Pre-installation manual Slim Jim

(Original instructions)

Document ID: Sup-Tpim-Eng | Date of issue: February, 2018 | Revision date: June 24, 2020

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Designation

This manual applies to the 2-group and 3-group Slim Jim Mirage espresso machines with touchpad or Bastone operation manufactured by Kees van der Westen Espressonistic Works B.V. A separate rotational pump with electric motor is part of the appliance.

Precaution

- The espresso machine has to be placed in a horizontal position on a sturdy and flat surface.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- The new hose-sets supplied with the appliance are to be used. Old hose-sets should not be reused.
- Intended use of the appliance is restricted to well-trained personnel only.
- The appliance must be installed in locations where it can be overseen by trained personnel.
- The appliance may not be left unattended when there is the possibility that children and/or vulnerable people can reach the machine.
- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.
- The mains electricity the appliance is connected to must include a residual-current-circuit-breaker of 30 mA.
- The appliance may not be cleaned with the aid of a water jet.
- The appliance is not suited for outdoor use.
- Ambient temperature for correct operation of the appliance is 10-30°C (50-86°F).
- If ambient temperature falls below 5°C (41°F), keep the machine at ECO or ON to prevent freezing of water inside the machine.
  Note that the external rotational pump should be kept above freezing point of water as well.
  Whenever the machine and/or pump have suffered freezing conditions, ask a technician to start-up the appliance again.
- It is advised to install a leak prevention system as the appliances is directly connected to the water mains. An unattended leak can cause serious damage to the premises.

Water

Quality

Have the local water tested and ask the water supply company if there can be seasonal changes in water quality and when so, in what order these changes occur.

Optimally, the water fed into the espresso machine would fall in the high end of the SCA “core zone”, see Figure 1, and have a pH of 7.0-7.5 (at 25°C).

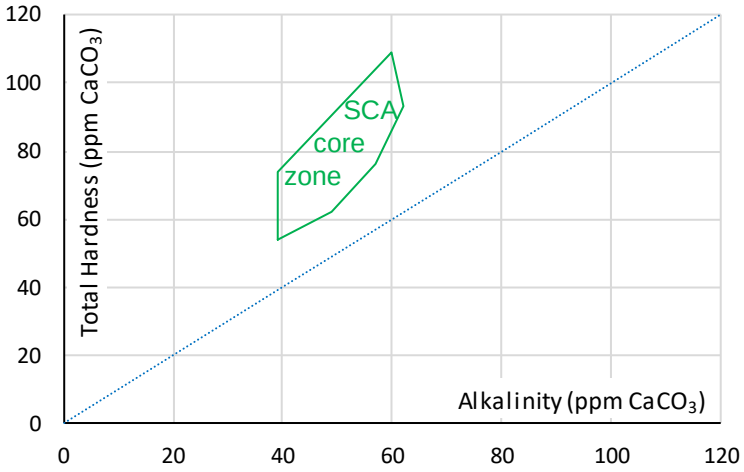

Figure 1. Alkalinity vs-Total Hardness graph showing the SCA “core zone” in green outline.

Besides the Alkalinity and Total Hardness requirements, the water should have the following properties:

Parameter	Target	Acceptable range	unit
Total Hardness	72	50-175#	ppm
Total Alkalinity	40*#	40-75#	ppm
pH	7.0*	6.5-7.5*, 6.5-8.0#	--
Electrical conductivity		< 3 times Alkalinity (in ppm)#	µS/cm[1]
Total Dissolved Solids	150*	75-250*	ppm[1]
Calcium Hardness	51-68*	17-85*	ppm
Sodium	10*	at or near 10*	ppm
Sulphate	30	0-50	ppm
Chloride	0	0-30	ppm
Silica	0	0-5	ppm
Odour and colour	clean*, fresh*, odour free*, clear*		
Taste influencing organic compounds*#		not present	
Chlorine#, Hypochlorite#, Chloramines#			
Iron#, Lead#, Manganese			

* SCAA Technical Standards Committee, 2009: water properties for optimum taste.
# Values from “The SCAE water Chart” (2015?).

