Virtu 60 and 80 series

Technical manual

Model: Virtu 60 and 80
Machine type: 9CND…

Revision A1, English
Reference: 5DTCNK20

The manufacturer of the machine is:

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J.M. de Jong Duke automatenfabriek b.v. reserves the right to alter specifications at any time and without prior notification to the purchaser.

Preface

This user's manual is valid for the machine supplied by the manufacturer, including the options installed by the manufacturer. The manufacturer accepts no liability for any damage resulting from incorrect or improper use of the machine, or resulting from modifications that have not been authorized by the manufacturer.
This manual gives instructions on the operation and maintenance of the machine. Moreover, it gives solutions to simple malfunctions that may occur. The instructions in some paragraphs are meant only for persons who are trained in the operation and maintenance of the machine.
Besides this manual, a technical manual is also available. This technical manual gives directions for solving machine malfunctions and repairing the machine. For instructions on the installation of the machine, a separate installation manual is available.
Always use original parts from the manufacturer when the machine needs to be repaired.
Carefully read this instruction manual before you operate the machine.
Keep this manual in a safe place for possible later reference.
Only properly trained personnel may carry out repairs, install the machines or transport the machines.
The manual cannot be regarded as a replacement for training and instruction, but must be seen as an addition to the training, and as a reference work.

CONTENTS

1 Safety

1.1 Safety and warnings

- Keep this manual near the machine so the manual is immediately available.
- Do not use aggressive cleaning products or abrasives to clean (parts of) the machine.
- The water connection must conform to local regulations.
- Clean the machine with fresh hygienic water.
- The water system (boiler, pipes, etc.) may contain hot water, be careful!
- Do not shake the machine while in use.
- Do not use water in or near the machine unless the instructions contain explicit directions to the contrary.
- Do not use a damaged machine. If in doubt, contact your supplier first.
- Damaged water connection tubes may only be repaired by trained personnel.
- If a fault occurs, disconnect the machine from the electrical and water supplies.
- Do not lean on the door when open.
- Do not use an extension cord.
- Use the machine only in areas where trained personnel can monitor the operation.

1.2 Standards and norms

The machine is build according to CE norms
The machine complies with the following standards:

- Machine standard: 89/392/EEG
- EMC standard: 89/336/EEG,

The machine complies with the following norms:

- EN 292: safety of machines.
- UL and cUL 751: norm vending machines (only if sign is on type plate)

1.3 Safety risks

The important safety risks by using this machine:

- Hot drinks are dispensed from the machine; take care to avoid scalding yourself.
- If cups or jugs are not correctly placed, the machine will spill liquid down the front.
- The outlet of the machine may occasionally drip hot liquid even when the machine is not in use.

2 Description of the machine

2.1 General

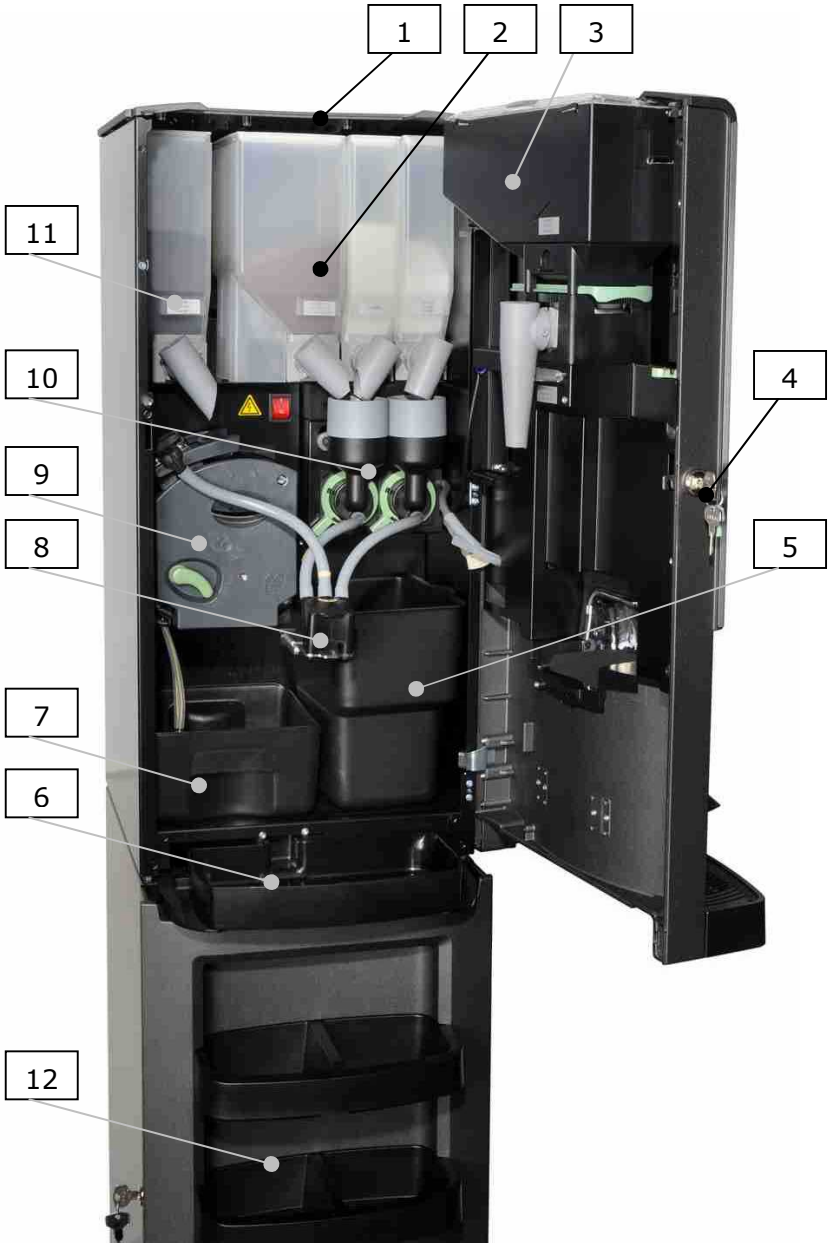
The Machine is a compact semi-automatic machine for the preparation and vending of hot drinks. Your supplier can adjust the taste and sizes of the drinks.

