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1. WHAT IS THE GOFERMENTOR?

Introducing the first really revolutionary device for winemaking. Traditional winemaking fermentors have changed little in the last 500 years - the only major change being the move from open wood vats to temperature controlled stainless-steel tanks. The GOfermentor brings 21st century technology, developed originally for the manufacture of pharmaceuticals, to modern winemaking. This technology dramatically reduces the capital and operating cost for a winery. No significant installation is necessary – a fermentation system can be set up within minutes in any suitable room. No cleaning is required which dramatically reduces labor requirements. No waste water treatment is needed as the process uses essentially no wash water. And, finally, the GOfermentor provides better control of fermentation parameters, minimal exposure to air, and automated cap management, thereby reliably producing a better quality wine.

The GOfermentor currently available has a nominal volume of 1000 liters. This can be used for a batch size ranging from 200lbs to 1 ton of grapes per run. This makes it ideal for small winery operations and also for experimental runs in large wineries. It can be used for either red or white wine production. In the case of red wine, the integral punch system manages the cap, and is also used at completion of fermentation to press out the wine. With white wine, the punch system is used to press out the grape juice prior to fermentation and can later also be used for bâtonage.

The GOfermentor provides a more controlled environment than fermentation in an open bin. The single-use fermentation bag is delivered clean, and the fermentation is performed entirely inside this sealed environment. This minimizes potential contamination. Even punch-down of the cap is done without exposing the fermenting must to air. The built-in punch system can operate automatically and it ensures that the cap remains moist while maximum flavor and color is extracted under control of the winemaker. The punch system is coupled with a strainer assembly to function as a very effective bladder press, eliminating the need for a dedicated press in the winery.

Optional accessories allow the monitoring and control of temperature. This enables each fermentation to be conducted at its optimal temperature.

The GOfermentor eliminates the high capital and installation cost of conventional stainless steel fermentation tanks. Minimal capital and operating labor costs are obvious advantages over the traditional fixed stainless-steel tanks. But, often overlooked is the cost and environment impact of washing. Conventional fermentation tanks must be thoroughly washed before and after use. This requires the use of polluting detergents, physical scrubbing, and lots and lots of rinse water. It is estimate that rinse water typically accounts for 3-7X the tank volume. Washing a 300 gallon fermentation tank wastes 900 to 2100 gallons of fresh water. With the GOfermentor, there is no wash water usage. The reusable outer container does not contact the must so a simple wipe down is sufficient. The fermentation liner is delivered empty, clean, and folded. These liners are made of USP grade plastics which are free from plastizers/leachables and are certified for use in pharmaceutical operations. There is no need to rinse or clean this liner before use. After the wine is pressed out at the end of the fermentation the liner contains the residual pomace. The entire liner can be taken to the vineyard and the pomace dumped back as a natural fertilizer for the vines as it is not contaminated with any detergents. The empty used liner can simply be sent to municipal landfill where it quickly biodegrades. The used liner does not contain any hazardous or toxic chemicals.
BENEFITS

The **GOFermentor** provides many benefits to the winery:

1. A clean and closed environment for the fermentation. No open operations result in minimal oxidation. This also can reduce the need to add sulfites.
2. Minimal capital expenditures. All product contact components are single-use.
3. Single-use design eliminates cleaning with a huge reduction in water consumption.
4. Integral automated punch ensures proper cap management with excellent flavor and color extraction.
5. Integral press design eliminates the need for labor intensive pressing and cleaning. Pressing can be done without any air contact. Eliminates the need for a costly press and water usage to clean it.
6. A truly “waterless” wine production system.
7. Portable clean operation. Grapes can be destemmed and crushed at the vineyard and pumped into the GOfermentor. Truck the filled GOfermentor to the winery and start the fermentation. All the mess and cleaning is confined to just the vineyard.
8. Urban microwineries – the GOfermentor makes the urban microwinery possible. All you need is a garage or warehouse space.
2. COMPONENTS

The GOfermentor consists of two major components:

1. **GOBASE - Reusable outer container with control panel** – This rigid plastic container holds the fermentation bag in position. The container can be moved by pallet jack or forklift. It is also DOT certified for truck shipment. Since the wine does not contact the outer container, it can be reused between batches by simply wiping down the surfaces. The container also folds down for storage when not in use. A panel with electrical components, inflation pump, and valves attaches to the rigid container for automatic control of punch, temperature, and other functions.

2. **GOLINER - Single-use Fermentation Liner** – The fermentation is conducted entirely inside a flexible plastic liner. This liner has 2 chambers – a primary chamber where the fermenting must is contained, and a secondary chamber that is solely used for inflation. The two chambers share a common wall, but it is very important to note that the air used to inflate the second chamber does in no way come in contact with the fermenting must in the primary chamber. The GOLINER is supplied clean and ready for use. It is intended for only one use.
3. INSTALLATION

The GOfermentor is designed to be portable and there is essentially no installation other than placing the unit in position and connecting to a standard electrical receptacle.

3.1 WHAT YOU NEED TO PROVIDE?

- Floor space 48x48 inches by 60 inches height. Minimum doorway width 46 inches.
- Pallet jack or truck to move 225 lb (89Kg) GOBASE unit.
- Standard household-type electric service 110 VAC 10amp. Optional 220 VAC.
- Must pump or similar device to fill and drain GOLINER through 2inch TriClamp ports.
- Chilled water or glycol supply if using optional GOCOOLER heat exchanger plate.
- Pump-over sump or similar strainer for pressing.

3.2 WHAT DO YOU NEED TO ORDER FROM US?

REQUIRED

- GOFERMENTOR PRO or GOFERMENTOR BASIC
- GOLINER single-use dual chamber fermentation liners. Need one per run. Sold in cases of 3.

