

KEG KING

35L - All In One
Single Vessel Brewery



Introduction

There is nothing quite like all grain brewed beer. Making beer from extract is a great but when you taste beer that is made from fresh grain it's not hard to see why so many people are making the switch to all grain brewing.

This all-in-one single vessel brewery is perfect for home brewers who are looking to get into all grain brewing. Historically many home brewers in Australia have been apprehensive to get into all grain brewing due to reasons such as:

1. It's too expensive to setup a brewery
2. All grain brewing takes too much time
3. All grain brewing is too technical and complicated to get into

One of our main objectives with this brewery is to address these three issues. This brewery is very good value for money, it's also fast to heat up, use and clean up after you are done. It's also simplifies the all grain brewing process so even a complete novice can brew on this very simple system.

Features/Specifications

1. 2400 watts of power (1900 watt element + 500watt element) for fast heat up time.
2. LED Backlit Display
3. Complete stainless steel construction
4. 1/2inch BSP threaded stainless ball valve
5. Illuminated element rocker switches
6. Digital temperature control
7. Concealed elements making for easier cleaning
8. Malt pipe rack that is easy to use and clean
9. Included stainless steel immersion chiller

Instructions

STEP 1 – Fill The Malt Pipe

The malt pipe is the basket shown to the right which is a cylindrical stainless steel tube with a perforated base. The malt pipe is equipped with small legs on the bottom to raise the malt pipe slightly off the base of the boiler where the elements are.

In order to extract maximum sugars from your grains it's important that the grain is first milled. Milling is best done by a 2 roller Maltmuncher Grain Mill (Keg King Part 5441) and/or 3 Roller Mill (Keg King Part 7421). The grain should be milled to the point to where the kernel has broken open.

The malt pipe can hold up to 9kg of grain but it's significantly more comfortably if you keep the grain to a limit of 8kg maximum. Typically 4kg of grain will be sufficient to make 30litres of beer at about 4-5 % alcohol. Fill your milled grain into the Malt pipe.



Step 2 – Heat Up the Hot Liquor

Hot liquor is the term that brewers use for the water that you start mashing the grain with. In order to start the enzymatic reaction whereby the starches in the grain are converted to sugars its important the correct hot liquor temperature is reached prior to immersing the malt pipe into the water. Typically for a 30L batch we would recommend that you use about 15-20Litres of water depending on what your final gravity needs to be and how much grain you have put in the malt pipe.



After filling water into the unit press the up and down arrow to set the desired set temperature (show to left). Once the desired set temperature is reached hit the set button to set the temperature. Typically most recipes will require you to heat the water up to 70-80C depending on the beer style, the ratio of grain to water and also the ambient temperature of the starting grain. There are various calculators online that you can use to calculate the perfect hot liquor set temp but to

be honest it's not important to stress to much about this as you can always add additional cold water or boiled hot water to increase or decrease the temperature later anyway.

Step 3.1 – Mashing

Once the hot liquor (water) has been heated to the desired temperature place the malt pipe into the hot liquid. Use a spoon to mix in the grain. It's important that no "dough balls" of grain are left in the malt pipe. Be sure to mix thoroughly in order to fully wet the grain. Once the grain is fully mixed with the water start your timer. The mashing process will take about 60 minutes. During this process feel free to

taste the wort. You will probably notice toward the end of the mashing process that the grain has already started to taste quite sweet.

Step 3.2 – Temperature Adjustment

In order to get the most efficient enzymatic reaction to happen in the mash tun it's important that the correct temperature is maintained. Typically mash temperatures between 62 and 67C is ideal. Mash temperature makes a big difference to finished beer style. Lower mash temperatures near 62C will result in lighter beer flavor. Low mash temperatures may suit beers such as summer lagers or blonde beers. High mash temperatures near 67C will result in fuller bodied beers with more residual unfermentable sugars. Styles such as IPAs and Stouts would typically suit a hotter mash temperature. Temperatures can be adjusted in several ways. Cold water or ice can be added to cool the mash if you have overshot the temperature. Hot water can be added to increase the temperature. You can also use the elements on the unit to heat up the temperature. Typically only the gentle 500watt element is required to heat up the mash however for faster movement of temperature the 1900 watt element can be used. If you are using either/both of the elements during the mashing process it's a good idea to recirculate the wort. This can be done by filling up a jug and pouring it back on top of the malt pipe. This will help to even out the temperature in the whole malt pipe as opposed to getting a hot spot right at the bottom where the element is.

Step 4 – Sparge

The sparging process basically is just a process where we use water to rinse the remaining sugars from the grain.

In order to start the sparging process lift the malt pipe out of the boiler. While lifting the malt pipe with one hand use the other hand to insert the support that suspends the malt pipe. (see images to the right).

Once the malt pipe is safely and firmly on the support it's time to start rinsing those valuable sugars from the grain. Sparging can be done with hot water from your tap however to gain the maximum amount of sugars from your grain it's really best if your sparging water is heated up to about 70-80C. Temperatures below 70C will result in sugars being left behind. Temperatures over 80C may result in extraction of unwanted tannins and astringency ending up in your beer. Continue to sparge either until either:



1. The water draining out of the bottom of the malt pipe has reached a specific gravity as low as 1.010. This shows that you have pretty much got all the sugars out of the grain.
2. Alternatively stop sparging once your boiler is full
3. Alternatively stop sparging once the wort in your boiler has reached the correct volume and specific gravity.

Step 5 – Boil

After the sparging process has been completed it's time to start boiling. We need to boil in order to coagulate the proteins, sanitize the wort, isomerise the hops and also drive off DMS. Typically a boil time of 60 minutes is ideal. During the boil it's important to have a vigorous boil to drive off DMS. Over the 60 minute boil period you can add your desired amount and type of hops. Plenty of recipes can be found online or in various books. Hops are generally added to the boil at differing types throughout the boil depending on what characteristics of the hops you are trying to extract. Insert the immersion chiller coil 5 minutes before the end of the boil to ensure that any bacteria on the outside of the cooling coil has been killed.



Step 6 – Chill The Wort

It's desirable to chill the wort as quickly as possible once the boil has been completed.

We have included a stainless steel immersion chiller that is packed with the brewery. This chiller is very easy to use. It's simply a matter of attaching a garden hose to one end(it doesn't matter which end) so cold water flows into the coil and by the time the water exits it will be hot because its drawing heat from the wort.

If you stir the wort while using the immersion chiller this will greatly speed up the process and chill your wort much faster.

Once your wort is down to the correct temperature transfer to your cleaned and sanitized fermenter and pitch the yeast. Be sure not to pitch the yeast before the wort has been completely chilled.