2.2 The front of the machine

The machine can be operated using the operating panel on the door. By pushing one of the selection buttons on the screen, a product choice can be made. Before you make a choice, a cup must first be placed under the tap.

2.3 Overview of the machine interior

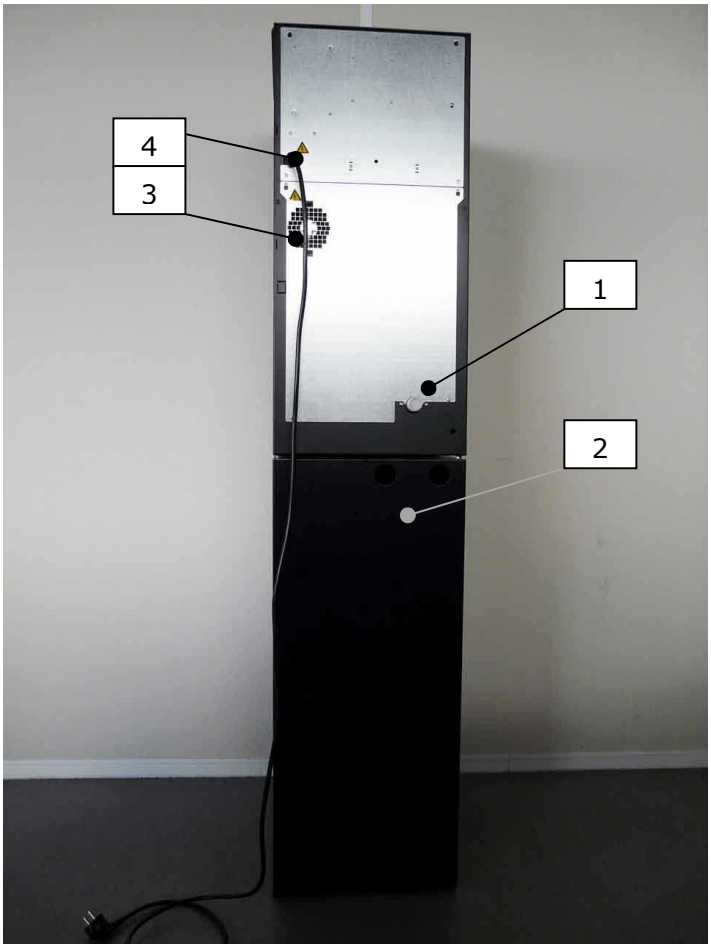
1. Lid
2. Instant canisters
3. Coffee bean canister
4. Door lock
5. Waste bucket
6. External drip tray
7. Drip tray under brewer
8. Dispensing nozzles
9. CoEx brewer system
10. Mixing bowl
11. Fresh brew coffee canister
12. Base cabinet



2.4 Back of the machine

On the backside is the water supply connected to the inlet valve.

1. Water connection
2. Holes for water filter
3. Fan
4. Power cord



3 Options and accesoires

The machine can be extended with several options. Some options can interference or exclude other options.

3.1 Base cabinet

The base cabinet has and open front with condimental trays.
Article number 9OKNK1140 is a base cabinet with condimental trays.
Article number 9OKNK1110 is a base cabinet with closed front.

3.2 Cup dispenser on front

The Cup dispenser can be mounted on the front of the base cabinet instead of an ingredient tray.
Article number 9BEB008 for cups 70mm diameter
Article number 9BEB010 for cups 80mm diameter

3.3 Cup dispenser on right side

Article number 9BEB007 for cups 70mm diameter
Article number 9BEB009 for cups 80mm diameter

3.4 Table between machine and cabinet

A table can be mounted in-between the base and machine. The drain from the drip tray is not possible in combination with this option.
Article number 9ETA003 table for 70mm cups
Article number 9ETA005 widetable for 70mm cups
Article number 9ETA007 table for 80mm cups

3.5 Cold water dispense in base cabinet

The cold water unit for chilled water or a unit for carbonated and chilled water can be installed in the base cabinet.
Article number 9VKS019 chiller for cold water
Article number 9VKS017 chiller for cold and carbonated water.

3.6 Waste guide

The machine can be extended with a waste guide to the base cabinet.
Article number 5KAF085

If a wasteguide is installed the error and warning based on number of cycles needs to be switched off in the service menu. A extra sensor can be installed in the base cabinet for detecting a full waste bucket.

3.7 Water drain from drip tray

The water from the drip tray can be drained to a large bucket in the base cabinet. The drip tray drain is only available in combination with a base cabinet. In the basecabinet can a extra driptray sensor be installed for detecting a full waste bucket.
Article number 9AOV011

3.8 Payment systems

1. Coin validator.
A coin validator/acceptor communicating on the MDB protocol can be connected to the control board.
Article number 9MDG039 for the parts to mount a G13 validator.

2. Change giver in a side unit.
A coin change giver communicating on the MDB protocol can be connected to the control board.
Article number 9MKA001 for the side unit (without changegiver)

3. Card reader in a side unit.
A card reader or key payment system communicating on the MDB protocol can be connected to the control board.
Article number 9MKA002 for the side unit

3.9 Mechanical consumption counter

A total product counter can be installed in the door and is connected to the control board.
Article number 5ETL010

