

VESUVIUS

EVO LEVA



OWNERS MANUAL

Overview, Unpacking and setup

The Vesuvius Evo Leva is a high-quality prosumer grade dual boiler espresso machine using the commercially configured Spring Lever Group. Independent group heater cartridges, with individual brew and steam boiler, allow you to accurately control all aspects of brew and steaming temperature independently. Depending on the espresso shots you like to make, **you can set the machine for various temperature profiles:**

- Declining
- Flat
- Rising

Steaming is completely independent of brewing; the temperature of the service (steam) boiler has no effect on brew temperatures. The brew boiler and the group heater cartridges work independently but synergistically to give you the particular temperature profile you desire. **All boilers and the group heaters are controlled by 3 fully independent PID systems.** Each system can be optionally switched off to save energy. It is always advisable to run with the service boiler off, unless you need steam or hot water.

Paolo Cortese (Designer, Director)

Vesuvius Evo Leva Supplied Items.

- The Vesuvius Evo Leva Espresso machine
- 3 portafilters handles, Double single and bottomless
- Double basket, single basket
- Various Spares Group + Puly milk
- 4 felt pads and 4 rubbers pads
- Group cleaning brush
- Tamper
- Cable
- Ring doser ACS
- Microfiber Cloth
- Lever group
- Water connection kit / drain hose

Product Safety Notice - This manual is an integral and essential part of the product. Carefully read all warnings as they provide important information required to install, use and maintain the Vesuvius Evo Leva

Inspection and unpacking - After having removed the packaging, inspect the machine for shipping damage. If you have any doubts, do not use the machine and contact a professionally qualified person or your dealer. Always keep all packaging including any plastic bags. Keep packing materials out of reach of children and dispose of responsibly in accordance with your countries recycling and disposal arrangements. **The unpacking procedure is the same as the Vesuvius E61 machine (see later)**

General Installation precautions - Before switching on make certain that the rating indicated by the label/specifications matches the available power supply. The serial number and rating label is located at the rear of the machine. Installation should be in line with the standards and laws within of the country where installed. We always recommend the installing the Vesuvius Evo Leva on a circuit protected by an RCD.

For electrical safety, this machine requires a ground or earth and a properly grounded electrical outlet with adequate capacity for the current draw of the machine. If in any doubt, contact a certified electrician. We do not recommend the use of extension leads, adaptors or any other equipment between the Vesuvius Evo Leva and the mains supply socket (apart from a residual current device).

Always ensure the portafilter is locked in correctly

Failure to do this can result in the portafilter coming undone, with the risk of scalding or breaking any cups below. Please lock to the 6:30 position or further for safe operation. This is especially important with a lever machine. Great Care should be taken never to have any part of your body (other than your hands) over the lever when pulling a shot. Should the portafilter disengage, the lever will move up rapidly and could cause serious injury.



Unpacking the Vesuvius

The Vesuvius comes in a special protective wooden case, this item has been designed to not only protect the Vesuvius, but when disassembled folds flat to allow the Vesuvius to be repackaged for transportation at any time. To remove the Vesuvius from the case the following unpacking procedure should be used.

1. All 4 screws securing the lid should be removed. There are 1 on each side shown by the arrows, 4 in total. **Note: they are NOT on the top.**
2. The sides of the crate are secured by 4 metal clips, each held in place by a screw that should be removed.
3. Remove the clips



The sides of the case can now be lifted away from the base and the sides folded flat for storage.



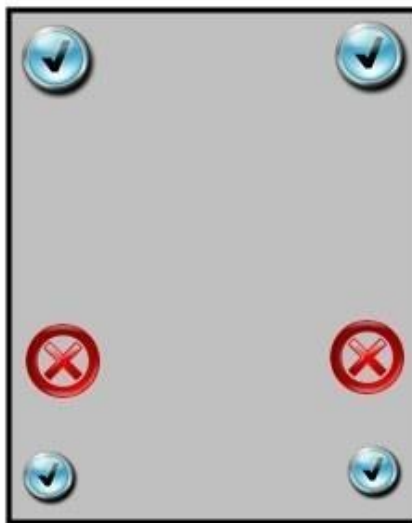
The Vesuvius is secured to the base using rubber transit feet with bolts on the bottom that protrude through the case and are secured with 4 wing nuts, these must be undone.



Once the wing nuts have been undone, the machine will lift away from the base and will have 4 soft rubber transit feet attached. These feet should be removed.

Attaching the feet

The machine comes supplied with 4 feet in the accessory case. 2 small and 2 large. The large are placed on the rear mounting holes and the 2 small ones are placed in the very front mounting holes. The extra holes near the middle are only used for 2 of the 4 transit feet.



1- Accessories



The Accessory Tray- The Vesuvius Evo Leva machine comes with a accessory tray, that has a lid. All supplied accessories will be in this tray. This tray also functions to store screws clips and transit feet, should the machine ever need to be repacked into it's protective shipping case.

The internal tank - Access the internal tank for refilling removing the steel cover as shown and the internal plastic dust cover to refill the tank with water. To remove the tank, remove the both tubes and hold them to one side then simply withdraw the tank from the machine. **Once you have placed the machine on the counter. ..always use 2 people to lift the machine, it is very heavy..** Remove the tank and wash in warm soapy water before first use. Replace any tubes in the tank. One of the tubes detects the water level in the tank and alerts when water is low. The tubes with the particulate filter (this is the pump inlet) and the small float device must reach all the way to the bottom of the tank. Make sure the small particulate filter is in place. Make sure both tubes are in the tank and not kinked, **do not place the inner lid on the tank, or close the tank cover at this time.**



Specifications

Vesuvio Evo Leva Specifications

Weight	Net 47kg, 59kg packing inc.
Dimensions	515H (765h with lever) x 368W x 510D
Brew boiler	0.8l - 1000W AISI 316L low corrosion stainless steel 2mm thick (8mm end plates).
Steam boiler	2.3l - 1200W AISI 316L low corrosion stainless steel 2mm thick (8mm end plates).
Commercial Spring Lever Group	Spring lever 54mm, double spring with real time pressure gauge, PID controlled electronically heated group (heater cartridge 200w)
Total Power Draw max	2.5Kw, detachable mains cord.
Pump & Motor	Gear pump motor unit, brushed, 24V DC 5 bars max
Water Tank Level Sensing	Float system
Water tank Capacity	normal fill 2.7 litres
Drip tray capacity	1.7l (can be drained)
Insulation	Both boilers
Useful Hot water draw	1000ml (1,3lt approx. dead draw with machine switched off)
Low Voltage Transformer	24V 70W, commercial unit.
Low water alarm	Visual only
Feet	Metal, height adjustable
Steam and hot water wands	Ball joint no burn.
Portafilters	2, 1 single and 1 double spout
Filter baskets	1 single, 1 double, 1 blind
Plumbed or tanked operation	Pipes and drain hoses supplied, drip tray has drain facility. Electronic switch to change from mains to plumbed
Pressure Profiling	Manual retardation, or advancement of the lever, aided by pressure gauge.
PID control	Independent PID algorithms for brew boiler, steam boiler and group heater cartridge. Each system can be independently controlled and even switched off as required.
Timer	7 day timer, on/off times each day.
Wooden accessory case	Containing various small spares, feet, 2 portafilters single & double basket, blind filter, all hoses required for plumbing.
Warm up times	The Vesuvius Evo Leva is ready for use in 15 minutes from cold.

