BoilCoil™

Electric Immersion Heater

Assembly, Operation & Maintenance

Congratulations on your purchase, and thank you for selecting the BoilCoil™ electric immersion heater 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, operation, and maintenance of the BoilCoil™ electric immersion heater.

IMPORTANT!!

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

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. Do NOT at ANY time operate the product until you thoroughly read and understand these instructions!

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" are critical to the proper performance and life of the product.

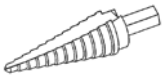
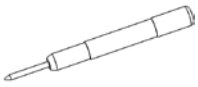
Assembly:

The BoilCoil™ electric immersion heater is packaged unassembled to allow for more economical shipping and to reduce damage in shipment. A list of components included with your BoilCoil™ electric immersion heater follows as well as the basic tools required for assembly. Please carefully review the lists below to ensure you received all of the correct parts and have the required tools prior to assembly.

Parts List:

Item		Quantity	Item		Quantity
Heater Coil		1	Heater Cable Assembly		1
Bulkhead Retaining Nut 5/8-18 Jam Nut		2	S70-208 O-ring		2
Plug Guard		1	Coil Spacer (For 20 gallon and larger heaters)		1-2*

Required Tools:

7/8" Deep Well Socket and Ratchet	
1" Open End or Adjustable Wrench	
#4 Step Drill (McMaster.com P/N 8841A24)	
Automatic Center Punch (McMaster.com P/N 3489A12)	
3/16" Pilot Drill	
Electric Drill	

*Always follow tool manufacturer instructions and safety precautions

Step One:

If you purchased a BoilCoil™ for installation in a pre-punched from the factory Blichmann Engineering BoilerMaker™, please proceed to Step Four.

Installing the BoilCoil™ in your brew kettle requires two 5/8" holes, and it's critical these holes are located properly. Included in this manual is a hole-location template and can be found on the last page. Cutout and affix the hole-location template as per the instructions provided on the template.

After attaching the template, use an automatic center punch to mark the location of the holes on the brew kettle. An automatic center punch can be purchased at most hardware stores and is available from McMaster-Carr, P/N 3489A12.

Caution: Locating the holes accurately is critical to the installation of the heater coil.
Warning: Always follow manufacturer instructions and safety precautions when using hand and power tools.

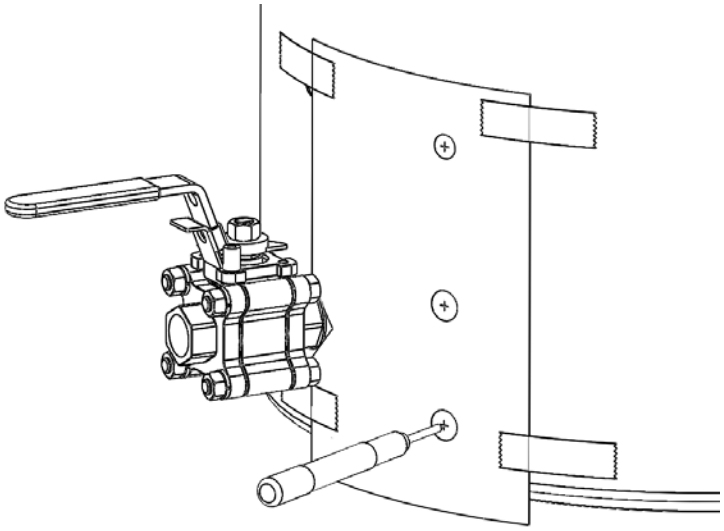


Figure 1

Step Two:

After marking the kettle with the automatic center punch, use the 3/16" drill at moderate speed to make a pilot hole at each center punch mark. Excessive speed will damage dill bits quickly. Make certain the center punch marks are indented deep enough to prevent the drill bit from moving off the mark when you start drilling. If necessary, use the automatic center punch multiple times to increase the depth of the indentation.

Warning: Always follow manufacturer instructions and safety precautions when using power tools.

