

## Model: P165D5

Powered by PERKINS

### Output Rating

MODEL		Power rating		Voltage available		
		PRIME(1)	STANDBY(2)			
P165D5	400V/50HZ	120KW	132KW	380/220V	400/230V	415/240V
	PF:0.8	150KVA	165KVA			

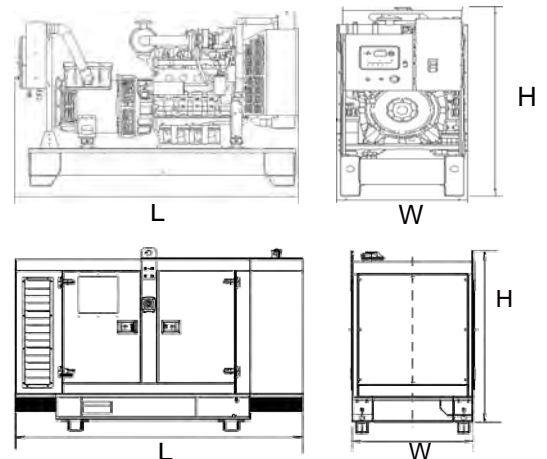
### General Information

Model	P165D5	
Engine	1106A-70TAG2	
Speed control type	ECM	
Phase	3	
Control System	Digital	
System voltage	12V	
Frequency	50HZ	
Engine Speed(RPM)	1500	
Fuel Consumption (L/H)	Standby power(2)	36.1
	Prime Power(1)	33.4
	75% prime power	24.7
	50% prime power	16.4



### Dimension and Weight

Dimension	Open	Silent
Length (L)	2525mm	3400mm
Width (W)	1100mm	1100mm
Height (H)	1600mm	1900mm
Net Weight	1700KG	2100KG



AGG POWER gensets are compliant with EC mark 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) Prime Power (PRP):

According to ISO 8528-1:2005, Prime power is 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 under the agreed operation conditions with the maintenance intervals and procedures being carried out as prescribed by the manufacturer. The permissible average power output (Ppp) over 24h of operation shall not exceed 70% of the PRP.

#### (2) Standby Power (ESP):

According to ISO 8528-1:2005, standby power is the maximum power available during a variable electrical power sequence, under the stated operation conditions, for which a generating set is capable of delivering in the event of a utility power outage or under test conditions for up to 200h of operation per year with the maintenance intervals and procedures being carried out as prescribed by the manufacturers. The permissible average power output over 24h of operation shall not exceed 70% of the ESP.



## Engine Specification

### Basic technical data

Number of cylinders	6
Cylinder arrangement	In-line
Cycle	4 stroke
Induction system	Turbocharged and air charge cooled
Combustion system	Direct injection diesel
Compression ratio	16 : 1
Bore	105 mm
Stroke	135 mm
Cubic capacity	7.01 litres
Direction of rotation	Anticlockwise when viewed from flywheel
Firing order	1, 5, 3, 6, 2, 4
Estimated total weight (dry)	788 kg
Estimated total weight (wet)	822 kg

### Electrical system

Alternator	A115i
Alternator voltage	12 volts
Alternator output	85 amps
Starter	AZF
Starter motor voltage	12 volts

### Exhaust system

Maximum back pressure - 1500 rpm	6.0 kPa
Exhaust outlet, internal diameter	72 mm

### Lubrication system

Maximum total system oil capacity	16.5 litres
Minimum oil capacity in sump	12.4 litres
Maximum oil capacity in sump	14.9 litres
Maximum engine operating angles -	
Front up, front down, right side, left side	25°
Sump drain plug tapping size	3/4 - 16 UNF
Shutdown switch setting (where fitted)	
Oil pressure shut down switch	90 kPa Falling

### Cooling system

#### Cooling pack

Overall weight (wet)	70 kg
Overall face area	524800 mm <sup>2</sup>
Width	724 mm
Height	1090 mm

#### Radiator

Face area	351200 mm <sup>2</sup>
Number of rows and materials	4 rows, Aluminium
Matrix density and material	10 fins per inch, Aluminium
Width of matrix	439 mm
Height of matrix	800 mm
Pressure cap setting (Min.)	100 kPa

#### Charge cooler

Face area	173,600 mm <sup>2</sup>
Number of rows and materials	2 rows, Aluminium
Matrix density and material	10 fins per inch, Aluminium
Width of matrix	220 mm
Height of matrix	789 mm

#### Fan

Diameter	610 mm
Drive ratio	1,2:1
Number of blades	7
Material	Nylon
Type	Pusher
Air flow @ 1500 rpm	282 m <sup>3</sup> /min
Power @ 1500 rpm	5 kW

#### Coolant

Total system capacity	21 litres
System drawdown capacity	10%
Engine capacity	9.5 litres
Maximum top tank temperature	110°C
Temperature rise across engine	
(Max. rating dependent)	6°C - 12°C
Max. permissible external system resistance	35 kPa
Thermostat operation range	82°C to 93°C

## General installation

General Installation	Units	Prime	Standby
Gross engine power	kW	136	153.6
Brake mean effective pressure	kPa	1552.1	1752.9
Mean piston speed	m/s	6.8	
ElectropaK net engine power	kW	131	144.1
Engine coolant flow (against 35 kPa restriction)	l/min	142	
Combustion air flow (at STP)	m <sup>3</sup> /min	10.02	10.67
Exhaust gas flow (Max. )	m <sup>3</sup> /min	23.78	25.53
Exhaust gas temperature (Max) in manifold (after turbocharger)	°C	484	
Net engine thermal efficiency	%	39.46	39.18
Typical genset electrical output (0.8pf 25°C)	kWe	120	132
	kVA	150	165
Regenerative power (estimated)	kW	6.9	
Assumed alternator efficiency	%	91.6%	91.6%
Energy balance			
Heat in fuel	kW	331.99	367.77
Power to cooling fan	kW	5	
Power to coolant and lubricating oil	kW	69.1	75.7
Power to exhaust	kW	96.6	105.6
Energy to charge coolers	kW	17.5	20.5
Power to radiation	kW	11	12.2



