Fermenator™

Operation, Assembly, Maintenance

Congratulations on your purchase, and thank you for selecting the Fermenator™ stainless conical fermentor from Blichmann Engineering™. We are confident that it will provide you years of service and many gallons of outstanding beer. This manual will familiarize you with the assembly of the product.

IMPORTANT INFORMATION

PLEASE READ AND THOROUGHLY UNDERSTAND THIS MANUAL PRIOR TO USE FOR IMPORTANT SAFETY INFORMATION!

WARNING: Sections labeled "Warning" can lead to serious injury or death if not followed. Please thoroughly read these sections and understand them completely before use. If you do not understand them or have any questions, contact your retailer or Blichmann Engineering (www.BlichmannEngineering.com) before use.

CAUTION: Sections labeled "Caution" can lead to equipment damage or unsatisfactory performance of the equipment. Please read these sections thoroughly. If you have any questions, contact your retailer or Blichmann Engineering (www.BlichmannEngineering.com) before use.

IMPORTANT: Sections labeled "Important" should specifically be followed to ensure satisfactory results with the product.

ABOUT THIS MANUAL

This manual is for the F3-7, 14.5, and 27 gallon tri-clamp models and optional leg extensions, casters and blow-off assembly. If you purchased the optional 42 gallon modular extension for the 27 gallon model, or the complete 42 gallon model, you will have received a supplemental manual with the extension. This manual is broken down into the following sections:

Assembly: Proper assembly procedures to ensure reliable, safe, leak-free operation of your Fermenator™. Be sure to read the sanitizing section before the first use your Fermenator™ since most parts are sanitized before assembly. We recommend an initial assembly to familiarize you with the process prior to your first use.

Sanitation: Steps to properly sanitize your fermentor before each use.

Operation: Techniques to get the most out of your fermentor.

Storage & Maintenance: Get years of service by properly maintaining and storing your fermentor.

What's In the Box?

Item Number	Description	Quantity
BE-000655-00	Gasket - ½" Tri-Clamp, EPDM	2
BE-000654-00	Gasket - 1" Tri-Clamp, EPDM	3
BE-000630-00	Cap - 1" Tri-Clamp, Stainless	1
BE-000635-00	1" Tri-Clamp 90 Degree Stainless Steel Elbow	1
BE-000633-00	1" Tri-Clamp with Wing Nuts	3
BE-000865-00	1" Butterfly Valve	1
BE-000381-00	Bulkhead Nut (1" Male Thread x 1" Tri-Clamp	1
BE-000380-03	Bulkhead Fitting (1" Female Thread x 1" Tri-Clamp)	1
BE-000681-00	O-Ring - Bulkhead Fitting (Large)	1
BE-000682-00	O-Rings - Racking Arm (smaller - one spare included)	2
BE-000627-00	Hose Barb Fitting - 1" Tri-Clamp x 1" Hose	1
BE-000629-00	Hose Barb Fitting - ½" Tri-Clamp x ½" Hose	1
FE-357-00	Racking Tube Assembly (90 degree bent stainless tube)	1
FE-376-03	Racking Tube Nut	1
FE-382-05	Tool - Sanitary Bulkhead (small washer with 3 bent tabs)	1
BE-000099-00	Lid Hatch (oval lid with handle)	1
FE-303-03	Pressure Relief Valve	1
BE-000015-00	O-Ring - Pressure Relieve Valve	2
BE-000100-03	Brass "T" Nut (for V-Band Clamp)	1
BE-500019-00	Airlock	1
BE-000702-00	90 Degree Nylon Barbed Elbow (3/8") for connecting CO_2 hose (nylon)	1
BE-500018-00	Stopper	1
FV-025-03	Aseptic Valve	1
aQC_Cap	QuickConnect Caps	2
aQC_12_S	QuickConnect 1/2" Straight	1

Please check your box to make sure you have received all parts.
NOTE: Some parts will be partially assembled to protect them during shipment.

ASSEMBLY

NOTE: We recommend a trial assembly of your new Fermenator™ before using it to ferment so you are familiar with the procedures and are sure you have all the parts. When you are ready to use the fermentor for an actual brewing session, read the sanitizing procedures before assembling your Fermenator™ since many parts are sanitized before assembly. Note that some of the components have not been pre-assembled at the factory to prevent shipping damage.

Threaded Fittings

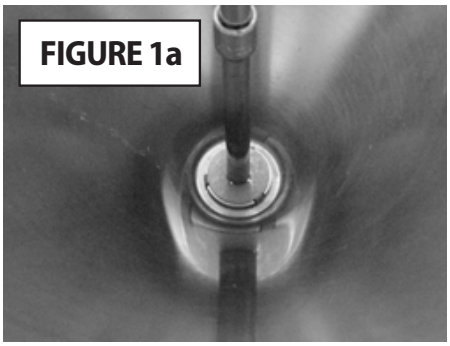
It is not necessary or recommended to use thread sealing tape on the threaded fittings of the tri-clamp bulkhead fitting. The sealing is accomplished by the o-ring, not the threaded joint.

