

Series 3 HT-6 and HT-12 evaporators



# The all new Series 3 HT-6 and HT-12 evaporators from Genevac®

Building on Genevac's pedigree of evaporation expertise, these systems represent the ultimate in solvent evaporation technology. New sleek lines and latest touch screen technology make optimising your evaporation processes effortless. Developed by Genevac'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
- Front opening for easy access. Series 3 HT evaporators feature a new six place rotor which accepts all existing Genevac HT Series sample holders
- All the features and functionality you expect from a Genevac HT evaporator including Dri-Pure® anti-bumping, automatic end of run, HCl resistance, Inert Gas Purge, LyoSpeed™ and EXALT™ controlled crystallisation

## 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.

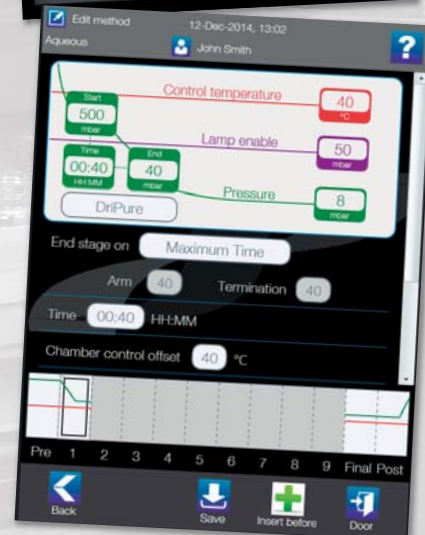
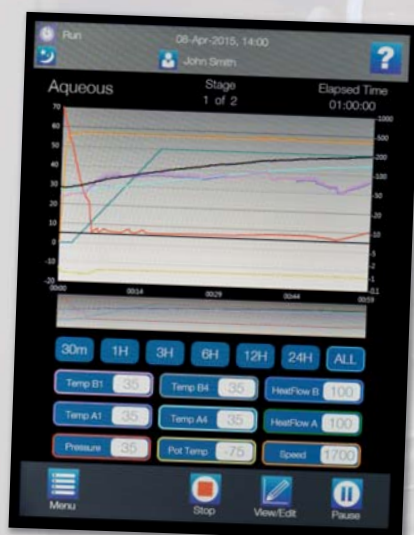
Truly customised auto-programming – methods are designed on board for optimum performance tailored to your specific solvent and sample formats.

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

User login allows personalisation 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.

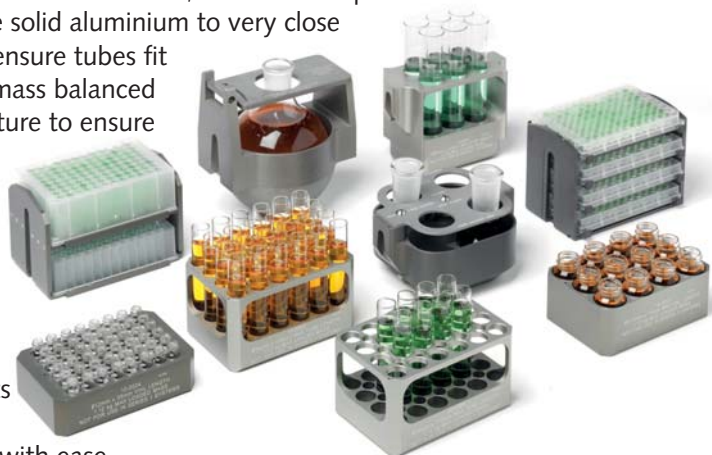
USB method and code transfer with easy system back up and set up duplication.



## 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
- FastStack™ microplate holders will accommodate two deep well or four shallow well plates per rotor position

Series 3 HT-6 and HT-12 evaporators will accommodate all existing Genevac 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 be combined into one flask and dried, or fast lyophilised, into the final vial.



## 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 optimisation of timed runs and LyoSpeed™ methods.

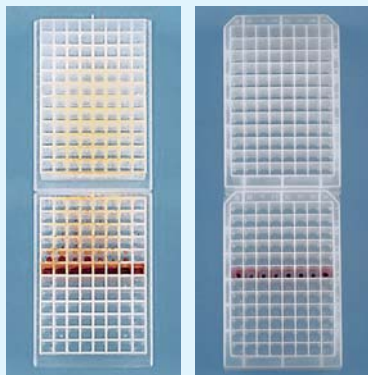
A new housing system protects the thermocouples from damage thus extending their lifespan and a battery powered wireless transmitter means the system can operate at all rotor speeds, including LyoSpeed.

