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 Atlas Copco does not assume responsibility for possible errors. Atlas Copco 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 QAS generators are designed to withstand the most demanding on-site conditions and environments.

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

QAS generators are purpose built for quick, easy and safe transport and on-site handling. Built to last, a QAS generator will provide years of dependable service for your electrical power generation needs.
All members of the widely appreciated QAS 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, QAS 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 QAS 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 QAS range complies with the latest noise emission directives.

Declaration of Conformity

Our QAS EC falls under the provisions of the article 12.2 of the EC Directive 2005/42/EC on the approximation of the laws of the Member States relating to machinery, is in conformity with, the relevant Essential Health and Safety Requirements of this directive:
MACHINERY SAFETY (2006/42/EC): EN ISO 12100-1, EN ISO 12100-2, UNE EN 12601
ELECTROMAGNETIC COMPATIBILITY (2004/108/EC): EN 61000-6-5, EN 61000-6-4
LOW VOLTAGE EQUIPMENT (2006/95/EC): EN 60034, EN60204-1, EN 60439
OUTDOOR NOISE EMISSION (2000/14/EC): ISO 3744
IS0 8528: QAS generators are design to comply with ISO 8528 regulation

1. Performance Data

Generator		QAS 630 Vod Stage 2	
Rated speed	rpm	1500	1800
Rated power factor (lagging)		0,8	0,8
Rated Prime Power, PRP	kVA	630	688
	kW	504,0	550,4
Limited Time Power, ESP (Stand-by)	kVA	693,0	756,8
	kW	554,4	605,4
Continuous Operation Power, COP (Continuous)	kVA	441,0	481,6
	kW	352,8	385,3
Rated voltage (3ph. line to line)	V	400	480
Rated voltage (1ph. line to neutral)	V	230	277
Rated current 3ph. (PRP)	A	909,3	827,5
Rated current 3ph. (ESP)	A	1000,3	910,3
Maximum sound power level (LWA) complies with 2000/14/EC	dB(A)	99	103
Maximum sound pressure level (LPA) at 7 m	dB(A)	71	75
Coupling engine/alternator		Direct	
Capacity fuel tank (total)	l	860	
Fuel tank specifications		Metal	
Fuel Autonomy at full load (Considering full capacity)	h	6,9	6,3
Single step load acceptance (within G2, acc. ISO 8528-5:1993)	%	53	64
Frequency drop (lower than % isochronous)	%	≤0,25	≤0,25
Maxim oil consumption 100% load	l/h	0,1	0,1

Derating Table (%)

	0ºC	5 ºC	10 ºC	15 ºC	20 ºC	25 ºC	30 ºC	35 ºC	40 ºC	45 ºC	50 ºC
0 m	100	100	100	100	100	100	100	100	100	90	80
500 m	100	100	100	100	100	100	100	100	100	90	80
1000 m	100	100	100	100	100	100	100	100	100	90	80
1500 m	100	100	100	100	100	100	100	100	100	90	80
2000 m	90	90	90	90	90	90	90	90	90	90	80
2500 m	85	85	85	85	85	85	85	85	85	NA	NA
3000 m	80	80	80	80	80	80	80	80	80	NA	NA
3500 m	75	75	75	75	75	75	75	NA	NA	NA	NA
4000 m	70	70	70	70	70	70	70	NA	NA	NA	NA

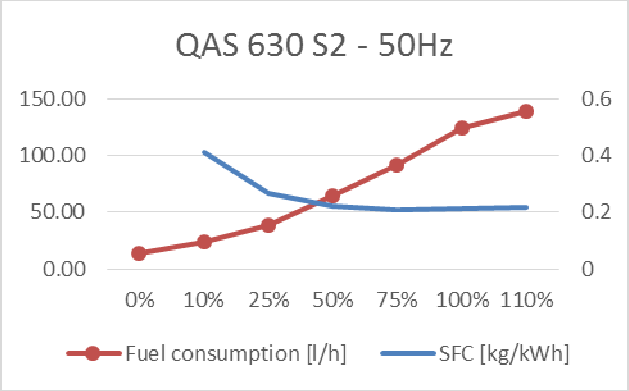
Limitations		QAS 630 Vod Stage 2
Maximum ambient temperature	ºC	50
Altitude capability	m	4000
Relative air humidity maximum	%	85
Minimum running temperature	ºC	-15
Minimum running temperature, with coldstart equipment and opened breather*	ºC	-25