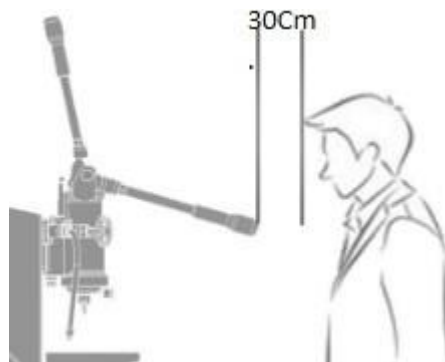
The major controls of the Vesuvius Evo Leva



The machine is simple to use even though it is a dual boiler spring lever machine. The single Touch screen LCD display panel shows temperatures of group, both boilers, low water visual indication. It gives access to basic/advanced settings, covering temperature, date and time, auto on off settings, PID parameters and even allows you to turn individual boilers or the group off/on as required..

To make Coffee - The Lever is pulled down ALL the way - this opens the valve in the group chamber and the drop in pressure causes the pump to run, filling the heated group from the brew boiler. After a few seconds the pressure gauge will rise and stabilise at the preset preinfusion pressure (you can change this from 1 to 4 bar). I recommend 2 or 2.5 bar. The pump may run intermittently as the pressure builds before it stops. You are now preinfusing, the pump will probably not run again...if it does run for an extended period, it's possible the coffee is too coarse, or the preinfusion too long. **I recommend ending preinfusion before, or once you see a drop of espresso entering the cup (if using a spouted portafilter, end the preinfusion a few seconds before coffee would exit the spout).** Preinfusions of any length can be made but anything much over 15 seconds probably means the coffee is ground too fine. In a commercial establishment, they will often not bother with preinfusion, once the group is full and up to pressure, they begin the shot. **You should experiment with this method as well as it requires a slightly coarser grind and may benefit some coffees.** When releasing the lever, control/cover it with your hand (don't just let go completely) and allow it smoothly up to the "bite point" unless you intend to profile (*see later*). The pressure will build in the gauge and espresso should begin to flow. The extraction time **after** the lever reaches the **bite point**

will ideally be around 30-40s (don't include your preinfusion time). If it's much longer or shorter than this, coarsen or tighten your grind setting as required. Don't forget to remove the cup when your required weight of espresso has been extracted...let the rest pour into the drip tray or a container. You can use pressure to achieve this weight (*see later*). **Never ever stand over the lever, always keep your face away from the lever...if for any reason the portafilter comes off or some other issue develops, the lever can rise to the vertical with great speed and force, causing injury.**



Operation of the lever for coffee brewing is extremely dangerous. To avoid the risk of harm to the operator make sure that:

- The filter holder cup is filled with the right amount of coffee, 17-18g for a double and 9 g for a single
- The portafilter is safely and properly locked into the group
- The pump runs and pressure builds completely to the preset preinfusion pressure...keeping the body at a minimum distance of 30 cm from the range of lever's action when the lever is operating, as shown above.

The manufacturer declines any liability for damage resulting from the improper use of the machine

Preparing the Vesuvius Evo Leva for operation

You can think of this process as bringing your machine to life, be watchful during this time for anything abnormal and ensure everything works correctly. Do not lock a portafilter into the group yet.

1. Fill the water tank with clean water suitable for coffee machines (not high in lime scale forming minerals).
2. Place a container under the group (no portafilter should be loaded at this time)
3. **Now move the Power Switch to the UP position** (switch is behind water tank cover). Wait until the software revision has finished showing and the machine is fully booted up (about 5 seconds).

4. **Turn the service boiler and brew boiler off see section: Setting Boiler/Group temperatures**
5. The pump should run to fill the service boiler...this process may take a minute or so. **Watch the tank to ensure the water level is dropping.** If the process takes too long you may get a Tank filling timeout error AL10
6. After the service boiler and brew boiler have filled and filling has stopped (you may have to refill the tank during this process). Pull the group lever down and ensure you have a good water flow from the group. **Control** the lever back to the vertical position **DO NOT JUST LET IT GO.**
7. The pump may continue to run for a short time as it completes the fill of boilers....
8. Make sure the water tank water level is dropping and topped up as required.
9. Turn the boilers on.

Flushing the Vesuvius before using - The manufacturing process and any subsequent testing will leave particles and tainted water within the machine. It is extremely important to ensure you flush the machine before using. You may do this immediately after successfully commissioning the machine. After the flushing process, you can choose to have the brew boiler or brew and service boilers on.

1. Fill (or refill) the plastic water tank with Filtered water, or ensure boiler safe water is used.
2. Pull around 2 litres from the group, in 400 ml sessions, pausing 20 seconds between each session
3. Do the same with the service boiler once it's up to temperature (**switch the machine off before doing so**) and drain as much water as possible from the Service/Steam boiler from the hot water tap. Switch on and allow it to refill and reheat. Repeat this a few times.
4. *Place a container under steam wand and open tap to draw steam for 5-10 seconds*
5. Refill water tank, your ready to make coffee

NB: Discard all water drawn from the machine during this flushing process. If the machine is unused for an extended period (you go on holiday for more than 2 weeks), it may be useful to repeat this process

Grinders - The temptation might be to use an inexpensive grinder unsuitable for the machine. To get the **most benefit** use the best grinder you can afford and you should be spending £500+ on the grinder (at the time of writing, June 2021)

To do the Vesuvius Evo Lever any justice at all, coffee must be fresh. You should know the roast date of the coffee and only use quality coffee from good roasters. Ideally, the coffee should rest for at least 5 days from the roast date before using, often even longer. Use the time recommended by your roaster for resting any specific coffee before use.