Table 1. Showing parameter values for water meant to brew coffee with.

Water with properties that lie within the SCA “core zone” and correct pH combines technical aspects enabling a safe operation and sensory aspects yielding a high quality brew, provided the other parameters are met as well. High brew-ratio’s, as for espresso, shift the optimum of total hardness and alkalinity towards higher values within the core zone.

[1] The conversion from electrical conductivity to TDS depends heavily on the water composition and temperature, yielding results that can vary significantly. Additionally, even if the estimated TDS value is accurate, it does not contain any information about what the TDS is actually made up of.

Quantity

The water supply should be able to deliver a minimum amount of 4 litres (1 gal(US)) per minute. The machine will come with a rotary vane pump and a set of high pressure hoses (two hoses, each 1.5 meter long) but without water treatment system. The distance between water treatment system and pump and the distance between pump and machine cannot be greater than 1.5 meter unless there is sufficient material available to increase these distances.

Note! Not included in the shipment are supplies to make the connection between the water-tap and the water treatment system.

Water treatment system

The water treatment system should also be able to deliver a minimum amount of 4 litres per minute and should at least have a carbon block that not only traps drug-remnants, Chlorine and organic compounds but also prevents rigid particles >30 µm to enter the pump.

If the resulting water does not fall into the SCA “core-zone” (see Figure 1) have additional treatment installed.

Notes!
Flush the water treatment system according to the manufacturers instruction before connecting it to the pump-inlet.
Make sure that the functioning of the water treatment system will be checked on a regular basis.

Water pressure

Although the pump is capable of running with as little as 10 kPa (0.1 bar; 1.5 psi) inlet pressure, it is advised to have an inlet water pressure of 250-500 kPa (2.5-5 bar; 35-70 psi).

Note that a water treatment system will lower the water mains pressure.

Waste/drain

The machine has two drain hoses: one for the drip tray and one for the machine itself. These hoses have an external diameter of 20 mm (inner diameter: 16 mm). The hoses must slope downwards all the way from machine to waste to prevent clogging. The waste at the location should thus have a minimum inside diameter of 38 mm to accommodate for the two hoses and a water-lock to prevent smelly odours.

Space

Machine dimensions

This manual shows the theoretical dimensions of the machine and will suit most installations. The actual dimensions may deviate a little from those shown on the drawings or listed in the tables.

The dimensions of the 2-group and 3-group machines are identical but the options will account for differences in height, location of the feet and possible feed-through location(s) of the hoses and cables.

The least visible locations for feeding water and electricity to and from the machine would be just behind the front feet (left side for water and drain, right side for electricity). When in need of detailed drawings for the location of the feed-through hole(s), contact support@keesvanderwesten.com.

	Minimum advised sizes (in mm's) of countertop openings Note that some connector types will not fit through these specified holes.
Pump hose	Ø25
Individual drain hose	Ø20
Two drain hoses	Ø40
Pump + drain combined	Ø40
Electric cables	Ø30
All combined	Ø55

