

User Manual

EZYPRESS HT 96[®]

96-well plate Positive Pressure Unit

INTRODUCTION

The EZYPRESS HT 96[®] is designed to process SPE using 96-well filter plates (1 ml / 2 ml). EZYPRESS HT 96[®] provides a positive pressure for solid phase extraction using dry inert pressurized air, nitrogen or other inert gases. The standard hardware provided with the unit is designed for 1 ml / 2 ml filter plates columns, with elution using 96-well collection plates. The Positive Pressure Processor is compatible with Orochem 96-well plates, using validated protocols optimized for a variety of sorbets.

The EZYPRESS 96[®] positive pressure processor is the ideal accessory for solid phase extraction applications with the ability to provide set pressure levels for conditioning, sample transfer, wash steps, along with the line pressure for drying prior to the elution step. The salient features of the unit include:

- Modular rack design, allowing use of SBS footprint compatible filter plates
- Uniform gas distribution through the manifold ensures uniform pressure and uniform liquid flow at each well of the filter plate.
- Liquid flow rate in the columns/wells changes quickly and proportionately when gas pressure is changed. The pressurized air source can be replaced with other inert, dry gases like Nitrogen and Helium.



Figure 1. EZYPRESS HT 96[®] Positive Pressure Processor

GETTING STARTED:

The standard EZYPRESS HT 96[®] (Part Number: ORPSP-96) consists of:

1. EZYPRESS Positive Pressure Processor
2. Collection Plate, 1 mL/well
3. Collection Plate, 2 mL/well
4. Tray to hold 96 rimless tubes
5. User manual
6. Spare gasket with L - key.

The EZYPRESS HT 96[®] should be placed on a level surface and operated where there is proper ventilation or from inside a chemical fume hood when volatile solvents are used.

The processor requires a compressed inert gas supply, and should be located with this in mind.

Note: Use of safety glasses and protective clothing is recommended.

The processor operates using a compressed gas both to seal the columns/wells and displace the liquid from the columns/wells. The gas used can be house air or nitrogen, or cylinders of purified air or nitrogen or helium. Please ensure that the gas is free of moisture, particulates and hydrocarbons. Use of in-line external air filter is recommended to ensure removal of particulates, often found within house gas supply systems. Connect the external supply line with external regulator and on/off valve to the back of the EZYPRESS[®] using ¼" OD tubing.

Note: Operating pressure for the gas supply should be maintained between 25 – 50 psig.

CONTROL PANEL:

Figure 2 shows the front panel of the EZYPRESS HT 96[®] positive pressure processor. The front panel consists of a flow meter (0-10 scfh), pressure regulator, flow selector and pressure gauge (0-30 psig).



Figure 2: Front Panel View



The processor allows the user to set and operate two flow ranges: high flow range (washing, drying) using the set pressure, and low flow range controlling the flow rate (sample loading, conditioning and elution). The system achieves this through the use of a low pressure rotameter for slower flow rates and a medium pressure regulator for faster flow rates. The rotameter and the regulator are independent, and the system can be operated in either a high flow or low flow mode without adjustment to the gas supply.

The rotameter (0-10 scfh) is designed to provide equally distributed flow to each column. The flow rate is measured at the middle of the flow meter, with the flow rate controlled with the flow selector in "Adjust Flow" mode. The black knob at the base of the rotameter controls the flow rate.

A setting of "5" at the middle of the float corresponds to a gas flow rate of 2360 cc/minute or 2.36 L/minute to the manifold (The flow rate is calculated using a multiplier of 472 x rotameter setting). With the flow rate equally distributed to each of the 96 outlets of the manifold, each column/well mouth receives 24.6 cc/minute of gas flow. The gas flow rate from the manifold outlet remains the same whether or not a column is present under that outlet.

The pressure regulator allows complete control on the operating pressure of the processor. The pressure regulator is completely backed out, to provide zero flow. Pull out the locking knob, as shown in Figure 3 and rotate it anti-clockwise to increase the operating pressure. Press down the locking knob, after reaching the desired operating pressure. The pressure gauge shows the operating pressure of the processor. It is desired that the locking knob is turned back clockwise, so that the operating pressure is set back to zero, after the completion of the extraction procedure.