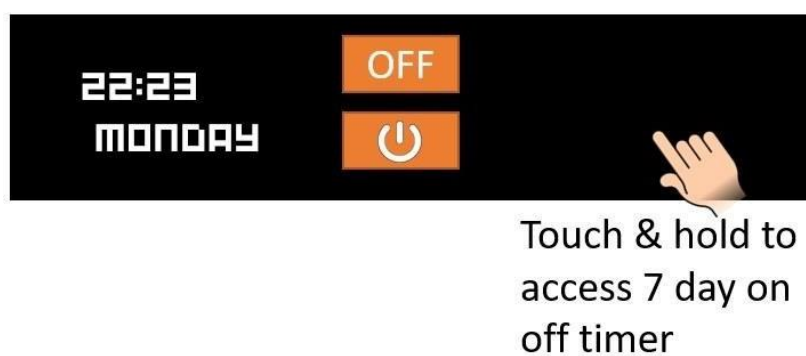
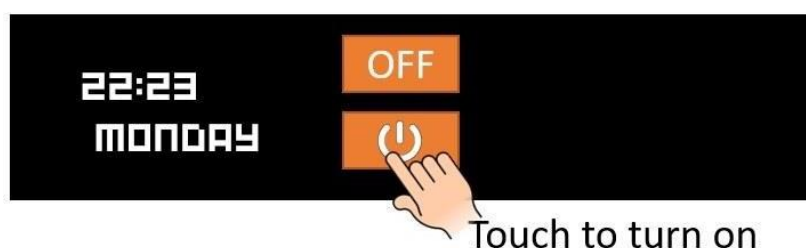
Using the Vesuvius Evo Leva

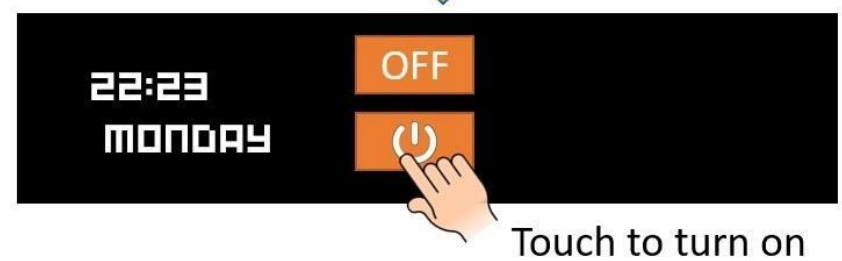
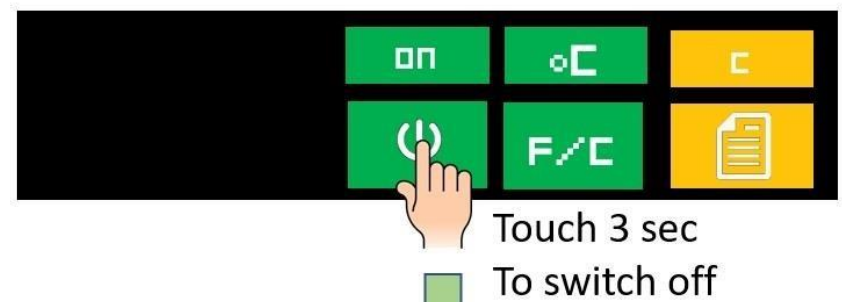
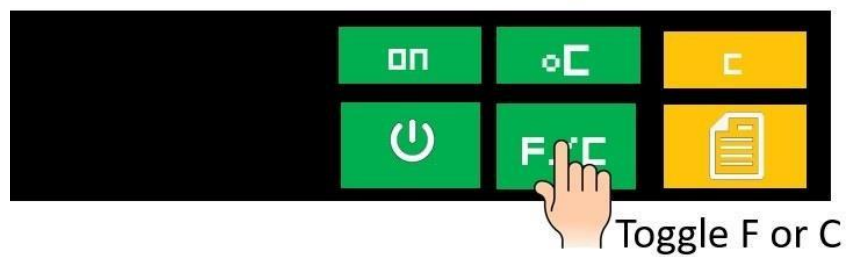
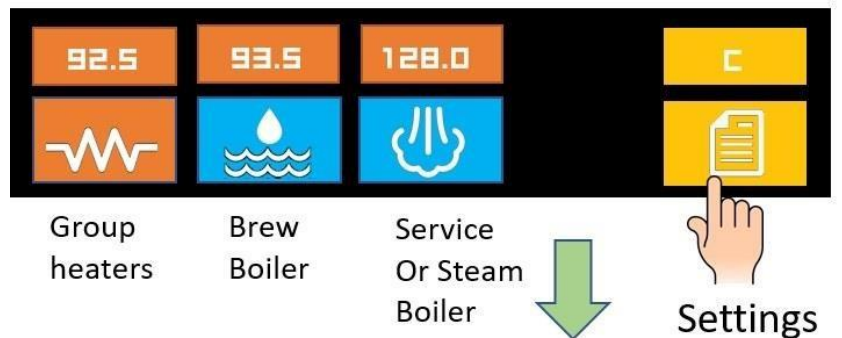
Before you turn the machine on using the on/off switch, ensure you have filled the water tank. Load the empty portafilter in the group (just so it warms up). Leave the portafilter in the group when the machine is on, it needs to stay hot. Check the steam and hot water valves are closed. You may hear the pump adding water to the service boiler if it required water. After a few minutes the brew boiler temperature displayed may have reached your preset value and the machine will seem up to temperature, indicating the machine is ready to make espresso. It is not, **the Vesuvius Evo Lever needs approximately 15 minutes to warm the Spring Lever group sufficiently to make espresso, you will know when it is ready because the group temperature will show your preset value.** This warm-up time, is only 25% of a normal commercial spring lever, Evo warms up very fast! **The service Boiler takes approximately 8 min to heat from cold** and when up to temperature is ready for hot water or steam. Please note: The pressure in the service boiler allows hot water to flow and steam generation, the pump plays no part in this. **If you do not need to steam milk, I advise routinely running with the service boiler off switching on the service boiler ONLY when you want to steam milk.** This prolongs the life of your machine and internal components. If you regularly need hot water, a kettle is a better (and more economical) option. Running just the brew boiler+group, consumes around 70W -100W of power, I run my machine from 9 am in the morning to Midnight every day. At 2021 electricity prices, it costs less than 25p to run for 16 hours.

The Vesuvius Evo Lever has a built in 7 day on/off timer, because Vesuvius Evo Leva powers on in the same state it was powered off **A mains timer or WiFi smart plug device can control the machines On/Off times** instead of the built in function **This is very convenient and saves having to remember to switch the machine off at night and on in the morning.** These devices are used at your own risk and do not remove the need for the usual safety precautions. We recommend that someone should be at home when these machines are on. You may read on the internet, that espresso machines may be left on 24 hours per day, this is not advisable and they should be switched off when you go to bed, leave the house or make your final coffee of the day. It is advisable to unplug the machine if away for an extended period (holiday).

Basic Operations

The basic operations such as switching the machine on and off, setting the time and day etc.. are all easily accessible from the touch panel. See images below. Also see the video in the **Advanced menu options section**.





