CHECK LIST
CONSTANT CONTROL OF THE QUALITY IN THE CUP

live
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PERFECT ESPRESSO

- DOSE
  7 grams +/- 0.5

- WATER TEMPERATURE
  92 degrees centigrade +/- 2
  (between 194 and 201 degrees
  Fahrenheit)

- PUMP PRESSURE
  9 atmospheres

- EXTRACTION TIME
  5" pre-infusion + 25" extraction

- IN CUP VOLUME
  25 +/- 5 ml (20 grams)

- Light-brown
  to cocoa-colored crema,
  sometimes with dark brown
  streaks

- Long-lasting
  3-4 mm thick foam

- Full-bodied, dense, aromatic,
  sweet and fragrant

- Balanced acidity and
  bitterness

- Pleasant lingering aftertaste

UNDER-EXTRACTED ESPRESSO

ESPRESSO WITH A VERY LIGHT CREMA

- The cups are cold, they have not been stored on the cup warmer or preheated
- Ground coffee is old and has not been used for more than 8 hours - or for more than 4 hours at high temperature (more than 35°C)
- The grind is too coarse
- The pressure is too low - below 9 atmospheres
- The coffee has not been tamped firmly enough
- The machine is cold; the water temperature is too low
- The dose is too low - under 6 grams
- The machine is installed near an air conditioning vent
- The grinder blades are worn and need to be replaced

COLD ESPRESSO

- The cups are cold, they have not been warmed on the cup warmer
- The filter holder is cold, it has not been locked onto the machine
- Coffee volume is insufficient (less than 20 ml)
- The machine is installed near an air conditioning vent

COFFEE IS TOO ACIDIC

- **Water temperature is too low-** below 88 degrees centigrade (190 degrees Fahrenheit)
- **Brewing time is too short -** less than 20 seconds
- **The dose is too low** - below 6 grams

COFFEE WITHOUT BODY

- **Ground coffee is old** and has not been used for more than 8 hours - or for more than 4 hours at high temperature (more than 35°C)
- **The dose is too low** - below 6 grams
- **Water is not properly conditioned**, the water softener or filtration system should be replenished

OVER-EXTRACTED ESPRESSO

ESPRESSO WITH A VERY DARK CREMA

- The coffee dose is too high - over 8 grams
- The grind is too fine
- The filter or shower plates might be blocked due to infrequent or insufficient cleaning
- Water temperature is too high - over 94 degrees centigrade (201 degrees Fahrenheit)
- The pump pressure is too high - above 11 atmospheres

ESPRESSO IS TOO HOT

- Water temperature is too high - over 94 degrees centigrade (201 degrees Fahrenheit)
- The cups are overheated

COFFEE IS BITTER

- Ground coffee has been put in the filter holder and kept there for too long prior to brewing
- The grind is too fine
- Water temperature is too high - over 94 degrees centigrade (201 degrees Fahrenheit)

OTHER POSSIBILITIES

RANCID COFFEE

- Coffee is stale; it has been ground too far in advance prior to use
- Machine and grinder not sufficiently clean
- The beans have been stored in the grinder-hopper too long
- The 3kg tin has been left open for more than 15 days
- Once opened, the 3kg tin has been kept at a temperature higher than 35°C

SALTY COFFEE

- Salty water in the heat exchanger: water softener resins have not been regenerated correctly or the softener is defective

UNEVEN COFFEE VOLUMES WITH DOUBLE FILTER-HOLDER

- The spout is missing from the filter-holder or has not been attached properly
- The filter-holder and spout are dirty
- The group is incorrectly installed
- The machine is not level

EXTRACTIONS VARY BETWEEN FILTER-HOLDERS

- Grinder needs adjustment
- Machine is not level
- Filters and/or diffuser screens are worn or dirty
- The coffee in the filter basket has been tamped unevenly
- Spout is dirty
- One or more solenoid valves in the delivery groups are not functioning correctly

OTHER POSSIBILITIES

SEDIMENT IN THE CUP

IF SEDIMENT IS THICK

- The rim of the filter-holder is worn allowing ground coffee to leak over the rim of the filter rim and pass through the head gasket seal
- Pump pressure is too high above 11 atmospheres

IF SEDIMENT IS VERY FINE

- Filters and filter holders are dirty
- The grinder blades are worn and need replacement

PUMP PRESSURE IS BELOW 9 ATMOSPHERES

- The by-pass that regulates pressure is blocked
- The pump is not functioning or is not adjusted correctly

WATER IN THE FILTER-HOLDER AFTER EXTRACTION

- The shower plates are dirty
- The coffee dose is insufficient - below 6 grams
- Water temperature is too low- less than 88 degrees centigrade (190 degrees Fahrenheit)
- The grind is too fine
- Deep filters are used
- The solenoid drain valve is partially clogged

HOLES IN THE USED COFFEE CAKE

- The pressure is too high - over 11 atmospheres
- Water temperature is too high - over 94 degrees centigrade (201 degrees Fahrenheit)
- The shower plates are dirty or clogged

PERFECT CAPPUCCINO

MILK

- For a well-made cappuccino, use fresh whole milk (fat content 3.3 - 4%, protein 3.2 - 3.3%), stored at 5 degrees centigrade (40 degrees Fahrenheit) or lower
- The milk should be heated carefully without overheating it or injecting excess air
- Dry steam from the espresso machine wand is used to make thick, full-bodied froth

TEMPERATURE

- The temperature of the espresso coffee in the cappuccino cup should be approx 75 degrees centigrade (168 degrees Fahrenheit), this maintains the crema on the surface and protects the aromatic components
- Cappuccino prepared with milk at the proper temperature, 65+/-5 degrees centigrade (140-167 degrees Fahrenheit) and froth with a smooth texture, is enjoyable, slightly sweet and has a velvety mouth feel that enhances the quality of the beverage


