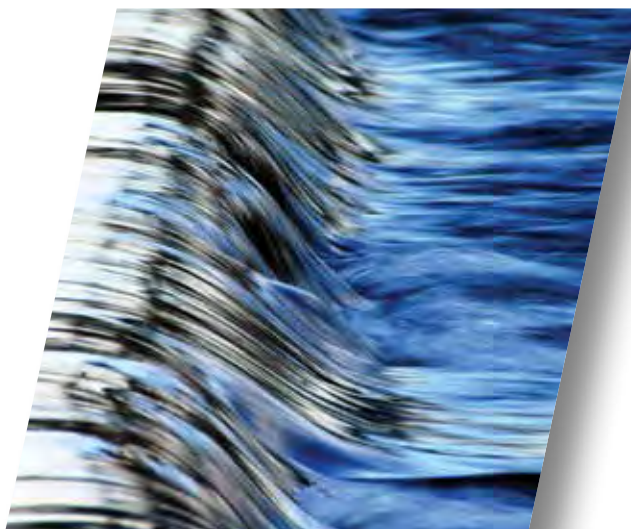


# **Encon Evolution**

*Purge and Trap Concentrator*



*Because you need a reliable solution*



**EST**   
*analytical*  
*Purposeful Innovation*

# Encon Evolution Purge and Trap Concentrator

## Key Features

- Low carryover (unique patented feature)
- High resolution (unique patented feature)
- Easy maintenance and diagnostics
- Superior moisture control

## Introduction

The Encon Evolution was designed from the beginning with the user in mind. The system needed to provide high productivity, stability, reliability and fast maintenance to meet the needs of today's laboratory.

## Simple User Interface

The Encon Evolution comes standard with a 25cm touchscreen display. As laboratory networks have grown, there is a tendency to have the PC controlling the system further away from the actual instrument. By allowing the user to have control at the instrument, changes and troubleshooting are easier and faster to perform.

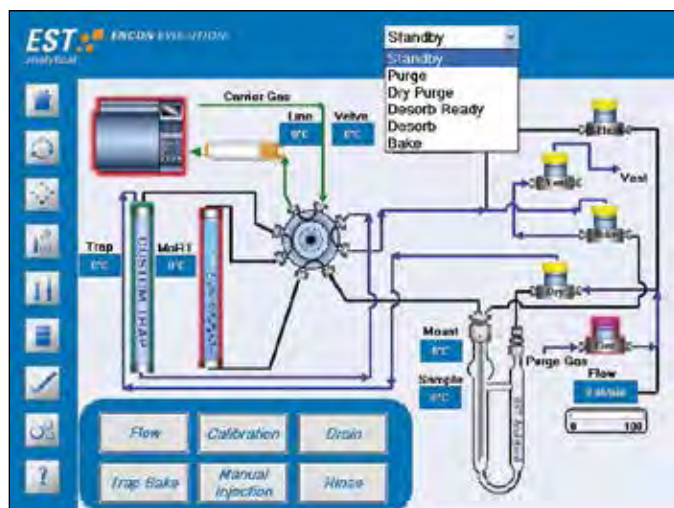
## What customers are saying...

*"EST Analytical offers some of the best VOA equipment."*

*– Bench Chemist, Minnesota*

## Efficient Touch-Screen Diagnostics

The integrated diagnostic screen provides complete manual control of the entire system. Simply touch the solenoids or multiport valve to turn them off and on. The real-time display shows the actual flow path so training for new users is simplified.



## Convenient Run Log

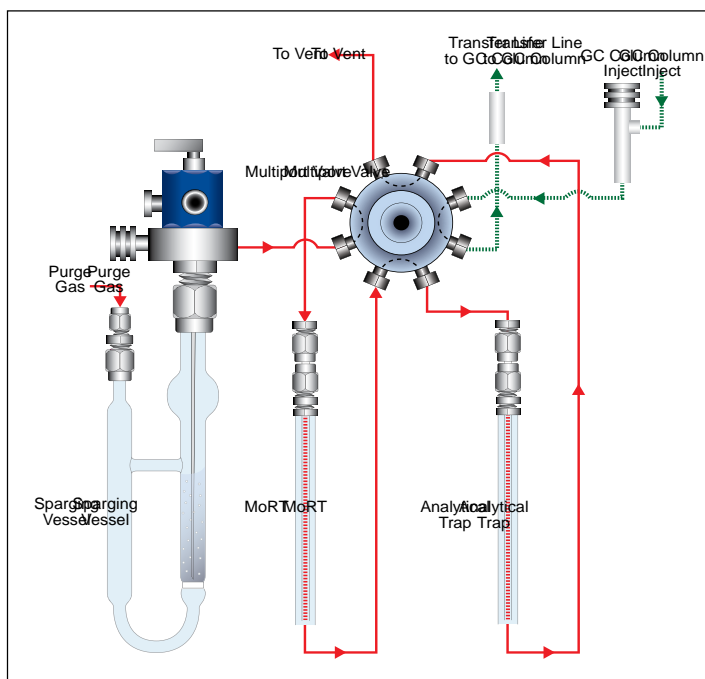
All inputs and outputs are recorded in a running log that can be saved or printed for later use. Any errors and signals from the foam sensor (optional) during a run will be noted.



