



# BEER KEG SYSTEM MANUAL

**COPPERTUN**  
BREWING ESSENTIALS

## BEER KEG SYSTEM **MANUAL**



Your Copper Tun Beer Keg System has everything you need to get started kegging and dispensing your own beer on tap at home.

## YOUR KEG SYSTEM INCLUDES:

- Two Reconditioned 19 Litre Ball Lock Kegs
- CO<sub>2</sub> Regulator
- Plastic Gas Disconnect (Grey)
- Plastic Liquid Disconnect (Black)
- Either a Hand Gun OR a Fridge Tap
- 3.6 metre length of 5mm gas/beer line
- Stainless Hose Clamps x 4

### You will also need:

- CO<sub>2</sub> bottle
- Converted fridge to hold your kegs
- Tubing for transferring your beer to the keg.
- Clearing cube

## SETTING UP YOUR KEG SYSTEM

### KEGS:

Your keg system contains two reconditioned 19L Ball Lock Stainless Steel kegs. These have a hatch cover for ease of cleaning and filling. They include gas in and beer out valves, and a safety release valve.

### DISCONNECTS:

The kegs have ball lock (snap lock) fittings. The ball lock is made from hardened plastic and works on the same principal as your standard garden hose fitting. They click on and click off for easy connection and disconnection of the beer and gas lines from the keg. The grey disconnect is for the gas (IN) side of the keg and the black one is for the dispensing (OUT) side of the keg.

### CO<sub>2</sub> GAS BOTTLE:

A gas bottle is not supplied with your keg set. Gas bottles are available for hire from your local CO<sub>2</sub> gas supplier. Some of your local gas suppliers will probably include BOC Gases and Air Liquide. There is usually a nominal monthly hire charge and then a charge each time the bottle is filled. The gas bottles come in various sizes, the most common and easiest to handle is the "D" size bottle. This is a bit taller than knee height and weighs less than 20kg. Other sizes are available but can be quite heavy and difficult to move, as well as a bit unsightly.

### REGULATOR:

A full CO<sub>2</sub> bottle holds a pressure of about 5600 kpa (800 psi), which is a lot more than the 250-300 kpa (35-47 psi) you need to pressurise your keg system. The regulator screws onto the gas bottle and reduces the pressure to safe levels. The regulator is adjusted by a knob, setscrew or bolt depending on the regulator supplied.

There are two gauges on the regulator, one displaying the gas bottle pressure and the other displaying the pressure inside the keg. The CO<sub>2</sub> in the bottle starts out as a liquid. The pressure of the gas in the headspace of the bottle will be between 5000-5600 kpa (700-800 psi) depending on the temperature of the bottle.

The pressure gauge on the regulator showing high pressure from the gas in the bottle will only begin to fall when all the liquid is gone, so the best way to determine how much CO<sub>2</sub> remains in the bottle is by weight not pressure. It's a good idea to make a habit of weighing your bottle when you first get it. The bottle will be weighed and stamped when empty. The empty bottle weight is on a tag around the neck of the bottle.

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## PREPARING THE FRIDGE:

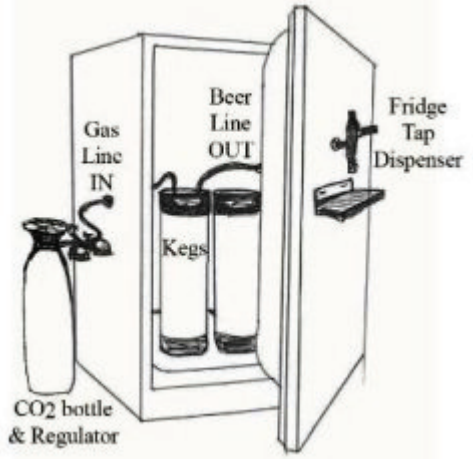
The easiest way of protecting and serving your beer is by storing the kegs in a fridge. Like bottled beer your kegs will need to be kept cold. You may need to remove some or all of the shelves and you may also have to level the base, particularly if it is an older style fridge.

