



## Microplate evaporators

Porvair evaporators are designed to remove the traditional laboratory 'bottleneck' of solvent evaporation from microplates prior to analysis or reconstitution in storage buffer. These evaporators give significant throughput advantages to laboratories looking to optimise microplate sample preparation productivity. Faster than centrifugal evaporation, significant increases in sample throughput are achieved through advanced evaporator head technology and an innovative manifold design, which directly injects heated nitrogen into each individual well of the microplate simultaneously. The evaporators have been designed to be simple to install, operate and maintain. Installation requires only connection to a gas supply or cylinder and mains electricity. Safety of operation is ensured as the CE marked compact units fit into all fume cupboards. Not suitable for high boiling solvents such as DMSO and water.

Both MiniVap and UltraVap may be operated with a supply of clean, dry compressed air in place of nitrogen, if the chemistry allows. An in-line gas filter must be used in this case.



MiniVap 229205

## MiniVap™

The MiniVap is purpose designed for low usage research and development departments where low numbers of individual plates or vials need drying. The MiniVap is simple to operate and maintain. Installation requires only connection to a gas supply and standard mains socket. With manual control of the needle depth, gas temperature and flow rate, it allows fine control and quicker drying times than other standard methods.

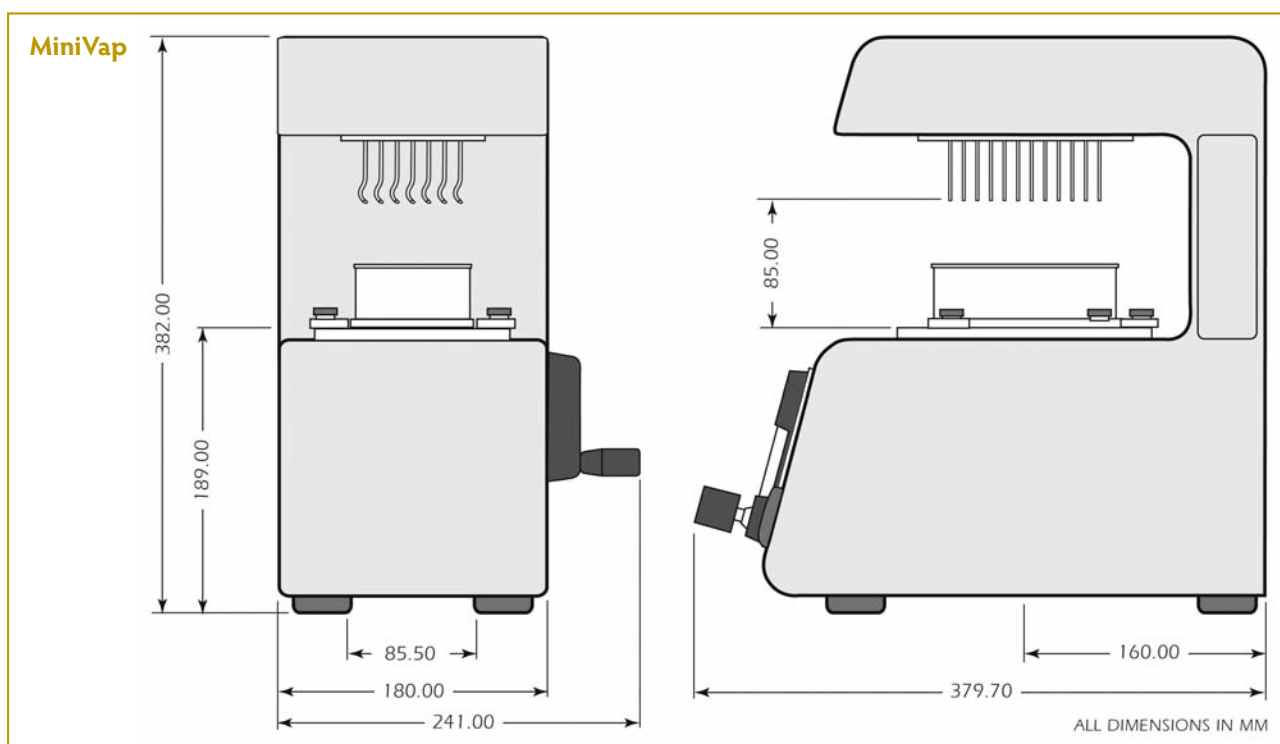


MiniVap 229201

- Quicker dry down times than standard methods such as vacuum oven
- Tests have shown that the MiniVap can evaporate 500µl of methanol in less than 6 minutes
- Designed for any ANSI/SBS 96 well plate
- 24 vial head now available
- Simple to install and operate
- Easy adjustments of temperature, gas flow rates and needle depth into the wells
- Compact footprint – fits all standard fume cupboards

