


## Rocket Evaporator





## Make time for science with the Rocket

For more than a quarter of a century, Genevac has followed a continuous programme of collaborative research and development in order to become the world leader in laboratory evaporation science and engineering. The culmination of this work is a revolutionary evaporation technology, incorporated for the first time in the Rocket™ Evaporator.

**ROCKET**  
**MAKING TIME FOR SCIENCE**

Developed largely as a consequence of users' demands for an evaporator that could quickly process larger volumes of solvent in parallel and without supervision, the Rocket Evaporator is designed to dry or concentrate as many as six flasks, each containing up to 450ml of solvent. The user is able to focus on other tasks, confident that the Rocket will achieve perfect, reproducible results every time.

The key to this unique evaporation capability is a fundamentally new drying technology developed by Genevac engineers. It uses steam at low temperatures (such as 40°C) and vacuum to dry the samples, with the result that the process is up to five times faster than other technologies capable of unsupervised operation. Crucially, the Rocket Evaporator is also equipped with the advanced performance features that Genevac users expect, such as effective bumping and cross contamination protection, precise temperature regulation and very easy to use controls.

Extensive trials have already proved that the Rocket's fast, unattended operation can significantly improve laboratory productivity. After all, why spend time on evaporation when it could be used for science?



- Five times faster than conventional 'intelligent' evaporators
- Perfect results without monitoring or supervision
- Quick evaporation of large solvent volumes
- Unique high energy sample heating
- High precision sample temperature control
- Genevac Dri-Pure® cross contamination protection
- Easy to use controls and intelligent software



## Inside the Rocket

The Rocket Evaporator uses a patented new technology, which works like this:

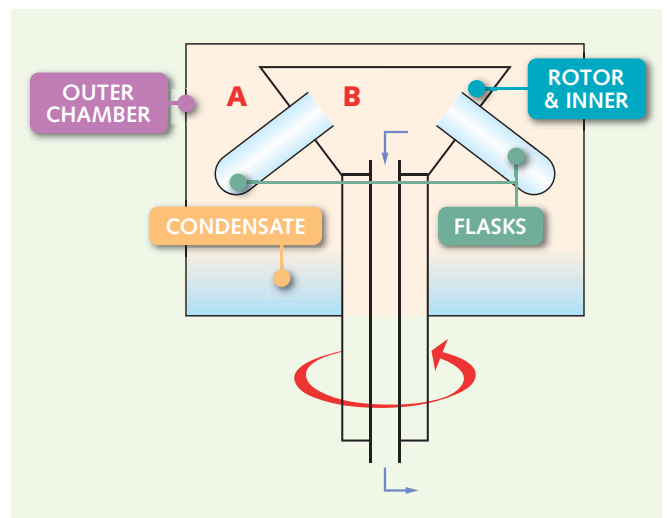
Samples are placed in special evaporation flasks, put into the rotor, spun, and placed under vacuum (point B), as they would be in any other vacuum evaporator. By pulling a vacuum on the samples, the solvent(s) will boil at a low temperature, which is set by the pressure. Dri-Pure technology stops any bumping and cross contamination.

To achieve the dual goals of very fast evaporation with very precise temperature control to protect valuable samples, low temperature, low pressure steam is used to heat the sample flasks directly. In turn, the steam condenses on the flasks, which are cold due to the solvent(s) boiling inside them. Condensate is thrown off the spinning flask, where it is recycled and boiled again to make more steam. The heating arrangement is optimal, eliminating potential sources of energy loss.

Steam temperature is controlled in two ways:

1. *The pressure in the outer chamber (at point A) is set to boil water at the desired temperature. That the pressure sets the boiling point is an irrevocable law of physics.*
2. *The temperature of the outer chamber is precisely controlled at or below the set temperature.*

To keep the two vacuum environments separate and to make sure that steam does not enter the flasks, they are sealed into the rotor. Each flask slides effortlessly into its holder and the action of spinning the rotor then firmly seals it in place.







# Piloting the Rocket

## Controls

The controls of the Rocket Evaporator are very easy to use: simply highlight the desired evaporation method using the right hand knob, and hit start.

New methods may be uploaded via USB key, and data can be downloaded in the same way. A USB B port is also provided to allow a laptop to be connected.

The optional built in strobe is controlled with the left hand knob. Pushing the knob activates the on board strobe, after a short safety message. Rotating the strobe knob adjusts the strobe frequency and allows each of the six flask positions to be viewed in turn.