**Important:** Make sure all power is disconnected prior to drilling. Take care when drilling any holes through the walls of your fridge, the wiring systems and cooling systems will vary from fridge to fridge.

Drill a small hole to bring the gas line from the regulator into the fridge. Whether you choose the side or back of the fridge depends on preference and the location of existing wires and plumbing. Try to use a drill bit just large enough to allow the gas line to fit snugly through the hole. Before sealing the gas line check there is sufficient length of line to reach the gas bottle which will be stored outside the fridge. Seal the gas line using a pair of nip end pliers to crimp the hose provided.

If your keg system is going to have a beer gun it's just a matter of cutting the beer line to a length that suits you and attaching the gun to one end of the line and the beer disconnect to the other. The length of line should be between 1.5 and 2 metres long.

If you choose to have a tap, there are more holes to be drilled. If you require the tap to be fitted onto the door of the fridge then make sure there is enough beer line so that the door can be opened fully. If you decide to have the tap fitted to the door, when the back nut is tightened it may collapse the wall of the fridge door. We have found a small length of PVC pipe pushed over the shank of the tap allows the tap to be tightened so that it is secure, without damaging the wall of the door.



## USING YOUR KEG SYSTEM

### FERMENTING YOUR BEER:

Ferment your beer in the normal way. When fermentation is complete add Copper Tun Beer Finings and stand in a cool place. If you're using a Heat Pad turn it off. It will usually take 2 days to settle and for the beer to become bright. When the beer is clear it is time to transfer your beer to the keg.

### CLEANING AND STERILISING YOUR KEG:

Cleaning and sterilizing are not the same thing and it's essential to do both. Cleaning removes the dirt and stains to make equipment ready for sterilizing, and sterilizing prevents nasties ruining your beer.

### **Cleaning your keg:**

Copper Tun Cold Water Cleaner / Detergent is a powerful cleaner, removing dirt, stains and undesirable micro-organisms, restoring surfaces to original condition.

- Release any pressure in the keg by operating the pressure relief valve. Remove the lid and rinse out any remaining beer from the previous batch.
- Fill the keg with 5L of cold water and add a sachet of Cleaner Detergent. Use this solution to thoroughly wash the inside of the keg. For stubborn stains use a brush..
- Top the keg up until it's full and leave to stand for 10 minutes.
- Empty the keg and rinse with cold water to remove detergent residue.

### **Sterilizing your keg:**

Copper Tun No Rinse Sterilizer effectively sterilizes your equipment with active oxygen and breaks down to leave only oxygen, water and minerals found naturally in water. No Rinse Sterilizer is different to conventional alkaline powdered sterilizers as it requires no rinsing off after sterilizing.

- Fill the keg with 5L of Water and add a sachet of No Rinse Sterilizer. Stir thoroughly to ensure all dissolved. Top up with water to within 25 mm of the gas inlet tube (approximately 19 litres). Let stand for 10 minutes.
- Fit the hatch cover and connect up the gas connect to the IN post and the tap to the OUT post.
- Adjust the pressure to 70kpa (10psi) and open the tap to run some sterilizer through the beer line and out the tap.
- Let stand for 5 minutes and repeat process to sterilize the inside of the beer line. Disconnect the gas inlet and release the pressure from inside the keg.
- Disconnect the gas and empty out the keg.

### **TRANSFERRING YOUR BEER TO THE KEG:**

Fit a length of sterilised tubing to your fermenter tap. This tubing should be long enough to reach the bottom of the keg so that you fill the keg from the bottom without splashing the beer. You will notice that there is a tube in the keg running from the top of the keg to the centre at the bottom. This is called the Dip Tube and is used to draw the beer from the keg. There is also another tube that is quite short in length. This is the CO<sub>2</sub> inlet, where the CO<sub>2</sub> is injected into the beer.

