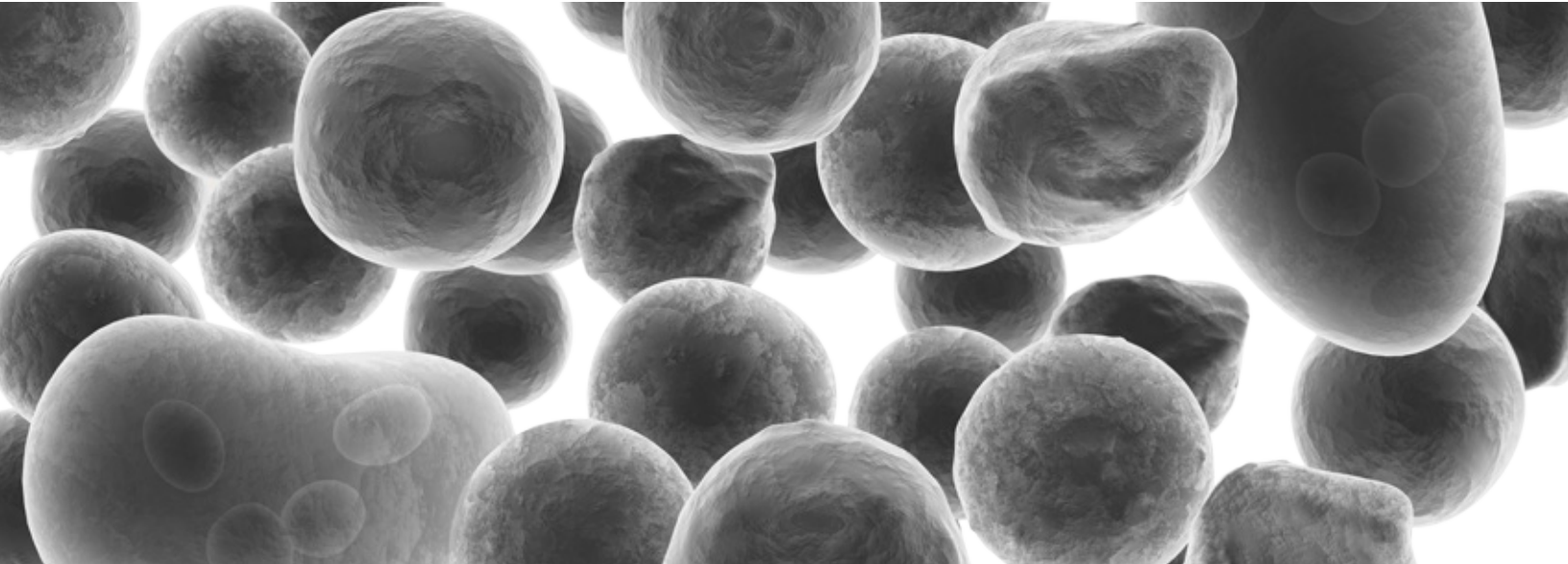


Filta-Max *xpress** Version 2.0

Pressure Elution Station • Operator's Guide (Mechanical)



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Filta-Max *xpress** Version 2.0

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Introduction

The IDEXX Filta-Max *xpress** version 2.0 Pressure Elution Station is used to automate the elution of *Cryptosporidium* spp. oocysts and *Giardia* spp. cysts from Filta-Max *xpress** Filter Modules.

The Pressure Elution Station and elution procedures are designed for use with 10–1,000 L water samples.

NOTE: The recovery of *Giardia* spp. cysts from large-volume finished water samples may be affected by residual chlorine in the sample.¹

The Pressure Elution Station has been designed specifically for this purpose and should not be used to elute other types of Filter Modules or cartridges.

Safety

For your safety, read this guide thoroughly before using the Filta-Max *xpress* 2.0 Pressure Elution Station.

IDEXX recommends that you perform your own safety assessments of the Filta-Max *xpress* 2.0 system and follow your own in-house health and safety guidelines.