## Cold trap

There is a two stage cold trap built into the Rocket Evaporator, providing very high levels of solvent recovery, even with volatile organic solvents. The 3-litre plastic coated glass cold trap lies between the evaporation chamber and the pump and collects the majority of the evaporated solvent. The cold trap auto-drains under the control of the evaporator to ensure that optimal solvent recovery is maintained, no matter what mix of solvents is being used. There is an additional built in second stage cold trap, which is situated after the pump and before the outlet to the fume extraction system. This is a continuously draining trap to catch any vapours that pass through the pump.

## Maintenance

All seals are user replaceable. Easy access is provided to the pump, which can be maintained by trained users.

## Flasks

Two styles of flasks are available for use with the Rocket Evaporator, a simple flask for drying or concentrating samples, or a SampleGenie™ style flask, which enables a large volume sample to be concentrated directly into a small vial. A range of vial sizes is supported from a 2ml GC vial upwards.



Six position flask rotor

Built in solvent resistant vacuum pump

Plastic coated glass cold trap

Easy to use controls

USB upload/download of methods and data

Real time strobe viewing window

Automatic cold trap drain

Steam chamber



### Mechanical data

|                     |              |
|---------------------|--------------|
| Maximum speed       | 1800rpm      |
| Maximum G-force     | 700          |
| Drive system        | Direct drive |
| Maximum Sample load | 6 x 450ml    |
| Maximum imbalance   | 50g          |

### Vacuum system

|                        |                                |
|------------------------|--------------------------------|
| Pressure display       | 0-1200mbar                     |
| Pressure control       | Automatic, 3mbar to atmosphere |
| System ultimate vacuum | 3mbar                          |
| Bumping protection     | Dri-Pure®                      |

### Temperature and control

|                     |                                |
|---------------------|--------------------------------|
| Control range       | Ambient +5°C to 60°C           |
| Control accuracy    | ±1°C                           |
| Temperature sensing | Via thermistor                 |
| Display range       | 0°C to 60°C                    |
| End of method       | Time or automatic              |
| Visualisation       | Via built in strobe (optional) |

### Solvent compatibility

|                     |  |
|---------------------|--|
| Boiling point range | 40°C to 160°C at ambient   |
| Includes            | Alcohols, DCM/methylene chloride, DMF, ethyl acetate, water, TFA |
| HCl                 | Not compatible   |
| Di-ethyl ether      | Only with Inert Gas Purge option                                 |

### Dimensions

|                        |                   |
|------------------------|-------------------|
| Width x Depth x Height | 720 x 640 x 530mm |
| Headspace required     | 755mm (lid open)  |
| Weight                 | 75kg              |

### Services

|                 |                                     |
|-----------------|-------------------------------------|
| UK & Europe     | 230V (±10%), 50Hz, 13A              |
| USA             | 120V (±10%), 60Hz, 15A              |
| Japan           | 100V (±10%), 50Hz or 60Hz, 15A      |
| USB A           | For data upload / download          |
| Deionised water | 50K to 1M Ohm, approx 100ml per day |

### Safety

Conforms to UL 61010-A-1:2002 & BS EN 61010-1:2001 for laboratory equipment.  
CE certified.

### Cold trap cooling requirement

|                  |   |
|------------------|---|
| Temp range       | -20°C to +10°C<br>dependent upon application  |
| Heat removal     | 700 Watts at 10°C (max)   |
| Flow rate        | 1 to 2 l/min  |
| Pressure         | 1 (min) to 7 bar (max) static   |
| Connections      | 8mm nylon hardwall tube (chiller).<br>¼ inch (6.5mm ) hose barb for cold water connection (standard).<br>Connection hoses not supplied. |
| RS232 connection | Provided for Genevac supplied chiller   |

### Recirculating chiller

A powerful and compact recirculating chiller is available with the Rocket evaporation system, which is specified to complement the evaporator. The evaporation system can be connected to the chiller via RS232 link, enabling the evaporator to control the chiller, which can provide improved solvent recovery and better drying of samples than by using a static cooled supply. A connection kit with insulated pipe work is available to accompany this chiller.



### Specification

|                        |                   |
|------------------------|-------------------|
| Width x Depth x Height | 320 x 500 x 600mm |
| Weight                 | 48kg              |
| Cooling Power          | 500W at 10°C      |
| Electrical connections | As evaporator     |



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Genevac has a continuous development programme aimed at further improving and developing its products and all specification are, therefore, subject to change.  
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