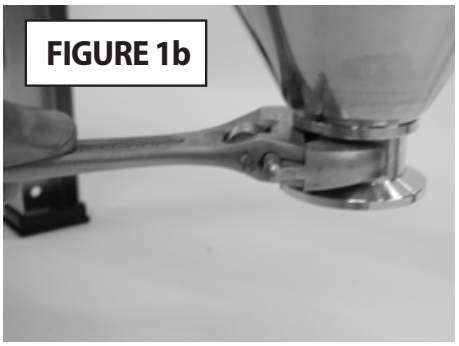
Bottom Dump

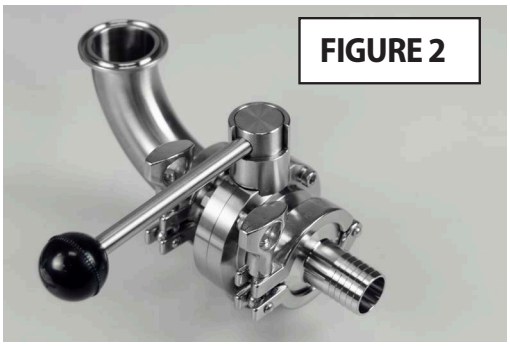
Install the weldless sanitary bulkhead into the bottom of the cone as shown in **Figure 1a** and **1b**. Place the bulkhead nut into the hole in the bottom of the tank. Install the large o-ring in the groove of the tri-clamp bulkhead and thread it on the bulkhead nut by hand. Install the sanitary bulkhead tool on the end of a long 3/8" extension bar and a ratchet wrench (not included). Using an open end wrench (not included) turn the tri-clamp fitting while holding the nut stationary with the ratchet wrench until the fitting is tight. Dipping the parts in sanitizer just before assembly helps lubricate the o-ring joint and makes tightening easier.

Assemble the bottom dump assembly as shown in **Figure 2** using a 1" gasket between each flange. Orient the clamps and valve as shown so that they clear the floor and tank and do not interfere with the rotation of the valve handle. Be sure the handle of the valve faces up, and that the handle rotates outward. Then attach the assembly onto the tank, again using a 1" gasket.

If you are using the optional leg extensions, it is not necessary to use the elbow, and this will allow the trub and yeast to flow more freely. Simply install the valve directly on to the bottom dump fitting. You'll be pressure testing all the fittings during the sanitation process, so if a leak is present you'll be able to tighten it then.







Aseptic Valve and Rotating Racking Arm

Install a small o-ring into the groove of the flare fitting on the aseptic valve as shown in **Figure 3**. Install the 2 QuickConnect™ caps onto the ends of the aseptic valve. Insert the assembly into the hole in the conical side of the tank (see **Figure 4**). Place the flare fitting nut on the racking tube and thread onto the flare fitting. Tighten the flare nut snugly with a wrench – do not over-tighten or you could inadvertently bend the tank while tightening. It is not necessary to excessively tighten the fitting to get a good seal. If your wrench it too thick to fit between the tank and the clamp on the racking assembly, install the racking fitting first, and then clamp the valve to it after tightening.

Install the tube as directed by the side of the aseptic valve shown in **Figure 5**. This will allow you to use the handle as a guide to determine the position of the racking arm when draining the beer or wine. The racking arm should initially be positioned horizontally (below right).

FIGURE 3

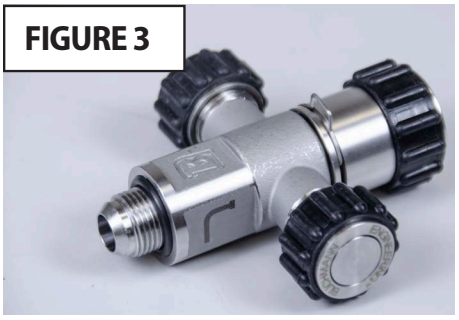


FIGURE 4

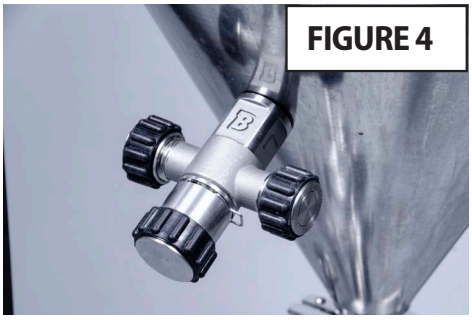
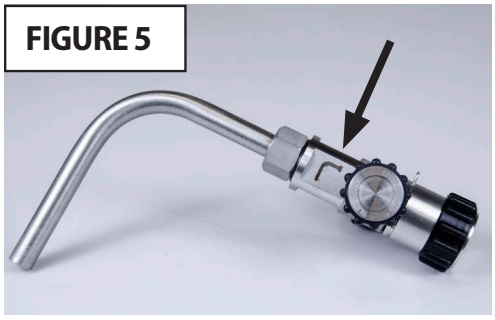


FIGURE 5



TIP: The only time it is necessary to rotate the racking arm is for the final racking of the finished beer. Limiting the rotation of the racking arm will reduce any possibility of a leak.

Lid Assembly

Place the U-shaped lid seal over the edge of the lid (not on the tank) with the small bead on the seal facing toward the lip of the tank as in **Figure 6**. Place the lid on the tank and orient the hatch and airlock holes to your desired location. Be sure the lid is centered on the tank as much as possible. Place the V-band clamp around the lid and tank lip and start the T-nut on the clamp stud as in **Figure 7**. The V-band clamp can be installed with either side up and with the clamp in any orientation. Note that the unit is shipped with a plain nut installed on the V-band to prevent shipping damage – it can be removed and discarded. Initially tighten the clamp to about 1/2" (13mm) of gap between the band segments (**Figure 8**), then, using a rubber or wood mallet, gently tap the outside perimeter of the V-band clamp to seat the clamp firmly and evenly all the way around the lid seal. Start at the opposite side of the T-handle and work your way around to the handle. **Retighten the clamp so the segment gap is less than 3/8" (13mm).**

NOTE: ALWAYS apply a dab of Vaseline or drop of oil on the threads of the draw bolt before each use to prevent wear and galling of the threads. Galled or warn threads are NOT covered under warranty.

