



BoilerMaker™

Operation, Assembly and Maintenance Manual

Congratulations on your purchase, and thank you for selecting the BoilerMaker™ brew kettle from Blichmann Engineering™. We are confident that it, and our suite of accessories, will provide you years of service and many gallons of outstanding beer.

**** PLEASE READ THOROUGHLY PRIOR TO USE FOR IMPORTANT SAFETY INFORMATION ****

IMPORTANT!!

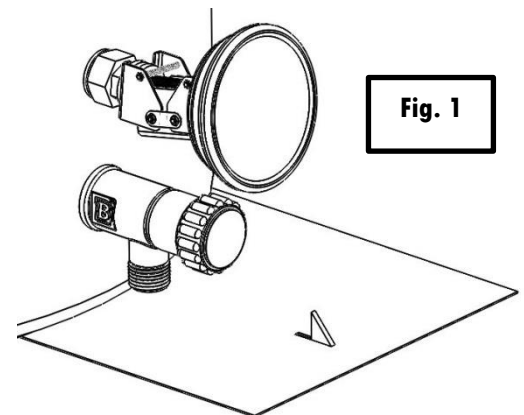
Warning: Sections labeled “Warning” can lead to serious injury or death if not followed. Please read these thoroughly and understand them completely before use. If you do not understand them or have any questions, contact your retailer or Blichmann Engineering (www.BlichmannEngineering.com) before use.

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.

Assembly & Installation:

The BoilerMaker™ brew kettle comes fully assembled except for the BrewMometer™ which is shipped not installed to prevent shipping damage. However we do recommend that you clean the product thoroughly prior to use to remove any traces of manufacturing residue including disassembling the valve.

Caution: As with all bimetal thermometers, excessive heat can damage the seals, causing the dial face to fog. This failure is not covered under warranty. A 10”x6” stainless shield is provided to protect components from heat. Place the shield under the kettle (shown in Fig. 1). Depending on the design of your burner or stand, it may be necessary for you to fabricate a support for the shield. This is not included with the product. In all cases, always keep the flame low enough that it does not roll over the edge of the kettle. **If you cannot hold your hand on the case of the thermometer during operation it is too hot and you must reduce the heat**

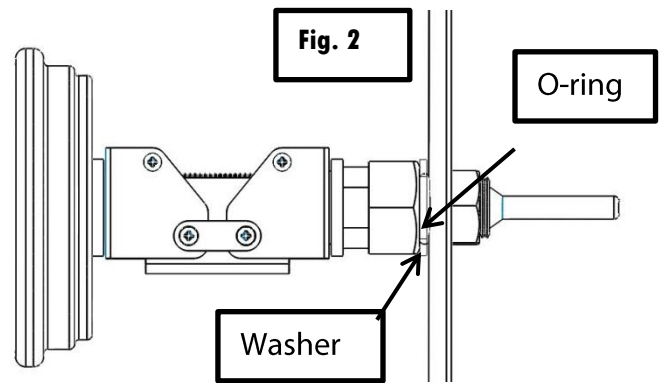


from the burner. Lastly, avoid direct spray of water on the thermometer and do not immerse for cooling or cleaning. Excessive thermal shock can shatter the glass bezel.

Assemble BrewMometer™ (shown in Fig. 2) by tightening the nut snugly (20 ft-lb or 27 N-m) using wrenches on both sides of the kettle but do not use excessive force.

Do not use pipe tape on the threads.