OPTIONAL

- GOTEMP sample tube/temperature probe for temperature measurement and easy sampling.
- GOCOOLER heat exchanger plate for temperature control.
- GOSAMPLER cordless sampling device
3.3 EQUIPMENT SETUP

Setting up the GOfermentor for winemaking is very easy and should take less than 15 minutes. First set up the rigid GOBASE unit. Then install the single-use GOLINER.

**GOBASE**

1. Set the rigid GOBASE in a suitable area. Open the folded sides and push them until they lock in place.
2. Check that there is no debris inside the GOBASE that might damage the GOLINER.
3. Assemble the support rail and hose support pole to the control panel (Appendix A2).
4. Using the support rail hang the control panel on the front right of the GOBASE. The front of the GOBASE is the side with the bottom discharge port. Just place the support rail over the lip of the GOBASE as shown below and let the control panel hang against the front of the GOBASE.

**OPTIONAL GOCOOLER HEAT EXCHANGER PLATE**

For temperature control, the optional GOCOOLER heat exchanger plate is necessary. It also requires the GOTEMP sampler/temperature probe.

1. Assemble the coolant pipes on to the heat exchanger plate (Appendix A5).
2. Place the GOCOOLER on the bottom of the GOBASE with the vertical coolant lines towards the back as shown below. The back side is the side opposite the bottom drain fitting. You can even place two cooling plates in the GOBASE. The GOLINER will be placed direct on top of the heat exchanger plate. DO NOT PLACE THE GOCOOLER OVER THE DRAIN OPENING.
3. Connect a coolant inlet hose (user-supplied) to the control valve (1/2” NPT) and the coolant return hose (also user-supplied) to the outlet fitting (½” NPT).

**GOLINER**

1. Remove the GOLINER carefully from its packaging. Remove and discard any packing materials.
2. Place the GOLINER inside the GOBASE. The GOLINER has 4 ports:
   a. TOP FILL PORT: This port is used to fill the liner, to make additions and to sample the GOLINER. It should face up and be positioned towards the front.
   b. TOP VENT PORT: This port is located near the top center of the liner and is used to vent gas out of the liner.
   c. BOTTOM DRAIN PORT: This port has a built-in valve and locking collar. It will be installed in the bottom drain fitting on the front of the GOBASE.
   d. INFLATION PORT: This port is used to inflate the secondary chamber of the GOLINER. It is located in the blue section of the GOLINER and marked AIR ONLY. It should face towards the rear (away from the GOBASE bottom discharge port).
3. Reach inside the GOBASE bottom discharge opening and pull the BOTTOM DRAIN PORT towards you. Pull until the tabs on either side of the BOTTOM DRAIN PORT lock into the corresponding ribs on the GOBASE as shown below.

![BOTTOM port – note the tamperproof collar and red cap have been removed to better show the locking tabs](image)

- Make sure tabs are locked into the grooves on both sides!
- DO NOT remove the tamperproof flange and red cap until ready for harvest.
- NOTE – the valve flange is flush against the back of this rib

4. Pull up on the INFLATION PORT and secure it with a bungee cord so that it is draped against the rear wall.

5. Connect the VENT VALVE on to the VENT port using the supplied TriClamp and gasket. The VENT port is the middle port (located between the sampling port and the blue inflation port).

6. Use the supplied suspension cord to hang the VENT VALVE from the support pole located on the left side of the GOFERMENTOR control panel. The keeps the VENT assembly from falling into the GOBASE. Adjust the cord so that VENT assembly is above the lip of the outer container.
7. Plug the cable on VENT VALVE into the jack labeled VENT. This is located next to the power entry cable.

8. Connect the INFLATION port to the fitting on the right side of the control panel using the supplied INFLATION HOSE. The TriClamp end connects to the liner and the quick-connect end connects to the control panel.

9. Power up the control panel. Once the MAIN CONTROL window is displayed press the PUNCH button and verify that the VENT valve opens. You will hear a click and you can see the valve open about ½” through the clear VENT valve assembly. Press the flashing CANCEL button and verify that the valve closes. The VENT assembly is actuated electrically during PUNCH operations. It also has a spring-loaded pressure relief that automatically vents if the GOLINER pressurizes beyond safety limits.

10. Now repeat initiating the PUNCH operation but now allow the inflation chamber to inflate. This pulls the inflation chamber into the correct position. You can cancel the PUNCH after the inflation chamber appears to be fully inflated.

PERFORMING A PUNCH WITH THE EMPTY BAG IS CRITICAL AS THIS OPERATION PULLS THE INFLATION BAG OUT FROM UNDERNEATH THE FERMENTATION CHAMBER. THIS ENSURES THAT AN EFFICIENT PUNCH CAN BE PERFORMED WHEN THE BAG IS FULL OF MUST. OTHERWISE PORTIONS OF THE INFLATION BAG CAN BE TRAPPED UNDER THE FERMENTATION CHAMBER AS IT IS FILLED. THIS PREVENTS THE INFLATION BAG FROM PUSHING COMPLETELY AGAINST THE MUST AND CAN CAUSE INCONSISTENT PUNCHING. NOTE: NO AIR WILL BE INTRODUCED INTO THE FERMENTATION BAG.

You have now completed the GOLINER installation. The next operations are different depending on if you are making red wine or white wine.
4. RED WINE OPERATIONS

The **GOfermentor** must first be set up as described earlier in Section 3.3.