Ensure that the connections between the Filter Housings and any pneumatic equipment are capable of withstanding the operating pressure of the elution station.

Ensure that you understand all instructions and safety precautions listed in this manual. If you have any questions, contact IDEXX Technical Service in the United States at 1 800 321 0207 or in Europe at +44 (0)1638 676800. Email at emeatechsupport@idexx.com or watertechnicalservice@idexx.com.

Compliance

Safety: EN 61010-1: 2001 (IEC1010-1 and UL/CSA 61010A-1, 2nd Edition, and CSA C22.2)

This includes:

CISPR 11:1997 +A1:1999 +A2:2002 Conducted and Radiated Emissions Class A

EN 61000-4-2, 4-3, 4-4, 4-5, 4-6, 4-8, 4-11 Immunity

NOTE: EN61000-3-2 and 3-3 are not applicable for Class A.

47:CFR part 15, subpart B, Class A (FCC)

ICES-003 Issue 4, February 2004, Class A

AS/NZS CISPR 11: 2004 Group 1, Class A (ACA)

CNS 13438: May 1997, Class A Digital Device (BSMI)

VCCI V-1/93.11, V-2/97.04, V-3/97.04, V-4/97, R-1216, and C-1279 Class A ITE

Warnings

Warnings are designated by an exclamation mark inside a triangle and are highlighted in bold. Warnings are also displayed as labels on the Filta-Max *xpress* 2.0 Pressure Elution Station at strategic locations.

- Observe all warning labels.
- Never remove warning labels.
- Never operate a damaged or leaking unit.
- Always turn off the power and disconnect the power cord prior to performing any service or routine maintenance.
- Never operate the Filta-Max *xpress* 2.0 Pressure Elution Station with a damaged power cord.
- Do not attempt to disassemble the unit. Refer all service and repairs to a qualified service technician.

Components

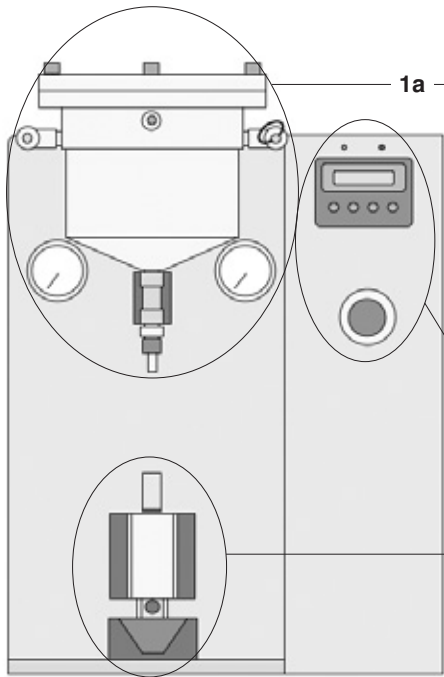


Figure 1: Pressure Elution Station without a Filter Housing and diverter assembly.

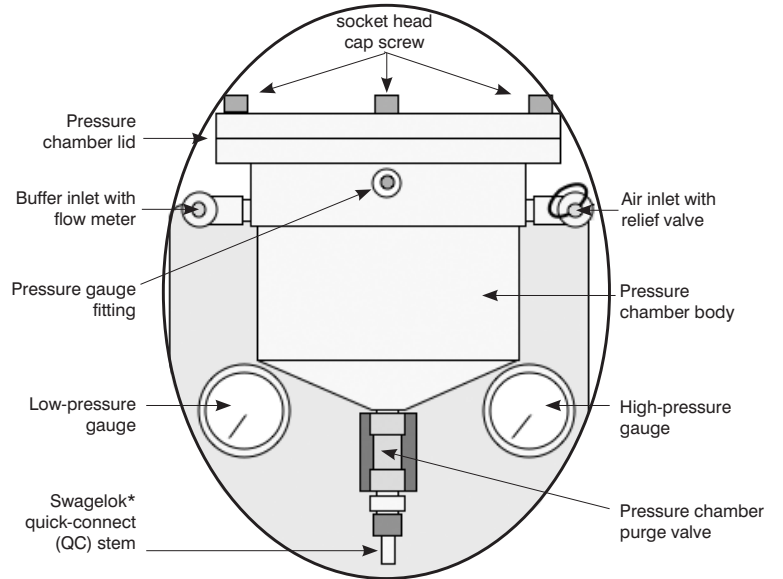


Figure 1a: Pressure chamber and gauges.

