

■ Model: ZMP45

Powered by PERKINS



■ Generator Specification

Service	PRP ⁽¹⁾	ESP ⁽²⁾
Power (kVA)	45	50
Power (kW)	36	40
Rated speed (r.p.m)	1500	
Standard voltage (V)	400/230V	
Rated at power factor(cos phi)	0.8	

Power gensets are compliant with ISO 9001 and CE standard, which include the following directives:

- 2006/42/EC Machinery safety.
- 2006/95/EC Low voltage
- EN 60204-1: 2006+A1: 2009, EN ISO 12100: 2010, EN ISO 13849-1: 2008, EN 12601 : 2010

(1) PRP (Prime Power):

According to ISO8528-1, prime power is the maximum power available during a variable power sequence, which may be run for an unlimited number of hours per year, between stated maintenance intervals. The permissible average power output during at 24 hours period shall not exceed 80% of the prime power. 10% overload available for governing purposes only.

(2) ESP (Standby Power):

According to ISO 8528-1, it is defined as the maximum power available, under the agreed operating conditions, for which the generating set is capable of delivering for up to 500 hours of operation per year (of which no more than 300 hours for continuative use) with the maintenance intervals and procedures being carried out as prescribed by the manufacturers. No overload capability is available.

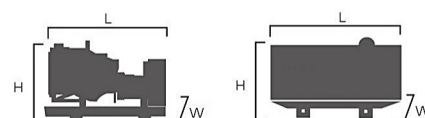
Powers	ESP		PRP		Standby
Voltage (V)	KVA	KW	KVA	KW	Amps
415/240	50	40	45	36	69.6
400/230	50	40	45	36	72.2
380/220	50	40	45	36	76.0

Performance Data

Model	ZMP45	
Engine brand	Perkins	
Engine model	1103A-33TG1	
Speed control type	Mechanical	
Phase	3	
Control system	Digital	
Starter motor voltage	12V	
Frequency	50HZ	
Engine speed (RPM)	1500	
Fuel Consumption (L/H)	100% standby power	12.0
	100% prime power	10.7
	75% prime power	8.2
	50% prime power	5.7

Standard reference Conditions

Note: Standard reference condition 25°C (77°F) air inlet temp, 100m(328ft) A.S.L 30% relative humidity. Fuel consumption dat with diesel fuel with specific gravity of 0.85 and conforming to BS 2869: 1998 , Class A2



Dimension and Weight

Dimension	Open	Silent
Length (L)	1920mm	2400mm
Width (W)	825mm	900mm
Height (H)	1370mm	1276mm
Net Weight	795KG	1050KG
Fuel Tank (L)	170	90

Note: This parameters allows for some acceptable deviations.

■ Engine Specification: 1103A-33TG1

Basic technical data

No. of cylinders	3
Cylinder arrangement	In-line
Cycle	4 stroke
Induction system	Turbocharged
Compression ratio	17.25:1
Bore	105mm
Stroke	127mm
Displacement	3.3L
All ratings certified to within	± 3%
Speed variation at constant load	±0.25%

Cooling system

Total coolant capacity	
-with radiator	10.2L
-without radiator	4.4L
Maximum top tank temp	110°C
Thermostat operation range	82-93°C
Radiator face area	0.276 m²
Rows and material	double row aluminium
Pressure cap setting	107 kPa
Fan diameter	457,0 mm
Drive ratio	0.85 : 1
Number of blades	7

Fuel system

Injection system	Direct
Fuel injection pump	Rotary
Fuel atomiser	Multi-hole
Nozzle opening pressure	29,0 MPa
Fuel lift pump type	Mechanical
- flow/hour	120 - 150 l/h
- pressure	30 - 75 kPa
Maximum suction head:	
-1500 rev/min	20 kPa

Induction system

Clean filter	5kpa
Dirty filter	8kpa
Air filter type	Dry

Lubrication system

Total lub capacity	8.3L
Sump minimum	6.2L
Sump maximum	7.8L
Maximum engine operating angles	
-front up, front down, right side	
or left side	25°
Lubricating oil pressure	
-Relief valve opens	415-470 KPa
- at maximum no-load speed	276-414 KPa
Oil consumption at full load	
as a % of fuel consumption	0.15%

Electrical system

Type	Negative ground
Alternator voltage	12 volts
Alternator output	65 amps
Starter motor voltage	12 volts
Starter motor power	3KW

General installation

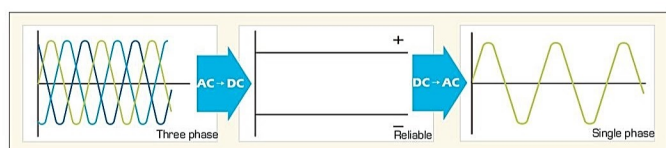
Prime power

Combustion air flow	2.9m³/min
Exhaust gas temp	492° C
Exhaust gas flow, wet	7.0m³/min
Engine coolant flow	125.5l/min
Cooling fan air flow	53 m³/min

