

### Perkins Powered Generating Sets



YOUR PARTNER IN POWER

P200H2 - P275HE2

OUTPUT RATINGS						
Generator Set Model(3Phase)	P200H2 P220HE2		P230H2 P250HE2		P250H2 P275HE2	
	KVA	KW	KVA	KW	KVA	KW
Ratings at 0.8PF						
380-415V, 50Hz	200	160	230	184	250	200
	220	176	250	200	275	220
480V, 60Hz	225	180	240	192	na	na
	250	200	265	212	na	na
<b>Ratings Definitions</b>						
<b>Prime Power(Continuous) – Model P with suffix (H2)</b>						
These ratings are applicable for supplying continuous electrical power (at variable load) in lieu of commercially purchased power. There is no limitation to the annual hours of operation and this model can supply 10% overload power for 1 hour in 12 hours.						
<b>Standby Power – Model P with suffix (HE2)</b>						
These ratings are applicable for supplying continuous electrical power (at variable load) in event of a utility power failure.No overload is permitted on these ratings. The alternator on this model is peak continuous rated (as defined in ISO8528-3) at 27°						
TECHNICAL DATA						
Perkins Engine Model:	1306C-E87TAG4		1306C-E87TAG4		1306C-E87TAG6	
Leroy-Somer Alternator Model:	LL5014F		LL5014H		LL5014J	
Number of Cylinders:	6 in line		6 in line		6 in line	
Cubic Capacity:	Litres (cu.in)	8.7 (530.9)	8.7 (530.9)		8.7 (530.9)	
Bore/Stroke:	mm	116.6/135.9	116.6/135.9		116.6/135.9	
	in	4.6/5.4	4.6/5.4		4.6/5.4	
Compression ratio:		16.9:1	16.9:1		16.9:1	
Aspiration:	Turbocharged Air To Air Charge Cooled					
Frequency:		50 Hz	60 Hz	50 Hz	60 Hz	50 Hz
Engine Speed:	RPM	1500	1800	1500	1800	1500
Gross Engine Power:	kW	228.5	246.8	228.5	246.8	250.9
	hp	306	331	306	331	336
BMEP:	kPA	2099	1890	2099	1890	2306
	psi	304.5	274.1	304.5	274.1	334.4
Piston Speed:	m/sec	6.8	8.2	6.8	8.2	6.8
	ft/sec	22.3	26.9	22.3	26.9	22.3
Total Oil Capacity	Litres	26.4	26.4	26.4	26.4	26.4
	US Gal	7	7	7	7	7
Fuel Tank Capacity:	Litres	350.0	350.0	350	350	350
	US Gal	92.5	92.5	92.5	92.5	92.5
Fuel Consump, Prime:	1/hr	49.4	56.6	56.3	60.1	58.9
	USg/hr	13.1	15	14.9	15.9	15.6
Fuel Consump, Standby:	1/hr	54.3	61.1	61.2	64	63.3
	USg/hr	14.3	16.1	16.2	16.9	16.7
Heat Rejection to Exhaust System:	kW	104	104	117	125	142
	Btu/min	5914	5914	6654	7109	8075
Heat Rejection to Cooling System:	kW	86	88	96	105	110
	Btu/min	4891	5004	5459	5971	6256
Total Radiated Heat:	kW	34	34	37	40	44
	Btu/min	1934	1934	2104	2275	2502
Exhaust Temperature:	°C	573	487	508	447	528
	°F	1064	908	946	836	982
Radiator Cooling Air Flow:	m³/min	424.2	560.4	424.2	560.4	424.2
	cfm	14980	19790	14980	19790	14980
Combustion Air Flow:	m³/min	14.9	20.2	14.9	20.2	16.4
	cfm	526	713	526	713	579
Exhaust Gas Flow:	m³/min	29.7	49.2	44.5	58.1	44.5
	cfm	1049	1737	1572	2052	1572
Note: Standard reference conditions 27°C (80°F) Air Inlet Temp, 152.4m (500ft) A.S.L. 60% relative humidity. All engine performance data based on the above mentioned maximum continuous ratings.Fuel consumption data at full load with diesel fuel with specific gravity of 0.85 and conforming to BS2869: 1998, Class A2.						
DIMENSIONS AND WEIGHTS						
Length:	mm(in)	2960 (116.5)		2960 (116.5)		2960 (116.5)
Width:	mm(in)	1003 (39.5)		1003 (39.5)		1003 (39.5)
Height:	mm(in)	1718 (67.6)		1718 (67.6)		1718 (67.6)
Net Weight*:	kg(lb)	2015 (4442)		2100 (4630)		2215 (4883)