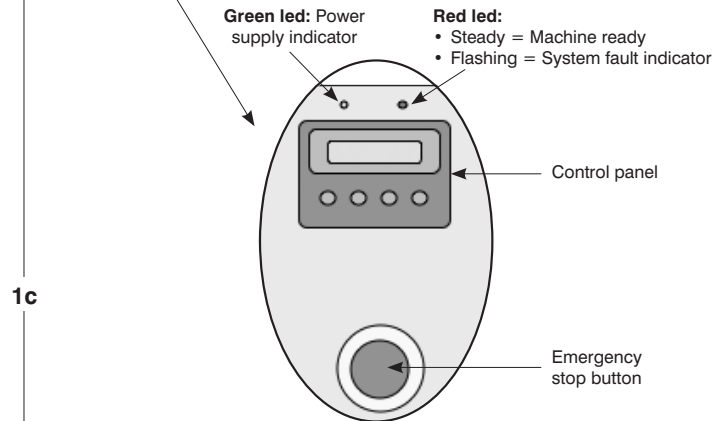


Figure 1b: Switches and buttons.

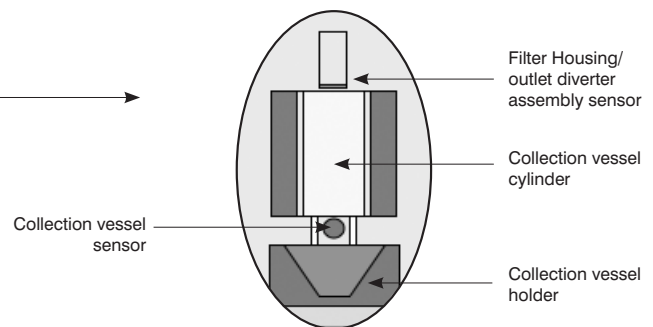


Figure 1c: Sensors, fittings, and vessels.

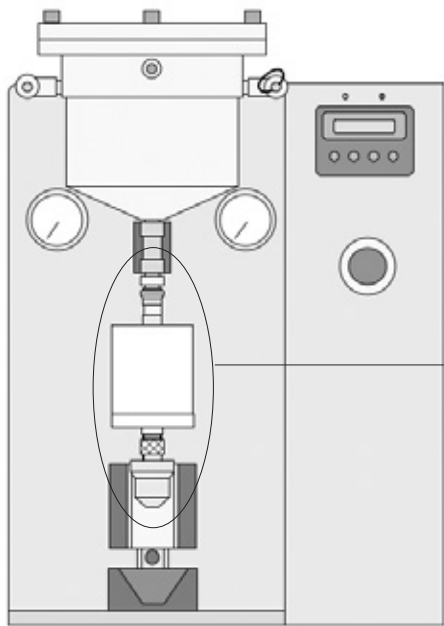


Figure 2: Pressure Elution Station with a Filter Housing and diverter assembly attached.