FIGURE 6

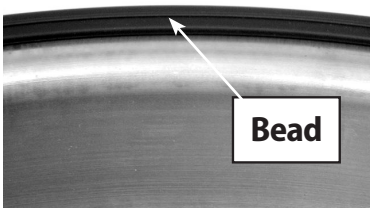


FIGURE 7

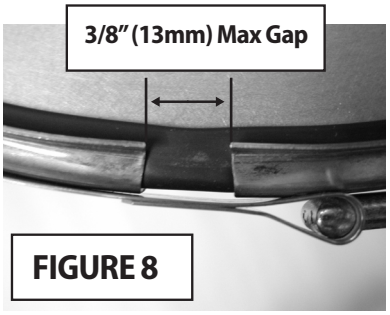


FIGURE 8

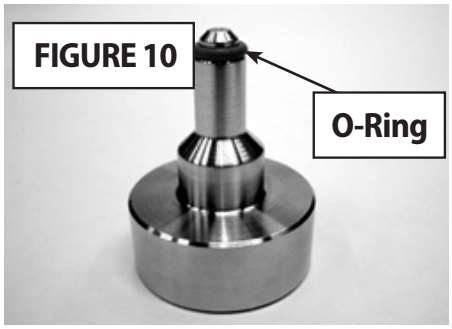
WARNING: Failure to correctly install and tighten the lid clamp can cause the lid to blow off during pressurization resulting in serious injury or death! Please contact your Authorized Fermenator™ Distributor or Blichmann Engineering™ (www.BlichmannEngineering.com) if you have any questions about proper assembly. Do not operate the unit until you are certain that you understand the proper installation procedure.

Lid Hatch

Install the pressure relief valve filter spring on the inside of the lid hatch as shown in **Figure 9**. The purpose of this filter is to keep particles from clogging the relief valve, which may lead to a dangerous over-pressurization of the tank. Install lid in the oval hole in the lid (**Figure 10**). Place the small orange o-ring on the pressure relief valve piston (**Figure 10**) and place it in the small hole in the lid as shown in the photo to the right (bottom). The weight of the piston will limit the pressure in the unit to 3 PSI.

WARNING: Read the "Operation Section" prior to use to prevent over pressurization of the fermentor!! It is critical that the pressure relief valve filter spring be installed on the lid to help prevent foreign material from clogging the pressure relief valve opening.


FIGURE 9



Carry Handles

The folding carry handles have been preinstalled on your fermentor. However, they have been tightened so they do not rotate in shipment and become damaged. Using two 7/16" wrenches, loosen the nylock nut so the handle moves freely. However, be sure the nut is still fully engaged on the bolt. The 7 gallon and 14.5 gallon models can be moved when full, but be sure to use 2 people to carry the 14.5 gallon model.

WARNING: The 27 gallon model is too heavy to move when full. DO NOT attempt to move this unit when full. The carry handles are provided to move it only when empty.

Optional Leg Extension Kits – F3-7, F3-14, and F3-27 models (For F3-42 see supplemental manual provided with that product)

Assemble the legs and braces as shown in **Figure 12**, through **Figure 14** using the ¼-20 hardware provided. Note that the braces go on the inside of the leg. The washers also go on the inside of the leg as shown in **Fig 13** and **Fig 14**. It is recommended that you install all of the hardware finger tight first, and tighten the assembly when all fasteners are in place. This will allow slight adjustments of position as needed for ease of assembly. The leg extensions allow for gravity draining into a keg or bottling bucket.

NOTE: It is not necessary to install the 90 degree street elbow on the bottom dump assembly when using the leg extension kit (**Figure 11**). This will allow the trub and yeast to flow more freely from the dump valve.

