# QAS 30 S5

Mobile Generator

## Standard Scope of Supply

The Atlas Copco **QAS 30 S5** generator is a prime power, sound attenuated, mobile generator. It is powered by a Kubota Stage V liquid-cooled, four-cylinder diesel engine. The units consist of an alternator, diesel engine, cooling system, electrical distribution, and control systems - all enclosed within a sound attenuated enclosure fabricated from powder coated steel. Special attention has been given to the overall product quality, user friendliness, ease of serviceability, and economical operation to ensure best in class total cost of ownership.

The QAS range is feature-packed and comes with the ruggedness and reliability you demand from a generator. However, some features set the QAS apart – they help operators to meet their sustainability targets while enabling significant business advantages.

These generators feature an innovative design that meets the strictest environmental regulations and helps end-users to optimize their operational performance. Thanks to their high resilience in fast and easy connection, these models are unrivaled when it comes to flexibility. The QAS range is “Plug-and-Play” (multiple sockets, power locks, terminal board), Fleetlink Telemetry, and a simple paralleling capability. Your need for power can be ever changing.

| Standard Features | Benefits |
|---|---|
| • Compact, sound attenuated, corrosion resistant, with single point lifting and 110% fluid containment. | • Extremely durable and environmentally sensitive, designed to be used for everything from the oil field to special event power |
| • Heavy Duty alternator with AREP+ excitation, 3-phase Digital R180 and additional grade protection | • Start-up power for the most demanding sites with 270% over load starting capabilities |
| • Easy service with long run filters and 500-hour service intervals | • Heavy duty oil, air and fuel filters extend the maintenance interval to 500 hours for reduced total cost of ownership |
| • Kubota V2403CR Stage V engine, DOC+DPF-exhaust after treatment | • Proven engine platform with high reliability and durability, No SCR, no AdBlue |
| • Earth Leakage Relay | • Indirect contact protection for user safety |
| • Emergency Stop | • External, recessed emergency stop for increased safety |
| • Remote signal Start / Stop | • Allows connection as a critical back-up unit via a 2-wire dry contact connection in the distribution panel |

## Technical Data[1]

| Generator | Units | QAS 30 S5 |
|---|---|---|
| Rated frequency (1) | Hz | 50 |
| Rated voltage (2) | V | 400 |
| Prime power (PRP) | kVA / kW | 28/22,5 |
| Rated standby power (ESP) | kVA / kW | 31/25 |
| Power factor cos φ | | 0,8 |
| Rated current (PRP) | A | 41 |
| Single step load capability (G2) acc. ISO-8528/5 | % | 100 |
| Operating temperature (min/max) | ºC | -25 / 50 |
| | | |
| Alternator Model | | LEROY SOMER TAL 042C |
| Rated output (ESP 27ºC \| 40ºC) | kVA | 35 |
| Degree of protection / insulation class | | IP 23/H |
| Excitation type / AVR model | | AREP+ / R180 |
| | | |
| Sound power level (LwA) | dB(A) | 89 |
| Sound pressure level (LpA) at 7m | dB(A) | 61 |
| | | |