\* Weight Including Lube Oil Only Without Coolant.

# STANDARD SPECIFICATIONS: P200H2 - P275HE2

## 1. OUTPUT RATINGS

The generating set is normally supplied connected for 380 or 415 volt, 3 phase, 50 Hz, and alternative voltages / frequencies are available.

## 2. ENGINE

Perkins four stroke heavy duty industrial type electronic diesel engine.

### 2.1 Engine Management System:

Engine will be equipped with an electronic management system called Engine Control Module (ECM), ECM sends reference voltage to the several sensors fitted on the engine body and accept return voltage from the sensors, ECM then modify the

### 2.2 Governing Type

Electronic compliant with Class: ISO8528 G2.

### 2.3 Electrical System

24 Volt DC, electronically controlled unit injectors, Energised to run stop solenoid.

### 2.4 Engine Sensors

The following sensors are equipped and controlled by ECM: Camshaft Position, Injection Control Pressure, Boost Pressure, Oil Temperature, Oil Pressure, Coolant Temperature, Engine Speed.

### 2.5 Diagnostic Flashing Lights

A flashing lights system equipped with the engine body to initiate the active and inactive fault tests.

## 3. COOLING SYSTEM

Gear-driven circulating pump. Mounted belt-driven pusher fan. Radiator and cooling fan complete with guards, designed for ambients up to 50 °C.

## 4. ENGINE FILTERATION SYSTEM

Cartridge type dry air filters with restriction indicator. Cartridge type fuel filters and full flow oil filters. All filters have replaceable elements.

## 5. EXHAUST SYSTEM

Heavy duty industrial capacity exhaust silencer (supplied loose).

## 6. ELECTRICAL SYSTEM

24 Volt system with battery charging alternator, axial type starter motor, high capacity maintenance free lead acid starting battery, battery rack mounted on the generating set baseframe, and heavy duty interconnecting cables with terminations. Unaided starting system up to - 20°C

## 7. ALTERNATOR (Optional-Newage Stamford)

Screen protected and drip-proof IP23, self exciting, self regulating, single bearing brushless alternator with fully interconnected damper windings, ICOA1 cooling system and sealed-for life bearing.

### 7.1 Insulation System

The insulation system is class H. All windings are impregnated in either a triple dip thermosetting, polyester varnish or vacuum pressure impregnated polyester resin. Heavy coat of anti-tracking varnish for additional protection against moisture or condensation.

### 7.2 Automatic Voltage Regulator

The fully sealed automatic voltage regulator maintain the voltage (steady state) within the limits of +/-0.5% from no load to full load including cold to hot variations at any power factor between 0.8 lagging and unity and inclusive of a speed variation of 5%. Normal adjustment is by a trimmer incorporated in the AVR.

## 7.3 Waveform Distortion, THF & TIF Factors

The total distortion of the voltage waveform with open circuit between phases or phase and neutral is in the order of 2. On a 3 phase balanced harmonic-free load the total distortion is in the order of 3.5%. Machines are designed to have a THF (waveform IEC) less than 2% and a TIF (waveform NEMA) less than 50. A 2/3 pitch factor is standard on all stator windings. (Total Harmonic Content LL/LN is less than 4%)

### 7.4 Radio Interference

Suppression is in line with standards: EN61000-6

### 7.5 Electrical Characteristics

Electrical design & features in accordance with: BS 4999/5000, IEC34.1/34.2, VDE0530, UTE NFC 51.111, NEMA MG 1-22.

