injectors ensure ultra fine fuel atomisation and hence controlled rapid combustion, for efficiency and economy  
◊ Commonality of components with other engines in the 4000 Series family allows reduced parts stocking levels

#### Reliable power

◊ Developed and tested using latest engineering techniques  
◊ Piston temperatures are controlled by an advanced gallery jet cooling sys.  
◊ All engines are tolerant of a wide range of temperatures without derate  
◊ Service is provided by the extensive Perkins network of over 4.000 distributors and dealers worldwide

#### Clean, efficient power

◊ Exceptional power to weight ratio and compact size for easier transportation and installation  
◊ New designed radiator assemblies with corrosion inhibiting powder coated surfaces; fewer pipe joints and easier access to reduce maintenance times  
◊ Designed to provide excellent service access for easy of maintenance  
◊ Engines designed to comply with major international standards  
◊ Low gaseous emissions for cleaner operation

#### Standards

◊ UK MOD, BS5750, ISO9001, BS5514/1-1982, ISO 3046/1, ISO 8528/1

### Technical Specifications

Manufacturer	PERKINS	تولید کننده
Model	4008TAG2A	مدل
Type	4 cycle, water-cooled, diesel engine	تیپ
Number of cylinders	8	تعداد سیلندرها
Cylinder arrangement	Vertical in-line	آرایش سیلندرها
Displacement, Liters	30.561	جا به جایی
Bore X Stroke, mm	160 X 190	قطر سیلندر X کورس پیستون
Compression Ratio	13.6:1	نسبت تراکم
Combustion System	Direct injection	سیستم احتراق
Aspiration	Turbocharged, air-to-air charge cooled	سیستم تنفس
Rotation	Anti-clockwise viewed on flywheel	چرخش
Gross engine power, kWb	985	قدرت ناخالص موتور
Fan Power, kWm	38	قدرت فن
BMEP gross, bar	25,4	
Combustion air flow, m³ / min	80,5	جریان هوای احتراق
Exhaust gas temp.(after turbo),	465 °C	دمای گاز خروجی از اگزوز
Exhaust gas flow (after turbo),	200 m³ / min	جریان هوای خروجی از اگزوز
Mean piston speed, m / s	9,5	میانگین سرعت پیستون

### Cooling System

Type	Tropical, heavy duty type
Ambient temperature, °C	52
Engine coolant capacity, Liters	48
Engine+Radiator coolant cap., Liters	149
Jacket coolant flow, Liters / sec	10
Cooling min airflow, m³ / min	1350 (at 50°C)
◊ Gear driven circulating pump	
◊ Twin thermostats	
◊ Crankshaft pulley for fan drive	

Model	Standby kW		Prime kW	
	Gross	Net	Gross	Net
<b>4008TAG2A</b>	<b>985</b>	<b>947</b>	<b>899</b>	<b>861</b>

### Lubricating System

Type	Pressurized
Lub.oil capacity sump min., Liters	127
Lub oil temp. Max to bearings, °C	105
Lub oil pressure (at 80°C,min), MPa	0.34
◊ Wet sump with filler and dipstick	
◊ Engine jacket water/lub oil temperature stabiliser	
◊ Full-flow spin-on oil filters	

### Fuel System

Type of injection system	Direct injection
Fuel injection pump	Combined unit injector
Fuel injector opening pressure, bar	234
Delivery/hour at 1500rev/min, Liters	660
Fuel lift pump	Tuthill TCH 1-054
Governor type	Electronic
◊ Unit fuel injectors with lift pump and hand stop control	
◊ Electronic governor to ISO 3046 Part 4class A1	
◊ Full flow spin-on fuel filters	

### Electrical System

Alternator	24 Volt with integral regulator
Starter motor (DC)	24 Volt
Starter motor power	8.2 kW
◊ Combined high coolant temperature / low oil pressure switch	
◊ Overspeed switch and magnetic pick up	
◊ Turbine inlet temperature shutdown switch	

### Fuel Consumption

liters per hour	%110 Load	248 L
	%100 Load	220 L
	%75 Load	160 L
	%50 Load	108 L
grams per kWh	%110 Load	214 g/kWh
	%100 Load	208 g/kWh
	%75 Load	202 g/kWh
	%50 Load	205 g/kWh

### Optional Equipments

- ◊ Instrument panel
- ◊ Twin heavy duty air cleaner - paper element with pre-cleaner
- ◊ Changeover lubricating oil filter
- ◊ Changeover fuel oil filter
- ◊ Immersion heater with thermostat
- ◊ Air starters

# Stamford HCI634J 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 parallelling.This winding, with the 2/3 pitch and carefully selected pole and tooth designs, ensures very low waveform distortion.

