EVOLUTION 2

PURGE & TRAP CONCENTRATOR

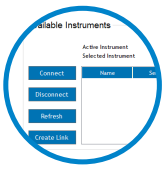
Because you need a reliable solution

Methods

- ✓ 502.1
- ✓ 502.2
- ✓ 524.2
- ✓ 524.3
- ✓ 524.4
- ✓ 503.1
- ✓ 601
- ✓ 602
- ✓ 603
- ✓ 624
- ✓ 624.1
- ✓ 8020
- ✓ 8021
- ✓ 8030
- ✓ 8240
- ✓ 8260
- ✓ 8260D

- ✓ ASTM and Standard Methods
- ✓ Massachusetts VPH
- ✓ GRO Methods

EST analytical *Rely On Us*



Enhanced Software

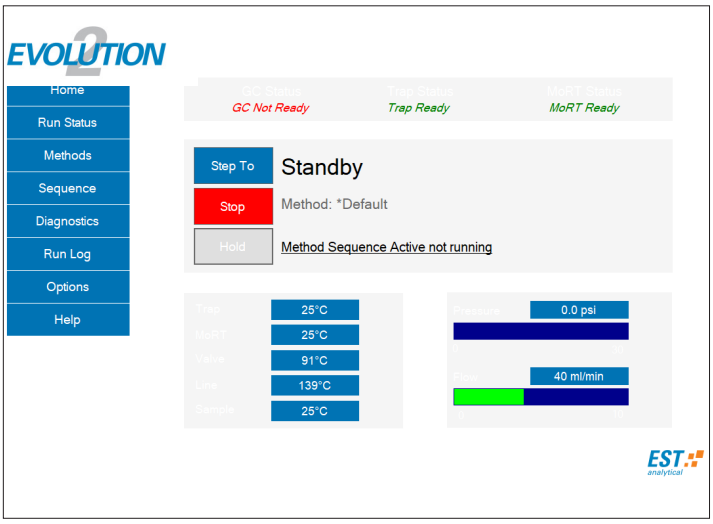
The EV2 includes enhanced software features that make its operation easier. The updated user interface provides the user with increased navigation and landscape to view methods on one screen. The draggable and resizable screens allow the user greater efficiency making routine operation simple and easy.

The Diagnostics screen gives the user complete manual control of every function. In addition, the image on the screen will change as the instrument moves through its different modes of operation (Standby to Purge, to Desorb etc) allowing the user to see the complete sample flow path. This makes troubleshooting any issue simple and easy to understand.

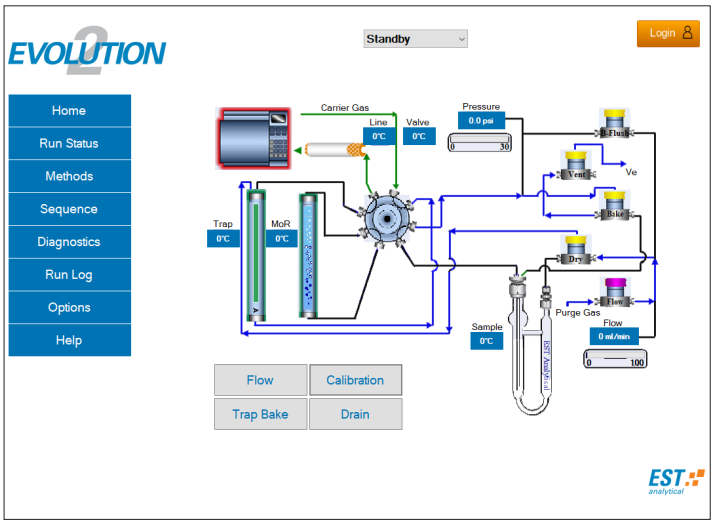
Key Features

The Evolution 2 (EV2) software was designed from the beginning with the user in mind. The system provides high productivity, stability, reliability and fast maintenance to meet the needs of today's laboratory.

- ✓ **View instrument Status from anywhere on the Network**
- ✓ **Manually control all functions from the diagnostic screen**
- ✓ **Create methods from a new single screen display**
- ✓ **See the sample pathway in every mode of operation**



Run Status Screen



Diagnostics Screen

What customers are saying…

"EST Analytical offers some of the best VOA equipment."
– Bench Chemist, Minnesota

