This document gives a complete list of technical data with some detailed explanations of the main systems, subsystems and performance of our generators, in order to support local sales documentation, tenders or even technical doubts.

While every effort has been made to ensure that the information in this manual is correct Chicago pneumatic does not assume responsibility for possible errors. Chicago pneumatic reserves the right to make changes without prior notice.

Standard Model Scope

Applying insights gained from industrial customers, rental companies, public utilities and other end users CPDG generators are designed to withstand the most demanding on-site conditions and environments.

Considering their impressive performance at full capacity, the CPDG line of generators includes excellent features for noise reduction and environmental protection.

CPDG generators are purpose built for quick, easy and safe transport and on-site handling. Built to last, a CPDG generator will provide years of dependable service for your electrical power generation needs.
All members of the widely appreciated CPDG family are intelligent multi-task units managing to power a wide range of electrical equipment in different applications.

Their superior component configuration offers a wide range of control modules, electrical settings and mechanical options, in order to guarantee superior quality at efficient operating costs.

Conceived for 100% prime power operation in the most severe outdoor conditions, ready to work in sensitive areas, CPDG generators are designed and configured for safe operation with minimal downtime under any circumstance.

Features

- Carefully selected components, accurately developed and tested configuration
- Superior standard configuration and extensive option list
- 500 hours service interval and superior accessibility to all service points
- Compact and safe concept and sturdy design
- Designed and built to last

Benefits

- Accurate and stable power regardless of the conditions
- Ability to power a wide range of applications
- Service efficiency: increased up-time
- Increased transport efficiency
- Superior resale value / longer life time

Manufacturing and Environmental Standards

The CPDG range is manufactured following stringent ISO 9001 regulations, and by a fully implemented Environmental Management System fulfilling ISO 14001 requirements.

Attention has been given to ensure minimum negative impact to the environment. The CPDG range complies with the latest noise emission directives.

Declaration of Conformity

Our CPDG is in conformity with **ISO 8528:** CPDG generators are design to comply with ISO 8528 regulation and relevant Essential Health and Safety Requirements for low emission markets.

1. Performance Data

Generator			CPDG305	CPDG330
Rated speed	rpm		1500	1800
Rated power factor (lagging)			0.8	0.8
Rated Prime Power, PRP	kVA	220V & 440V / (400V - 50Hz)	305	331
		380V	-	331
	kW	220V & 440V / (400V - 50Hz)	244	264,8
		380V	-	264,8
Limited Time Power, ESP (Stand-by)	kVA	220V & 440V / (400V - 50Hz)	315	365
		380V	-	365
	kW	220V & 440V / (400V - 50Hz)	252	292
		380V	-	292
Continuous Operation Power, COP (Continuous)	kVA	220V & 440V / (400V - 50Hz)	244	264,8
		380V	-	264,8
	kW	220V & 440V / (400V - 50Hz)	195,2	211,8
		380V	-	221,8
Rated voltage (3ph. line to line)	V		400	220 & 440 / 380
Rated voltage (1ph. line to neutral)	V		231	127 & 254 / 219
Rated current 3ph. (ESP) - (440V) / (400V - 50Hz	A		454,7	478,9
Rated current 3ph. (ESP) - (380)	A		-	554,6
Rated current 3ph. (ESP) - (220)	A		-	957,9
Maximum sound power level (LWA) complies with 2000/14/EC	dB(A)		100,3	101,6
Maximum sound pressure level (LPA) at 7 m	dB(A)		74	75
Coupling engine/alternator			Direct	
Capacity fuel tank (total)	l		650	650
Fuel tank specifications			-	-
Fuel Autonomy at full load (Considering full capacity)	h		10,1	9,4
Single step load acceptance (within G2, acc. ISO 8528-5:1993)	%		60	80
Frequency drop (lower than % isochronous)	%		<10	
Maxim oil consumption 100% load	l/h		0,123	0,133

Derating Table (%)

Derating Factor %	*temperature (°C)*										
	0	5	10	15	20	25	30	35	40	45	50
0	100	100	100	100	100	100	100	100	100	100	100
500	100	100	100	100	100	100	100	100	100	100	100
1000	100	100	100	100	100	100	100	100	100	100	100
1500	100	100	100	100	100	100	100	100	100	100	100
2000	100	100	99	99	99	98	98	97	97	97	96
2500	94	94	93	93	93	92	92	92	91	91	90
3000	88	88	87	87	87	86	86	86	85	85	85
3500	80	80	79	79	79	79	78	78	78	77	77
4000	72	72	72	71	71	71	70	70	70	70	69

