



This tutorial looks at:

Milk Varieties

Milk Temperature

Milk Texturing

Different Milk Density

Steam Wand & Jug Position

Milk Texturing Technique

Zero Waste Management

MILK PREPARATION

Milk-based espresso drinks make up at least 85% of all coffees served in Australia and for a new Barista, learning how to texture milk correctly can be quite challenging and the longest skill to perfect.

In this tutorial, you will learn what tools, you require be a clean and efficient barista, the different milk varieties available and how they perform, the importance of milk temperature, milk texturing techniques, including how to hold the jug and position the steam wand, and finally zero waste management.

TOOLS REQUIRED

Creating perfectly textured milk and good milk management starts with the correct tools, keeping in mind hygiene is important to prevent cross-contamination.

You will need:

- Fresh cold milk
- A selection of jugs ranging from 360ml, 600ml and 1ltr; enough to accommodate different types of milk including dairy and non-dairy such as soy and almond.
- Steam wand cloth.
- Drip tray and bench cloth.
- Microfibre cloth to clean and dry the filter basket.
- Cloth to wipe any drips on the cup before serving.

MILK VARIETIES

There are many varieties of milk in the market today including full cream, light and skimmed dairy milk, plus a growing number of non-dairy substitutes, such as soy, almond, oat, rice milk, coconut, and macadamia milk. Each of these milk varieties respond differently to heat and texture, making your job a whole lot harder.

Full-fat dairy milk is your best friend and is easy to texture and easy to pour. Reduced-fat milk foams up quickly and requires less aeration at the start. They also separate very quickly after texturing and should be poured immediately to avoid this.

MILK TEMPERATURE

When fresh milk is textured and heated correctly it has a wonderful sweetness and a silky mouthfeel, which plays an important part in the quality of the finished coffee.

Dairy milk has a sweet spot between 60-65 °C. Beyond this temperature, the sweetness from the sugar diminishes and the proteins collapse, making the milk grainy. Dairy milk also contains bacteria that thrive between 5-60°C, therefore reheating milk that has been left cooling in the jug can be potentially hazardous. For the bacteria to be killed off and pasteurisation to occur, milk has to be heated above 60°C for a long period. Follow best practices and keep the milk in the fridge, rinse the milk jug every time and **DO NOT** reheat milk.

For non-dairy milk varieties follow the temperature guidelines. Non-dairy milk tends to coagulate and reacts badly with the coffee when overheated, and is especially noticeable with soy milk. Resting the milk for 20 seconds before pouring and sticking to the temperature guidelines will help to minimise this reaction.

MILK TEXTURING

Milk texturing is the process of converting fresh cold milk into a matrix of tiny bubbles called micro-foam. When done correctly the bubbles shouldn't be visible and the milk should be plush, silky, with the appearance of wet paint.

There are two stages involved in creating the perfect milk for espresso-based drinks:

- Stretching (Aeration).
- Texturing (Emulsifying).

The first phase is the **Stretching Phase**, which occurs when steam is injected into the milk, forming a matrix of micro-foam throughout the milk. The key with stretching is to ensure it is completed by the time the milk reaches 40°C

The amount of stretching determines the volume of the finished milk; too much stretching will result in large bubbles and fuzzy foam that is neither silky or glossy; too little and the milk will be thin and flat.

The second stage involves texturing or emulsifying the milk and bringing the milk up to the required temperature for the type of milk being used. To texturize the milk it must roll around the jug in a whirlpool motion, distributing the fine micro-foam throughout the milk. It is important not to break the surface of the milk with the steam wand at this point, otherwise large bubbles will form and it will be impossible to work them out. Keep the steam tip submerged just under the surface of the milk to avoid this.

These two stages work together and when you stretch and texture the milk correctly, it will pour from the jug as one, with no defining layer between the milk component and the foam.

DIFFERENT MILK DENSITY

One Foam Fits All! Actually that's not the case, although some specialty cafes are moving towards this. There are three types of milk density for espresso-based drinks; a flat white requires 5mm of foam, a latte requires a little more and should have a 10mm layer of foam and a cappuccino requires 15mm of foam. The method is the same for each of these drinks, however it's the duration of stretching that will determine the milk density.



Flat White:

A flat white is a single shot of espresso mixed with silky textured milk and topped with 2-5mm of textured foam and the milk for this drink requires the least amount of stretching. As a guide gently stretched the milk for a few seconds until the milk is slightly warm and the milk has expanded by approximately 5mm. At this stage, submerge the steam tip beneath the milk surface and continue to heat until it reaches 65°C.

Latte:

A latte is a single shot of espresso, traditionally served in a glass, mixed with silky textured milk and a 10mm of layer of foam. This drink requires more foam than a flat white and slightly less than a cappuccino. To allow more aeration and more froth to form, hold the tip of the steam wand just beneath the milk surface until the milk reaches 30-40°C or until the milk has expanded by approximately 10mm.

