SP Genevac™

HT Series 3i High-Throughput Evaporator Range

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HT Series 3i Evaporators

Building on the SP Genevac pedigree of evaporation expertise, these systems represent the ultimate in solvent evaporation technology. New sleek lines and latest touchscreen technology make optimizing your evaporation processes effortless. Developed by SP's expert team in response to customer demands, these evaporation systems feature:

- Rugged design with clean lines and a modern look
- New intuitive touchscreen control system for ultimate ease of use
- Integral condenser meaning a smaller system footprint
- Two models, HT-6 and HT-12 to accommodate any sample capacity
- All the features and functionality you expect from an SP Genevac HT evaporator including Dri-Pure® anti-bumping system, automatic run detection, HCl resistance, Inert Gas Purge, LyoSpeed and EXALT™ controlled crystallization

Control Software

The latest touchscreen controls feature intuitive programming with enhanced monitoring and review of the whole evaporation process.

Preset methods for generic solvent groups offer easy 'Press and Go' operation, similar to that seen on the EZ-2.

Truly customized auto-programming methods are designed on board for optimum performance tailored to your specific solvent and sample formats.

Simplified manual programming means you can quickly and easily specify multistage evaporation methods.

User login allows personalization of method screens and easy access to your favourite methods whilst providing security for data logging

All new and enhanced graphing allows the user to monitor operational parameters both during the run and to review once complete. Increased data logging capacity means you will never lose that critical run data.

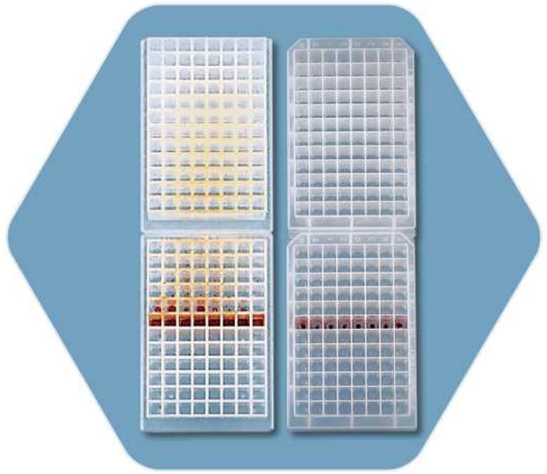
USB method and code transfer with easy system back up and set up duplication.

HT-6 HT-12

- A Touchscreen control interface
- B High power lamps
- C SampleGuard provides real time feedback for accurate control of actual sample temperatures
- D Integral condenser reduces overall system footprint and increases efficiency
- E Auto-defrost and drain for optimal solvent recovery
- F Easy open front door for convenient loading
- G Spacious, easy clean chamber

Dri-Pure

SP Genevac's patented Dri-Pure sample protection system prevents cross-contamination and sample loss due to bumping and is fitted as standard on HT S3i evaporators.



High Power Lamps

New high power, long life IR lamps emit no UV and are user changeable, with easy access from the front of the system. Independent rotor layer control further increases lamp life.

Inert Gas Purge

When working with highly explosive solvents, such as diethyl ether or pentane, the Inert Gas Purge (IGP) system is mandatory. The integral IGP flushes all the air out of the system before the evaporation process starts, replacing it with an inert gas – nitrogen or argon.

Additionally, the IGP system fills the system with inert gas when the evaporator stops, and can be used to keep sensitive samples under a gas blanket until removed by the operator.

HCl

When working with the most aggressive solvents such as hydrochloric acid and other acid chlorides, the HCl-resistant option on the HT S3i enables unrestricted use and maintains reliability. Key elements of the system are engineered in Hastelloy*, glass or PTFE, to provide full protection against these acids. This 'HCl option' must be specified when ordering, as it cannot be retrofitted.

Ergonomic Design

The touchscreen controls with help functions along with a light touch door and spacious interior combine for ease of operation that can be tailored to suit the user.

Front opening, and new lower height of the HT-12 model, provide for easy, comfortable sample loading.