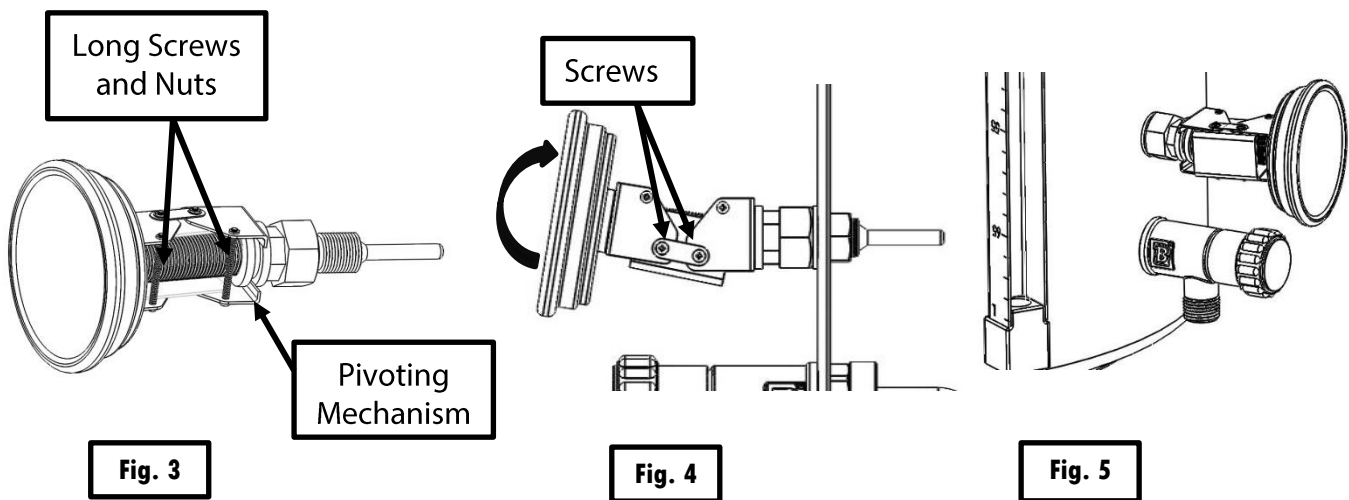
Do not hold by the dial-face – use a wrench!



Caution: Use wrenches on both sides of the pot – do not tighten by holding the dial face of the thermometer or you will damage the thermometer seals! NOTE that the O-ring and retainer go on the OUTSIDE of the kettle. Installing washer and O-ring on the inside of the kettle will cause kettle to leak!!

Adjusting the BrewMometer™ Faceplate

The adjustable faceplate BrewMometer™ (shown in Fig. 3) can be adjusted to virtually any convenient viewing angle. To change the viewing angle, simply loosen the long screws and nuts and rotate the pivoting mechanism to the desired position (shown in Fig. 4). Then move the dial face to the desired viewing angle (shown in Fig. 5). If the pivoting mechanism is too stiff to easily move by hand, loosen the screws on the pivoting mechanism slightly to allow for the proper motion (shown in Fig. 4). Forcibly moving the mechanism may twist the bellows which is not covered under warranty. The temperature reading may shift when adjusting the viewing angle, but this is a temporary phenomenon and will equalize quickly.



Use of the BrewMometer™

Note: The BrewMometer™ manual is included in the BrewMometer™ package. Please consult that manual for use and installation.

Using the BoilerMaker™ Brew Kettle

*** **Safety should be the highest priority of any brewer. Use common sense!** ***

Warning: Do not **IN ANY SITUATION** lift or move any kettle when full **EVEN IF FILLED WITH COLD WATER!** Use a pump or siphon/gravity drain to move liquids from one kettle to another! Pots of this size are extremely heavy when full and lifting can cause back injury and severe burns. The handles are provided solely for moving the **EMPTY** kettle. Do not risk injury to yourself or others to save a few minutes of inconvenience.

ALWAYS brew on a solid non-flammable surface such as concrete to prevent accidental tipping. Asphalt surfaces may soften and settle with heat, so avoid those surfaces as well. Ensure that your burner is stable and the kettle is centered on it.

NEVER brew where children are, or may be present, and never leave your brew kettle unattended.

Caution: As indicated earlier, high BTU burners can cause overheating of the external components. **It is important to ensure that excessive heat from burner is shielded from these components.** Excessive heat can damage the seals in the valve, the valve grip, the BrewMometer™ seals, and cause boiling in the level gauge. These failures are not covered under warranty.

Installation of the Dip Tube

The unique design of the dip tube assembly allows removal/installation without tools. Simply pull the dip tube directly out of the drain fitting for removal. To reinstall, wet the dip tube with water, insert it into the fitting, and rotate it until the pin engages the small hole in the fitting. When properly seated, the tube will “snap” into the O-ring groove and provide an excellent seal. Since the boil kettle is on the hot side of the process, it is not necessary to have these components sanitized before use. Simply having them clean and free of soil is adequate. It is not necessary to remove the fittings or O-rings for cleaning after each use.

If you do want to remove them for periodic cleaning or replacement, O-ring replacement kits are available at your retailer. To reinstall the dip tube fitting, use the following sequence to ensure a tight leak free joint:

Reinstall the O-ring in the inside of the bulkhead fitting after inspecting for tears or cuts. If any are found, replace the seal. Insert the bulkhead fitting into the kettle as shown in Fig. 7a. Then place the large O-ring in the groove on the face of the valve. Turn the bulkhead fitting to thread it into the valve. Take care that the O-ring does not fall out of the groove when tightening. Do not use Teflon tape on this joint. When hand tight, use a wrench on the flats of the valve and a socket and torque wrench on the bulkhead fitting to tighten to 40 ft-lb (54 N-m) (shown in Fig. 8).

