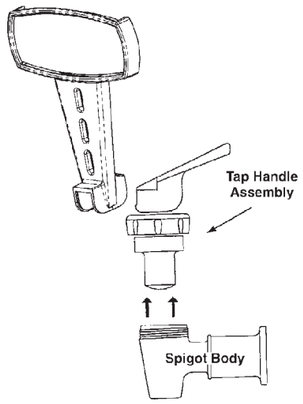
Model 2000

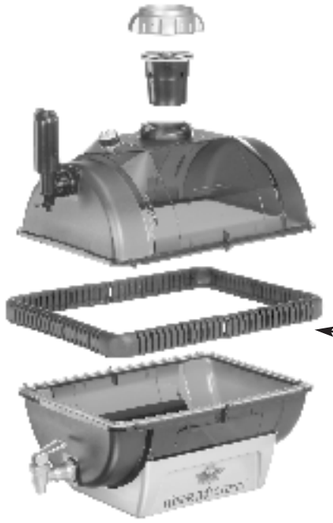
Pressure Indication

The PSI indicated displays the internal pressure in The Beer Machine. Most fermentations will occur in the "Green Zone" between 10 to 15 PSI. When The Beer Machine is in the refrigerator, the cool temperature will decrease PSI into the "Blue Zone" between 5 to 10 PSI and into the "Yellow Zone" at colder temperatures. A normal dispensing pressure is between 3 to 5 PSI however personal preference may be higher or lower. Altitude and temperature are variables affecting PSI. Experimentation will determine personal preferences. The Red Zones on the PSI indicator should be avoided.

Tap Handles

To change tap handles on the spigot, unscrew the top of the spigot (counter-clockwise) and pull off the tap handle assembly. Place tap handle assembly between thumb and forefingers and squeeze together so as to raise white plunger. Slide tap handle off of plunger and replace with selected tap handle sliding the axle points into the cavities in the plunger. Reassemble onto spigot base. **CAUTION:** Do not change tap handles when The Beer Machine is under pressure or full of beer.





The Clamps

Model 2000

The model 2000 has a wrap around clamping system consisting of 2 end clamps and 4 side clamps. Each clamp has a top side (smooth) and bottom side (rough) that meets another clamp to form a continuous clamp around the circumference of The Beer Machine. The side clamps are curved at each end and marked "A" or "B" inside each curve. To install, first slide on each end clamp smooth side up. Then one "A" clamp on each side and then one "B" clamp on each side.

Customer Service Line

If you have any questions or difficulty please call our customer service line by dialing 1-800-663-2739 or fax (604) 464-5672. Our customer service line is open from 8:30 AM to 5:00 PM Pacific Time. For updates and announcements concerning new beer mixes and features, please send in your warranty card.

The Beer Machine Co.
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P.O. Box 41090
Port Coquitlam, B.C. V3C 5Z9 Canada

The Beer Machine Store
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The Brewing Guide

MODEL 1000

MODEL 2000

IMPORTANT

Read Carefully and Completely Before Using THE BEER MACHINE

The Brewing guide has been prepared for those of us who are new to the brewing experience.
Experienced brewers may proceed with these 3 easy steps (shortcuts):

Basic 1 – 2 – 3 Steps

Step 1 ***Complete assembly and perform operating pressure test.*** *(see page 2)*

Step 2 ***Clean and Sterilize The Beer Machine.*** *(see page 2)*

Step 3 ***Begin fermentation.*** *Add water to 1/3 of fill line in The Beer Machine. Add entire contents of The Beer Mix. Add the brewers yeast included with The Beer Mix. Now add water to fill line. Seal the cap and Pressure Control Valve unit. Place in location where The Beer Machine can brew undisturbed for next 3 to 5 days.* **Do Not Add CO_2** *from carbonation unit at this time! Add a small amount of water on top of the pressure control valve (pcv) to observe speed of fermentation. After fermentation is finished (slow release of bubbles through water on top of pcv 3-5 days), place The Beer Machine in a refrigerator for the next 4-5 days, so that conditioning and clarification can begin. Beer clarifies during this period faster in a cold refrigerator. The natural carbonation produced during the fermentation period will now be absorbed into the beer and internal pressure will be reduced. A sampling will indicate amount of effervescence in your beer. You may increase by adding CO_2 from the carbonation unit at this time, or add when serving. Serve on tap or bottle. Enjoy! Cheers.*