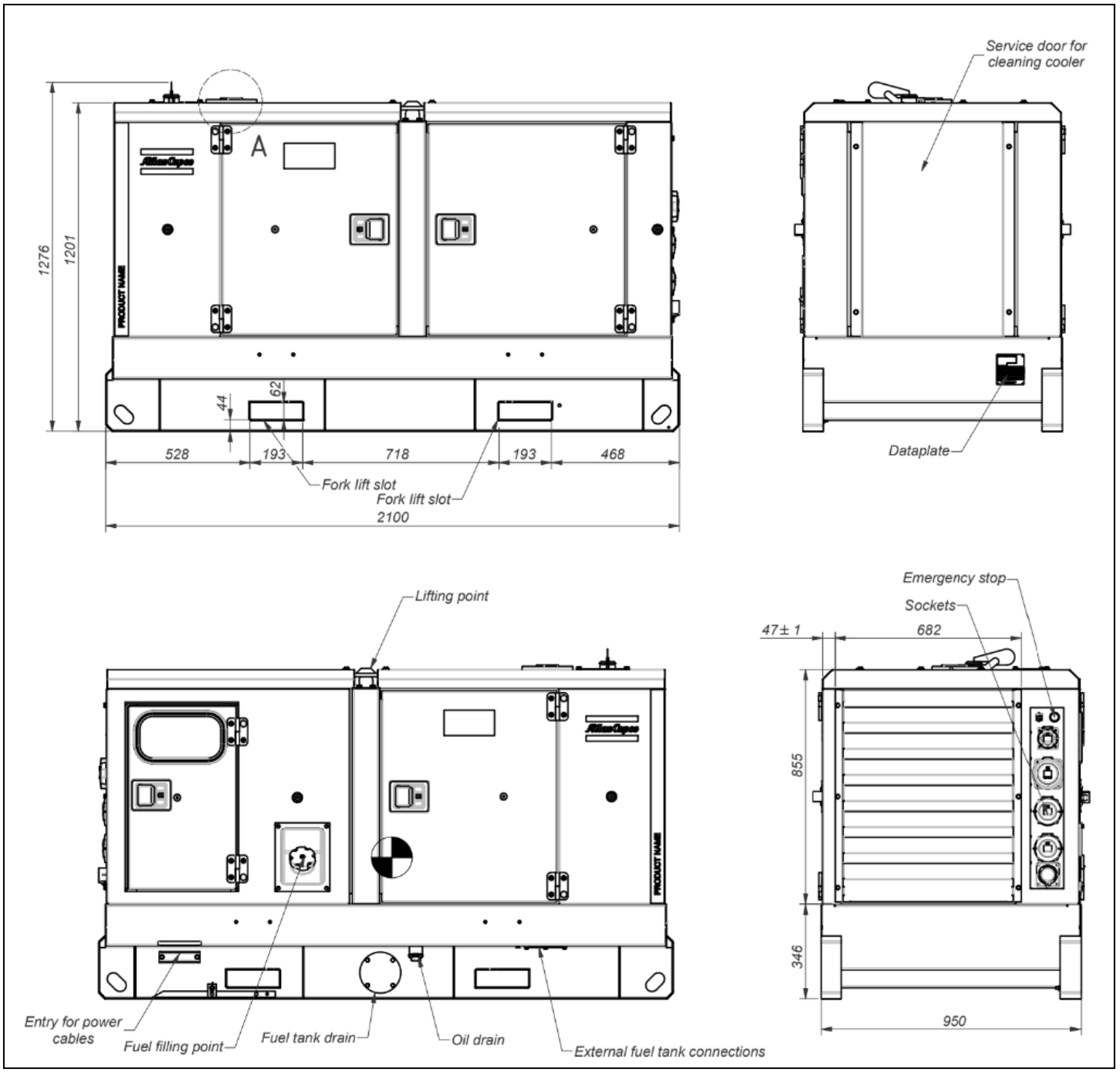
| Engine | Units | QAS 30 S5 |
|---|---|---|
| Model | | KUBOTA V2403 CRT E5 |
| Emission compliance | | Stage V |
| Speed | rpm | 1500 |
| Rated net power (with fan) | $kW_m$ | 25,5 |
| Aspiration | | Turbocharged and air-to-air aftercooled |
| Speed control | | Electronic |
| Number of cylinders | | 4L |
| Coolant | | Parcool |
| Swept volume | l | 2,4 |
| Exhaust gas after treatment system | | DOC+DPF |
| Combustion system | | Direct Injection |
| Capacity of oil sump: - Initial fill | l | 9,5 |
| Capacity of cooling system | l | 10 |
| Maximum permissible load factor during 24h period | % | 70 |
| Electrical system (DC) | V | 12 |
| Battery Capacity (Cold Cranking Amps) | | |

| Fuel System | Units | QAS 30 S5 |
|---|---|---|
| Fuel Consumption @ 0% load | l/h | 1,4 |
| Fuel Consumption @ 50% load | l/h | 3,8 |
| Fuel Consumption @ 75% load | l/h | 4,8 |
| Fuel Consumption @ 100% load | l/h | 6,3 |
| Fuel Type | | Diesel |
| Fuel Tank Capacity Standard tank / High-capacity tank | l | 92 / 257 |
| Fuel Autonomy @ 75% load [8] | h | 18,9 / 52,9 |
| Fuel Autonomy @ 100% load [8] | h | 14,3 / 40,1 |
| DEF Tank Capacity | l | N/A |

