WARNING

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


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# Table of Contents

1. Critical Safety Overview ........................................................................................................... 3
2. Unpacking Instructions .................................................................................................................. 4
   2.1. Shipping Crate Inspection ........................................................................................................ 4
   2.2. Unpacking Apeks Extraction System and Chiller ................................................................. 5
   2.3. Unpacking Diaphragm Compressor ....................................................................................... 6
3. System Requirements .................................................................................................................... 9
   3.1. General System Specifications .............................................................................................. 9
   3.2. Facility .................................................................................................................................. 10
   3.3. Electrical ............................................................................................................................. 10
4. Setup and Assembly ..................................................................................................................... 12
   4.1. Layout/Footprint .................................................................................................................. 12
   4.2. Coolant Connections .......................................................................................................... 13
   4.3. CO₂ Bottle Connections .................................................................................................... 15
   4.4. Air System Connections ...................................................................................................... 17
   4.5. Electrical Connections Between the Apeks System and Diaphragm Compressor .......... 18
   4.6. Chiller/Heater Setup .......................................................................................................... 20
   4.7. Diaphragm Compressor Setup ............................................................................................ 21
   4.8. Software Updates and E-mail Alerts .................................................................................... 22
5. Pre-Training Checklist ................................................................................................................ 24
6. References .................................................................................................................................. 25
7. Appendix A. Electrical Screw Torque Requirements ................................................................. 26
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 CO\(_2\) potentially causing equipment or personnel damage.

⚠️ WARNING ⚠️

Subcritical and Supercritical CO\(_2\) systems operate under high pressure. Operators must be fully trained and familiar with the system. Failure to operate the system can result in equipment damage and/or bodily injury.

⚠️ WARNING ⚠️

Subcritical and Supercritical CO\(_2\) systems use large amounts of CO\(_2\) during operation. Ensure that system is installed in a well-ventilated area to prevent buildup of CO\(_2\) which can cause asphyxiation. Use of a CO\(_2\) monitor is strongly recommended.

⚠️ WARNING ⚠️

Opening a vessel under pressure can result in a rapid release of pressure and ejection of the material 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 gage reads zero prior to loosening the vessel hammer unions.

⚠️ WARNING ⚠️

Subcritical and Supercritical CO\(_2\) systems are designed to operate indoors. Extreme temperatures (below 60°F and above 80°F) will negatively impact the functionality of the system. The environmental temperature range is for the system, chiller, pump and CO\(_2\) 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 2000psi extraction systems are shipped in three separate crates. One containing the chiller, one containing the diaphragm compressor and one containing the botanical extraction system. Following are the steps for removing the system from the crates and making service connections for initial use.

2.1. Shipping Crate Inspection

2.1.1. Prior to opening the crate(s), look for this sticker on the outside of each crate to verify it came directly from Apeks without being tampered with. If no sticker is found open crate to verify no damage has occurred during shipping.

![Apeks Verified Shipping Label](image1)

Figure 1. Apeks Verified Shipping Label

2.1.2. Locate the two TiltWatch Plus sensors on the outside of the crate. Ensure that the crate has not exceeded 30° in any direction. If the crate has exceeded 30°, take photos and note it on the delivery receipt that the driver has. Call Apeks at 740-809-1160 as soon as possible to report damage and start the reporting process with the shipping company.

![Tiltwatch sensor](image2)

Figure 2. Tiltwatch sensor

2.1.3. Verify that there is no external damage caused to the wood crate. If damage is found, do not accept the 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.
2.2. Unpacking Apeks Extraction System and Chiller

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. Sides are held on by both screws and clips.
2.2.1.2. Remove top of crate.
2.2.1.3. Remove remaining three side. Use caution as the last side will need supported while screws on bottom are removed

Figure 3. Approximate appearance of shipping crates.

Figure 4. Appearance of crate with top and sides 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 crates 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 2x3s holding the system to the base

2.2.1.6. Using a forklift remove system from base. It may be necessary to tip the system slightly towards the back in order to slide the forks under the stainless steel horizontal frame support members.

2.2.1.6.1. The system weighs in excess of 700 lbs. Use extreme caution when lifting or moving the system. Do not attempt this step without adequate help.