PRESSURE GAUGE



PRESSURE REGULATOR

Figure 3: Pressure Regulator with Pressure Gauge

The Flow Selector (3 position) as shown in the front panel, allows the flow range to be selected between “Adjust Flow” and “Max Flow”. With the Selector set to “Adjust Flow” use the rotameter to change the flow rate going to the columns through the manifolds.

Figure 4. shows the back panel of the EZYPRESS HT 96® showing the tubing connection to the top manifold block. The inlet for the pressurized air is provided using conventional ¼” OD tubing. Please ensure that the inlet line for the gas source has a pressure regulator with shut-off valve to control the flow.

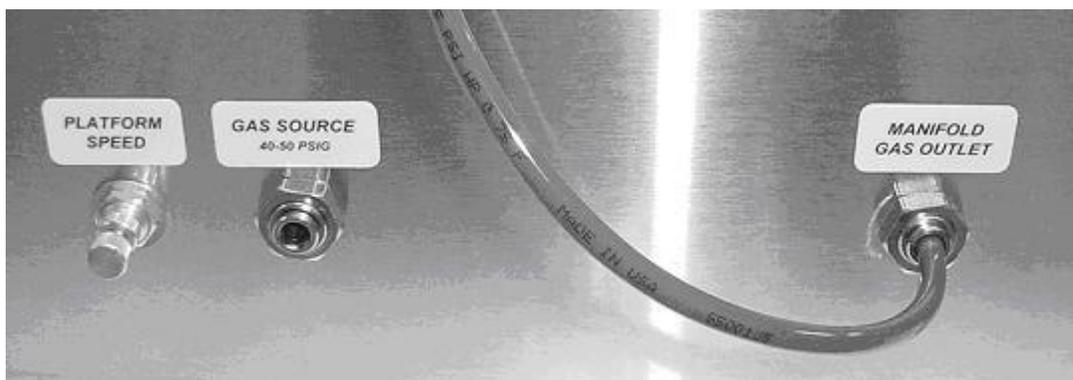


Figure 4: Back Panel of the Processor

SAMPLE LOADING:

The solid phase extraction process consists of the following steps,

- Conditioning
- Sample transfer
- Wash
- Elution

During the conditioning, sample transfer, wash and the elution step, simply place the 96-well plate with collection accessory onto the processor platform. Pipette solvent into the well and slide the plate under the manifold. With the platform assembly either with the waste tray or the elution rack pushed to the back of the processor and the two toggle switches on either side of the processor are used to lift the platform assembly, with the gasket sealing the columns. When the plate is ready, bring the platform down and prepare the columns for the next step.

Note: Please ensure the waste reservoir is emptied to avoid any overflow.

Please note that the top and the bottom racks along with the platform is keyed, so that they fit in only one direction. This helps with avoiding any sample contamination or confusion.

Figure 5 below shows the toggle switch located on either side of the processor. The switches are used to move the platform up and down. As a safety feature, both the toggle switches must be lifted simultaneously to raise the platform, and depressed simultaneously to lower the platform. The switch guard provides protection, minimizing accidental breakage of the toggle switches.

The speed of the platform movement is controlled by adjusting the valve located at the back of the processor. To increase the speed, the locking nut is first loosened by rotating it counter-clockwise, and the valve is opened (counter-clockwise rotation). Please ensure that the locking nut is tightened after the desired speed is attained. Figure 6 below shows the valve with the locking nut, controlling the platform speed.



Figure 5: Toggle Switch

Warning: Please keep hands and fingers clear when raising or lowering the platform.



Figure 6: Valve for Controlling the Platform Speed

During the end of the wash step, or for drying the flow selector is rotated to “Max Flow” to provide maximum flow rate, bypassing the rotameter.

The primary material of construction is stainless steel that is powdered coated to maintain chemical resistance from buffers and reagents used for solid phase extraction. The controls and the gauges are not solvent resistant, spills should be cleaned immediately from the contacting surfaces. Please refer to MSDS sheets for cleaning procedures of appropriate solvents. The EZYPRESS HT 96[®] is provided with a spare gasket that should be changed, based on the usage of the processor.

TECHNICAL & CUSTOMER SERVICE:

Orochem Technologies Inc.
sales@orochem.com
Telephone (Naperville, IL, USA) (630) 210-8300

Orochem India Pvt. Ltd.
orochem@vsnl.net
Telephone (Mumbai, India) 91-22-27603569