## 8. MOUNTING ARRANGEMENT

**8.1 Baseframe:** The complete generating set is mounted, as a whole, on a heavy duty fabricated, welded steel baseframe. The baseframe incorporates specially designed lifting points.

**8.2 Coupling:** The engine and alternator are directly coupled by means of an SAE flange so that there is no possibility of misalignment after prolonged use. The high inertia engine flywheel (SAE J620 size 14) is flexibly coupled to the alternator rotor and a full torsional analysis has been carried out to guarantee no harmful vibration will occur in the assembly.

**8.3 Anti-Vibration Mounting Pads:** 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.

### 8.4 Safety Guards

The fan, fan drive and battery charging alternator drive are fully guarded for personnel protection. A stone guard protects the radiator core from accidental damage.

## 9. FUEL SYSTEM (HEUI)

Hydraulically actuated Electronically controlled Unit fuel Injectors with full authority electronic control. On all sets, the baseframe design incorporates an integral fuel tank with a capacity of approx 8 hours (350 Litres). The tank is supplied complete with contents indicator, fuel fill cap with breather, fuel feed and return lines to engine and

## 10. CONTROL SYSTEM

**10.1 PowerWizard 1.0 Control Panel:** Set mounted auto start panel in a vibration isolated sheet steel enclosure with a hinged lockable door. The control panel is equipped as follows: (PW2.0 is optional)

**a. INSTRUMENTATION: LCD Display with adjustable contrast and backlight with auto power off.**

Volts 3-phase (L-L & L-N)
Amps (per phase & average)
Frequency
Battery Volts
Hours Run
Engine Jacket Water Temperature (in °C or °F)
Lube Oil Pressure (in psi, kPa or bar)
Engine Speed (rpm)

## b. CONTROLS

2 LED Status Indicators	Menu Navigation Keys
Lamp Test Key	Alarm Acknowledge Key
Run, Auto & Stop keys	2 Spare Fault Channels
Engine and AC Metering Shortcut Keys	
Control Module Keys have tactile feedback	
Lock Down Emergency Stop Push Button	

## c. PROTECTIONS

Fail to start	Loss of engine speed detection
High coolant temperature	High/Low Battery Voltage
Low lube oil pressure	Battery Charger Failure
Under/Over speed	(if fitted)

## d. Other Features

20 Event Fault Log
CAN1 data link - J1939 for communication with ECM

## e. Languages: LED displays with many languages

## e. DC and AC Wiring Looms

DC and AC wiring looms utilizing industrial type multipin connectors, thus permitting fast fault finding and simple retrofitting of alternative or remote control systems.

### 10.2 Circuit Breaker

3 Pole moulded case circuit breaker with integral trip unit for thermal and magnetic overload protection mounted on the generator in a vibration isolated sheet steel box with adequate access for incoming and outgoing cables.

## 11. DOCUMENTATION

A full set of installation, operation and maintenance manuals, circuit wiring diagrams, and commissioning / fault finding instruction leaflets.

## 12. GENERAL ARRANGEMENT

The generating set is designed and constructed for installation in a weather protected building. Various types of weatherproof and sound attenuated enclosures are available upon request.

## 13. FACTORY TESTS

The generating set is load tested before despatch. All protective devices, control functions and site load conditions are simulated and the generator and it's systems checked, proved and then passed for despatch. A test certificate can be provided upon request.

## 14. EQUIPMENT FINISH

All sheet metal components are first treated with a phosphate chemical conversion coating which provides an excellent corrosion resistant surface. These metal components are then "painted" by applying a polyester powder which is subjected to very high temperatures causing the powder to melt and form a continuous high gloss and extremely durable coating. The engine and alternator are thoroughly cleaned and finished in temperature controlled ovens with industrial high gloss paint. All fasteners are electroplated.

Note: Generating set is supplied with unpainted turbo-charger.

## 15. QUALITY STANDARDS

The equipment meets the followings standards: BS5000, ISO8528, ISO3406, IEC60034, VDE0530, NEMA MG-

## 16. WARRANTY

One year against manufacturing defects.

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