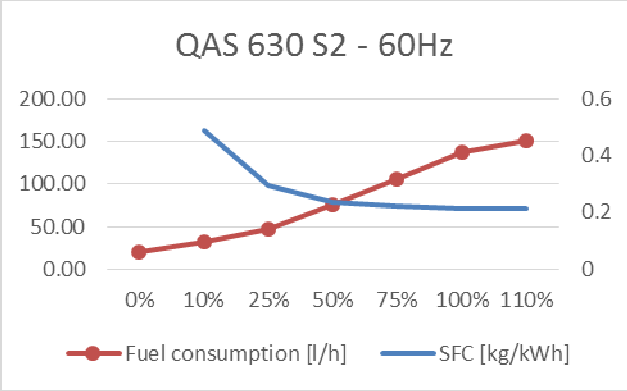
*** on high humidity regions freezing may occur on the *breather pipes***

Application Data		QAS 630 Vod Stage 2
Mode of operation		PRP
Max. Inclination		+/- 30º
Operation		single / parallel
Start-up and control mode		manual / auto
Climatic exposure		open air

		QAS 630 Vod Stage 2	
	rpm	1500	1800
Fuel Consumption at*:			
0% Load	l/h	13,95	20,56
10% Load	l/h	24,20	31,35
25% Load	l/h	39,00	47,16
50% Load	l/h	65,10	75,91
75% Load	l/h	92,00	106,00
100% Load	l/h	124,37	137,00
110% Load	l/h	139,53	151,26
Specific Fuel Consumption at:			
0% Load	kg/kWh	NA	NA
10% Load	kg/kWh	0,413	0,490
25% Load	kg/kWh	0,266	0,295
50% Load	kg/kWh	0,222	0,237
75% Load	kg/kWh	0,209	0,221
100% Load	kg/kWh	0,212	0,214
110% Load	kg/kWh	0,216	0,215

Diesel fuel type No. 2 diesel or a fuel corresponding to ASTM D2. Density: 0,86 kg/l