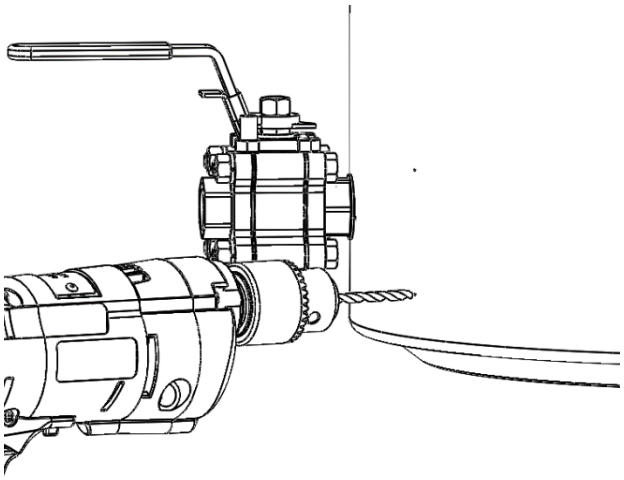


Figure 2

Step Three:

Use the #4 step drill to increase the size of the pilot holes to 5/8". To avoid creating excessive heat during drilling, operate the drill at low speeds. As the size of the hole increases, the required drill speed decreases. It is strongly encouraged to use a variable speed drill.

After the holes are enlarged to 5/8", use a de-burring tool, available from McMaster-Carr (P/N 4289A35) to remove the sharp burrs from the inside of the kettle. Alternatively, you can use the step drill at very low speed from the inside of the kettle and with light pressure to remove the burr.

Tip: Allowing the drill bit to cool between steps will increase the life of the tool and improve performance.

Warning: Always follow manufacturer instructions and safety precautions when using power tools.

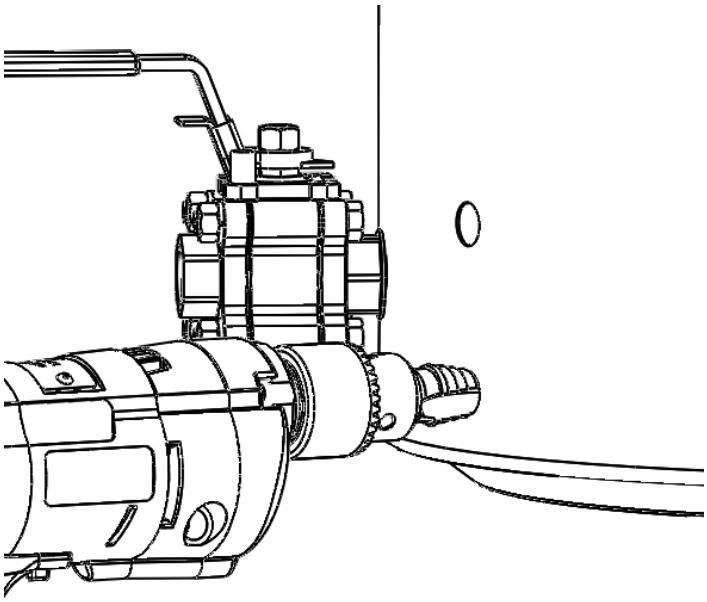


Figure 3

Step Four:

Lower the BoilCoil™ electric immersion heater into the kettle at an angle with the terminal pins pointed downward. Guide the terminal pins and bulkheads through the respective holes.
After the threaded portion of the bulkheads protrude through holes, install the plug protector over the terminal pins and threaded bulkhead. While holding the BoilCoil™ in place, install one bulkhead retaining nut on each threaded bulkhead finger tight.

