

SYNESSO



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INTRODUCTION

Congratulations on the purchase of your Synesso™ espresso machine. Please read this Owner's Manual and retain it in a safe location for future reference. If you have any questions about your machine, please contact Synesso™ and our knowledgeable staff will assist you.

Factory Contact information:
Synesso™ Inc.
5610 4th Ave South
Seattle, WA 98108
Tel: 206.764.0600
Fax: 206.764.0601
E-mail: info@synesso.com
Web: www.synesso.com

Please have your Serial Number available
BEFORE calling for service or technical support.
Thank you.
S/N: _____
The offsets for this machine are:
BG1: _____°F / BG2: _____°F / BG3: _____°F
Steam Tank: _____°F

Included in the package with this machine you will find the following:

- Thumb Drive containing the Owner's Manual and other technical documents
- Pump/Motor Combination + hoses (3/8" compression fittings on all hoses)
- 8' Flexible 3/4" ID drain hose + hose clamp (attached)
- Fitting, 1/4" male NPT x 90° x 3/8" Compression (if not CE/Ctick)
- Accessory Package: Portafilters (per customer specification), blind basket, Synesso™ 3 oz. (90ml) shot glass, JoeGlo™ cleaning kit, 58mm tamper, 4 rubber leg pads
- Electrical plugs are ONLY included on CSA Certified machines (Canada).
For all other machines, the owner of the machine must purchase an appropriate plug end for their machine. Please see the installation instructions starting on page 6 for more information.

Serial Number

Your espresso machine has a unique serial number, located on the left inner frame of the machine, just under the drain tray on a serial plate. The number can also be read on the display during start-up or on the "Synesso" screen (page 21). Please have this serial number available for reference when contacting the factory.

This owners manual applies to all Synesso models: Cyncra, Sabre and Hydra/Hybrid machines. The Cyncra is Synesso's manual machine, available in 2 and 3 group models. The Sabre is a volumetric machine, also available in 2 or 3 group models. Hydra machines have an individual pump and motor per group head and can accommodate 4-stage pressure ramping on all groups. The Hydra-Hybrid is a combination of the manual and volumetric machines: customers can choose either a manual or volumetric configuration for each of the one to three group heads.

SAFETY WARNINGS

IMPORTANT Information for Synesso™ Espresso Machines:

- DISCONNECT FROM POWER BEFORE SERVICING.
- Read the entire manual before operating this machine.
- Steam and condensation from the steam wand discharge is very hot and may cause burns.
- The steam wand tips and bases become hot during use: do not touch these surfaces.
- Cover the steam wand tip or submerge in a filled pitcher to safely divert the steam before opening the steam valve.
- Never remove the steam wand from the product that is being heated when the valve is open.
- Never remove the portafilter from the machine during the active brewing process.
- Keep water and moisture away from any electrical device or live power.
- Steam tank water is heated to 260°F (126°C) or more; Use caution near steam tank.
- The brew groups deliver water as hot as 210°F (99°C). Avoid exposure to this water.
- The hot water mix valve can be adjusted to deliver water as hot as 212°F (100°C), which can cause severe burns: please use caution when activating this water source.

Safety Label Locations:

Synesso complies with UL regulations by posting the following labels on its machines:

Electrical box:	WARNING: Disconnect from power supply before servicing AVERTISSEMENT: Couper l'alimentation avant l'entretien et le depannage.	California only:	CALIFORNIA PROPOSITION 65 WARNING WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. (California law requires this warning to be given to customers in the State of California.)
Electrical cord:	The conductors of the power supply cord are marked "L1", "L2" for the ungrounded ("hot") supply conductors and "G" for an equipment grounding lead.		
	Warning: Risk of Fire. Use UL Listed Grounding Type Plug rated for 220 Volts, _____ Amperes, _____ Phase, # _____ Wire. Plug to be Selected and Installed only by Qualified Service Personnel.		
Under drain tray inside right frame:	This equipment is to be installed to comply with the applicable federal, state or local plumbing codes.		

Materials information for Synesso machines:

- All stainless steel coming into contact with the water supply is 300 series
- All brass fittings are low lead per the CA360 specifications or better
- All electronic devices are lead free
- All gaskets are made from food-contact safe material

Test Information

- Brew (coffee) tanks are hydrostatically tested to 375 psi
- Steam tanks are pressure tested to 75 psi
- The electrical system is subject to an electrical withstand test of:
1.20 kvac, at 5.00 mA, for 1 second

WARRANTY

Limited One-Year Non Wearing Parts Warranty

Synesso, Inc and/or your Distributor warrants to the original purchaser that Synesso espresso machines are free from defects in materials and workmanship under normal use and service for the period commencing upon the date of shipping and continuing for 12 months from the original date of shipment. Synesso will make a good faith effort for prompt correction or other adjustment with respect to any non-wearing part that proves to be defective within the limited warranty period. This Limited Warranty is conditional upon proper use of the machine by the purchaser.

This Limited Warranty does not cover defects or damage resulting from: accident, misuse, abuse, shipping damage, neglect, unusual physical, electrical or electromechanical stress, unauthorized customer modifications or improper water filtration.

Proper water filtration and regular filter changes are a requirement to keep your factory warranty valid and your machine functioning properly. It is highly recommended that you contact a professional water filtration specialist in your area and have your water tested to determine the proper filtration system. It is important to note that many municipalities change their water sources throughout the year, so additional water tests may become necessary.

Water Standards to keep your warranty valid:

Total Dissolved Solids (TDS)	30 to 200 ppm (parts per million)
Total Hardness - in ppm	Less than 85 ppm
Total Hardness – in grains	3 to 5 grains (divide ppm by 17.1 to get grains)
pH	6.5 to 7.9 pH
Chloride	0 ppm – Chloride can damage the boilers
Total Alkalinity	Less than 100 ppm
Chlorine	0 ppm
Iron	0 ppm

In Synesso’s experience, Everpure Claris and Cirqua formulator systems can produce a result that can damage the Synesso boilers. Use of either of these systems is discouraged, and will void the water-related parts of the machine warranty.

Any part which is determined to be defective in materials or workmanship should be returned to Synesso or to an authorized service location, shipping costs prepaid, as Synesso designates. Synesso may repair or replace the product or part with new or factory refurbished equipment at Synesso’s sole discretion. If the product or part is determined to be defective and in compliance with the Limited Warranty conditions, the replacement part or product will be returned to the purchaser with shipping prepaid **.

Many jurisdictions have codes and regulations governing sales, construction, installation, and/or use of products for certain purposes, which may vary from area to area. While Synesso attempts to assure that its products comply with such codes, it cannot guarantee compliance and cannot be responsible for how the product is used or installed.

Synesso’s liability is limited to the purchase price of the product and shall not be held liable for damages that extend beyond the product itself. Synesso’s liability of consequential, incidental damages, indirect or direct damages for personal injury, inability to properly use this product, loss of business profits or interruption to business is expressly disclaimed.

NOTE regarding equipment sold or residing outside the United States: purchaser maybe required to pay for the shipping and associated costs for warranty parts, repairs and services. Please contact your local distributor to resolve the issue regionally, if possible.