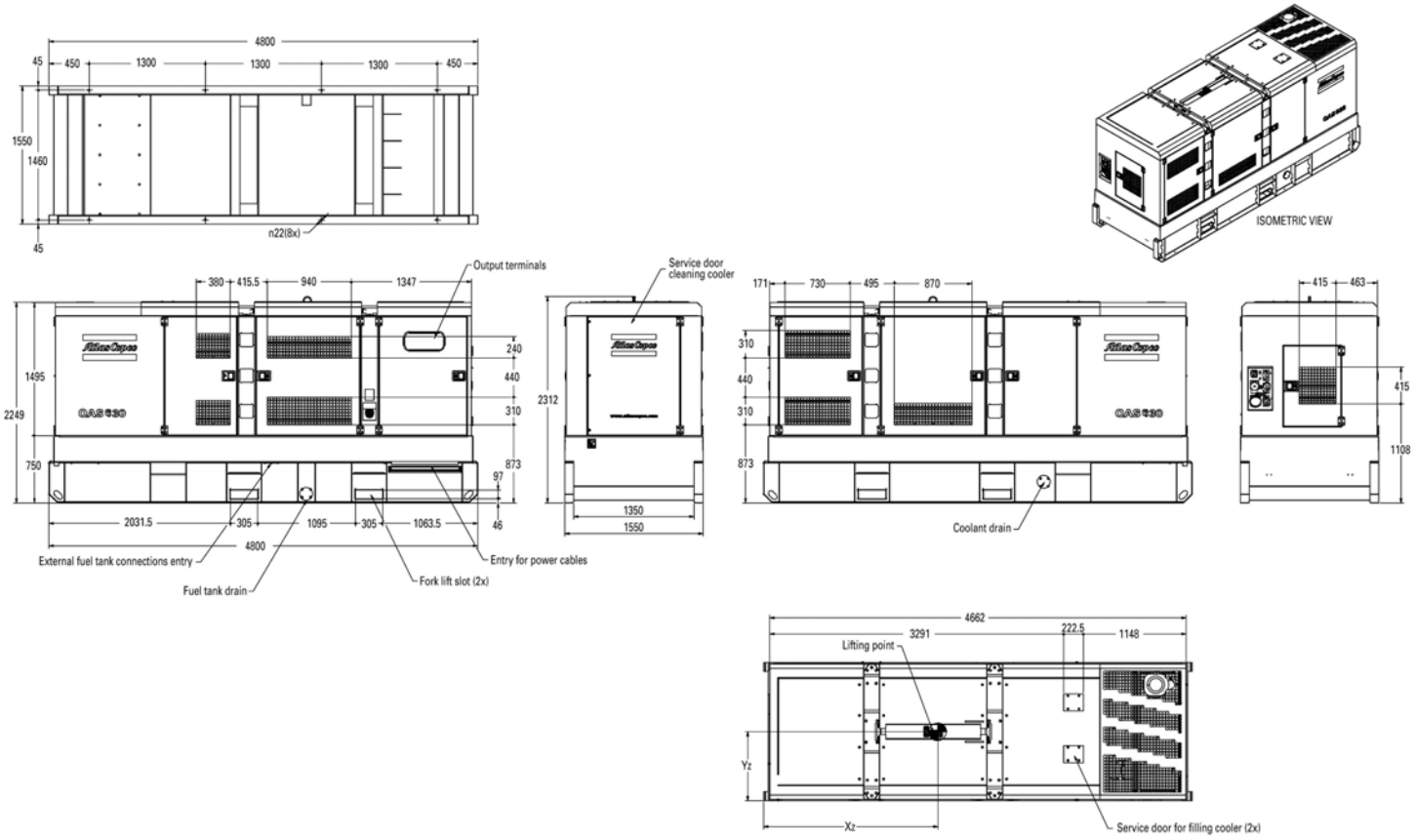


(Reference conditions at 25ºC Air Inlet Temperature, 60% Relative Humidity, 1bar Absolute inlet pressure, for different conditions or limitations contact Atlas Copco technical support).

2. Box

		QAS 630 Vod Stage 2	
	rpm	1500	1800
Dimensions (L x W x H)	m	4,8 x 1,55 x 2,29	
Weight			
Net mass	Kg	5941	
Wet mass	Kg	6830	
Capacity of spillage free frame	l	1035,1	
Dimensions Long autonomy Fuel tank		NA	
Weight		NA	
Net mass	Kg		
Wet mass	Kg		
Foam silencer			
Thickness	mm	50	
Temperature	ºC	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

		QAS 630 Vod Stage 2	
	rpm	1500	1800
General			
Manufacturer		Volvo	
Model		TWD1643 GE	
Standard		ISO 3046 / ISO 8528-2	
Number of cylinders	u.	6	
Configuration		6 in line	
Aspiration		Turbocharged	
Speed governor		Volvo Penta EMS-2	
Bore	mm	144	
Stroke	mm	165	
Electrical system (DC)	V	24	
Compression ratio		16,5:1	
Displacement (swept volume)	l	16.12	
Piston speed	m/s	8,3	9,9
Combustion system		Direct injection	
Charged air cooling system		Intercooled	
Maximum permissible load factor of PRP during 24h	%	70	
Lubrication system			
Type		PAROIL E (Mineral)	
Capacity of oil system (including filters + sump)	l	48	
Oil pressure at rated speed	kPa	300 - 650	
Maximum Lubrication oil temperature	ºC	130	
Air intake system			
Air consumption 25ºC (PRP)	m³/min	43,65	53,07
Air consumption 25ºC (ESP)	m³/min	46,96	54,85
Max allowable air intake restriction	kPa	5	
Air filter cleaning efficiency	%	99.85%	
Air filter capacity	m³/min	18 - 25	
Cooling system			
Coolant		Parcool	
Capacity of engine	l	33	
Total capacity (radiator, hoses...)	l	95	
Fan power consumption at nominal speed	kW	17	30
Fan material		Plastic	
Coolant flow	l/s	4,8	6
Air mass flow (50ºC)	m³/s	8,3	10
(58ºC)	m³/s	10,8	12,5
Fuel filter		Water Separator	
Max pressure	bar	1,8	
Temperature	ºC	-40 to 121	
Volume	l	2,6	
Flow Rate	l/h	341	
Emission compliance		EU STAGE 2	EU STAGE 2
No X + HC	g/kWh	5,4 + 0,08	5,63 + 0,11
CO	g/kWh	0,69	0,41
PM	g/kWh	0,083	0,076
SO2	g/kWh	NA	NA
CO2 (at optimal working point)	%	7,66	6,93