***1*** *All ratings are at a reference condition of 0' altitude and 25°C*
***2*** *Please see receptacle voltage configuration in Power Distribution section on page #5*
***3*** *Engine oil to meet CJ-4 (low ash oil)*
***4*** *Please see "Derate Table" for altitude and temperature calculations on*
***5*** *Engine and emissions require the use of Ultra Low Sulfur Diesel in accordance to ASTM-D975 Grade No.1-D S15 & No.2-D S15*

## Dimensions

### Drawing




| Weight - Wet (ready to operate) | Units | QAS 30 S5 |
|---|---|---|
| Net / Wet mass (with daily fuel tank) | kg | 810 / 905 |
| Net / Wet mass (with high-capacity fuel tank) | kg | 855 / 1125 |
| Net / Wet mass (with daily fuel tank and trailer) | kg | 1055 / 1150 |
| **Dimensions** | | |
| Standard fuel tank (L x W x H) | m | 2.1 x 0.95 x 1.28 |
| High-capacity fuel tank (L x W x H) | m | 2.1 x 0.95 x 1.48 |
| Standard fuel tank and trailer (L x W x H) | m | 3.36 x 1.51 x 1.8 |

## Main Data

### Alternator

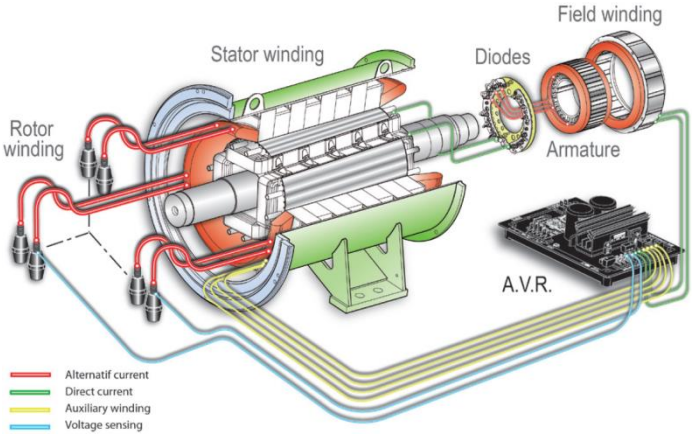
The Leroy Somer Tal alternators are designed for heavy duty continuous applications, with marine winding protection and Leroy Somer's AREP+ excitation system.

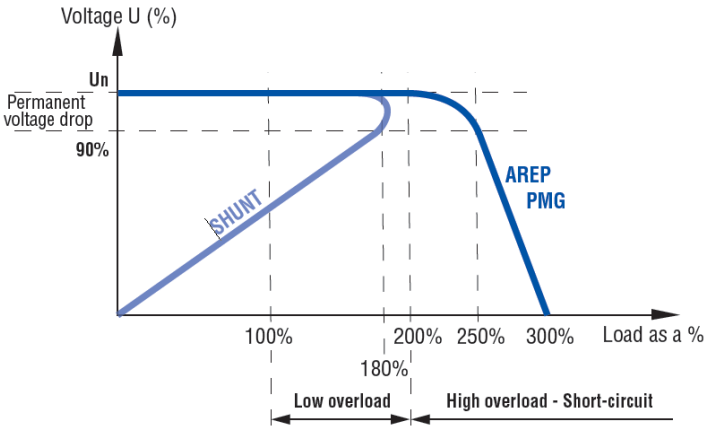
- AREP+ Excitation for superior motor starting capabilities.
- Rental grade system 2 (relative humidity >95%) protection
- 4 pole brushless design with single bearing, Class H insulation and IP23 rating
- Voltage regulation +/- 0.5%
- Full Load acceptance of prime power rating

The AREP+ system uses 2 independent auxiliary windings located in the main stator to send supply voltage to the AVR:

- The voltage delivered by the first auxiliary winding H1 is proportional to the alternator output voltage (shunt characteristic).
- The voltage delivered by the second auxiliary winding H3 is proportional to the current drawn by the alternator and is a function of the applied load (compound characteristic – booster effect).
- The resulting phase-to-phase voltage supplies power to the AVR.