(at 50Hz, for 60Hz check in AIB)

Limitations		CPDG305	CPDG330
Maximum ambient temperature	ºC	50	50
Altitude capability	m	5000	5000
Relative air humidity maximum	%	85	85
Minimum running temperature	ºC	0	0

*** on high humidity regions freezing may occur on the *breather pipes***

Application Data		CPDG305	CPDG330
Mode of operation		PRP	PRP

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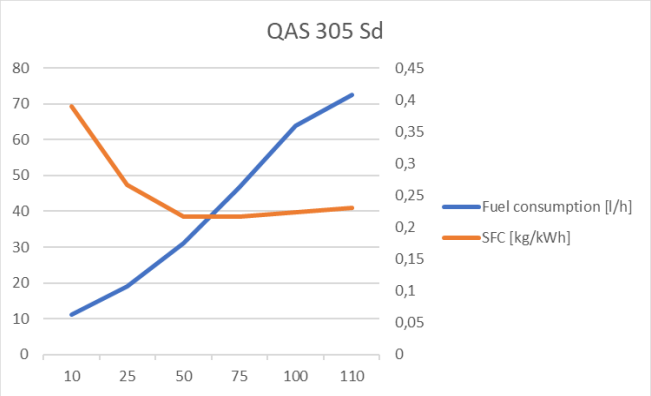
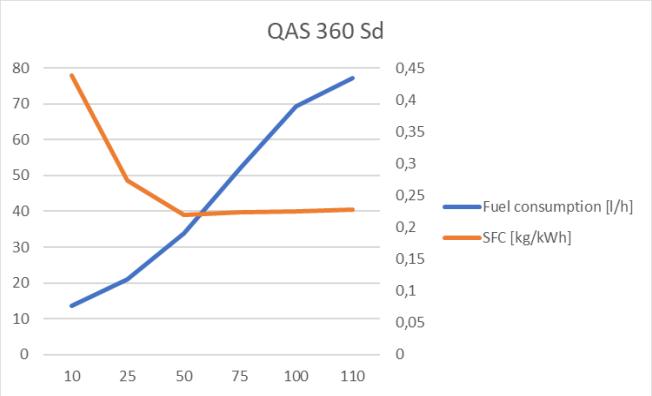
Max. Inclination		+/- 25º	+/- 25º
Operation		Single	Single
Start-up and control mode		manual / auto	manual / auto
Climatic exposure		open air	open air

		CPDG305	CPDG330
Speed	rpm	1500	1800
Fuel Consumption at*:			
0% Load	l/h	6,48	8,48
50% Load	l/h	31,00	33,79
75% Load	l/h	46,54	51,72
100% Load	l/h	63,88	69,26
110% Load	l/h	72,54	77,23
Specific Fuel Consumption at:			
100% Load	kg/kWh	0,223	0,224