Setting Boiler/Group temperatures

The example above shows switching off the Service (Steam) boiler...or changing the temperature. For either operation touch the screen and the points indicated. Once you have the setting you want, always **Confirm**. Changing the temperature of the group or brew boiler is an identical process, just touch the relevant item you wish to change. **All boilers and the group can be on or off in any combination.**

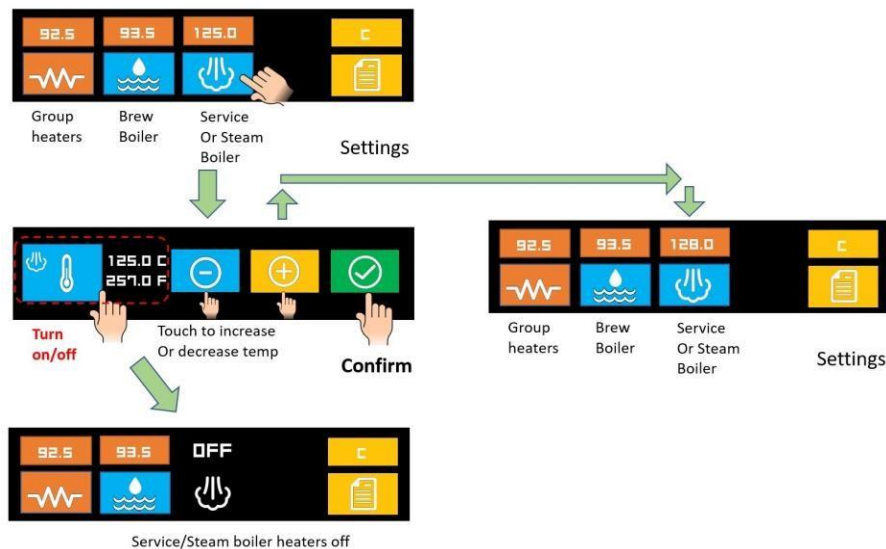
Group Heaters - The Spring Lever group has been specially modified to heat via 2 heater cartridges of approximately 110W each. These can bring the group up to full operating temperature in about 15 minutes and more than capable of maintaining brew temperatures of water in the group for extended periods of preinfusion (if required). The temperature shown is the **actual temperature in the main core of the Spring Lever group**. This is an close approximation of the real brew temperature, an exact value is not possible as the group has a temperature gradient across it's length/width..... **What's important is the ability to raise or lower the temperature in 0.5C increments for hotter/cooler shots, on a repeatable basis.**

The brew boiler does NOT heat the group via a thermosyphon, all group heating is by the group heater cartridges, controlled by an independent PID loop.

Brew Boiler - Water from the brew boiler only feeds the group once the lever is pulled down to make a shot. the pump will run and the group will fill. When water travels from the boiler to the group, it will loose some heat, I **recommend setting the brew boiler 8-10C hotter than the group temperature selected.** e.g. if you select a group temperature of 92C, use a **brew boiler temperature of 100 to 102C (note down what this value is for your machine).** You may see the temperature of the brew boiler change as the pump fills the group and during the shot. Don't worry about this, it's simply the effect of cold water passing the temperature sensor and has **absolutely no effect on shot temperature, that water is already in the group.**

Monitor the change in temperature of the group during the initial charge of water. If you notice this drops or rises slightly, reduce, or raise the brew boiler temperature slightly to minimise, or eliminate such variances. Unless these are required..

Service Boiler - This boiler is for steam and hot water. it can be set to a maximum of 130C, as this is a large 2.3 litre boiler a setting of 125C is more than sufficient for any steaming in the home.



Special Techniques for Temperature profiling on the Evo

Temperature - In traditional spring lever machines, the brew water starts cooling as soon as it enters the group and for the duration of the shot (assuming the machine is well set up). In addition it's quite likely the water entering the group is too hot and in many cases limits the steam temperature you can use. Should, for any reason you wish to mimic these effects, in the belief it improves the shot, the Evo can do this and a little extra. *Make sure the machine is fully warmed up and stable before making adjustments*

Stable temperature - This is the normal mode of operation, the heater cartridges and boiler temperature balanced to ensure a flat temperature during the shot and preinfusion phase. *Set the group temperature desired, then set the brew boiler between 8-10C hotter ...monitor the group temperature during preinfusion, if you find it's rises or falls during that first phase, lower or raise the brew boiler temperature by 0.5C, to 1C. Make a note of what this value is for your machine*

Declining temperature - This is how many older design Lever machines operate, the group heater cartridges are set lower than in the situation above. **It's recommended to first find the stable temperature** then lower just the group cartridge temperature by whatever amount desired. This will create a decline temperature floor, ensuring that even long preinfusions don't allow the temperature to fall lower than that floor (unlike other Lever machines). *e.g. The machine is set to 92C, group and 101C brew boiler, which gives a flat temperature profile (mentioned earlier). You want a 3C declining temperature during the shot. simply set the Group temperature to 89C and don't change the brew boiler temperature.*

Rising temperature - This is possible, whether it's desirable or not is down to your own experimentation. It "could" be beneficial for very light roasted coffees. First find the point where, the heater cartridges and boiler temperature

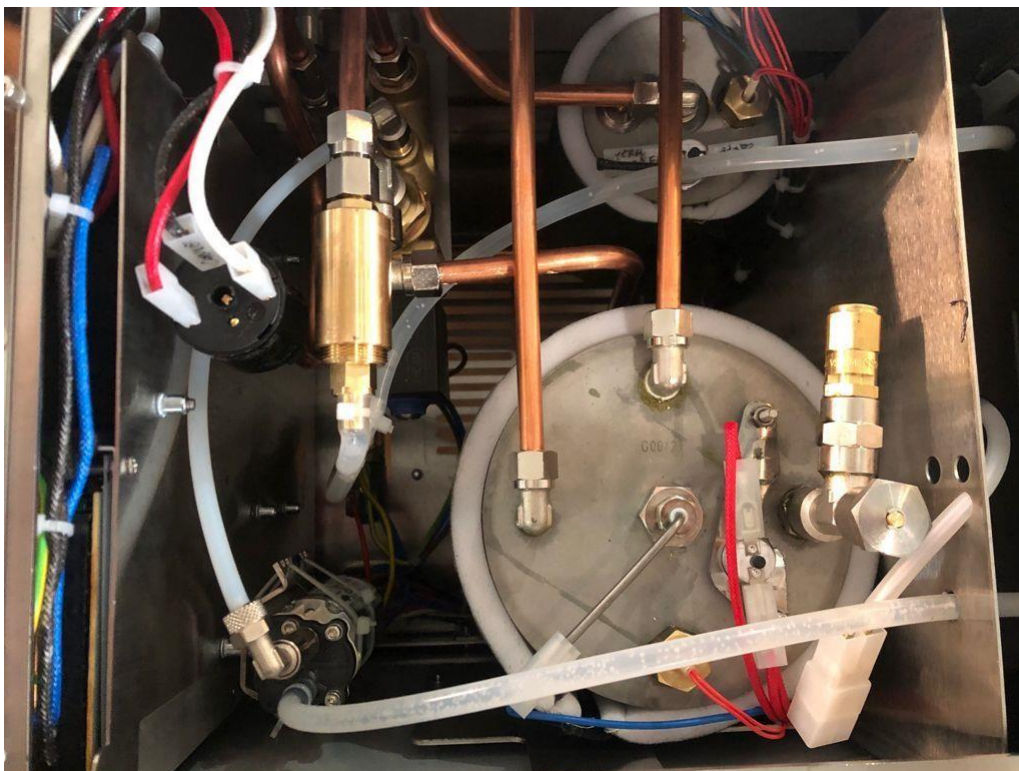
balanced to ensure a flat temperature during the shot and preinfusion phase. Then increase the group temperature a little to create a "high temperature ceiling". The group cartridges working together are powerful enough to increase the temperature of a group full of water. Although this might take a little time. *e.g. The machine is set to 90C, group and 99C brew boiler, which gives a flat temperature profile. You want a 3C rising temperature during the shot...simply set the Group temperature to 93C and don't change the brew boiler temperature.* Although the machine cannot store these as recipes, or setups. You can quickly go to a particular setting if you make a note of the parameters. I would then advice waiting a few minutes for the group/boiler to stabilise.