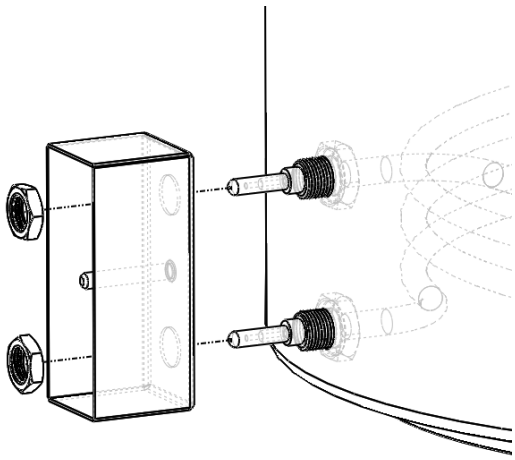


Figure 4

Step Five:

Using the 7/8" socket and ratchet, tighten the bulkhead retaining nuts while aligning the BoilCoil™ from the inside of the kettle with the adjustable wrench.

Caution: Do not tighten bulkhead retaining nut with securing bulkhead with wrench or the heater coil can be permanently damaged. Do not exceed 40-45 ft-lbs. on Bulkhead Retaining Nut.

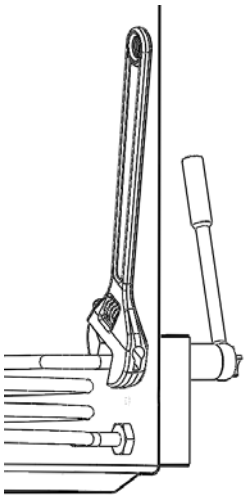


Figure 5

Step Six:

Reinstall the BoilerMaker™ dip tube between the first and second coils of the BoilCoil™ electric immersion heater as shown in Figure 7.

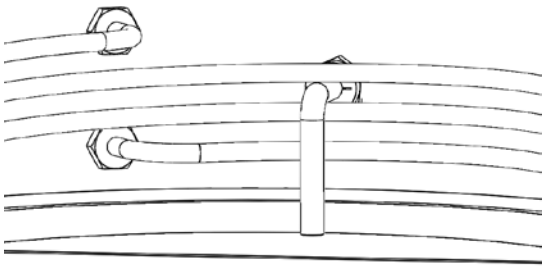


Figure 6

Step Seven:

For 20, 30, and 55 gallon BoilCoil electric immersion heaters, install the supplied coil spacer(s) as shown in Figure 7. Locate the coil spacer opposite the heater bulkheads on 20 and 30 gallon models and approximately 120° away from heater bulkheads on 55 gallon heaters.

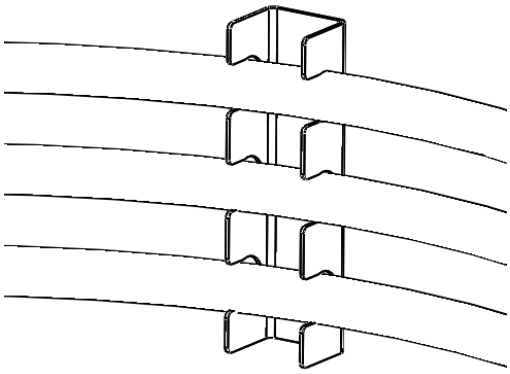


Figure 7

Operation:

Warning: The BoilCoil™ electric immersion heater is only to be used in conjunction with a Ground Fault Circuit Interrupter (GFCI) protected power source. If you are uncertain about the status of your power source contact a licensed and qualified electrician familiar with National Electric Code standards before proceeding. Operating the BoilCoil™ electric immersion heater in any fashion other than described in this manual can result in personal property damage, injury, electrocution or death.

Important: The BoilCoil™ is NOT intended for use in a mash tun! The grain impedes the convective flow of wort and will result in scorching.

Getting Started

The BoilCoil™ electric immersion heater requires the use of a power control device capable of de-energizing the heater coil to safely operate. The BoilCoil™ electric immersion heater was designed specifically for use with the Blichmann Engineering™ Tower of Power electric temperature control module. Although the BoilCoil™ may be compatible with other commercially available brewing controllers, the Tower of Power electric temperature control module provides the ultimate in safety, convenience, accuracy, and precision.

Warning: NEVER plug in or unplug the heater cord when energized. Doing so will result in arc damage to electrical connections.