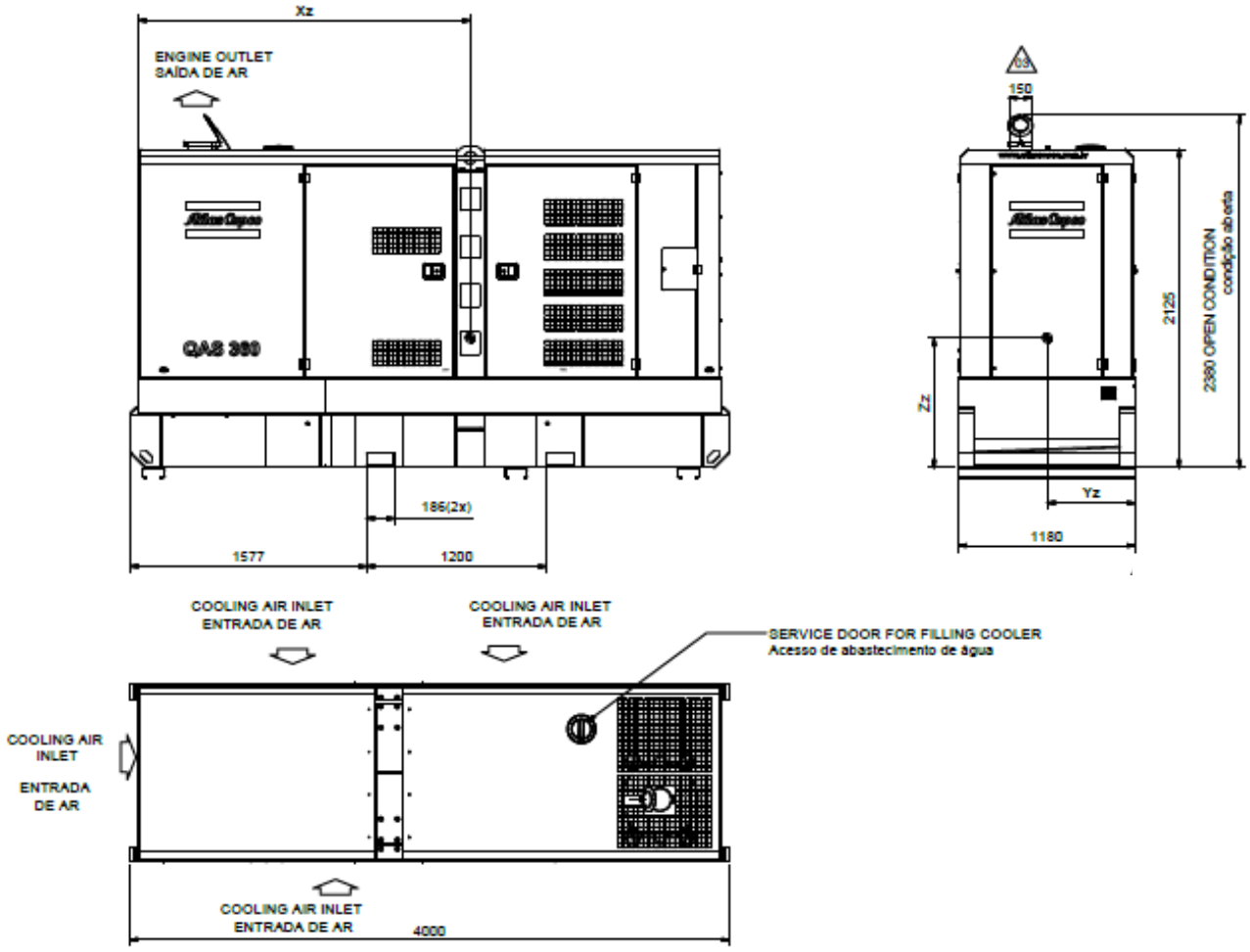


(Reference conditions at 25ºC Air Inlet Temperature, 60% Relative Humidity, 1bar Absolute inlet pressure, for different conditions or limitations contact Chicago pneumatic technical support).

2. Box

		CPDG305	CPDG330
	rpm	1500	1800
Dimensions (L x W x H)	m	4,0 x 1,2 x 2,4	4,0 x 1,2 x 2,4
Weight			
Net mass	Kg	3304	3304
Wet mass	Kg	3937	3937
Capacity of spillage free frame	l	795,3	795,3
Foam silencer			
Thickness	mm	30	30
Temperature	ºC	Min -30 Max 120	Min -30 Max 120

Our canopies are made from galvanized steel and painted with powder coating paint. To improve the protection in the most exposed parts as frame and lifting beam, it is also primed with a special paint before coating.



3. Engine

		CPDG305	CPDG330
	rpm	1500	1800
General			
Manufacturer		Scania	Scania
Model		DC9 072A	DC9 072A
Standard		ISO 3046 / ISO 8528-2	ISO 3046 / ISO 8528-2
Power Rated Speed	kW	261	282
Number of cylinders	u.	5	5
Configuration		5 vertical in line	5 vertical in line
Aspiration		Turbocharged	Turbocharged
Speed governor		Electronic	Electronic
Bore	mm	130	130
Stroke	mm	140	140
Electrical system (DC)	V	24	24
Compression ratio		16:01	16:01
Displacement (swept volume)	l	9,3	9,3
Combustion system		Direct injection	Direct injection
Charged air cooling system		Intercooled	Intercooled
Maximum permissible load factor of PRP during 24h	%	100	100
Lubrication system			
Type		PAROIL E (Mineral)	PAROIL E (Mineral)

