

Marapco



Perkins Powered Generating Sets

G E N E R A T O R S



YOUR PARTNER IN POWER

P730P1 - P1375E3

OUTPUT RATINGS

Generator Set Model	P730P1 P800E1		P800P1 P900E1		P910P1 P1000E1		P1000P1 P1100E1		P1250P3 P1375E3	
	kVA	kW	kVA	kW	kVA	kW	kVA	kW	kVA	kW
Ratings at 0.8PF										
380-415V, 50Hz / 1500 r.p.m	730.0	584.0	800.0	640.0	910.0	728.0	1000.0	800.0	1250.0	1000.0
	800.0	640.0	900.0	720.0	1000.0	800.0	1100.0	880.0	1375.0	1100.0
480V, 60Hz / 1800 r.p.m	750.0	600.0	835.0	668.0	-	-	-	-	-	-
	844.0	675.2	938.0	750.4	-	-	-	-	-	-

Ratings Definitions

Prime Power(Continuous) – Model P with suffix (P1)or(P3)

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.

Standby Power – Model P with suffix (E1)or(E3)

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°C.

TECHNICAL DATA

Perkins Engine Model:	Perkins 4006TAG2A		Perkins 4006TAG3A		Perkins 4008TAG1A		Perkins 4008TAG2A		Perkins 4012-46TWG2A	
Leroy-Somer Alternator Model:	LL7024L		LL7024P		LL8124A		LL8124B		LL8224L	
Number of Cylinders:	6 / In Line		6 / In Line		8 / In Line		8 / In Line		12 / Vee	
Cubic Capacity:	Litres (cu.in) 22.9 (1398.7)		22.9 (1398.7)		30.6 (1864.9)		30.6 (1864.9)		45.8 (2797.5)	
Bore/Stroke:	mm 160.0 / 190.0		160.0 / 190.0		160.0 / 190.0		160.0 / 190.0		160.0 / 190.0	
	in 6.3 / 7.5		6.3 / 7.5		6.3 / 7.5		6.3 / 7.5		6.3 / 7.5	
Compression ratio:	13.6:1		13.6:1		13.6:1		13.6:1		13.1:1	
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 711.0		759.0		786.0		839.0		876.0	
	hp 953.0		1018.0		1054.0		1125.0		1175.0	
BMEP:	kPA 2481.0		2208.0		2743.0		2440.0		2293.0	
	psi 359.9		320.2		397.9		353.9		332.6	
Piston Speed:	m/sec 9.5		11.4		9.5		11.4		9.5	
	ft/sec 31.2		37.4		31.2		37.4		31.2	
Total Oil Capacity:	Litres 123.0		123.0		123.0		123.0		166.0	
	US Gal 32.5		32.5		32.5		32.5		43.9	
Fuel Tank Capacity:	Litres 1494.0		1494.0		1494.0		1494.0		-	
	US Gal 394.7		394.7		394.7		394.7		-	
Fuel Consump, Prime:	l/hr 149.8		167.0		163.0		188.3		194.7	
	USg/hr 39.6		44.1		43.1		49.7		51.4	
Fuel Consump, Standby:	l/hr 163.4		189.1		183.5		211.9		217.7	
	USg/hr 43.2		50.0		48.5		56.0		57.5	
Heat Rejection to Exhaust System:	kW 499.0		680.0		515.0		698.0		711.0	
	Btu/min 28378		38671		29288		39695		40434	
Heat Rejection to Cooling System:	kW 230.0		243.0		300.0		320.0		312.0	
	Btu/min 13080		13819		17061		18198		17743	
Total Radiated Heat:	kW 88.7		98.9		97.1		106.0		140.0	
	Btu/min 5044		5624		5522.0		6028		7962	
Exhaust Temperature:	°C 430		430		500		438		465	
	°F 806		806		932		820		869	
Radiator Cooling Air Flow:	m³/min 1134.0		1326.0		1134.0		1326.0		1152.0	
	cfm 40047		46827		40047		46827		40683	
Combustion Air Flow:	m³/min 71.0		73.0		73.0		78.0		73.0	
	cfm 2507		2578		2578		2755		2578	
Exhaust Gas Flow:	m³/min 180.0		190.0		193.0		209.0		183.0	
	cfm 6357		6710		6816		7381		6463	

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

Generator Set Model	P730P1 / P800E1	P800P1 / P900E1	P910P1 / P1000E1	P1000P1 / P1100E1	P1250P3 / P1375E3
Length:	mm(in) 4280 (168.5)	4280 (168.5)	4790 (188.6)	4790 (188.6)	4820 (189.8)
Width:	mm(in) 1912 (75.3)	1912 (75.3)	2036 (80.2)	2036 (80.2)	1895 (74.6)
Height:	mm(in) 2277 (89.6)	2277 (89.6)	2235 (88.0)	2235 (88.0)	2424 (95.4)
Net Weight*:	kg(lb) 6059 (13358)	6259 (13799)	7144 (15750)	7334 (16169)	9059 (19972)

* Weight Including Lube Oil Only Without Coolant.

STANDARD SPECIFICATIONS: P730P1 - P1375E3

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 diesel engine.

2.2 Governing Type

Electronic Class A1 and compliant with ISO8528 Class G2.

2.3 Electrical System

24 Volt DC Energised to run shutdown solenoid. Oil pressure and coolant temperature shutdown switches and gauge senders.

3. COOLING SYSTEM

Radiator and cooling fan complete with protection guards, designed to cool the engine in ambient temperatures up to 50°C(122°F). A coolant drain valve is terminated at the base frame edge for convenience during maintenance.

4. ENGINE FILTRATION SYSTEM

Cartridge type dry air filters with restriction indicator. Cartridge type fuel filters and full flow lube oil filters. All filters have replaceable elements. A lube oil drain is terminated at the baseframe edge for convenience during maintenance.

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 (2x12Volt), battery rack mounted on the generating set baseframe and heavy duty inter-connecting cables with terminations.

7. ALTERNATOR

Screen protected and drip-proof IP23, self exciting, self regulating, single bearing brushless alternator with fully interconnected damper windings, IC0A1 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. The standard AVR is: R448 (P730P1-P900E1) & R449 (P910P1-P1375E3)

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 / EN61000-3

7.5 Electrical Characteristics

Electrical design & features in accordance with: BS 5000, IEC60034.1, VDE0530, UTE 51100, NEMA MG 1-22.

7.6 Motor Starting

An overload capacity equivalent to between 160% and 300% (depending on alternator frame size) of full load impedance at zero power factor can be sustained for 10 seconds

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

P730P1-P900E1: The baseframe design incorporates an integral fuel tank with a capacity of approx 8 hours. The tank is supplied complete with contents indicator, fuel fill cap with breather, fuel feed and return lines to engine and drain plug.

P910P1-P1375E3: Fuel Feed and return lines to the engine are terminated at the baseframe using threaded connectors. A separate fuel tank must be provided.

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.

10.3 Circuit Breaker

3 Pole with solid neutral (4 wire) moulded case circuit breaker with integral trip unit for thermal and magnetic overload protection. For **P730P1-P900E1**: it is mounted on the generator in a vibration isolated steel enclosure. For **P910P1-P1375E3**: It is free standing ACB and supplied loose without 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 following standards: BS4999, BS5000, BS5514, ISO8528, ISO3406, IEC60034, VDE0530, NEMA MG-1.22

16. WARRANTY

One year against manufacturing defects.

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Website: www.marapco.com

N. Ireland - U.K.



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Made in UK