Before making any connections to the BoilCoil™ electric immersion heater, make certain that the heater coil is fully submerged. Visually verify that the top most portion of the heater coil is covered with at least 1in of liquid before connecting the heater to a power control device.

Caution: Before connecting and energizing the heater coil, verify that it has at least 1in of water or wort covering the top most portion of the heater as shown in Figure Op-1.

Warning: Never energize the heater without the heating coils fully submerged. "Dry firing" the BoilCoil™ will cause the heater coil to reach excessive temperatures which can create a dangerous situation which can result in personal property damage, injury or death.

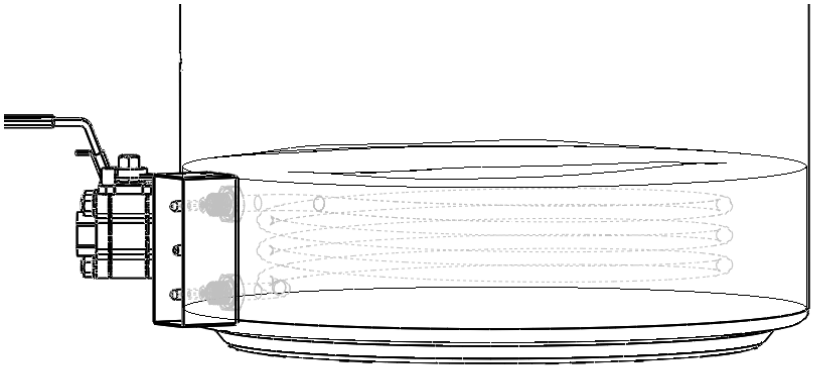


Figure Op-1

Connecting the Heater

First verify the power control device is turned off and disconnected from any power source. Next connect the custom molded plug to the terminal pins of the BoilCoil™ as shown in Figure Op-1. The custom molded plug can be installed with the alternate position screw plug in either the up or down position. After the custom molded plug is connected to the heater, connect the male twist lock connector to the power control device. At this point is safe to connect the power control device to a GFCI protected power source.

Tip: The heater cord can be installed in the alternate position by removing the screw plug and relocating the cable strain relief fitting to the positon for relieving cable and more convenient cable routing.

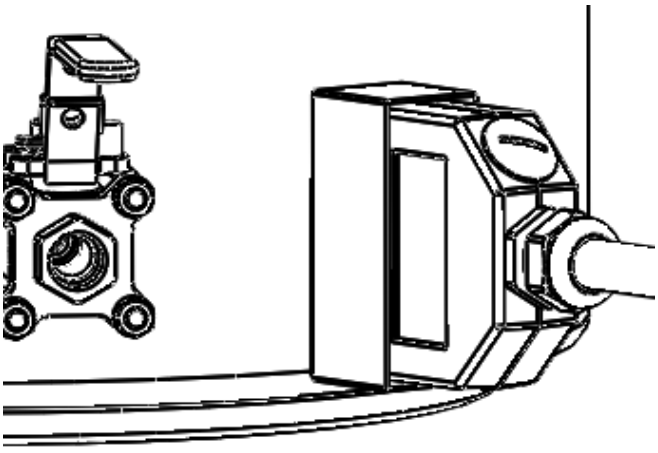


Figure Op-1

Warning: NEVER operate the BoilCoil™ electric immersion heater without the plug protector installed!

Warning: NEVER plug the BoilCoil™ electric immersion heater directly into a power source. ALWAYS use a power control device capable of de-energizing the heater coil.

Heating

The BoilCoil™ electric immersion heater is now ready to be used in you hot liquor tank or brew kettle. Your BoilCoil™ electric immersion heater is designed to provide the optimum performance for the most common batch size brewed in the corresponding size BoilerMaker™. If, however, you choose to brew smaller batches or use the BIAB method, you may very well need to reduce the average power output of the heater coil. If using a Blichmann Engineering Tower of Power electric temperature control module, please refer to the Owner's Manual included with your controller for details on controlling temperature and modulating power.