Capacity of oil system (including filters + sump)	l	36	36
Oil pressure at rated speed	Bar	3 – 6	3 – 6
Maximum Lubrication oil temperature	ºC	110	110
Air intake system			
Air filter cleaning efficiency	%	99.9%	99.9%
Cooling system			
Coolant		Parcool	Parcool
Capacity of engine	l	9,3	9,3
Total capacity (radiator, hoses...)	l	73	73

4. Alternator

		CPDG305	CPDG330	
	rpm	1500	1800	
General				
Manufacturer		WEG	WEG	
Model		AG10-250MI10AI	AG10-250MI10AI	
Standard		IEC 34-1 / ISO 8528-3	IEC 34-1 / ISO 8528-3	
Rated net power (ESP: 50Hz 27ºC / 60 Hz 40ºC)	kVA	406	406	
Number of bearings		1	1	
Number of wires		12	12	
Voltage regulator accuracy		+/- 0.5%	+/- 0.5%	
Degree of protection / Insulation class		IP 23/H	IP 23/H	
Environment Protection		IEC 60721-3-3/ =<95%	IEC 60721-3-3/ =<95%	
		Possible condesation	Possible condesation	
		ONSHORE	ONSHORE	
Number of poles		4	4	
Number phases		3	3	
Over speed	rpm	2250	2250	
Air flow	m³/s	1,55	1,55	
Total Harmonic Distortion THD		no load < 5%	no load < 5%	
		Three-phase	Three-phase	
Xd Direct axis synchro reactance unsaturated	%	355	531	435
X'd Direct axis transient reactance saturated	%	13,5	20,3	16,6
X''d Direct axis subtransient reactance saturated	%	10	15	12,2
Excitation system		Brushless with auxiliary coil	Brushless with auxiliary coil	
Sustained short-circuit current		1213	1464	
Time sustained short-circuit current	s	-	-	
AVR				
Model		Avr Analog	Avr Analog	
Accuracy (Stability)		+/-0,5%	+/-0,5%	
Nominal Current		5A	5A	
Peak Current		7A / 10s	7A / 10s	
Droop / TC		Yes	Yes	
Dynamic response (ms)		8 to 400	8 to 400	
U/F		Yes	Yes	
Internal Voltage Adjustment		+/-15%	+/-15%	
External Voltage Adjustment		+/-10%	+/-10%	
Transient Response Time for AU=20%		500 ms	500 ms	

The WEG alternators are designed for heavy duty continuous applications:

- INDUSTRIAL – GRADE 1 protection (relative humidity >95%) for tropical environment (except coastal areas). Salinity salt concentration =< 1 g/m³. Degree of protection: IP21 or IP23. Plate packeges: unpainted, with painting paln: 207. Clamping elements: ZTAM. Impregnation: VPI;
- ONSHORE (OFFSHORE application is optional);
- 4 pole brushless design with single bearing, Class H insulation and IP23 rating;
- Voltage regulation +/- 0.5%;
- AREP is a standard feature. PMG is optional;

5. Generator

		CPDG305	CPDG330
	rpm	1500	1800
Energy Balance			
Engine			
Heat rejection to exhaust (PRP)	kW	186	222
Heat rejection to coolant (PRP)	kW	90	98
Heat rejection to radiation (PRP)	kW	22	24
Alternator			
Efficiency at full load	%	92,90%	93% (at 380V) / 93,4% (at 220V / 440V)
Exhaust System			
Flow (PRP)	m³/min	24	28
Flow (ESP)	m³/min	24	28
Exhaust gas temperature "after turbine" (PRP)	ºC	460	473
Exhaust gas temperature "after turbine" (ESP)	ºC	506	529
Max. Backpressure allowed	kPa	≤ 2	≤ 2
Output pipe diameter	mm	152	152
Battery			
Quantity		2	2
Voltage	V	12	12
Capacity	Ah	100	100
Connection		-	-
Dimensions (L x W x H)	mm	329,5 x 171,5 x 241	329,5 x 171,5 x 241
Generator Voltage	V	400	220 & 440 / 380
Mains Voltage		STD	STD
Generator Current transformer		STD	STD
Transformer Maintenance Changeover feedback		STD	STD
Reply: Mains CB opened/closed		STD	STD
Reply: Generator CB opened/closed		STD	STD
Air Inlet Pressure Switch		STD	STD
Low Coolant Level Shutdown/Warning		STD	STD