***These values are extracted from official engine datasheet.**

4. Alternator

		QAS 630 Vod Stage 2	
	rpm	1500	1800
General			
Manufacturer		Leroy Somer	
Model		LSA 49.1 S4	
Standard		IEC 34-1 / ISO 8528-3	
Rated net power (ESP: 50Hz 27ºC / 60 Hz 40ºC)	kVA	725	830
Number of bearings		1	
Number of wires		12	
Voltage regulator accuracy		+/- 0.5%	
Degree of protection / Insulation class		IP 23/H	
Environment Protection		System 2 (Humid atmosphere)	
Number of poles		4	
Number phases		3	
Over speed	rpm	2250	
Air flow	m³/s	1	1,2
Total Harmonic Distortion THD		no load < 4%-linear load < 4%	
Waveform: NEMA = TIF		< 50	
Xd Direct axis synchro reactance unsaturated	%	343	343
X'd Direct axis transient reactance saturated	%	17,5	17,5
X"d Direct axis subtransient reactance saturated	%	14,0	14,0
Excitation system		PMG	
Sustained short-circuit current	%	300% (3x In)	
Time sustained short-circuit current	s	10	
AVR			
Model		R 450 M	
Sensing		1 phase	
Voltage regulation	%	±0.5	
Voltage sensing	V	≤530	

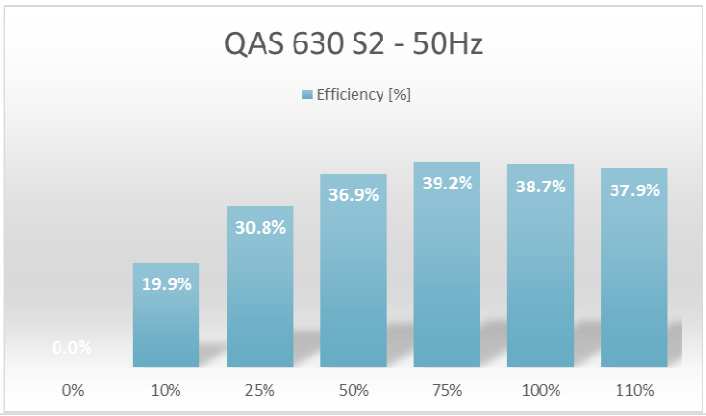
The Leroy Somer LSA alternators are designed for heavy duty continuous applications:

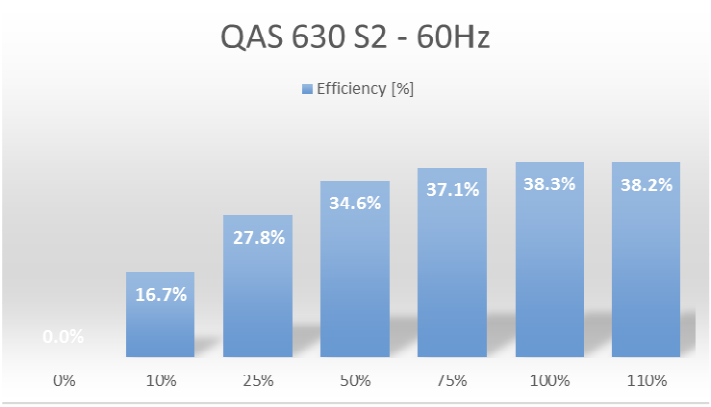
- System 2 protection (relative humidity >95%) for tropical environment (except coastal areas). With high performance dielectric varnish and reinforced over-coating on main stator and rotor
- 4 pole brushless design with single bearing, Class H insulation and IP23 rating
- Voltage regulation +/- 0.5%
- Full Load acceptance of prime power rating
- Standard excitation system is SHUNT (Self excited). As option (check *Electrical options*) you can have additional excitation system as:
    - PMG
    - Auxiliary winding