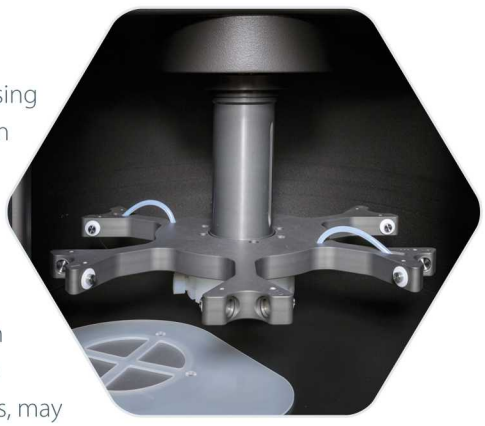
The redesigned chamber, with wipe clean coating, now has fewer obstacles to clean around. Improved chamber heating also eliminates cold spots and subsequent condensation.

An enhanced "reduce odour" function is designed to prevent any offensive or unhealthy exposure to solvent vapour when opening the door.

Integral Condenser

The integral high power VC7000i condenser chills to -75 ºC and has auto-defrost and drain capabilities as standard. Our highest specification condenser to date, the VC7000i facilitates enhanced LyoSpeed performance and optimizes solvent recovery. The integral condenser results in a smaller overall system footprint – saving valuable fume hood space.

Auto-Defrost & Drain



Auto-Defrost & Drain, standard on HT S3i evaporators, enables fast and efficient evaporation of diverse mixtures of solvents, without compromising solvent recovery. This function enables the system to automatically drain the condenser of volatile solvents between stages in a method, and to fully defrost and drain the system on completion, with no user intervention.

Volatile solvents evaporate first and collect in the condenser. To remove the higher boiling point solvents, low pressures must be achieved which can cause the volatile solvent to boil out of the condenser and 'spoil' the vacuum. Vacuum spoiling, whilst less common on low temperature traps, may well affect final dryness of samples, or in the very worst cases, the ability to evaporate the higher boiling point solvent altogether.

When evaporating HPLC fractions, auto-defrost and drain helps achieve excellent final dryness and improves results when working with any mixture of solvents with significantly differing boiling points.

An additional benefit of Auto-Defrost & Drain is that a greater proportion of volatile solvents are collected for safe disposal, reducing VOC emissions.

SampleGuard™

Comprising up to four thermocouples and a wireless transmitter, the new patented SampleGuard temperature control system provides real time feedback for accurate control of actual sample temperatures.

Either one or two probes can be used to accurately and reliably determine end-of-run, enabling the system to stop automatically.

Probes can be used to measure temperature in the sample and at any point in the sample holder allowing easy optimization of timed runs and LyoSpeed methods.

A new housing system protects the thermocouples from damage thus extending their lifespan and a battery powered wireless transmitter means the system can operate at all rotor speeds, including LyoSpeed.

SampleGuard temperature control gives operators peace of mind by protecting samples from overheating when evaporation is complete and can eliminate time consuming method development.

Fast Lyophilization

Traditional concentration to dryness in an SP Genevac evaporator is fast and safe, however for some users a dried film is not the best fit for their requirements. Additionally, when working with certain solvents a fully dried result can be hard to achieve due to interactions with the dissolved sample – resulting in the formation of a gum or oil. Dry powders can be easier to weigh and re-dissolve than a dry film, and so are preferred for some applications.

SP developed LyoSpeed methods to enable samples to be freeze-dried in little more time than by concentrating to dryness. Methods have been specially developed for use with HPLC fractions containing water and acetonitrile, or methanol.

Using the SP Genevac HT Series 3i evaporators, HPLC fractions can be automatically concentrated to a few millilitres and then frozen and rapidly lyophilized to produce a diffuse dry powder, which can easily be re-dissolved or weighed out.

EXALT

Developed to help researchers conduct evaporative crystallization studies, eXalt technology enables a wide range of solvents to be evaporated all at the same time, and at the same slow rate. For example, DCM and Toluene can be placed in the same system and evaporated such that both samples dry at the same time. The evaporation time can be controlled to range from 6 hours to 120 hours, or more as required.