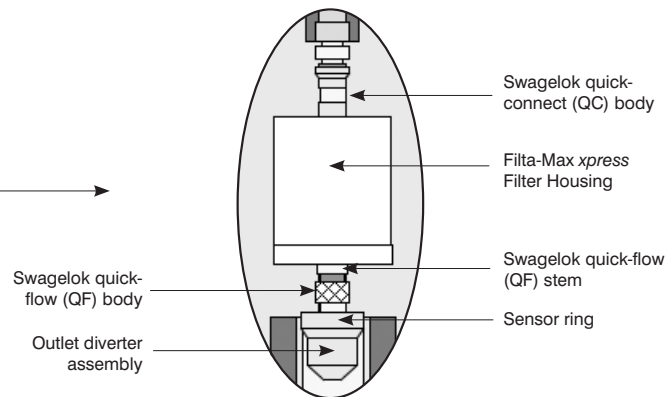


Figure 2a: Filta-Max *xpress* Filter Housing and diverter assembly.

Shipping Box Contents

- Filta-Max *xpress* 2.0 Pressure Elution Station
- Universal power supply/voltage converter
- Power cord
- Outlet diverter (5-pack kit)
- Hose kit
- Buffer reservoir bottles (one 10 L bottle and one 4 L bottle)
- Filta-Max *xpress* Version 2.0 Operator's Guide (Biological)
- Filta-Max *xpress* Version 2.0 Operator's Guide (Mechanical)
- Miscellaneous tools:
 - 2 hex wrenches
 - quick-connect fitting
 - screwdriver

Specifications

Technical Specifications

- Dimensions: 28" H x 14" D x 20.5" W (711 mm H x 356 mm D x 521 mm W)
- Weight: 86 lb (37.7 kg)
- Minimum input pressure: 65 psig (4.5 bar)
- Maximum input pressure: 150 psig (10.3 bar)
- Working pressure: 72.5 to 116 psig (5.0 to 8.0 bar)
- Supply voltage (through an external power source): 100 to 240 V AC @ 47 to 63 Hz, output 4.2 to 5.0 A @ 24 V DC (limited power source only)
- Pressure Elution Station current rating: 4.2 to 5.0 A @ 24 V DC

Environmental Conditions

- Intended for indoor use only
- Temperature Range: Ambient temperature of 16°C to 24°C
- Humidity Range: 0% to 80% relative humidity
- Maximum Altitude: No restrictions
- Pollution Degree II
- Overvoltage protection Category 2

Setting Up the Pressure Elution Station

Location

The Filta-Max *xpress* 2.0 Pressure Elution Station and buffer reservoir bottle should be placed on a sturdy bench or laboratory table capable of supporting their weight and the force required to install and remove the Filta-Max *xpress* housing and fittings.

Power Connection

- Connect the low-voltage cable to the inlet power socket on the back panel of the Pressure Elution Station.
- Connect the provided power supply to a suitable electrical outlet using the appropriate power cord. The external power supply will function normally for 100 to 240 V AC at 47 to 63 Hz.

Connecting the Air Supply

Compressed air is required for the Filta-Max *xpress* 2.0 Pressure Elution Station to function properly as it supplies the air pressure needed to elute the Filter Modules. IDEXX supplies a hose kit that allows you to connect either your facility's air supply or a compressor to the Pressure Elution Station. The hose kit consists of a 12-foot self-retracting hose and connector.

Using a facility air supply

If a facility air supply is used, check to ensure that the outlet pressure is between 5.0 bar and 8.0 bar (72.5 and 116 psig). The air supply must have a sufficient capacity to perform elution cycles whilst remaining above 5.0 bar (72.5 psig).

Use the quick-connect fittings supplied with the Pressure Elution Station or other appropriate fittings to connect the air supply to the elution station. The connection is made at the back of the elution station at the air line inlet connector.

Prior to connection and applying air pressure to the Pressure Elution Station, ensure that the lockable air inlet valve is in the off (EXH) position by turning it clockwise. When the connection has been made and there is pressure to the elution station, turn the lockable air inlet valve counterclockwise to the on (SUP) position.