Fig. 7a

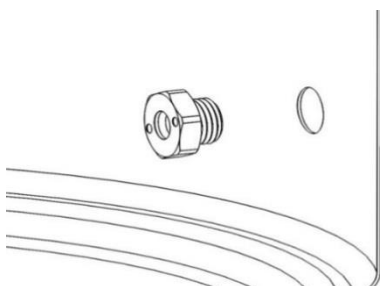


Fig. 7b

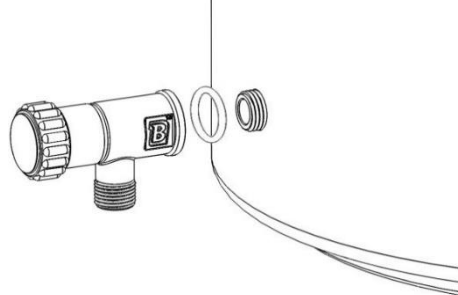
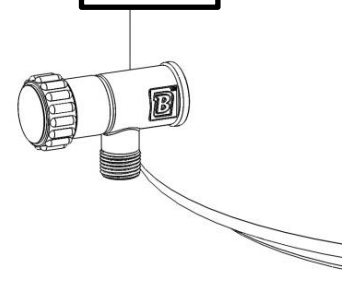
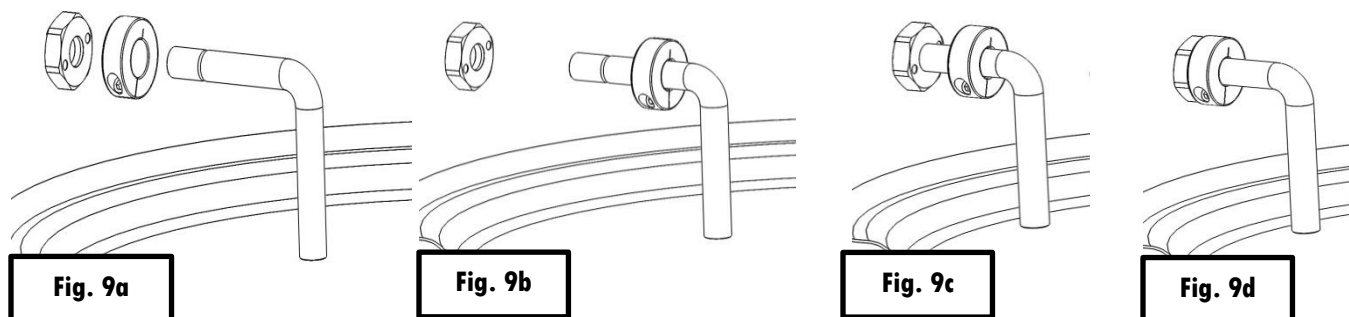


Fig. 8



You will most likely need to re-orient the dip tube after installation. Loosen the set screw on the shaft collar (shown in Fig. 9a-9c) and install the tube in the fitting. When you feel the dip tube snap into place, orient it in the correct position. Rotate the collar on the dip tube until the pin engages the small hole in the bulkhead fitting. Tighten the set screw firmly (shown in Fig. 9d).



Use of the Level Gauge

Warning: Never remove the cleanout screws on the top or bottom of the gauge when the kettle is full. Disregard for this warning can cause severe burns!

Caution: The BoilerMaker™ brew kettle uses a thick wall borosilicate glass level gauge tube that will never cloud, scratch or discolor or break from normal use. The heavy gauge guard will protect the glass from accidental breakage, but care must be taken to avoid impacts to the kettle. Broken level gauge glass is not covered under warranty.

Hops, particularly whole hops, can block/plug the opening of the level gauge affecting the ability to read the level accurately. Bagging your hops in a muslin grain bag is recommended if this becomes problematic.

If you have foaming/boiling wort in the level gauge glass this is a clear indication that there is too much heat reaching the external components and you need to improve the heat shielding to them, reduce heat, or both.