This power supply to the AVR power circuit is independent of the voltage sensing measured on the alternator output terminals. Therefore, the excitation current delivered by the AVR to the alternator exciter is independent of any voltage distortions (harmonics) due to the load.
The AREP+ system gives the alternator a high overload capacity (load impact or starting electric motors) and a short-circuit capability (300% - 10 s) in order to provide discriminating protection: the alternator with AREP+ excitation is shorter than the one with PMG excitation. It is particularly suitable for demanding applications.



## Performance @ Altitude and High Ambient Conditions

When using at altitude and high ambient conditions the engine and alternator will de-rate as per chart below.

Table 1 Conversion Factors under Relative Humidity of 30% and Mechanical Efficiency of 85% — Naturally aspirated diesel engine

| | | | Upper : Intake air temperature (℃) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Lower : Saturation vapor pressure (kPa) | | | | | | | | | | |
| Altitude | Atmospheric pressure | | 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |
| m | mmHg | kPa | 0.61 | 0.87 | 1.23 | 1.71 | 2.34 | 3.17 | 4.25 | 5.63 | 7.38 | 9.59 | 12.34 |
| 0 | 760 | 101.3 | 1.102 | 1.085 | 1.067 | 1.050 | 1.033 | 1.016 | 0.998 | 0.980 | 0.961 | 0.941 | 0.919 |
| 100 | 751 | 100.1 | 1.087 | 1.070 | 1.053 | 1.036 | 1.019 | 1.001 | 0.984 | 0.966 | 0.947 | 0.927 | 0.906 |
| 200 | 741 | 98.8 | 1.072 | 1.055 | 1.038 | 1.021 | 1.004 | 0.987 | 0.970 | 0.952 | 0.933 | 0.914 | 0.893 |
| 300 | 732 | 97.6 | 1.057 | 1.040 | 1.023 | 1.007 | 0.990 | 0.973 | 0.956 | 0.938 | 0.920 | 0.900 | 0.880 |
| 400 | 723 | 96.4 | 1.042 | 1.026 | 1.009 | 0.993 | 0.976 | 0.959 | 0.942 | 0.925 | 0.906 | 0.887 | 0.867 |
| 500 | 714 | 95.2 | 1.028 | 1.011 | 0.995 | 0.979 | 0.962 | 0.946 | 0.929 | 0.912 | 0.893 | 0.874 | 0.854 |
| 600 | 705 | 94.0 | 1.013 | 0.997 | 0.981 | 0.965 | 0.949 | 0.932 | 0916 | 0.898 | 0.880 | 0.861 | 0.841 |
| 700 | 696 | 92.8 | 0.999 | 0.983 | 0.967 | 0.951 | 0.935 | 0.919 | 0.903 | 0.886 | 0.868 | 0.849 | 0.829 |
| 800 | 688 | 91.7 | 0.985 | 0.969 | 0.954 | 0.938 | 0.922 | 0.906 | 0.890 | 0.873 | 0.855 | 0.836 | 0.816 |
| 900 | 679 | 90.5 | 0.972 | 0.956 | 0.940 | 0.925 | 0.909 | 0.893 | 0.877 | 0.860 | 0.843 | 0.824 | 0.804 |
| 1000 | 671 | 89.4 | 0.958 | 0.942 | 0.927 | 0.912 | 0.896 | 0.880 | 0.864 | 0.848 | 0.830 | 0.812 | 0.792 |
| 1100 | 662 | 88.3 | 0.944 | 0.929 | 0.914 | 0.899 | 0.883 | 0.868 | 0.852 | 0.835 | 0.818 | 0.800 | 0.780 |
| 1200 | 654 | 87.2 | 0.931 | 0.916 | 0.901 | 0.886 | 0.871 | 0.855 | 0.840 | 0.823 | 0.806 | 0.788 | 0.769 |