**MiniVap™ blowdown sample concentrator**

Description	Qty/pack	Cat. no.
Blowdown Evaporator MiniVap™ (230 Volts), with 96 spiral needles	1	229201
Blowdown Evaporator MiniVap™ (230 Volts), with 96 straight needles	1	229200
Blowdown Evaporator MiniVap™ (230 Volts), with 24 straight needles	1	229205
Blowdown Evaporator MiniVap™ (110 Volts), with 96 spiral needles	1	229203
Blowdown Evaporator MiniVap™ (110 Volts), with 96 straight needles	1	229202
Blowdown Evaporator MiniVap™ (110 Volts), with 24 straight needles	1	229204
Blowdown Evaporator MiniVap™ (230 Volts), without a head	1	229206
Blowdown Evaporator MiniVap™ (110 Volts), without a head	1	229207

**Spares and consumables for Porvair evaporators**

Description	Qty/pack	Cat. no.
Replacement 24 Needle Head with straight for Ultravap & MiniVap	1	229409
Replacement 96 Needle Head with spiral needles for Ultravap & MiniVap	1	229072
Replacement 96 Needle Head with straight needles for Ultravap & MiniVap	1	229036
Replacement 384 Needle Head with straight for Ultravap	1	229073
Spare Needle Kit, Spiral, Set of 10 c/w Fitting Tool for Ultravap-96/MiniVap	1	229074
Spare Needle Kit, Straight, Set of 10 c/w Fitting Tool for Ultravap™ 384	1	229075
Spare Needle Kit, Straight, Set of 10 c/w Fitting Tool for Ultravap-96/MiniVap	1	229035
Gasket for needle manifold	1	229048
Disposable vial rack with clear bottom for 13.75mm glass vials x 24	5	229216
Ultravap Instruction Manual (Spare)	1	229523
MiniVap Instruction Manual (Spare)	1	229524
Protective clear side panels to allow fume extraction, Ultravap, pair	1	500007
Fume extraction duct adaptor 4" to Ultravap ovoid rear fitting	1	500008



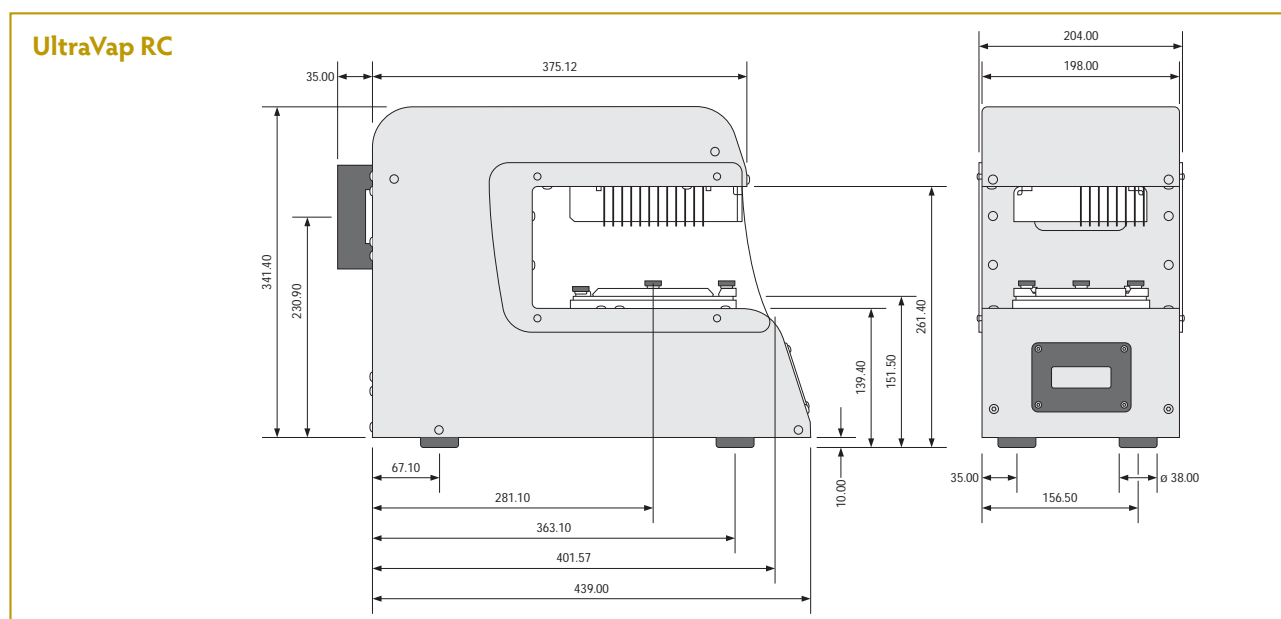
## Ultravap™ RC

The new Ultravap RC from Porvair Sciences is the latest fully robot-compatible version of our popular Ultravap nitrogen blow-down evaporator, suitable for integration within the safety enclosure of several leading laboratory liquid handling robots. Designed with the demands of linear robots very much in mind, the Ultravap RC comprises a fully microprocessor controlled dry down station for 24-, 96- or 384-well plates, together with clear safety side screens and a 4 inch fume hood duct adaptor.