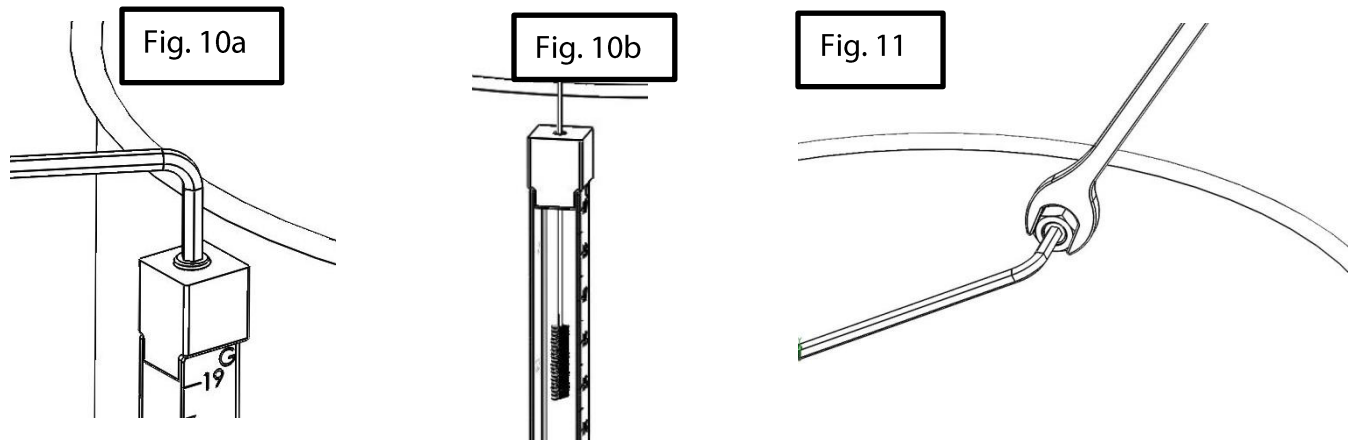
The level gauge is calibrated to reflect the liquid level in the kettle and is accurate to approximately 1qt. for the 10/15/20 gallon BoilerMakers™, and approximately 2qt. for the 30/55 gallon BoilerMakers™. During a full rolling boil, it may be difficult to get an accurate level reading. Turn off heat temporarily to obtain an accurate reading.

To clean the gauge glass after use, remove the set screw in the top and bottom of the level gauge (shown in Fig. 10a) using the ¼" hex wrench provided. Use the included cleaning brush to clean the tube (shown in Fig. 10b). When reinstalling the set screws, **DO NOT** over tighten them! When you feel the set screw make contact with the bottom of the fitting a small amount of torque is all that is needed to make the seal. This will prevent premature failure of the threads or damage to the seals.

If you choose to remove and disassemble the gauge from the kettle for periodic cleaning, take care to place the O-rings in the proper locations. Inspect all O-rings for tears or cuts and replace as needed. Repair kits are available through your retailer.

Reinstall the gauge and tighten the mounting nuts by hand. The set screw should be flush with the face of the nut. Insert the 1/4" hex wrench in the set screw to prevent it from turning (shown in Fig. 11). Use a 3/4" wrench to tighten the nut to 20 ft-lb (27 N-m). **DO NOT** over tighten! A firm pressure is all that is needed to seal the joint. Take care to prevent the end block from rotating, which will crack the glass!

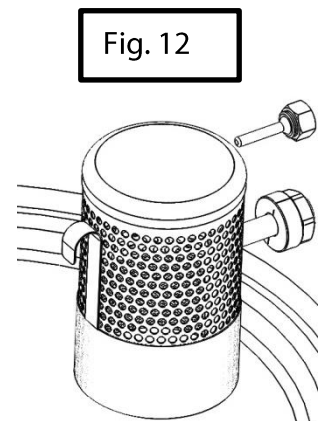
Note: If using metric volumes, remove sight glass gauge and invert, and reinstall for liters scale.



Warning: The handles of the BoilerMaker™ brew kettle are installed at the factory and should not be removed for any reason. Before each use, ensure that the nuts are tight! If you notice a loose nut, tighten it with a torque wrench to 32 in-lb. (3.6 N-m) prior to using the kettle. **Do not** over-tighten or joint could be damaged. If for any reason you have damaged, or suspect you have damaged, a nut/stud **do not** use the product. Contact your retailer or Blichmann Engineering™ to arrange for repair of the kettle.

Optional HopBlocker™

The HopBlocker™ is an optional accessory for the BoilerMaker™ brew kettle and is intended for use as a hop and trub filter in the boil kettle ONLY. It is not suitable or recommended as a mash screen. Please refer to the HopBlocker™ manual for detailed instructions on use and installation.