2.2.1.6.2. Install the leveling feet as shown below

![Figure 5. System with leveling feet.](image)

⚠️ WARNING ⚠️

The system weighs over 700-lbs (318-kg), use a minimum of three people to stabilize the system while moving.

2.2.2. Remove the chiller from the second crate. By removing straps or clips unpacking crate and rolling chiller down ramp.

2.3. Unpacking Diaphragm Compressor

2.3.1. Remove the plywood from the all four sides and the top of the crate using a Phillip’s head screwdriver.
2.3.2. Remove the compressor from its pallet with a forklift using the pockets labeled “lift here”. Never attempt to pick the compressor up from any other location to avoid tipping.

2.3.2.1. The compressor weighs in excess of 1500-lbs, take extreme caution when lifting or moving the system. Do not attempt this step without adequate equipment.

2.3.2.2. The diaphragm compressor is designed to be anchored to the floor or places on rubber vibration absorbing feet in order to keep it from moving during operation. Failure to remove from pallet can cause unwanted vibration and possible damage to hoses and tubing.

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**Figure 6. Appearance of crate with top and sides removed**

**Figure 7. Rubber, vibration absorbing feet on Diaphragm Compressor**

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**WARNING**

The compressor weighs over 1500-lbs (680-kg), use a minimum of three people to stabilize the system while moving.
2.3.3. The orientation of the diaphragm compressor should be directly behind the Apeks system with the stainless-steel belt cover facing away from the Apeks system as shown below. See Section 4.1 for drawing and dimensions.

![Figure 8. Orientation of the diaphragm compressor and Apeks system.](image_url)
### 3. System Requirements

#### 3.1. General System Specifications

<table>
<thead>
<tr>
<th></th>
<th>i2000 Extraction Systems</th>
<th>Chiller/Heater</th>
<th>Diaphragm Compressor</th>
<th>Air Compressor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Max Pressure (psi)</strong></td>
<td>2000-psi</td>
<td>100-psi</td>
<td>2000-psi</td>
<td>150-psi</td>
</tr>
<tr>
<td><strong>Operating Temperature (F)</strong></td>
<td>14°F - 160°F</td>
<td>14°F - 150°F</td>
<td>14°F - 200°F</td>
<td>60°F - 80°F</td>
</tr>
<tr>
<td><strong>Dimensions (in)</strong></td>
<td>65x43x78</td>
<td>20x33x39</td>
<td>33x48x57</td>
<td>18x18x18</td>
</tr>
<tr>
<td><strong>Weight (lbs)</strong></td>
<td>1000-lbs</td>
<td>200-lbs</td>
<td>1500-lbs</td>
<td>30-lbs</td>
</tr>
<tr>
<td><strong>Power (V/A/Phase)</strong></td>
<td>115/10/1PH</td>
<td>230/40/1PH</td>
<td>See electrical specs section</td>
<td>115/15/1PH</td>
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</tbody>
</table>

<table>
<thead>
<tr>
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<th>Single Extraction System</th>
<th>Chiller/Heater</th>
<th>Diaphragm Compressor</th>
<th>Air Compressor</th>
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</thead>
<tbody>
<tr>
<td><strong>Max Pressure (psi)</strong></td>
<td>2000-psi</td>
<td>100-psi</td>
<td>2000-psi</td>
<td>150-psi</td>
</tr>
<tr>
<td><strong>Operating Temperature (F)</strong></td>
<td>14°F - 160°F</td>
<td>14°F - 150°F</td>
<td>14°F - 200°F</td>
<td>60°F - 80°F</td>
</tr>
<tr>
<td><strong>Dimensions (in)</strong></td>
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<td>20x33x39</td>
<td>33x48x57</td>
<td>18x18x18</td>
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<tr>
<td><strong>Weight (lbs)</strong></td>
<td>1000 to 1200-lbs</td>
<td>200-lbs</td>
<td>1500 to 2850-lbs</td>
<td>30-lbs</td>
</tr>
<tr>
<td><strong>Power (V/A/Phase)</strong></td>
<td>110/10/1PH</td>
<td>230/40/1PH</td>
<td>See electrical specs section</td>
<td>115/15/1PH</td>
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</tbody>
</table>