Pressure Profiling on the Evo

The Evo can control pressure in 3 ways

- A preset preinfusion pressure, from 0.5 to 4 bar. **This can be set with the pressurestat at the top of the machine, the top cover (4 Allen bolts) need to be removed to do this.** Ideally you should find the preinfusion pressure that works best for you and stick to it. It is unlikely any major benefit will be obtained by changing this on a regular basis with the Spring Lever group.
- Lever retardation
- Lever Advance

For the last 2 methods the pressure gauge built into the group chamber, accurately measures brew pressures during the entire shot. This allows you to hold the lever back (retard), or push the lever forward (advance), to reduce or raise pressure. The force required is surprisingly small, because you are applying this pressure right at the end of the lever arm. With a little bit of practice you can get quite precise pressure control. For example, should you wish to limit the shot to 8 bar maximum, simply apply a light fingertip pressure on the back of the lever after release, watch the gauge and ensure it doesn't rise above 8 bar....when you finally see the pressure begin to drop below 8 bar you can relax any pressure and allow the built in profile of the spring lever to take over.



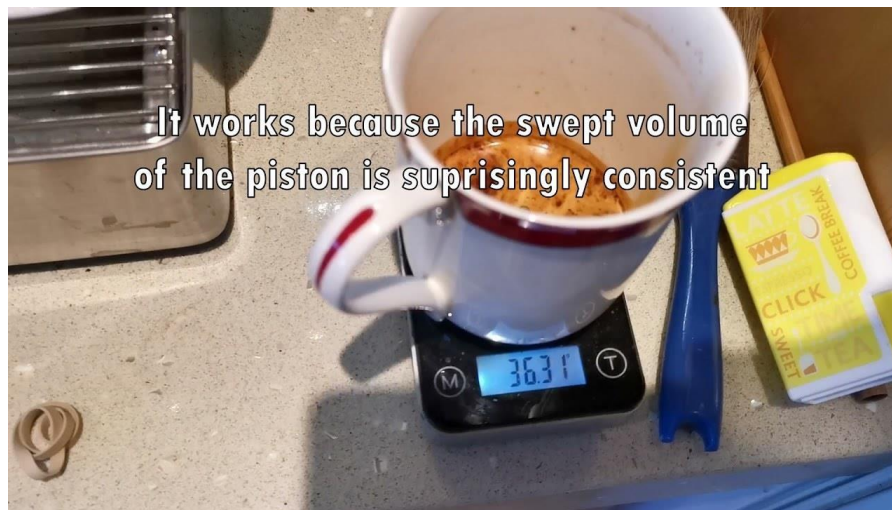
1 - Pressurestat for adjusting preinfusion pressure (machine under construction shown)

2 - Pressure Profiling



Why you don't need scales (well not all the time)

For many home spring levers space under the group can be limited, this is because of the physics required to make the machine stable when the lever is pulled. Commercial machines are much larger and their geometry allows for much greater group to drip tray heights. The Evo has a similar group to drip tray height to other prosumer spring levers, even though it uses the professional dual spring configuration. Of course that's no use to you when you want to put a tall mug + scale under the group and even with a naked portafilter, it won't fit. Usually, people use a shot glass, or espresso cup on a scale, pull the shot into that and monitor the output weight. The shot is later transferred to the cup or mug to be used. This does have the advantage of no clean up of the side of the mug, or use of a bowl spoon to catch the drips as the cup and scale are moved away from under the group. In the commercial environment scales are rarely used and the cups are simply moved away as the stream lightens, the barista being experienced enough to tell when the good part of the shot is over by the level in the cup and lightness of the stream. **The pressure gauge** on the Evo becomes really helpful here. Use any small cup and scale you like. For any coffee pull a shot and when the extraction weight is what you want for that coffee...note down the pressure shown on the gauge. Next time you pull a shot, **simply move the cup away at that same pressure and you will get the same weight within 0.5g**. You can check this by weighing the cup before and after the shot. This allows you to use any cup that will fit under the group, with no scale, but still get a consistent weight, because the swept volume of the piston is always consistent and directly related to the pressure shown on the gauge.



It works because the swept volume
of the piston is surprisingly consistent

3 - You don't need scales

Espresso & Other Drinks

The methods for making espresso have changed in recent years and a better beverage results from using the following methods and weights (rather than volumes). A double shot uses the double basket. Simply halve all the amounts and use the single basket if making single shots. Although I refer to 18g in the recipes, some coffees occupy more volume in the basket and you may find 17g is a better amount for the double basket supplied with the Vesuvius Evo Leva.

Double Espresso is 18g of coffee in double basket and 36-40g total weight of Beverage extracted (produced) in around 30-45 seconds The 40g gives an average drink to aim at, but modern high-end espresso establishments are experimenting with everything from 18g out to 50g out. I would personally call 18g out more towards the extreme Ristretto end of the scale and 50+ grams in Lungo territory.

To produce this, you have to weigh both the coffee you are using and the output produced, therefore a set of scales able to do this are required. Fortunately, they are readily available and there is enough room under the group to accommodate thin scales and cups, especially when using the bottomless portafilter..

Espresso - A double espresso is approx 36-40g of extracted coffee, made by passing water at 90-96c, at a pressure of around 140 psi, through 18gm ground coffee in a time of 30 seconds. The drink should have a crema layer that is dark and possibly reddish brown and may contain some darker flecks or striations (tiger striping/flecking). It should not be too bitter or too acidic (the signs of too high or too low a brew temperature). Or sometimes to short a shot. It should be extracted directly into a very hot espresso cup, preferably with thick walls and drunk immediately whilst still hot.

Ristretto - A smaller espresso drink, with the grind adjusted slightly finer to, producing up to 50% less weight in the same 30+ sec extraction time. In practice, many bars will just cut the shot short which is incorrect. (Ristretto means "restricted").

Lungo - A long espresso, which should have the grind adjusted (slightly coarser) resulting in 50 - 70% more weight within the same 30+ sec extraction time. **It should not be an over extracted espresso by using a longer extraction time.**

Americano - A single or double shot of espresso pulled on top (or added to) of 5oz or so of hot water, making something similar to a filter coffee. This can be served with or without hot/cold milk. A Cafe Crema, is a different way of producing a longer drink, like the Americano, but by adjusting the grind (much coarser) in order to achieve a 4-5fl oz drink in the same 30 sec extraction time. I actually add hot water to my espresso to make an Americano, probably a sin, but it works OK for me. I think they call it something different, but it's the same thing really.

