5000PSI DP
BOTANICAL OIL EXTRACTION SYSTEM
INSTALLATION MANUAL

⚠️ WARNING ⚠️
FAILURE TO FOLLOW THE SETUP AND OPERATION PROCEDURE PROVIDED WITHIN THIS MANUAL MAY VOID THE EXTRACTION SYSTEM'S WARRANTY

Apeks LLC
150 Commerce Blvd.
Johnstown OH 43031
740-809-1160
www.apexssupercritical.com

Scan this QR code to get the most recent version of this manual!
# Table of Contents

1. Critical Safety Overview ................................................................................................................. 4
2. Unpacking Instructions ....................................................................................................................... 5  
   2.1. Shipping Crate Inspection ............................................................................................................. 5  
   2.2. Unpacking Instructions .................................................................................................................. 6  
3. System Requirements ....................................................................................................................... 8  
   3.1. General System Specifications ..................................................................................................... 8  
   3.2. Facility ........................................................................................................................................... 8  
   3.3. Electrical .................................................................................................................................... 9  
   3.4. Recirculating Water Chiller/Heater .............................................................................................. 10  
4. Set-Up and Assembly ....................................................................................................................... 10  
   4.1. Layout/Footprint ............................................................................................................................ 11  
   4.2. Separator Coolant Loop ................................................................................................................ 12  
   4.3. Extractor Coolant Loop ................................................................................................................ 14  
   4.4. Chiller/Heater Set-Up .................................................................................................................. 15  
   4.5. CO₂ Connections ....................................................................................................................... 16  
   4.6. Air Connections ........................................................................................................................ 20  
   4.7. Electrical Connections ................................................................................................................ 22  
   4.8. Liquid Pump Set-Up .................................................................................................................... 26  
   4.9. Hanging Extraction Vessels and Boom Arm (20L and 40L only) ................................................ 27  
   4.10. Software Updates and Email Alerts .......................................................................................... 30
To Prepare for Training:

Please refer to the manual for unpacking and set-up instructions. Below is a checklist of what needs to be purchased or completed BEFORE scheduling your onsite training. Onsite training is a four-hour block of instruction that is NOT designed to include unpacking and set-up. Uncompleted items at the time of onsite training will result in incomplete training or additional charges for rescheduling.

- **Must be completed before scheduling training:** Print complete Apeks Operation Manual and Chiller Manual and have onsite the day of training.

- **Must be completed before scheduling training:** Unpack, set-up and connect Apeks system in its location of operation. Refer to the Apeks Installation Manual.

- **Must be completed before scheduling training:** Ensure that all electrical connections are made by a licensed electrician. All new Apeks systems come with a UL508A listed control system and a full-set of electrical schematics with detailed information. The full-set of schematics are inside the Main Control Enclosure (MCE).

- **Must be completed before scheduling training:** Purchase and have onsite for training:
  - 50 lb or 75 lb bottles of CO₂, gas feed, food grade or better. Minimum requirements are:
    - 6 bottles recommended for initial fill and then 1 or 2 required after for runs with a full storage tank.
    - Distilled water and Propylene glycol, 95% distilled water and 5% concentration of Propylene Glycol.
  - Total Gallons needed for system:
    - 5x5LD – 20 gallons, 20x20LD – 24 gallons.
  - Cleaning Agent for cleaning system between runs.
  - Adjustable wrench with an opening greater than 1¼".
  - 1¼" socket and socket wrench, a torque wrench with 20 lb. ft. setting and a 5/8" socket that fits it and a torque wrench and 5/8" socket to be used for 20 lb. ft. tightening of the sanitary clamps.
  - Shop Vacuum with a long, slim nozzle for removing material from extractor.
  - Material to be extracted must be very dry (food dehydrator) and ground (blender) to the consistency of coffee grounds. Have ready the day of training.

- **After completing the pre-training checklist:** Go to [http://www.apekssupercritical.com/customer-support/](http://www.apekssupercritical.com/customer-support/) to create a training ticket.