BrewEasy™

The BoilCoil™ electric immersion heater is the ideal solution for heating your BoilerMaker™ brew kettle with the BrewEasy™ all grain brewing system. Because the liquid temperature is sensed at the pump outlet and not the boil kettle, it is important to turn off power to the BoilCoil™ electric immersion heater when controlling the system temperature and the liquid is not recirculating.

Minimum Operational Volume with BoilerMaker™ Brew Kettle

BoilerMaker™ Size (gal)	Minimum Volume (gal)
7.5	2.5
10	3
15	4
20	5
30	7
55 (one BoilCoil™)	8.5
55 (two BoilCoils™)	17

NEVER:

- NEVER leave this equipment unattended
- NEVER allow children near this equipment
- NEVER heat cooking oil with this equipment
- NEVER operate on soft, uneven surfaces like dirt, gravel, or asphalt
- NEVER use near or with combustible chemicals, gasoline or other flammable vapors or liquids
- NEVER bypass the GFCI circuit protection
- NEVER operate any equipment with frayed or damaged power cables
- NEVER expose electrical connections to moisture

- NEVER connect heater cable assembly directly to power source
- NEVER modify or alter the supplied electrical cables or connectors
- NEVER operate heater with higher than rated voltage
- NEVER unplug heater when energized
- NEVER energize the heater without the heating coils fully submerged.

ALWAYS:

- ALWAYS use heater with rated voltage
- ALWAYS unplug heater when de-energized
- ALWAYS use on level and stable hard surfaces
- ALWAYS connect to a GFCI circuit
- ALWAYS check power cables and connectors for signs of damage or wear prior to each use
- ALWAYS check that all fasteners are properly tightened prior to each use
- ALWAYS use approved control device between heater and GFCI power source
- ALWAYS use genuine Blichmann Engineering replacement parts
- ALWAYS unplug before moving
- ALWAYS allow the brew kettle to fully cool before handling
- ALWAYS wear appropriate personal protective equipment, such as gloves, clothing and footwear to prevent burns and scalds

Maintenance:

Cleaning

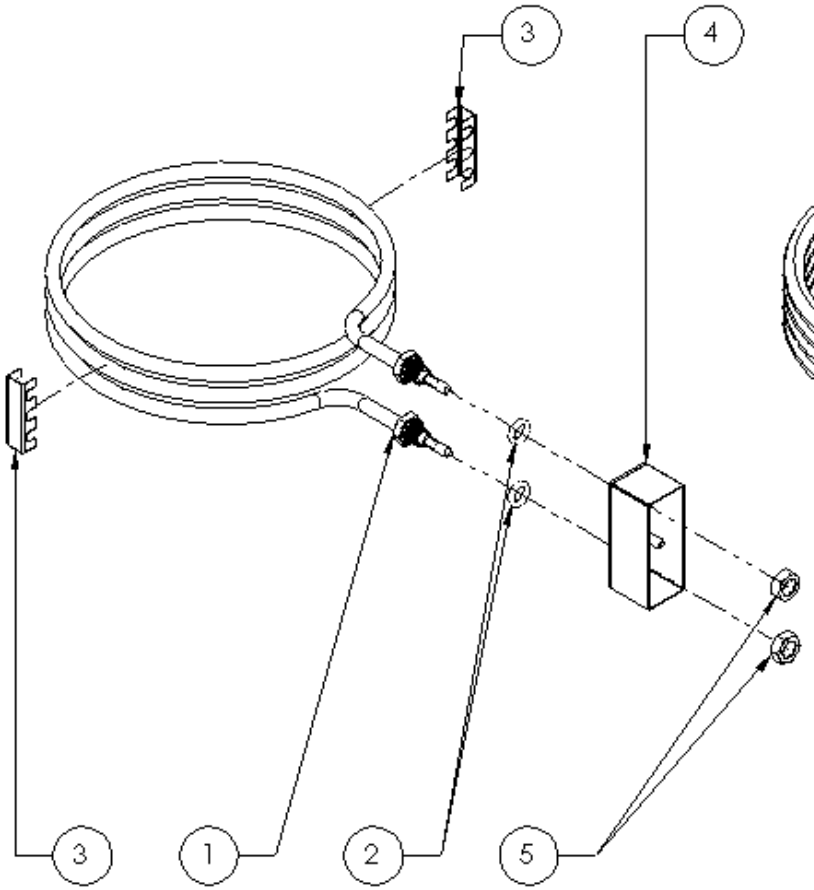
The BoilCoil™ electric immersion heater will require cleaning after use. First confirm the custom molded plug is disconnected from the BoilCoil™ electric immersion heater is disconnected and unplugged from any power sources. Use hot water and Five Star Chemical's Powdered Brewery Wash or similar detergent and a scrub brush or ScotchBrite™ scouring pad to remove any heavy soil deposits. Periodically remove the BoilCoil™ electric immersion heater from the kettle to remove build-up of mineral deposits. If you brew with particularly hard water, you may need to use a weak acid, such as distilled white vinegar, to assist with removing mineral deposits. Incidental contact with water is permissible, however, never immerse the terminal pins of the BoilCoil™ in water or cleaning solutions.