3.10 Infra red communication

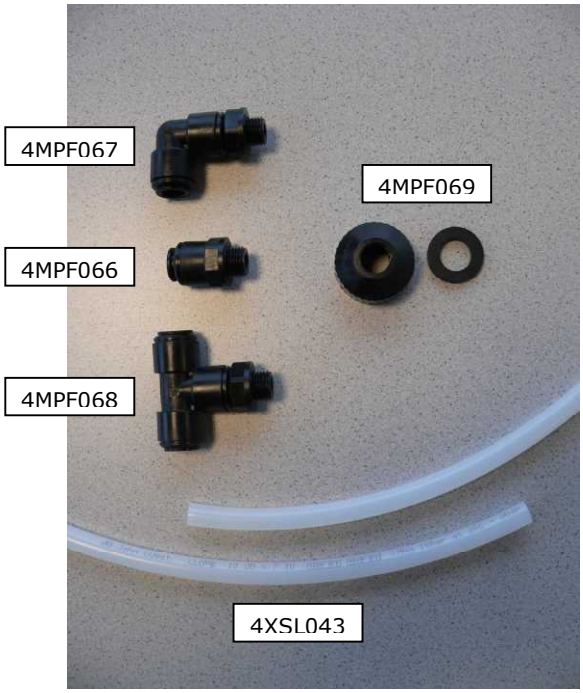
The machine can send the EVA-DTS counter information through an infra red port. The Infra red device must be installed in the door. A terminal to receive the infrared data is available from De Jong Duke. Ask after sales and customers support for detailed information.
Article number for the board and cable: 9DX041

3.11 Jug key

The jug function can be activated with the jug key.
Article number 4ESK004

3.12 Water connection tubing

Quick connections:



4XSL043 = Pressure tube 10 bar (per meter)
4MPF066 = connection 10mm-1/4" straight
4MPF067 = connection 10mm-1/4" 90 degrees
4MPF068 = connection 10mm-1/4" T
4MPF069 = ¾ - ¼ inletvalve connection with rubber seal

3.13 Pump set

The Machine can work in combination with a pump set. An inlet pressure is required.
Article number of the 230V pump: 9VIL018

4 Technical data

4.1 Type plate

The type plate is mounted on the inside of the machine, at the top left.
The following data are on the type plate:

- Name of manufacturer
- Serial number
- Type/model specification
- Date of construction
- Water connection

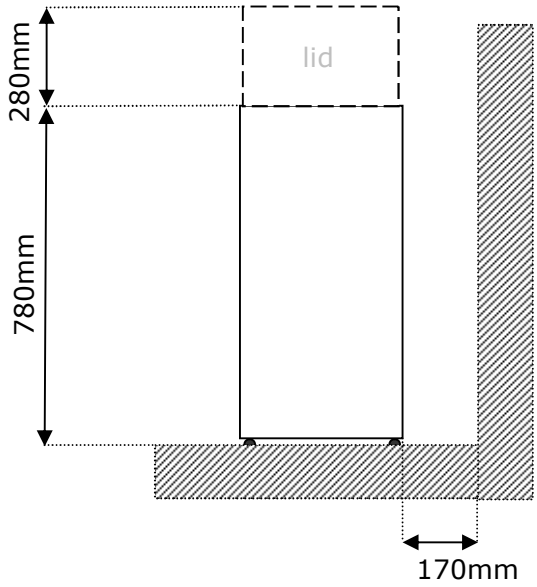
4.2 Technical specifications

Dimensions:		
	height	795 mm
	width	370 mm
	depth	530 mm
Weight (empty):		+/- 55 kg
Electricity:		
	Mains supply:	230 Volt AC +/- 10%
	Frequency:	50 Hz +/- 2%
	Max. capacity:	2,9 kW
Water pressure:		
	Minimum:	90 kPa (0,9 bar)
	Maximum:	600 kPa (6,0 bar)
Water connection:		¾ BSP connection
Sound pressure:		< 70 dB(A)
Ambient temperature in use:		+5°C to +40°C
Ambient temperature in storage:		+10°C to +50°C

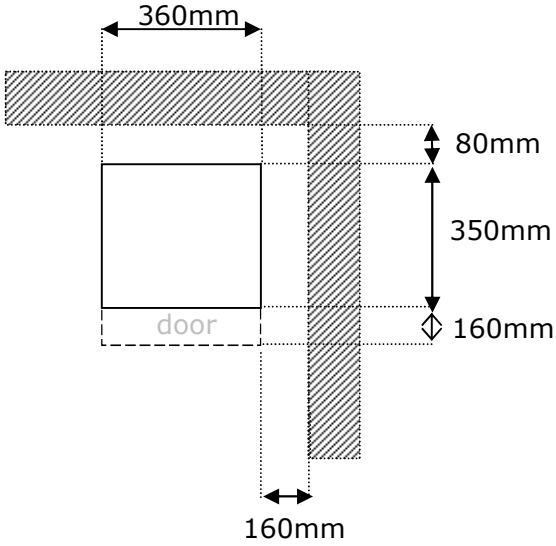
4.3 Dimensions of the machine

The machine can be extended with several options, these dimensions are the dimensions for a standard sized machine.

frontview



topview



4.4 Water specifications

The machine must be connected to the water supply with a ¾ BSP connection on the backside of the machine.
The water pressure should be between minimum 100 kPa (1 bar) and Maximum 500 kPa (5,0 bar).

For an optimal operating of the coffee machine and an optimal coffee quality, the water should be conform the following specifications:
- Hardness: 5-7º dHº (German hardness) or 8-12 fH (French hardness)
- pH value: approx 7 (neutral)
- Conductance: approx 100µS (micron Siemens) @ 20º C (68º F)

A water filter can be used if the water quality is not conform our specification.

