CC Hydrosonics Solvac S1 Enclosed Solvent Degreaser

Stock No	AAB900
Manufacturer	CC Hydrosonics
Model	SOLVAC S1 Custom with connected Reclaim Still
Year of Manufacture	2022
Serial	1511122022
Condition	From a working environment, Seen working by RSW
Work Envelope (WxDxH mm)	1220mm wide x 915mm deep x 760mm high
Process Stages	Immersion, Ultrasonic & Vapour Dry
Other Info	Enclosed Low Emission Precision Cleaning
Location	Hertfordshire, UK
Weight (kgs)	946 kgs (solvent 322 kgs)
External Dimensions (WxDxH mm)	4200mm wide x 2300mm deep x 4744mm high

Description

SOLVAC ™ S1 HD Solvent Cleaning Process fitted with Full Basket Automation and a Remote Distillation Process. The unit has a full upper canopy and is fitted with a heavy duty four chain hoist and roller bed platform.

Overview

- The Solvac S1 Custom Vapour Degreasing System is designed to safely employ all of today's non-flammable and

EPA approved solvents.
- The fully contained system is an economical solution to precision cleaning applications with solvent.
- The Solvac S1 is packed full of technology and safety features.
- The system comes with Crest's patented Swept Wave ultrasonics for unrivalled cleaning efficiency each and every time.

Features and Benefits

- The system comes as standard with automation.
- This includes an automatic lid and a lift mechanism that will carry the basket through the pre-programmed stages (immersion with agitation / ultrasound, vapour rinse, freeboard dry). This ensures consistent cleaning and drying each and every cycle.
- Automated process to ensure consistent cleaning every time.
- Easy remote access, data export, and firmware updates.
- Automatic sealed lid with freeboard to limit solvent consumption.
- PLC coupled with a high-resolution, full-colour touchscreen HMI.
- 10 user defined recipes / operating programmes.
- Easy and low maintenance operation.
- Ultrasonic agitation for precise cleaning.
- Unobtrusive LED status strip uses a combination of red, green, and blue lights to display current status of the cleaning process.

Process Specification

The process tank is manufactured in 304 Stainless Steel. All inner surfaces are 2mm Thickness with a Brush Stainless Steel Box Sectional Chassis and Outer Cladding. A sturdy stainless steel work support will ensure protection from possible impact of dropped components onto the base of the process tank. The SOLVAC ™ will produce Hot Vapour via thermostatically controlled heaters. A PT100 Thermostat will monitor the solvent temperature and indicate when the solvent is spent. A low solvent cut-out switch will ensure that the SOLVAC ™ never boils dry. Fill points and drain connections will allow automatic or manual fill and empty cycles to be implemented. The Electronic Vapour Control System is a sophisticated Micro Control Monitoring Process that constantly manages the heat-input ratio against any weight of components entering the machine. On initial heat-up mode the unit will call on the electrical heat, this power input is sufficient to quickly establish a Vapour Blanket. When the Probe senses that the Hot Vapour is Present, the PLC pulses the sump heat maintaining a Stable Vapour Blanket, reducing Input energy costs by up to 75%, whilst minimising solvent consumption. By adjusting the Pulse Rate of the Heaters, control on the distillate rate can be achieved.

When Solvent Cleaning on sensitive components, it is extremely important to monitor and control individual cycle times. The Auto Hoist has been specifically designed to accommodate this requirement.

The process works with a vertical door and a horizontal lid both of which close and seal onto cushion seals. At any time there will be at least one of these doors closed and sealed between the operator and the solvent in the plant.

The Patented SOLVAC TM Sealed Compression Lid Automatic Compression Lid that seals the machine and contents by means of compression via pneumatic cylinders and soft seals. This system can further reduce solvent consumption figures by up to 50% more efficient than machines that do not have sealed lids.

When loading the process the operator opens the front pneumatic door and loads the components into the canopy area, once in place he presses the start button to start the following cycle; ·

- Close and seal vertical front door
- Unseal and open horizontal lid
- Hoist lowers components into the Solvent Immersion for a programmable timed period (with or without ultrasonics)
- Hoist raises components into the Vapour Position, just above immersion for a programme timed period
- Hoist raises components up to freeboard position for programmable timed period
- Hoist raises components up to canopy area cleaned and dried
- Horizontal lid closes and seals

Canopy fan runs for programmable timed period ensuring canopy is clear of any emissions before operator is exposed.
Vertical door unseals and opens to allow component retrieval.
All stages in the process can be independently Controlled/Timed by the PLC System.
By increasing Freeboard Drying Times ensure all components are completely dry before being extracted from the system.
This will ultimately minimise solvent consumption and any risk of solvent fumes entering the work place environment.
Equipment built to conform to European Safety Standards (CE).