**FILLING WITH MUST**

1. Connect the destemmer outlet with a 2 inch Triclamp hose to the FILL port (closest to front).
2. Run the destemmer/crusher and use its internal pump to transfer the required amount of crushed grapes into the GOLINER (max 1 ton). Some must pumps introduce air. Make sure the VENT assembly is connected to the middle port and suspended from the support pole. This will allow any excess pressure due to entrained air to be vented automatically.
3. Disconnect the fill hose. If you are using the optional GOTEMP sampler/temperature probe insert this into the FILL port and secure with a Triclamp. Otherwise use a Triclamp cap to seal.

![Diagram of filling process](image)

**NOTE: DO NOT ATTEMPT** to fill the liner from the BOTTOM DRAIN PORT. This is impossible.

**CONNECT THE INFLATION HOSE**

1. Connect the inflation hose to the camlock adaptor on the INFLATION port (located on the BLUE chamber). Connect the other end of the INFLATION hose to the blower outlet located on the right side of the control panel.

![Inflation hose setup](image)
MUST ADJUSTMENT

1. Samples of the *must* may be taken from the top FILL port and any additions can be made by opening the TriClamp cap cover or by removing the GOTEMP sampling/temperature probe.
2. Inoculation with yeast is also done through the FILL port.

INITIAL OXYGENATION

1. Usually sufficient oxygen is introduced during the fill, but additional oxygen can be added to the *must* in order to get vigorous yeast growth after inoculation.
2. This can be done by connecting a tube (with connection adaptor) to the sampler fitting and blowing air into the fermentor. In this manner, the air is introduced near the bottom ensuring efficient oxygenation.

OPTIONAL TEMPERATURE PROBE/SAMPLING TUBE

1. Slide the GOTEMP sampler/temperature probe down through the FILL port into the GOLINER.

2. Use the supplied Triclamp to secure the sampler/temperature probe.
3. Plug the temperature probe cable into the jack located to the right of the display.
4. Power up the control panel and verify that it is operational and that temperature is displayed.
Sampling is performed by connecting the optional sampler. Push the quick-connect coupler on the sampler onto the mating socket on the sampling tube. This will open the flow path to the collection tube. Now pump the syringe and the sample will be drawn into the collection tube. Disconnect the collection tube and pour off. Reconnect to get additional samples. Disconnect the sampler by pressing the release button on the mating socket. The mating socket has an internal valve that automatically shuts off when it is not connected to the sampler.
PUNCH OPERATION

Punch of the cap may be initiated at any time in the fermentation. It can also be performed after initial must adjustment to mix all the additions and to disperse the yeast if desired.

The punch operation can be initiated manually or on a scheduled basis. For manual operation press the PUNCH button on the MAIN control screen:

1. The status box on the panel should show READY indicating that the unit is ready for punching. Press the PUNCH button to manually initiate the punch cycle.
2. The PUNCH button will change to CANCEL indicating that a punch is now in progress. You can press the flashing CANCEL button at any time to instantly cancel the punch.
3. The controller will switch the VENT valve to exhaust the fermentation chamber to the atmosphere and it will start to deflate. After about 10 seconds the blower will come on and the secondary chamber will inflate forcing the fermentation chamber upwards. This in turn forces the liquid and cap in the fermentation chamber up and also pushes the gas out. At a preset pressure, the blower will turn off and the secondary chamber will deflate. After 10 seconds or so the blower will come on again and this cycle will repeat for the preset punch time (typically 1 minute).
4. The system will then reset, and the VENT valve will close and the fermentation chamber will slowly reinflate with the CO2 generated by the fermentation. Excess pressure will automatically be vented through the spring-loaded pressure relief in the VENT assembly. This ensures that the GOLINER cannot overinflate beyond safety limits.

The controller enables the punch to be done automatically on a user-set schedule. Timing and duration of the punch cycle can also be adjusted. The PRO also records all punch cycles on its event log so that a complete history of the run is maintained. Details on how to change these parameters are provided in Appendix A4.
NOTE: You may need to adjust the PUNCH pressure setpoint depending on the must volume (SETUP->PUNCH). For small volumes 10”H2O is good, while for a large volume (> 600Kg) you should use a higher pressure (20”H2O) to get an effective punch.

IMPORTANT: To get an effective punch all the gas in the headspace should be forced out of the fermentation bag chamber. Increase the punch duration as necessary to ensure that all the gas is vented out. If gas is left in the headspace then the liquid will not be pressed completely.

CAUTION: If a manual punch is performed, then wait at least 10 minutes before another punch. The vent valve needs 10 minutes to reset for the next cycle. Until then, the vent will not open.

TEMPERATURE MONITORING

You must purchase the GOTEMP sampler/temperature probe to enable temperature monitoring/control. Temperature is monitored continuously by a probe positioned in the center and about 8 inches from the bottom. This is typically the hottest point in the fermentor. Temperature can be displayed in either degrees C or F (Section 6). The controller also has the ability to control temperature by regulating flow of coolant through the optional GOCOOLER heat exchanger plate.

PRESSING

The GOfermentor punch system can be used to gently press out the wine at harvest. Use of the feature eliminates the need for an external press and performs the pressing operation without any damaging exposure to air. It is recommended the punching be discontinued several days prior to the anticipated harvest. At this late stage in the fermentation most of the desired components and color should have already been extracted from the cap and further punching is not useful. More importantly, discontinuing punching allows the cap to flocculate upwards and clear wine collect below it. This increases the free-run and makes pressing faster.
1. WHEN ready for harvest, remove the red cap from the BOTTOM PORT and screw on the DN502TC TriClamp adaptor. NOTE: Hand tightening the adaptor is NOT sufficient – you MUST use a DIN wrench. This will enable you to connect a 2” TriClamp drain hose.