Operating Pressure Test

BEFORE BREWING, it is recommended to first test and be certain your installation of seals and parts is correct. This is simple and easy to complete in less than ten minutes.

Fill The Beer Machine with fresh cold tap drinking water to fill line and tighten down the top cap. Wipe dry around where the spigot is attached as well as the main seal and clamps. Create a cup of fine soap suds by using one tablespoon of liquid dishwashing soap, and four tablespoons warm water. Stir to create fine bubbles. Apply solution to the following areas

1) where carbonation unit is attached to The Beer Machine.
2) around the top cap where it fastens to The Beer Machine, and
3) pour a small amount of water onto the top cap (1/4" depth) to cover the 'pressure control valve' "P.C.V."

Pressurize The Beer Machine by introducing two or three small bursts of CO_2. Look for water leaks; if any appear, it is likely due to incorrect installation of/or a missing, washer or seal; reassembly or tightening will be required.

Now test for "gas" leaks. Add more small bursts of CO_2 until bubbles pop from the center of the "P.C.V.", this indicates it is reaching full operating pressure. Observe for bubbles popping over a one to two minute period. None should appear, other than a slow release from the center of the "P.C.V." To complete test, pour out one or two cups of water from the spigot and observe valve closing, (by the absence of bubbles). When satisfied that The Beer Machine is operating correctly, empty contents and proceed to Preparation For Brewing - Sterilization.

If "P.C.V." releases at low pressure or only one or two bursts of CO_2, check to be sure defoamer cup is firmly attached and in position against the neck seal. If bubbles of gas leak around the edges (circumference) of the "P.C.V.", reseal the edges of the "P.C.V." flat against the black lid.

Please note! If bubbles are indicating "air" leakage from any area other than the center of the "P.C.V.", or if water leaks from the main seal or spigot, examine to determine cause. **Tightening a connection or re-seating an improperly installed main seal "P.C.V." will correct the most common faults.**

If an air leak appears where the carbonation unit connects to The Beer Machine, you may tighten the unit by a quarter turn and it will operate as well in the horizontal position. If air leaks appear around the top cap, check to be certain the large flat white ring seal is properly installed underneath the defoamer cup lid, **not** on the top of the lid.

Preparation for Brewing - Sterilization

The Brewing Process is a biological process sensitive to environment and cleanliness.
The Key to successful brewing is absolute Cleanliness of your equipment!! Begin by Cleaning your hands.

Pour in approximately 3 litres or 3 quarts of cold water and add 1/4 cup of chlorine bleach to The Beer Machine (without defoamer disk).

Tighten down the top cap. Tilt The Beer Machine in all directions to swirl the solution around the inside of The Beer Machine. Open the spigot to sterilize float and tube. Remove cap and defoamer cup, place them in a very clean location. Pour out solution and rinse out with chlorinated tap water. Install defoamer disk after sterilization.

Brewing Your Beer

1. **WATER/BEER MIX**. Add room temperature water to The Beer Machine up to 1/3 of fill line. Open and pour your selected Beer Mix into The Beer Machine. Then, add more water up to the fill line (located on the side of the top case half, about 2 inches below the lid). Do not stir.
2. **YEAST**. Empty the contents of the Brewers Yeast packet into The Beer Machine. Do not stir. (If yeast has been hydrated, pour in the solution.) Check that the top cap which fits over the pressure control valve and defoamer cup has the neck seal in proper position as per figure 4. Secure the cap firmly on the top of The Beer Machine.
3. **FERMENTATION**.