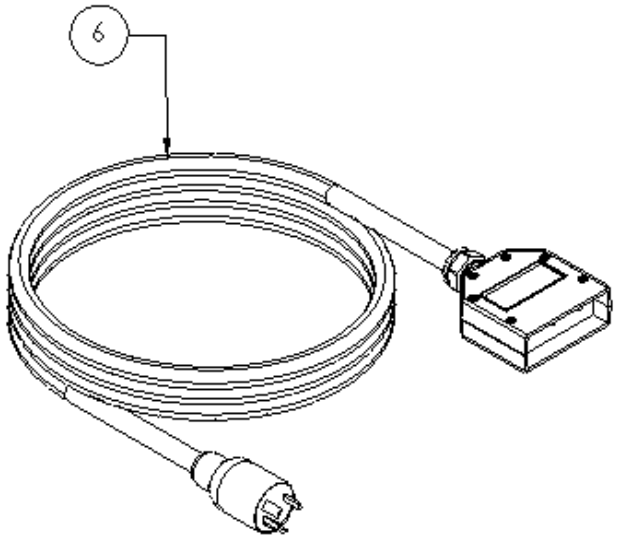
Before and after each use, inspect the BoilCoil™ electric immersion heater, custom molded plug, cable, and connectors for wear or damage. If any of the above parts show signs of wear or damage, discontinue use and contact your Blichmann Engineering™ authorized retailer for replacement parts.

Warning: ALWAYS make sure the BoilCoil™ electric immersion heater is disconnected from all power sources before cleaning.

Warning: NEVER immerse the terminal pins of the BoilCoil™ in water or cleaning solutions. ALWAYS make sure after cleaning the BoilCoil™ electric immersion heater has thoroughly dried before connecting to a power source.

Caution: Never use chlorine bleach or H-Cl acid to clean your BoilCoil™ electric immersion heater. Pitting in the surface of the heater coil and/or bulkhead fittings caused by the use of products containing chlorine or H-Cl acid is not covered under the warranty.





Item NO.	Description	BE Part #	QTY.
1	Heater Coil 7.5 Gal 120V	HTR-007-00	1
1	Heater Coil 10 Gal 120V	HTR-010-09	1
1	Heater Coil 10 Gal 240V	HTR-011-09	1
1	Heater Coil 15 Gal 240V	HTR-015-09	1
1	Heater Coil 20 Gal 240V	HTR-020-09	1
1	Heater Coil 30 Gal 240V	HTR-030-09	1
1	Heater Coil 55 Gal 240V	HTR-055-10	1
2	S70-208 O-ring	BE-000373-00	2
3	Coil Spacer (20, 30, & 55)	BE-000355-00	1, 2
4	Plug Guard	HTR-101-01	1
5	Bulkhead Retaining Nut	BE-000448-00	2
6	Heater Cable Assembly (240V)	BE-000405-00	1
6	Heater Cable Assembly (120V)	BE-000404-00	1

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 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.