Unparalleled Stability and Moisture Control

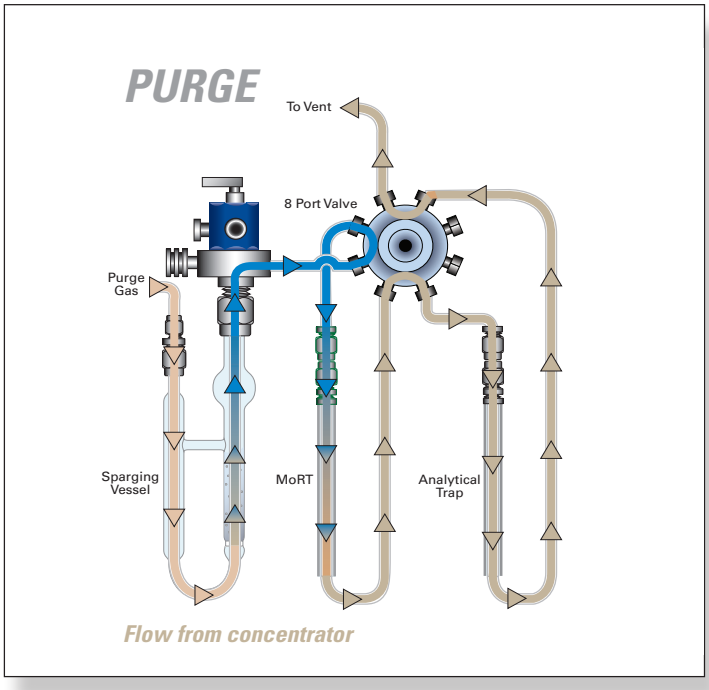
The Evolution is designed to remove water during the purge process. EPA methods require you to purge between 40-50ml/min of flow. As you purge, the water and VOCs travel through a Moisture Reduction Trap (MoRT) on the way to the analytical trap. This prevents a large amount of moisture from contacting 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.

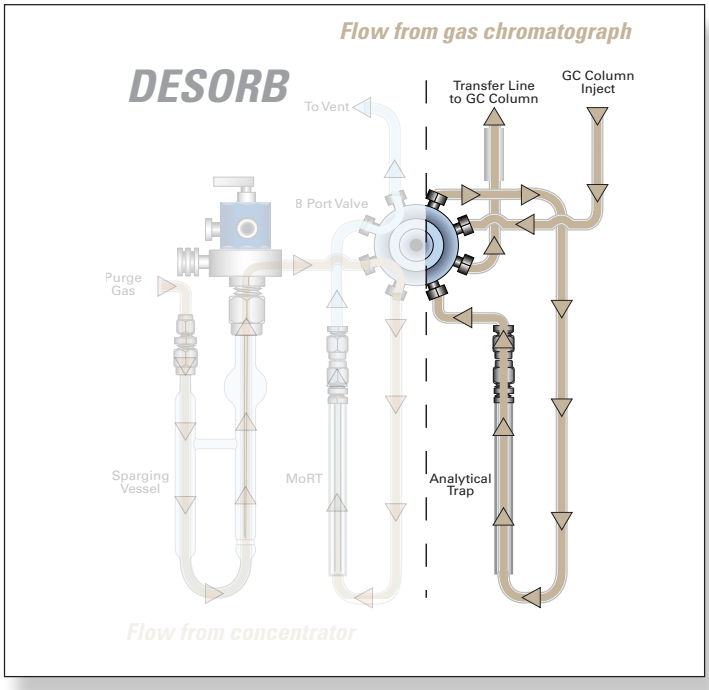
Key Features

As detection limits have been pushed lower, and Mass Spectrometer systems are more sensitive, moisture control is key to the overall stability of the complete system.

- ✓ **Capture moisture during the purge process**
- ✓ **Bypass moisture reduction trap on desorb**
- ✓ **EST Analytical unique 8 port valve**
- ✓ **Maintain peak resolution**
- ✓ **Stay EPA compliant**



Moisture control performed during purge



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 Pressure Control Provides Superior Chromatography