### MX321 AVR

This sophisticated Automatic Voltage Regulator(AVR) is incorporated into the Stamford Permanent Magnet Generator(PMG) system and is fitted as standard to generators of this type.

The PMG provides power via the AVR to the main exciter, giving a source of constant excitation power independent of generator output. The main exciter, output is then fed to the main rotor, through a full wave bridge, protected by a surge suppressor. The AVR has in built protection against sustained over - excitation, caused by internal or external faults. This de- excites the machine after a minimum of 5 seconds. Over voltage protection is built-in and short circuit current level adjustments is an optional facility

### Terminals&Terminal Box

Standard generators feature a main stator with 6 ends brought out to the terminals, which are mounted on the frame 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

### Quality Assurance

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

Model	Standby		Prime	
	kVA	kW	kVA	kW
<b>Stamford HCI 634 J</b>	<b>1110</b>	<b>888</b>	<b>1030</b>	<b>824</b>

## Technical Specifications

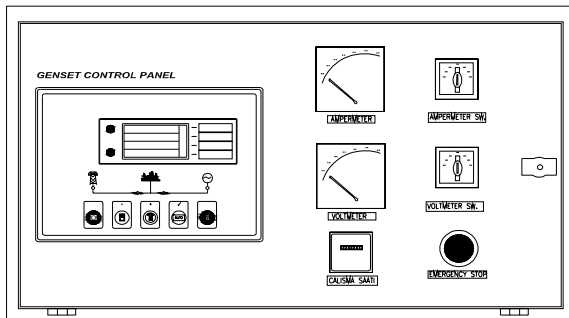
Manufacturer	NEWAGE / STAMFORD	تولید کننده
Model	HCI634J	مدل
Type	4-Poles, Rotating Field, Brushless	تیپ
Standby power at rated voltage, kVA	1110	توان standby در ولتاژ نامی
Efficiency, %	94.8%	راندمان
Power factor	0.8	ضریب قدرت
Phase	3	فاز
Frequency, Hz	50	فرکانس
Speed, Rpm	1500	سرعت
Voltage, V	380/415	ولتاژ
Excitation	Self excited	سیستم تحریک
Stator windings	2/3 Pitch factor	
Regulation	AVR, Automatic Voltage Regulator	تنظیم ولتاژ
Voltage Regulator	MX321	رگولاتور ولتاژ
Voltage Regulation, %	± 0.5	درصد تنظیم ولتاژ
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	روتور
Overspeed, Rpm	2250	حداکثر سرعت مجاز
Short circuit current	< 300%	جریان اتصال کوتاه
TIF	Less than 50	
Insultion class	H	کلاس عایق
Construction	Single bearing, direct coupled	نحوه کوبلینگ
Coupling	Flexible	کوبلینگ
Stator winding	Double layer concentric	
Connection	WYE	اتصال
Protection class	IP23	کلاس حفاظت
Cooling air volume,m³ / sec	1.614	دبی هوای خنک کننده

## Optional Equipment

- ♦Power Factor Controller
- ♦Diode Failure Unit
- ♦Air Condensation Heaters
- ♦Air Filters
- ♦Temperature Indication RTD's
- ♦Winding Protection Thermistors
- ♦Quadrature Droop kit for Parallel Operation
- ♦Excitation Loss Module
- ♦Manuel Voltage Regulator

## 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 automatically start a standby generator set.
- ◊The module also provides indication of operational status and fault conditions automatically 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

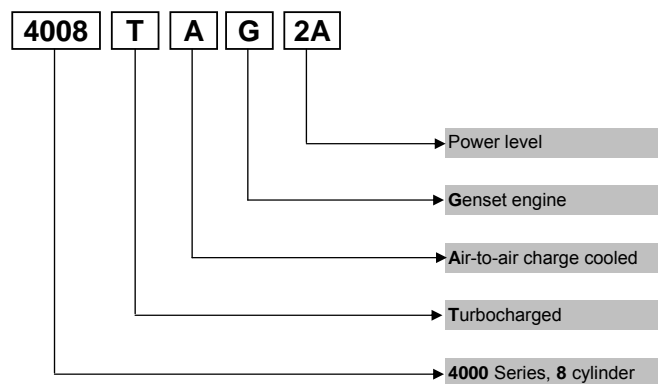
#### Shock

BS EN 6068-2-27 Three half sine shocks in each of the three major axes 15gn amplitude.11mS duration.