2. Connect the BOTTOM port to the inlet of a must pump using a crush-proof reinforced hose rated for vacuum.

3. Using another hose connect the outlet of the must pump to the inlet of a suitable strainer to remove any entrained skins and seeds. A small pumpover sump is ideal. Using a third hose, connect the outlet of the strainer to a collection liner, tank, or barrel. The pressed wine will be collected in this container for post-fermentation operations.

4. Now open the GOLINER DRAIN valve by pushing the integral valve handle all the way to the right. Open all valves through the pump all the way to the collection vessel. You should immediately see a flow of free-run wine.

5. Start the must pump to increase the flow, however avoid pumping too fast as this will draw in the cap.

6. Once the free run flow stops you can start to press out the liquid in the cap. At this stage initiate the punch operation to squeeze the cap gently to press out the wine. The punch operation can be done several times during the pressing to get as much wine as desired out of the cap.
7. Stop the flow to periodically clean out debris in the strainer.
8. When it evident that no more wine can be pressed out, the pressing is stopped. Close the GOLINER DRAIN valve by pushing the handle all the way to the left. Disconnect the must pump and strainer.

**NOTE:** It is useful to have a reversible must pump. Sometimes the OUTLET port can clog due to buildup of pomace on the inside. A few seconds of reverse flow can clear this cloggage and then normal harvest can be resumed.

### DISPOSAL

At the end of pressing a tight mass of skins and seeds will remain in the GOLINER. Using a suitable device, lift the GOLINER out of the GOBASE. If no lifting device is available you can carefully tip the GOBASE on its side and pull the used GOLINER out on to the floor. The GOLINER may be taken to the vineyard and slit open to disperse the pomace as fertilizer. The empty GOLINER is then simply folded up and discarded as household waste. There are no toxic chemicals in the used GOLINER and it will rapidly biodegrade in a landfill. The GOBASE never contacts the must so it can simply be wiped down and setup with a new GOLINER for the next fermentation.
5. WHITE WINE OPERATIONS

The **GOfermentor** must first be setup as described earlier in Section 3.3. For white wine production you will need two GOBASE units and two GOLINERS.

### FILLING WITH MUST

1. Connect the destemmer outlet to the FILL port (top near front) of the first GOLINER. Use a hose with a 2inch TriClamp fitting.
2. Run the destemmer/crusher and use its internal pump to transfer the required amount of crushed grapes into the first GOLINER (max 1 ton).
3. Disconnect the fill hose.

**DO NOT ATTEMPT** to fill the liner with crushed grapes or whole berries from the BOTTOM DRAIN port. This is impossible.

### PRESSING

The **GOfermentor** punch system can be used to gently press out the grape juice free of skins and stems. Use of the feature eliminates the need for an external press and performs a very gentle pressing operation without any damaging exposure to air.

1. Connect the BOTTOM DRAIN port of the first GOLINER to the inlet of a must pump using the 2inch TriClamp adaptor. Use a crush-proof reinforced hose rated for vacuum.
2. Using another hose connect the outlet of the must pump to the inlet of a suitable strainer. A small pumpover sump is ideal. Using a third hose, connect the outlet of the strainer to the BOTTOM or TOP
port of the second GOLINER. The pressed grape juice will be collected and then fermented in this second GOLINER.

3. Now open the GOLINER DRAIN valve by pushing the integral valve handle all the way to the right. Open all valves through the pump all the way to the second GOLINER.

4. Start the must pump to transfer the grape juice. Press the PUNCH button periodically to press the juice out of the mass of skins, seeds, and juice in the GOLINER.

5. When it evident that no more juice can be pressed out, the pressing is stopped. Close the GOLINER DRAIN valve by pushing the handle all the way to the left. Disconnect the must pump and strainer.

6. Discard the first GOLINER. The skins and seeds can be dispersed as fertilizer.

7. Prepare the second GOLINER for fermentation by connecting the vent and inflation lines (if batonage is desired). Insert the temperature probe/sampling tube as described earlier for red wine production.

**ADJUSTMENT AND FERMENTATION**

Adjust the must by additions through the top FILL port. Add yeast and perform the fermentation.

**COOLING AND SAMPLING**

For white wine it is highly recommended to use the optional GO COOLER heat exchanger plate and the GOTEMP sampler/temperature probe for temperature control. Temperature is monitored continuously by a probe positioned in the center and about 8 inches from the bottom. This is typically the hottest point in the fermentor.

Sampling is done as described earlier for red wine.

**BATONAGE**

The GOfermentor makes it easy to stir up the lees during fermentation and aging. The punch operation used in red wine production is used to perform the batonage. Simply press the PUNCH button and the primary fermentation chamber will be compressed and pushed upwards effectively dispersing the settled yeast.

**HARVEST**

Connect the BOTTOM port to the inlet of a must pump using the DN502TC 2inch TriClamp adaptor as described in the section on red wine. Use a crush-proof reinforced hose rated for vacuum. Connect the outlet of the must pump to a collection liner, tank, or barrel for post-fermentation operations.
6. OPERATION OF CONTROLS

Two controller options are available. The **GOfermentor BASIC** version is an inexpensive simple controller suitable for PUNCH control. The **GOfermentor PRO** controller is a more sophisticated unit that also provides temperature control, scheduled punching, data logging/alarms, and internet connectivity. Table 1 shows a comparison of the two controller options. The BASIC controller is an economic starter unit. It can be easily upgraded later to the PRO version.