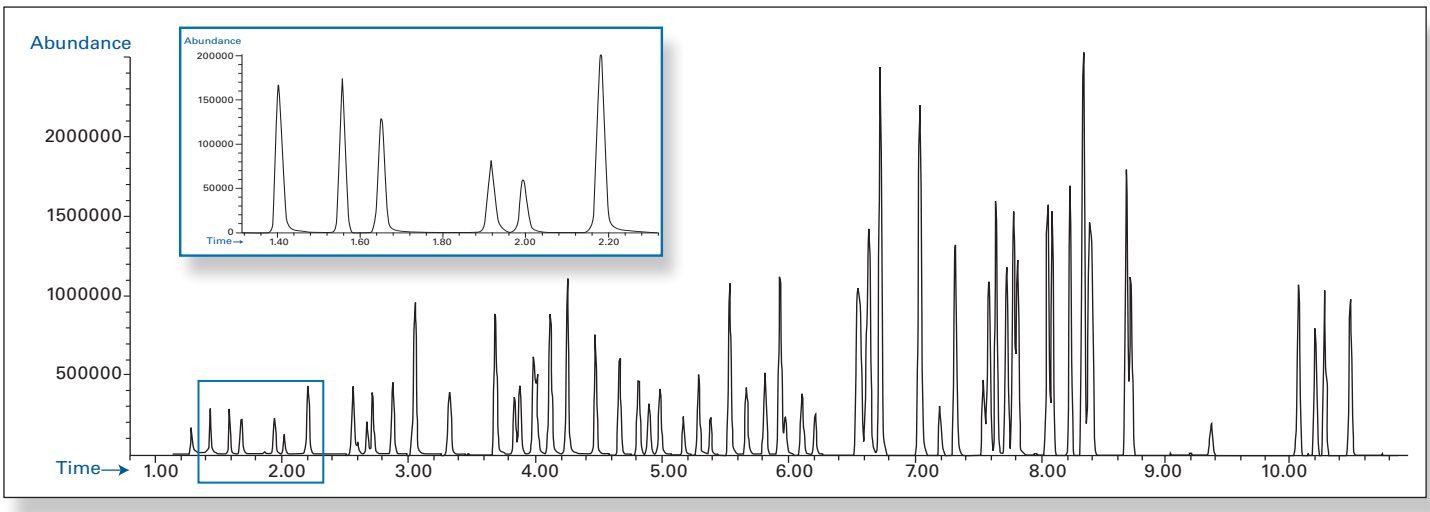
A typical purge and trap has an internal pressure of <3 psi. If the GC is running a head pressure of 20 psi, this can cause a tremendous pressure pulse that travels into the trap which, in major cases, can cause trapping material to come out of the trap and in minor cases, can cause peak broadening by 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.

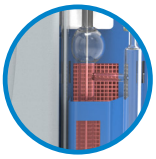
Key Features

In an effort to improve GC run times and resolution, many laboratories have gone to very narrow bore GC columns. Desorb Pressure Control (DPC), after purging is completed, builds the pressure inside the system to a programmed set point to avoid a pressure pulse.

- ✓ **Superior chromatography**
- ✓ **Avoid pressure pulse from GC**
- ✓ **Works with narrow bore GC columns**
- ✓ **Avoid excess wear and tear on parts**



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



Reduce Carryover

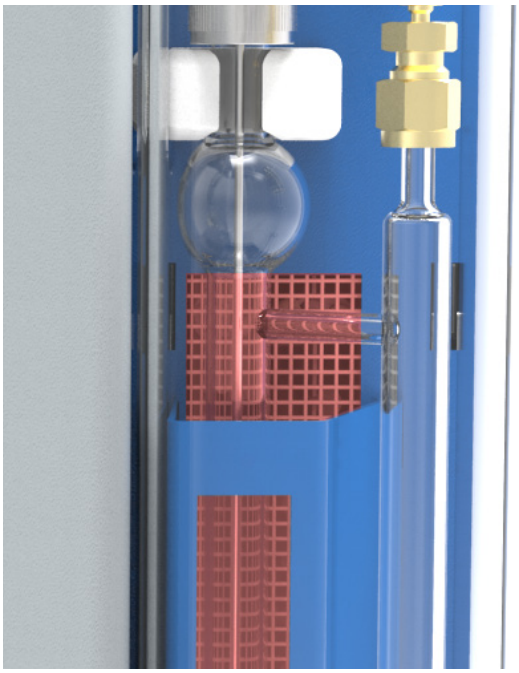
EST Analytical patented a process on the Evolution where there are two flows that go through the system during bake; one flow is directed across the trap and another separate flow goes through the glassware. Even though systems are connected to autosamplers that rinse the glassware, the glassware is still the largest contributor to carryover.

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 Evolution avoids this problem and by heating the sparge vessel up to 120 °C during the bake sequence, carryover is reduced dramatically.

Key Features

Re-running samples due to carryover can limit overall productivity in the laboratory. From the beginning, the Evolution was designed to improve carryover.

- ✓ **Maximize billable sample runs per day**
- ✓ **Speed up cycle times with improved cool-down times**
- ✓ **Decrease carryover with patented carryover heater option**
- ✓ **Cool-down time is less than two minutes**
- ✓ **Automated ready signal during bake reduces cycle time by several minutes per sample**



Patented Sparge Tube Heater

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

Evolution 2 Purge and Trap Concentrator

Specifications

Major Features

- Carryover heater (patented in Bake mode)
- 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
- Patented Desorb Pressure Control

Dimensions

- 9in W x 17in D x 15in H
- (22.9cm W x 43.8cm D x 38.1cm H)

Weight

- 45lbs (20.4Kg)

Programmable Time Ranges

- 0 - 999.9 min for all timed events

Programmable Temperature Ranges

- Trap: ambient to 270 °C
- Transfer line: ambient to 250 °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 (10A)
- Optional unit 230VAC (+/-10%)/50/60Hz 6.3A

Gas Supply

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

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