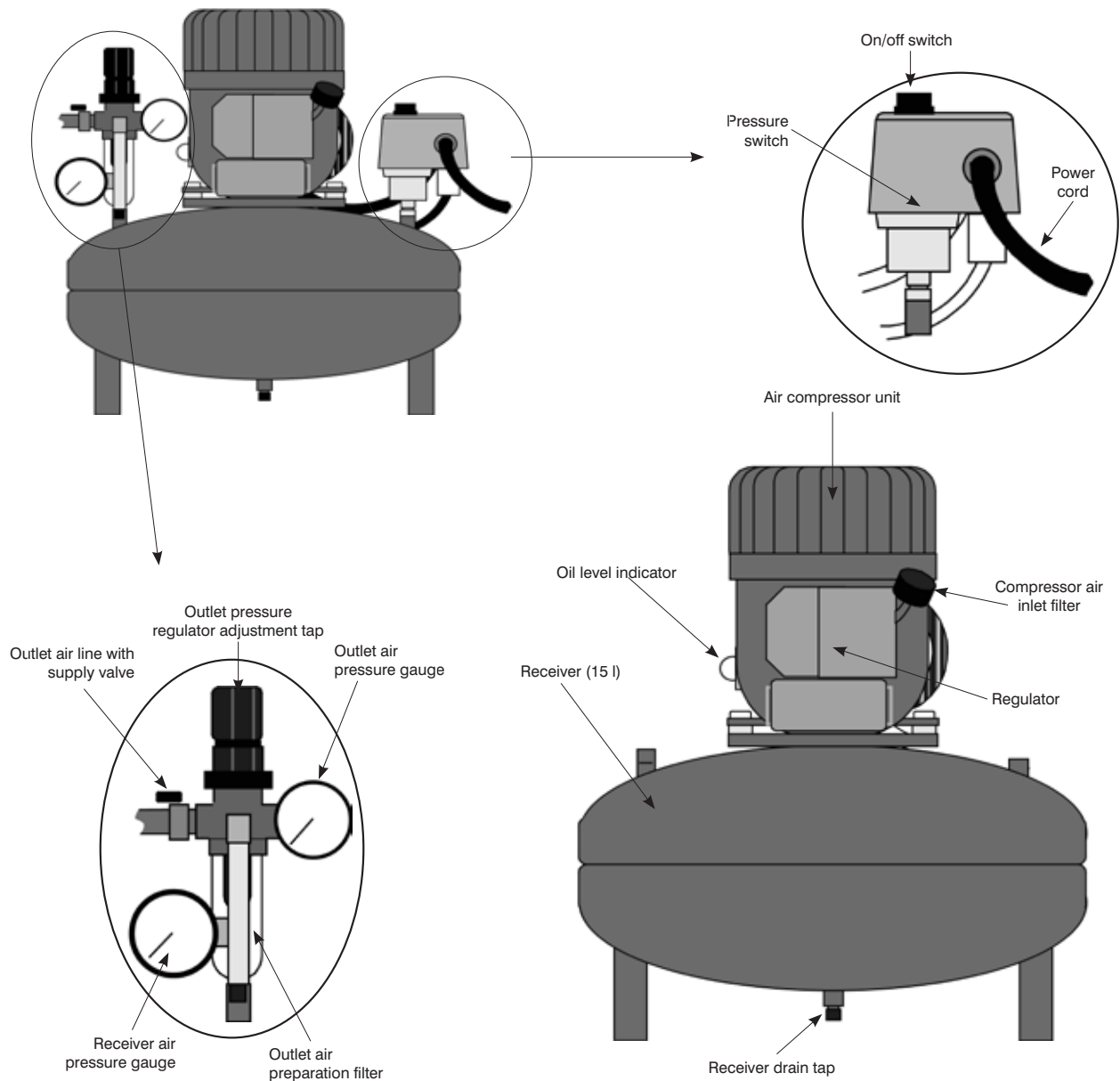
Connecting an air compressor to the hose kit

1. Prepare the air compressor for use according to its operating instructions.

NOTE: The components and their respective locations on the air compressor may vary with the model.

NOTE: Plumbing tape or other appropriate sealant is recommended at all threaded connections.