<table>
<thead>
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<th>Double Extraction System</th>
<th>Chiller/Heater</th>
<th>Diaphragm Compressor</th>
<th>Air Compressor</th>
</tr>
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<tbody>
<tr>
<td><strong>Max Pressure (psi)</strong></td>
<td>2000-psi</td>
<td>100-psi</td>
<td>2000-psi</td>
<td>150-psi</td>
</tr>
<tr>
<td><strong>Operating Temperature (F)</strong></td>
<td>14°F - 160°F</td>
<td>14°F - 150°F</td>
<td>14°F - 200°F</td>
<td>60°F - 80°F</td>
</tr>
<tr>
<td><strong>Dimensions (in)</strong></td>
<td>65x43x107</td>
<td>20x33x39</td>
<td>33x48x57</td>
<td>18x18x18</td>
</tr>
<tr>
<td><strong>Weight (lbs)</strong></td>
<td>1100 to 1400-lbs</td>
<td>200-lbs</td>
<td>2850-lbs</td>
<td>30-lbs</td>
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<tr>
<td><strong>Power (V/A/Phase)</strong></td>
<td>110/10/1PH</td>
<td>230/40/1PH</td>
<td>See electrical specs section</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 and flat floor.

3.3. Electrical

3.3.1. See tables below for power requirements for the system. Voltage and phase should be declared at time of order to ensure correct system wiring.
3.3.2. Electrical Drawings are located in the main control enclosure. (Controller in Figure 10).
3.3.2.1. A surge protector must be used for the 110V plug that powers the PLC and HMI control box on the machine. The surge protector will ensure protection of electronics during any power surges.
3.3.2.2. Do not use a GFI on the circuit with the air compressor.
3.3.3. i2000 Systems

<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>7.5</td>
<td>1</td>
<td>230V</td>
<td>40A</td>
<td>AJT70</td>
</tr>
<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>
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</table>

<table>
<thead>
<tr>
<th>Chiller size</th>
<th>Phase</th>
<th>Voltage</th>
<th>FLA</th>
<th>Recommended Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4HP</td>
<td>1</td>
<td>230VAC</td>
<td>12.2</td>
<td>NEMA 6-15R receptacle</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Control Panel</th>
<th>Phase</th>
<th>Voltage</th>
<th>FLA</th>
<th>Recommended Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>115VAC</td>
<td>&lt; 5</td>
<td>NEMA 5-15R wall receptacle with surge</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Air Compressor</th>
<th>Phase</th>
<th>Voltage</th>
<th>FLA</th>
<th>Recommended Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Porter Cable 3gal</td>
<td>1</td>
<td>115VAC</td>
<td>10</td>
<td>NEMA 5-15R wall receptacle NO GFI</td>
</tr>
</tbody>
</table>
### 3.3.4. Production Systems

<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>
<tr>
<td>12.5</td>
<td>1</td>
<td>208V</td>
<td>52A</td>
<td>AJT90</td>
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<td>12.5</td>
<td>1</td>
<td>230V</td>
<td>48A</td>
<td>AJT90</td>
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<table>
<thead>
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<th>Chiller size</th>
<th>Phase</th>
<th>Voltage</th>
<th>FLA</th>
<th>Recommended Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5HP</td>
<td>1</td>
<td>230VAC</td>
<td>25.3</td>
<td>40Amp dedicated hard wired circuit</td>
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<table>
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<tr>
<th>Control Panel</th>
<th>Phase</th>
<th>Voltage</th>
<th>FLA</th>
<th>Recommended Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>115VAC</td>
<td>&lt; 5</td>
<td>NEMA 5-15R wall receptacle with surge</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Air Compressor</th>
<th>Phase</th>
<th>Voltage</th>
<th>FLA</th>
<th>Recommended Connection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Porter Cable 3gal</td>
<td>1</td>
<td>115VAC</td>
<td>10</td>
<td>NEMA 5-15R wall receptacle NO GFI</td>
</tr>
</tbody>
</table>

### 3.3.5. Refer to section 4.5 for electrical connections between the Apeks system and the diaphragm compressor.

**WARNING**

Do NOT modify power connections
4. Setup and Assembly

4.1. Layout/Footprint

Each piece of the system is connected with flexible tubing but should be set up approximately as the figures below. (Footprints modification should be done at time of purchase).