Cappuccino - Equal thirds of espresso, steamed milk and foam. If you have successfully microfoamed milk (by 50% or more), this milk is simply tipped into the espresso base of the cappuccino. The micro foam will then separate out giving a 1/3 foam, and 2/3 coffee+micro foam liquid mix. The resulting drink has a silkier texture than a traditional cappuccino, using steamed milk and then foam on top. It is also the basis for all latte and cappuccino art (that of getting hearts, fern leaves, apples etc. shapes forming in the foam). If you pour micro foamed milk into the espresso base from one side of the cup and just before the end of the pour pull the stream back across the surface of the milk, you might get an apple. Sprinkling chocolate/cinnamon on the top is optional and adding a spoon of chocolate to the espresso and stirring in before adding the milk, makes a Mocha

Latte - Although this means "Milk" this drink is meant to be, espresso 3/4 steamed milk and 1/4 foam on top. Alternatively, take your 20% stretched (increased in size). I always used to take my micro foamed milk and tip straight in for the type of "Latte" I preferred, I also liked a much higher volume of espresso to milk, it moved it from being a kid's milk drink to a proper coffee drink for me.

Flat white - in recent years, something called the flat white surfaced. Definitions vary, but it is effectively micro foam only, poured into espresso, the volume of espresso being quite high. A double shot into a normal cappuccino cup (150-180ml) might be more normal for this type of drink. The milk is micro foamed to cream like consistency with no visible foam. It is actually my preferred method for "my own" Lattes.

Macchiato - shot of espresso "stained" with a drop of steamed milk on top (means "marked" in Italian). Or for me, a drop of double cream.

Cortado - Another favourite of mine, equal quantities of espresso, mixed with steamed milk. It gives a very strong espresso, but the milk changes the taste of the shot quite dramatically.

Every year a new drink is invented, the beauty of your own machine is that you can experiment and do them exactly how you like them. Use these drinks as a guide, even the rules for espresso do not

always apply for every type of coffee, some require a lower brew ratio than others. Do not be afraid to experiment and make coffee your way.

I always prefer full fat milk (whole milk), you will often see latte and flat white differences stated as flat whites always contain whole milk, but you use the milk you like. It is also OK to use cream (or butter) in coffee; in fact, I think this practice will become more common in the future, especially double cream or butter. Do not be afraid to experiment, **it is why you have a prosumer machine, to duplicate and then move beyond what you can get in the coffee shop.**

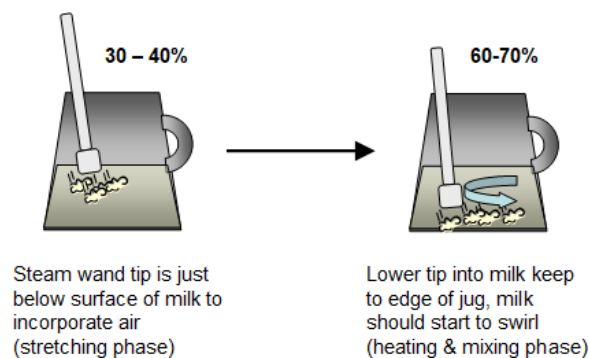
Steaming Milk

You can steam milk, or milk substitutes. The milk substitutes vary in their success usually in direct proportion to the amount and type of fat in them. You should experiment to find a product that performs well for you. I find full fat milk works best and it should be cold from the fridge. The milk jug should be one made for the purpose (e.g. steel with a spout) and not be overfilled (60%-70% full), use a larger jug for larger volumes of milk. **Before steaming milk Purge the wand (open steam valve for a few seconds to heat the wand and remove excess water (do this into a container).**

Pro Tip: Crack open the steam valve slightly "just before" placing the steam tip in milk (not after). This prevents a drop in pressure forcing cold milk back into the wand (purging makes the wand hot and can cause this as hot air contracts on cooling).

It does require some practice to achieve that perfect "glossy micro foam". Steaming with the Vesuvius Evo Leva is fast, so be careful not to steam too long. The steaming time for milk to use in a single Latte is only 20 seconds or so. **Steaming is in two phases. The % time in each phase is shown below.**

The longer you remain in the stretching phase, the more foam you will produce (but less micro-foam), perhaps ideal for Cappuccinos but not so good for flat whites. The ideal consistency for latte art and the majority of drinks is that of pouring cream...with no visible bubbles.



After steaming milk - Rinse the milk jug with clean water, submerge the steam wand fully and draw steam. This softens milk deposits). Then take a damp sponge with a little washing up liquid, hold

around steam wand for 5 seconds twist and wipe a few times and the wand will come clean. Wipe with a clean damp cloth. Do not use scouring pads, or leave the milk deposits to harden on the wand for any length of time. *Sometimes the holes in the tip can block reducing steaming and many group head brushes have a small spike to clean out the holes. Ideally remove and check the top periodically for internal blockages*

Drawing hot water to warm cups, for Americanos, Tea and other hot drinks

Open the hot water tap by moving the lever toggle away from the centre position, returning it to the centree when you have the amount of water required. Do not submerge the water outlet as there is some steam with the water and it may splash boiling water onto your hands. There will be some steam, so be careful, as the area above the wand will get hot. If your machine has wooden knobs and the water knob gets excessively wet, we advise you quickly dry it after drawing water.

Cleaning and Maintenance

After **every espresso or group of espressos** - With no portafilter in the group, pull the lever down to flush the group with hot water for a few seconds. I flush into a plastic tray Knock out the portafilter and if it's the last coffee, rinse the portafilter to remove old coffee....I use the water in the plastic tray (above) for this. Use a Damp microfibre cloth to wipe away any bad splashes

Pro Tip: *If you are making a series of coffees, only do the rinsing above for the last coffee. simply know out the portafilter and clean out any remaining grounds from the portafilter with a dry paintbrush... then make your next coffee. Do not rinse the group either.* **Daily (at the end of each day)** - The same as after every espresso, but with a thorough wipe around the group seal, using a clean j cloth or sponge. Wash the drip tray with warm soapy water, as well as the grille. Water marks on the group head and face of the machine should be cleaned with a damp microfibre cloth followed by a soft dry microfibre cloth (do not rub too hard). Separate the portafilter and basket thoroughly clean both before replacing **Lever groups only require minimal maintenance, which is outside the scope of this user guide. There is the intention to produce a short maintenance guide and some videos, long before you need to do any maintenance on the group.**

Descaling - It is impossible to advise about the frequency of descaling as this is dependent on the water hardness (lime scale) and usage of the machine. Even if you use bottled water of a low mineral content or filters/filter jugs, eventually the machine will require descaling. The only system that completely removes the need for descaling is softening, or Reverse Osmosis with remineralisation using non scaling ions. Descaling should be performed by a qualified service agent, so we only give broad guidance for the procedure. The Boilers are low corrosion AISI 316L stainless, so will not be damaged by descaling solution and the copper pipes feeding the group have such thick walls, it also won't be a problem.

