

ONLINE COURSE

BARISTA INTERMEDIATE

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LESSON 1: ADVANCED EQUIPMENT KNOWLEDGE

Espresso Machine: Beyond the Basics

- **Boiler system:** The boiler heats water for brewing and steaming. Some machines have a single boiler, others have a heat exchanger, and higher-end models may have dual boilers — one for brewing and one for steaming, so you can do both without temperature drops.
- **Pump system:** The pump forces water through the coffee at the correct pressure, usually around nine bars. Rotary pumps are quieter and more stable, while vibration pumps are more compact but can be slightly less consistent.
- **PID controller:** This is an electronic system that keeps your brew temperature stable. Without it, temperature can fluctuate, leading to inconsistent results.
- **Group head design:** Different designs affect heat stability. Saturated group heads are connected directly to the boiler for excellent stability, while E61 groups use thermosyphon systems to circulate hot water and maintain heat.



LESSON 1:

Grinder: The Unsung Hero

Your grinder has just as much impact on flavour as the machine. At this level, you should understand how different grinders behave and how to get the most out of yours:

- **Burr type:** Flat burrs produce very consistent particle size, while conical burrs create a mix of fine and coarse particles that can give a slightly different flavour profile.
- **Burr size:** Larger burrs allow faster grinding with less heat build-up, which helps preserve coffee aroma.
- **Stepless vs stepped adjustment:** Stepless grinders allow infinitely small adjustments for precise dialling in, while stepped grinders have fixed settings, which can be easier for beginners but less flexible for fine-tuning.
- **Retention:** Some grinders hold on to a small amount of old coffee in the burr chamber. Low-retention grinders reduce waste and improve freshness.

You should remember to keep your burrs sharp. Worn burrs produce inconsistent particle sizes and can cause uneven extraction.



LESSON 1:

Preventive Maintenance Techniques

Daily:

- Wipe and purge the steam wand after every use.
- Backflush the group head with water.
- Brush coffee grounds from the grinder chute and burr chamber.

Weekly:

- Backflush with espresso machine cleaning powder.
- Deep clean the grinder using a vacuum, brush, or grinder-cleaning tablets.
- Remove and clean the shower screen and portafilter baskets.

Monthly:

- Check your grinder burrs for wear. Replace if needed.
- Inspect gaskets and seals on the espresso machine. Replace any that are cracked or worn.

Every six months (or annually for home use):

- Descale the espresso machine if using hard water.
- Lubricate moving parts according to the manufacturer's instructions.



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LESSON 1:

Why Preventive Maintenance Matters

Neglecting your equipment leads to more than just breakdowns — it also affects flavour. Old coffee oils can go rancid, affecting every shot you pull. Milk residue in a steam wand can clog it and produce off-flavours. And small mechanical issues, if ignored, can turn into expensive repairs.



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HOMEWORK

EQUIPMENT AUDIT

- Take a close look at your espresso machine and grinder.
- Make a note of the make, model, and any special features.
- Create a maintenance schedule based on the manufacturer's recommendations and your daily usage.
- Perform a basic clean following the daily and weekly steps we covered.