6. Power Output

			CPDG305	CPDG330
		rpm	1500	1800
Circuit Breaker				
Brand			WEG	WEG
Model		440V / 400V (50Hz)	DWB800	DWB800
		380V	-	DWB800
		220V	-	DWA1600
Poles			3	3
Rated current (In)	A	440V / 400V (50Hz)	630	630
		380V	-	630
		220V	-	1250
Thermal release, regulated (It)		440V / 400V (50Hz)	0,7~1,0 In	0,7~1,0 In
		380V	-	0,7~1,0 In
		220V	-	0,8~1,0 In
Overload protection (Ir)			0,7 – 1,0 x In	0,7 – 1,0 x In
Fault current protection, residual current release (Idn)	A		0,030-30	0,030-30
Manual			Manual	Manual
Life operating cycles without maintenance (mechanical / electrical)		440V / 400V (50Hz)	3000 / 1.000	3000 / 1.000
		380V	3000 / 1.000	3000 / 1.000
		220V	3000 / 500	3000 / 500

Terminal Board			
Bolts diameter	mm	12	12
Terminal type		Plug	Plug
Sockets Available*		via "Special Requests"	via "Special Requests"

STD – Standard; OP – Option; NA – Not Available

7. Options

		CPDG305	CPDG330
	rpm	1500	1800
Mechanical Options			
Special Equipment			
Spark arrestor		OP	OP

Spark arrestor is a device that is designed to trap any exhaust particles or combustible materials, such as sparks or other flaming debris, from escaping into hazardous areas where they might cause fires. Exhaust particles are centrifuged in the spark arrestor, then collected and stored in a reservoir until emptied by an operator. An air shut-off valve serves to stop the engine by closing the air intake once the controller detects an over speed in the engine.

Fuel System			
External fuel tank connection		STD	STD
Material		Brass	Brass

The EFT enable the generator to run for long periods of time on an external fuel supply without having to refuel. We can also provide quick couplings to enable easy and fast connection to the fuel tank

Electrical Options			
Coolant Heater			
Electric driven coolant heater		OP	OP
Voltage	V	240	240
Power	kW	2	2
Current	A	8,3	8,3
Thermostat Range	ºC	38 / 49	38 / 49
Fuel driven coolant heater		NA	NA

Its main mission is heat the coolant so that the temperature of the engine is always high enough to start straight away, even in temperatures as low as minus 25 degrees Celsius. Not for all models but a fuel powered version is available, which is ideal for remote areas without mains supply.

Electrical Options			
Battery			
Battery charger*		STD	STD
Temperature	ºC	-18 to 50	-18 to 50
Input frequency	Hz	48……64	48……64
Output voltage	V	24 - 27,5	24 - 27,5
Output current	A	5	5
Output power	W	137	137
Dimensions (L x W x H)	mm	136 x 140 x 63	136 x 140 x 63
Battery cut off switch		STD	STD

Battery charger is necessary for stand-by applications because the controller is always on, ready to start at any time. Battery cut off switch allows the battery to be disconnected when storing the unit, thus preventing the battery from becoming drained.

Controllers			
Qc2103		STD	STD
Qc4003		OP	OP

Qc2103: has in addition the possibility of detect a mains failure
Qc4003: is the high spec controller prepared to work synchronized with several units (IPP) and/or the mains

CONTROLLERS KEY FEATURES QC 1103 & 2103 CONTROLLERS

Auto start or automatic mains failure applications

Monitoring of electronic or non-electronic engines
J1939 as standard

Gen-set and busbar control & protection

Improved inputs/outputs
Up to 11 digital inputs, 5 analogue inputs and 8 relay outputs

Modbus communication rs485

Configurable for other applications
PARUS configurable

Graphical display
Multi-language

CONTROLLERS KEY FEATURES QC 4003 CONTROLLER

Controllers key features Qc 4003

Paralleling between generators and mains power supply

Full engine monitoring
CAN communication J1939

Gen-set and busbar control & protection

Multiple configurable inputs/outputs

Modbus communication RTU/RS485

Easy software with m-logic programation
PARUS 3

PARALLELING APPLICATIONS
Load Take Over, Mains Export/Import, AMF, Peak Shaving, Transformer Maintenance, Fix power and PMS (CAN

Chicago Pneumatic