*An Apeks representative will contact you the following Monday to schedule onsite training. Scheduling is typically done 2-3 weeks in advance. Please plan accordingly.*

Thank you,

Apeks service department
740-809-1160, ext. 1
1. Critical Safety Overview

Throughout these instructions, this symbol is used to indicate that the instructions are critically important to your safety and the safety of your system. Failure to follow the instructions as written can result in a rapid release of high pressure CO₂, potentially causing equipment damage or harm to workers.

⚠️ WARNING ⚠️

Subcritical and Supercritical CO₂ systems operate under high pressure. Operators must be fully trained and familiar with the systems. Failure to operate the systems correctly can result in equipment damage and/or bodily injury.

⚠️ WARNING ⚠️

Subcritical and Supercritical CO₂ systems use large amounts of CO₂ during operation. Ensure that the system is installed in a well-ventilated area to prevent buildup of CO₂, which can cause asphyxiation. Always use a CO2 monitor to ensure safe operations.

⚠️ WARNING ⚠️

Opening a vessel under pressure can result in a rapid release of pressure and ejection of material from inside the vessel. DO NOT ATTEMPT TO OPEN A VESSEL UNDER PRESSURE! Always make sure a vent path for the vessel is opened and the corresponding pressure gauge reads zero prior to loosening the vessel closure.

⚠️ WARNING ⚠️

Subcritical and Supercritical CO₂ systems are designed to operate indoors, in a temperature-controlled environment. Extreme temperatures (below 60°F and above 80°F) will negatively impact the functionality of the system. The environmental temperature range applies to the system, chiller, pump and CO₂ bottles.

⚠️ WARNING ⚠️

Only use Propylene Glycol and distilled water in the chiller and cooling system. Never use Deionized Water in the chiller or cooling system.
2. Unpacking Instructions
Apeks 5000-psi Extraction Systems are shipped in multiple crates. A forklift is required for proper unloading, unpacking and assembly of the system. Each chiller is shipped individually in its own crate. Four other crates contain the liquid CO₂ pump, storage tanks, diaphragm compressor and botanical extraction system. Vessels 20L or larger may be shipped in their own crate. The following steps are to be followed for removing the system from the crates and making service connections for initial use.

WARNING: SOME COMPONENTS HAVE A HIGH TIPPING RISK

2.1. Shipping Crate Inspection

2.1.1. Look for sticker (shown below in Figure 1) on the outside of each crate to verify it came directly from Apeks without being tampered. Note: If no sticker is found, open crate to verify no damage has occurred during shipping.

2.1.2. Locate the two TiltWatch Plus sensors on the outside of the crate, as shown below in Figure 2. Ensure that the crate has not exceeded 30° in any direction. If the crate has exceeded 30°, do not accept the delivery from the shipping company until contacting Apeks at (740) 809-1160.

2.1.3. Prior to opening the crate(s), verify that there is no external damage caused to the wood. If damage is found, do not accept delivery from the shipping company without first opening the crate to verify that there was no damage to the system. Additionally,
call Apeks at (740) 809-1160 to report damage and start the reporting process with the shipping company.

Figure 3. Approximate appearance of shipping crates

2.2. Unpacking Instructions

(Tools Needed: Drill with Philips head bit, pry bar and hammer)

2.2.1. Uncrating extraction system:
   2.2.1.1. Remove one side of each crate and inspect contents, as shown below in Figure 4. Sides are held on by both screws and clips.
   2.2.1.2. Remove top of crate.
   2.2.1.3. Remove remaining three sides. Use caution as the last side will need to be supported while screws on the bottom are removed, as shown below in Figure 5.

   Figure 4. Appearance of crate with front and top removed

   2.2.1.4. Remove the support hardware from inside the crate and check against packing list included in system box. If an item is missing from the crate and not marked “Backordered,” please notify Apeks when setting up training at: http://www.apekssupercritical.com/customer-support/training/
   2.2.1.5. Remove the two 2x3s running across the top of the system frame and the two 2x3s running alongside the system frame.
WARNING

The items in system can weigh over 1000-lbs, use a minimum of three people to stabilize and move system.