Side view

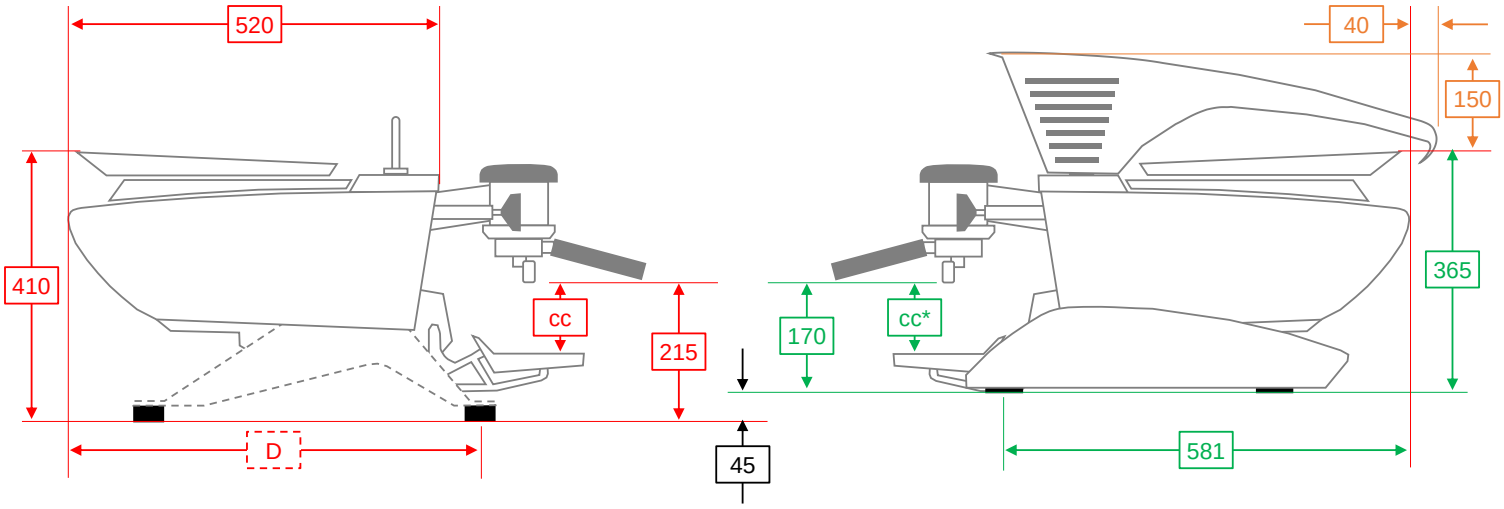

Figure 2. General dimensions in mm. On left the outline of the STRAIGHT-leg (dashed grey line). With FAT-TUBE and TECH legs, the leg outline and dimensions of D and cc changes, see Table 2.
On right (in green) the dimensions with the caterpillar legs which lowers the machine by 45mm. The extra dimensions caused by the awning are shown in orange. Awning is available for all legs.
cc = adjustable cup clearance with (double) spouted portafilter.
Not shown on this figure is that the optional glass-look cup-rail increases the height with 40mm.

Leg-type	*distance D in Figure 2 (in mm)*	*cc (cup clearance) (in mm)*
STRAIGHT	569	75, 85, 95, 105, 115
FAT-TUBE	550	
TECH	556	
CATERPILLAR	581	75, 85, 95, 105

Table 2. Minimum distance from the centre of the front feet to a "back-wall" and cup clearance for the different legs available for the Slim Jim.

Footprints

As mentioned above, the location of the rubber feet w.r.t. the body are different for the different legs available. The following figures show these positions w.r.t. the centre line and back of the machine.