It is a good idea to practice this style of milk first, as it is easy to see your results in the glass. When you are confident and have mastered texturing milk for a latte, it becomes easy to adjust your technique slightly, to create milk texture for a flat white and cappuccino.

Cappuccino:

A cappuccino is a single espresso served in a cup, mixed with silky textured milk, topped with 15mm of foam and lightly dusted with chocolate powder. To texture milk for a cappuccino, stretch the milk until it reaches 38-40°C or until the milk has expanded by approximately 15mm.

STEAM WAND & JUG POSITION

The position of the steam wand in the jug is paramount! The position should encourage the milk to roll around the jug in a whirlpool motion.

There are many ways of holding the jug but it's important to be comfortable and in a position that can easily be repeated.

For beginners and as a general guide, treat the jug like a clock face, where the spout of the jug represents 12 o'clock and the handle is 6 o'clock.

Keep the steam wand as vertical as possible and pointing towards the ground and ensure the base of the jug is flat to the bench.

Insert the steam wand into the jug at 12 o'clock using the lip of the jug to create a point of stability.

Next rotate the jug slightly to the left or right, depending on your preference, repositioning the steam wand just off centre and around 1cm from the side of the jug. This position should enable the milk to roll smoothly in a whirlpool motion. If necessary tilt the jug slightly towards you to control the speed and encourage a smooth rolling action.

The position of the steam tip is also important. The tip should be placed just underneath the surface of the milk. Turn on the steam wand and gently move the jug down so the tip of the steam wand rests on the surface of the milk, drawing in steam, whilst maintaining a good spin. You should be able to hear a slight hissing sound as the air is drawn into the milk. This is the stretching phase of the milk.

If the position of the steam tip is too high, large bubbles will form; to counteract this move the jug up slightly until a gentle hissing can be heard and stretching is controlled. If the steam tip is too low, air will not be drawn into the milk and you will hear a screeching sound. To correct this, lower the jug until you can hear a soft hissing sound. Continue to stretch until the desired milk volume is achieved or until it reaches 40 °C.

Once the milk is stretched to the desired level, drop the tip to the starting position and continue to roll the milk until the milk is hot enough. Turn the flow of steam off before removing the steam wand to avoid breaking the milk surface and destroying the smooth texture created.

Always purge the steam wand before and after texturing, either into a cloth or over the drip tray. This is good practice as it eliminates condensation at the start and milk residue at the end of the process.



Insert the steam wand approx 1cm under the surface of the milk making sure the steam holes are covered before switching on the steam.



Immediately lower the jug so the steam tip is exposed. You should hear a gentle hissing sound. This is the stretching phase of the milk.



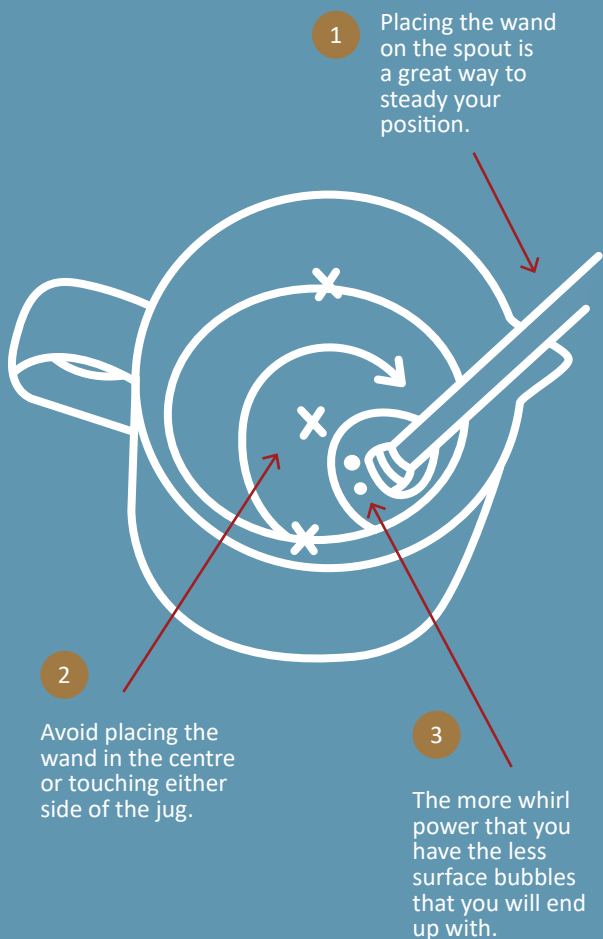
Spin the milk around the steam wand in a whirlpool motion to help distribute the micro-foam throughout the milk and to eliminate big bubbles that have formed.

