

ESPRESSO TRAINING MANUAL



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The Touch Pad

The above picture is a basic touch pad that is found on automatic machines. (Semi – automatic machines will only have a manual pour button/switch)

From Left to Right, Top to Bottom

- A) The first button on top (a single cup with a small amount of liquid measured) is for a single shot espresso. This should be premeasured to run between 18-24 seconds for one ounce.
- B) The second button on top (a single cup with a larger amount of liquid measured) is for a single LONG shot espresso. This should equal 1.5 ounces.
- C) The first button on bottom (a double cup with a small amount of liquid measured) is for a double shot espresso. This should be premeasured to run between 25-30 seconds for two ounces.
- D) The second button on bottom (a double cup with a larger amount of liquid measured) is for a double LONG shot espresso. This should equal 3 ounces.
- E) The PROG/STOP button is used to program the machine (please see manual that came with machine for set up) and to manually start and stop the flow of water that is coming out of the group head.

Please note

Not all machines have the same touch pad. The above touch pad is for learning purposes only. Please look at your manual to see the detail of the espresso machines touch pad



NOTES



Moving Parts of the Espresso Machine

Steam Wand



The **Steam Wand** is used to steam the milk for lattes, cappuccinos, and/or steamers. The steam wand is used by turning/shifting the knob/lever to open the valve that releases the steam. The steam comes from the boiler inside the machine. The boiler can reach 200 + degrees causing pressure to be built up.

There could be one or two Steam Wands located on the machine. They are located on the right and/or left of machine. A knob or lever will be in the same location as the Steam Wand.

Please be careful when releasing the steam from the steam wand. These temperatures are very hot. Make sure that steam wand is submerged into milk before it is in continuous use.

Hot Water Valve

The **Hot Water Valve** is located either on the left or right side of machine. This is used to make hot tea and americanos, as well as to cycle water in boiler (this should be done occasionally to keep the water fresh).

Unlike the group heads, the water that comes out of this wand comes directly from the boiler. The temperature of the water that comes out is above 200 degrees. Be careful using this feature. It may splatter and cause severe burn.

Steam Wand Knob/Hot Water Knob



The **Steam Wand Knob** controls the flow of steam/hot water. Turning the knob will open up the valves to release the steam/hot water. The number of turns will determine the speed or flow of steam/hot water. Make sure that the knob is completely turned to the off position before leaving the machine unattended. If the knob is not turned off completely, the machine will lose pressure and/or hot water, causing strain on the heating components of the machine and wasting electricity.

Portafilters



Portafilters are used to extract the ground coffee, and later to clean the group heads. These should be left in the group head when not in use.

Check List

Please make sure that the proper accessories are available:

1. **Portafilters** – Single, Double, Triple portafilters are used to measure out the appropriate dosage of espresso shots.
2. **Blind filter** – A special portafilter basket, without holes, used to backflush the group heads during cleaning process.
3. **Espresso grinder** – An espresso grinder allows for precise adjustments to the grind.
4. **Tamper** – This is used to pack the finely ground coffee into the portafilter.
5. **Espresso Shot Glasses** – These are used to place under the pour spout of the portafilter while extracting the espresso.
6. **Frothing pitcher** – This is used to froth milk. These range in size to reduce milk waste and ease the steaming process.
7. **Thermometer** – This will attach to the inside of the frothing pitcher with a clip to give you accurate temperature.
8. **Jigger** – If flavored syrups are used, this is a great way to measure ½ and 1 ounce increments.
9. **Finishing Cup** – This could be paper, glass or porcelain. This is what the final product will go into.
10. **Wet cloth** – This is for cleaning steam wands before and after each use.
11. **Dry cloth** – This is used to keep your work area and portafilters clean and dry.

Please Note

Some machines might require additional accessories. This is for the most common espresso machines. Please look at manual for additional accessories.



NOTES

Getting Started

A good barista uses all five senses while behind the bar. Be aware of the sound of the espresso machine while steaming and pulling shots. Know what the drinks should look like. Learn the feel of the correct temperature in case a thermometer is missing. Taste the drinks (not the customers of course). Be aware of the pressure while brewing. The pump pressure should reach 8-9 bar during the brew process. Steam pressure should range between 1 and 1.5 bar. If something does not sound or look right contact a trained professional to prevent any serious damage to the machine.