Accessories

Sample Holders

To ensure optimum heat transfer, Genevac sample holders are manufactured from high-grade solid aluminium to very close tolerances that ensure tubes fit snugly and are mass balanced during manufacture to ensure smooth running of the evaporator.

- A wide range of sample holders enable all common formats to be accommodated with ease
- Side-bridge swings will accommodate a range of sample blocks for tubes and vials
- One-piece holders which fit directly onto the rotor are available for larger tubes, bottles and flasks
- Fast-stack microplate holders will accommodate two deep well or four shallow well plates per rotor position

The SP Genevac HT Series 3i evaporators will accommodate all existing HT Series sample holders and swings.

SampleGenie™

SampleGenie comprises unique flask and sample holder technology which enables large volume samples to be dried or concentrated directly into the small vial of your choice.

Where HPLC purification fractions are used, fractions can combined into one flask and dried, or fast lyophilized, into the final vial.

Infinity Trolley

Infinity Trolley is a modular system, designed to accommodate the full range of SP Genevac evaporation equipment including the HT-6 and HT-12 models. If required, trolleys can be joined together, side-by-side, creating an HT-24 or HT-36, up to HT-'Infinity', whilst minimizing fume hood footprint. The Infinity Trolley upper shelf holds the evaporator, whilst the lower shelf will accommodate the pump and waste containers. The unique lower shelf 'truck' can be rolled out to stabilize the Trolley for movement, and for easy access to the lower components.

Specifications

Evaporator

Max. rotor speed	1415 rpm
Max. load per swing	1.5 kg
Max. operational imbalance	80 g
Dimensions (W x D x H)	660 x 710 x 840 mm
Weight (approx) [1]	193.3 kg

Vacuum Pump (External)

Type	Oil-free Scroll
Ultimate system vacuum	< 0.4 mbar
Dimensions (W x D x H)	432 x 282 x 302 mm
Weight	26.2 kg
Vacuum hose/control cable	3 m

Condenser

Type	Dual-stage vapour compression
Refrigerant gas - stage 1	R449A
Refrigerant charge - stage 1	320 g
Refrigerant GWP - stage 1	1,397
Refrigerant CO_2e - stage 1	0.5 tonnes
Refrigerant gas - stage 2	R170
Refrigerant charge - stage 2	41 g
Refrigerant GWP - stage 2	6
Refrigerant CO_2e - stage 2	< 0.001 tonnes
Total CO_2 equivalent (CO_2e)	0.5 tonnes
Ultimate low temperature [2]	-75 °C
Max. Pressure (PS)	30 bar

Emissions

Noise (@ 1 metre)	65 dB(A)
Exhaust hose (supplied)	6 mm ID / 8 mm OD

Electrical

Supply	230 V 50 Hz
	220 V 60 Hz
	208 V 60 Hz
Max. supply input	1500 A

Power Consumption

		Current (A) at unit voltage	
		HT-6	**HT-12**
Supply 1	Peak:	21	26
	Running:	19	22

Storage/Transportation Environment

Ambient temperature	0 °C to 40 °C [3]
Relative humidity	10-80% non-condensing Store upright at all times

Operational Environment

Ambient temperature	15 °C to 30 °C
Relative humidity	10-80% non-condensing
Altitude	Sea-level to 1600 m
Min. ventilation air-gap	70 mm
Installation environment	Indoor only. Static-dissipative laboratory or similar

Solvent Capacity & ACC Range

Max. solvent capacity	4.5 L
Refridgeration ACC range	100 °C

Inert Gas Supply Requirements

Max. pressure	2 bar g (3 bar abs.)
Min. pressure	1.5 bar g (2.5 bar abs.)
Flow rate (nominal)	50 litres/min @ STP
Hose length	2.5 m
Max. consumption (purge)	120 litres approx.
Max. consumption (blanket)	60 litres/hour approx.
Connector type	3/8" BSP female

New nXDS6i Vacuum Pump

Provided with method specified pump purging to optimize vacuum and pump reliability.

[1] Varies with build options
[2] Ultimate low temperature; operational values may vary
[3] -10 °C permissable during transport (only)

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