INSTALLATION

To maintain the 1 year warranty, an authorized or certified espresso service representative must perform the installation of this espresso machine.

Site Preparation - See Diagram p.7

The machine must be placed on a level horizontal surface that can be easily cleaned and is capable of sustaining a minimum of 300 lbs.

The counter top requires a depth of 28", which provides a minimum clearance of 1" behind and 3" in front of the machine.

Make a 2 ½" minimum diameter hole through the counter top located 4" from the rear and 7" from the right side of the machine. The hoses, drain tube, and electrical lines will all pass through this hole.

A 3/8" min. diameter cold water supply line from the filter with a shut off valve is required within 5' of the machine. The valve should be easily accessed for machine service.

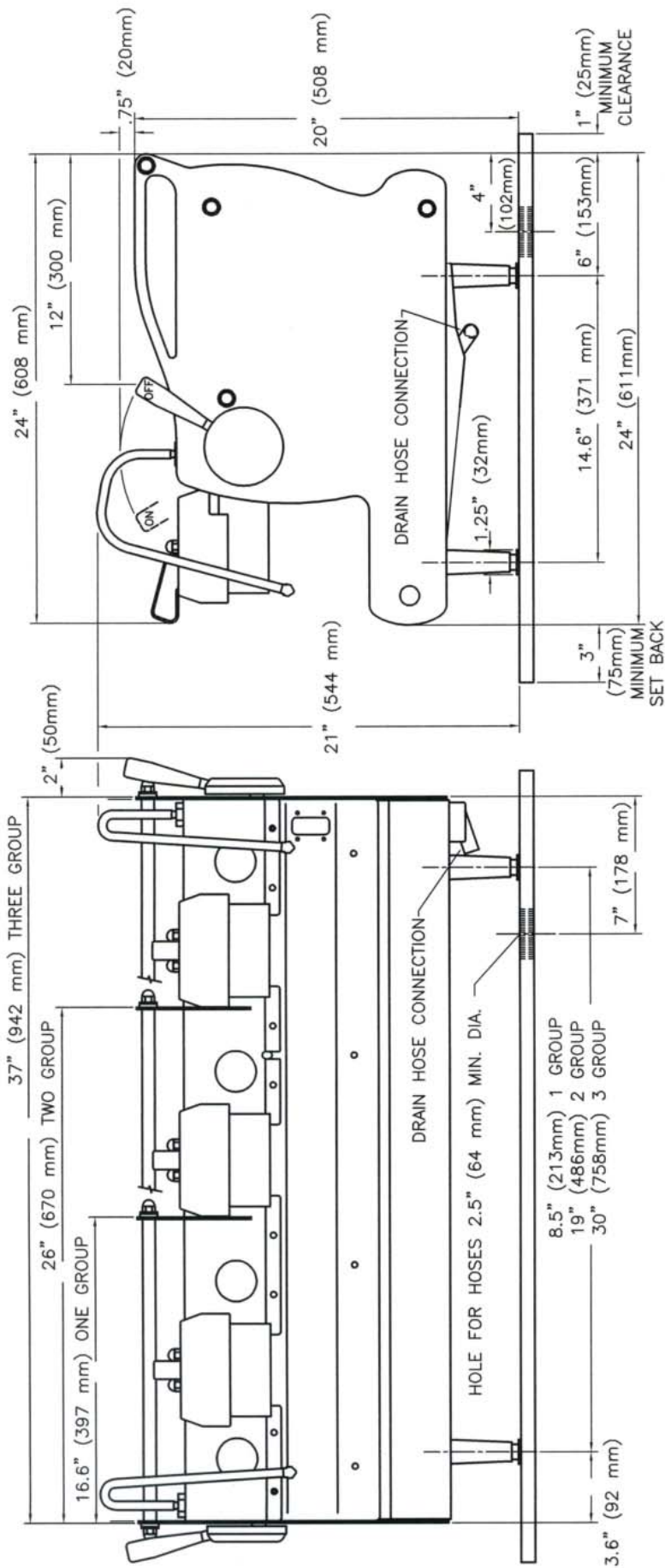
The machine supply hose and pump fittings are 3/8" tube compression fittings.

A proper water filtration or softening system must be installed on the incoming water supply. Water treatment requirements will vary, and it is important to use a system designed to match the needs of your specific area. Water filtration systems require periodic maintenance, including cartridge or filter replacement. Proper filtration and service is vital to the function of the machine and the quality of the espresso served. Follow the instructions provided by your water treatment system for proper installation.

Note: Improper water filtration can result in severe damage to the machine including scale deposits and corrosion. **DAMAGE CAUSED BY IMPROPER WATER TREATMENT WILL NOT BE COVERED BY THE MACHINE WARRANTY.** See page 5.

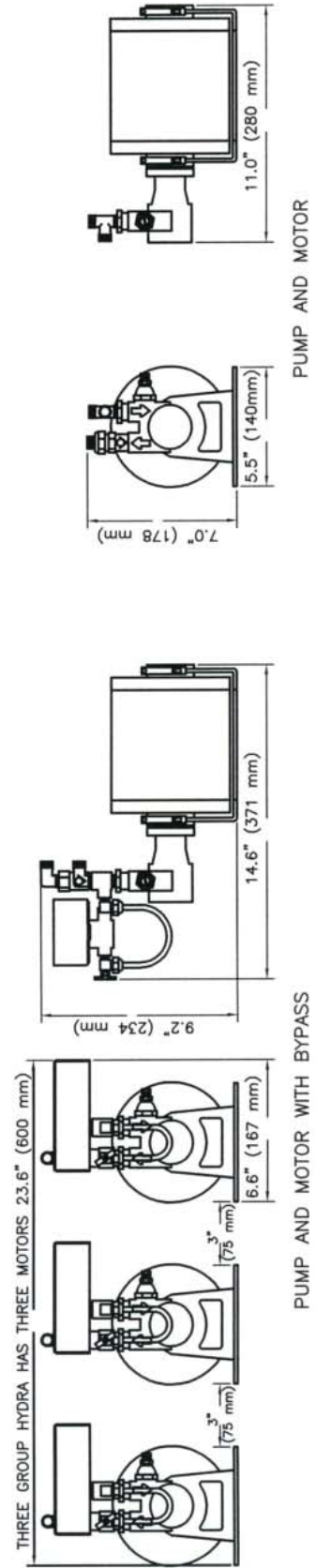
There must be adequate room under the counter to locate each motor and pump. The pumps must be easily accessible for adjustment and motors must have a minimum of 3" clearance on all sides for air flow.

A floor drain or sink must be available. The best location is directly under the machine. The 3/4" drain hose should descend as vertically as possible for optimal drainage. An air gap is required between the end of the drain hose and the highest water position of a clogged drain. This is to prevent the possibility of drain water backing up into the machine.