Air Compressor Components



2. Connect the swivel end of the 12-foot self-retracting hose (found in the Filta-Max *xpress* Hose Kit) to the air compressor's filter, which is attached to the regulator.
3. Connect the other end of the hose to the air line inlet connector on the Pressure Elution Station.

NOTE: Prior to connecting the hose and applying pressure to the elution station, ensure that the lockable air inlet valve on the Pressure Elution Station is in the off (EXH) position by turning it clockwise.

4. Follow the compressor's instruction manual to modulate the outlet pressure between 5.0 and 8.0 bar (72.5 and 116 psig).
5. Connect the air compressor's power cord to a suitable electrical outlet.
6. Turn the air compressor's on/off switch to on or auto.

7. Allow the air pressure in the receiver to build to at least 5.0 bar (72.5 psig).
NOTE: With the air compressor in auto mode, the motor will automatically stop when the pressure reaches a preset maximum and will restart when the pressure drops below a preset minimum. The pressure in the receiver can be monitored via the receiver pressure gauge. The minimum pressure required for use with the Filta-Max xpress 2.0 Pressure Elution Station is 5.0 bar. The air compressor should have a sufficient flow rate to maintain pressure above 5.0 bar during use.
NOTE: With prolonged continuous use, the motor on the air compressor can become warm. It is recommended that the compressor not be used continuously for longer than the recommended duty cycle.
8. Ensure that the compressor's regulator is set to at least 5.0 bar (72.5 psig).
NOTE: To increase or decrease the outlet pressure, turn the pressure regulator's adjustment tap according to the manufacturer's instructions.
9. When the quick-connect fittings have been attached to the Pressure Elution Station and there is pressure to the elution station, turn the lockable air inlet valve counterclockwise to the on (SUP) position. The air supply is now ready for use with the Pressure Elution Station.
NOTE: If the pressure from the air supply falls below 5.0 bar (72.5 psig), there will be insufficient pressure to complete an elution cycle and a "Low Pressure" error message will be displayed. When processing multiple samples, be sure to monitor the pressure.

Checking the Pressure Regulator Setting

With pressure supplied to the Pressure Elution Station and the lockable air inlet valve in the on position, the high-pressure gauge should read approximately 5.0 bar (72.5 psig), while the low-pressure gauge should read approximately 0.38 bar (5.5 psig). If the gauge readings are not correct, they must be readjusted. Contact IDEXX Technical Service for assistance.

NOTE: The low-pressure regulator, a precision-regulator located within the elution station, will always bleed a small amount of air, and a slight hissing sound is normal.

Operating the Pressure Elution Station

Attaching the Buffer Reservoir Bottle

The buffer reservoir kit includes one 10 L bottle and one 4 L bottle.

NOTE: The buffer reservoirs provided by IDEXX are manufactured from heavy duty HDPE. Only heavy duty reservoirs should be used in this application.

NOTE: Due to the performance of the initial system check and buffer purge, two reservoirs are required. IDEXX suggests that the 10 L reservoir be used for the buffer solution and the 4 L reservoir be used for reagent water.

Attach the buffer reservoir bottle to the Pressure Elution Station using the supplied closure cap located on the back of the elution station. The closure cap is attached to a hose that is connected to the elution station. Ensure that a tight seal is formed between the buffer reservoir bottle and the closure cap.

NOTE: When the closure cap is new the integral seal is quite stiff and may be difficult to tighten. After several uses tightening the closure cap will become easier.