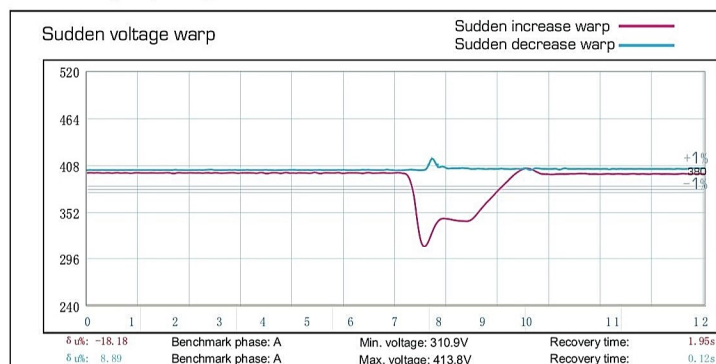
■ Alternator Specification



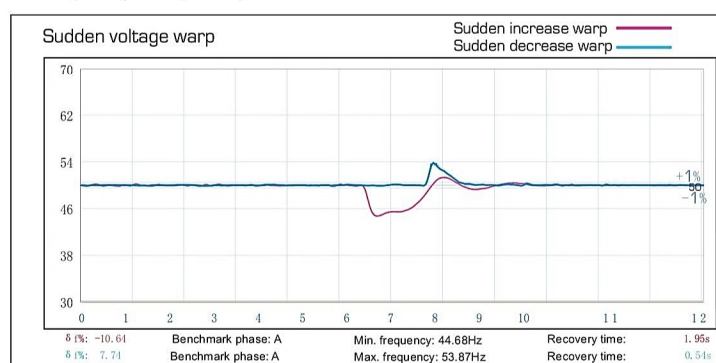
Alternator	
Number of phase	3
Power factor (Cos Phi)	0.8
Poles	4
Winding Connections (standard)	Star-serie
Terminals	12
Insulation type	H class
Winding Pitch	2/3
IP rating	IP23
Excitation system	Self-excited
Bearing	Single bearing
Coating	Vacuum impregnation
Voltage regulator	A.V.R
Coupling	Flexible disc



Emergency voltage curve



Emergency frequency curve



■ Options

Engine	Alternator	Generator Sets	Fuel System
<ul style="list-style-type: none"> Water Jacket Pre-heater Fuel heater 	<ul style="list-style-type: none"> Winding Temp measuring Instrument Alternator Pre-heater PMG Anti-damp and anti-corrosion treatment Anti-condensation heater Winding and bearing RTD 	<ul style="list-style-type: none"> Tools with the machine Extended range fuel tank Bunded fuel tank 	<ul style="list-style-type: none"> Low fuel level alarm Automatic fuel feeding system Fuel T-valves
Canopy	Lub oil system	Cooling System	Control Panel
<ul style="list-style-type: none"> Rental type Canopy Trailer 	<ul style="list-style-type: none"> Oil Pre-heater Oil temp sensor 	<ul style="list-style-type: none"> Front heat protection 	<ul style="list-style-type: none"> Remote control panel ATS Synchronizing controller Adjustable earth leakage relay

■ Control Panel

Configuration

- Emergency stop button
- Protection MCB
- Battery charger
- Integrated aviation plug
- ATS connection
- Digital control module

Features

- 3 phase generator set monitoring
- Support of engines equipped with electronic control unit
- Comprehensive diagnostic message
- Automatic or manual start/stop of the gensets
- Push buttons for simple control, lamp test
- Graphic back-lit LCD display
- Parameters adjustable via keyboard or PC
- Mains measurements (50HZ/60HZ)
- Generator measurements (50HZ/60HZ)
- Comprehensive shutdown or warning on fault condition
- 3 phase Generator protections
 - Over-/under voltage
 - Over-/under frequency
 - Current/voltage asymmetry
 - Over current/overload
- 3 phase AMF function
 - Over-/under frequency
 - Over-/under voltage
 - Voltage asymmetry
- Configurable analog inputs
- Battery voltage, engine speed (pick-up) measurement
- Configurable programmable binary inputs and outputs
- Warm-up and cooling functions
- Generator C.B. and Mains C.B. control with feedback and return timer
- RS232 interface
- Modem communication support
- Hours counter
- Sealed to Ip65
- Event log

Benefits

- Less wiring and components
- Integrated solution
- Less engineering and programming
- User friendly set-up and button layout
- Module can be configured to suit individual applications
- PC software for simplified configuration
- Wide range of communication capabilities

Operation conditions

- Operation temp: -20 °C to + 70 °C
- Storage temp: -30 °C to + 80 °C
- Operating humidity: 95% w/o condensation
- Vibration : 5-25Hz, ± 1.6 mm
5-100Hz, $a=4g$
- Shocks: $a= 500m/s^2$

Options

- Ethernet interface (Remote monitoring and control)
- GSM modem/wireless internet (Remote monitoring and control)
- RS232-RS485 Dual port interface
- Synchronizing control panel
- Distribution board with sockets kit and power busbar
- Battery trickle charge ammeter
- Earth leakage protection
- Earth fault protection
- Low fuel level alarm
- Low fuel level shutdown
- High fuel level alarm
- Fuel transfer system control
- Low coolant level shutdown
- High lube oil temp shutdown
- Overload via alarm switch on breaker
- Engine coolant heater controls
- Control panel heater
- Speed adjust switch
- Oil temp displayed on LCD screen
- Additional 8 inputs and outputs