The incoming water temperature may not be above 30º C. (86º F)

4.5 Machine configurations and variations

The machine can be equipped in different canister and product variations. The specification number is always printed on the type plate. See the product information sheets for detailed information.
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5 Function of the components

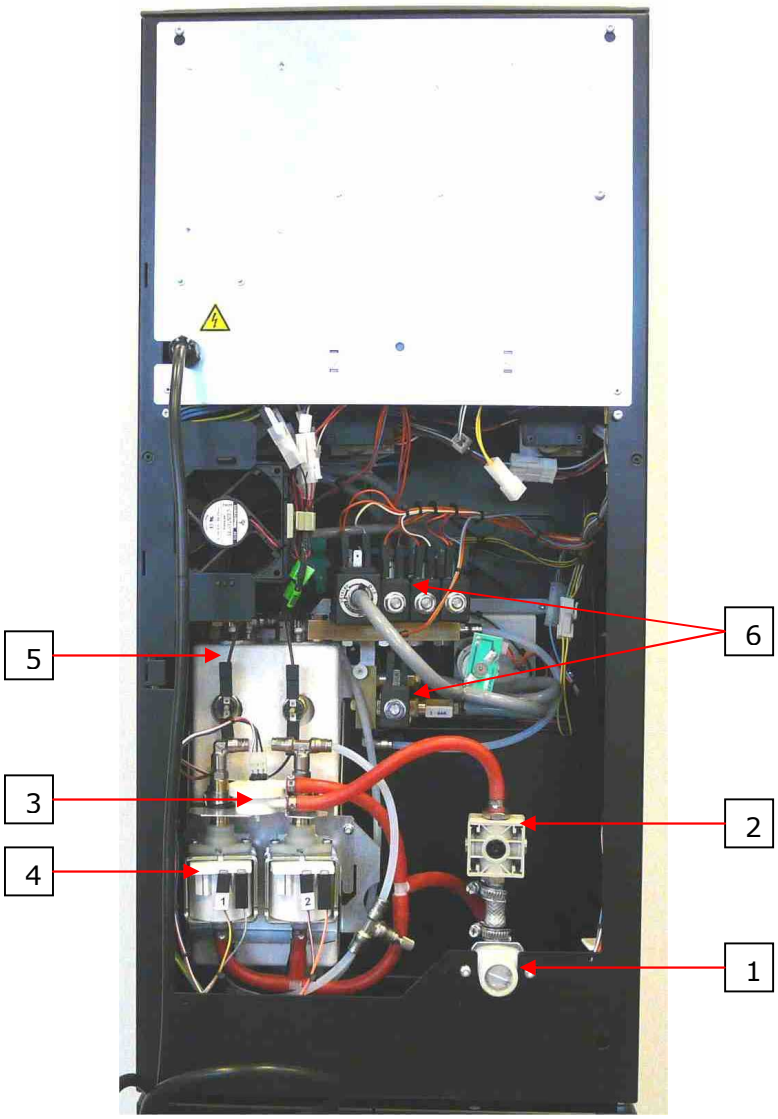
In the next paragraphs you find a detailed description of the several parts and components in the machine.
Understanding the function of the different components is essential for maintaining the machines.

5.1 Hot water system

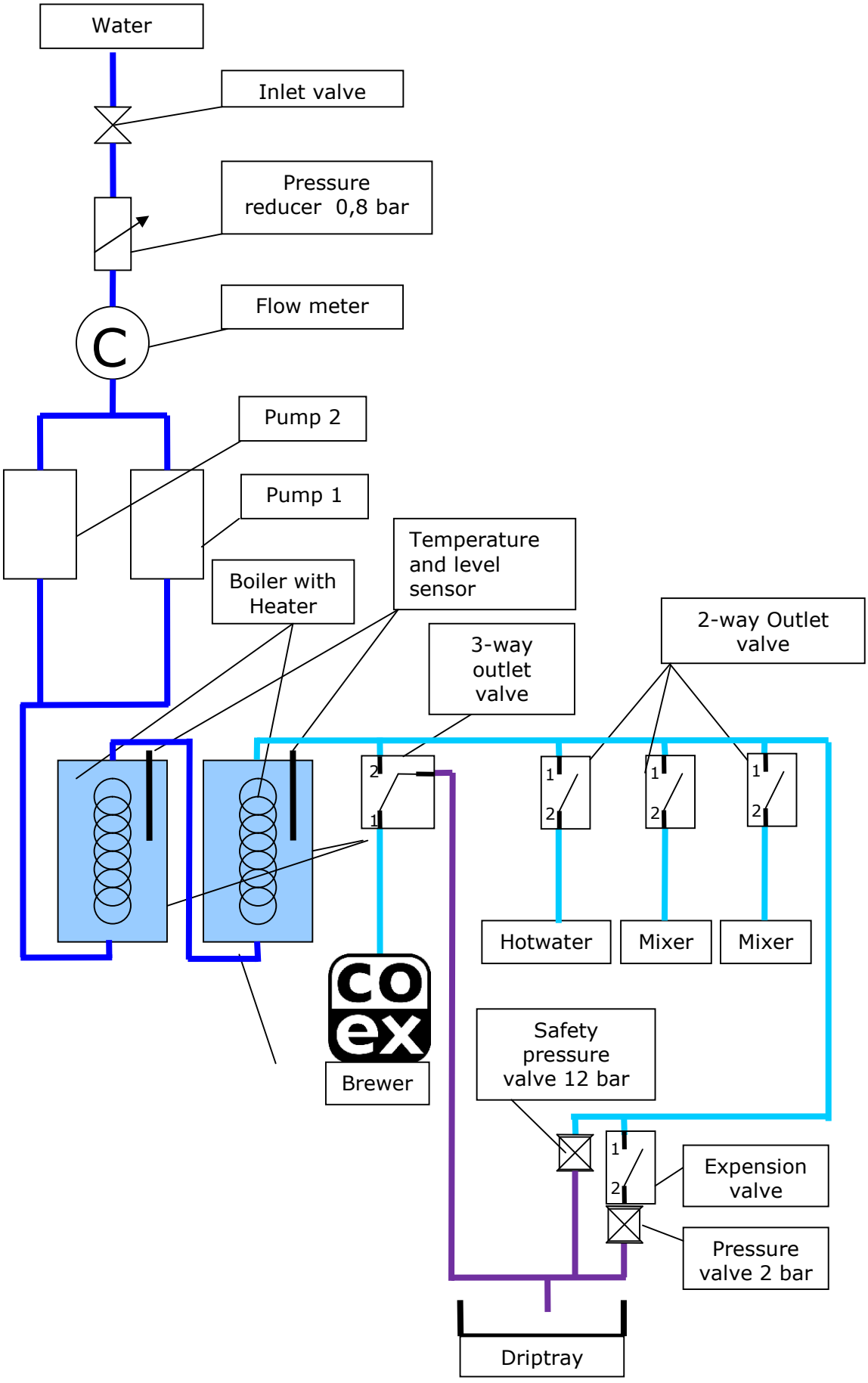
The water system is positioned at the back side of the machine and accessible from the back.
If water and power are connected and the door is closed the water system start filling the boilers automatically.