Milk Steaming

Latte:

- Pour measured amount of cold milk into the steaming pitcher that is the most appropriate. Clip thermometer onto the side. Pre measurement is essential because milk is the most expensive component going into the drink.
- Before steaming, be sure to clean steam wand. Give the steam wand a quick blast into a wet cloth to purge any water that may have accumulated.
- Place the steam wand into the pitcher until the head is completely submerged. Keep the wand close to the side of the pitcher but not touching. The wand should be at a slight angle. This angle will help create a swirling motion in the milk while steaming, which helps with producing micro foam.
- Open the steam wand knob/lever. The milk will begin to move in a circular motion.
- Once the milk begins to swirl, lower the pitcher slightly to allow the infusion of air. For 12 oz lattes, only 3-5 seconds of air infusion is needed (this varies with every machine) . It is important to do this at the beginning of the steaming process to allow the air to evenly disperse throughout the milk and allow time to fold in or smooth out any large bubbles.
- Throughout this process, please make sure to check the thermometer. Once the thermometer has reached 140 degrees shut off the steam wand. The thermometer has a delay and the temperature should continue rising to about 155 degrees. A little hotter is fine, but remember that milk scalds at 185 degrees and is no longer servable.
- Lattes should take 18 to 34 seconds to steam, depending on the size of the drink.
- Once done with the steaming of the milk, take the steam wand out of the steamed milk. Wipe clean with a wet cloth and give the steam wand one more blast. This will purge the wand of any milk that may be in the wand. (If the milk is left inside the steam wand, it will cook inside the steam wand and cause the steam wand to work improperly.)
- Take the pitcher of steamed milk and tap it against the counter and give it a couple swirls. This will rid the drink of any oversized bubbles and keep the milk and micro foam from separating and allow for easier pouring.
- Evenly pour over a freshly brewed espresso shot. If the milk was measured correctly, there should be little to no excess milk in the pitcher. If you are pouring into a glass mug, separation of milk and foam will be visible a few seconds after pouring. A standard latte should be about 1/5 foam.

Cappuccinos

- Pour measured amount of cold milk into the steaming pitcher that is the most appropriate. Clip thermometer onto the side. Pre measurement is essential because milk is the most expensive component going into the drink.
- Before steaming, be sure to clean steam wand. Give the steam wand a quick blast into a wet cloth to purge any water that may have accumulated.
- Place the steam wand into the pitcher until the head is completely submerged. Keep the wand close to the side of the pitcher but not touching. The wand should be at a slight angle. This angle will help create a swirling motion in the milk while steaming, which helps with producing micro foam.
- Open the steam wand knob/lever. The milk will begin to move in a circular motion.
- Once the milk begins to swirl, lower the pitcher slightly to allow the infusion of air. For 12 oz cappuccinos, 7-12 seconds of air infusion is needed(This varies with every machine). It is important to do this at the beginning of the steaming process to allow the air to evenly disperse throughout the milk and allow time to fold in or smooth out any large bubbles.
- Remember that once the milk begins to foam, the milk expands. As the milk begins to rise, slowly lower the pitcher to keep the steam wand slightly submerged.
- Throughout this process, please make sure to check the thermometer. Once the thermometer has reached 140 degrees shut off the steam wand. The thermometer has a delay and the temperature should continue rising to about 155 degrees. A little hotter is fine, but remember that milk scalds at 185 degrees and is no longer servable. PLEASE NOTE: Cappuccinos heat faster than lattes and should take less time to steam.
- Cappuccinos should take 12 to 20 seconds to steam, depending on the size of the drink.
- Once done with the steaming of the milk, take the steam wand out of the steamed milk. Wipe clean with a wet cloth and give the steam wand one more blast. This will purge the wand of any milk that may be in the wand. (If the milk is left inside the steam wand, it will cook inside the steam wand and cause the steam wand to work improperly.)
- Take the pitcher of steamed milk and tap it against the counter and give it a couple swirls. This will rid the drink of any oversized bubbles and keep the milk and micro foam from separating and allow for easier pouring.
- Evenly pour over a freshly brewed espresso shot. If the milk was measured correctly, there should be little to no excess milk in the pitcher. If you are pouring into a glass mug, separation of milk and foam will be visible a few seconds after pouring. A standard cappuccino should be about half foam.