2.2.1.6 Using a forklift, lift system off the base of the crate and attach leveling feet (see Figure 6 below).

2.2.2. Uncrating chiller:
  2.2.2.1. Remove the clips securing the top of the crate first, and take out packing.
  2.2.2.2. Remove clips from the front of the crate and lower ramp. Roll out chiller.

2.2.3. Uncrating liquid pump and diaphragm pump:
  2.2.3.1. Remove one side of each crate and inspect contents.
  2.2.3.2. Remove top of crate.
  2.2.3.3. Remove remaining three sides. Use caution as the last side will need to be supported while screws on bottom are removed.
  2.2.3.4. Use a forklift in the appropriate lifting areas (should be labeled “Lift Here”) to remove the diaphragm pump and liquid pump from their crates and attach rubber vibration dampening feet (see Figure 6 below).

2.2.4. Uncrating storage tanks:
  2.2.4.1. Remove one side of each crate and inspect contents. Sides are held on by both screws and clips.
  2.2.4.2. Remove top of crate.
  2.2.4.3. Remove remaining three sides. Use caution as the last side will need to be supported while screws on bottom are removed.
  2.2.4.4. Using a forklift, remove storage tanks from pallet and attach leveling feet.

2.2.5. Keep the crate and all packing materials for future shipping should the system ever need to be moved.
## 3. System Requirements

### 3.1. General System Specifications

<table>
<thead>
<tr>
<th>20Lx20L Extraction System</th>
<th>Chiller/Heater (x2)</th>
<th>Diaphragm Compressor</th>
<th>Liquid Pump</th>
<th>Air Compressor</th>
<th>Storage Tank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Pressure (psi)</td>
<td>5000-psi</td>
<td>100-psi</td>
<td>2000-psi</td>
<td>5000-psi</td>
<td>150-psi</td>
</tr>
<tr>
<td>Operating Temperature (°F)</td>
<td>14°F - 160°F</td>
<td>14°F - 150°F</td>
<td>14°F - 200°F</td>
<td>14°F - 150°F</td>
<td>60°F - 80°F</td>
</tr>
<tr>
<td>Dimensions (in) WxDxH</td>
<td>65x43x107</td>
<td>20x33x39</td>
<td>33x48x57</td>
<td>50x54x57</td>
<td>18x18x18</td>
</tr>
<tr>
<td>Weight (lbs)</td>
<td>1400-lbs</td>
<td>400-lbs</td>
<td>2850-lbs</td>
<td>1000-lbs</td>
<td>30-lbs</td>
</tr>
<tr>
<td>Power (V/A/Phase)</td>
<td>110/10/1PH</td>
<td>230/40/1PH</td>
<td>230/70/3PH</td>
<td>230/30/3PH</td>
<td>115/15/1PH</td>
</tr>
</tbody>
</table>

### 3.2. Facility

#### 3.2.1. Temperature
- The system is designed to run in a climate-controlled facility, where the temperature is maintained between 60°F and 80°F.

#### 3.2.2. Ventilation and Dust Control
- Apeks systems should be placed in a well ventilated environment that is free from excess dust from other manufacturing operations.
3.2.3. **Location** – Apeks systems are designed to be installed on a concrete (or similarly stable) flat floor.

3.3. **Electrical**

3.3.1. See System Power Requirements below. Voltages should be declared at time of purchase to ensure correct system wiring.

3.3.1.1. A surge protector must be used for the 110V plug that powers the PLC (Programmable Logic Controller) and HMI (Human Machine Interface) control box on the machine. The surge protector will ensure protection of electronics during any power surges.