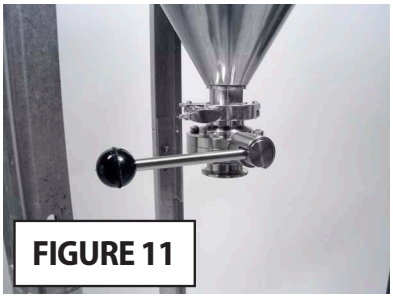


FIGURE 11

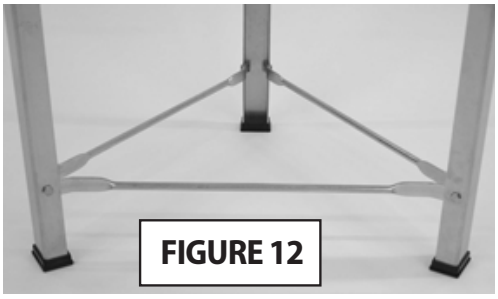


FIGURE 12

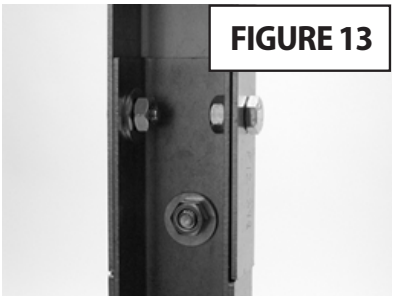


FIGURE 13

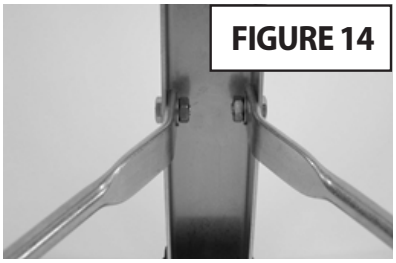


FIGURE 14

Optional Casters - F3-7, F3-14, and F3-27 models (For F3-42 see supplemental manual provided with that product)
To assemble the casters, begin by pre-assembling the brackets as shown in **Figure 15** using two ¼-20 X ½" long bolts and washers. It is recommended that you install all the hardware finger tight first, and tighten the assembly when all fasteners are in place. This will allow slight adjustments of position as needed for ease of assembly. Insert the large carriage bolts through the bracket and into the hole in the caster. Place a lock washer and nut on the bolt and finger tighten as shown in **Figure 16**. Invert your Fermenator™ and place on a soft surface to prevent scratching the lip. Place a caster assembly over each leg and hold in place with two ¼-20 X ¾" long bolts as shown in **Figure 17**. Do not install nuts or washers at this time. Place the leg braces on the inside of the leg one at a time, installing washers and nuts on the bolts finger tight as shown in **Figure 18**. Note that the braces go on the inside of the leg. Tighten all of the fasteners at this time, and invert the Fermenator™ onto the wheels. The wheels are non-marking to protect your floors, and feature a wheel lock to keep the unit in place and prevent accidental movement.

WARNING: Keep all wheels locked at all times unless moving the unit. Be sure all obstacles are out of the path of the Fermenator™, especially small objects which will wedge under the wheels and cause it to suddenly stop moving. This will present a tipping hazard! While moving, keep both hands on the unit, and move slowly to prevent accidental tipping. When the unit is in its final location, lock all the wheels by depressing the wheel lock (**Figure 19**) with your foot.

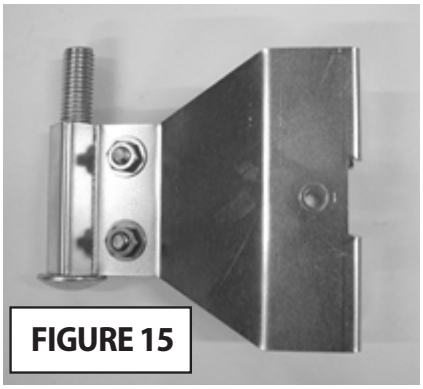


FIGURE 15

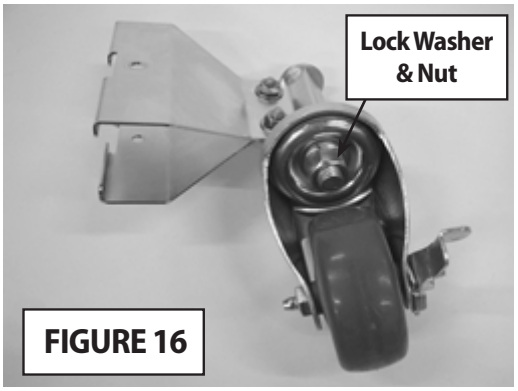


FIGURE 16

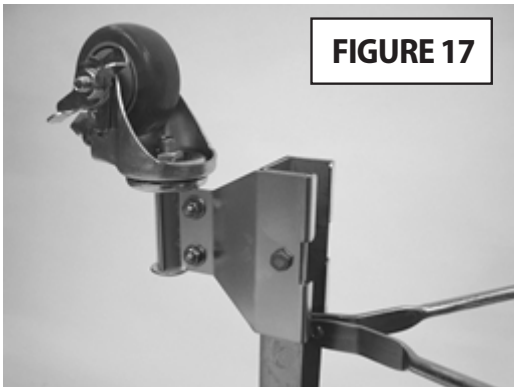


FIGURE 17

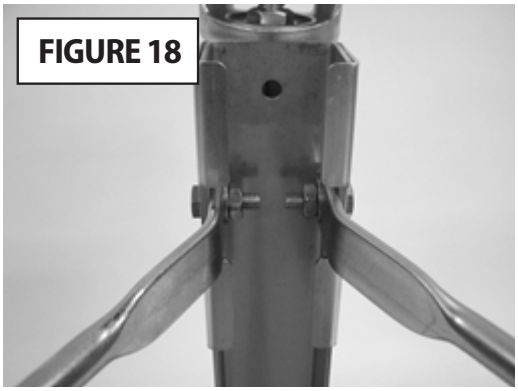


FIGURE 18

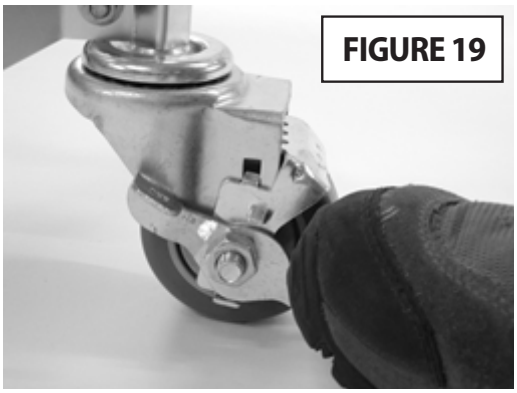


FIGURE 19

SANITATION

CAUTION: Do **NOT** use any cleaner or sanitizer containing **chlorine** such as bleach. Over time, this will pit and erode stainless steel. Any other non-chlorine sanitizer is acceptable to use. Iodophor™ or StarSan™ both work very well and do not require rinsing.

