

# TurboVap 500 Concentration Workstation

## Introduction

The TurboVap 500 Closed Cell Concentrator is an excellent alternative to traditional rotary evaporators used in organic syntheses. With a 500 mL solvent capacity and water bath temperatures up to 99° C, synthesis mixtures are processed quickly using Caliper's patented "vortex shearing" principle. The unique vortexing action maintains the components of interest in the solvent during evaporations and minimizes the "plating" of the compounds on the vessel walls. The open top cylindrical design of the sample tube, with a small stem at the bottom, provides an easy way to recover the products of interest when the evaporation is completed. With two cells in one unit, you can improve the efficiency of your lab and minimize use of valuable bench or hood space.

## Environmental Applications

The TurboVap efficiently evaporates organic solvent extracts to 0.5 or 1.0 mL and sounds an alarm when finished. This "load it and leave it" capability frees the analyst for more important work. Watching a K-D or rotary evaporator is now a thing of the past. The mild thermal conditions and the patented "vortex shearing" evaporation principle produces fast evaporation rates and maintains high analyte recoveries. The integral condensing system efficiently collects the evaporated solvent for convenient and safe disposal.

## Features

- The jacketed condenser collects the evaporated solvent for safe laboratory operation and convenient disposal.
- Because the solvent is collected, overall laboratory emissions can be greatly reduced.
- No "bumping" means NO re-work of samples, saving hundreds of dollars weekly.
- By lowering operator attendant time to less than two minutes per sample, less manpower is needed to perform this critical step.
- Operators are free to perform more important tasks, further improving lab productivity.
- By eliminating the need for a fume hood, the TurboVap 500 reduces facility costs such as heating and air conditioning.



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## The Technology

The TurboVap 500 Closed Cell Concentrator uses a programmable fan to create the patented vortex shearing action. A "helical flow" of air is created by a motor-driven fan. The helical flow sets up a vortexing action that promotes sample homogeneity and continuous rinsing of the tube wall. The solvent vapors rise and enter the condenser, condense on the side walls, then run out of the drain into a suitable waste or reclamation container.

The optical sensor "looks" across the tube stem and stops the process at the 0.5mL level. 1.0mL stems are also available. Other end points can be selected based on a time setting. The water bath temperature is programmable from ambient to 99 °C; however, use of the optical sensors is limited to 60 °C. The sensors are easily removed for high temperature operations.

The condenser operates with cold tap water; however, the use of a water chiller will speed up the evaporation rate without affecting compound recoveries. For typical solvents, the condenser will collect greater than 90% of the solvent. The all glass design of the concentration cell provides an inert, non-contaminating surface for typical applications. The glassware can be simply rinsed between samples or totally cleaned by a lab dishwasher and baked at 400 °C.

## High evaporation rates under mild thermal conditions

- The Caliper patented vortex shearing principle creates an efficient evaporation process even at low temperatures. For example, a fan speed of 6,000 rpm, and a water bath temperature of 38 °C, 200 mL of methylene chloroide will evaporate to 1.0 mL in only 25 minutes. This is accomplished with a condenser operating at 6 °C using a standard lab water chiller.
- The process does not boil the solvent. The water bath is simply a mild energy source maintaining efficiency of the vortex principle.
- Recoveries of even low level semivolatile compounds meet typical regulatory method requirements.

## Specifications

**NUMBER OF SAMPLES:** Two

**MAXIMUM SAMPLE VOLUME:** 500 mL

**EVAPORATION RATE:** Adjustable based on water bath temperature, fan speed and chiller or tap water temperature. (Chiller is recommended for optimum rate of evaporation and solvent reclamation.)

**FINAL ENDPOINT VOLUMES:** Selectable. Automatic endpoints of 0.5 mL and 1.0 mL or dryness. Easy manual intervention or timer based for other endpoints.

**WATER BATH TEMPERATURE:** Ambient to 95°C. (Upper temperature with sensors is 60oC.)

**POWER REQUIREMENTS:** 110/120 VAC at 60 Hz (European, 230 VAC at 50 Hz) 900 VA max

**DIMENSIONS:** 21.2" w x 24" h x 11.9" d (53.9 cm x 61.10 cm x 30.3 cm)

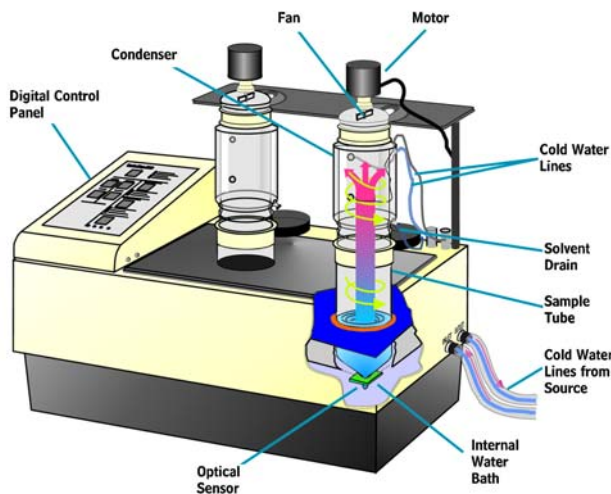
**FAN SPEED:** 5 settings - 4000, 5000, 6000, 7000, and 8000 rpm.

**TIME RANGE:** 1-99 minutes.

**SOLVENT RECLAMATION:** 95% of solvent vapors under typical conditions.

**NET WEIGHT:** 42 lbs. (18.6 kg)

**SHIPPING WEIGHT:** 60 lbs. (27.2 kg)



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