Figure 9. System Layout
NOTE: Alternate system setup shown for clarity, setup type can be requested at time of order, additional cost may apply

4.2. Coolant Connections

4.2.1. Connect the blue cooling line from the temperature control coiled heat exchanger on the far left side of the Apeks system to the outlet of the chiller as shown below. Connections on chiller are flare fittings which do not require Teflon tape.
4.2.2. Connect the blue cooling line from the top of Separator #2 on the Apeks system to the inlet of the chiller as shown below.
4.2.3. Connect the blue cooling line from the top of Extractor (Extractor A on the double systems) to the oil heat exchanger on the base of diaphragm pump as shown below. Smaller compressors with the i2000 systems do not have an oil heat exchanger and the tubing should be connected directly to diaphragm head.

4.2.4. Connect the blue cooling line from the regenerative coiled heat exchanger on the diaphragm pump to the bottom of the collection cup on Separator #1 as shown below.
4.2.5. The remain coolant connection should be preassembled. In the event of servicing where waterlines become disconnected the flow path should be in the following order chiller outlet, temperature control heat exchanger, extraction vessels, oil heat exchanger (if applicable), diaphragm head, regenerative heat exchanger, separator #1, separator #2, and finally chiller inlet.

![Image of 4 inch separator coolant lines.](image)

**Figure 13. Image of 4 inch separator coolant lines.**

4.3. **CO₂ Bottle 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.](image)

**4.3.1. CO₂ used with Apeks systems should be 99% purity or better (Medical, Food or Instrument grade typically suffice), gas feed (not liquid feed/dip tube), 50-lb, 75-lb or 100-lb high pressure cylinders.**

**4.3.2. The supplied hoses should be connected directly to the CO₂ cylinder valves. No regulator is required. A supplied CGA-320 plastic gasket is required to seal the connection between the hose and the CO₂ cylinder.**

![50lb CO₂ cylinder(s) connections and gaskets](image)

**Figure 14. 50lb CO₂ cylinder(s) connections and gaskets**
4.3.3. Apeks systems come with three separate CO₂ line connections, customer should have two continuous use bottles and a CO₂ makeup bottle onsite.

4.3.3.1. Continuous Use Bottles – These bottles will supply CO₂ to the system and have CO₂ recovered into them. Connection for these bottles is located under the control panel between valves 20, 12 and 13 as shown below.

![Continuous Use Bottle CO₂ Hose Connection](image15)

Figure 15. Continuous Use Bottle CO₂ Hose Connection

4.3.3.2. CO₂ Makeup Bottle – This bottle will only supply additional CO₂ to make up for any lost CO₂. Connection for this bottle is located near the top of separator 2 after valve 20 as shown below. NO CO₂ will be recovered into this bottle.

![Makeup Bottle CO₂ Hose Connection](image16)

Figure 16. Makeup Bottle CO₂ Hose Connection
4.3.3.3. The connection is a metal-to-metal seal and does not require any thread sealant. Tighten 1/8 turn past finger tight or until leak free. Additional instructions regarding these tube fittings is available at http://www.swagelok.com/downloads/webcatalogs/EN/MS-13-151.pdf

4.3.3.4. If no CO\textsubscript{2} makeup bottle is present use plug shown below in place of the hose connection.

![Image of plug](image1.png)

**Figure 17.** Plug for use if no makeup bottle is present

4.4. **Air System Connections**

4.4.1. Replace the quick release fitting on the front of the air compressor with the 5/16 push to connect provided if not already done.

![Image of air fitting](image2.png)

**Figure 18.** Switching fittings on the front of the mini air compressor.

4.4.2. Connect the 5/16 pink air hose from the air compressor to the push to connect fitting on the back of the Apeks system as shown below.

4.4.3. The supplies air gun nozzle can be connected to the tee in place of the 5/16 orange plug.
### 4.5. Electrical Connections Between the Apeks System and Diaphragm Compressor

4.5.1. Connect the diaphragm compressor motor wires to the motor enclosure on the back of the Apeks system as shown below by inserting labeled wire T1 to the bottom T1 of the motor starter, T3 to T3, and ground wire to the ground terminal on the din rail immediately to the left of the motor starter. NOTE: 3 Phase motors require a wire termination in T2 as well. Refer to Appendix A for torque requirements.
4.5.2. Wires for the pressure switches on the pump need to be wired in this panel as well.

4.5.2.1. Insert the conduit coming from the junction box on the pump into the receptacle on the left of the junction box on the back of the system.