| 1300 | 646 | 86.1 | 0.918 | 0.903 | 0.888 | 0.873 | 0.858 | 0.843 | 0.827 | 0.811 | 0.794 | 0.776 | 0.757 |
| 1400 | 638 | 85.0 | 0.905 | 0.890 | 0.875 | 0.861 | 0.846 | 0.831 | 0.815 | 0.799 | 0.783 | 0.765 | 0.746 |
| 1500 | 630 | 84.0 | 0.892 | 0.878 | 0.863 | 0.848 | 0.834 | 0.819 | 0.804 | 0.788 | 0.771 | 0.753 | 0.734 |
| 1600 | 622 | 82.9 | 0.880 | 0.865 | 0.851 | 0.836 | 0.822 | 0.807 | 0.792 | 0.776 | 0.760 | 0.742 | 0.723 |
| 1700 | 614 | 81.9 | 0.867 | 0.853 | 0.839 | 0.824 | 0.810 | 0.795 | 0.780 | 0.765 | 0.748 | 0.731 | 0.712 |
| 1800 | 607 | 80.9 | 0.855 | 0.841 | 0.826 | 0.812 | 0.798 | 0.784 | 0.769 | 0.753 | 0.737 | 0.720 | 0.701 |
| 1900 | 599 | 79.9 | 0.843 | 0.829 | 0.815 | 0.801 | 0.787 | 0.772 | 0.758 | 0.742 | 0.726 | 0.709 | 0.690 |
| 2000 | 592 | 78.9 | 0.830 | 0.817 | 0.803 | 0.789 | 0.775 | 0.761 | 0.747 | 0.731 | 0.715 | 0.698 | 0.680 |
| 2100 | 584 | 77.9 | 0.819 | 0.805 | 0.791 | 0.778 | 0.764 | 0.750 | 0.736 | 0.720 | 0.705 | 0.688 | 0.669 |
| 2200 | 577 | 77.0 | 0.807 | 0.793 | 0.780 | 0.766 | 0.753 | 0.739 | 0.725 | 0.710 | 0.694 | 0.677 | 0.659 |
| 2300 | 570 | 76.0 | 0.795 | 0.782 | 0.769 | 0.755 | 0.742 | 0.728 | 0.714 | 0.699 | 0.684 | 0.667 | 0.649 |
| 2400 | 563 | 75.1 | 0.784 | 0.771 | 0.757 | 0.744 | 0.731 | 0.717 | 0.703 | 0.689 | 0.673 | 0.657 | 0.639 |
| 2500 | 556 | 74.1 | 0.773 | 0.759 | 0.746 | 0.733 | 0.720 | 0.707 | 0.693 | 0.678 | 0.663 | 0.647 | 0.629 |
| 2600 | 549 | 73.2 | 0.761 | 0.748 | 0.736 | 0.723 | 0.710 | 0.696 | 0.683 | 0.668 | 0.653 | 0.637 | 0.619 |
| 2700 | 542 | 72.3 | 0.750 | 0.738 | 0.725 | 0.712 | 0.699 | 0.686 | 0.672 | 0.658 | 0.643 | 0.627 | 0.609 |
| 2800 | 535 | 71.4 | 0.739 | 0.727 | 0.714 | 0.702 | 0.689 | 0.676 | 0.662 | 0.648 | 0.633 | 0.617 | 0.600 |
| 2900 | 529 | 70.5 | 0.729 | 0.716 | 0.704 | 0.691 | 0.679 | 0.666 | 0.652 | 0.638 | 0.623 | 0.607 | 0.590 |
| 3000 | 522 | 69.6 | 0.718 | 0.706 | 0.693 | 0.681 | 0.669 | 0.656 | 0.643 | 0.629 | 0.614 | 0.598 | 0.581 |
| 3100 | 516 | 68.8 | 0.708 | 0.695 | 0.683 | 0.671 | 0.659 | 0.646 | 0.633 | 0.619 | 0.604 | 0.589 | 0.571 |
| 3200 | 509 | 67.9 | 0.697 | 0.685 | 0.673 | 0.661 | 0.649 | 0.636 | 0.623 | 0.610 | 0.595 | 0.579 | 0.562 |
| 3300 | 503 | 67.1 | 0.687 | 0.675 | 0.663 | 0.651 | 0.639 | 0.627 | 0.614 | 0.600 | 0.586 | 0.570 | 0.553 |
| 3400 | 497 | 66.2 | 0.677 | 0.665 | 0.653 | 0.642 | 0.630 | 0.617 | 0.604 | 0.591 | 0.577 | 0.561 | 0.544 |
| 3500 | 491 | 65.4 | 0.667 | 0.655 | 0.644 | 0.632 | 0.620 | 0.608 | 0.595 | 0.582 | 0.568 | 0.552 | 0.536 |
| 3600 | 484 | 64.6 | 0.657 | 0.646 | 0.634 | 0.623 | 0.611 | 0.599 | 0.586 | 0.573 | 0.559 | 0.544 | 0.527 |