RIGHT HAND END VIEW

FRONT VIEW



PLUMBING INSTRUCTIONS

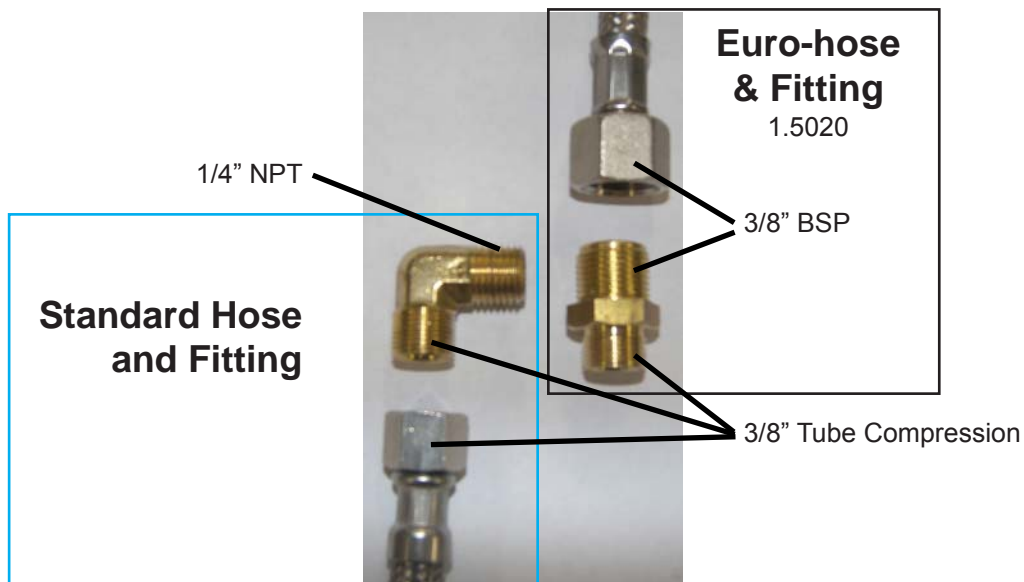
This equipment must be installed to comply with the applicable federal, state or local plumbing codes. **WATER TREATMENT IS REQUIRED TO PRESERVE THE FULL MACHINE WARRANTY.** Please insure that the incoming water complies with the warranty requirements listed on page 5.

Using the provided stainless steel braided hose, connect the pump to the shutoff valve on the filtered, cold water line. Fittings on the hoses and pumps are 3/8" tube compression. Thread sealant or Teflon tape is not necessary. Make connections snug, but do not over tighten.

Turn incoming water ON and check for leaks.

Synesso machines require a minimum of 50 PSI (3.5 bar) of line pressure at 30gal (120L) per hour to have the auto-fill system for the steam tank function properly. Please ensure that the incoming water meets this requirement or contact Synesso for alternative methods of boosting water pressure.

NOTE: Synesso sells a "Euro-hose" adaptor hose and fitting (part number is 1.5020) which converts from a 3/8" tube fitting to a pipe fitting, suitable for most non-US plumbing). Please refer to the picture below to identify the differences between the standard and Euro-styles fittings and hoses.



ELECTRICAL INSTRUCTIONS

All Synesso machines are rated to operate on 220 volt AC with a 50 or 60 Hz frequency, single phase. Machines will operate between 208v and 240v. Listed amp ratings are all measured at 220vac. Incorrect voltage can cause malfunction or damage to the machine.

An electrical socket and matching plug, rated at the proper voltage and amperage are required within three feet of the machine. Plug ends are NOT included with the machine unless required by CSA or other certification.

Model	Cord Plug Rating (UL Listed)	Machine Max Amp Draw
2 Group Cyncra / Sabre	30 amp	28 amp
3 Group Cyncra / Sabre	50 amp	36 amp
1 Group Hydra	20 amp	16 amp
2 Group Hydra / Hybrid	30 amp	30 amp
3 Group Hydra / Hybrid	50 amp	40 amp

North American Wire Color		Worldwide Wire Color	
Green	Ground	Green and Yellow	Ground (Earth)
White	110v Line 1	Brown	220v
Black	110v Line 2	Blue	Neutral

Attach the plug end per manufacturer's instructions.

Make sure that the red electronics switch and the heating element breaker on the front of the electrical box are in the OFF position, then plug the power cord into the receptacle.

OPTIONAL: If recovery time is slow, install an In-Line Buck-Boost transformer to increase voltage below 208v to optimize machine recovery time. Buck-boost transformers come in different sizes. Please choose the appropriate one for your machine if required. 1 and 2 Group Machines require a 1.0 KVA transformer, 3 Group Machines require a 1.5 KVA transformer.

SPECIAL ELECTRICAL INFORMATION FOR EMC-COMPLIANT MACHINES

(C-TICK FOR AUSTRALIA, CE FOR EUROPE AND OTHER LOCATIONS)

To comply with EMC (Electromagnetic Compatibility) regulations, Synesso is required to install a capacitor in the electronics box across the main power IN. **To avoid an electric shock from the charge held in the capacitor, unplug the cord, taking care to NOT touch the metal prongs on the plug end. Turn the electronics ON/OFF red rocker switch to the ON position and wait a few seconds until the red switch "goes dark." At that point, the electrical charge has dissipated.**

HYDRA / HYBRID

The Hydra is a machine model with a pump and motor for each group head. This includes changes in internal plumbing and wiring to accommodate separate and distinct pressures in each brew group. In contrast, a Cyncra or Sabre has a single pump and motor for the entire machine. Having individual pumps and motors allows the operator to set a separate brewing pressure per group head, and each group functions independently without affecting the pressure at the other groups.

Hydras can be built as fully manual machines (multiple manual group heads), fully volumetric (all group heads have programmable keypads), or a mixture of group heads to match your requirements. Hydras with mixed group head configurations are referred to as Hybrids.

Hydra Installation requirements:

Electrical:

The Hydra package has a slightly greater amp draw than the single pump machines; please note the max amp draws and plan your electrical installation accordingly. See table on page 9.

Each pump motor has a distinct color association, which is indicated throughout the machine by colored wires and zip ties. The colors are as follows:

Group 1: Grey

Group 2: Purple

Group 3: Brown

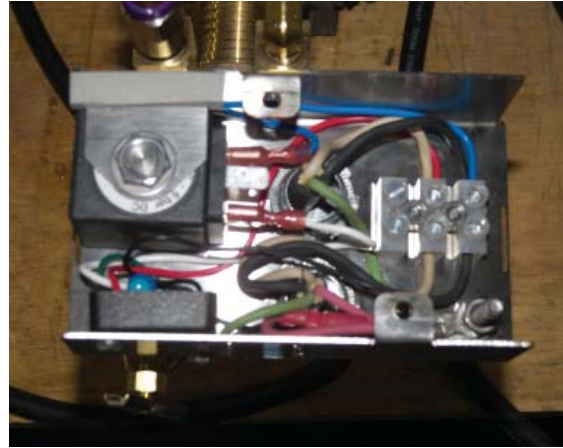
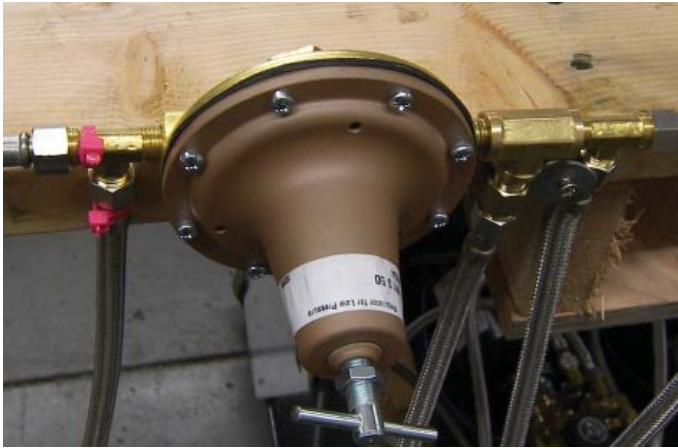
Water inlet for the steam tank: Pink

Wherever these colors are seen, it is critical for proper functioning that they are matched up correctly (grey to grey, etc.) for both electrical and plumbing systems.