**TABLE 1  BASIC VERSUS PRO FEATURES**

<table>
<thead>
<tr>
<th>Feature</th>
<th>BASIC</th>
<th>PRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>On-demand punch control</td>
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<td>✓</td>
</tr>
<tr>
<td>Pressing operation</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Temperature monitoring</td>
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<td>✓</td>
</tr>
<tr>
<td>Scheduled punch control</td>
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<td>✓</td>
</tr>
<tr>
<td>Temperature control (requires optional GOCOOLER)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Color graphics touchpanel operation</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Trend logging and display</td>
<td>✓</td>
<td>✓</td>
</tr>
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<td>Event and alarm logging</td>
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<td>Ethernet remote access</td>
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<tr>
<td>Built-in Webserver</td>
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</table>
6.1 BASIC CONTROLLER OPERATION

The BASIC controller enables operation of the unique punch system of the GOfermentor. The controller has a LCD display that shows the punch status and the temperature in the GOLINER. The display is shown below:

MULTIFUNCTION BUTTON: When the MULTIFUNCTION button is lit GREEN, the system is ready for a punch operation. Pressing the MULTIFUNCTION button will automatically open the VENT valve and time down to let the primary chamber deflate. Then the internal blower will switch on to inflate the secondary chamber. As soon as the secondary chamber reaches a preset pressure, the blower will switch off for 10 seconds. It will come on again automatically when the pressure drops. This ON/OFF cycle will repeat for a preset punch time (typically 60 seconds). During the punching operation the MULTIFUNCTION button will flash on and off. This means that the punching operation is in progress and can be cancelled at any time by simply pressing the flashing button. At the end of the punch operation, the blower will turn off and the vent valve will close. If AUTOpunch is enabled, then the MULTIFUNCTION button will be BLUE and punch operations will occur automatically as scheduled.

Twisting the MULTIFUNCTION button puts it into configuration mode and parameters and operational modes can be set.

You can also use the MULTIFUNCTION button during pressing operations.

TEMPERATURE DISPLAY: The right top of the LCD display shows the current temperature in the GOLINER. Connect the temperature probe cable to the temperature sensor jack located to the right of the LCD display. The temperature displayed can be set to display in either F or C.
6.2 PRO CONTROLLER OPERATION

The PRO controller provides many functions in addition to punch operation. A 4.3 inch high resolution color touchpanel provides a versatile user interface. Help screens are provided to assist the user in operating and troubleshooting.

MAIN CONTROL SCREEN

The main operating screen is shown below. The left side is dedicated to PUNCH controls. The right side is for TEMPERATURE control.
**MAIN MENU**

The MAIN MENU provides access to various functions described in detail below. The top left of the MAIN MENU shows the current IP address of the controller. This is important for internet connectivity. It can be changed on the SETUP menu. On the right top is the current time and program version. On the lower right is the SETUP button. Pressing this will take you to the SETUP menu to set the advanced parameters.

**SCHEDULE**

The SCHEDULE screen allows you schedule up to 12 punch times/day. Clicking the green active indicator will activate or deactivate the associated punch time. To set up a scheduled punch activate the one you want and enter the clock time you want the punch to occur. This will now be the active schedule. Each punch time can also be deactivated by clicking on the associated active indicator. It is recommended to have at least 6 punches per day.

**NOTE:** The punch schedule will NOT run unless you specify at least one punch time on the SCHEDULE screen AND you must also set the punch selector on the MAIN CONTROL SCREEN to AUTO. The punch times DO NOT have to be entered in chronological order.
TRENDS

Temperature readings are logged and the trend can be displayed. Pressing the TREND button will bring up a 1 hour trend. This trend shows the temperature data over the last hour. Earlier data can be retrieved by using the scroll buttons located at the bottom of the trend. The 24HOUR button located on the lower right side displays the temperature trend over the last 24 hours. Earlier data can be displayed by using the scroll buttons located below the trend window.

HISTORY

An event log is maintained. This log contains any operator actions, such as punch initiated or cancelled. Scheduled actions are also logged. The event log is useful resource for troubleshooting and maintaining a record of the batch.

Note: Trends and History are stored on a USB flash drive inside the touchpanel. The data is non-volatile and is retained on power down. Up to 120 days of storage is available after which data will be overwritten.
ALARMS

This screen shows any items that are currently in alarm. Alarms are also time stamped and logged in the HISTORY.

SETUP

The SETUP menu provides access to set and change advanced parameters. The setup menu settings are described in detail in Appendix A4.
6.3 PRO CONTROLLER WEBSERVER

The PRO controller can provide remote access via the internet. A built-in webserver enables viewing and data retrieval using any internet browser (chrome strongly recommended).

HARDWARE CONNECTION

The GOfermentor must be connected on a network with access to the internet. For hard-wired connection simply connect an Ethernet cable to the jack on the GOfermentor. Connect the other end to your network router. Set the IP address of the GOfermentor to an address suitable for your network. For wireless operation you can purchase an inexpensive wireless access point such as IOgear model GWU627. Connect an Ethernet cable from the GOfermentor to the access point. You may need to consult your network administrator to configure correctly.

CONNECTION

To view the GOfermentor remotely simply type http://192.168.1.10:9080 into your browser. Obviously, this is an example – you need to use the address on the GOfermentor as configured for you network. The suffix :9080 is required and is the same for any GOfermentor address.

This will bring up the MAIN screen:
The MAIN screen shows the last operations and whether AUTOpunch and TEMPcontrol are currently enabled (turns green). Also current temperature and time to next scheduled PUNCH.

Click on the SCHEDULE button (located top center) to view the current PUNCH schedule:

![SCHEDULE Screen](image)

GREEN means enabled

Click on the DATALOG button (right top) to view data. Enter the start and stop dates for which you want to view data. The either click **Display Data** to view the data onscreen or **Download CSV** to download the data for import into Excel or other programs for analysis.