Eluting the Sample

1. Turn on the Pressure Elution Station by depressing the on/off switch to the “1” position. The green LED (power) and the red LED (machine ready) are lit.
NOTE: The on/off switch is located on the back of the Pressure Elution Station.
2. Remove the lid from a 500 mL Corning* centrifuge tube (or equivalent) and place the tube into the collection vessel holder.
3. With the Filter Housing’s QF stem facing upward, attach the outlet diverter fitting to the QF stem by pulling back the collar and pushing the fittings together.
4. Turn the Filter Housing over and place the outlet diverter over the centrifuge tube to catch any sample which may leak.
5. Connect the Filter Housing’s QC body to the QC stem on the Pressure Elution Station by pushing the fittings together.
6. Check that the air supply is set up correctly, the air line is connected to the Pressure Elution Station, and the air inlet valve is open (SUP).
NOTE: Compressed air must be used with the Pressure Elution Station. See “Connecting the Air Supply” for more information, or contact IDEXX Technical Service.
7. Ensure that there is sufficient buffer solution in the buffer reservoir bottle and that the seal between the closure cap and the reservoir bottle is airtight.
8. Press **F1** on the control panel to start the filter elution cycle.
NOTE: During the elution cycle, the collection vessel holder and centrifuge tube are lifted into position. Do not override the door sensors, as they protect you from pinch-points produced by this movement. If the door sensors fail to function, do not place your hands or any objects in this area. Contact IDEXX Technical Service for assistance.
9. At the end of the elution cycle, disconnect the Filter Housing from the Pressure Elution Station, and then disconnect the outlet diverter fitting from the Filter Housing.
10. Open the Filter Housing, remove the Filter Module, and discard the filler module according to appropriate disposal regulations.
11. Cap the centrifuge tube and remove it from the collection vessel holder.
NOTE: The Pressure Elution Station contains several sensors. The elution station will not start an elution cycle if a centrifuge tube, the Filter Housing, or the outlet diverter are not in place. At the end of an elution cycle, the elution station will not start the next cycle unless the centrifuge tube is removed from the collection vessel holder and replaced with a fresh tube.
12. Clean the QC stem on the Pressure Elution Station with alcohol-soaked wipes.
NOTE: Because the system uses positive pressure to elute filters, there is limited to no risk of sample-to-sample cross-contamination.[†]
13. Proceed with subsequent sample elutions.

Using the Control Panel Functions

The control panel on the Filta-Max *xpress* 2.0 Pressure Elution Station provides four functions:

- **F1** Starts the elution cycle
- **F2** Checks the pressure

With the buffer reservoir cap sealed, press and hold the F2 button for 3 or more seconds. Listen for any leaks, and monitor the low-pressure gauge for pressure changes.

[†]Data on file, IDEXX Laboratories, Inc.

- **F3** Resettable cycle counter
Press and hold the F3 button for 3 seconds to display the number of cycles completed (i.e., the number of samples eluted).
Press and hold the F3 button for 5 seconds to reset the counter to zero.
- **F3 and F4** Non-resettable cycle counter
Press and hold the F4 button, and then press and hold the F3 button to display the total number of cycles run on the Pressure Elution Station.

Servicing the Pressure Elution Station

After 10,000 cycles, the Filta-Max *xpress* 2.0 Pressure Elution Station should be serviced to ensure proper operation. A “Service Required” message will appear on the display panel when 10,000 cycles have been completed. The Pressure Elution Station can continue to be used but should be serviced as soon as possible. Service of the unit should be performed in accordance with the service plan by a qualified IDEXX Service Technician. Contact IDEXX Technical Service for assistance.

Limited Warranty

IDEXX Laboratories, Inc. (“IDEXX”) warrants this product to conform to our published specifications, when stored under appropriate conditions and given normal, proper and intended usage, until the expiration of its stated shelf life, or, if none is stated, for one year from the date of delivery of this product to the original end user purchaser (“Buyer”). IDEXX agrees during the applicable warranty period to replace all nonconforming products within 30 days after date of return to IDEXX and without cost to Buyer. IDEXX shall not have any obligation under this Limited Warranty to make replacements which result, in whole or in part, from catastrophe, fault or negligence of the Buyer, or anyone claiming through or on behalf of the Buyer, or from improper use of the products, or use of the products in a manner for which they were not designed, or by causes external to the products.