(a) Keep The Beer Machine at a constant room temperature until fermentation stops in 3 to 5 days. At a temperature of 68°F or 20°C, fermentation will begin within 12 to 24 hours. **The best results are often obtained with fermentation between 65°F and 72°F or 20°C and 23°C.**

CAUTION:

Overpressurization could result if obstruction of the pressure control valve occurs during a "hot fermentation". If room temperature exceeds 85°F the defoamer disk may not be able to fully protect the

Common Questions

1. Is chlorinated tap water okay? Yes, because it is bacteria free, unlike some well water or spring water.

2. Can I bottle the beer? Yes, a transfer system is available for the beer machine. Please call Customer Service for details or visit www.beermachine.com

3. Can I use other Beer Mixes? Yes, if you adapt the recipe to the size (2.6 U.S. gallons/10 litres) of The Beer Machine and prepare according to the manufacturer's instructions.

4. How long will beer last in The Beer Machine? As long as you keep your Beer Machine in the refrigerator or a cool location your beer will last at least 3 months. Adding CO_2 will improve quality and extend time period.

Helpful Hints

The brewing process is a biological process sensitive to environment and cleanliness. Even in the most sophisticated breweries, occasional fermentations do not perform as expected. Although The Beer Machine was designed to protect the delicate fermentation process, it is possible the unexpected may occur. However, most "surprises" will fall into four main categories: sweetness, carbonation, haziness and sourness.

• SWEETNESS - The Beer Mix contains maltose. Maltose will leave your beer sweet unless it is completely converted to alcohol and CO_2 during fermentation. Sweetness in the beer is always due to a lack of complete fermentation. The proper amount of yeast is important. For this reason we recommend using the yeast supplied with your beer mix. If the fermentation is incomplete or "stuck", the yeast may have been killed by using water too hot to dissolve the syrup or powder. It could also be rendered too sluggish by using very cold water and a cold location for fermentation. Putting The Beer Machine in the refrigerator too early has the same effect. If within the first 24 hours a foaming up, or fermentation "boil" occurs; then the fermentation started well, however if the beer taste is sweet, then the fermentation was likely cut short by cold temperatures.

• CARBONATION - In The Beer Machine carbonation arises from two sources. The fermentation process produces CO_2 naturally and the pressure control valve will trap a substantial amount of this gas. The second, and more obvious source is the CO_2 cartridge provided. If the beer is flat and tastes sweet, part of the problem lies with an incomplete fermentation which would produce less CO_2. If it is not sweet, but flat tasting....The CO_2 could have escaped from an improperly sealing pressure control valve, unsecured cap, or other seal leak. Once the leakage is identified and stopped, additional carbonation can be supplied with the CO_2 injector.

• BEFORE USING THE CARBONATION UNIT, the beer should be refrigerated first as it has to be thoroughly cold to carbonate well.

• HAZINESS - This is caused by either yeast remaining in suspension or a "chill haze". We have worked very hard with our Beer mixes to prevent the latter, so the most likely cause of haze is the lack of proper yeast settlement. Settlement (called flocculation) takes time, and coldness, and requires the fermentation cycle to be complete. Again, if there is residual sweetness, this indicates whether the fermentation was not properly completed. The cure here is a complete fermentation and a long cold storage. Also check to be certain that the float is dispensing your beer from the top of the brew and is attached to the dispense tube. Otherwise you'll be pouring from the bottom of The Beer Machine.

• SOURNESS - This may show up from time to time and is caused by bacteria growing in the beer, thereby producing acid. If your beer tastes slightly vinegary it is certainly bacteria. These kinds of faults may show up in beers kept for a long time, especially if they are warm. Alternatively, The Beer Machine may have been inadequately cleaned and sanitized. A simple chlorine or bleach rinsing prevents disappointments.