![DATALOG Screen](image)

Clicking on MAIN (top left) will bring you back to the MAIN screen.
APPENDIX

A1. Specifications
A2. Control Panel Assembly Instructions
A3. Troubleshooting
A4. Pro Controller Setup
A5. GOCOOLER Assembly Instructions
A6. Warranty and Returns
A7. Firmware Upgrade
# A1. SPECIFICATIONS

## GOFERMENTOR SPECIFICATIONS

<table>
<thead>
<tr>
<th>PART #</th>
<th>GOBASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Buckhorn Caliber 315 outer container for GOLINER</td>
</tr>
<tr>
<td>Dimensions (LxWxH)</td>
<td>49”x45”x48” (1235mmx1136mmx1219mm)</td>
</tr>
<tr>
<td>Dimensions collapsed (LxWxH)</td>
<td>49”x45”x18.9” (1235mmx1136mmx480mm)</td>
</tr>
<tr>
<td>Weight (tare without lid)</td>
<td>225 lb (90Kg)</td>
</tr>
<tr>
<td>Weight (maximum)</td>
<td>3307 lb (1500Kg)</td>
</tr>
<tr>
<td>Maximum fill volume</td>
<td>315 gallon (1200 liters)</td>
</tr>
<tr>
<td>Drain</td>
<td>Bottom discharge with locking flange</td>
</tr>
<tr>
<td>Certified for truck and rail shipping</td>
<td>Includes locking shipping lid.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PART #</th>
<th>GOCONTROLLER BASIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>GOfermentor control panel BASIC</td>
</tr>
<tr>
<td>Dimensions (LxWxH)</td>
<td>18”x12”x9”. Attaches to GOBASE container</td>
</tr>
<tr>
<td>LCD display</td>
<td>2x20 yellow OLED</td>
</tr>
<tr>
<td>Punch control</td>
<td>Manual using pushbutton or user defined interval</td>
</tr>
<tr>
<td>Temperature sensor</td>
<td>Requires optional GOTEMP sensor. Range 1 to 50 C accuracy 0.1 C</td>
</tr>
<tr>
<td>Temperature controller</td>
<td>Requires optional GOCOOLER HX cooling plate</td>
</tr>
<tr>
<td>Power requirement (control panel)</td>
<td>115 VAC 10A. Standard USA plug. 230 VAC special order</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PART #</th>
<th>GOCONTROLLER PRO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>GOfermentor control panel PRO</td>
</tr>
<tr>
<td>Dimensions (LxWxH)</td>
<td>18”x12”x9”. Attaches to GOBASE container</td>
</tr>
<tr>
<td>Touchpanel display</td>
<td>4.3inch color graphics touch screen</td>
</tr>
<tr>
<td>Punch control</td>
<td>Automated. Schedule set by touch panel.</td>
</tr>
<tr>
<td>Temperature sensor</td>
<td>Requires optional GOTEMP sensor. Range 1 to 50 C accuracy 0.1 C</td>
</tr>
<tr>
<td>Temperature controller</td>
<td>Requires optional GOCOOLER HX cooling plate</td>
</tr>
<tr>
<td>Ethernet RJ45 port</td>
<td>Wired ethernet standard. Optional WiFi adaptor</td>
</tr>
<tr>
<td>Data storage</td>
<td>8GB removable flash drive</td>
</tr>
<tr>
<td>Power requirement (control panel)</td>
<td>115 VAC 10A. Standard USA plug. 230 VAC special order</td>
</tr>
</tbody>
</table>
### STANDARD ACCESSORIES INCLUDED WITH EITHER BASIC OR PRO CONTROLLER

<table>
<thead>
<tr>
<th>PART#</th>
<th>DESCRIPTION</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>VENT</td>
<td>Vent valve assembly</td>
<td>Pressure relief/vent valve assembly with 2” TriClamp</td>
</tr>
<tr>
<td>IFLTHOSE</td>
<td>Inflation hose</td>
<td>4 ft 2”ID flexible duct with connectors</td>
</tr>
<tr>
<td>DN502TC</td>
<td>Drain valve adaptor</td>
<td>DIN50 to 2”TriClamp adaptor to connect 2” Triclamp to GOLINER outlet valve</td>
</tr>
</tbody>
</table>

### OPTIONAL ACCESSORIES

<table>
<thead>
<tr>
<th>PART#</th>
<th>DESCRIPTION</th>
<th>FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOTEMP</td>
<td>Sampling tube/temperature probe.</td>
<td>Temperature probe and dip tube. Fits into 2” Triclamp FILL port</td>
</tr>
<tr>
<td>GOSAMPLER</td>
<td>Sampler</td>
<td>Plastic syringe pump to draw samples. Requires GOTEMP option</td>
</tr>
<tr>
<td>GOCOOLER</td>
<td>Stainless steel heat exchanger plate with ½” NPT connections for water or glycol.</td>
<td>Lay-in cooling plate with temperature control valve. Installs under GOLINER to provide cooling or heating. User needs to connect to ½” NPT inlet and outlet ports and provide recirculating heating/cooling fluid. Requires GOTEMP temperature probe. Does not include chiller, circulation pump, or connecting hoses.</td>
</tr>
</tbody>
</table>
## GOLINER SPECIFICATIONS