## Power Distribution

The cubicle incorporates all power distribution, controls, sensing and protection devices.

- ✓ Current transformer x 3 (1 each leg)
- ✓ Single main breaker w/shunt trip
- ✓ Individual breakers for each socket
- ✓ Sockets panel located on outside of unit for easy access
- ✓ Terminal board for hard wiring
- ✓ External emergency stop switch (recessed)
- ✓ Neutral bonded to Ground with a removable bonding link accessible in the control cubicle

## Sockets and Power locks panel

Four Slots of sockets available from the following list:

- ✓ CEE 5P 63A 400V
- ✓ CEE 5P 32A 400V
- ✓ CEE 5P 16A 400V
- ✓ Single phase 3P 16A CEE 230V
- ✓ Single phase 3P 16A PIN 230V
- ✓ Single phase 3P 16A RIM 230V

It is also available an individual earth leakage protection per socket or type A or type B.

## Controller - Standard

The QAS 30 S5 comes equipped with a Qc1212 control module. This is a diagnostic ECU controller with large 3” display that is intuitive and easy to operate with all functions conveniently at your fingertips. The controller also manages the engine ECU operating system, and several safety warnings and shut downs on various parameters (listed below).

The controller is powered by a main On/Off switch located next to display.

**Qc1212 Controller Functionality:**

**Home Page** (displayed while running, scrolling every 3seconds)
- ✓ Generator voltage (ph-ph)

**Status Page**
- ✓ Generator voltage (ph-N)
- ✓ Generator voltage (ph-ph)
- ✓ Generator frequency
- ✓ Generator kw
- ✓ Generator power factor
- ✓ Generator amperage

**Generator Page**
- ✓ Generator current (A)
- ✓ Generator earth current
- ✓ Generator load (kW)
- ✓ Generator load (kVA)
- ✓ Generator power factor
- ✓ Generator load (kVAr)
- ✓ Generator load (kWh, kVAh, kVArh)
- ✓ Generator phase sequence
- ✓ Dual mutual status

**Event Page**
- ✓ Displays the last 15 events

**Remote Start/Stop**
- ✓ Automatic start/stop via 2 wire dry contact connection

**Operational Buttons**
- ✓ Start button
- ✓ Stop button
- ✓ Automatic mode (external remote start)
- ✓ Up/Down arrows

**Info Page**
- ✓ Model number
- ✓ USB identification number
- ✓ Configured engine type
- ✓ Module’s date and time
- ✓ Scheduler setting

**Engine Page**
- ✓ Engine speed
- ✓ Oil pressure
- ✓ Coolant temperature
- ✓ Engine battery volts
- ✓ Run Time
- ✓ Oil Temperature
- ✓ Fuel Temperature
- ✓ Turbo Pressure
- ✓ Fuel Pressure
- ✓ Fuel Consumption
- ✓ Fuel Used
- ✓ Fuel Level
- ✓ Auxiliary Sensors
- ✓ Engine Maintenance Due
- ✓ Engine ECU Link

**Engine DTC Page**
- ✓ This page contains any active Diagnostic Trouble Codes that the engine ECU is currently generating. These alarms are conditions detected by the engine ECU and displayed on the DSE controller.