MILK TEXTURING TECHNIQUE

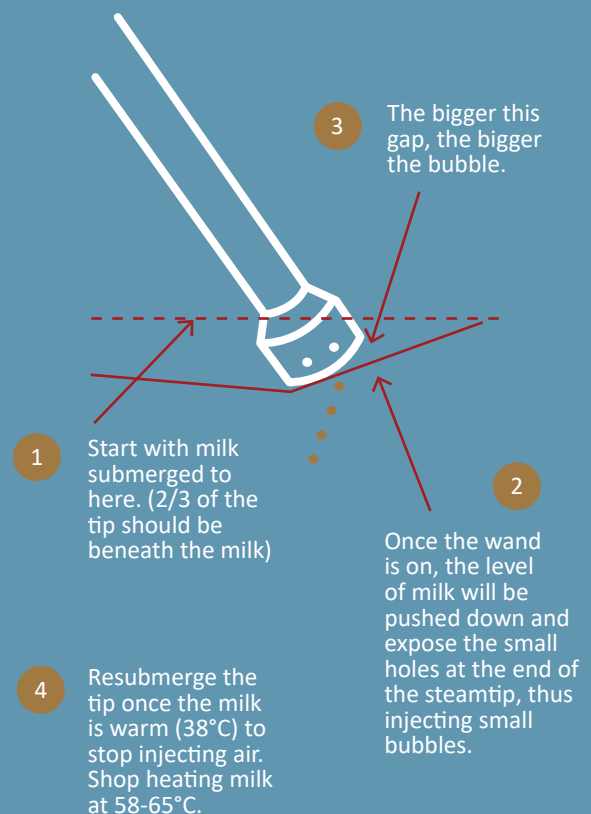
Follow the steps below to create sweet, creamy, texture milk:

- Start with a clean cold jug and cold fresh milk.
- Select the correct size stainless steel jug and fill it with just enough milk for the coffees being made. (Max ½ full as it will overflow).
- Purge the steam wand.
- Position the steam wand correctly.
- Turn on the steam valve.
- Stretch the milk to the desired volume or until it reaches 40°C
- Texture dairy milk to a maximum of 65 degrees Celsius and non-dairy to the specifications.
- **ALWAYS** turn off the steam before removing the jug.
- If using a thermometer turn off the steam approximately 5 degrees before the desired temperature.
- Purge the steam wand.
- Wipe the steam wand with a clean, damp cloth.
- Gently tap the jug on the bench to collapse any remaining surface bubbles and swirl the milk in the jug to create a glossy finish.
- Split the milk into two jugs if required.
- Pour immediately to prevent separation.
- When making multiple cups spin the milk between pours.

Birds Eye View



Profile View





Selecting a milk jug

2 small coffees - 600ml
2 large coffees - 1 Litre

Only fill a jug half full, milk will expand when heated!

ZERO WASTE MANAGEMENT

Managing the cost of goods and waste in a café environment is challenging. With operating costs on the rise, shrinking margins and increased competition, how can you do your part as a Barista to help manage wastage? Reheating milk is not the answer, as bacteria thrives between 5-60°C, nor does it produce quality milk that is sweet and silky.

The solution is simple but again takes practice and determination; selecting a smaller jug and using just enough milk for the drinks on order will not only improve the quality of the milk, it will save time and reduce waste.

Cup sizes and jug sizes vary between cafes but as a general guide, the rule of thumb is to fill the jug to the base of the spout with a variance of 1cm either side of this level.

No of Cups	Cup Size	Jug Size	Level
1	8oz	360ml	Bottom of the spout
2	8oz	600ml	1cm above spout
1	12oz	600ml	1cm below spout
2	12oz	1ltr	Bottom of spout
Combo	8 and 12oz	1ltr	1cm below spout

Key Points to Remember

- Re-heating milk is dangerous.
- Re-heating milk and overheating milk reduces its sweetness and makes the milk grainy.
- Different milk types perform differently and should be textured according to their type.
- Stretching should be completed by the time the milk reaches 40°C.
- Select the right jug for the cup size being used.

QUIZ

What is stretching?

- Heating the milk to 65°C.
 - Heating the milk to 55°C.
 - Incorporating air into the milk creating microbubbles.
-

What is the correct milk density for a Café Latte?

- 5mm
 - 10mm
 - 15mm
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What is the optimum temperature for dairy milk?

- 60-65°C
 - 55-60°C
 - 70°C +
-

What jug size should you select for two large takeaway coffees?

- 1ltr
 - 600ml
 - 360ml
-

What jug size should you select for one regular takeaway coffee?

- 1ltr
- 600ml
- 360ml