- Designed for heat sensitive and thermally labile samples
- Nine different drying programmes can be retained in the memory
- Ability to upload and download methods
- Robotic plate stage automatically moves plates up in two drying phases
- RS232 allows remote control via PC or LH robot
- Removes most chromatography solvents in just minutes
- Can evaporate 500 µl methanol in 5 minutes
- Compact footprint allows the Ultravap to fit into all standard fume cupboards
- Choice of straight, curved & 24, 96 or 384 needles
- Compatible with Tecan™, Hamilton™ and Caliper™ robotic liquid handlers

### Ultravap™ RC high speed sample concentrator

Description	Qty/pack	Cat. no.
Ultravap RC robot compatible blowdown evaporator with 96 spiral needles, 230V	1	229070
Ultravap RC robot compatible blowdown evaporator with 96 spiral needles, 110V	1	229080
Ultravap RC robot compatible blowdown evaporator with 96 straight needles, 230V	1	229135
Ultravap RC robot compatible blowdown evaporator with 96 straight needles, 110V	1	229136
Ultravap RC robot compatible blowdown evaporator with 384 straight needles, 230V	1	229071
Ultravap RC robot compatible blowdown evaporator with 384 straight needles, 110V	1	229081
Ultravap RC robot compatible blowdown evaporator with 24 straight needles, 230V for 24 well plates and vials	1	229138
Ultravap RC robot compatible blowdown evaporator with 24 straight needles, 110V, for 24 well plates and vials	1	229139
Ultravap RC robot compatible blowdown evaporator without head, 110V	1	229146
Ultravap RC robot compatible blowdown evaporator without head, 230V	1	229145
Ultravap RC robot compatible blowdown evaporator, 384 type, without head, 110V	1	229082



## Nitrogen blow-down

The nitrogen blow-down principle is easy to understand. Warm gas is blown down into the wells of the microplate, just above the liquid level. The effect is to speed up solvent evaporation by providing more energy for the latent heat of evaporation. This enables a steady-state equilibrium to be reached more quickly, leading to shorter drying times. Nitrogen blow-down has been shown to be the easiest way to automate the frequent bottlenecks caused by the requirement to remove solvent from samples that need to be concentrated, dried or reconstituted in a more suitable solvent.

## Flexible programming

The Ultravap RC has been designed to allow robots with extended gripper arms to place and remove microplates directly onto the evaporation table. In comparison with previous models, the Ultravap RC is 22mm shorter at the front end, allowing better access for the gripper arms. The evaporation table is able to rise under the control of a stepper motor as the drying process proceeds. This can be programmed at a suitable rate for each solvent type being evaporated. In addition, gas temperature, pressure and flow rate can all be programmed individually and stored in one of nine multistep programmes on the Ultravap RC. Each programme allows the table to rise in two distinct ramped phases, so that a fast initial drying period can be followed by a gentler final drying phase.

With the addition of the optional clear acrylic side sheets and the 4 inch fume duct adaptor, the new Ultravap RC unit lends itself to full integration with Tecan and Hamilton robotic liquid handlers, where it is usually located on the right-hand side of the deck. Control commands are sent directly from the robot controller to the Ultravap. These standard commands are listed in the manual, but most robot manufacturers have drivers available to control the Ultravap, making integration a seamless process.

## Solvent compatibility

With a choice of 96 straight or 96 spiral needles, plus 24 and 384 straight needles, the sphere of application for Ultravap RC is huge. Most common chromatography solvents can be evaporated with ease, such as dichloromethane, methanol, acetonitrile and hexane. The nitrogen blow-down method is not, however, suitable for high-boiling point solvents such as DMF, DMSO and water. It is also unable to be used with acids or acid chlorides, as special corrosion-resistant systems are needed for this work. The choice of straight or spiral needles allows the user to choose between faster dry down (spiral) and better final drying in V-well plates (straight). The spirals cause a vortex to form in the solvent, increasing the surface area and thus speeding up the rate of evaporation. However, for plates with V-bottom wells, or for smaller wells such as those in 384-well plates, straight needles are required.



UltraVap RC 229135

## Evaporator System Requirements

Gas flow rate: 28L/min minimum, 80L/min maximum at 6 bar pressure.

Can be used with nitrogen or dry compressed air if the chemistry allows.

Not suitable for use with strong acids or acid chlorides.