Initial Cleaning

Prior to the first use, and after each subsequent use, scour the lid and tank with ordinary dish detergent (or any non chlorine based cleanser) such as PBW (Powdered Brewery Wash) and a Scotch-brite™ type green scouring pad. Do not use a steel wool scouring pad as the metal particles will rust on the surface of the parts. Rinse well and allow to dry thoroughly. Drying thoroughly allows the protective CrO2 layer to naturally re-form on the surface of the stainless steel. Scrub the fittings with a nylon brush and detergent, or soak in a solution of hot PBW. It is also acceptable to boil fittings and seals to sterilize them. If you are not going to immediately use the fermentor, dry the fittings and seals thoroughly, and store them in a new plastic zip-lock bag (see storage section).

Before Each Use

Fittings:

Soak all fittings, valves, o-rings and lid seal in a sanitizing solution or boil in water for 10 min if you have not already done so after the last use (see storage section). To ensure that the inside of the aseptic is sanitized, disassemble (**shown in Figure 20**) and soak in sanitizer. It takes only a few seconds and provides for thorough cleaning and sanitizing.

FIGURE 20

NOTE: It is not necessary to re-sanitize the fittings prior to use if you have sanitized, dried and stored them in a bag (see storage section) after the previous use since you will be sanitizing the completely assembled fermentor with a sanitizing solution.

Lid & Lid Seal:

Sanitize the outside edge of the lid where the seal will contact with grain alcohol or sanitizing solution using a cotton ball or clean cloth, or wipe with a no-rinse sanitizer.

WARNING! Alcohol is extremely flammable – do not use near open flame!

Place the U-shaped seal over the edge of the lid as shown in **Figure 21**. One side of the seal has a small bead running the length of the seal. The bead side of the seal must face the lip of the tank to seal properly.

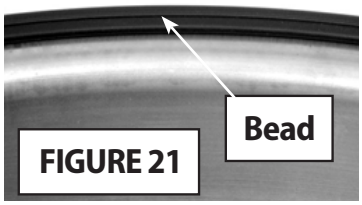


FIGURE 21

First time use to verify a proper seal of the tank:
Sanitize the sealing surfaces (bottom dump hole, rotating racking arm hole, and the top lip of the tank) with grain alcohol or sanitizing solution using a cotton ball or clean cloth. Assemble the fittings on the tank per the previous assembly instruction section.

Fill the tank with about a gallon of water and then add your sanitizer. Adding the sanitizer first will trap the sanitizer in the dump fittings and will not allow it to spread into the rest of the water in the tank. Fill the tank until the water level is just below the lid hatch. Install the lid hatch and place a sanitized 3-piece air lock on the unit (a "bubbler" type air lock cannot easily be used to fill the fermentor).

Remove the pressure relief piston (**Figure 22**) and slowly fill the rest of the fermentor through the airlock. Pour sanitizing solution until it pours out of the pressure relief valve opening. Replace the relief valve piston and continue filling through the airlock until it is full. This has flooded all the internal surfaces with sanitizer and purged all the air out of the tank.

FIGURE 22

IMPORTANT: Dry the outside of the tank with a cloth and if any fittings are leaking, tighten them as required, taking care not to bend the tank. If you are unable to resolve a leak problem please re-read the fitting assembly instruction thoroughly taking special note of the location of the o-rings. If you are still experiencing a leak, contact Blichmann Engineering™ as this is not normal.

After the prescribed time has passed for your sanitizer to finish its job, open both valves and drain the tank. If you have used a sanitizer that must be rinsed, open the tank and rinse as recommended. Remove the barb fittings from the racking arm and bottom dump and replace with the tri-clamp cap.

Alternate Sanitizing Method:
An alternate method to sanitize the tank and lid is by using a surface sanitizer. This uses significantly less sanitizer. The only surface sanitizer we recommend is StarSan™ which has been specifically formulated as both a flood and surface sanitizer. However, the surface sanitizer concentration is stronger. Refer to the product instructions for dilution rates. Iodophor and other sanitizers are not recommended for this procedure. When all the fittings and components have been removed from the tank and lid, spray the inside surface of the tank and lid with sanitizer and let sit for 10 min. Repeat for another 10 min, then assemble as described above. Note that the fittings and other seals and components should still be immersed in sanitizer prior to assembly. The only drawback with this method is that you can't check for leaks prior to filling. However, the sealing system has been extremely reliable and leaks are very uncommon.

Note: You can CIP (clean in place) the fermentor if you have the equipment. However, complete disassembly only takes a few minutes and is much more thorough and takes less overall time. Therefore, we recommend this method in lieu of the CIP method. It is also possible to surface sanitize the inside of the conical and lid (eliminates filling, and also leak check) using StarSan™ in a concentration for surface sanitation. However, you will need to soak the fittings, valves, seals in sanitizer as surface sanitizing is not effective with these parts.

YOU ARE NOW READY TO FERMENT!!

OPERATION

The Fermenator™ has been designed to fit in a large refrigerator, and about any chest or upright freezer. If you plan to use it in a freezer or refrigerator, the CO2 gas from fermentation should be vented through the door or wall of the refrigerator. For primary fermentation, it is highly recommended that you use a blow-off tube (not included). Fit the 90 degree barbed elbow (included) into the stopper as shown in **Figure 23** after primary fermentation. Run the hose to the exterior of the unit and affix it to an airlock as shown in **Figure 24**. If you have purchased the optional tri-clamp blow-off assembly please refer to the manual included in the kit for proper installation and operation.

FIGURE 23

FIGURE 24

***** IMPORTANT *****

Maximum Fermentables Capacity

	Beer	**Wine**
7 gal model:	5.5 US gal	6.0 US gal
14.5 gal model:	11 US gal	12 US gal
27 gal model:	21 US gal	21 US gal
42 gal model:	33 US gal	33 US gal

WARNING: Exceeding these capacities can cause the fermentation material (krausen) to clog the pressure relief valve and airlock causing a dangerous overpressure of the fermentor. Approximately 30% excess capacity is required for krausen space for beer and approximately 20% for wine.