3.3.1.2. Do not use a GFI (Ground Fault Interrupter) on the circuit with the air compressor.

### System Power Requirements

<table>
<thead>
<tr>
<th>Compressor Motor HP</th>
<th>Phase</th>
<th>Voltage</th>
<th>Motor FLA</th>
<th>Recommended Fuses where field wired</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>3</td>
<td>208V</td>
<td>46A</td>
<td>AJT80</td>
</tr>
<tr>
<td>15</td>
<td>3</td>
<td>230V</td>
<td>42A</td>
<td>AJT70</td>
</tr>
<tr>
<td>15</td>
<td>3</td>
<td>460V</td>
<td>21A</td>
<td>AJT40</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Liquid Pump Motor HP</th>
<th>Phase</th>
<th>Voltage</th>
<th>Motor FLA</th>
<th>Recommended Fuses where field wired</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.5</td>
<td>3</td>
<td>208V</td>
<td>24A</td>
<td>AJT50</td>
</tr>
<tr>
<td>7.5</td>
<td>3</td>
<td>230V</td>
<td>22A</td>
<td>AJT40</td>
</tr>
<tr>
<td>7.5</td>
<td>3</td>
<td>460V</td>
<td>11A</td>
<td>AJT20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chiller size</th>
<th>Phase</th>
<th>Voltage</th>
<th>Chiller FLA</th>
<th>Thermo Scientific recommended connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>TF5000 Chiller only</td>
<td>1</td>
<td>230VAC</td>
<td>13.2A</td>
<td>NEMA 6-20R</td>
</tr>
<tr>
<td>TF5000 Chiller/Heater</td>
<td>1</td>
<td>230VAC</td>
<td>25.3A</td>
<td>Field wired- 40A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control Panel</th>
<th>Phase</th>
<th>Voltage</th>
<th>System FLA</th>
<th>Apeks recommended connection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>115VAC</td>
<td>5</td>
<td>NEMA 5-15R wall receptacle with surge protector</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Air Compressor</th>
<th>Phase</th>
<th>Voltage</th>
<th>Compressor FLA</th>
<th>Recommended connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approx. 3 gal</td>
<td>1</td>
<td>115VAC</td>
<td>10</td>
<td>NEMA 5-15R wall receptacle <strong>NO GFI</strong></td>
</tr>
</tbody>
</table>
3.4. Recirculating Water Chiller/Heater
   3.4.1. Recirculating chiller/heater fluid should be a mixture of 95/5 distilled water and propylene glycol.
   3.4.2. Chiller performance is greatly affected by environmental temperature. Temperatures outside of the 60°F and 80°F range will reduce performance.

4. Set-Up and Assembly
The Apeks 5000-5Lx5L and 20Lx20L systems, chiller and air compressor come fully assembled and require only facility hookup and system interconnect installation.
4.1. Layout/Footprint

4.1.1. Each piece of the system is connected with flexible tubing, but should be set-up approximately as Figures 7, 8, 9, 10 and 11 show below (any footprint modifications must be specified at time of purchase).

Figure 7. Set-Up and Assembly Diagram

Figure 8. Set-Up and Assembly

Figure 9. Set-Up and Assembly
4.2. **Separator Coolant Loop**

4.2.1. This coolant loop contains the storage tanks, diaphragm pump and Separators. It is controlled by a TF5000 chiller with basic controller, as shown below in Figure 12.

4.2.2. Connections will either be quick connects, compression or flare fittings. These connections do not require Teflon tape.

4.2.3. The outlet of the chiller is connected to the bottom of the heat exchanger located on the top of the storage tanks and the inlet is connected to the top of Separator #3, as shown below in Figure 13.
4.2.4. The next connection in the coolant loop is located at the top of the storage tanks to the oil heat exchanger on the diaphragm pump, as shown below in Figure 14.

4.2.5. The final connection in the first chiller loop is located at the connection between the heat exchanger on the diaphragm pump and the bottom of the first Separator, as shown below in Figure 15.
4.3. Extractor Coolant Loop

4.3.1. This coolant loop contains only the temperature control heat exchanger and the Extraction Vessels. It is controlled by a TF5000 chiller/heater with deluxe controller, as shown below in Figure 16.
4.3.2. Connections will either be quick connects, compression or flare fittings and do not require Teflon tape.

4.3.3. Connect the outlet of the chiller to the temperature control heat exchanger on the right hand side of the system and connect the inlet of the chiller to the flow switch located at the top of Extractor A (See Figure 17 below for an example).