Plumbing:

Hydra packages require one incoming water source like single pump machines. The water passes through a manifold (commonly part of the line pressure regulator) and is distributed to each pump. Once again, follow the color coding for proper installation of the hoses from the output of each pump to the machine.

Hydra Bypass Installation and Setup



Pump cord installation: Insert the color coded pump cable into the opening of the matching bypass box and attach the wires to the terminal as shown in the picture above: Green wires stacked on the ground bolt, white to white/red, black to black/blue, connect the bullet connectors.

Pressure regulator: Used to achieve the stage 1 low pressure pre-infusion. It is set and tested at 50 psi in the Synesso factory. This pressure setting can be lowered if desired, but 50psi is the maximum output pressure. To adjust the pressure regulator, first loosen the nut on the threaded post, then turn the post counter-clockwise to decrease pressure.



Pump Bypass: First, set the pump and regulator to the desired pressures.
Manual group: Turn the associated brew group actuator to brew (2nd) position, then back to the first position.
Volumetric group: set stage 1 time and bypass percent to zero. Press the pitcher button.
The pin valve on the pump may then be adjusted until the brew gauge indicates the desired pressure. 7 bar is our factory setting. Adjust to taste.

The Stage 1 (Pre-infusion) time and Stage 2 (Bypass) time are set on the Temperature Control screen of the display by following the directions on page 17. Stage 1 time is set to 7 seconds and Stage 2 is set to 3 seconds at the factory. Adjust to taste.



Once these settings are in place, you will be able to taste the effects of four stage pressure ramping applied to each shot. Start the shot to begin the Stage 1 pre-infuse timer. In this stage, low pressure water will saturate the puck, swelling it to reduce channeling. After the stage 1 time has elapsed, stage 2 bypass will begin. In this stage, the bypass system will help create a slow rise in water pressure by diverting high pressure water away from the brew group. After the stage 2 time has ended, the bypass will close and stage 3, full pump pressure (9 bar) will begin. Stage 4 is a return to bypass pressure. In the case of manual groups, entering stage 4 is determined by the operator and is achieved by moving the group top actuator back to position 1. Volumetric groups can be programmed to automatically begin stage 4 at a set percentage of the shot as described on page 18.

OPERATION

Start-Up Instructions

1. To fill the machine, connect the water lines, set the drain hose and turn the water ON.
2. Switch the red electronics On/Off switch to ON. This activates the machine's water auto-fill feature for the steam tank and the electronics, but NOT the heating elements.
3. The water level sight glass for the steam tank is located on the right side of the machine. As the tank fills, the water level will rise in the sight glass and will automatically stop when the preset level is reached.
4. Bleed the group heads of air:
Manual machines: Turn each group head handle left into the BREW position, (see pictures below) allow the group to run until there is a steady flow of water. Return the group head to the OFF position.
Volumetric machines: Activate the pitcher button on the right side of the keypad. Once the water flows in a steady stream, press the pitcher button again to stop the water.
5. Wait until the steam tank has stopped filling and the level in the sight glass reads at least $\frac{1}{2}$ full. Turn the heating element breaker to the ON or (1) position. All the heating elements (brew and steam) are now activated.
6. To adjust the pump pressure, activate the pump by turning the brew group to the BREW position. On volumetric machines, activate the pump with the pitcher button.
7. Locate and read the pump pressure / brew gauge to the right side of the machine (To the right of each group on a Hydra.)
8. Set the pump pressure to 9 Bar:
Locate the pump adjusting screw on the right side of the brass pump housing.
Loosen the lock nut and turn the screw with a screwdriver
 - Clockwise to INCREASE pressure
 - Counterclockwise to DECREASE pressureOnce the desired pressure is reached, retighten the lock nut.
9. Please allow at least 30 minutes of "warm up" time before using your Synesso espresso machine to brew shots or steam milk. The steam gauge (the left hand gauge) should read a minimum of 1.1 Bar.



Off



Preinfusion



Brew

OPERATION

Dose adjustment (Volumetric equipped machines only)

For increased dosing accuracy, this adjustment should be completed once the machine has come up to operating temperature. Refer to the temperatures posted on the display to indicate when the machine is ready to operate.

1. To begin, press and hold ANY TWO volumetric buttons on ANY touchpad until the lights on all touchpads begin to flash.
2. Prepare a portafilter that corresponds with the dosing button to be calibrated. Grind, dose, and tamp as normal. Engage portafilter in group to be calibrated.
3. Place a measuring cup or digital scale under your portafilter. Press the button you wish to calibrate. The machine will begin a brew cycle.
4. Once the desired espresso volume (or weight) has been dispensed, press the same dosing button again to stop the cycle. The dose setting for that button is now set. The button light will turn off. If only one button program was required, skip to step 6.
5. Repeat step 2-4 to adjust the volumes for all buttons.
6. Press the “pitcher” button twice to exit calibration mode.

NOTE Settings made on any touchpad will automatically be assigned to ALL touchpads with flashing LED's. If you DO NOT want to apply settings to a group, press the “Pitcher” button of that group ONCE and the LED's will stop flashing. New dose settings WILL NOT apply to this group. Enter program again to set a different group.

Prepare a Portafilter

1. For best results, use fresh coffee. Ground coffee should be brewed as soon as possible after grinding.
2. Select the correct spout and basket configuration. Single, double and bottomless portafilters are available through Synesso. The single spout portafilter is used with a single (7g) basket to brew a single shot. The double spouted or bottomless portafilters can be used with double (14g) or triple (18g or 21g) baskets to brew triple, double, or 2 single shots of espresso.
3. Fill the portafilter basket just above level and wipe off the excess.
4. Press straight down evenly on top of the grounds with the tamper.

NOTE: When not in use, keep the portafilter engaged in the group head to keep it warm.

Espresso Brewing

1. Grind a dose of coffee appropriate to the basket you will be using.
2. Dispense into the portafilter basket.
3. Level the mound and compress using a tamper. (A tamper is supplied with the machine.)
5. Engage the portafilter into the brew group that has the correct temperature setting for this espresso roast and pull firmly to the right to set the seal.

OPERATION

Espresso Brewing Continued (Manual)

6. Preinfuse the coffee puck by turning the brew group clockwise to the center position. This allows line pressure to saturate the coffee.

NOTE: If a stage 1 or 2 time is set on the display, they will begin automatically on moving to the brew position, so the preinfusion position should be skipped.