5. Generator

		QAS 630 Vod Stage 2	
	rpm	1500	1800
Energy Balance			
Engine			
Heat rejection to exhaust	kW	415	472
Heat rejection to coolant	kW	208	246
Heat rejection to radiation	kW	23	26
Alternator			
Efficiency at full load	%	94,00%	

Genset Efficiency





Exhaust System			
Flow (PRP)	m³/min	101.6	119
Flow (ESP)	m³/min	111.8	130.1
Exhaust gas temperature "after turbine" (PRP)	ºC	450	422
Exhaust gas temperature "after turbine" (ESP)	ºC	463	461
Max. Backpressure (Without / with spark arrestor)	kPa	10 / TBD	10 / TBD
Output pipe diameter	mm	150	
Battery			
Quantity		4	
Voltage	V	12	
Capacity	Ah	44	
Connection		Serie + Parallel	
Dimensions (L x W x H)	mm	514x218x210	

		QAS 630 Vod Stage 2
	rpm	1500
Cold cranking current	A(EN) / A(DIN)	1000 / 540
Starting power	kW	7,5
Weight (wet)	kg	43,4
Sensor		
Oil (temp, pressure & level)		STD
Coolant (temp & level)		STD
Fuel (feed pressure)		STD
Charge air (temp & pressure)		STD
Fuel Level		STD
Water in Fuel		STD
Generator Voltage		STD
Mains Voltage		OP
Generator Current transformer		STD
Transformer Maintenance Changeover feedback		OP
Reply: Mains CB opened/closed		OP
Reply: Generator CB opened/closed		OP
Air Inlet Pressure Switch		STD
Low Coolant Level Shutdown/Warning		STD

6. Power Output

		QAS 630 Vod Stage 2	
	rpm	1500	1800
Circuit Breaker			
Brand		Schneider	
Model		NS1000N	
Poles		4	
Rated current (In)	A	1000	
Thermal release, regulated (It)	A	875	
CB tripping point	A	909,3	827,5
Overload protection (Ir)	A	4 x In	
Fault current protection, residual current release (Idn)	A	0,03-30	
Motor Driven DC voltage	V	24	
Motorized		STD with Qc4003	
Life operating cycles without maintenance		10000	
Terminal Board			
Bolts diameter	mm	14	
Terminal type		Platen	
Sockets Available*			
Sockets 1 Phase			
PIN Domestic (1x) 2p + E 16 A/230 V		OP	OP
RIN Domestic (1x) 2p + E 16 A/230 V		OP	OP
CE Domestic (1x) 2p + E 16 A/230 V		OP	OP
Sockets 3 Phase		OP	OP
Configuration Remarks**		CEE form 3p + N + PE 16 A/400 V CEE form 3p + N + PE 32 A/400 V CEE form 3p + N + PE 63 A/400 V CEE form 3p + N + PE 125 A/400 V	

***Sockets are enable for 50Hz and disable for 60Hz**
****For a different configuration/scope contact Atlas Copco support**

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

7. Options

		QAS 630 Vod Stage 2	
	rpm	1500	1800
Mechanical Options			
Special Equipment			
Spark arrestor		OP	
Material		S235 JR G2	
Inlet shutdown valve		OP	
Design pressure	bar	13.8	
Max/Min Temperature	ºC	-25 to 80	

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
Material		Brass 0011 5204 03
Test pressure	bar	1
Overpressure	bar	2
Open pressure	bar	1±0,1
Max/Min Temperature	ºC	-30 to +80
External fuel tank connection with quick coupling		OP

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

AFT Automatic fuel transfer		NA
Additional fuel filter		OP
Design pressure	bar	1,2
Test pressure	bar	1,8
Volume	l	2,6
Max/Min Temperature	ºC	-40 to 121
Max flow rate	g/h	90
Skid fuel tank (long autonomy)		NA
Capacity	l	
Material		
Fuel level sender (*Changes automatically for different fuel tank)		STD
Oil level maintainer		NA
Capacity of oil tank		-
Cold start synthetic first oil filling		STD
Type		PAROIL Extra
Temperature (min / max)	ºC	-15 to 40ºC
Density (Ambient temperature)	g / cc	0,86 (15ºC)
Cold flow		Antifreeze fuel additives in 0,2% composition