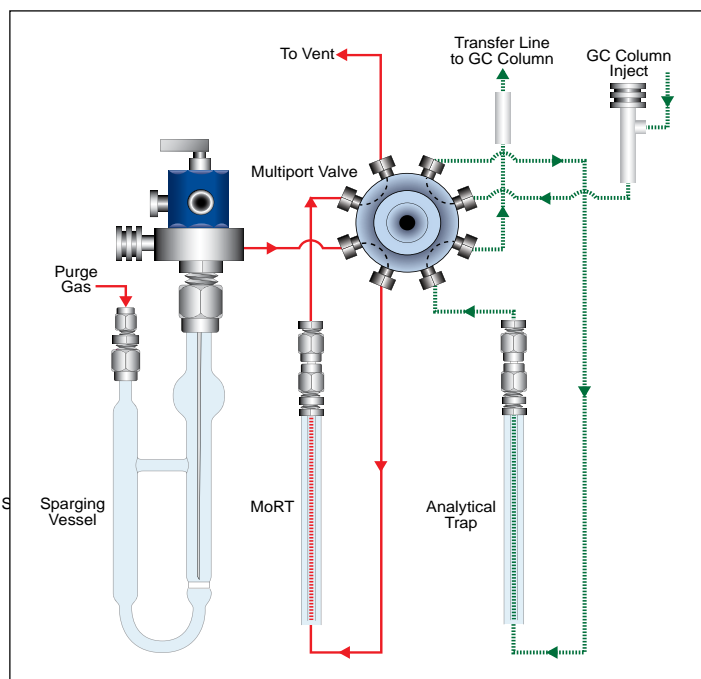
## Unparalleled Stability and Moisture Control

As detection limits have been pushed lower, and Mass Spectrometer systems more sensitive, moisture control is key to the overall stability of the complete system. Other systems collect the analytes and water on the analytical trap, then, during desorb, the sample flows through a moisture removal system on the way to the GC. When evaluating these systems, one problem became quickly apparent. If you are going to remove moisture during the desorption step when your flow is controlled by the GC, the effectiveness of this design will be determined by many different factors. Desorption flow rates can range from 5ml/min to over 100ml/min depending upon GC/MS models, columns, split flows, head pressures etc. and no system can be effective over this wide range of flow rates.

The Encon Evolution is designed to remove water during the purge process. EPA methods require you to purge between 40-50ml/min of flow. As you purge, the water and VOCs travel through a Moisture Reduction Trap (MoRT) on the way to the analytical trap. This prevents a large amount of moisture from contacting the analytical trap. By using an 8-port valve instead of a 6-port valve, the sample during desorption goes directly to the GC. In other systems the sample flows through a moisture system during this step. This creates a lot of extra volume in the desorption pathway, allowing peaks to broaden, sacrificing peak resolution.



Purge - Moisture control preformed during purge



Desorb - 8-port valve separates the desorb flow from the GC away from the moisture control, decreasing the sample path length between the trap and GC

### What customers are saying...

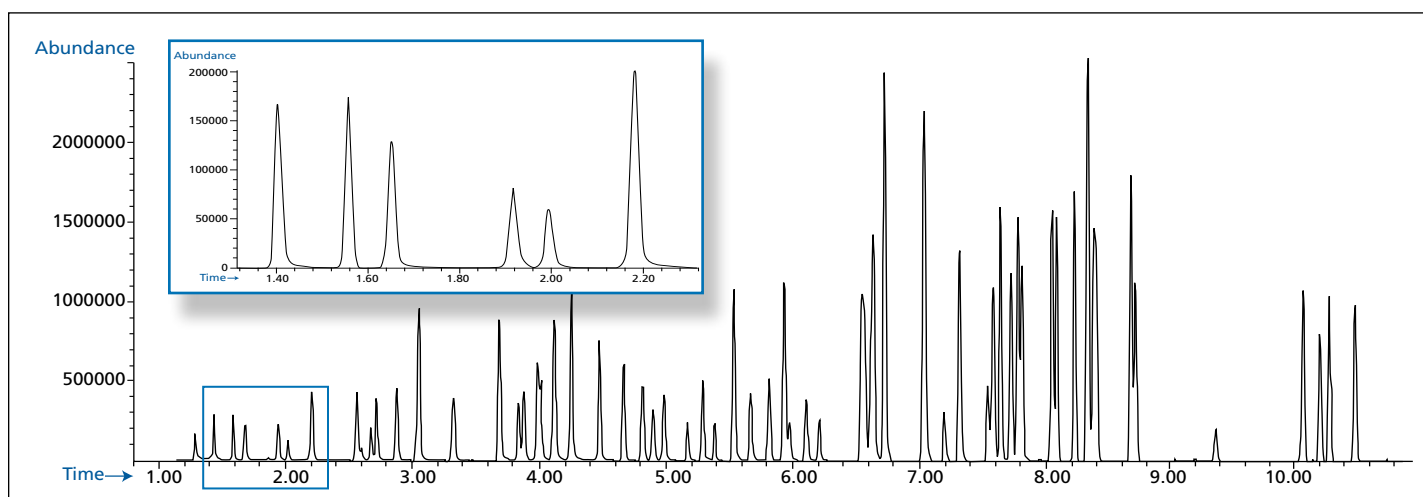
*"I like the idea of the 8-port valve for water management before getting to GC."*