![Figure 17. Chiller/Heater process connections](image)

4.4. Chiller/Heater Set-Up

4.4.1. Wire the chiller per the specs listed for the appropriate model in the electrical section.

4.4.2. Coolant fluid (50/50 mix of distilled water and propylene glycol) is added to the system through the reservoir cap on the top of the chiller. DO NOT USE DEIONIZED WATER.

4.4.2.1. On the initial fill, the chiller will pump contents of the reservoir into the system which will require additional fluid to be added until the system (water jackets and hose) are full.
4.4.2.2. After the system is operational, recheck the coolant level (while the system is running) and add more coolant as necessary.

4.4.3. More detailed operating instructions for the heater/chiller can be found in the Manufacturer’s Operating Instructions.

4.5. CO₂ Connections

![WARNING CO₂ cylinders are under high pressure. Use proper storage and handling procedures to prevent damage and sudden release of CO₂ from the cylinder.]

4.5.1. CO₂ used with 5000-psi systems should be 99% purity or better (medical or food grade typically suffice), gas feed, 50-lb, 75-lb or 100-lb high-pressure cylinder.

4.5.2. The system’s CO₂ connections are compression fittings and do not require any thread sealant. Tighten 1/8 turn past finger tight or until leak free. Additional instructions regarding these tube fittings are available at:

4.5.3. The supplied dual hose assembly should be connected directly to the CO₂ cylinder valves, as shown below in Figure 19. No regulator is required. A supplied CGA-320 plastic gasket (see Figure 18 below) is required to seal the connection between the hose and the CO₂ cylinder.

![Figure 18. CGA-320 plastic gasket for CO₂ cylinder(s) connections]

![Figure 19. Dual hose assembly for CO₂ cylinder(s) connections](CO₂ Cylinder Hose Connection (under control panel))

4.5.4. Systems can be run with one CO₂ bottle by removing one of the supply hoses and capping the port with the supplied plug, as shown below in Figure 20.
4.5.5. Attach the diaphragm compressor filter assembly to the compressor, as shown below in Figure 21.

4.5.6. An overview of the basic CO$_2$ connections between systems can be seen below in Figure 22.
4.5.7. The connections are as follows:

4.5.7.1. Line 1 – Three-foot black ½-inch hose between the system and the front of the diaphragm pump (Figure 23 below).

4.5.7.2. Line 2 – Three-foot black ¾-inch hose between the back of the diaphragm pump and the back of the storage tanks (Figure 24 below).
4.5.7.3. Line 3 – Three-foot black ¾-inch hose between the storage tanks and the liquid pump (Figure 25 below - blue arrow).

4.5.7.4. Line 4 – Two-foot black 3/8-inch hose between the liquid pump and the system (Figure 25 above - yellow arrow).

4.5.7.5. Line 5 – Two-foot braided 3/8-inch hose between the front of the diaphragm pump and the storage tanks (Figure 26 below).
4.6. Air Connections

4.6.1. Air Compressor set-up

4.6.1.1. Replace the quick release fitting on the front of the air compressor with the 5/16” push to connect provided, as shown below in Figure 27.

![Air Fitting](image1)

Figure 27. Air filter and solenoid assembly

4.6.1.2. Connect the 5/16” pink air hose from the air compressor to the push to connect fitting on the back of the Extraction System, as shown below in Figure 28.

![Air Fitting](image2)

Figure 28. Connecting the air compressor to the back of the Apeks system

4.6.1.3. Turn the air compressor on and be sure the regulator is set to allow the working pressure to be between 110-120-psi.

4.6.1.4. Refer to the Air Compressor Manual for more details.

4.6.2. Valve connection

4.6.2.1. All valves are controlled by air.

4.6.2.2. Valves on system are already connected and require no additional set-up.
4.6.2.3. Valves located on the storage tanks (Valves 21, 22, and 23) and diaphragm compressor (Valves 17 and 0) needs to be connected to the air manifold.

4.6.2.3.1.1. ¼-inch air lines are already included, cut to length and rolled up under the air manifold on back of the system.