Your keg should be filled to approximately 12-25 mm (1/2 to 1 inch) from the bottom of this tube. Any remaining beer can be bottled using 2 Brewcraft Carbonation Drops for each 750 ml bottle, making sure to seal the bottle securely.

Once the keg is full, replace the hatch cover and move keg to the prepared fridge. Assuming your gas line was cut to length it should be long enough to reach outside the fridge so you can connect it to the gas bottle. Turn the gas bottle on and set the pressure on the regulator to between 70 and 100 kpa (10 - 15 psi) and connect the gas line to the keg.

### **PRIMING THE KEG WITH CO<sub>2</sub>:**

You need to purge the headspace of the keg of any oxygen to protect the beer from oxidation. By releasing the pressure release valve, the CO<sub>2</sub> will flow into the keg and the air will flow out through this valve. This is called burping the keg and is best done in three short bursts.

### **CARBONATING:**

The absorption of the CO<sub>2</sub> into your beer can depend on many things, most particularly the temperature of the beer, the pressure at which it is applied and the length of time pressure is applied.

The CO<sub>2</sub> will be absorbed at a faster rate when the beer is cold (the beer will not absorb gas at room temperature) so if you apply 230kpa

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(32 psi) continually for 2 days under normal refrigeration temperature (4 deg. C) your beer should be gassed correctly. Reduce the pressure to the dispensing pressure of 70kpa (10psi) and test for carbonation.

To reduce the pressure in the keg, turn down the pressure on the regulator by unscrewing the adjuster. Vent the keg to reduce excess pressure then slowly screw the adjuster in until the new pressure is achieved. If liquid is forced back into the regulator then it may be damaged beyond repair.

When you are satisfied with the level of carbonation leave the keg at the dispensing pressure and it will not absorb any more gas even under refrigeration.

Remember that the amount of carbonation your beer needs is dependent on several factors:

- Dispensing temperature
- Beer style
- Personal preference
- Type of tap used

Your exact situation may need some trial and error to find what is best for you. For example with an English style Bitter you may prefer a lower rate of carbonation but with a German Weizen you may want it more effervescent. The rate of carbonation is entirely up to you.

If you have over carbonated your keg in error then gas can be removed from the keg. Turn

off the gas bottle and vent the gas from the headspace by releasing the pressure relief valve. Leave the gas bottle off and let stand for 1 hour while you repeatedly release any gas from the headspace. This will release some of the gas that is dissolved in the beer. When you have removed enough gas you can again turn on the gas and test. Repeat if necessary.

## DISPENSING:

Now for the good part - pulling that first beer! First reduce your keg from carbonating pressure to dispensing pressure.

Do this by turning down the set screw on the regulator. If the pressure doesn't come down as you turn the screw you may have to vent the keg using the safety relief valve to release the excess pressure. A suggested dispensing pressure is 70kpa (10 psi).

Even if the beer was clear when you kegged it, you will still get some settlement at the bottom of the keg, so the first glass may be a little cloudy. We suggest pulling a couple of glasses through until it clears. Whether using a gun or a tap always dispense with it fully open, if it is only part way opened you will end up with all froth and no beer. Dispensing, like carbonating, can be trial and error - plenty of practice will see you right!



## HELPFUL POINTS TO NOTE:

To convert kpa to psi

Divide kpa by 7 (7 kpa = 1psi).

Beer matures quicker in kegs than in bottles.

The beer will keep indefinitely in the keg as long as you have been careful with cleaning and sterilising. As the beer is dispensed it is replaced by sterile CO<sub>2</sub>, this protects the beer while dispensing.

To further improve the clarity of your kegged beer, transfer the cleared beer into a clearing cube and store in a fridge for 3 days prior to transferring to the keg. This should be done at the time that you add the finings. This will further reduce any sediment that will be transferred into your keg.



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