WARNING: Do not use loose whole hops, wood chips, grape skins, or other similar material in the fermentor. Use a hop bag to prevent loose material from plugging the pressure relief valve or airlock, which may cause a dangerous overpressure of the fermentor. In addition, these materials will clog the racking tube making draining the finished beer/wine difficult.

It is highly recommended that you use a blow-off tube for primary fermentation! The optional tri-clamp blow-off assembly makes this very easy.

Bottom Dump Operation

Now you're about to see the real benefit to a conical fermentor: the ease of trub (cold break) and yeast removal for secondary fermentation or yeast harvesting and quick and sanitary removal of wort samples. Typically, cold break is removed just after wort chilling, but prior to pitching the yeast (allow time for settling to the bottom of the tank). Remaining trub and flocculated yeast can be removed after primary fermentation.

Procedure: Connect a clear 1" ID X 24" long hose (not supplied) to the bottom dump valve with the hose barb fitting provided and place the other end into a suitable container. If you are not harvesting the yeast the hose and fitting do not need to be sanitized. If you have a large amount of sediment or it has compacted over time, it may take one to two minutes for the flow to begin. Over time, yeast takes on the consistency of toothpaste (as opposed to molasses) and even commercial breweries have trouble with plugging. More frequent dumping earlier in the fermentation process will alleviate this. It is recommended to dump when primary fermentation has slowed, and then every few days until the yeast has all been removed. Performing a protein rest (for wheat and under modified malts) and using proper techniques to leave trub in the boil kettle will reduce the amount of trub carried into the fermentor and improve the quality of your beer. Consult any homebrewing text for recommended procedures. If you are still having trouble with yeast cake compaction it is permissible to use pressure to provide additional force to remove the yeast. This is a common procedure in commercial breweries. See the "Racking finished beer – pressure pumping" section for instructions and warnings before attempting this!

CAUTION: Remove the pressure relief piston on the lid hatch prior to draining beer/wort from the tank or you will suck the liquid out of the airlock and into the fermentor! The CO_2 from the actively fermenting beer is generally sufficient to purge any ingested air from the tank.

Hold the valve body to prevent it from rotating and adding unnecessary bending force on the tank wall! Slowly open the valve until you have removed the trub or yeast (the valves have a locking tab that needs to be lifted before opening). Watch the flow through the hose and close the valve when the trub and yeast have been drained. Reinstall the pressure relief piston. That's it!

Harvesting yeast: If you're harvesting the yeast, you'll need to sanitize the hose and fittings first. The valve threads can easily be sanitized by a spray bottle of sanitizer a few minutes prior to installing the barbed fitting. Allow the trub to pass first, and collect the cream colored yeast. A wide mouthed glass jar 8-16 oz works well. If you have CO_2 available, purge the jar of oxygen before use. With proper sanitization techniques, yeast can be stored for 1-2 months and harvested up to 4 times in a typical homebrew environment. Since you'll have plenty of yeast to pitch (reactivate in a starter if more than 2 weeks old) you'll find your ferments starting faster and progressing much more quickly.

Rotating Racking arm Operation

This feature is used for taking wort samples during the fermentation process and for racking the finished beer into kegs or a bottling bucket.

Aseptic Valve Operation: After installing the aseptic valve, angle it so that one of the threaded inputs is facing upward and the other is faceing downward. Spray the inside with sanitizer then install the bottom QuickConnect™ cap. Fill the inside of the aseptic valve with sanitizer through the top and install the other QuickConnect™ cap.

CAUTION: Remove the pressure relief piston on the lid hatch prior to draining beer/wort from the tank or you will suck the liquid out of the airlock and into the fermentor! The CO_2 from the actively fermenting beer is generally sufficient to purge any ingested air from the tank.

Wort sample: Hold the valve body to prevent it from rotating and adding unnecessary bending force on the tank wall! Remove the QuickConnect™ caps and drain the sanitizer out the aseptic valve. With both caps removed spray the inside with sanitizer and slowly open the valve until you have removed the sample. It is not necessary to rotate the racking arm to remove a wort sample. Limiting rotation of the racking arm will reduce the possibility of a leak. You do not need to connect a hose or barb to the valve to take a sample. Spray sanitizer in the valve and reinstall the bottom QuickConnect™ cap. Refill the valve with sanitizer and reinstall the top QuickConnect™ cap.

Racking finished beer – gravity drain: As shown in **Figure 25**, connect the sanitized ½" QuickConnect™ stem to the aseptic valve. Then connect a clear sanitized hose. Remove the pressure relief piston. Hold the valve body to prevent it from rotating, and slowly open the valve, draining it into your keg or bottling bucket. Then slowly rotate the racking arm assembly downward as in **Figure 26-27**, stopping when you see a yeast pick-up, then turn it back a bit to keep from picking up additional yeast.