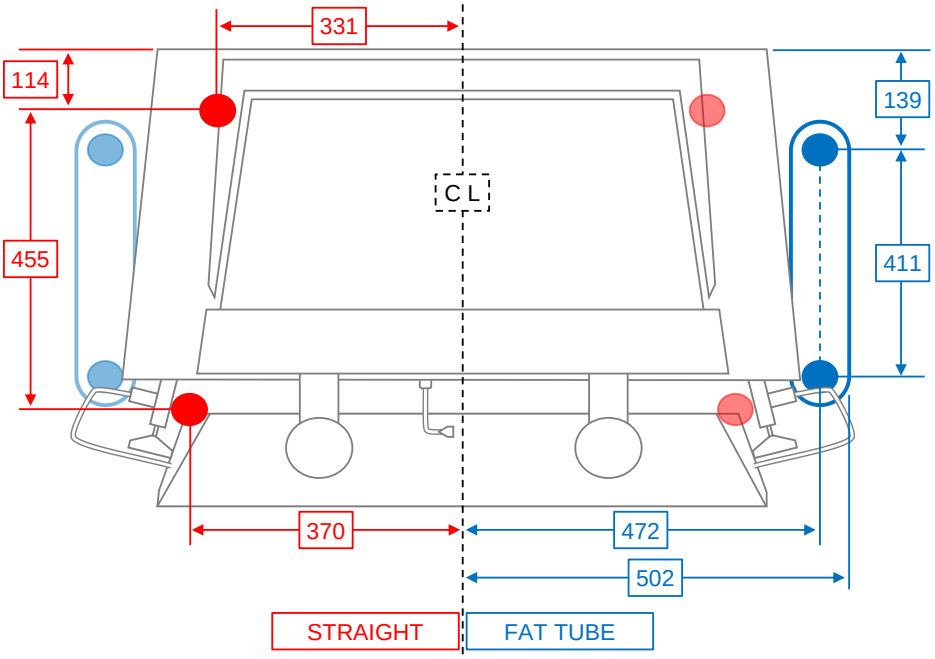

Figure 3. Location of rubber feet for the STRAIGHT (in red, left) and FAT TUBE (right, in blue) legs. CL is the centre line of the machine, dimensions in millimetres can deviate +/- 5 mm.

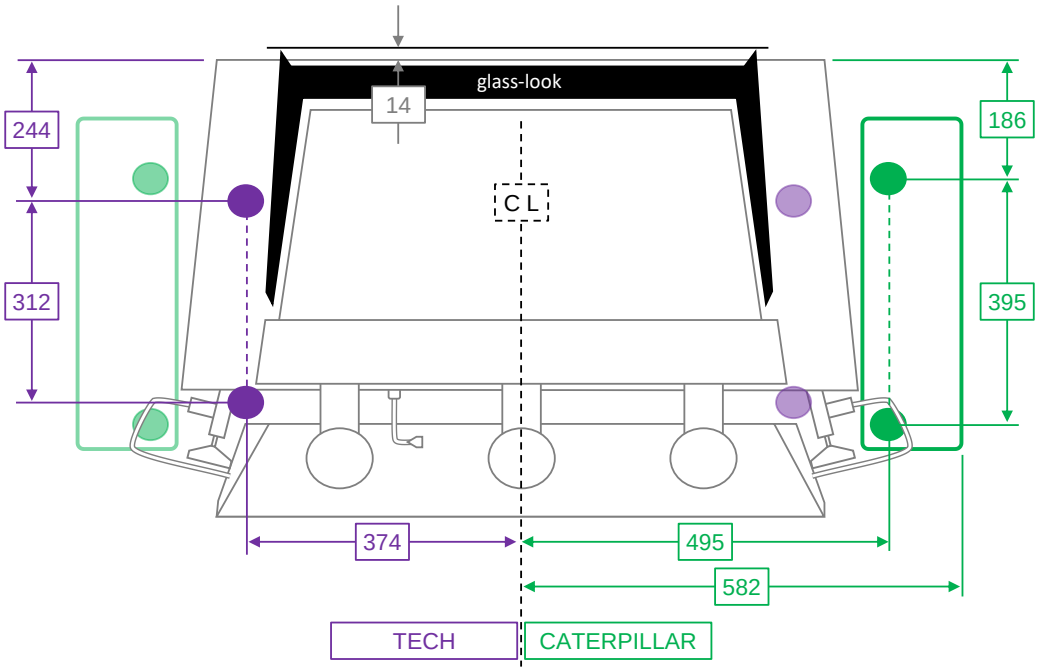

Figure 4. Location of rubber feet for the TECH (in purple, left) and CATERPILLAR (right, in green) legs. Note that the optional glass-look cup-rail extends 14 mm to the back of the body. CL is the centre line of the machine, dimensions in millimetres can deviate +/- 5 mm.

Counter top

The countertop must be sturdy enough to easily support the machines' weight (when filled: up to 100kg) plus extra equipment (one or two coffee-grinders, tableware, …). The surface should be smooth, flat and horizontal.

It is advised to think about the location of holes in the countertop where the water and waste hoses and electric cables should pass before the machine is installed.
When in need of detailed drawings for the location of the feed-through hole(s), contact support@keesvanderwesten.com.

Pump location

There should be nearby space for the electric motor with rotary vane pump. The pump-assembly should not be able to touch the walls of the cabinet it is located in to prevent noise. Further noise reduction can be achieved by placing the assembly on a 2-4cm thick rubber-foam sheet with dimensions: 16x30cm (not supplied with machine). The pump will be electrically connected to the espresso machine with a 1.5m long cable that plugs into the pump.