4.5.2.2. Terminate the wires in the bundle that are labeled into the terminal block opposite of the wires with the same number. See figure below.
Figure 21. Pressure switch wiring from Diaphragm compressor to the Apeks system

4.5.3. Plug the extraction system control panel into a 110-V, 15-A, standard outlet. Use a surge protector for the control panel power.

4.5.4. Have a licensed commercial electrician field wire the diaphragm pump to your facility electric based on specifications in the electrical section.

4.5.5. Connect the chiller per the wiring instructions in the electrical section. Consult with an electrician if you have any questions.

4.5.6. Plug the air compressor into a 110-V, 15-A standard outlet. **Do NOT** plug the air compressor into a GFI outlet.

4.6. Chiller/Heater Setup

4.6.1. Wire the chiller per the specifications listed for the appropriate model in the electrical section.

4.6.2. Coolant fluid (refer to recommended operating parameters for glycol to distilled water percentage needed, **DO NOT USE DEIONIZED WATER**) is added to the system through the reservoir cap on the top of the chiller.

4.6.2.1. 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. See [https://www.youtube.com/watch?v=qVLiSYIIIGM](https://www.youtube.com/watch?v=qVLiSYIIIGM) to view initial fill instructions.

4.6.2.2. After the system is operational, recheck the coolant level (while the system is running) and add more coolant as necessary.

4.7. Diaphragm Compressor Setup

4.7.1. Connect the CO\textsubscript{2} flexible hoses between the Apeks system and the diaphragm compressor.

4.7.1.1. The inlet tubing on the pump ( uninsulated) connects to the tube coming from Separator #2 on the right side of the system. This line should include the CO\textsubscript{2} filter.

4.7.1.2. The outlet tubing on the pump (insulated) is connected between the regenerative heat exchanger on the pump and the tube coming down off valve 17A.

Figure 22. Stainless steel tubing connections from the diaphragm compressor to the Apeks system.

Figure 23. CO\textsubscript{2} flexible hoses from the diaphragm compressor to the Apeks system.
4.8. Software Updates and E-mail Alerts

The Apeks systems should be connected to the internet via an Ethernet cable. Connecting the Apeks system to the internet allows for software updates and email messaging alerts.

4.8.1. Attach an Ethernet cable to the Ethernet connection located on the side of the electrical control box. Connect the other end of the Ethernet cable to your router. A reboot may be necessary after the connection is made to establish an internet connection.

Figure 24. Ethernet cable plugged into the side of the control panel.

4.8.2. For email messaging alerts, setup a designated email to be used only for the Apeks system.

4.8.3. After connecting your system to the internet via an Ethernet cable, and after you've setup your designated email for the system, go to the Apeks customer support website at http://www.apekssupercritical.com/customer-support/ or contact our Technical Support at 740-809-1166 ext. 1 for assistance (initial setup fees may apply).

4.8.4. After setting up your system for messaging alerts, you will then decide what messages you would like to receive.

4.8.4.1. Click on the “Go To Message Selection” button located on the bottom of the Alarm screen.
4.8.4.2. Now chose which messages you would like to have sent to your email on the message section screen.

Figure 25. “Go to Message Selection” button located on the bottom of the alarm screen.

Figure 26. Message selection screen used to determine which messages you would like to have sent to your email.
5. Pre-Training Checklist

In preparation of training,

Please refer to the manual above for unpacking and setup instructions. Below is a check list 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. Incomplete items at the time of onsite training will result in incomplete training or additional charges for rescheduling.

Our training process is as follows:

1. Customers to reference Apeks manual for instructions on un-crating and system setup
2. Customer to complete entire Pre-Training Checklist
3. A Face Time or Skype session is required (when available) to ensure Checklist is complete, setup is correct and the session is to cover basic operation and cleaning of the system
4. After 1 through 3 are complete, scheduling of onsite training can occur and it will be a 1-3 week lead time.

Pre-Training Checklist:

Below is a check list of what needs to be purchased or completed BEFORE scheduling your onsite training.

- **Must be complete before scheduling training**: Print off complete Apeks manual and have on site the day of training, along with the manual to the chiller. Use this link to download the manual if needed,

- **Must be complete before scheduling Training**: Apeks system and diaphragm compressor are unpacked and setup in its location of operation. Refer to unpacking instructions in the manual.