Specific System Features

- Low Level Safety Solvent Sensors.
- High Sump Contamination Indication.
- Four Sided Condensing Coils.
- Pump and Filtration System.

The Pro-Line3 Cooling System

- Feature 1 Multiple Coils connected to Twin Compressors, running temperatures down to – 30°C
- Feature 2 State of the art Electronic Pulse Modulation System, controlling and minimising energy into the vapour, massively reducing solvent losses and consuming as much as 75% less energy than any other machine in the range.
- 100% Freeboard Area.
- High Vapour Level Safety Cut-Out Device.
- Fully Stainless Steel Construction.
- Multi Cycle Programmable Software.

Ultrasonics

The process is equipped with Crests Push-Pull Transducer Technology operating at 30kHz.

Benefits of the Push-Pull

- High Efficiency (> 97%)
- Homogeneous Sonic Field
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Simple Installation
- Minimal Space Requirement
- Retrofit Capability (increase in watts per ltr. => output)
- 100% Repairable Almost unlimited endurance

PUSH-PULL TRANSDUCERS
Crest Ultrasonic Transducers provide substantially more cleaning power through a variety of patented advantages. Namely, they resonate a higher frequencies and provide a larger wave amplitude, providing for obvious cleaning advantages in a cleaning applications.
Transducers inside each end cap on the titanium rod produce cyclic positive and negative pressure waves at the frequency of operation (25kHz, 30 kHz or 40 kHz).
The positive pressure wave acts as a pushing force on the titanium rod and the negative pressure wave acts as a pulling force (hence "Push-pull").
The pushing and pulling action causes the titanium rod to resonate at the frequency of operation. As a result, near perfect, omni-directional radiation of sound waves is achieved.

Process Sequence

Ready

- Press Start Push button
- Whenever the hoist is initialised the sequence variable is set to 0 and this status display will show.
- Load the work basket to the carrier so that it rests between the guides and is seen by the sensors positioned on the rear of the carriage, and not by the sensor in front of the carrier position.
- Having loaded the basket and work to the carrier, check that all work is contained within the peripheral volume of the basket structure.
- When you are satisfied that the work is correctly loaded. Press the Start push button.

The Main Cycle will perform the following operations in sequence:

Closing the front door

- The front door will move left and then seal.
- If the door is obstructed during the closing operation, it will reverse direction and re-open.
- The cycle will abort in this instance and may be restarted once any applicable reset and Alarm reset has been performed.

Opening tank lid

- The tank lid will unseal and will move backwards (to the rear of the machine).
- Lowering hoist to cooling position
- The hoist will move down to the co-ordinates previously input or set on the hoist page for this position.

Pre-Cooling time

- This will active the ultrasonic generators and run them for the duration of the time input on the program screen.

- The filtration pump will stop.

Lowering hoist to immersion

- The hoist will move down to the co-ordinates previously input or set on the hoist page for this position.
- Once it reaches the immersion position, it will run the steps in the sequence selected for the program that is being run.
- A step will be skipped if its time or operation variable is set to zero (0).

Ultrasonics time

- This will active the ultrasonic generators and run them for the duration of the time input on the program screen.
- The filtration pump will stop.

Immersion time

- This will maintain the basket in the immersion position for the duration requested on the program screen.
- The filtration pump will run.

Evaluating agitations

- This is calculating the movements and co-ordinates for the programmed number of agitations.

Agitating up

- The hoist will move to the set co-ordinates for the high agitation.

Upper agitation pause

- This allows the basket and contents to settle and any residue drip back into the tank.

Agitation down

- The hoist will move to the set co-ordinates for the low agitation.

Lower agitation pause

- This allows the basket and contents to settle and any residue drip back into the tank.

Once the system has performed the three operations (sonics, immersion, agitation), it will check to see if the number of repeats is greater than zero.
If it is, it will reduce the number by 1 and go back to and perform these operations again.
If the number of repeats is zero then the program will continue to the next step.

Checking trays loaded

- At the end of the cleaning operations in the process tank, the system will determine to which position according to the number of trays loaded.

- At present, the system is forced to do a complete cycle so the number of trays is set to four.

Raising hoist to vapour

- The hoist will move to the set co-ordinates for the vapour with the top tray (Tray 1) in the vapour region.