Make sure there is air-flow possible near the motor to prevent overheating.

Electricity

The machines' internal electrics consists of 3 heating circuits and an operation circuit. Each circuit is meant to function on 230Vac. The range in which it can function safely is 208-240Vac. Electric mains can be connected in several ways to the machine. Check if the electric mains of the location matches the configuration of the machine ordered.

Check the individual leads of your wall connection box before installing the machine.

3-phase machine (3N~400V, 50/60Hz)

What we call a three-phase machine must be connected to 3P-N-E power (3 Phases + Neutral + Earth, see Figure 5) with 120 degrees phase shift between phases (also called "Lives": L1, L2 and L3). Such power is characterised by: 220-240Vac tension between each phase and neutral (or Earth) and 380-400Vac tension between the phases. For peak power of the Slim Jim, see Table 3.

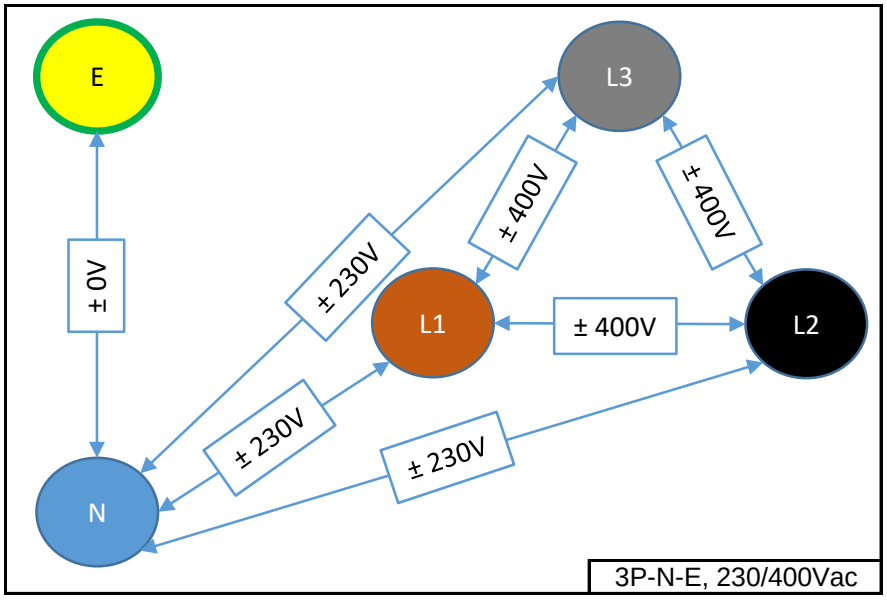

Figure 5. 3P-N-E electric mains. Peak current of the Slim Jim is 9.7-13.4A per phase.

Single-phase machine (~230V, 50/60Hz)

What we call a single phase machine must be connected to P-N-E (single Phase + Neutral + Earth) or 2P-E (split Phase + Earth) power mains, see Figure 6. Note that the 2P-E configuration only uses the Lives: it does NOT make use of the neutral wire of the electric mains. The tension between the phase and neutral (P-N-E power) or the tension between the two phases (2P-E power) should be 220-240Vac. Note that with single phase peak current in the mains cable and the locations' wiring is a lot higher than with 3-phase power. For peak power, see Table 3.