7. When a drip shows at the spout (or on the basket if bottomless), Turn the group cap clockwise again to the brew position. This engages the pump.
8. When the stream of coffee turns from brown to “blonde”, end the shot by returning the group cap to the far right position. Machines using pump bypass hardware may move back to the preinfuse (center) position just before the shot blonds to extend the extraction and delay blanding.

(Volumetric)

6. Press one of the first 4 buttons on the button pad.
7. If stage 1 or 2 timers have been set, the machine will execute these times automatically, then move into the brew stage. Machines equipped with pump bypass systems can use an automatic bypass at the end of the shot. See page 18.
8. The shot will automatically end once the set volume of water has been dispensed.

Milk Steaming

1. Fill the pitcher halfway with fresh, cold milk. Smaller pitchers are recommended for drink sizes less than 10oz. Steamed, unused milk should be discarded.
2. Condensation can collect inside the wands. Carefully blow the wands clear before steam.
3. Insert the tip of the steam wand deep into the milk pitcher. This will prevent milk from splashing once the steam is turned on.
4. Open the steam valve by pulling the handle towards you.
5. Place one hand on the side of the steam pitcher to feel the rising temperature of the milk.
6. As the milk agitates and heats, lower the pitcher to keep the tip of the steam wand closer to the surface. Allow the steam jets to push some air beneath the surface, then raise the pitcher to lower the tip of the wand deeper into the milk. This will continue the heating process and minimize further foaming. Do not touch the steam wand to the bottom of the milk pitcher; this can create an inaccurate temperature measurement.
7. Heat milk to approximately 150F to 170F (65°C to 76°C). If you are using your hand to help determine the temperature, it will feel about as hot as you can stand without burning yourself. Milk thermometers are also an excellent way to determine the temperature of the milk. Caution: Do not overheat the milk and scald it. Scalded milk should not be used.
8. Remove the wand from the milk, purge, and wipe clean immediately after each use.

NOTE: Although Synesso steam wands are made with a proprietary double-walled process that helps to keep the outer wall cooler, the tip and base can become very hot and caution must be used.

NOTE: Whole Milk, 2%, 1%, Non-Fat, Soy Milk, Rice Milk and other milk type products may require a different technique to foam properly. In general, the higher the fat content, the easier it is to achieve consistent foam.

MACHINE OPTIONS

The following options are available on Synesso machines. If you have one or more of these options, please follow the instructions below. With the exception of the cash valve and in-line pressure regulator, these options are not available as after-market parts and must be installed during the manufacturing process.

LED Shot Timers

Synesso offers LED shot timers which display how long water has flowed through the group head. The timer is located above its associated group head and the timer starts when the brew valve is opened. The total run time of the last shot is displayed until the next shot is started, at which point the timer resets to 0 and starts counting again.



PRESSURE REGULATION DEVICES

Pump Bypass Systems (*Required for 4-stage Pressure Ramping)

Pump bypass systems are valves attached to the pump output which allow a set pressure reduction during the shot. See Pages 17 and 18 for information on how to set and control the pump bypass systems if this option is present on your machine.

In-line Pressure Regulator (*Required for 4-stage Pressure Ramping)

This regulator is a device installed on the incoming water line before the pump. It reduces high incoming water pressure to a desirable level (around 50psi). This device is useful in high fluctuation areas where there is variable water use throughout the day (i.e. hotels, apartment buildings). This is easily adjusted by watching the brew gauge while in the pre-infuse position, then turning the handle on the valve clockwise to increase pressure and counter-clockwise to decrease pressure.

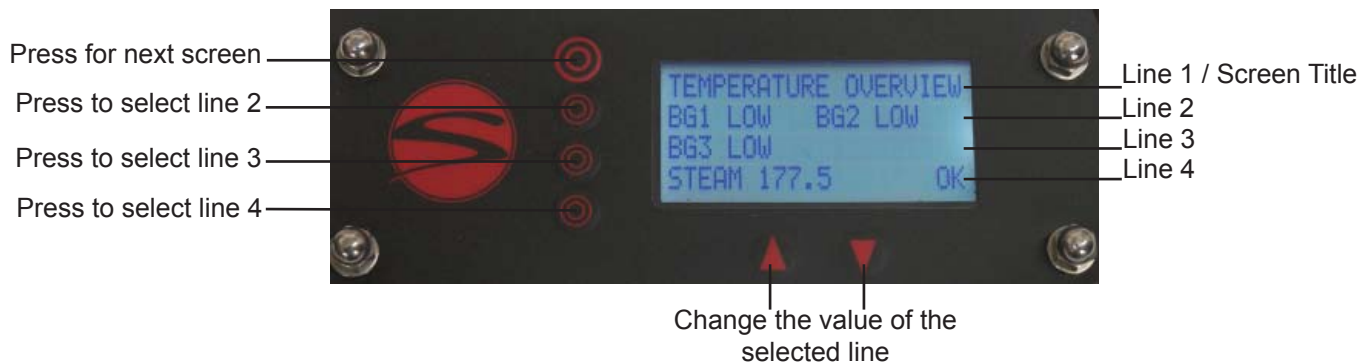
Cash Valve

A cash valve is an option for single pump/motor, multi-group machines. It is installed on the pump head and functions as a larger pressure adjustment tool, similar in function to the standard hex nut adjuster on the pump head. It can accommodate and control greater variance in water fluctuation than the standard pump adjuster, and is a good tool for situations in which large water fluctuations are seen. Adjust the pump pressure above 10 bar using the adjustable hex nut; then adjust the cash valve to your desired pressure (approximately 9 bar).

PROGRAMMING

This programming section applies to all Synesso machines after machine #1051. These machines have a hand held (wired) keypad, pictured below, to allow the user to comfortably view and change the machine settings. There are 3 levels of programming: this manual only addresses the primary level which covers all the settings that the end user needs to access. Service technicians will have access to additional levels of programming for troubleshooting and resetting the programming.

This is the first screen of the display: Temperature Overview



Line 1 indicates the screen title, in this case **Temperature Overview**.

Line 2 indicates brew groups 1 and 2 and the associated temperature(s).

Line 3 indicates the temperature of brew group 3, if applicable.

Line 4 indicates the steam tank temperature to the left and error codes (if any) to the right.

On Line 2 of this Temperature Overview display screen, brew group 1, represented as BG1, is reading 'LOW'. This indicates that BG1 is below the temperature probe's range of measurement (170F-270F / 76.6C-132.2C). Readings above the indicated range will show as 'HIGH'.

The lowest **programmable** temperature for a brew group is 180F (82.2C) and the highest **programmable** temperature for a brew group is 220F (104.4C). The factory set temperature is 203F (95C). To change brew group set temperatures, refer to page 17.

The steam tank is set by the factory to a default setting of 250F(121.1C). To change this temperature, see page 19.

The [OK] on the right hand side of line 4 is indicating that there are no errors being detected by the control system. If, in place of the [OK] you find an error code (EX: STLW01), refer to the Error Log codes on page 22.

To cycle to the next display screen in the menu level, the 'BG1 Temperature Control' screen in this case, press the button to the left of line 1.