The water system consists out of the following main components:

1. Inlet valve
2. Pressure reducer
3. Flow meter
4. Vibration pump
5. Boilers with heater
6. Valves (outlet valves and pressure valves)



5.1.1 Schematic digram of water system



5.1.2 Inlet valve

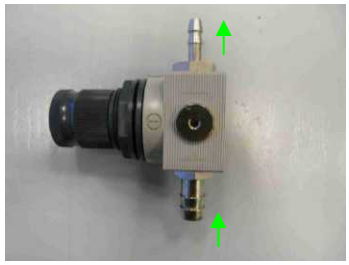
The inlet valve is controlled by the level sensor in the boiler and is switched on during a dispense of hot water to the brewer or mixer. The inlet valve is a 24V DC valve. The inlet valve contains a backflow protection. This backflow protection is preventing that water is flowing back into the water supply.

Electrical connections/wire colors:

Number	Wire color	function
1	Orange	Common (+24V)
2	Red-Green	Output (0)

5.1.3 Pressure reducer

The pressure reducer reduces the pressure to a stable inlet pressure independent from the inlet pressure from the water connection.
The required inlet pressure from the water supply is between 0,9 and 9 bar.
The pressure reducer is adjusted on a outlet pressure of 0,8 bar during a espresso cycle.



The input and output tube to the reducer must be connected in the right direction, the reducer works incorrectly in the reversed mode.
There is an arrow on the reducer indicating the correct direction.

Procedure to adjust the pressure reducer:

1. Remove the lower back plate from the machine.
2. Remove the tube clamp and stop from the tube.
3. Connect the manometer (part number 9MVL002) to the tube.
4. Pull out the knob out to unlock the reducer.
5. Select an Espresso. Adjust the reducer by turning the knob during the pump cycle of the espresso selection. The manometer must show 0,8 bar during an espresso cycle.
6. Lock the reducer by pushing the knob down.
7. Disconnect the manometer and replace the tube clamp and stop in the tube.
8. Replace the back plate on the machine.
9. Ready

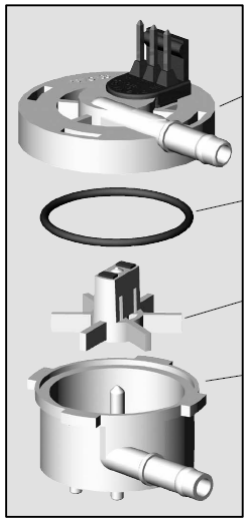
Remove clamp and stop .

Connect manometer.

Pull knob

More pressure = clockwise

5.1.4 Flow meter/water counter



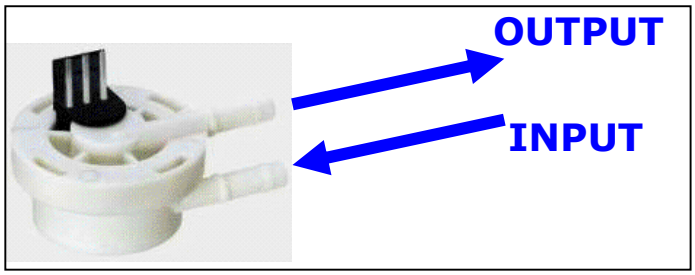
The flow meter measures the quantity of the water flowing through the pressure system.

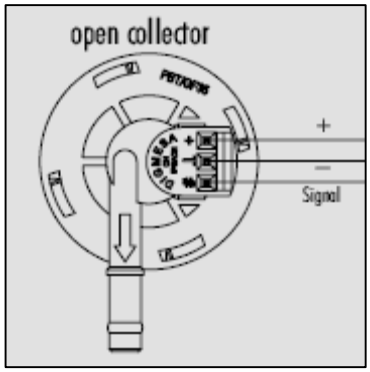
Three functions are based on the flow meter:
1. The water dosages for the consumptions are based on quantity of the pulses generated by the flow meter.
2. During the start up procedure is detected if water is flowing into the system. If not the machine will stop working and show error message "start-up problem" and "no water connected"
3. The heating of the boiler is besides the measurement with the temperature probe also based on the quantity of incoming water.

The flow meter is built in before the inlet pipe to the pumps. It is a small turbine which produces electrical pulses. Each 360º rotation produces 2 pulses in the sensor (Hall element). The pulses are detected by the control system.

The tube to the flow meter must be connected in the right direction; the flow meter cannot detect water in the reverse mode. There is a small arrow on the flow meter which shows the right direction.

The flowmeter is a 1,8mm type.





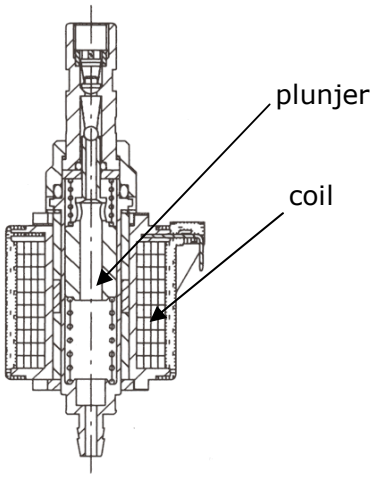
Electrical connections/wire colors:

Number	Wire color	function
1	Red-white	Common (+)
2	Green-purple	Null (0)
3	Blue-black	Signal to the IO board

5.1.5 Pump

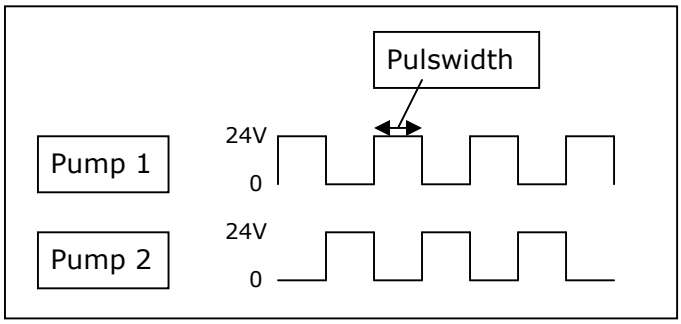
The pumps are generating the pressure and flow of the water if required.
The pumps increase the pressure to the required brewing pressure (1,5 till 10 bar).

