

User's Manual

EZYPRESS 48

48 Position Positive Pressure Unit

INTRODUCTION:

The EZYPRESS 48 is designed to process SPE Columns of 1 ml, 3 ml, and 6 ml capacity in batches of 1 to 48 samples. The EZYPRESS 48 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 columns, with elution using 12 x 75 mm test-tubes. The Positive Pressure Processor is compatible with Orochem columns (standard and rimless), using validated protocols optimized for a variety of sorbents.

The EZYPRESS 48 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 quick interchangeability between 1 ml, 3 ml and 6 ml columns, eluting into 12 x 75 mm , 13 x 100 mm , and 16 x 100 mm test-tube racks respectively.
- Uniform gas distribution through the manifold ensures uniform pressure and uniform liquid flow at each SPE tubes. The uniform flow, ensures uniform flow, with some SPE columns open along with reproducible SPE runs from column to column. It also ensures uniform flow rate when less than 48 columns are used.
- Liquid flow rate in the columns 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.

GETTING STARTED:

The standard EZYPRESS 48 (Part Number: ORPSP-48) consists of:

1. EZYPRESS Positive Pressure Processor
2. Racks for 1 ml SPE Columns
3. Waste Rack
4. Waste Trough (Quantity: 2)
5. Collection Tube Rack for 12 x 75 Test-tubes
6. User's Manual
7. Spare Gasket with allen key.

Please call Orochem Technologies or your local distributor immediately if you notice any damage to the packaging or the processor upon arrival.

NOTE: Please read the User's Manual, to gain familiarity with the processor prior to the installation of the unit.

Figure 1. shows the EZYPRESS 48 unit with the 1 ml columns and tube racks for 12 x 75 mm test tubes.



Figure 1. EZYPRESS Positive Pressure Processor

Optional accessories for the EZYPRESS include:

- | | |
|--|----------|
| 1. Racks for 1 ml SPE Columns | ORPSP-22 |
| 2. Racks for 3 ml SPE Columns | ORPSP-23 |
| 3. Racks for 6 ml SPE Columns | ORPSP-24 |
| 4. Collection Tube Rack for 12 x 75 mm Test-tubes | ORPSP-19 |
| 5. Collection Tube Rack for 13 x 100 mm Test-tubes | ORPSP-20 |
| 6. Collection Tube Rack for 16 x 100 mm Test-tubes | ORPSP-21 |
| 7. Waste Rack with 2 Waste Troughs | ORPSP-26 |

8. Spare Gasket Sets
9. Spare Waste Troughs
10. External in-line filter

ORPSP-27
ORPSP-17
ORPSP-28

Remove the top packing material after opening the box. Slowly pull out the positive pressure processor out of the box. Place the boxes containing the racks on the side. The EZYPRESS 48 should be placed on a level surface, and operated in a space with proper ventilation or inside a chemical fume hood when volatile and organic solvents are used. The processor requires a compressed inert gas supply with proper regulator and valves to control the flow.

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

The processor operates using a compressed gas both to seal the columns and displace the liquid from the columns. 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, 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 1/4" 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 48 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 rotometer for slower flow rates and a medium pressure regulator for faster flow rates. The rotometer 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 rotometer (0-10 scfh) is designed to provide equally distributed flow to each column, regardless whether a column is present or absent. 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 rotometer 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 rotometer setting). With the flow rate equally distributed to each of the 48 outlets of the manifold, each column mouth receives 49.2 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

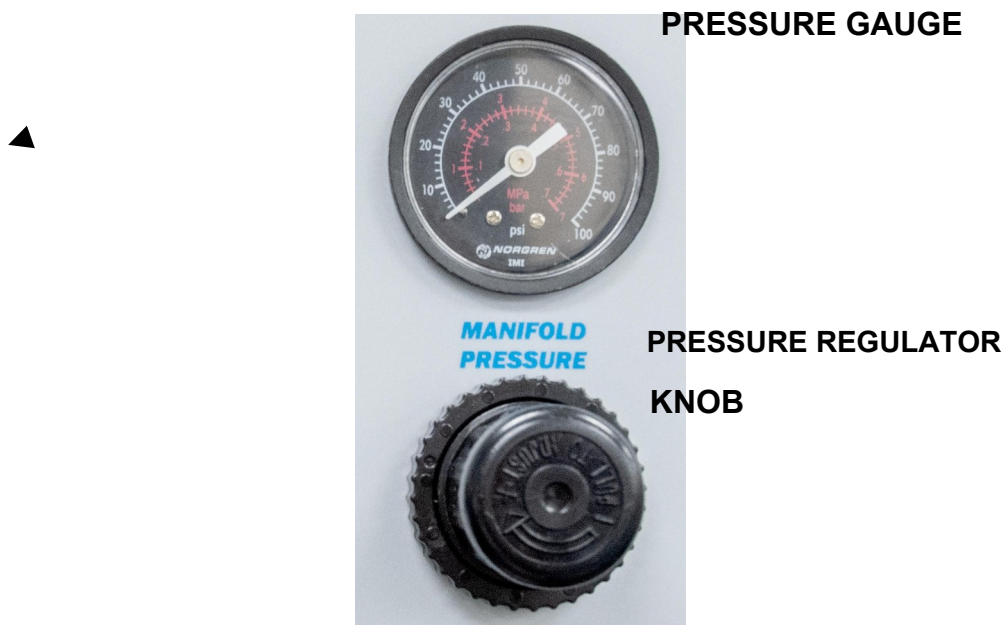


Figure 3. Pressure Regulator with Pressure Gauge

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.