PROGRAMMING



This is the second screen of the display: **BG1 Temperature Control**

Line 1 of the BG1 Temperature Control screen indicates the current temperature being recorded by the first position brew group's temperature probe, LOW in this example. Once this temperature reaches the set point, it will continuously cycle up and down by small increments as the electronics balance the temperature.

Line 2 is indicating the set point of 203.0F (95.0C).

Line 3 indicates the length of time that the stage 1 timer (timed preinfusion) will run.

Line 4 indicates the length of time that the stage 2 timer will run. This option will ONLY be available on machines that are equipped with pump bypass systems.

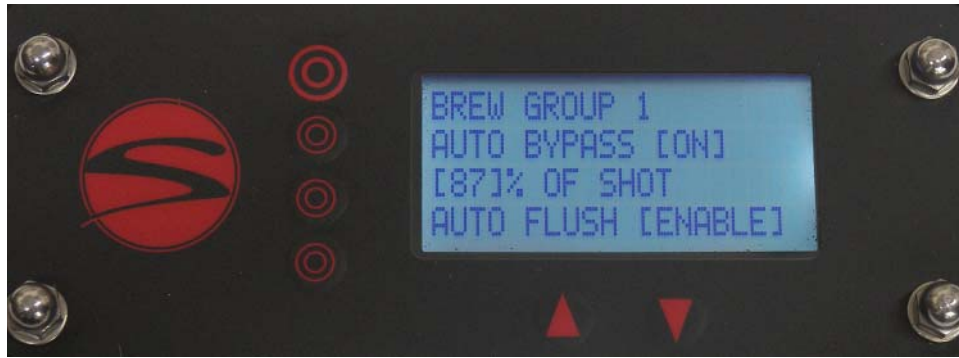
To change the temperature set point, press the button for **line 2**. The current temperature setting (203.0F) will begin to flash. To alter the temperature, press the '▲' or '▼' buttons until the desired temperature is reached. Press the button to the left of line 2 to confirm the temperature point. The number will stop flashing.

Line 3 indicates the amount of Stage 1 or "Line Pressure Pre-infuse" time that will elapse before the pump is initiated. (Line pressure can be altered with either a pressure regulator or a boost pump.) To change the Stage 1 time, press the button associated with line 3. The current time will begin to flash. To alter the time on the indicator, press the '▲' or '▼' buttons until the desired time is reached. Setting the Stage 1 timer to 00 will automatically set the Stage 2 timer, if present, to 00. Once the desired time is set, press the line 3 button to save the new Stage 1 time. The number will stop flashing. If a time is set for Stage 1, the user will be able to activate the timed preinfusion program by moving the group head handle all the way to the left into the brew position. The brew valve will open and the pump will turn on after the set time for Stage 1 has elapsed.

Line 4 indicates the amount of time that the pump bypass (if present) will operate. Stage 2 time begins once the Stage 1 time has finished. Opening the bypass valve while the pump is running reduces the brew pressure by an adjustable amount. To change the Stage 2 time, press the button for line 4. The current set time will begin to flash. To alter the time on the indicator, press the '▲' or '▼' buttons until the desired time is reached. Once the desired time is reached, press the button associated with line 4 to confirm the Stage 2 time. The number will stop flashing.

To cycle to the next display screen in the menu level, press the button next to line 1.

PROGRAMMING



This is the third screen of the display: **BG1 Auto-Bypass and Auto-Flush**

Line 1 indicates the brew group to be adjusted.

Line 2 indicates whether the automatic bypass is currently [ON] or [OFF]. **This feature is only available on volumetric machines with bypass hardware installed.**

Line 3 indicates the percentage of the shot that will be completed before the bypass turns on. **This option only appears when the 'Auto Bypass' indicator on line 2 is set to [ON].**

Line 4 indicates the option to do an automatic back-flush.

To program Auto Bypass, press the button associated with line 2. The indicator ([ON] in this case) will begin to flash. Use the '▲' '▼' buttons to select [ON] or [OFF]. Press the line 2 button again to confirm the selection. If the Auto Bypass on line 2 is set to [OFF], nothing will be displayed on line 3.

To set the percentage level on the bypass, press the button associated with line 3. The percentage indicator will begin to flash, showing it is ready to be adjusted. Use the '▲' '▼' buttons to set the desired percentage, followed by the line 3 button once again to confirm the new setting. The bypass will now turn on after the set percentage of the shot is complete.

The **Auto Flush** can be activated by pressing the button associated with line 4.

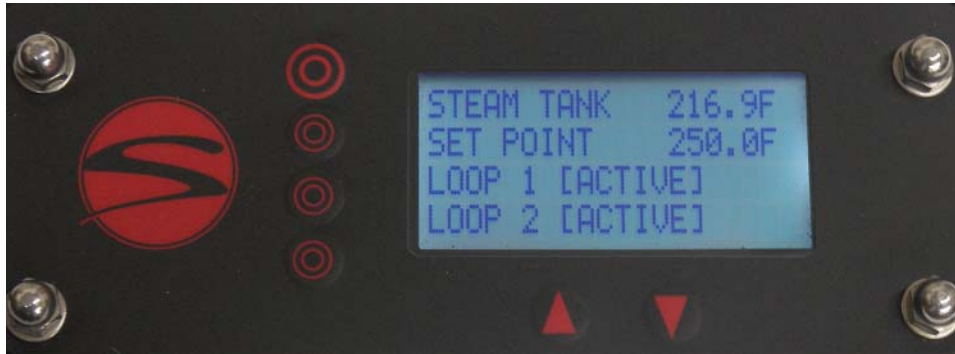
Volumetric: If the machine has volumetric capabilities, the indicator lights on the button pad of the brew group selected will all light up. Place the portafilter used for back-flushing into the selected brew group and press any button on the lit pad. The machine will now back flush 10 seconds on, followed by 10 seconds off for 5 cycles. While cycling, the button pad lights will go into chase mode to let you know it is currently engaged in the Auto-Flush process. Once the Auto-Flush is completed, remove the portafilter and thoroughly clean the diffuser screen. The machine is now ready for use.

Manual: If the machine does not have volumetric capabilities place the portafilter used for back-flushing into the selected brew group and turn the actuator to the on position. The machine will now back flush 10 seconds on, followed by 10 seconds off for 5 cycles. Once the Auto-Flush is completed, turn off the brew group to allow it to reset, remove the portafilter and thoroughly clean the diffuser screen. The machine is now ready for use.

The Auto-Flush can be interrupted mid-cycle by pressing any button on the selected brew groups button pad (with a volumetric machine) or by turning the brew group actuator to the off position (on a manual machine). Interrupting the program will cancel the auto-flush process, turning the indicator on the control panel back to [Enable], and resetting the program.

PROGRAMMING

(NOTE: Options for adjustments to brew groups 2, and 3 if applicable, will appear on the following screens of the control panel interface. Adjustments for 'Temperature Control' as well as 'Optional Features' on these brew groups will be the same as the instructions for brew group 1. These screens are omitted from this manual for simplicity.)