Assessing vapour

- If the Vapour check option is not selected, this step is skipped and we jump to next step.
- If the Vapour Check option is selected, the machine checks the current vapour temperature for 10 seconds and confirms this meets or surpasses the temperature entered in the system settings.
- If the vapour temperature does not meet the Vapotronic Set Point, the message will change to Waiting for vapour up.

Vapour rinse time (Tray 1)

- When the vapour temperature has been confirmed, this will start the vapour timer associated with the current program.

Raising hoist to vapour

- The hoist will move to the set co-ordinates for the vapour with the next tray (Tray 2) in the vapour region.

Assessing vapour

- If the Vapour check option is not selected, this step is skipped and we jump to next step.
- If the Vapour Check option is selected, the machine checks the current vapour temperature for 10 seconds and confirms this meets or surpasses the temperature entered in the system settings.
- If the vapour temperature does not meet the Vapotronic Set Point, the message will change to Waiting for vapour up.

Vapour rinse time (Tray 2)

- When the vapour temperature has been confirmed, this will start the vapour timer associated with the current program. The basket will rotate in the direction programmed if this selection is made.

Raising hoist to vapour

- The hoist will move to the set co-ordinates for the vapour with the next tray (Tray 3) in the vapour region.

Assessing vapour

- If the Vapour check option is not selected, this step is skipped and we jump to next step.
- If the Vapour Check option is selected, the machine checks the current vapour temperature for 10 seconds and confirms this meets or surpasses the temperature entered in the system settings.
- If the vapour temperature does not meet the Vapotronic Set Point, the message will change to Waiting for vapour up.

Vapour rinse time(Tray 3)

- When the vapour temperature has been confirmed, this will start the vapour timer associated with the current program. The basket will rotate in the direction programmed if this selection is made.

Raising hoist to vapour

- The hoist will move to the set co-ordinates for the vapour with the last tray (Tray 4) in the vapour region.

Assessing vapour

- If the Vapour check option is not selected, this step is skipped and we jump to next step.
- If the Vapour Check option is selected, the machine checks the current vapour temperature for 10 seconds and confirms this meets or surpasses the temperature entered in the system settings.
- If the vapour temperature does not meet the Vapotronic Set Point, the message will change to Waiting for vapour up.

Vapour rinse time(Tray 4)

- When the vapour temperature has been confirmed, this will start the vapour timer associated with the current program. The basket will rotate in the direction programmed if this selection is made.

Raising to freeboard

- Raising internal hoist to freeboard position.

Freeboard drying time

- This will maintain the basket in the freeboard position for the duration requested on the program screen.

Raising hoist to top datum

Raising internal hoist to top datum position.

Lowering basket to unload

- The internal hoist will lower the basket to the unloading position.

Closing tank lid

- The tank lid will move left, and seal.

Opening front door

- The front door will unseal, and open, to allow access to remove the basket.

Waiting for unload

- The system signals to the operator that the process has been completed and the basket may be removed.
- The sequence must see the unloader enter the chamber region in order to move on. A new cycle may not be stated at this point.

Waiting for loader clear.

- The loader must remove the basket so that both rear and front sensors are clear for a set time.

Closing front door

- The front door will close and then seal.

Opening tank lid

- The tank lid will unseal and move right.

Lowering basket to load

- The internal hoist will further lower the basket to the loading position.

Closing tank lid

- The tank lid will move left, and seal.

Opening front door

- The front door will unseal, and open, to allow access to remove the basket.

The cycle is now complete, and the system is ready to accept the next basket.

Details

- S1 Custom Solvac Vapour Degreaser with Connected Reclaim Still
- Year of Manufacture: 2022
- In as new condition.
- Seen working by RSW.
- Purchase price 30/11/22: £312,995.00.
- Serial Number: 1511122022
- Nominal overall dimensions: 4200mm long x 2300mm wide x 4744mm high. (excluding reclaim still)
- Note: Unit is currently located in a pit 1700mm deep but could be mounted on factory floor level with suitable loading arrangement.
- Work Envelope: 1200mm long x 900mm wide x 750mm high
- Internal Hoist SWL: 1000 K
- Available from site November 2025.
- Full wiring diagrams and operating manuals available.
- Vapotronic Electronic Pulse Modulation System sends electrical heat energy into the solvent only as needed,

instead of the continual flow used in less efficient machines.

Photographs taken prior refurbishment. Our refurbishment service is not available on all machines.