Optional Mash False Bottom

The button louver false bottom (shown in Fig. 13) is an optional accessory for the BoilerMaker™ brew kettle and is intended for use as a mash filter only. It is not suitable or recommended for use as a boil screen since it will impede the convective flow of a full rolling boil and may lead to scorching of the wort. To install the false bottom, remove the dip tube. Place the false bottom on the stepped bottom of the kettle with the "buttons" facing upward and the support feet down (shown in Fig. 13-14). Note that the 7.5 & 10 gallon false bottoms do not have pins on the bottom. Install the large washer on the dip tube and place the dip tube in the bulkhead fitting (shown in Fig. 14). Position the hole in the false bottom close to the dip tube and rotate the dip tube until it engages the hole, rotating the assembly into place (shown in Fig. 15). Push the dip tube into place and slide the washer down to cover the hole (shown in Fig. 16).

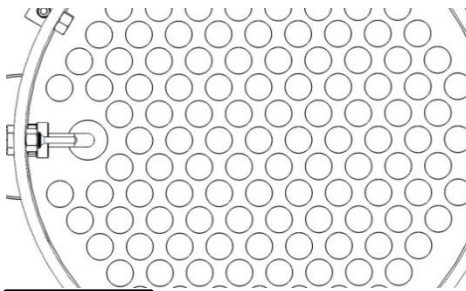


Fig. 13

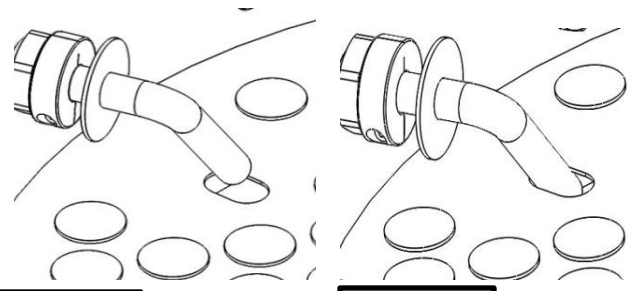


Fig. 14

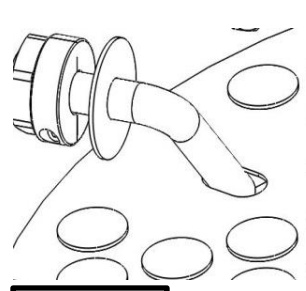


Fig. 15

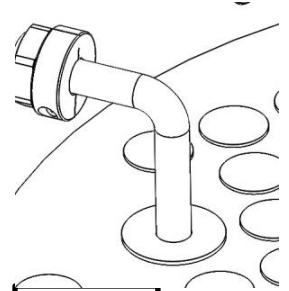


Fig. 16

We recommend filling your mash vessel to no more than 75% of gross capacity. This will allow sufficient space for dough-in and sparge arm. The chart at the end of the manual includes water to grist ratios for reference. The chart also recommends lauter rates to reduce sticking the mash and provide consistency. A typical mash lauter should take 45-60 minutes. Also included in the chart is the max recommended flow rates for RIMS systems in the cart. Of course, each RIMS system and crush will affect flow rate, so you will likely need to experiment with your system.

The button louver false bottom is extremely resistant to plugging, however, most stuck mashes are usually the result of drawing too hard on the mash, causing it to compact and reduce permeability. Too finely crushed malt and air in the mash from raking too vigorously are the most common causes of a stuck mash. Additionally wheat, flaked barley, and oats are particularly problematic due to lack of husks, higher protein and/or gluten content. Rice hulls are recommended for beers with these ingredients.

Note: You can use the level gauge as an indicator that the mash is beginning to stick. If the wort level in the level gauge drops below half the height of the liquid level in the inside of the kettle, you are drawing too hard and should reduce the lauter rate.

If you have stuck the mash, close the valve and gently scrape the compacted grains from the bottom of the mash. Allow ten minutes for the air to dissipate from the mash then vorlauf (recirculate) until the wort clears. Then you may begin lautering again at a reduced rate.

Caution: When doing step mashes (heating the wort with the false bottom in place) it is imperative to **circulate the wort while you are heating**. The false bottom impedes the natural convection of heat to the mash above the false bottom and traps the majority of it below the false bottom. Failure to do so may result in scorching of the wort/grain and possible permanent heat damage to the kettle. This is **NOT** a warrantable failure. To circulate the wort simply drain the wort into a sauce pan while you are heating and pour it onto the top of the mash while gently stirring. Or if you have a pump, you can simply pump from the kettle drain valve onto the top of the mash while gently stirring the mash. You will find that the mash temperature may overshoot or undershoot a bit after the heat is removed, but after a bit of experience you will be able to predict when to stop the addition of heat.