4.6.2.3.1.2. Run the air lines across from the back of the system to the storage tanks near Valve 22.

4.6.2.3.2. From Valve 22, the air lines run down along the side of the storage tank to Valves 21 and 23 at the back of the storage tanks, as shown below in Figure 30.

4.6.2.3.3. From the back of the storage tanks, the air lines run down along the CO₂ connection between the storage tanks and diaphragm compressors to Valves 0 and 17, as shown below in Figure 31.
4.7. Electrical Connections

4.7.1. Electrical connections need to be made in three different junction boxes on this system. These boxes are located on back of the system, the diaphragm pump and the liquid pump.

4.7.2. Diaphragm pump connection (Referred to as Motor Enclosure or “ME” in Drawings)

4.7.2.1. The conduit coming from the diaphragm pump motor terminates into the electrical box on back of the system. This conduit contains four wires labeled T1, T2, T3 and ground (green wire). These four wires should be terminated in their respective locations, as shown below in Figure 32.
4.7.2.2. The black cable coming from the main control panel running down the back of the system on the bottle side runs back to the junction box on the diaphragm pump (Referred to as Junction Box 1 or “JB1” in Drawings) and terminates. This cable should be labeled and contain multiple wires. Each wire is labeled and should be terminated in the terminal block with the same corresponding number/symbol. An image of each can be seen below in Figure 33.
4.7.3. Liquid Pump Connections (Referred to as Motor Enclosure 2 or “ME2” in Drawings)

4.7.3.1. The black cable and Ethernet cord coming from the main control panel running down the back of the system on the Extractor side runs back to the junction box on the liquid pump and terminates. This cable should be labeled and contain multiple wires. Each wire is labeled and should be terminated in the terminal block with the same corresponding number/symbol. An image of each can be seen below in Figure 34.

![Figure 34. Wiring on the liquid pump to the Apeks system](image)

4.7.3.2. Two wires for the storage tank pressure transducer and storage tank flow switch originate from the bottom of the liquid pump junction box. These wires run along the bottom of the storage tanks and then up the back to the transducer and switch (shown below in Figure 35).

![Figure 35. Transducer and switch connections](image)

4.7.4. Plug the Extraction System control panel and air compressor into a 110-V, 15-A standard outlet. Be sure not to have a GFI on the air compressor circuit.

4.7.5. Have a licensed electrician field wire the diaphragm pump, the liquid pump and 1.5 HP Thermo chiller/heater with the appropriate connections. See electrical table in General System Specifications section on page 8.

4.7.6. Torque Specifications for all terminals:
- Fuse Holders (1492-H6) = 7.1 lb-in
- Power Supply (1606-XLE120E) – 7 lb-in
- Terminal Blocks (1492-J4) = 9 lb-in
- Ground Blocks (1492-JG4) = 9 lb-in
- Ground Block Middle Screw (1492-JG4) = 7.1 lb-in
- JG10 Large Ground Blocks (1492-JG10) = 20.4 lb-in
- JG10 Large Ground Block Middle Screw (1492-JG10) = 8.9 lb-in
- Small Motor Contactor Phillip Screws (100-C55D10) = 31 lb-in
- Small Motor Contactor (43-44) Phillips Screws = 13 lb-in
- Overload Relay (T1/T2/T3) Phillip Screws = 22 lb-in
- Overload Relay (95-98) Phillip Screws = 5 lb-in
- Large Motor Contactor Allen Screws (100-C72D10) = 53 lb-in
- Large Motor Contactor Phillips Screws (100-C72D10) = 13 lb-in
- Overload Relay Allen Screws (193-EEGE) = 40 lb-in
- Overload Relay Phillips Screws (192-EEGE) = 5 lb-in
- Micro 850 Power Supply = 4.4 lb-in
- Micro 850 Terminal Strip = 4.4 lb-in
- 2080 TC2 = 2.21 lb-in
- 2080 IF4 = 2.21 lb-in
- 2080 IF2 = 2.21 lb-in
- HMI = 5 lb-in
- Yellow Terminal Jumpers = 7.1 lb-in
- Estop Contact (800F-X01) = 8 lb-in
- Relay Base Screws (700-HN153) = 7 lb-in
- IF8 = 5.3 lb-in
- Relay Output Module = 5.3 lb-in
- 10A Circuit Breaker (18 AWG) = 13.3 lb-in
- 10A Circuit Breaker (14 AWG) = 17.7 lb-in
- 10A Circuit Breaker (8 AWG) = 39.9 lb-in
- Ewon Flexy Power Connector = 7 lb-in
- Ewon Cosy Power Connector = 7 lb-in
- 125V Plug = 12 lb-in
4.8. Liquid Pump Set-Up