• Odd things may also happen, which should be considered. Did you use the yeast provided? Was your water clean municipal or filtered water? Avoid well water unless boiled first because it is untreated for bacteria. Did you leave the vessel open? Did you stir the mix with an unsanitized instrument?

• Water is the main ingredient in beer. If you have a private well, we recommend boiling and cooling water before brewing. Un-chlorinated water contains bacteria that can alter the brewing process. Tap water in city systems is usually fine, but many users of The Beer Machine prefer to use filtered water. "Off - Flavors" (a term used to describe flavors not typical of normal beer) such as sour tastes might arise from contamination with foreign microbes. Off- flavors can also be introduced with water. For example, excessive chlorination or really alkaline water is quite damaging to flavor. **Most poor waters can be improved by simply boiling the water for 5 minutes and allowing it to cool.**

• In spite of all these possibilities, most people enjoy a great beer from The Beer Machine each and every time. - Dr. Michael Lewis, Professor, University of CA.

About Dr. Michael Lewis

Dr. Michael Lewis is one of the Brewing Industries most renowned and respected authorities on the science and industry of modern brewing. A professor of brewing sciences at the University of California at Davis, he has been credited as a pioneer developer of the micro brewery industry. Dr. Lewis is one of only 100 scientists in the world elected a Fellow of the Institute of Brewing and a recipient of the 1985 Award-of-Merit from the Master Brewer's Association of the Americas.

Final Assembly Model 1000

FINAL ASSEMBLY

Slowly lower the upper half of The Beer Machine in an even attitude so that all the edges of the top and bottom halves are aligned and meet at the side interlock tabs.

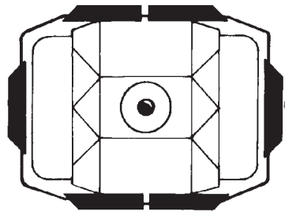
END CLAMPS

End clamps are beveled at both ends, see figure 1, item 3. Side clamps are beveled only on one end. Both are channeled to slide over rails sticking out from the upper and lower case halves of The Beer Machine over the main seal area. Carefully slide on one end clamp and then the other. Confirm that the two halves remain aligned at all corners and sides.

SIDE CLAMPS

The flat end of the clamp is positioned in the middle of The Beer Machine. Install one corner clamp and then the clamp on the diagonally opposite corner. Proceed in the same manner with the remaining two side clamps.

figure 7



For Model 2000 see page 8

Cleaning – After Brewing

To loosen cap and clamps when cleaning between brews, rinse under hot water. Then remove cap and fill the Beer Machine with hot water to loosen and soften sediments. When removing the spigot and carbonation unit an effective way to hold or turn the Retainer nut is to use the end of a clamp. **The carbonation unit should not be put into water.** Clean spigot thoroughly between brews. Open and close while flushing out with hot water and then a bleach flush. Inspect closely for any small particles. The spigot can be disassembled for more thorough cleaning by removing the handle-base. Simply turn the handle-base counter clockwise (it is threaded) and pull to remove. After cleaning, inspect white rubber valve and assemble the spigot turning the handle-base in a clockwise motion on to the spout. Completely disassemble all parts and wash with hot water. Store completely disassembled to prevent microorganisms from gathering in joints. **Do not use abrasives, solventsand never use a dishwasher**.

Safety and Caution

Remember that The Beer Machine, while it is fermenting, is an operating pressure vessel. Although designed with the purpose of providing you enjoyment and safety, accidents are always possible. **Keep out of reach and away from small children or pets, especially during the fermentation period when The Beer Machine is under fluctuating pressure**. Use caution to ensure the pressure control valve does not become contaminated with sediment from a very active fermentation or impeded by obstacles placed on top of it. Defoamer disks can help prevent sediments from reaching the pressure control valve during fermentation. It is recommended that during the first three to four days of fermentation The Beer Machine be placed out of contact from children or pets. Never pick up The Beer Machine by the spigot or carbonation unit while full or under pressure. Always carry by the base.