Service Boiler Descaling- This is the easiest boiler to descale. Switch on the service boiler; bring the machine up to full steam pressure (whatever you have set). Place a container under the water wand, **switch the machines power off** and in stages open the water tap and empty the service boiler. When you can draw no more water, the service boiler will be completely empty. You will get approximately 1400ml of water from the service boiler

Place a descaling solution in the cold water tank approx 50g - 100g citric acid (**always add acid to water**) to 1 litre of water, dissolve the citric acid in a little warm water before adding cold water to make up to the volume required. **Switch the machine on with service boiler heating enabled. The service boiler should start refilling (do not touch the group lever unless you intend to descale the brew boiler as well).** Add more descaling solution to the cold-water tank as necessary. **Allow the service boiler to come up to full pressure and then switch off, leave the machine for 3 hours. Remove the water tank wash it out and refill with clean water and replace in the machine.**

Switch the machine on, once up to full steam pressure (whatever you have set). Place a container under the water wand, **switch the machines power off** and in stages open the water tap and empty the service boiler. You will get approximately 1400ml of descaling solution and you should see evidence of descaling action. Be careful the solution will be hot and acidic, do not get any in your eyes (or wear safety goggles).

Switch the machine on again and it should start to refill with clean water from the tank. Repeat this emptying and refilling process twice, or until no more taint of descaler remains.

Brew Boiler Descaling - You can use two methods, whatever you decide, it is important to prevent the service boiler from refilling unless you plan to descale that as well. So, don't use any water from the service boiler, make sure the service boiler is off and cool if you only want to do the brew boiler.

1. Easy method - Put a strong descaling solution in the cold-water tank (top up with new descaler as necessary) 100g per litre of citric acid, as before dissolve in a little warm water (**always add acid to water**) before adding cold to make up 1 litre. Run this solution into the brew boiler by operating the lever. 15 seconds on/15 seconds off. Do this about 3 or 4 times until the water coming from the group smells strongly of descaler. Do not have the portafilter loaded for this and use a container to catch the solution coming from the group. Leave the machine on for a couple of hours, clean the water tank and replace the descaler with fresh water. **Repeat the flushing of the group as before, but with fresh water until no taint of descaler remains.** Expect to have to flush through around 15 litres or more to achieve this.

2. Hard method (only for experts, so no detailed description) - Unplug machine and open top, remove temperature sensor without damaging wiring, it uses PTFE tape on the threads (so comes off easily). Use large syringe and tube to evacuate brew boiler of water. Use same syringe to fill brew boiler with descaling solution 50g -80g per litre (it will take around 800ml). Replace temperature sensor, bring brew boiler up to temperature and leave for 2 hours. Unplug machine, allow to cool remove temperature sensor and use syringe to remove all descaler. Fill with clean water and

remove, repeat once more. Refill with clean water, replace temperature sensor. Taste water from group to ensure all descaler removed, otherwise flush a few times.

This is a light descale, it's better to descale more often than do a much deeper descale with specialist chemicals. It is very important to use a damp microfibre cloth and wipe of all splashes of descaler from the stainless steel surface of the machine and group to avoid damage. Regularly rinse the cloth out.

Other problems

In the event of any abnormal operation or problem with the display: Switch the machine off and unplug it. Plug in and switch on again. If this does not fix the fault, **check all the settings in the advanced menu**, in case the main board firmware has been accidentally returned to the board manufacturers settings.

If a boiler fails to heat, the machine has 2 resettable limit stats: Unplug machine and remove either upper or lower access panel to reset the relevant limit stat, by pressing the little red button in the centre. These are on the top of both boilers. If the problem recurs, contact your dealer for advice.

Abnormal sounds or leaks: Contact your dealer for advice. Sometimes the repair may be very simple, e.g., a leaking high-pressure PTFE pipe joint and the dealer can talk you through quickly fixing it. At other times it may be more serious and require more expert attention.

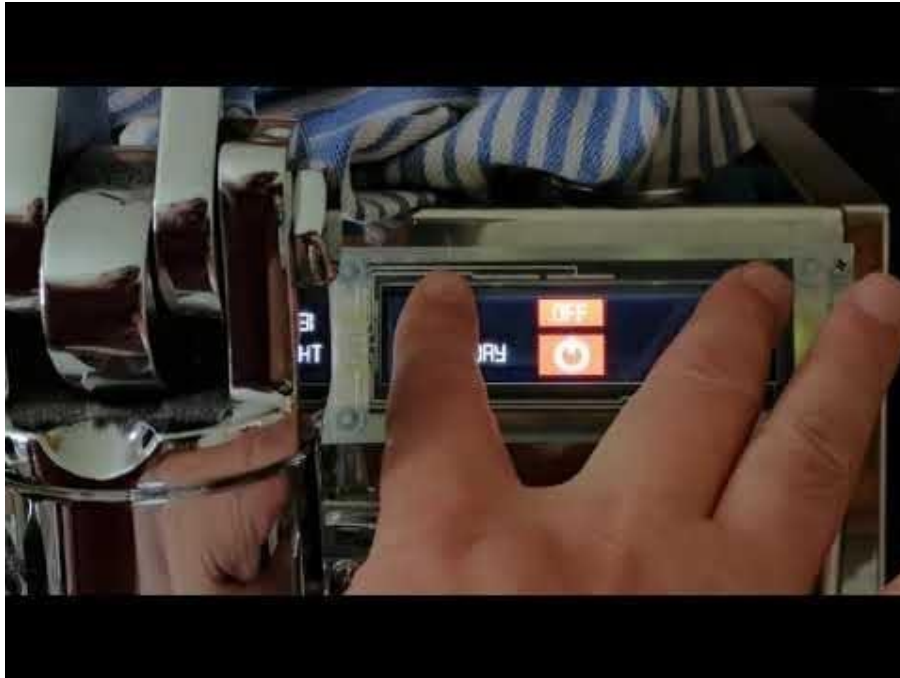
Main Board Firmware

Display Error Codes

- "A1": Temperature probe not connected or short circuit (broken)
- "A2": Temperature probe circuit break (not connected)
- "A10": Service Boiler filling time out (took longer than allowed)
- "A11": mains fill time for internal tank timeout (took longer than allowed)

The A7 error is a protective feature to protect the pump, or against flooding and will stop the pump after a certain time. To reset this error, simply switch the machine off and on again. If it keeps happening, look for a kinked blocked feed hose or other problem. If it keeps happening even though the pump only runs briefly, contact your dealer for support. *It is possible an A7 will pop up once or twice during a refill after draining the service boiler, if it does simply switch the machine off (wait 10 seconds) and switch on again.*

Advanced Menu Options



Advanced menu options allow you to change values as follows:

- Tanks or Mains plumbed
- Number of groups (1 for the Evo)
- Service Boiler Filling time out
- Water Tank filling time out
- PID Parameters (only change as recommended by ACS) *Further guidance is likely over the coming months*