		QAS 630 Vod Stage 2	
	rpm	1500	1800

Mechanical Options

Undercarriage option		
Undercarriage adjustable towbar with brakes		NA
Number of axles		-
Permissible mass on each axle	kg	-
Maximum speed	km/h	-
Dimensions (L x W x H)	mm	-
Brake connections		-
Wheel	r	-
Loose ball coupling		NA
Adapter 24V road signalization		NA
Towing eye		
Towing eye DIN		NA
Towing eye NATO		NA
Towing eye BALL coupling		NA
Towing eye ITA		NA
Towing eye AFR		NA

Depending on the size, units have a two-wheeled, single axle trailer, or a double axel with 4 wheels. Both types of trailer have an adjustable towbar and road signalization.

Special options		
Special color undercarriage		NA
Special color wheels		NA
Special color canopy		OP
Special color frame		OP
Witness test		OP

Guided and face to face testing of the machine. Including Transient test and Heat Run Test.

Electrical Options

		QAS 630 Vod Stage 2
Coolant Heater		
Electric driven coolant heater		OP
Voltage	V	240
Power	kW	2
Current	A	8.3
Thermostat Range	ºC	38 / 49
Fuel driven coolant heater		OP
Electrical power	W	12
Rated voltage	V	24
Operating pressure	bar	2,5
Flow rate at 0,1 bar	l/h	950

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.

Frequency and Voltage configuration		
Frequency/Voltage/Phases 50 Hz / 400V / 3ph		NA
Dual frequency switch 50Hz-60Hz		STD

***If the unit is dual frequency, DV and MV versions are NA**

Dedicated frequency 50 Hz 230V 1ph		NA
Dual voltage 50 Hz 400 V 3ph - 230V 3ph (Norway)		OP
Dual voltage 50 Hz 400 3ph - 230V 1ph		NA

		QAS 630 Vod Stage 2	
	rpm	1500	1800

Electrical Options

Battery			
Battery charger*		OP	
Temperature	ºC	-20 to 70	
Input frequency	Hz	47……63	
Output voltage	V	24	
Output current	A	10	
Output power	W	240	
Dimensions (L x W x H)	mm	205 x 123 x 86	
Recommendable with Qc2103 and Qc4003			
Battery cut off switch		STD	
Operations	V / A	24 / 1500	

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.

Electronic speed regulator (Governor)		STD	
Model		Engine Management System (EMS 2)	
Connection to engine		CAN SAE J1939	
Sensors/Switch	ºC and kPa	Lubrication, cooling and fuel system	
Earth Protection			
Neutral TNS		STD	
Neutral EDF (TT)		OP	
Neutral IT		NA	
Earth leakage detection Relay (ELR)		STD	
	mA	30	
Insulation Monitoring Relay		OP	
Earth PIN		STD	
Length	mm	950	

Alternator excitation system			
Permanent magnet (PMG)		STD	
AVR		-	
Sustained short-circuit current	%	300% (3x In)	
Time sustained short-circuit current	s	10	
Operating temperature	ºC	-20ºC to +70ºC	
No load voltage	V	125	150
Stator Phase/Phase resistance (20ºC)	Ω	2,1	
Auxiliary winding		NA	
AVR			
Sustained short-circuit current	%		
Time sustained short-circuit current	s		

The PMG or Permanent Magnet Generator is a separate device to power the AVR and is ideal for motor starting and distorted loads as provides the generator 3 times its nominal current during 10 seconds. Auxiliary winding system is an extra winding layer in the alternator that provides same benefits than the PMG.

Controllers			
Qc1103		STD	
Qc2103		OP	
Qc4003*		OP	

***with Qc4003+ PMS Atlas Copco recommends: Battery charger + Coolant heater**
***Just 1 ph socket available**
***Qc4003 includes always communication cables and needed adaptors**

Qc1103: is the controller dedicated for island operation or remote start
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