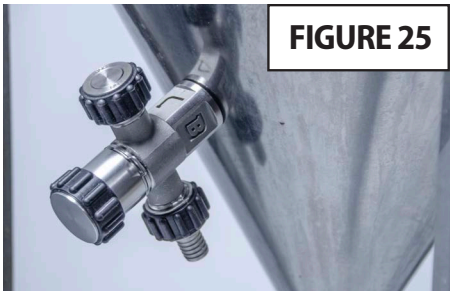


FIGURE 25

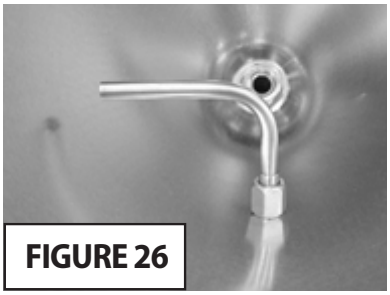


FIGURE 26

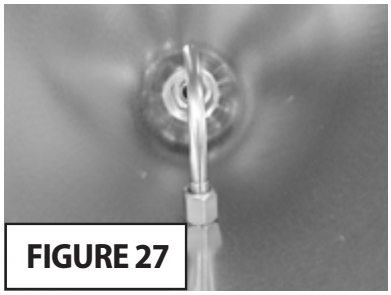


FIGURE 27

Racking finished beer – CO2 pressure pumping: Connect drain hose as for gravity racking. Install 90 degree barbed elbow into airlock stopper as shown in **Figure 28**. If you have purchased the optional tri-clamp blow-off assembly please refer to that manual for instructions. Turn regulator pressure setting to zero PSI and close CO2 shutoff valve. Then connect hose to CO2 tank. Open racking arm valve, open CO2 shutoff valve and SLOWLY increase pressure on the CO2 regulator to a maximum of 3 PSI (6 ft of lift above racking arm) until beer or wine begins to flow. A slow flow rate will reduce disturbing the yeast cake and sediment and carrying into your keg. When you are getting toward the bottom of the tank be sure to lift the outlet end of the beer/wine hose above the surface of the beer or wine in the keg or bottling bucket to prevent the CO2 gas from "burping" the beer out of your keg when the fermentor is empty.

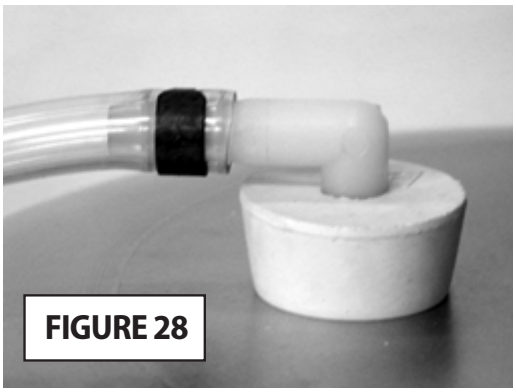


FIGURE 28

WARNING:

- Do not exceed 3 PSI (6 ft of lift above the racking arm)
- Do not tamper with, or press on the pressure relief valve piston
- Do not leave the fermentor unattended during pumping
- Do not use loose whole hops, wood chips, grape skins, or other similar material in the fermentor. Use a hop or grain bag to prevent loose material from plugging the pressure relief valve or airlock causing a dangerous overpressure of the fermentor.
- Ensure that the surfaces of the pressure relief valve piston and seat are free from fermentables or other material **prior** to pressurization. Clean as needed. Failure to do so may cause sticking and subsequent malfunction of the relief valve system.

***** Failure to follow these warnings could result in serious injury or death *****
This fermentor is NOT to be used for force carbonation!

Dry-hopping: Do not use loose whole leaf hops for dry-hopping! Not only will they possibly clog the pressure relief valve, the leaves tend to clog the racking arm. If you use whole hops be sure to use a hop bag. Pellet hops can be used with or without a hop bag. In all cases, using a hop bag will reduce the carry-over of hop particles in the finished beer and harvested yeast and leave you with more finished beer. Boiling the bag before placing the hops inside is an easy way to reduce the risk of introducing bacteria in to the fermentor from the bag. In practice, pre-boiling of the hops is not needed due to the natural bacterial inhabitation from hops, and the low pH of the beer. This will also preserve the volatile aromatic compounds from being lost.

TIP: Use a piece of fish line to suspend the bag in the tank about half way down. Simply install the lid hatch with the fish line hanging out and it'll clamp it in place. This will allow the beer to drain out of the bag during kegging/bottling saving beer and preventing it from plugging the racking tube.

Wine Makers: The Fermenator™ is an outstanding vessel in which to ferment wine. The sealing system is far superior to wine tanks and is completely impervious to oxygen. Most stainless wine fermenting tanks have a loose fitting lid for primary fermentation (to vent gas) and a floating lid for secondary fermentation (to prevent oxygen infiltration). This floating lid has an inflatable seal with a "bicycle pump" and may leak over time. It is also a source for bacterial contamination from the fermentation material on the walls of the fermentor.

The Fermenator™ always maintains a 100% positive seal for pressure and vacuum so a floating lid is not necessary. The blanket of CO_2 on the surface of the wine from fermentation will protect the wine from oxidation. After complete fermentation has been verified remove the airlock and stopper and replace with a stopper with no hole (not included). Ensure that the surfaces of the pressure relief valve are clean and free of wine or other material, which may cause it to stick. It is also common practice to purge the vessel with argon gas after degasification to reduce CO_2 uptake in the finished wine. Alternately, topping up with a similar wine will perform the same function as an argon purge.

WARNING: Be 100% sure fermentation activity has completely ceased by verification with a hygrometer. The hygrometer measurement should not change over a period of two weeks prior to replacing the airlock with a solid stopper.

WINE-MAKER WARNING:
Loose oak chips or grape skins in the fermentor may clog the racking arm, bottom dump and over-pressure relief system. (Ref Dry-hopping above). In addition, oak "saw dust" tends to clog the bottom dump fitting. Primary fermentation of musts "on the skins" is not recommended with a conical for these reasons. However, post press storage & maturation is an excellent application for a conical.