Vesuvius Evo Leva – Advanced Parameters

Parameter	Recommended Settings	Units	Comments
F01	120	Sec	Filling time out of service/steam boiler
F02	Not present		
F03	1	Integer	Presence of internal water tank, do not change this
F04	0 or 1	Integer	0 = Manually fill internal tank 1 = plumbed operation
F05	30	sec	Mains fill time out for internal tank. When plumbed, will close solenoid after time set in sec
Group PID Parameters			
Kp	2.0	Integer	Proportional
Ki	0.0	Integer	Integral
Kd	5	Integer	Derivative
B	5	integer	Temperature range at which PID works, outside this range the heaters are fully on or full off
Coffee Boiler			
Kp	2.0	Integer	Proportional
Ki	0.0	Integer	Integral
Kd	5	Integer	Derivative
B	5	integer	Temperature range at which PID works, outside this range the heaters are fully on or full off
Steam Boiler			
Kp	2.0	Integer	Proportional
Ki	0.0	Integer	Integral
Kd	5	Integer	Derivative
B	5	integer	Temperature range at which PID works, outside this range the heaters are fully on or full off

PID Values Explained

Proportional control applies power to the heating elements in proportion to how far you are from the set point. Its main drawback is that the closer you get to the set point, the less power it applies (it's why we don't use it on the service boiler). Eventually it doesn't push hard enough to change the temperature and the brew boiler can run continuously close to the set-point temperature, but not quite there.

Integral control tries to even out the difference of the time spent above and below the set point brew temperature. If you've set 93C as your set point and spent a minute running at below it will try to push you over to 93C for similar amount of time. This action compensates for P's inability to make that last effort.

This would seem to be enough, but to allow the brew boiler to recover rapidly but not overshoot the set-point temperature excessively, welcome to the **derivative control**.

Derivative as a brake or dampener on how much power the **Proportional control** uses. The more it tries to change the value, the more it counteracts the effort...it's why it's sometimes called "**Rate**".

Measures change over speed. It will reduce the effects of P and I more, the faster the set point is approached. Low values of D can cause overshoots; high values of D can make response sluggish.

We recommend you use the values in the guide, but **with experience**, small changes may benefit the operation of the Vesuvius Evo Leva in its specific environment because this may be hotter or cooler than the test environment.

Note: A PID controls systems around a steady state. You may set a temperature of 93, but it's perfectly normal to see the PID vary slightly around the set point. Moving from 92.5 – 93 – 93.5 and back again.

It's also important to mention that as soon as you use the machine, expect the displayed temperatures to vary a little after the espresso shot, this is perfectly normal. The boiler is quite large and will very quickly settle down regardless of any temporary slightly high or low temperature and the group itself is a very temperature stable (large) mass of metal.

[Disclaimer](#)

DICHIARAZIONE DI CONFORMITÀ CE - DECLARATION OF CE CONFORMITY

**DÉCLARATION DE CONFORMITÉ CE - CE
KONFORMITÄTSERKLÄRUNG -DECLARAÇÃO DE
CONFORMIDADE CE**

EG CONFORMITEITSVERKLARING - CE-OVERENSSTEMMELSESERKLÆRING

M & V S.r.l.

Dichiara sotto la propria responsabilità che la macchina in seguito denominata, in base alla sua progettazione, costruzione e per l'utilizzo, è conforme alle disposizioni delle direttive CE in materia di sicurezza e salute.

Declares under its sole responsibility that the following appliance conforms to the CE directive health and safety provisions as regards design, construction and use thereof.

Déclare sous sa propre responsabilité que la machine ci-après spécifiée, sur la base de sa conception, construction et pour l'utilisation prévue est conforme aux dispositions des directives CE en matière de sécurité et de santé.

Erklärt unter eigener Verantwortung, dass die folgend genannte Maschine, in Hinsicht auf die Planung, den Bau und die Verwendung, mit den CE Vorschriften für Sicherheit und Gesundheit übereinstimmt.

Declara bajo su propia responsabilidad que la máquina que se indica más abajo, teniendo en cuenta cómo se ha proyectado, cómo se ha construido y para qué se usará, respeta las disposiciones de las directivas CE en materia de seguridad y salud.

Declara, sob a própria responsabilidade, que a máquina indicada a seguir, em base ao próprio projecto, fabricação e utilização, está em conformidade com as disposições das directivas da CE sobre a segurança e saúde.

Verklaart onder eigen verantwoordelijkheid dat het volgende toestel, voor wat het ontwerp, de bouw en het gebruik betreft, conform de EG richtlijnen is voor veiligheid en gezondheid.

Erklærer at maskinen, som nævnt herunder, er tilpasset EU-direktiverne for sikkerhed og sundhed på design-, konstruktions- og anvendelsesområdet

*Tipo di macchina - Machine type - Type de machine - Maschinenart - Tipo de máquina -
Tipo de máquina - Type toestel - Maskintype*

VESUVIUS EVO LEVA

Direttive specifiche - Specific directives - Directives spécifiques - Besondere Vorschriften -
Directivas específicas
- Directivas específicas - Specifieke richtlijnen -
Specifikke direktiver 2002/95/CE (RoHS)
89/336/CEE - 2006/95/CE - 2002/96/CE (Raee)

Norme applicate - Applicable standards - Normes appliquées - Angewandte Vorschriften -
Normas aplicadas - Normas aplicadas - Toegepaste normen - Anvendte standarder
EN 61000-3-2 - EN 61000-3-3 - EN 55014-1+A1+A2 - EN 55014-2 + A1 - EN 50366 - EN
60335 -2-15 - EC1935/2004
EN 61000-4-2+A1+A2 - EN 61000-4-4+A1+A2 - EN 61000-4-5+A1 - EN 61000-4-6+A1 - EN
61000-4-11+A1

.....
Direzione Tecnica - Technical Management - Direction Technique -
Technische Leitung Dirección Técnica - Direcção Técnica -
Technische directie - Teknisk ledelse

La presente dichiarazione perde la sua validità se l'apparecchio viene modificato senza la
nostra espressa autorizzazione

This declaration shall cease to be valid if the appliance is modified without out
explicit authorisation La présente déclaration perd sa validité si l'appareil est
modifié sans notre autorisation expresse

Die folgende Erklärung ist nicht gültig, wenn die Maschine ohne ausdrückliche Genehmigung
von illycaffè verändert wird

La presente declaración no tendrá validez si se modifica el aparato sin que nosotros lo
hayamos autorizado expresamente

A presente declaração perde a sua validade se o aparelho for modificado sem uma nossa
autorização expressa Deze verklaring is niet meer geldig wanneer er wijzigingen worden
uitgevoerd op de machine die niet geautoriseerd werden door

Denne erklæring ophører med at gælde, hvis maskinen ændres uden vores udtrykkelige
accept

M & V S.r.l. - Via Malatesta 39b Somma Vesuviana (NA) 80049