Buyer shall notify IDEXX of any products which it believes to be nonconforming during the warranty period. At IDEXX’s option, such products shall be returned by Buyer, transportation and insurance prepaid, to IDEXX’s designated facility for examination and testing. IDEXX shall repair or replace, within 30 days of receipt by IDEXX, any such product found to be so nonconforming and promptly return such products to Buyer, transportation and insurance prepaid. Should IDEXX’s examination and testing not disclose any nonconformity covered by the foregoing warranty, IDEXX shall so advise Buyer and dispose of or return the product in accordance with Buyer’s instructions and at Buyer’s sole expense.

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Appendix: Troubleshooting

Contact IDEXX Technical Service for assistance in the United States at +1 800 321 0207 or in Europe at +44 (0) 1638 676800. Email at emeatechsupport@idexx.com.

Issue	Action
"No Flow" error message displays, and the LED flashes red	<ul style="list-style-type: none">• Check that the air compressor is turned on and the air compressor's inlet valve is open.• Check that the air line is connected to the inlet connector on the Pressure Elution Station.• Check that the lockable air inlet with relief valve on the elution station is open.• Check that there is sufficient buffer solution in the buffer reservoir.
Buffer solution does not enter the chamber; the "Low Flow" error message displays, and the LED flashes red	<ul style="list-style-type: none">• Check that the air compressor is turned on, and the air compressor's inlet valve is open.• Check that the pressure in the air compressor receiver is above 6.0 bar (87.0 psig).• Check that the air line is connected to the inlet connector on the Pressure Elution Station.• Check that the air compressor's outlet regulator is set to at least 5.0 bar.• Check that the lockable air inlet with relief valve on the elution station is open.• Check the seal between the buffer reservoir bottle and the closure cap.
"Fill Error" message displays	<ul style="list-style-type: none">• Check that the closure cap on the buffer reservoir bottle is sealed correctly and is airtight.• Check that there is sufficient buffer solution in the buffer reservoir.• Check that all tubes are attached correctly and are airtight.
"High Flow" error message displays, and the LED flashes red	<ul style="list-style-type: none">• Check the air supply and the low-pressure regulator settings.• Check that there is sufficient buffer solution in the buffer reservoir.• Check that the liquid inlet tube, located below the closure cap, is:<ul style="list-style-type: none">– below the level of the buffer solution– attached to the blue liquid feed tube (located above the closure cap)
Elution cycle starts, but ceases mid-cycle; "Low Pressure" error message displays, and the LED flashes red	<ul style="list-style-type: none">• Check that there is sufficient pressure in the compressor receiver.• Check the alternative air supply, if in use.

Issue	Action
"Chamber Pressure Error" message displays	<ul style="list-style-type: none"> • Check that there is sufficient pressure in the compressor receiver. • Check the alternative air supply, if in use. • Ensure that the pressure switch on the air compressor is set correctly.
"Containment Vessel Missing" error message displays	<ul style="list-style-type: none"> • Check that a centrifuge tube has been placed in the collection vessel holder.
"Filter Module Missing" or "Diverter Missing" error message displays	<ul style="list-style-type: none"> • Check that the Filter Housing contains a Filter Module and that both are connected properly. • Check that the outlet diverter is correctly attached to the Filter Housing. • Ensure that the air pressure chamber, Filter Housing, and outlet diverter are aligned correctly.
"Door Open" error message displays	<ul style="list-style-type: none"> • Ensure the door to the Pressure Elution Station is closed properly.

Reference

1. Drinking Water Inspectorate. The enumeration of *Giardia* in drinking water: final report. http://dwi.defra.gov.uk/research/completed-research/reports/DWI70-2-155_giardia.pdf. Published December 2003. Accessed August 20, 2014.



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The Filta-Max[®] xpress Filter Module is manufactured under U.S. Patent No. 5,690,825. Other U.S. and/or foreign patents issued or pending. The Filta-Max xpress[®] 2.0 Pressure Elution Station is manufactured under pending U.S. and foreign patent applications.

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