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PERFECT CAPPUCCINO

EMULSION

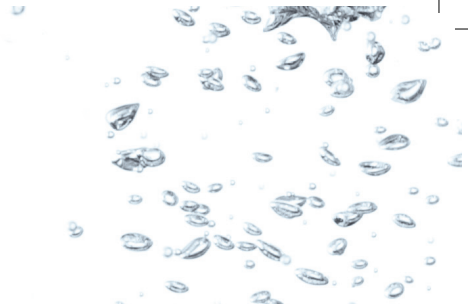
- Emulsion occurs in two stages: during the first stage the milk is "whipped" or "stretched", to incorporate bubbles of air
- The next stage is when the real emulsion occurs, which involves submerging the steam wand into the milk and holding it near the outer edge of the steaming pitcher so as to create a whirlpool effect that reduces the size of the bubbles. As this occurs, the milk froth acquires its characteristic velvety texture and translucent appearance

DO'S AND DONT'S

- Above, a cappuccino prepared in the correct way; below, two cappuccinos prepared in the wrong way

- It is important to always keep the steam nozzle clean to allow proper and full steam flow (also for hygienic reasons)

WATER



THE USE OF WATER

- When preparing espresso coffee, the quality of the water used is of utmost importance. It must be odorless, colorless, tasteless, and suitable for drinking
- Water treatment is necessary for two reasons:
  - to remove unpleasant odors and flavors, using active carbon filters;
  - to prevent the formation of limescale, which can impair the functioning of the espresso machine (in particular by limiting its heating efficiency)

SOFTENING

- Water softening is the most common of all treatments. Softeners contain special resins, which capture the calcium and magnesium ions and release sodium ions
- The resins in manual softeners need to be regenerated either automatically, or periodically by running salt through the softener

REVERSE OSMOSIS

- Water is filtered through a membrane which, due to its porosity, holds back anything larger than a water molecule

LIMESCALE

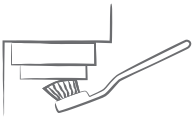
- Calcium, magnesium and bicarbonate are responsible for the formation of limescale. The content of calcium and magnesium determine the total hardness of water, whereas the bicarbonate content determines the so-called temporary hardness (alkalinity)
- Expressed in French degrees (1 French degree corresponds to 10 mg/litre of calcium carbonate) the ideal total hardness is 0-6 French degrees. The values of average hardness (about 20 French degrees), which may be stated on the water bill, are 50-60 mg of calcium, 10-15 mg of magnesium and 200 mg of bicarbonate per litre of water
- Any chlorine present as a disinfectant in the water must not exceed 0.10 mg per litre

DECARBONIZATION

- This treatment is carried out through the presence of resins that selectively capture calcium and magnesium, via an ion exchanger and, in the meantime, lower the temporary hardness degree (alkalinity)
- Make sure that the water softener is equipped with a sanitization system which self-generates chlorine while the resins are being regenerated

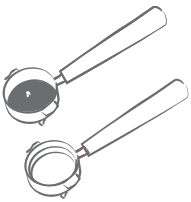
DAILY CLEANING
WITH WATER

GASKET CLEANING



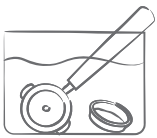
- Clean the gasket with a dedicated dry brush.
- Soak the brush in hot water from the hot water tank to which you have added detergent and clean the gasket with it.
- RINSE the gasket using large amounts of water and a soft sponge.

BLIND FILTER



- Lock the filter holder in place and start water delivery. Press the STOP button after 5 seconds at the most to stop water delivery.
- After water delivery has been stopped, remove the filter holder, empty it and secure it onto the machine again.
- Repeat the procedure at least 5 times (or until the water is clean).

FILTERS AND FILTER HOLDERS



- Immerse the filters and filter holders in hot water from the machine's water tank and stir them to remove any solid particles.
- RINSE with a soft sponge.
- If necessary, use a brush to clean the hole.

CLEANING THE DOSING STAR

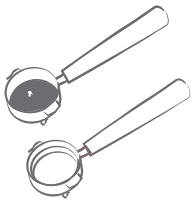
- In the evening remove the ground coffee and clean the dosing star with a dry brush.
- At night store the ground coffee in a can and use it the day after.

WEEKLY CLEANING
WITH WATER AND DETERGENT

GASKET CLEANING

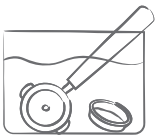
- Clean the gasket with a dedicated dry brush.
- Soak the brush in hot water from the hot water tank to which you have added detergent and clean the gasket with it.
- RINSE the gasket with a soft sponge.

BLIND FILTER



- Fill up the filter holder with hot water from the hot water tank. DESOLVE half a spoon of powder or one tablet in the water.
- Lock the filter holder in place and start water delivery. Stop delivery after 5 seconds at the most by pressing the STOP button.
- Wait for at least 10 MINUTES for the detergent to have an effect on the circuits (if more blind filters are used, all groups can be cleaned at once).
- START WATER DELIVERY without the filter holder in place for at least 1 MINUTE, then press the STOP button.
- START WATER DELIVERY and fill up a small glass to check the clearness of the water.

FILTERS AND FILTER HOLDERS



- Immerse in hot water with detergent (1small spoon or 2 tablets for each group).
- Stir the filter holders in the water for at least 5 minutes.
- RINSE with a soft sponge.

All the topics dealt with in this *Check list* can be studied in greater depth by attending the courses at the Università del caffè in Trieste, Italy, the center for excellence created by illycaffè to promote, develop and spread the culture of quality coffee worldwide.

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