Social Responsibility

The alcohol content of beer ranges from about three percent to about eight percent by volume. For some people, one beer, while not considered sufficient to cause legal impairment, is sufficient to cause irresponsible behaviour. For others, four beers might result in a blood alcohol level considered to be legally impaired, but might not cause that person to act in an irresponsible manner. Everyone should know and understand their legal limits, their tolerances and their obligations to society whenever they drink alcoholic beverages. Be responsible about how you drink beer, who you offer it to, and how much you offer to others. **It's your social responsibility.** Please observe that pregnancy and alcohol do not mix.

valve from sediments expelled by a "hot" or overactive fermentation. For best results, maintain The Beer Machine at a constant room temperature during the fermentation period and avoid overactive conditions.

During fermentation, do not store The Beer Machine at temperatures above 75°F or 24°C or in the sunlight.

(b) Do not disturb The Beer Machine during the fermentation period. As a precaution, place The Beer Machine in a sink or tub for the first 3 to 5 days. Alternatively, locate a tray underneath The Beer Machine. **DO NOT PLACE DIRECTLY OVER OR NEAR RUGS OR VALUABLES** which may be damaged by an overflow from the safety pressure release or an improperly installed seal.

(c) After 5 days you may check to see if the fermentation has completed by pouring off a small sample and tasting it. If it tastes sweet, the fermentation has not yet completed and you should leave it at room temperature to ferment for an additional 24 or 48 Hours. When you pour your sample it should come out with good pressure. If not, see Helpful Hints (P. 7).

4. **CLARIFICATION**. When fermentation is complete after 3 to 5 days, chill beer for the next 4 to 5 days by placing The Beer Machine into a refrigerator. The cold temperature will clarify and condition your beer. *(Beer clarifies more rapidly and absorbs CO_2 more efficiently at cooler temperatures – 35° F to 38° F.)*
5. **SAMPLE** after tenth day. Add CO_2 from the carbonation unit as needed.

The Continuous Brewing Process

It is possible to continuously brew your favorite beers in The Beer Machine because the design of The Beer Machine makes it a completely closed system. Provided you do not open and overly expose the contents of your Beer Machine to the outside environment where wild yeast cells and bacteria can be introduced, you do not need to clean between brews because you already have the proper environment for brewing inside your Beer Machine. Simply be careful when you open The Beer Machine and add the next Beer Mix and water that you do it in one step, and in a clean environment, and **DO NOT ADD** new yeast. After 3 or 4 continuous brews, drain off half the sediment from the previous brew. We have reports of up to 15 successful continuous brews however we do not recommend more than five or six continuous brews because of the propagation of excessive amounts of yeast cells and the potential for flavor changes.

Pouring and Serving Your Beer

The Beer Machine is a closed and pressurized brewing system which protects the brewing conditions and preserves your beer from "flavor spoilers" in the atmosphere. You can serve fresh beer directly from where it was born so it is as flavorful as possible. By the degree of movement on the spigot handle, you can control the beer head or foam in a glass. Pressure and a small opening will cause more foam. By opening the spigot wider, the pressure will be reduced and less foam or beer head will result. Experiment to determine your preference.

Parts List – Model 1000

1. two halves of the body
2. four side clamps
3. two end clamps
4. main pressure seal
5. spigot
6. spigot retainer nut and 2 washers
7. spigot delivery tube and float
8. top cap with pressure control valve including the neck seal and defoamer cup (as per figure 4)
9. carbonation unit and 8 gram food grade CO_2 soda syphon bulb (not B.B. gun type)
10. retainer nut for carbonation unit, backflow preventer and 2 washers
11. base
12. warranty card and Beer Mix reorder form

CAUTION: All seals and parts are manufactured to food grade standards. Use only The Beer Machine Co. replacement parts. Additional parts may be ordered directly from the company, at 1-800-663-2739.