<table>
<thead>
<tr>
<th>PART #</th>
<th>GOLINER1000</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
<td>Single-use wine fermentation bag with air inflation chamber</td>
</tr>
<tr>
<td><strong>Product contact film</strong></td>
<td>2 ply metallocene linear low-density polyethylene</td>
</tr>
<tr>
<td><strong>FDA-approved resins</strong></td>
<td>Meets FDA 21 CFR 177.1520 for food contact.</td>
</tr>
<tr>
<td><strong>EU-approved resins</strong></td>
<td>EU 10/2011 &amp; EU 1935/2004</td>
</tr>
<tr>
<td><strong>Additives</strong></td>
<td>None. No BPA. No animal or GMO derived components.</td>
</tr>
<tr>
<td><strong>Non-product contact film (blue)</strong></td>
<td>5.0 mil Nylon</td>
</tr>
<tr>
<td><strong>Fill port</strong></td>
<td>2” TriClamp</td>
</tr>
<tr>
<td><strong>Vent port</strong></td>
<td>2” TriClamp for VENT valve assembly</td>
</tr>
<tr>
<td><strong>Drain port (tamper-evident)</strong></td>
<td>DIN50 ball valve (use DN502TC adaptor to 2” TriClamp)</td>
</tr>
<tr>
<td><strong>Air Inflation port (blue)</strong></td>
<td>2” TriClamp</td>
</tr>
<tr>
<td><strong>Minimum operating capacity</strong></td>
<td>200 lb (90 Kg) crushed grapes</td>
</tr>
<tr>
<td><strong>Maximum operating capacity</strong></td>
<td>2000 lb (900Kg) crushed grapes</td>
</tr>
<tr>
<td><strong>Liners per box</strong></td>
<td>3</td>
</tr>
<tr>
<td>PART #</td>
<td>GOCOOLER</td>
</tr>
<tr>
<td>--------</td>
<td>----------</td>
</tr>
<tr>
<td>Description</td>
<td>Flat heat exchanger for cooling and heating</td>
</tr>
<tr>
<td>Heat exchange surface</td>
<td>14”x31.5” (360mmx800mm)</td>
</tr>
<tr>
<td>Material of construction</td>
<td>Stainless steel 304 + PVC</td>
</tr>
<tr>
<td>Weight</td>
<td>20lb (9Kg)</td>
</tr>
<tr>
<td>Power</td>
<td>24 VDC ball valve 1 A. Supplied from GOfmentor control panel</td>
</tr>
<tr>
<td>Process connections</td>
<td>½” NPT</td>
</tr>
<tr>
<td>Notes</td>
<td>Requires user-supplied chiller and recirculation</td>
</tr>
</tbody>
</table>
A2. CONTROL PANEL ASSEMBLY INSTRUCTIONS

The control panel is shipped with a 1) support rail and 2) a 3-piece support pole. Minimal assembly is required.

1. Unscrew the three large screws on the back of the control panel
2. Place the support rail against the control with the countersunk holes facing out.
3. Reattach the 3 screws fastening the support rail to the control panel.
4. Attach the supplied pole clamps to the threaded studs on the left side of the control panel.
5. Screw the two sections of the support pole together to form a 32 inch pole. Now attached the elbow section and tighten the hex screw to form an L. Insert the longer section of the support pole so that it is positioned about 12 inches above the control panel. The eyebolt is used to suspend the VENT assembly.
6. Hand-tighten the wing nuts to secure the support pole from sliding.

The control panel is now assembled and ready to be attached to the GOBASE.
## Troubleshooting Alarms and Errors

Solutions to common problems and questions. Please look at the website – [www.GOfermentor.com](http://www.GOfermentor.com) for an updated list of FAQs.

<table>
<thead>
<tr>
<th>Issue</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liners appear to inflate too much!</td>
<td>For small volumes you may want to lower the trip pressure (PRO-&gt;SETUP-&gt;PUNCH). While it may look scary, the pressure controller will not let you overpressurize the liner (&gt;20inH2O). Vents in the inflation hose prevent damaging overpressure even in the event of pressure controller failure.</td>
</tr>
<tr>
<td>Liner inflation does not seem to move the cap much. Make sure you inflate the empty liner BEFORE filling.</td>
<td>For large volumes try raising the pressure to 20 inH2O. Increase the punch duration so that ALL the gas in the headspace is forced out during the punch.</td>
</tr>
<tr>
<td>I cannot press all the liquid out</td>
<td>The pressing is very gentle to maximize quality. You may perhaps get a 3-5 liters less than with a conventional press however the time and effort to get this poorer quality “hard press” is not worth it.</td>
</tr>
<tr>
<td>Flow rate while pressing drops to zero but there is still material in the liner</td>
<td>Reverse the must pump for a few seconds to back flow into the liner. This will clear any pomace lodged in the drain valve. Then resume normal operation.</td>
</tr>
<tr>
<td>I cannot get the drain valve to lock correctly</td>
<td>You need to position it in the opening and pull it out towards you. You may need pliers to lock the tabs in. Look at the photos in the manual.</td>
</tr>
<tr>
<td>My liner is leaking</td>
<td>This is very rare. The only option is to pump out the must to another GOLINER using a must pump. Remember – you must only FILL through the TOP port.</td>
</tr>
<tr>
<td>Leaking around the drain valve</td>
<td>You must use a DIN wrench to tighten the DN502TC adaptor onto the drain valve. Hand tighten is NOT sufficient.</td>
</tr>
<tr>
<td>I cannot remove the drain valve to take out the liner</td>
<td>Pull the drain valve out so that it is flush against the lower flange. Now use pliers to pop the tabs off.</td>
</tr>
<tr>
<td>I do not have any means to lift the used liner out of the base.</td>
<td>Ideally a forklift or crane is used to lift the liner containing the used pomace out. But can tip the whole base on to its side and then pull the liner out.</td>
</tr>
</tbody>
</table>
A4. PRO CONTROLLER CONFIGURATION/SETUP

