



Reflux Still

20 litres

instructions for use



Welcome to the fascinating world of distilling; an 'age old art' and a favourite pastime for many New Zealanders.

On 1 October 1996 the New Zealand Customs Act was changed to exempt people who run STILLs in their own home, for their own use, from paying Excise Tax. Although it is now legal to run a STILL for your own use, it is illegal to sell home distilled spirit.

Using your **Reflux Still** at home, along with **Still Spirits** ingredients, you can produce the finest quality spirits & liqueurs at a fraction of the normal retail cost. Amaze friends with your own home made spirits and liqueurs within one week of begin-ning this fascinating hobby. Full technical backup is available from the distilling specialist at your local Home Brew Store. This **Reflux Still** produces 5-6 litres of 37.5%V alcohol each time it is used.

Stage 1 Sterilisation

1. Everything must be cleaned and sterilised before and after use. This includes the fermenter (pail), airlock and stirrer.
2. For optimum cleaning, we recommend **FermTech Steriliser Cleaner**.
3. After sterilising, the fermenter and equipment should be rinsed several times with cold tap water taking care to run some water through the tap to ensure no trace of chlorine remains.
 - ◆ After rinsing, **seal** the fermenter to prevent any contamination.

Stage 2 Fermenting the Alcoholic Wash

1. Mix 5 kgs of Dextrose, (or thoroughly dissolve 4.5 kgs of Sugar), in 3 litres of boiling water.
 - ◆ Dextrose makes a cleaner spirit and ferments more quickly than white sugar.
 - ◆ Dextrose is easier to use than sugar because it does not need to be dissolved.
2. Pour the dissolved mix into the sterilised fermenter. Then add cold tap water to bring the volume up to the 20 litres mark.
3. When the Wash temperature is between 18° - 25° Celsius, add one sachet of **Still Spirits Turbo Yeast** to produce an alcoholic Wash (mix).
 - ◆ If the Wash is too hot the yeast may be killed or weakened, and therefore may not be able to ferment out all the sugar.
 - ◆ Originally developed for the Swedish market, and containing a mix of yeast and nutrients, **Still Spirits Turbo Yeast** will produce an alcohol which is extremely low in byproducts.
4. Fill the **U** of the Airlock with water and fit to the fermenter to prevent any oxygen, bacteria or insects getting in during fermentation. Within 24 hours Carbon Dioxide should start bubbling through the Airlock, if the brew is working correctly and if the fermenter is sealed properly.
 - ◆ If this does not happen loosen the top and have a quick look inside. The wash should be bubbling and will probably have a foam on top.
 - ◆ A vigorous stir at this stage with a sterilised paddle (not wooden) will speed up fermentation. Stir gently to start with, to avoid a froth buildup.
5. The wash should be fermented between 20° - 25° C.
 - ◆ At a higher temperature, extra by-products may be made.
 - ◆ At a lower temperature, the wash will take longer to ferment, or may stop working altogether.
6. Fermentation will take as little as 3 days.

- ◆ In cooler weather it could take up to 7 days. For the first 24 - 48 hours, heat is generated by the fermentation process. After this period an Analog Heating Pad may be used in cooler weather to maintain the temperature. **Do not use a Heating Pad in the first 24 - 48 hours.**
7. Fermentation is complete when the yeast has used up all the dextrose/sugar. All sign of fermentation should be finished. If in doubt, leave the Wash for an extra day or two.
- ◆ Wash and sterilise the **Wash, Wine & Beer Hydrometer** in cold water.
 - ◆ Drop the hydrometer into the wash, and take the reading where the line of the liquid cuts across the scale on the hydrometer.
 - ◆ The reading should be about 990 on a standard Wash, Wine & Beer Hydrometer.
 - ◆ Remember - Take care when handling hydrometers. They are very delicate.

Points to watch out for.

- a) *If the airlock is not bubbling after 24 hours it is most likely that the fermenter is not sealed properly. With some barrels it pays to use a little Vaseline on the black O-ring. Check you have a good seal by lightly pressing the sides of the fermenter to force some air out through the airlock. When you release the pressure on the barrel the air should try to get back in through the airlock. If sealed properly the water level should remain uneven in the airlock (more water on one side than the other).*
- b) *In some circumstances the yeast can stop working before all the sugar is used. This will be indicated by a final Specific Gravity higher than 990. Any reading above 1005 on a standard Wash, Wine & Beer Hydrometer suggests that something has gone wrong. In most cases a good stir to get the yeast back into circulation should get the Wash fermenting again but in serious cases you may need to add another yeast pack. The most common cause of stuck fermentation is low temperature. In this case simply move the fermenter to a warmer place and stir the yeast up. An inexpensive stick-on digital thermometer, available from your homebrew shop, will help monitor the temperature. If you are having problems maintaining temperature, an especially designed Heating Pad, can be purchased from your local Home Brew shop.*

