



**TUV NORD**



## Mechanical Power driven by Perkins

- Manufactured in facilities certified with ISO 9001:2015, ISO 14001:2015 & OHSAS 18001:2007.
- Manufactured in accordance to 8528-1 to 12.
- Engine performance according to ISO 3046, BS 5514, DIN 6271.
- Alternator performance according to NEMA-MG1, BS 5000, DIN EN, relevant ISO, IEC60034.
- Breaker complies with IEC – 60947-2.



الصناعات الدقيقة  
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المصنعة بالقطعة  
PRECISION INDUSTRIES

# PI 169P

## Industrial Generating Set

POWERED BY Perkins

MODEL	rpm / Hz	VOLTAGE	PRIME <sup>(1)</sup>	STANDBY <sup>(2)</sup>
PI 169P	1800 / 60	480 / 277	152 kVA / 121.6kWe	169 kVA / 135.2kWe

### ENGINE SPECIFICATIONS

Rated Output (PRP) <sup>(1)</sup>	140.5 kW <sub>m</sub>
Rated Output (ESP) <sup>(2)</sup>	155.4 kW <sub>m</sub>
Engine Make & Model	Perkins 1106A-70TG1
No. of Cylinders	6 Vertical In-line
Cycle	4 Strokes
Aspiration	Turbocharged
Cooling Method	liquid
Governing Type	Mechanical
Governing Class	G2 - ISO 8528 Part 1
Compression Ratio	18.2:1
Displacement	7.01 L (428.in <sup>3</sup> )
BorexStroke (mm/in)	105x135 / 4.1x 5.3
Battery and Charger Alternator	12 VDC , 65 Amp

### AIR SYSTEM

Air Filter Type	Dry Element
Combustion Air Flow (PRP)	10.95 m <sup>3</sup> /min
Combustion Air Flow (ESP)	11.48 m <sup>3</sup> /min
Radiator Air Flow	234 m <sup>3</sup> /min

### COOLING SYSTEM

Total Coolant Capacity (L)	21L (5.54 US gal)
Water Pump Type	Centrifugal Eng-Driven
Radiator Fan Load	7 kW
Heat Radiation to Room (PRP)	13.7 kW
Heat Radiation to Room (ESP)	14.9 kW

### LUBRICATION SYSTEM

Oil Filter Type	Spin on full flow filter
Total Oil Capacity	18 L (4.7 US gal)
Oil Pan	14.9 L (3.93 US gal)
Oil Type	API CH4/CI4; SAE 15W-40

### FUEL SYSTEM

Fuel Filter: Ecoplus fuel filter	
Recommended Fuel	Class A2 Diesel
Fuel Consumption Standby	38.8 L/hr (10.30 US gal/hr)
Fuel Consumption 100% PRP	35.2 L/hr (9.29 US gal/hr)
Fuel Consumption 75% PRP	26.5 L/hr (6.86 US gal/hr)
Fuel Consumption 50% PRP	18 L/hr (4.62 US gal/hr)

### EXHAUST SYSTEM

Muffler Type	Industrial Grade
Max. Back Pressure	6 kPa
Exhaust Gas Flow (PRP/ESP)	27.16 / 29 m <sup>3</sup> /min
Exhaust Gas Temperature	526 <sup>0</sup> C

### ALTERNATOR SPECIFICATIONS

Rated Output (Prime) <sup>(1)</sup>	178.8 kVA
Rated Output (Standby) <sup>(2)</sup>	193.8 kVA
Alternator Make & Model	Stamford UCI274E
Number of Poles	4
Number of Winding Leads	12
Type of Bearing	Single
Insulation Class / Temp Rise	H/H
Efficiency @ Rated Voltage	91.9%
Ingress Protection Rating	IP 23
Excitation System	Self Excited
AVR Model	Stamford - SX460

### ALTERNATOR OPERATING DATA

Overspeed	2250 r.p.m
Voltage Regulation	± 1 %
Waveform distortion	No load < 1.5%, Linear load < 5%
Radio Interface	EN 61000-6-2 & EN 61000-6-4
Cooling Air Flow	0.617 m <sup>3</sup> /sec

<sup>(1)</sup> **PRIME POWER RATING (PRP):** PRP is defined as the maximum power which a Generating set is capable of delivering continuously whilst supplying a variable electrical load when operated for an unlimited number of hours per year. The permissible average power output over 24 hours shall not exceed 70% of PRP unless otherwise agreed by RIC engine manufacturer. An overload capability of 10% of 100% of the prime rated electrical power is permitted for emergency use for a period of 1 hour within 12 hours of operation

<sup>(2)</sup> **EMERGENCY STANDBY POWER RATING (ESP):** ESP is defined as the maximum power available during a variable electrical power sequence, under the stated operation condition, for which a generating set is capable of delivering power in the event of a utility power outage or under test condition for up to 200 Hours of operation per year. The permissible average output over 24 hour of operation shall not exceed 70 % of the ESP power rating noting that no over load is permitted.



### CONTROLLER SPECIFICATIONS

Controller Make & Model	DeepSea 4520
Operation Mode	MRS / AMF (optional)
Display	Graphic Back-lit LCD (128x64) pixels
Ingress Protection Rating	IP65
Binary Inputs/Outputs	4 / 4
Analog Inputs	3
Measurement	Vac, A, Hz, kVA, kW, Vdc
Event Log	Alarms log, Hrs log
Communication	USB

### ENCLOSURE SPECIFICATIONS

Enclosure Type	Acoustic & Weather Proof
Anticorrosive Protection	
Polyester Powder Coated Galvanized Sheet	
Ingress Protection Rating	IP23
Lifting	ISO Standard Lifting
Emergency	External Emergency Push Button
Canopy RAL Color	RAL 2000
Baseframe RAL Color	RAL 9011
Noise Pressure level @ 7m	74 dB(A)

### GENSET DIMENSIONS & WEIGHT

GENSET TYPE	Length (mm)	Width (mm)	Height (mm)	Fuel Tank Capacity (L)	Dry Weight (kg)	Wet Weight (kg)
OPEN	2760	900	1610	450	1515	1575
CLOSE	3764	1155	2195	435	2242	2300

### STANDARD MECHANICAL FEATURES

Genset design provides a low noise level with an optimized performance of the ventilation and exhaust systems at 50 °C ambient temperature.

Robust structure design of Enclosure and Baseframe.

Heavy duty lifting lugs.

Multi doors for easy access & maintenance.

Ingress Protection Rating according to BS EN 60529.

Heavy Duty Baseframe with built-in tank & forklift pockets.

Industrial Grade Muffler with rain cap.

### STANDARD ELECTRICAL FEATURES

An advance Control system is designed to provide a comprehensive protection and to monitor the parameters of generating set.

MCCB power circuit breaker.

Battery with charging alternator, cables, and tray.

Sealed harness & high resistant electrical connections.

Fast and accurate protection response.

Generating Set remote start function.

Numeric display with LED. Various languages capable.

### OPTIONAL FEATURES

Advanced Controllers are available on request.

4 poles manual / Motorized Circuit breaker

Jacket water pre-heater

Static Battery Charger

Residential / Critical grade muffler

Fuel Filter / Water separator Fuel Filter

Remote Annunciator

### Application

Infrastructure, Industrial, Residential, Telecom,  
Defense, Mining, Agriculture