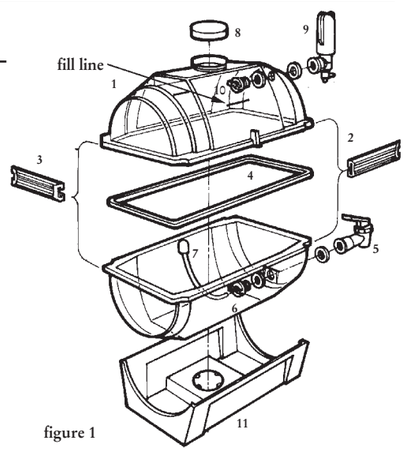


figure 1

Assembly

The Beer Machine is a completely closed brewing system that has been designed to retain the CO_2 that is produced naturally from the fermentation process. This reduces the time period for brewing a naturally carbonated beer and eliminates the need for bottling. Therefore proper assembly and air tight seals are essential. Study the Illustrated diagrams so each part is properly installed.

Spigot, Delivery Tube & Float

Put the washer over the spigot retainer nut. The spigot retainer nut contains a small sleeve to secure the feed tube. Feed the threads through the hole in the lower front panel of the bottom half of your Beer Machine. Place the second washer over the threads now extended through the outside of the bottom half and screw the spigot onto the threads. Locate the spigot to point downward and tighten the retainer nut firmly. **Do not use a wrench**. Insert the tube, with the float attached, into the inside of the spigot retainer nut.

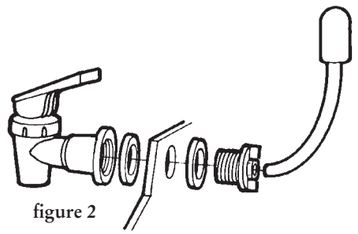


figure 2

Carbonation Unit

(figure 3) Place the washer over the threads of the retainer nut and insert threads first through the hole in the upper front panel of the top half of your Beer Machine. Place the second washer over the threads now extended through the outside of the top half. Insert the backflow preventer into the retainer nut with the flat disk facing into carbonation unit. Attach it by tightening the retaining nut as firmly as you can by hand. To puncture the bulb, screw the cap down over the CO_2 bulb all the way. Do not stop when the bulb punctures, continue to then ***quickly*** turn the cap down all the way. **Caution–the CO_2 bulb is pressurized.** Handle carefully. Use only 8 gram food grade CO_2 bulbs. **The Carbonation Unit may be used after your beer has completed Fermentation and has been in your refrigerator for at least 3 days**.

The carbonation unit serves three functions: taste, preservation, and dispensing.

TASTE. People vary in their desire for effervescence in beer. If you want more effervescence after conditioning, add a single burst of CO_2 by pressing very briefly on the release button protruding from the bottom of the CO_2 unit.

Beer absorbs and retains CO_2 when cold and refrigerated.

Note: the carbonation unit will release partial amounts of CO_2 before freezing. To add more CO_2 you must wait two or three minutes until the carbonation unit warms and the icing condition melts.

PRESERVATION. CO_2 is heavier than air and will in the confined space of The Beer Machine provide a protective blanket over your beer. This will help preserve your beer and protect it from absorbing unwanted flavours resulting from exposure to air.

DISPENSING. After several servings have been drawn from The Beer Machine it is possible to create a vacuum inside the unit and beer will not dispense. To maintain a positive dispensing pressure, add occasional bursts of CO_2 from the carbonation unit. The carbonation unit allows you to maintain a positive pressure inside The Beer Machine. Pressure is best maintained and 'beer head' is created by developing a gentle touch on the spigot when pouring. **Do not add large amounts of CO_2 at one time**. The pressure control valve on the top cap of your unit is designed to release rapid increases or excessive pressures. Add CO_2 only in short bursts periodically. Normal usage is 2 or 3 bulbs per batch.

