



Beginners Electric Brewing Primer

by Adam Shake

March 03, 2017

I know it may seem odd to do a Blog post on the basics of electric brewing on a website dedicated to some pretty advanced hardware, but we all have to start somewhere!

As well, don't fall into the trap of thinking that BrewTroller is only for the electric brewer. The truth is BrewTroller can control any brewery, from electric, to gas, to steam. But this Blog will focus on electric!

So, lets get started! First question?

What is Electric Brewing?

Electric Brewing is a method of brewing that uses electric heating elements instead of a gas burner to heat up liquid during the normal brewing process. It really is that simple!

What do you need?

1. Heating Element - Most commonly a water heater element. Blichman also sells the Boil Coil designed for brewers



2. Element Controller - You can't expect good results if you just plug your element into the wall. You need a way to control it. This is were BrewTroller comes in! Other options include simple PIDs, PLC systems, and even other micro controllers. I know I'm biased, but BrewTroller delivers the biggest set of features for the lowest price!

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3. Temperature Probe - Your Controller has to know what the temp is in your kettles!



4. Solid State Relays - Your controller will use these to turn your element on and off. a Solid State relay is REQUIRED as a mechanical relay can not handle the rapid on/off cycles

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5. Electricity Source - For smaller batches, this could just be a 20 amp outlet in your house, but you are limited do 2000watts or lesss, so very small batches. You can even use your electric dryer outlet for one bigger element if you can get to it. However, if you want to go big, you will need big power. Common 10 gallon rigs need up to 50 amps of power at 240 volts. Time to call the electrician!

What are the benefits of Electric Brewing?

1. More efficient than gas brewing. No loss of heat between the burner and the kettle as the element is submerged

in the liquid

2. Often times cheaper than gas for an entire brew day
3. Quiet - Electric systems don't have the roar of a big gas burner
4. Can be done indoors. No risk of Carbon Monoxide. You do need to deal with the steam though

What safety concerns are there?

Safety is a big concern with Electric Brewing, but its nothing to be intimidated by. The two big issues are:

1. GFCI Protection
2. Propper Wire Guage

I think GFCI protection is common sense, but since you are mixing electricity and water, it is a REQUIREMENT. A GFCI circuit will work to keep YOU from being killed if there is a problem with wiring. Your breaker in the box protects your house and your wire, not you. Thats what GFCI is for!

One simple way to add GFCI protection to your rig is via the use of a "Spa Disconnect" GFCI Panel.



They can often be had cheaply in the off season at big box hardware stores, and give you a sub panel near your brewery with GFCI protection, and probably a 2nd circuit or two for your 110v needs

The 2nd critical aspect is wire gauge. Depending on the amperage you are going to use, it is critically important for you to use the proper gauge wire. Failure to do this can result in wire heating up, and your house catching on fire! This is not good!

You can use a chart like this to determine what you need, or consult an electrician:

| Length (feet) | Current (amps) | | | | | | | | | |
|------------------|----------------|----|----|----|----|-----|-----|-----|-----|-----|
| | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 70 |
| 15 | 16 | 12 | 10 | 10 | 8 | 8 | 6 | 6 | 4 | 4 |
| 20 | 14 | 12 | 10 | 8 | 8 | 6 | 6 | 4 | 4 | 4 |
| 25 | 14 | 10 | 8 | 8 | 6 | 6 | 4 | 4 | 2 | 2 |
| 30 | 12 | 10 | 8 | 6 | 6 | 4 | 4 | 2 | 2 | 2 |
| 40 | 12 | 8 | 6 | 6 | 4 | 4 | 2 | 2 | 1 | 1/0 |
| 50 | 10 | 8 | 6 | 4 | 4 | 2 | 2 | 1 | 1/0 | 1/0 |
| 60 | 10 | 6 | 6 | 4 | 2 | 2 | 1 | 1/0 | 2/0 | 2/0 |
| 70 | 10 | 6 | 4 | 2 | 2 | 2 | 1/0 | 2/0 | 2/0 | 3/0 |
| 80 | 8 | 6 | 4 | 2 | 2 | 1 | 1/0 | 2/0 | 3/0 | 3/0 |
| 90 | 8 | 4 | 4 | 2 | 1 | 1/0 | 2/0 | 3/0 | 3/0 | 4/0 |

American Wire Gauge (AWG)

I fully recomend consulting an electrician, and having them do the install of the panel and any wiring or breakers you need, for your own safety. BrewTroller can not and does not accept any responsibility for a DIY project gone wrong.

IS Electric Brewing for me?

The quick answer is YES! IT really is usable, doable, and approachable by anyone! From small batch apartment brewers, to garage brewers, to even full size commercial brewing, electric brewing is a great option with a lot of control and a lot of benefits! You should consider an electric rig and try it for your self.

If you have any questions, let us know, or head on over to <http://www.brewtroller.org> and check out our forums to answer questions!

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