## Engine

### KUBOTA

KUBOTA Stage V, turbo charged, aftercooled, four-cylinder, liquid-cooled diesel engine provides ample power to operate the generator continuously at full-load.

The engine has Exhaust Gas Recirculation Valve, Diesel Oxidation Catalyst and Diesel Particulate Filter to meet with European Stage V emission directive.
All functionality of the engine is monitored automatically on the controller.

The engine has the capability to start the generator at -15°C with standard scope of supply. Cold weather option is available for machine starting for down to -25°C.

The engine operates on a 12V negative ground electrical system with a charging alternator and lockable battery cut-off switch.

The cooling system is suitably designed for continuous operation in ambient conditions up to 50°C with canopy door closed.

### Fuel System

The fuel tank provides safe diesel storage while eliminating tank corrosion contaminants from being introduced to your fuel system. With integrated fuel water separator and filter, the system is designed to help maintain clean and trouble-free diesel supply to the engine for reliable trouble-free operation.

- ✓ Pad-lockable diesel fill cap
- ✓ Fuel / Water separator
- ✓ Fuel pre-filter
- ✓ Fuel level sensor
- ✓ Low fuel shut down feature
- ✓ External fuel connections w/3-way valve and quick couplings

### Scheduled maintenance

Standard equipped with filters sized and designed to allow 500-hour service intervals under normal operating conditions. Extended time between services reduces down time and total cost of ownership of the unit over its lifetime.

**500 Hour Service Interval:**

- ✓ Oil filter
- ✓ Fuel filter
- ✓ Fuel / water separator

**1000 Hour Service Interval:**

- ✓ Air filter
- ✓ Oil filter
- ✓ Fuel filter
- ✓ Fuel / water separator

NOTE: Site specific operating conditions such as poor fuel quality and low load profile may require more frequent service intervals.

## Enclosure & Frame

The generator enclosure is designed for extreme applications to provide superior performance and reliability.

The enclosure is fabricated from galvanized steel which is powder coated for corrosion resistance. The enclosure and frame are fully sealed providing a true 110% containment of the maximum fluid tank.

- ✓ Galvanized steel powder coated enclosure
- ✓ Heavy duty base frame
- ✓ 110% fluid containment
- ✓ Superior level of rain ingress protection and design features
- ✓ Pad-lockable doors and fuel cap
- ✓ Engine fluid plumbed to exterior of frame for ease of service
- ✓ Central lifting point
- ✓ Sound dampening material and design to allow quiet operation

## Noise level and noise map

QAS 30 S5 generator delivers a significant reduction in operating noise levels and is quieter than comparable generators.

| | | |
|---|---|---|
| Sound power level (LwA) | dB(A) | 89 |
| Sound pressure level (LpA) at 7m | dB(A) | 61 |

## Options available

- Oil drain pump
- Coolant heater
- Cold weather
- External Fuel Tank Connections
- Automatic refueling system
- Battery Charger
- Trailer homologated and off-road

## Benefits

- Make easiest and fastest the oil draining process % over load starting capabilities
- Maintain engine temperature at optimal level in order to improve load acceptance.
- Allows to use and start the genset in lower temperature condition
- Ability to provide extended running hours with external fuel tank
- Ability to provide extended running hours maintaining the day tank at optimal level with external fuel tank
- Ensures the batteries are always ready for starting
- Allows towing of the genset to construction site

## Manufacturing & Environmental Standards

The **QAS 30 S5** 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 30 S5** meets current European Stage V directive.

## Supplied Documentation

The unit is delivered with documentation regarding:

- Hard copies of the Engine Manual, alternator manual, wiring diagram in English, Atlas Copco Operators Safety and Instruction Manual
- CE certificate and Test certificate