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 rotometer to change the flow rate going to the columns through the manifolds.

Figure 4. shows the back panel of the EZYPRESS 48 showing the tubing connection to the top manifold block. The inlet for the pressurized air is provided using conventional ¼” OD tubing. The platform speed is controlled using a metering valve, and it’s operation is discussed as part of the sample loading process. Please ensure that the inlet line for the gas source has a pressure regulator with shut-off valve to control the flow.

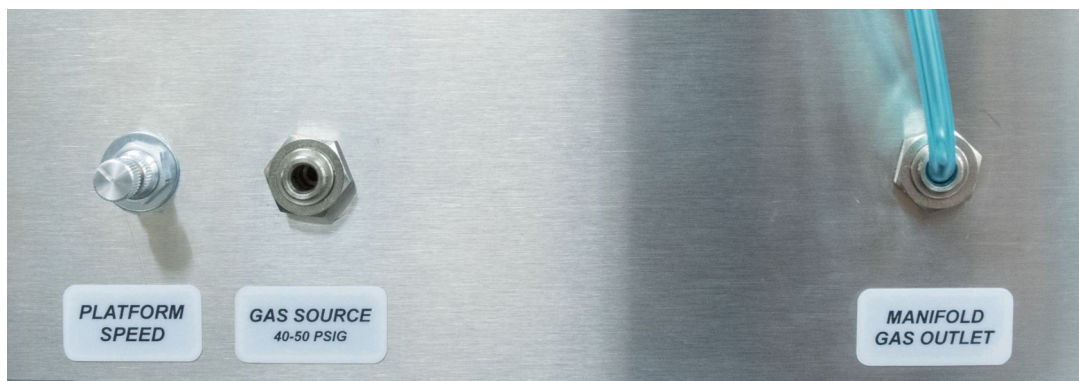


Figure 4. Back Panel of the Processor

SAMPLE LOADING:

The Solid Phase Extraction consists of the conditioning, sample transfer, wash and finally the elution step. During the conditioning, sample transfer, wash and the elution step, the columns are manually loaded, the platform assembly moved to the back, platform pushed up to provide sealing between columns and the gasket on the manifold, and finally the buffer/samples in the columns is pushed out into waste the waste basket or elution columns.

The rack for the 3 ml columns is placed on top of the waste rack, with the waste basket located in the slot of the waste rack. The entire assembly is placed on the platform, with the handgrip facing towards the front of the unit. The handgrip is used to move the entire assembly to the back of the processor under the manifold for the extraction as shown in Figure 5.

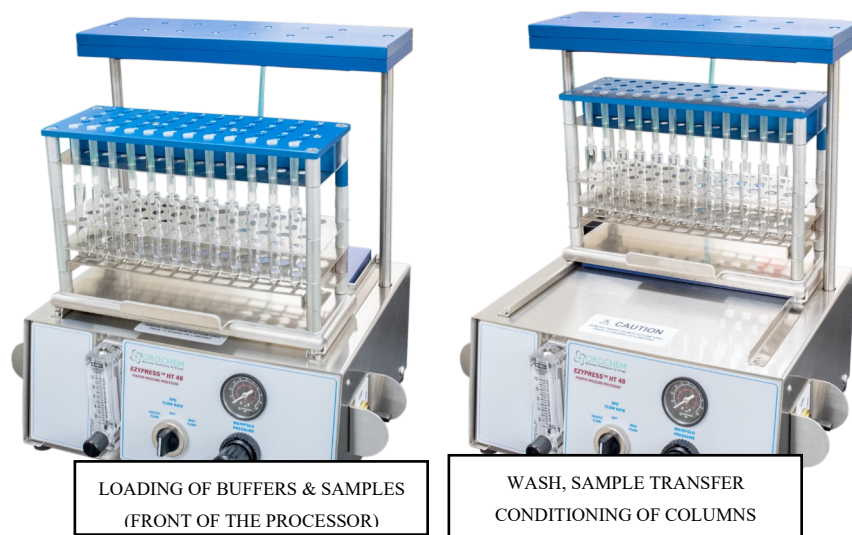


Figure 5. Operation of the EZYPRESS 48 Processor

NOTE: Please ensure that the Waste Reservoir is emptied appropriately without causing 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 (The black spacers would face the back right corner).

With the platform assembly either with the waste tray or the elution rack pushed to the back of the processor the two toggle switches on the side of the processor are used to lift the platform assembly, with the gasket sealing the columns. Figure 6. shows the toggle switch on the side of the processor, that is 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 7. shows the valve with the locking nut, controlling the platform speed. provides protection from accidental movement of the toggle switches, minimizing breakage.



Figure 6. Toggle Switch

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



Figure 7. 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 rotometer.

The primary material of construction is stainless steel that is powdered coating 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 48 is provided with a spare gasket that should be changed, based on the usage of the processor.

TECHNICAL & CUSTOMER SERVICE:

Orochem Technologies Inc.

info@orochem.com

Telephone (Naperville, IL, USA) (630) 210 8300

Orochem India Pvt. Ltd.

orochem@vsnl.net

Telephone (Mumbai, India) 91-22-27603569