4.8.1. Motor Mounting

4.8.1.1. The liquid pump motor should already be wired and laying on the pallet next to the liquid pump.

4.8.1.2. Remove strap/bolts and install the motor, as shown below in Figure 36.

4.8.1.3. The motor is connected with a Lovejoy coupling that should already be in place (as shown below in Figure 37), but may be adjusted by loosening the set screw and sliding the collar along the shaft (Connector includes two 3-fingered couplers and a rubber bushing).

Figure 36. Location of the liquid pump motor

Figure 37. Lovejoy coupling
4.8.2. Oil
4.8.2.1. Remove the covers off the top of liquid pump, as shown below in Figure 38.

4.8.2.2. Fill the supplied oil to the location, as shown below in Figure 39.

4.8.2.3. Replace covers and tighten (failure to tighten cover properly can result in leaking oil).

4.9. Hanging Extraction Vessels and Boom Arm (20L and 40L only)

![Figure 38. Removed liquid pump cover]

**WARNING**

Do NOT Lift Extraction Vessels with eyebolts on top plug as they are not rated for lifting the entire weight of the vessel and can break causing damage to the vessel and/or serious injury or death.
4.9.1. Vessels 20L and larger are shipped separately laying down to prevent damage to vessels or system, as shown below in Figure 40. A forklift is required to place vessel on system.

Figure 40. Appearance of system without extractors and extractor pallet

4.9.2. Attach boom arm to back of the system before installing vessels.
4.9.3. Using the strap provided, stand vessel upright by strapping around the vessel just below the top bracket. Set vessel down upright on a level surface on two blocks of wood to protect the fitting on the bottom of the vessel.
4.9.4. Place forks on either side of the upper nut and lift to place on system.
Figure 41. System with Extractor A and boom arm installed

4.9.5. Once vessel is on system, connect hose and attach closure switch (as shown below in Figure 42).
4.9.6. Connect coolant lines
   4.9.6.1. The temperature-controlled heat exchanger connects to the bottom of Extractor Vessel B.
   4.9.6.2. The top of Extractor B connects to be bottom of Extractor A.
   4.9.6.3. The top of Extractor A connects the stainless-steel tube on the system frame that goes to the Extractor flow switch.

4.10. Software Updates and Email Alerts
   4.10.1. The Apeks systems should be connected to Internet via an Ethernet cable. Connecting the Apeks system to Internet allows for software updates, and email alerts.
   4.10.2. Attach an Ethernet cable to the Ethernet connection located on the side of the electrical control box.
   4.10.3. For email alerts, set-up a designated email to be used only for the Apeks system. The Apeks system will then send messages to a designated email, and then this email will send messages to any person’s phone number you designate for messages.
   4.10.4. After connecting your system to Internet via an Ethernet cable, and after you’ve set-up your designated email for the system, please go to http://www.apekssupercritical.com/customer-support/service-request/ and submit a ticket with your system’s information. You will be contacted by an Apeks representative (initial set-up fees may apply).
   4.10.5. After setting up your system for email alerts, you will then decide which messages you would like to receive concerning your system.
4.10.5.1. Click on the “Go to Message Selection” button located on the bottom of the Alarm Screen, as shown below in Figure 43.

![Figure 43](image)

Figure 43. “Go to Message Selection” button located on the bottom of the alarm screen

4.10.5.2. Next, select the messages you would like to have sent to your email on the Message Selection Screen, as shown below in Figure 44.

![Figure 44](image)

Figure 44. Message selection screen used to determine which messages you would like to have sent to your email