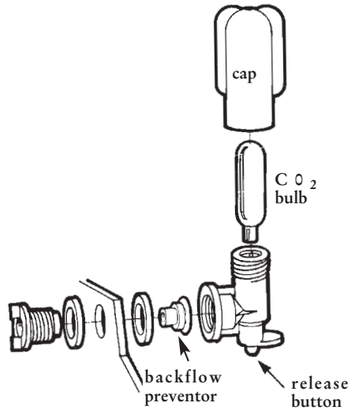


figure 3

Pressure Control Valve

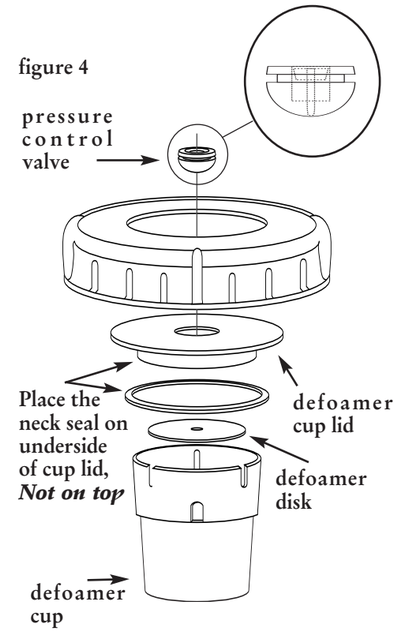
Assemble the 'pressure control valve' as shown in figure 4. **Make certain that the neck seal is placed on the bottom side of the Defoamer Cup lid.** The 'pressure control valve' regulates the release of natural CO_2 gas produced during fermentation.

The Defoamer Cup and Disk are important parts of the pressure control system in The Beer Machine. The Defoamer Cup collects excessive fermentation froth and interacts with the pressure control valve. The Defoamer Disk protects the 'pressure control valve' from fermentation sediments. **Excessive frothing may be caused by very warm temperatures during fermentation.** See Page 2.

The Defoamer Disk is pressed onto the center spike of the Defoamer Cup. A new Defoamer Disk should be used for each fermentation. Defoamer Disks are available from your Beer Machine retail merchant or directly from The Beer Machine Company customer service department or our website store at www.beermachine.com.

The 'pressure control valve' is an important operating part. To remove and replace for thorough cleaning, press downward on the top (flat) side. When re-installing, push the flat side through from the bottom. **The round side is the down side, (see figure 4) and the flatter top side should form a perfect circle when properly worked into place.** When the cup lid is place on top of the Defoamer Cup the center hole of the 'pressure control valve' is positioned tightly around the center spike. As pressure rises the valve moves upward on the center spike releasing pressure and as pressure declines it goes back onto the center spike and closes, sealing in the CO_2. You can see rate of fermentation by placing a small amount of water on top of pressure control valve. Bubbles will signal that the fermentation is active and indicate the degree of activity as well as discharge excess pressure. **Overpressure, if not discharged, may damage or stretch clamps and/or rupture The Beer Machine**.

figure 4



Main Seal

A. First install one corner. (Be sure to press down firmly)
B. Secondly, press in opposite corner.
C. Then press in remaining two corners.
D. After all four corners are firmly in place, gently press the seal directly downward into the grooved channel. Using thumbs, begin at adjacent corners and work towards the center, while gently pressing seal downward along the flat surface of the seal, and into the grooved channel. Do not press on the "wings" of the seal.
Repeat on all four sides

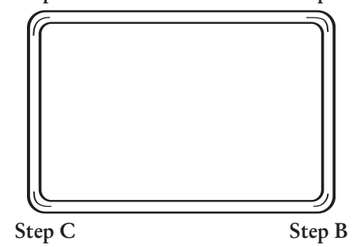


figure 5