The pump is a vibration pump. The plunger vibrates up and down, therewith a pressure can be build-up.



The pump is a 24VAC pump, the electrical signal to the pump is a 24DC block pulse.

The pressure can be adjusted by the electrical signal (pulse-width) to the pump.
A longer pulse gives a higher pressure because the plunger is lifted higher.
The maximum pulse width is 20.
Because of the high frequency of the pulses the electronic signal cannot be measured with an ordinary volt meter.
The pulses running out of phase so a stable high pressure is offered to brew and espresso.



Electrical connections/wire colors:

Pump 1:

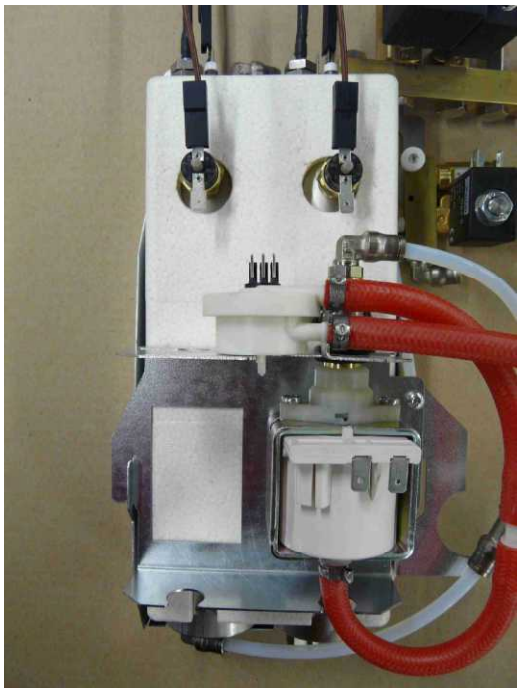
Number	Wire color	function
1	Grey-Blue	Common (+24V)
2	Yellow-Brown	Output (0)

Pump 2:

Number	Wire color	function
1	Black-Pink	Common (+24V)
2	Orange-White	Output (0)

Machines with one or two pumps:
- The Fresh brew version without a bean hopper has just 1 pump and is brewing coffee on a low 1-4 bar pressure.
- The B2C espresso machine has 2 pumps; parallel connected and can brew espresso on 8-10 Bar or coffee on a low pressure 1-4 bar.
The variation in pressure generates an excellent coffee or espresso flavor.

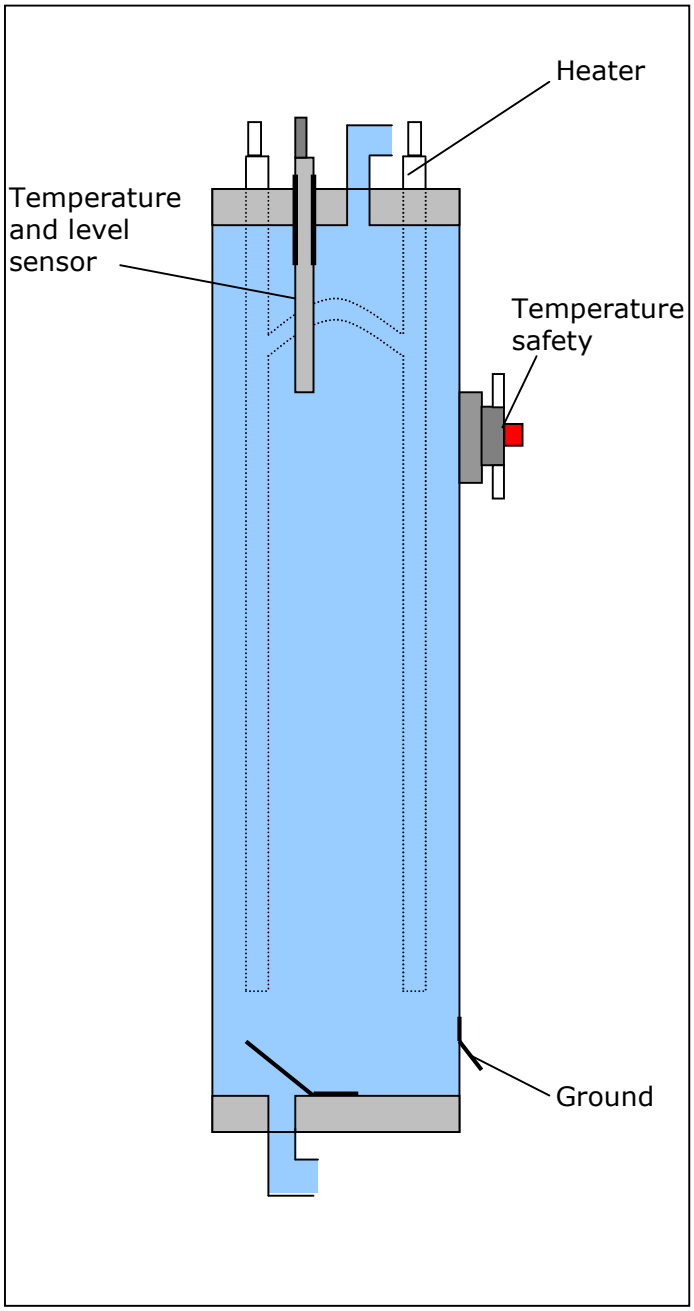
2 pumps system (virtu 80 serie)