Use of the Linear Flow Control Valve

The linear flow control valve comes preinstalled in the vertical down position. The valve can be reoriented by loosening the internal bulkhead fitting while securing the valve with a wrench. Once loosened, rotate the valve to the desired position, and re-tighten. Always ensure linear flow control valve is tightened prior to use. To open the linear flow control valve turn valve knob counterclockwise slowly until desired flow is achieved.

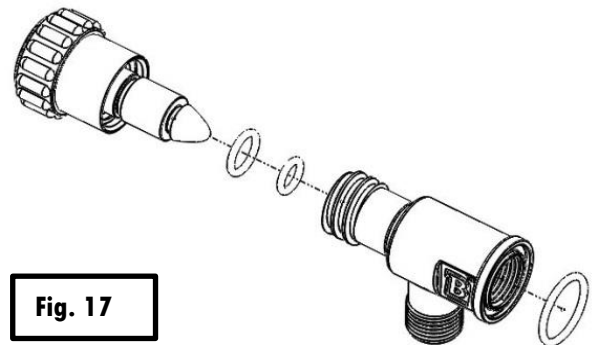
Note: This valve has three positions and provides intuitive feedback to the user.

1. Turned fully clockwise the valve will hit a hard stop. This is the closed position
2. Valve is fully open after three full counter-clockwise turns from the closed position. The thread on the valve body is just visible when fully open. Between closed and fully open is the linear flow range of the valve.
3. Disassembly must only be done with an empty pot. Rotate counter-clockwise until the threads disengage. A slight tug will move the stem into an O-ring detent letting you know the stem is about to come out. Again, confirm the pot is empty before removing the stem.

Warning: STOP turning when you begin to see the threads when draining kettle. Continuing to open the valve will not increase the flow and can result in an unintended release of hot liquid, causing severe burns!

Clean linear flow control valve

Ensure that the kettle has been fully drained and turn the valve counterclockwise until the threads disengage. A careful pull on the knob will “snap” the shaft into a “detent” position, letting you know that the stem has reached the end of travel in the valve body (Shown in Fig. 17). Confirm again that the kettle is empty and pull firmly to remove the stem. To reassemble press stem firmly back into valve body and turn knob clockwise to engage threads and close valve.



Warning: Do not disassemble the valve with liquid in the kettle or severe burns can result!

Maintenance

Immediately after use clean your kettle with a non-metallic scouring pad such as a green Scotch-Brite pad and mild detergent or powdered brewery wash (PBW). Do not use any cleaners containing bleach which is harmful to stainless steel. In addition, **DO NOT** soak your kettle in cleaners or sanitizers for extended periods (1 hr max) to avoid any problems with pitting or galvanic corrosion. Dry thoroughly after cleaning.

BoilerMaker™ Brew kettle							
Models (gal.)	7.5	10	15	20	30	55	100
Recommended Boil Capacity (finished batch size)	5	5	8	10	15	32	64
HLT Capacity (approximate)	7	8	13	17	25	48	48
1.00 qt/lb (Mash Capacity of grain at 75% full)	17	24	37	49	73	134	228
1.25 qt/lb (Mash Capacity of grain at 75% full)	14.3	20	30	41	61	111	190
1.50 qt/lb (Mash Capacity of grain at 75% full)	12.3	17	26	35	52	95	164
1.75 qt/lb (Mash Capacity of grain at 75% full)	10.8	15	23	30	45	83	144
2.00 qt/lb (Mash Capacity of grain at 75% full)	9.7	13	20	27	40	74	128
Approximate lauter rate (gpm)	0.17	0.19	0.25	0.33	0.4	0.55	0.75
Min recirculation rate (gpm) for RIMS	0.50	0.75	1.00	1.25	1.50	2.25	2.25
Kettle dead space (gal.)	0.1	0.13	0.19	0.22	0.28	0.50	0.50
Volume to thermometer stem (gal.)	3.25	4	6.5	8.25	10.25	15	15

Blichmann Engineering Product Warranty

A. Limited Warranty

1. Blichmann Engineering provides a limited lifetime warranty to the original purchaser that this product will be free from manufacturing defects in material and workmanship. 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. This product is for home use only. 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 warrantee 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.