Re-steaming Milk

- Re-steaming milk is not recommended, but can be done once and only once. Always ensure that at least half of the milk for each drink measurement is fresh and cold. Pre measurement is essential because milk is the most expensive component going into the drink.

Common Mistakes While Steaming Milk

- ❖ Large bubbles in the milk
 - This is often caused by the head of the steaming wand coming too far out of the milk. This will introduce too much air too fast. It is also possible that the head of the steam wand was not fully submerged into the milk when the steam wand is turned on. Be sure that the head is completely submerged before turning on the steam wand. Check that the steam wand is submerged past the seam where the head screws on the wand.
- ❖ Not creating the swirling motion in the milk
 - The swirling helps ensure even heating of the milk and will also help break down some larger bubbles in the process.
- ❖ Loud Screaming noise while steaming
 - Not enough air introduced while frothing. You need to introduce just a bit more. The noise can be created by too much pressure inside the milk and can be a sign of damaging the sugars in the milk while steaming it.
 - Another cause of the noise is getting too close to the walls of the pitcher. This can cause a high pitched sound caused by harmonic resonance between the two metals.
- ❖ Wrong milk pitcher
 - Using a pitcher that is not large enough will cause milk to spill over the edges as the milk expands and swirls.
 - Using a pitcher that is too large will often result in large bubbles. This is because the steam tip cannot always reach far enough into the pitcher and it is much harder to create an even swirl.
 - Milk should reach about half way up a pitcher before steaming if the pitcher is correct.
- ❖ Improper temperature
 - Proper temperature comes with practice. Use the thermometer.



NOTES

Espresso

One important thing to note about espresso: It is volatile! Once ground or brewed the quality begins to go downhill rapidly.

- Buy espresso Whole Bean
- Grind Espresso fresh
- Ground espresso will become unusable after only 15-20 minutes.
- Once ground, espresso has greater air exposure and begins to stale faster.
- It is very important to grind only enough beans for each espresso drink.
- After espresso is brewed, it takes as little as 13 seconds for the espresso to go flat or become bitter.
- Once introduced to milk or flavored syrups, the life span goes up greatly. Remember: Syrups are added to the cup before espresso is poured.
- Always dose espresso into a hot, dry portafilter. Keep a clean portafilter in the group head to ensure that it stays hot. It is possible to heat a cold portafilter with hot water, just be sure to dry it before adding grounds.

Pulling a Shot

Dosing and Tamping

- Ensure that there are not old grounds in the dosing chamber.
- Place a dry hot portafilter into the dosing slot underneath the grinder and turn the grinder on for a few seconds to get some grounds into the dosing chamber.
- Pull the dosing lever all the way forward and carry it all the way back until it stops (don't let it slap back as this will damage the return spring, its expensive to replace and important to proper dosing). The first few pulls may not result in much as the espresso has not made it around to the dispensing hole but don't worry, it will get there by the third pull.
- Overfill the portafilter slightly and then using the lid of the doser or your finger, distribute and level the grinds across the top of the portafilter, wiping any excess back into the dosing chamber.
- Use a dry tamper to gently press down evenly on the grounds with 20- 30 lbs of pressure. Take the tamper off and gently tap each side of the portafilter once with the side of the tamper (Never use the bottom of the tamper. This can mangle the smooth surface which is important for an even tamp).
- Place the tamper back onto the portafilter and with firm even pressure push down on the grounds (about 30-35 pounds of pressure). Even pressure is important so as to ensure the grinds lay level in the portafilter.
- After finishing the final tamp, give the tamper a slight twist smooth the coffee grounds.
- Once tamp is finished, brush off any excess grounds from the top, ears, and handle of the portafilter. This prevents any grounds from falling into the shot glasses. Be sure not to irritate the tamped espresso.

Brewing (or pulling) Espresso

- Place the portafilter into the group head – the ears or cleats on the portafilter correspond with notches inside the group head and allows it to lock into place. To get the portafilter in, turn the handle a little left of center (where center is pointing straight out from the machine) before trying to place it into the group head.
- Push the portafilter up into the group head until it hits the rubber gasket inside the group head and then turn the handle to the right until it is pointing straight out. The filter should fit snugly and not wobble – over tightening will cause damage to the group head gasket and under tightening will cause leaks which will adversely affect the brewing process.
- Press the appropriate button to begin brewing the espresso. Note that there are five buttons directly above each group head. The first four buttons are programmed to shut off after pulling the appropriate amount of espresso. The fifth button is a continuous pour button or program button and will not shut off automatically.