*- Municipal Lab, Oregon*

## Patented Desorb Flow Control Provides Superior Chromatography

In an effort to improve GC run times and resolution, many laboratories have gone to very narrow bore GC columns. To run these columns, high column head pressures must be used. This can be a challenge to the purge and trap system. After purging, a typical purge and trap has an internal pressure of <3 psi. If the GC is running a head pressure of 20 psi, this can cause a tremendous pressure pulse that travels into the trap

which, in major cases, can cause trapping material to come out of the trap and in minor cases, can cause peak broadening by moving the gases around inside the trap. Desorb Pressure Control (DPC), after purging is completed, builds the pressure inside the system to a programmed set point. By increasing the pressure inside the system to balance the pressure coming in from the GC, the pressure pulse is avoided.



50 ppb EPA Method 8260 on a 6890/5973 GCMS. Front end gases showing improved resolution are highlighted.



Changing traps is easy with access from the front of the instrument

## Optimize Productivity

- Maximize billable sample runs per day.
- Speed up cycle times with improved cool-down times.
- Decrease carryover with patented heater sparger.



## Faster Cycle Time

- Cool-down time is less than two minutes.
- Automated ready signal during bake reduces cycle time by several minutes per sample.

## Reduce Carryover

Rerunning samples due to carryover can limit overall productivity in the laboratory. From the beginning, the Encon Evolution was designed to improve carryover. A study was undertaken to determine what was contributing to carryover in purge and trap systems today. When a high level sample is run, then a blank follows, all concentrators will exhibit some form of carryover. However, if you run a high level sample, replace the glassware, then run a blank, the run will be almost completely clean. Even though systems are connected to autosamplers that rinse the glassware, the glassware is still the largest contributor to carryover.

EST Analytical patented a process on the Encon Evolution where there are two flows that go through the system during bake; one flow is directed across the trap and another separate flow goes through the glassware. Other systems actually have the bake flow travel through the trap then through the cold glassware, depositing heavy compounds on the cold glassware surface to be seen on subsequent runs. By separating the flows, the Encon Evolution avoids this problem and by heating the sparger vessel (optional) up to 125 °C during the bake sequence, carryover is reduced dramatically.

## What customers are saying...

*"I decided on the Evolution due to the ability to clean up between samples and reduce carry over."*

*– Technical Director, Pennsylvania*

# Encon Evolution Purge and Trap Concentrator

## Specifications

### Major Features

- Optional sparge heater (patented in Bake mode)
- Optional sample foam sensor
- Moisture control during purge
- 8-port valve isolates the moisture control pathway from the desorb pathway
- Precise temperature control
- Siltek™ sample pathway

### Dimensions

- 17"H x 12"W x 20"D

### Weight

- 45lbs (20.4Kg)

### Programmable Time Ranges

- 999.99 min for all timed events

### Programmable Temperature Ranges

- Trap: ambient to 420 °C
- Transfer line: ambient to 350 °C

### Trap

- Standard EPA-specified traps
- Conductive heating/replaceable insert
- Various sorbent materials available for US EPA methods and other applications

### Valve

- Electrically actuated
- 8-port, 45° rotation
- Replaceable valve rotor

### Transfer Line

- Siltek™ tubing, 0.020 ID
- 60" standard

### Glassware

- Standard 5ml fritted sparge vessel
- Optional fritted sparge vessels – 15ml and 25ml available
- Optional unfritted sparge vessels – 5ml and 25ml available

### Power Requirements

- Standard unit 100-130VAC (+/-10%)/50/60Hz (800 VA max)
- Optional unit 230VAC (+/-10%)/50/60Hz

### Gas Supply

- Ultra-high purity (99.999%) pure Helium or Nitrogen
- Incoming gas pressure
- 60-80 psi

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