Line 1 The **Steam Tank Temperature Control** screen indicates the current temperature being recorded by the steam tank temperature probe, 216.9F in this example. Once this temperature reaches the set point, the digital display will continuously cycle up and down by small increments as the electronics balance the temperature.

Line 2 is indicating the factory set point of 250.0F (121.1C). The adjustable set range for the steam tank is between 170F and 270F (76.6C and 132.2C).

Line 3 and 4 are indicating that loops 1 and 2 of the elements are activated.

To change the temperature set point, press the button next to line 2. The current set temperature (250.0F), will begin to flash. To adjust the temperature settings, press the '▲' or '▼' buttons until the desired temperature is reached. Press the button next to line 2 to confirm the new temperature setting.

To turn off loop 1 or 2 of the element, press the button associated with the appropriate line. The indicator reading [Active] will begin to flash. Press either the '▲' or '▼' button to select [off], followed by the line 3 or 4 button accordingly, to confirm the selection.

Turning off either loop 1 or 2 of the element can be used as a troubleshooting procedure and is not a recommended method of energy conservation.

To cycle to the next display screen in the menu level, press the button next to line 1.

PROGRAMMING



Line 1 indicates that you are on the **Hot Water Tap** control screen.

Line 2 indicates the adjustable amount of time that the hot water tap will run before shutting off.

Line 3 gives the option of setting the hot water time on line 2 by activating the tap and letting the water flow, then shutting it off. The machine will retain the duration of this pour and dispense for the same length of time when the hot water switch is activated.

To change the 'Hot Water Tap' time by tenths of a second, press the button associated with line 2. Use the '▲' '▼' buttons to select the desired time, followed by the line 2 button once again to confirm the selection. The hot water tap will now dispense hot water for the allotted amount of time.

By selecting the **line 3** 'Program Time' you may set the desired time by placing the cup size you wish to fill under the hot water tap, press the hot water button on the top of the machine, let it reach the desired level and then press the hot water button again. This will automatically set the amount of water just dispensed as the 'Program Time', and the actual time in seconds will appear on line 2.

To cycle to the next display screen in the menu level, press the button next to line 1.

PROGRAMMING



Line 1 of the **Serial Number Display** indicates the software revision number (Ex: v1.04)

Lines 3 and 4 on the display will indicate the serial number given to this machine.

This screen will show when starting up the machine. Please have this number available if you contact technical support to aid in more rapidly identifying your machine.

PROGRAMMING



Error codes are displayed here

In an effort to prevent damage to machines and to help operators troubleshoot issues, Synesso has engineered several safeguards into the programming. These codes will help users identify operational issues with the machine, as well as automatically prevent greater problems from occurring. By understanding these codes, operators can remedy issues more quickly.

Error code key

BR – Brew System Codes

BV – Brew Valve has been on for 5 minutes. See page 30.
Valve will be disabled until group is turned off.

OT – Over Temperature. (220F) See page 30.

UT – Group reads under 180F for 1 minute while trying to heat (Under Temp.)

PR – Pump Relay coil has been on for 5 minutes.
Relay will be disabled until group is turned off.

BP – Bypass Valve has been held on for 5 minutes.
Valve will be disabled until group is turned off.

01, 02, or 03 – Indicate which brew group is reporting an error.

ST – Steam System Codes

LW – Low Water probe is not in contact with water (an audible alarm will also sound)

FP – Fill Probe is not in contact with water for 1 minute. See page 31.

FV – Fill Valve has been held on for 5 minutes.
Valve will be disabled until machine is turned off. See page 31.

OT – Over Temperature (270F)

01 – All Steam System Codes end in **01**

VM – Volumetric System Codes

UF – Unexpected flow while group is off.

01, 02, or 03 – Indicate which flow meter is reporting an error.

Example:

After brewing a shot, group 2 was left in the brew position. After 5 minutes, the machine will register a **BRBV02** and a **BRPR02** error; which translate to “Brew System, Brew Valve Group 2” and “Brew System, Pump Relay is timed out, Group 2.” At this time the machine will automatically shut off both the brew valve and the pump relay to ensure they will not be damaged. They will remain off until the group is returned to the off (far right) position, which allows the group to return to normal operation.

VOLUMETRIC PROGRAMMING

This section contains instructions for programming the volumetric dosing on Sabre machines and Hybrid machines with volumetric group heads. Basic machine programming is found on page 13.



To enter programming mode, press and hold any 2 shot buttons. After 3 seconds, the indicators for each button will illuminate. At this point, you can press the continuous flow (or pitcher) button on one or more groups to **exclude** that specific group from programming. This will turn off the upper indicators on the deselected group. A red indicator will remain lit on the deselected group's continuous flow button. Pressing this button again will exit the programming mode. If a group has been deselected in error, you must exit and reenter programming mode to re-select the group for programming.

While in programming mode, press any shot button with a lit indicator to begin a shot. As the shot flows, the indicator at each button receiving a program will blink. Once the desired volume has been reached, press the same shot button a second time to end the shot. The indicator light(s) will turn off. You may now program another button or exit the programming mode. If an error has been made, you may reprogram a button without leaving programming mode. Pressing a previously programmed button overrides the original program.

To exit the programming mode, press any continuous flow button on a deactivated group. As noted above, pressing a continuous flow button on an active group will deactivate it. When you exit programming mode, all lit indicators will turn off.

Notes:

- The continuous flow / pitcher button cannot be programmed. During normal operation, pressing the pitcher button will stop a currently flowing shot, or start a continuous flow of water from the group.
- Any stage 1 or 2 times (see Programming, page 17) set up prior to entering volumetric programming mode will be active during programming. Water dispensed during stage 1 and 2 counts toward total shot volume.
- Shot timers, if present, are not active during volumetric programming. The timers return to normal function once the machine leaves programming mode.

Low Flow Error:

- If a shot button is pressed but flow is not detected by the flow meters, the two indicators on the pitcher button will light and flash. If inadequate flow persists for 30 more seconds, the brew valve will close, cancelling the shot. The lights will continue to flash and the group cannot be used until the low flow error has been acknowledged by pressing the pitcher button. The most common reason for this error will be grind/tamp mistakes, but the incoming water may be restricted. If this error occurs frequently, please check the incoming water lines.

MAINTENANCE

Proper and regularly scheduled cleaning and maintenance procedures are CRITICAL for trouble-free and optimum quality performance from your espresso machine.

Back-Flushing

This process forces water through the inlet tube and drain system. This should be performed on EACH brew group daily. On the current generation of Synesso machines, back-flushing can be automated. See page 18.

To back-flush manually:

1. Replace the filter basket with the 'blind' basket, which has no filter holes.
2. Engage the portafilter, turn the head to the BREW position for 10 seconds. Then turn the group off again for 3 seconds. Repeat several times.
3. When using an approved espresso industry detergent during back-flushing, follow the manufacturer's instructions. It is extremely important to thoroughly rinse the blind filter basket and repeat back flushing several times with clean water to clear the system of any detergent residue. Failure to rinse can cause valve problems and bad flavor.

NOTE: NEVER remove the screen and screw when backflushing. Remove and clean them after backflushing is complete. Do not forget to reinstall.

