SOP: Espresso Machine Operation and Calibration

Objective: Ensure consistent coffee quality, machine longevity, and optimal performance by following standardized procedures for operation and calibration.

This SOP details the **espresso machine operation and calibration** process, including proper machine startup and shutdown, routine cleaning and maintenance, grind size adjustment, tamping techniques, temperature and pressure calibration, shot extraction monitoring, and troubleshooting common issues.

1. Scope

This SOP applies to all baristas and staff responsible for using and maintaining espresso machines.

2. Responsibilities

- Baristas: Operate and calibrate espresso machines as outlined.
- Supervisors: Oversee the process and provide guidance as needed.
- Maintenance Staff: Perform scheduled deep cleaning and repairs.

3. Materials & Equipment

- Espresso machine
- Grinder
- Tamper
- Cleaning cloths and brushes
- Cleaning chemicals (machine safe)
- Portafilter
- Scale
- Calibration tools (thermometer, pressure gauge if needed)
- Test water

4. Procedure

4.1 Machine Startup

1. Ensure machine is plugged in and water reservoir is filled (or plumbed water is on).
2. Turn on the main power switch; allow machine to heat up to operating temperature (typically 20â€“30 minutes).
3. Flush the group head with water to remove residue.
4. Prime the steam wand and hot water outlet.

4.2 Grind Size Adjustment

1. Test grind a small amount of beans.
2. Extract a shot; review flow, shot time (25â€“30 sec for double shot), and espresso appearance.
3. If shot is too fast, adjust to a finer grind; if too slow, adjust to a coarser grind.
4. Repeat until correct extraction time is reached.

4.3 Dosing & Tamping Techniques

1. Weigh coffee dose (typically 18â€“20g for double shot).
2. Distribute evenly in portafilter to avoid channeling.
3. Tamp level and firm, applying consistent pressure (approx. 30 lbs).
4. Clean edges of portafilter before insertion.

4.4 Temperature & Pressure Calibration

1. Check brew temperature (should be 90â€“96Â°C / 195â€“205Â°F).
2. Verify pump pressure (typically 9 bars during extraction).
3. Adjust machine settings as per manufacturer guidelines if deviations exist.

4.5 Shot Extraction Monitoring

1. Insert portafilter and begin shot.

2. Monitor pre-infusion and extraction time (aim for 25â€“30 seconds).
3. Observe espresso crema, color, and flow; ensure quality is consistent.
4. Record extraction times/results as required.

4.6 Routine Cleaning & Maintenance

- After each use: Purge group head, clean portafilter, wipe steam wand.
- End of shift: Backflush group head with cleaning chemical, clean drip tray and external surfaces.
- Weekly: Deep clean group head, soak portafilters, clean shower screens and baskets.
- Monthly: Replace gaskets, inspect internal components.

4.7 Shutdown Procedure

1. Turn off machine and unplug (if required by manufacturer).
2. Empty and rinse water reservoir.
3. Wipe dry all surfaces, ensure no residual grounds or milk remain.

4.8 Troubleshooting Common Issues

Issue	Possible Cause	Resolution
Espresso too weak/thin	Coarse grind, under dosing, low tamp pressure	Adjust grind finer, weigh proper dose, tamp firmly
Espresso too bitter/burnt	Too fine grind, overheating, over extraction	Adjust grind coarser, check machine temp, shorten extraction
Low pressure during shot	Blocked group head, defective pump	Clean group head, service pump
Steam wand not working	Blocked tip, lack of pressure	Clean steam wand, check boiler

5. Documentation

- Maintain daily logs for machine calibration, maintenance, and cleaning.
- Record any issues or repairs for reference and warranty purposes.

6. Safety

- Always use caution when handling hot equipment.
- Follow manufacturer's instructions for cleaning chemicals.
- Disconnect power before performing deep maintenance.

7. References

- Espresso machine manufacturer's operation manual.
- Company maintenance and food safety policies.