Adjusting the grind

- ❖ This is one of the most important and often overlooked steps in creating great espresso. It should be done throughout the day in accordance with the timing of each shot.
 - If shots are coming too fast the grind needs to be finer.
 - If shots are too slow the grind needs to be courser.
- ❖ There are many reasons why the grind needs to be changed throughout the day.
 - The humidity changes.
 - The barometer changes.
 - When changing baristas (A single barista should be assigned to the duty of dosing and tamping).

How to adjust the grind

There is a fine adjuster knob or ring on every espresso grinder. There should be an arrow indicating finer or courser adjustment direction on or near the adjuster.

- Only make minor adjustments. Pull a test shot after each adjustment.
- Only make adjustments while the grinder is running (this is to prevent the burrs from becoming locked).
- Do not change the way you dose or tamp if your extraction time is off. Always adjust the grind instead.

Things to look for while pulling a shot

❖ Crema

- Crema is the reddish-blond foam on top of the espresso. It should be a rich dark caramel color and will often have “rust” visible on top. During the brew process “blonding” is visible after 4-7 seconds on a good shot. If there is no crema, the shot is bad. The crema is a layer of micro bubbles and is where all the rich texture and flavor of the espresso is located.

❖ The “Tale of the mouse”

- While the shot is pulling it should have a slight arch inward from the lip of the pour spout. A good shot often has the same characteristics of a mouse tail. It will be thin and often times it will wriggle slightly. If there is no tail or it is thick then there is a good chance the shot will pull too fast and be under extracted. If it is too thin or dripping, the shots will take too long and will be over extracted. Over extracted shots taste bitter while under extracted shots often tastes very sour.

Common mistakes that cause a bad shot

❖ Old/Stale grinds

- Grinds left in hopper too long.
 - Remember to grind only enough for each drink.

❖ Improper volume of liquid

- Machine may not be programmed correctly
- If using a manual or semi automatic machine the barista is stopping the pump at the wrong time.

❖ Improper dosing of grounds

- Not dosing enough
 - This may cause the shot to pull too fast resulting in under extracted and weak espresso
- Dosing too much
 - This may cause the shot to pull too slow resulting in a bitter espresso.
 - This will also not allow enough room between the brew screen and the portafilter causing grounds to clog the screen and can cause damage over time if done consistently.

❖ Improper Grind setting on grinder

- See *“Adjusting the grind”* and *“How to adjust the grind”*

Cleaning the Espresso Machine

Group Heads

- Take a portafilter (single or double) and replace the filter basket with a blind filter (a solid basket with no holes).
- Take the blind filter and place a dime size amount of espresso cleaner (Caffiza, Pulicaf, Purocaf) in it.
- Place the portafilter into the group head that is needed to be clean.
- Press any of the five buttons to begin cleaning. Count 10 seconds and turn off.
- Count 10 more seconds while the machine is at rest. After 10 seconds, press any of the five buttons to continue cleaning
- Repeat this 5 times for each group head.
- After the fifth time, empty take out portafilter and empty the blind filter.
- Place the portafilter back into the group head. Now it is time to rinse the group head. Repeat the 10 seconds on, 10 seconds off five more times.
- Once all the steps have been done, take the blind filter out of the portafilter and replace it with the correct basket (single or double)

Portafilters

- Take a flat head screw driver or the tip of a spoon and pop out the filter basket, this will allow us to clean both the portafilter and the filter basket. Build up inside the portafilter can affect the taste of the espresso and make for a bad tasting drink.
- Soak portafilter and basket in a solution of espresso machine cleaner (Caffiza, Pulicaf, Purocaf) and hot water, leaving handles out (Note that these cleaners are caustic. They can corrode the plastic handles over time). Soaking time can range from 5 min to over night.
- Rinse before reassembling.
- To place the filter basket back onto the portafilter, simply place the filter basket into the portafilter and press down firmly until it snaps into place.
- Remember to reinsert portafilters into the groupheads to ensure proper heat.



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