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



## Dri-Pure®

Genevac's patented Dri-Pure sample protection system prevents cross-contamination and sample loss due to bumping and is fitted as standard on Series 3 HT evaporators.



- A** New 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

## 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 new, 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.



- E** Auto defrost and drain for optimal solvent recovery
- F** Spacious, easy clean chamber
- G** Easy open front door for convenient loading

## HCl

When working with the most aggressive solvents such as hydrochloric acid and other acid chlorides, the HCl-resistant option on the Series 3 HT 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.



## Fast Lyophilisation

Traditional concentration to dryness in a 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.

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



**LyoSpeed**

## Auto Defrost & Drain

Auto-Defrost & Drain, standard on Series 3 HT 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 and Drain is that a greater proportion of volatile solvents are collected for safe disposal, reducing VOC emissions.

## EXALT

Developed to help researchers conduct evaporative crystallisation studies, **EXALT** technology (patent pending) 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.



**EXALT**  
CONTROLLED CRYSTALLISATION

## Ergonomic design

The touch screen 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 Series 3 HT-12, 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.



## Infinity Trolley

Infinity Trolley is a modular system, designed to accommodate the full range of Genevac evaporation equipment including the Series 3 HT-12 and HT-6. If required, trolleys can be joined together, side-by-side, creating a HT-24 or HT-36, up to HT-'Infinity', whilst minimising 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 stabilise the trolley for movement, and for easy access to the lower components.

### Truck Fully Retracted

- Front feet of Infinity Trolley are lowered
- Trolley is secure for system use and cannot be moved

### Truck Fully Extended

- Front feet of the Infinity Trolley are lifted and unit can now be moved
- Extended Truck provides the required stability for movement



## Integral Condenser

The new integral high power VC7000 condenser chills to -75C and has auto defrost and drain capabilities as standard. Our highest specification condenser to date the VC7000 facilitates enhanced LyoSpeed performance and optimises solvent recovery. The integral condenser results in a smaller overall system footprint – saving valuable fume hood space.



# Mechanical data

|                 |                            |
|-----------------|----------------------------|
| Maximum speed   | 1415 rpm                   |
| Maximum G-force | 500g                       |
| Drive system    | Direct drive               |
| Motor drive     | Multi speed Inverter drive |

## Vacuum system

|                              |                               |
|------------------------------|-------------------------------|
| Pressure display             | 0-1200mbar                    |
| Pressure control             | Automatic 1mbar to atmosphere |
| System ultimate vacuum       | 0.4 mbar                      |
| Bumping / foaming protection | Dri-Pure                      |

## Temperature and control

|                       |                       |
|-----------------------|-----------------------|
| Control range         | Ambient +10°C to 60°C |
| Control accuracy      | ±1°C (at ≤ 50°C)      |
| Temperature sensing   | Thermocouple          |
| Display range         | 0°C to 60°C           |
| End of method         | Time or automatic     |
| Process visualisation | Graphical display     |

## Condenser Data

|  |                  |
|--|------------------|
| Condenser temperature                          | Minimum -75°C;   |
| Refrigerant gas – stage 1                      | R404A, GWP=3922  |
| Refrigerant charge – stage 1                   | 0.330 kg         |
| Refrigerant gas – stage 2                      | R508B, GWP=13396 |
| Refrigerant charge – stage 2                   | 0.120 kg         |
| CO <sub>2</sub> equivalent (CO <sub>2</sub> e) | 2.768 tonnes     |

## Solvent compatibility

|                        |                                       |
|------------------------|---------------------------------------|
| Boiling point range    | 40°C to 200°C at atmospheric pressure |
| HCl                    | Resistant option required             |
| Diethyl ether, Pentane | Requires Inert Gas Purge option       |

## Dimensions

|                        |                                    |
|------------------------|------------------------------------|
| Width x Depth x Height | 660 x 710 x 840 mm                 |
| Weight (approximate)   | 194 kg (varies with build options) |

## Services

Supplied with single power cable and plug, IEC 60309 / Nema L6-30P  
Requires 32A power supply, 230V 50Hz / 220V 60Hz / 208V 60Hz  
USB A For data upload and download

## Maintenance

Consumable parts (including IR lamps and door seal) are user replaceable. Easy access is provided to the condenser.

## Safety

Complies with BS EN 61010-1:2010 and is CE marked.

*Contains fluorinated greenhouse gases which are hermetically sealed within the equipment. Refrigerant gas R404a; GWP 3922; Charge 0.355kg; CO<sub>2</sub>e 1.4 tonnes. Refrigerant gas R508b; GWP 13996; Charge 1.13kg; CO<sub>2</sub>e 1.74 tonnes.*

## New nXDS6i vacuum pump

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



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