AFTER USE CLEANING AND STORAGE

After use, rinse with hot water and completely disassemble the fermentor and fittings. Soak the fittings and seals in hot PBW solution or boil as in the sanitizing procedure. Remember to remove the black vinyl grips from the valve handles. Scrub the fermentor and lid with a Scotch-brite green scouring pad and ordinary dish detergent (or your favorite non-chlorine cleanser such as PBW) and rinse and dry thoroughly.

It is not necessary to remove the legs for normal cleaning. If you have to remove a leg for any reason, make careful note of the placement of the spacer and washers. Reassemble identically and do not over tighten the nut.

Thoroughly dry all seals and o-rings and store them in a plastic bag and place inside the tank for the next use. Be sure to remove all the o-rings from the fittings to prevent from taking a "set". Install the lid and V-band clamp (without seal) to prevent dust from settling inside the unit during storage.

Note: it is not necessary to re-sanitize the fittings prior to the next use if you have stored them in a bag. Proceed directly to the assembly stage as you will be sanitizing them after assembly.

MAINTENANCE

Inspect lid seal and o-rings before each use. If they have cuts, abrasion or have taken a permanent set replace them. Never scrub the seals or o-rings with an abrasive pad or cleanser.

WARNING: Do **NOT** use any cleaner or sanitizer containing **chlorine** such as bleach. This will pit and erode stainless steel.

If the ball valves ever begin to drip, remove the handle and tighten the packing nut under the handle. If this persists, replacement valve seal kits are available through your retailer.

Visit parts.blichmannengineering.com for replacement parts and seals.

BLICHMANN ENGINEERING PRODUCT WARRANTY

A. Limited Warranty

1. Blichmann Engineering warrants to the original purchaser that this product will be free from manufacturing defects in material and workmanship for a period of one (1) year from the date of purchase by the customer. Proof of purchase is required. Blichmann Engineering's obligation to repair or replace defective materials or workmanship is the sole obligation of Blichmann Engineering under this limited warranty.
2. The limited warranty covers only those defects that arise as a result of normal use of the product and does not cover any other problems, including, but not limited to, those that arise as a result of:
   a. Improper maintenance or modification;
   b. Damage due to incorrect voltage or improper wiring by customer;
   c. Operation outside of the product's specifications;
   d. Carelessness or neglect to operate the product in accordance with instructions provided with the product;
   e. Damaging the tamper label on the product;
   f. Damage by over-tightening the fasteners;
   g. Failure to follow cleaning and / or maintenance procedures; or
   h. Exceeding published operational temperatures.
3. Blichmann Engineering reserves the right to request delivery of the defective component for inspection before processing the warranty claim. If Blichmann Engineering receives, during the applicable warranty period, notice of a defect in any component that is covered by the warranty, Blichmann Engineering shall either repair or replace the defective component with a new or rebuilt component at Blichmann Engineering's option.
4. Blichmann Engineering must be notified within seven (7) days of the delivery date of any shipping damage. Customer is responsible for shipping damage outside of this time period. Approval for return must be provided by Blichmann Engineering prior to any return. Customer is responsible for keeping all original packaging material for warranty returns. Blichmann Engineering is not responsible for damage from improperly packaged warranty returns, and these repair costs will be the sole responsibility of the customer. Shipping costs for warranty returns are covered only for the contiguous United States.
5. Blichmann Engineering's limited warranty is valid in any country where the product is distributed.

B. Limitations of Warranty

1. Any implied warranty that is found to arise by way of state or federal law, including any implied warranty of merchantability or any implied warranty of fitness, is limited in duration to the terms of this limited warranty and is limited in scope of coverage to this warranty. Blichmann Engineering disclaims any express or implied warranty, including any implied warranty of fitness for a particular purpose or merchantability, on items excluded from coverage as set forth in this limited warranty.
2. Blichmann Engineering makes no warranty of any nature beyond that contained in this limited warranty. No one has authority to enlarge, amend, or modify this limited warranty, and Blichmann Engineering does not authorize anyone to create any other obligation for it regarding this product.
3. Blichmann Engineering is not responsible for any representation, promise, or warranty made by any independent dealer or other person beyond what is expressly stated in this limited warranty. Any selling or servicing dealer is not Blichmann Engineering's agent, but an independent entity.

C. Limitations of Liability

1. The remedies provided in this warranty are the customer's sole and exclusive remedies.
2. Except for the obligations specifically set forth in this warranty, in no event shall Blichmann Engineering be liable for direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any other legal theory and whether or not advised of the possibility of such damages.
3. This warranty does not cover, and in no event shall Blichmann Engineering be liable for, travel, lodging, or any other expense incurred due to manufacturing defects in material and workmanship, or any other reason.
4. Any performance of repairs after the warranty coverage period has expired or performance of repairs regarding anything excluded from coverage after this limited warranty shall be considered good-will repairs and they will not alter the terms of this limited warranty, or extend any warranty coverage period.
5. Venue for any legal proceedings relating to or arising out of this warranty shall be in Tippecanoe County, Indiana, United States, which courts will have exclusive jurisdiction.

D. Local Law

1. This warranty gives the customer specific legal rights. The customer may also have other rights that vary from state to state in the United States or other countries.
2. To the extent that this warranty is inconsistent with local law, it shall be deemed modified, only to the extent necessary to be consistent with such local law.

This product uses food grade materials anywhere the product touches the beverage.
Warning: This product contains or may contain chemical(s) known to the State of California to cause cancer, birth defects, or other reproductive harm.