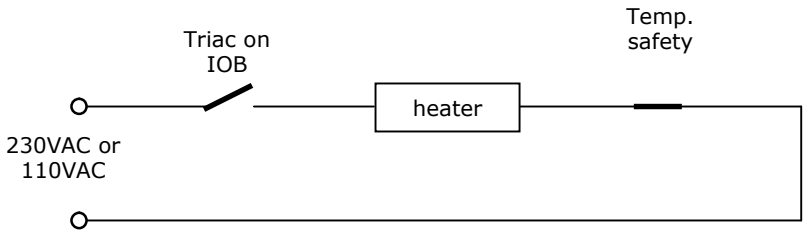
1 pumps system (virtu 60 serie)

5.1.6 Boiler

The hot water is prepared in the boiler. The machine is equipped with two boilers, made out of stainless steel.
The water to the boilers is connected in serial; input is in the bottom of the boiler, the output at the top.
Water from boiler 1 flows into boiler 2 and from boiler 2 through an outlet valves out of the hot water system.

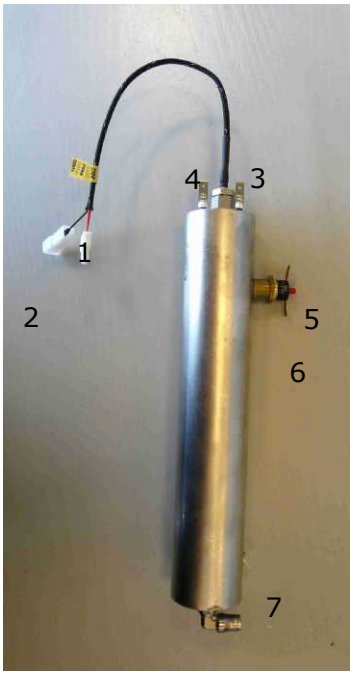


Electrical boiler connections:



Connections boiler 1

number	Wire color	function
1	Green-Purple	Temperature common
1	Pink	Temperature
2	Red-Black	Level detection
3	Brown	Heater phase
4	Blue	Heater neutral
5	Brown	Temperature safety
6	Brown	Temperature safety
7	Yellow-green + Green-Pink	Earth boiler housing



Connections boiler 2

number	Wire color	function
1	Green-purple	Temperature common
1	White-pink	Temperature
2	Brown-black	Level detection
3	Brown	Heater phase
4	Blue-white	Heater neutral
6	Brown	Temperature safety
7	Brown-white	Temperature safety
5	Yellow-green + Green-Pink	Earth boiler housing

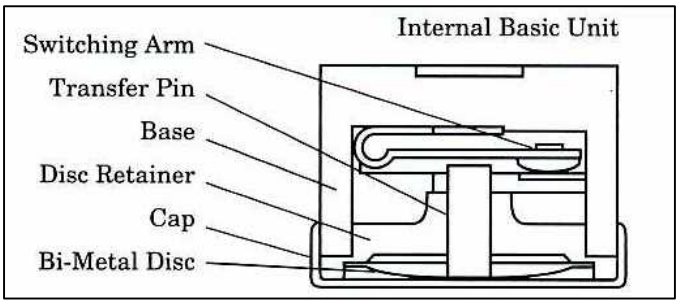
Heater:
The boiler has a 1,4 KW/240VAC heater or a 1,1KW/110VAC. The volume in the boiler is 0,36 liter water. With this high capacity heater and a low volume of water is the recovering time short.
The boiler and heater are made of stainless steel. The heater (7) is welded in the top of the boiler.

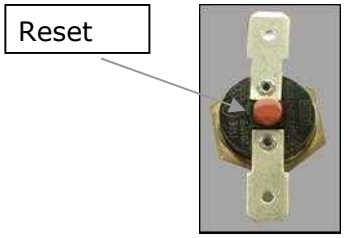
The winding resisistance of the heater is:

Heater	resistance
1400W 240VAC	39 - 40Ω
1100W 120VAC	12 – 13Ω

The heater is controlled by the control system, based on a combination of detected temperature by the sensor and the amount of detected water by the flow meter.

Temperature safety / clixon:
The temperature safety is positioned in the middle of the boiler. In the housing is a bi-metal disk which is switching.
The temperature safety protects the heater against overheating if the control system does not switch off the heater.
The temperature safety (normally closed contact) switches off at a temperature of 110ºC +/- 3ºC. The safety switches the current on the heater directly off if the boiler is overheating. The clixon is only resettable by pressing the pin manually.





Temperature/Level sensor:
The sensor in the boiler is a combined level and temperature probe. The sensor is isolated from the boiler housing with a plastic isolation clamped with two nuts around the stainless steel sensor housing.
If replacement is needed the sensor included nuts needs to be replaced complete.

Temperature:
The temperature is detected by a thermistor mounted in the stainless steel housing. The control system is controlling the temperature in the boiler based on the resistance of the thermistor.

Resistance of the thermistor:

resistance	Temperature
6,5 kΩ	95ºC
100 kΩ	25ºC
126,7 kΩ	20ºC

The temperature is adjustable in the settings of the control system. The optimal temperature setting is 92ºC. If no consumptions are made for 10 minutes or longer the temperature in the boiler will automatically raise to 98º. Herewith is the first consumption with a cold brewer prepared on an acceptable temperature.