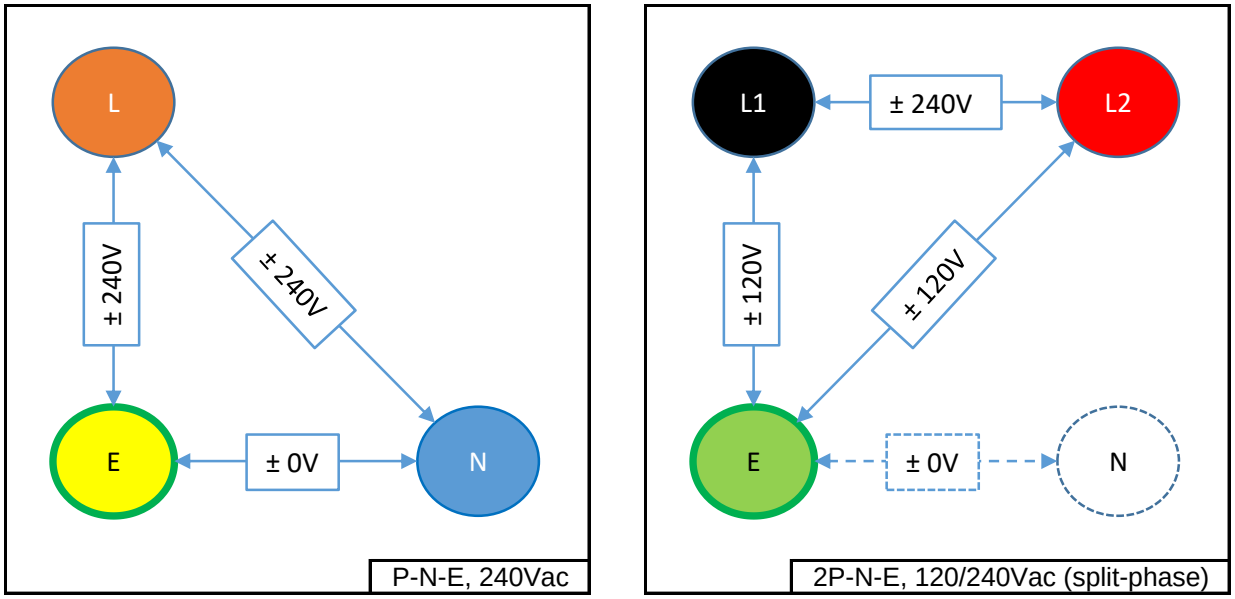

Figure 6. At left P-N-E, at right 2P-N-E. The machine can make use of L1 and L2 plus E (without N) of the right electric mains configuration. Peak current is 27.5-34.7A.

In some locations two-phase power for the machine is supplied by using two of the individual lives of 3-phase power that produce a resulting tension below 220Vac. In such case we suggest to install an appropriate (5-10%, 30-35A) step-up transformer (also called "buck booster").

Peak power consumption

Slim Jim peak power at 230 Vac	version / per phase		Duette 4800W steam power Watt	Duette 4800W steam power Amp	Triplette 4800W steam power Watt	Triplette 4800W steam power Amp	Duette 6000W steam power Watt	Duette 6000W steam power Amp	Triplette 6000W steam power Watt	Triplette 6000W steam power Amp
3-phase (3N~400V)	L1		2050	8.9	2050	8.9	2450	10.7	2450	10.7
	L2		2050	8.9	2050	8.9	2450	10.7	2450	10.7
	L3		2225	9.7	2675	11.6	2625	11.4	3075	13.4
	(N)		2225	9.7	2675	11.6	2625	11.4	3075	13.4
single phase (~230V)	L	L1	6325	27.5	6775	29.5	7525	32.7	7975	34.7
	(N)	L2	6325	27.5	6775	29.5	7525	32.7	7975	34.7

Table 3. Showing peak power in the different phases for different machine versions.

Note!
National rules/regulations may apply when the appliance is connected to the electric mains.

△ Warning!

Maintenance on the machine should be done by a qualified technician. Parts of the machine can reach a temperature of close to 130 °C (266 °F). The steam/hot water boiler contains water and pressurised steam of 125 °C at 1.35 Bar overpressure (257 °F at 20 PSI), temperature and pressure in the coffee system may reach up to 96 °C at 12 Bar overpressure (205 °F at 175 PSI).

When servicing the machine it is sometimes necessary to keep the machine connected to the AC power outlet and the machine switched “on”. In both cases there is a possibility that you touch a live wire.

☠ Danger

We cannot be held responsible for damage and/or injuries resulting from actions performed on our machines by non-qualified personnel.

Any qualified technician working on the machine is urged to thoroughly read the latest edition of the “Technical manual” which can be obtained via:

support@keesvanderwesten.com

When seeking contact with the e-mail address above, please forward the model and serial number of the machine in question.

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Please supply machine details (model and serial number) and full contact information when ordering.