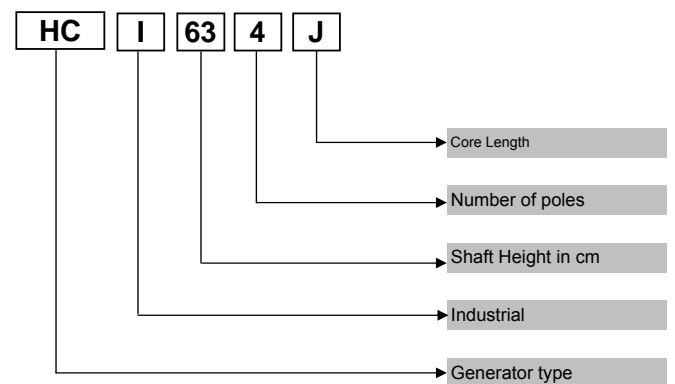
#### Electrical Safety

BS EN 60950 Low Voltage Directive/Safety of information technology equipments, including electrical business equipment

## Perkins 4000 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-availability of the mains power supply. No overload capacity is available at this rating. A standby rated engine should be sized for an average 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	$kW_m \times E$	
kWe	$(U \times I \times 1.73 \times pf) / 1000$	$kVA \times pf$
kVA	$(U \times I \times 1.73) / 1000$	$kWe / pf$
I (Amp)	$(kWe \times 1000) / (U \times 1.73 \times pf)$	$(kVA \times 1000) / (U \times 1.73)$
Frequency	$(Rpm \times N^{\circ}Pole) / (2 \times 60)$	
Rpm	$(2 \times 60 \times Frequency) / N^{\circ}Pole$	

**kW<sub>m</sub>**: Mechanical Power

**kW<sub>e</sub>**: Electrical Power

**pf**: Power factor

**E**: Alternator efficiency

**I**: Current (A)

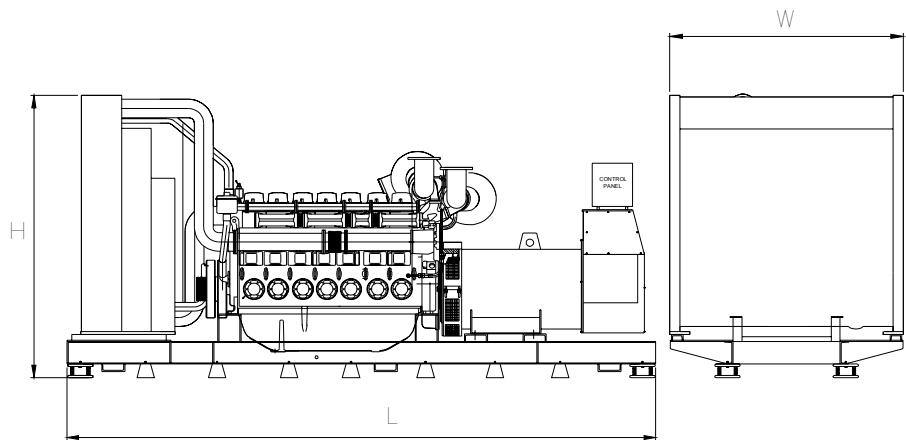
**U**: Voltage (V)

**kVA**: Power

**Rpm**: Revolutions per minute

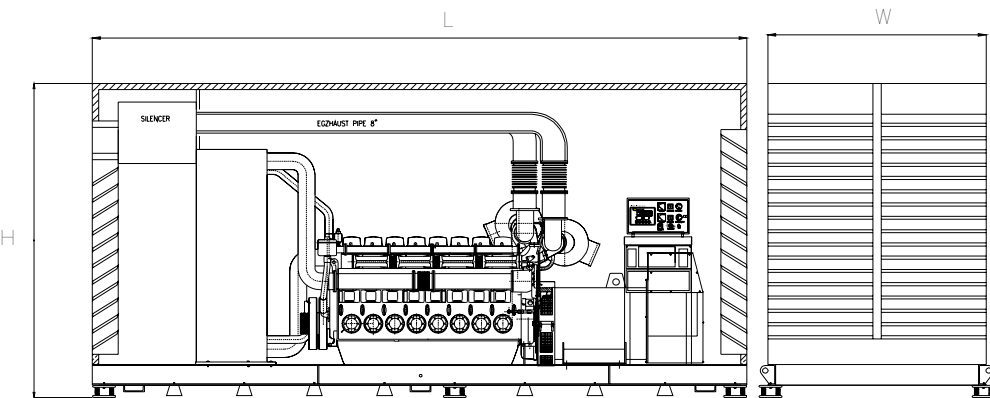
General Dimensions

Standard Generator



Length, L	4,9 m
Height, H	2,5 m
Width, W	1,88 m
Weight, Total	8000 kg

Generator with Soundproof Canopy



Length, L	6,5 m
Height, H	3,1 m
Width, W	2,25 m
Weight, Total	10.640 kg

Generator Room Layout