Stage 3 Distillation

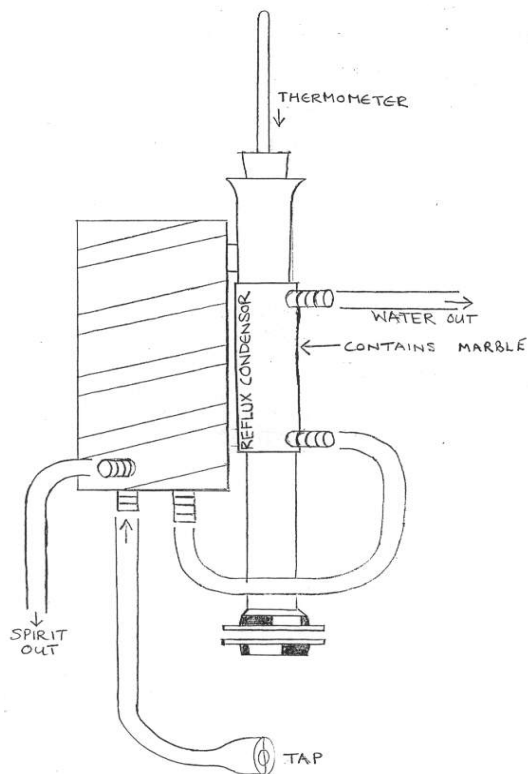
To Assemble a Reflux Still:

1. Fit the Condenser to the Domed lid and tighten securely.
2. Situate the Still on a firm **heat resistant** base close by a cold water tap, drain and power socket.
3. Place the marble into the top of the condenser where it will sit on the indentations on the inside of the Reflux Condenser. Fit the thermometer so that the bulb appears on the inside of the black bung by 20mm. Then fit the bung & thermometer into the top of the Condenser.
4. The lid may not drop down fully into place until the boiler has warmed up and the lid must be removed before the boiler cools down after use. This is because the polypropylene boiler expands and contracts with heat.

Distillation:

1. Pour the 20 litres of wash into the Still.
2. Fit the lid, complete with Condenser and hoses, onto the Still.
3. Plug the element in. When the wash has warmed up, but before thermometer reads 50° C, start the cold water running through the Condenser. **Note** - the lid may not fit into the boiler until the temperature is around 30° or 40°. Gently push the lid down (into the actual wash) as the unit warms up, until the lid sits tightly onto the step which is 75 mm down from the top of the bucket.
4. During most of the distillation process the cooling water flowing through the condenser should be flowing at about 400 mls per minute. To measure the flow fill a calibrated jug from the outlet pipe for one minute.

5. Collect the first 50 mls and discard this. This is the **Head**. It is non drinkable and must be discarded as it may contain trace amounts of Acetyl aldehyde, Methanol, and Ethyl Acetate.
6. Collect 3 litres of the **Body** which contains the Ethanol (drinkable alcohol) at about 70% proof. Make sure that the spirit outlet tube from the condenser stays well above the level of the spirit.
7. The more cooling water that flows through the condenser the lower the temperature in the reflux column, this will show on the thermometer. The temperature of your water also influences the amount you need. (*i.e. In summer you may need more water than in winter when the water is cooler*). The slower the cooling water flows through the condenser, the higher the temperature will rise producing a faster flow of spirit. Running the cooling water at less than 400 mls per minute may result in the lid pushing off. If you run more than 500 mls of cooling water through the condenser then this will slow the process down.



8. The thermometer temperature will slowly rise as the alcohol is boiled off. Increase the flow of water through the condenser to hold the temperature under 92°. The flow will slow toward the end of the distillation.

From a standard 20 litre wash produced with 5 kgs of Dextrose you should collect 3 litres of alcohol at 70% strength in 4 hours. Remember to always measure the strength of your spirit at 16° Celsius or refer to the **Temperature Correction Chart** on page 5 to make the relevant adjustments. Discard the rest of the fermented wash.

Points to watch out for:

- a) *If for any reason the Wash has not fermented completely, (i.e. above 990 SG all the sugar has not been converted to alcohol), then you will not collect the full amount of distillate.*
- b) *If you have not collected the full amount of alcohol, check you have:*
 - ♦ *used the correct amount of sugar/ dextrose in the Wash; and/or*
 - ♦ *the specific gravity is below 990 before distilling; and/or*
 - ♦ *there is no steam leak during distillation.*
- c) *A typical Wash will take about 4 hours to run through the Still. It will take about 1 hour and 35 minutes to heat up before any condensate will run out of the Condenser. It will then take about 5 minutes to collect the Head, about 1 hour to collect 1.6 litres of the Body and 1 hour and 20 minutes to collect the other 1.4 litres of Body. This is a rough guide only.*
- d) *If the flow of water through the Condenser becomes too slow or stops the Domed lid will push off the boiler. This will also occur if the spirit outlet tube from the Condenser, is allowed to drop beneath the surface of the spirit being collected.*
- e) *If the wash is not fully fermented out, then the unfermented sugars can foam causing lid lift and inefficient distilling. Use Distilling Conditioner to increase yield or avoid problems.*