Advanced features of the PRO controller can be set by accessing the MAIN MENU and then SETUP. The SETUP screen provides access to the following parameters:

**PUNCH**

The PUNCH menu allows the user to set the duration of each punch cycle in seconds. This is how long the controller will pressurize the secondary chamber. During this cycle the BLOWER will turn on until the set pressure is reach and then turn off for the set OFF time. This cycle will continue for the duration of the set punch cycle.

```
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Default setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Punch duration</td>
<td>60 secs</td>
</tr>
<tr>
<td>Off time/cycle</td>
<td>10 secs</td>
</tr>
<tr>
<td>Pressure trippoint</td>
<td>20 inH2O</td>
</tr>
</tbody>
</table>
```

**TEMP**

The temperature controller can be tuned if needed. The controller checks the temperature once every cycle time and modulates the solenoid valve if the temperature exceeds the setpoint by the deadband. The alarm limit can be adjusted to avoid nuisance alarms.

```
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Default setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cycle time</td>
<td>60 secs</td>
</tr>
<tr>
<td>Deadband +/- limit</td>
<td>0.5 to 5.0 deg C</td>
</tr>
<tr>
<td>Alarm +/- limit</td>
<td>1.0 C</td>
</tr>
</tbody>
</table>
```
PRESS

The press parameters can be adjusted if needed. This sets the duration of each press cycle. The pressure trippoint determines that pressure above which the blower will be turned off to prevent overpressure.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Default setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Press duration</td>
<td>120 secs</td>
</tr>
<tr>
<td>Pressure Trippoint</td>
<td>20 inH2O</td>
</tr>
</tbody>
</table>

SET TIME

The real time clock can be set from this screen. Enter the correct date and time and then press SET CLK. Time is displayed in 24 hour format. Time is retained on power down by an internal battery.

SET ADDRESS

The PRO controller should be assigned a unique IP address with the user’s network. Consult your system administrator for suitable settings. Enter the new settings and press SET IP to reset the controller.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Default setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP Address</td>
<td>192.168.1.5</td>
</tr>
<tr>
<td>IP Port</td>
<td>9080</td>
</tr>
<tr>
<td>Subnet</td>
<td>255.255.255.0</td>
</tr>
<tr>
<td>DNS server</td>
<td>192.168.1.1</td>
</tr>
<tr>
<td>SMTP</td>
<td>For email – ask administrator</td>
</tr>
<tr>
<td>SMTP Port</td>
<td>For email – ask administrator</td>
</tr>
</tbody>
</table>
**ERASE LOG**

This option allows you to erase the HISTORY log.

**NOTE:** Once erased, the HISTORY log **CANNOT** be recovered. Be careful.

**ERASE TRENDS**

This option allows you to erase the temperature TRENDS.

**NOTE:** Once erased, the TRENDS **CANNOT** be recovered. Be careful.
A5. GOCOOLER ASSEMBLY INSTRUCTIONS

The GOCOOLER is shipped as two components – 1) stainless-steel heat exchanger plate and 2) plastic piping with electric control valve.

1. Place the stainless heat exchanger plate in the GOBASE. It should be positioned inside the GOBASE on either side of the drain port with the inlet and outlet tubing towards the back side. It should not obstruct the drain port.
2. Place the control valve assembly on the back lip of the GOBASE and connect the tubing from the heat exchanger plate to the valve assembly.
3. Connect cooling and return fluid line to the control valve assembly (1/2” NPT).
4. Check for leaks, then install the fermentation liner.

The electric valve has a cable with a DC barrel plug that must be plugged in to the jack marked COOLING VALVE located on the right side on the control panel near the power entry cable.
A6. WARRANTY, LIABILITY, AND RETURNS POLICY

The GOfermentor hardware is warranted to be free of defects in material or workmanship for 12 months after delivery to the first purchaser for use, providing that the units have not been misused. Since we have no control over the operation, we cannot guarantee against failure or loss of product in the unit. Our obligations hereunder, at our option, are limited to the replacement, repair or refund of the purchase, and parts which upon examination prove to be defective within the warranty period.

Disposable items, such as liners, are meant for single-use. They are warranted against any defects and will be replaced if found to be defective. Damage caused by improper installation or user error is not covered under the warranty. Unused liners may only be returned within 12 months of delivery.

In no circumstances are we liable for any product loss due to the use of our product. The user is cautioned that this is new technology and they agree to accept the risk inherent in using new technology.

RETURNS

- Call or email sales@gofermentor.com if you have any problems with the GOfermentor. In most cases we can resolve the issue.
- Email service@gofermentor.com for a Return Material Authorization (RMA) number before returning any item.
- Put the RMA on the outside of the shipping label.
The GOfermentor firmware may be updated from time to time to fix bugs and add features. Firmware can be upgraded by the user. You will require 1) Windows PC and 2) an Ethernet cable. You will need to download 3 files which are available on the www.GOfermentor.com website.

1. Download the **Java 1.4_19** runtime environment and install on the PC.
2. Download and install the **TL6Uploader** utility.
3. Connect the PC to the GOfermentor using an Ethernet cable. Power up the GOfermentor.
4. Set the IP address to 192.168.1.5
5. Set the Ethernet IP address on the PC to 192.168.1.10. Disconnect it from any networks.
6. Run **TL6Uploader** on the PC.
7. Click on **Upload COS file**
8. **DETECT** the GOfermentor on IP 192.168.1.5
9. Verify that the GOfermentor is detected (will see **DISCONNECT** button).
10. Click **OK** and select the .COS file you downloaded from the website.
11. It will now upload the program
12. Click **RESET** and you are done.
13. Set the GOfermentor IP address back to the desired setting for your network.

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++