General machine cleaning

1. Clean the surface of the machine using a soft damp cloth. Avoid using abrasive cleaners or cleansing pads. Take extra care on the mirror finish stainless steel surfaces. A "micro-fiber" towel is recommended to avoid scratches.
2. Make sure the steam wands and tips are free of milk build-up. It is always best to clean the steam wand and tip after each use. Approved espresso industry cleaners can be used to dissolve milk build-up. Tips can be removed to soak.
3. The drip tray, drip tray grates, and portafilters should be removed and cleaned every day. If you clean the portafilters in the dishwasher, first remove the filter baskets and springs before washing.

MAINTENANCE SCHEDULE

Daily

1. Back flush each brew group without detergent throughout the day.
2. Back flush with an espresso industry approved detergent during the final cleaning of the night (or after a busy period), and then again without detergent to rinse.
2. Wipe down the entire machine with a soft cloth.
3. Remove portafilters, baskets and springs, drip tray and grates and clean thoroughly. These items are all dishwasher safe.
4. Slowly pour a pitcher of hot water down the drain to clear grounds debris and prevent blockage.

Weekly

1. Soak portafilters and the removed filter baskets in an approved espresso industry detergent and water solution overnight. Rinse thoroughly before reassembling and using your portafilters.
2. Carefully remove screens from each brew group using a short handled screwdriver and soak overnight in a similar solution as the portafilters.
3. Rinse screens thoroughly before installing and using. **Make sure you install the screens before brewing any shots of espresso. Failure to do so may plug the drain lines with coffee grounds.**

Monthly

1. Check your water filtration system and make sure the cartridges and filters are changed as needed. In areas of high mineral content, hard water, high particulate count or in very busy locations, the filtration systems will need to be checked more often.

Quarterly

1. **Change** portafilter gaskets and closely **inspect** diffuser screens and filter baskets, If these items are showing wear, please replace them as soon as possible. Change these items if they show damage or overuse.
2. Briefly inspect the machine for leaks or potential issues. Contact Synesso or your local distributor or service agent to order parts and/or request service.

Synesso recommends that you contact your distributor or service agent for periodic maintenance. The frequency of maintenance visits will depend on a variety of factors including how much use the machine receives, but at least one preventative maintenance visit a year is required. During this yearly service, all body panels must be removed and all connections both electrical and hydraulic must be inspected. Small problems can become large if not caught early.

TROUBLESHOOTING

This is a troubleshooting guide for some of the common issues that operators might encounter when using their machine. For more detailed assistance with technical issues, contact your distributor or local service agent.

The machine may be reset by powering off for 10 seconds.

Brewing problems

The shot is pouring too slowly:

- Tamp pressure was too firm
- Too much coffee is in the basket
- The grind is too fine
- Diffusion screens are clogged; clean or replace
- Pump pressure is too low. Ensure that it is set between 8-9.5 bar
- Brew jet is clogged; when operating properly, 60ml should flow out within 8 seconds

The shot is pouring too quickly:

- Tamp pressure is too light
- Not enough coffee in the basket
- Grind is too coarse
- Portafilter baskets are worn or cracked; replace
- Brew temperature is too cold

Crema is thin with large bubbles and tastes astringent:

- Coffee is old
- Grinder burrs are dull
- Brew temperature may be set too low

Diffuser screen is loose:

- This is most likely caused by over filling the portafilter basket with coffee. This causes the expanding coffee puck to push against the diffuser and bend the screen-to-screw contact point away from the screw.

No pump pressure when water flows from the group:

- Check position of group head: ensure that it is in the brew position.
- Pump relay may have failed
- Stage 1 time may be set to run too long.

The pump comes on, gauge reads full pressure, but no water comes out:

- Diffuser screen/screw, or brew jet is clogged (can be caused by soap residue not fully flushed after cleaning).
- The water filter is clogged and needs changing
- Brew solenoid has been sealed shut by dried soap or has failed.

TROUBLESHOOTING

Brew Gauge

Brew Pressure gauge needle value changes often:

- This is normal. The lowest number (usually 3-5 bar) reflects the incoming line pressure. When brewing the needle reflects brew pressure (8.5-9 bar). When the brew tanks heat, the water expands and the expansion valve relieves the pressure at 11 or 12 Bar.

Brew Pressure is Low:

- Check pump to make sure pressure is properly set
- Water supply hose to the pump is kinked
- Water filter is plugged. Check and replace if necessary

Pump Motor Runs; No Brew Pressure:

- Failed pump, needs to be replaced
- Brew Solenoid is stuck (can be caused by soap residue not fully flushed after cleaning).
- Brew Solenoid has failed
- The line between the pump and the water supply has collapsed or is kinked
- Hose to the pump is kinked
- Water filter is plugged. Check and replace if necessary
- Water supply is inadequate

Readout for Brew Water Temperature Varies by a Few Degrees:

- The control must “see” the increment just above the set point before it sends a signal to turn off the heating element. This will allow the electronics to show a reading just above the set point. The energy from the heating element and the tube for the preheated incoming water are within 1” or 25mm from the location of the temperature sensing probe in the coffee tank. The water pick up tube for brew water is at the top of the brew group and is in the most temperature stable water in the tank. Meaning, the readout can show a temperature of a few degrees above your set point, and may fluctuate due to the heat from the element or heat exchanger, but your brew water is actually at the set point.

Electronics

All zones read LOW:

- Check to make sure the element breaker is ON (element switch is to the left). Zones will read low until the temperature in that zone reaches 175° F. Please allow 20-30 minutes to heat up initially.

TROUBLESHOOTING

Steam Wand

Drip at the Steam Wand Tip:

- Steam valve seal is worn. Replace by installing steam valve rebuilt kit.
- Steam valve is filled with milk residue. Disassemble steam valve and clean.

Wand is Hard to Move or Sticky:

- Remove wand at the nut, clean and lubricate moving parts with food grade grease

Steam

Sudden loss of steam pressure:

- Commonly caused from drawing large amounts of hot water while steaming milk. Allow the machine time to recover pressure. Check temperature settings on Steam 1 and 2 to make sure they are high enough for your application. Watch the steam gauge when the pressure drops; allow the heating elements to heat the incoming cold water. When it reads above 1.1 bar, hot water and steam may be dispensed again.
- Check the programming keypad to make sure all temperatures, especially in the steam tank, are close to their set points.
- Check the element breaker on the electronics box to make sure the heating elements are ON (element switch is to the left).

Steam Tank is overfilling:

- Water is too soft; this occasionally happens with reverse osmosis water filtration systems. The water level (auto fill) probe needs a minimum mineral content in order to detect water.
- Debris caught in the water control valve or worn out valve.
- Calcium deposits on the fill probe are preventing the probe from detecting the water level.

Steam Valve Stem Seals Leak:

- Replace O-rings. Purchase Rebuild Kit

The Sight Glass shows over or under filled steam tank

- Machine is not level. Check to make sure the surface that holds the machine is level. Slightly adjust leg height to level the machine.
- Water level is too high; use the hot water spout to drain water from the steam tank. Continue releasing hot water until the autofill system activates. Once autofill stops, recheck the water level.
- Debris is stuck in the water control fill valve.