- **Must be complete before scheduling training**: See manual for electrical requirements of your system. All electrical connections are to be completed before onsite training is scheduled.

- **Must be complete before scheduling training**: Purchase and have on site for training:
  - Bottles of CO2, gas feed, check valve free, food grade or better. Minimum requirements are:
    - (3) 50 lb. bottles for 5LD and 5Lx5LD, (4) 50 lb. bottles for 20LD, (4) 75 lb. bottles for 20Lx20LD
  - Distilled water and Propylene glycol 90/10 mix; Propylene Glycol - 1 Gallon
  - Total Gallons of mixture needed for system:
    - 5LD – 5 gal, 5Lx5LD – 6 gal, 20LD – 7 gal, 20Lx20LD – 9 gal
  - 190 or higher proof ethanol
Future maintenance will require:
  - Shop Vacuum with a long, slim nozzle for removing material from extractor.
  - Pencil Type Belt Tension Tester; [http://apeksonlinestore.com/product/tension-tester/](http://apeksonlinestore.com/product/tension-tester/)
  - CO2 Monitor; [Amprobe CO2 100](http://apeksonlinestore.com/product/tension-tester/)

Material to be extracted must be very dry and ground (blender) to the consistency of coffee grounds. Have ready the day of training as a courtesy to your trainer.

After completing the pre-training checklist, request scheduling of onsite training via the link, [http://www.apekssupercritical.com/training/](http://www.apekssupercritical.com/training/)

Onsite training is generally a 4-hour block of instruction that will go into detail the fundamentals of operation and maintenance of each component of the system.

**Jason Stanton**

Service Technician

Apeks Supercritical

720-903-8051

6. References

YouTube Instructional Videos

[https://www.youtube.com/user/ApeksSupercritical](https://www.youtube.com/user/ApeksSupercritical)

Apeks online store (740)-809-1166 ext. 4


Software Updates and E-mail Alerts (740)-809-1166 ext. 1 or ext. 5

[http://www.apekssupercritical.com/service/](http://www.apekssupercritical.com/service/)
Appendix A.
Electrical Screw Torque Requirements
A. Electrical Screw Torque Requirements

a. Fuse Holders (1492-H6) = 7.1 lb-in
b. Power Supply (1606-XLE120E) = 7 lb-in
c. Terminal Blocks (1492-J4) = 9 lb-in
d. Ground Blocks (1492-JG4) = 9 lb-in
e. Ground Block Middle Screw (1492-JG4) = 7.1 lb-in
f. JG10 Large Ground Blocks (1492-JG10) = 20.4 lb-in
g. JG10 Large Ground Block Middle Screw (1492-JG10) = 8.9 lb-in
h. Small Motor Contactor Phillip Screws (100-C55D10) = 31 lb-in
i. Small Motor Contactor (43-44) Phillip Screws = 13 lb-in
j. Overload Relay (T1/T2/T3) Phillip Screws = 22 lb-in
k. Overload Relay (95-98) Phillip Screws = 5 lb-in
l. Large Motor Contactor Allen Screws (100-C72D10) = 53 lb-in
m. Large Motor Contactor Phillips Screws (100-C72D10) = 13 lb-in
n. Overload Relay Allen Screws (193-EEGE) = 40 lb-in
o. Overload Relay Phillips Screws (192-EEGE) = 5 lb-in
p. Micro 850 Power Supply = 4.4 lb-in
q. Micro 850 Terminal Strip = 4.4 lb-in
r. 2080 TC2 = 2.21 lb-in
s. 2080 IF4 = 2.21 lb-in
t. 2080 IF2 = 2.21 lb-in
u. HMI = 5 lb-in
v. Yellow Terminal Jumpers = 7.1 lb-in
w. Estop Contact (800F-X01) = 8 lb-in
x. Relay Base Screws (700-HN153) = 7 lb-in
y. IF8 = 5.3 lb-in
z. Relay Output Module = 5.3 lb-in
aa. 10A Circuit Breaker (18 AWG) = 13.3 lb-in
bb. 10A Circuit Breaker (14 AWG) = 17.7 lb-in
cc. 10A Circuit Breaker (8 AWG) = 39.9 lb-in
dd. Ewon Flexy Power Connector = 7 lb-in
ee. Ewon Cosy Power Connector = 7 lb-in
ff. 125V Plug = 12 lb-in