## ▪ Alternator

Alternator		
Poles	Num	4
Winding Connections (standard)		Star-serie
Insulation	Class	H class
Enclosure (according IEC-34-5)		IP23
Exciter System		Brushless
Voltage Regulator		A.V.R.
Bearing		Single bearing
Coupling		Flexible disc
Coating type		Standard (Vacuum impregnation)

## ▪ Options

Engine	Alternator	Generator Sets	Fuel System	Canopy
<ul style="list-style-type: none"> <li>•Water Jacket Preheater</li> <li>•Oil Preheater</li> </ul>	<ul style="list-style-type: none"> <li>•Winding Temperature measuring Instrument</li> <li>•Alternator Preheater</li> <li>•PMG</li> <li>•Anti-damp and anti-corrosion treatment</li> <li>•Anti-condensation heater</li> </ul>	<ul style="list-style-type: none"> <li>•Tools with the machine</li> </ul>	<ul style="list-style-type: none"> <li>• Low fuel level alarm</li> <li>•Automatic fuel feeding system</li> <li>•Fuel T-valves</li> </ul>	<ul style="list-style-type: none"> <li>•Rental Type Canopy</li> <li>•Trailer</li> </ul>
Lubricating System	Exhaust System	Cooling System	Control Panel	Voltages
<ul style="list-style-type: none"> <li>•Oil with the machine</li> </ul>	<ul style="list-style-type: none"> <li>•Protection board from hotness</li> </ul>	<ul style="list-style-type: none"> <li>• Front heat protection</li> <li>• Coolant (-30°C)</li> </ul>	<ul style="list-style-type: none"> <li>•Remote control panel</li> <li>• ATS</li> <li>• Remote controller</li> <li>• Synchronizing controller</li> </ul>	<ul style="list-style-type: none"> <li>• 415/240V</li> <li>• 380/220V</li> <li>• 220/127V</li> <li>• 220/127V</li> <li>• 200-115V</li> </ul>



■ **Control Panel: AMF20**



**Benefits**

- Less wiring and components
- Integrated solution
- Less engineering and programming
- Perfect price/performance ratio

**Features**

- Support of engines equipped with Electronic Control Unit (J1939 interface)
- Comprehensive diagnostic messages; SPN/FMI codes; KWP2000 support
- Automatic or manual start/stop of the gen-set
- Push buttons for simple control, lamp test
- Graphic back-lit LCD display 128x64 pixels
- 6 LED indicators
- Parameters adjustable via keyboard or PC
- Generator C.B. and Mains C.B. control with feedback and return timer
- RS232 interface (AT-LINK CONV cable is necessary for IL-AMF 20)
- Modem communication support (IL-AMF 25 only)
- Dimensions 180x120 mm (front panel)
- Sealed to IP65

- Mains measurements (50/60 Hz): U1-U3, Hz
- Generator measurements (50/60 Hz): U1-U3, I1-I3, Hz, kW, kVAr, kWh
- Selectable protections alarm/shutdown
- 3 phase Generator protections
  - Over-/under voltage
  - Over-/under frequency
  - Current/voltage asymmetry
  - Overcurrent/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

**The Chart of Functions of IntelLite<sup>®</sup> Controllers**

FUNCTIONS/CONTROLLERS	IL-AMF 20	IL-AMF 25	IL-MRS 10	IL-MRS 15	IL-MRS 11	IL-MRS 16
Binary inputs/outputs	7 / 7	7 / 7	6 / 6	6 / 6	6 / 6	6 / 6
Analog inputs	3	3	3	3	3	3
Pick-up	•	•	•	•	•	•
AMF function	•	•	-	-	-	-
Input configuration	•	•	•	•	•	•
Output configuration	•	•	•	•	•	•
Voltage measurement Gen./Mains	3ph / 3ph	3ph / 3ph	3ph / -	3ph / -	3ph / -	3ph / -
Current measurement	3ph	3ph, IDMT overcurrent	3ph	3ph, IDMT overcurrent	3ph	3ph, IDMT overcurrent
kW/kWh measurement	• / -	• / •	• / -	• / •	• / -	• / •
GCB/MCB control with feedback	• / •	• / •	- / -	- / -	• / -	• / -
Extension units (periph.)	-	IGL-RA15, IG-IOM, IGS-PTM	-	IGL-RA15, IG-IOM, IGS-PTM	-	IGL-RA15, IG-IOM, IGS-PTM
Communication interfaces	RS232 <sup>2)</sup>	RS232, CAN <sup>3)</sup>	RS232 <sup>2)</sup>	RS232, CAN <sup>3)</sup>	RS232 <sup>2)</sup>	RS232, CAN <sup>3)</sup>
Modem support	-	•	-	•	-	•
Battery charging alternator circuit	•	•	•	•	•	•

Key: • included; - excluded  
 1) GCB control, but without feedback  
 2) For IL-AMF 20, IL-MRS 10/11 AT-LINK CONV cable necessary  
 3) CAN for periph.

Legend: IG-IOM/IGS-PTM: I/O extension modules  
 IGL-RA15: Remote annunciator  
 I-RD: Remote display