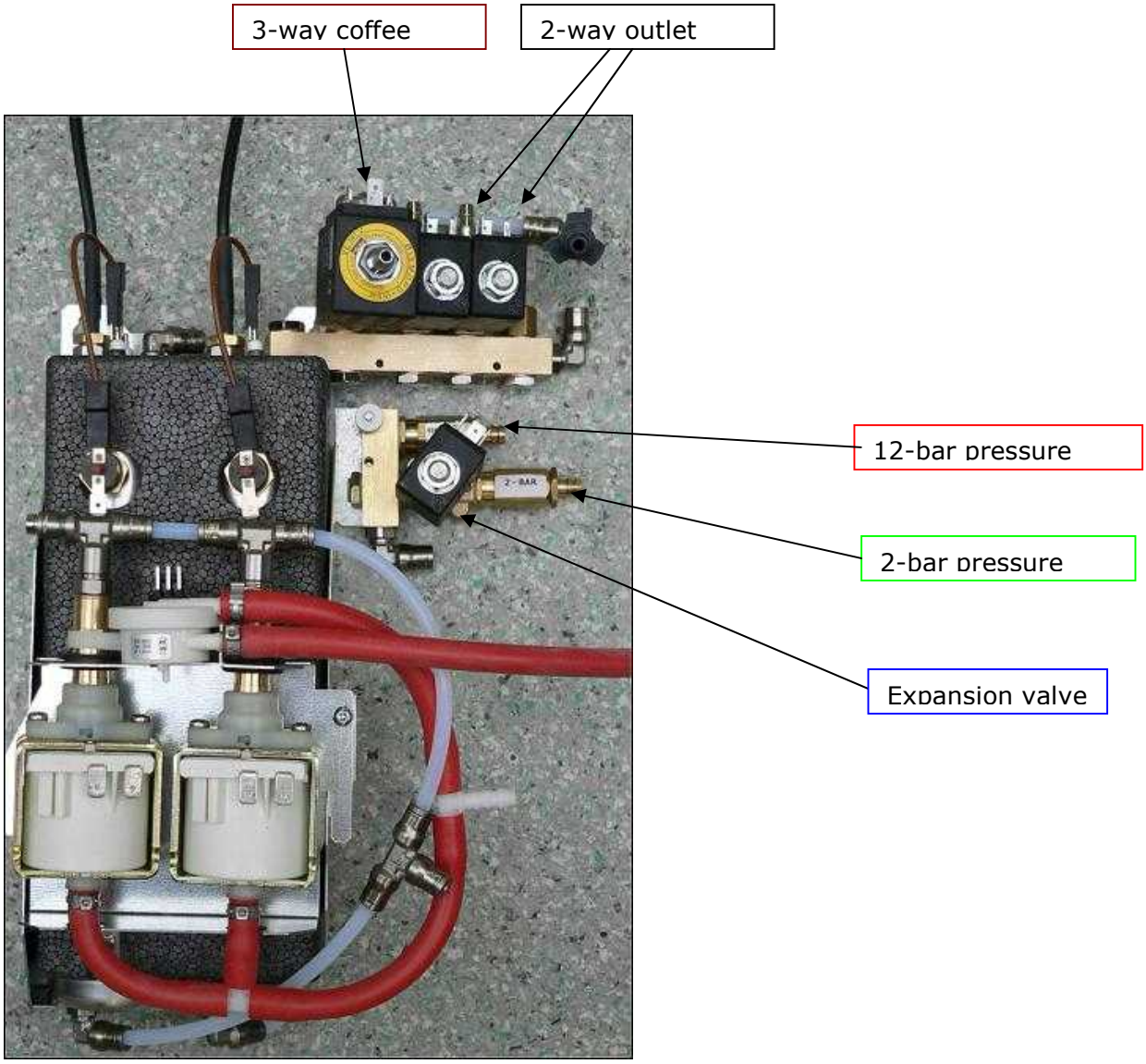
The control system contains some safeties and warnings based on the detected value of the temperature sensor.
A too high temperature, too low temperature, shortcut or disconnected sensor is detected by the control system.
Disconnected temp. sensor is generated if the resistance is above 350 kΩ.
Shortcut temp. sensor is generated if the resistance is below 1 kΩ

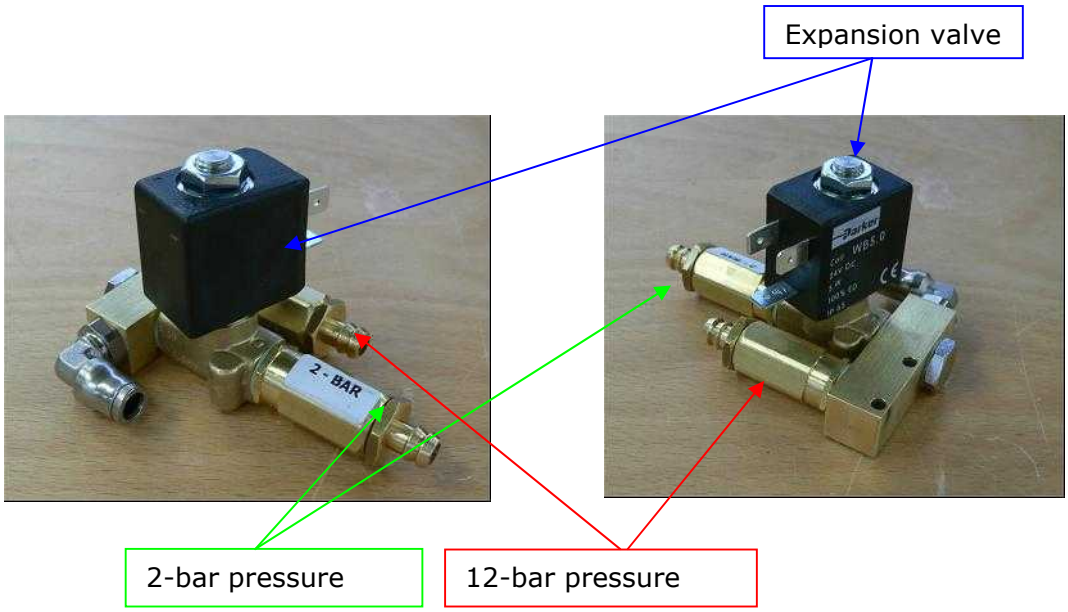
Level:
The level in the boiler is detected by the stainless steel housing of the sensor. The boiler is connected to ground. On the housing is a positive signal from the control system. If the sensor is in the water, current is able to pass through the water. The control system is detecting the water level because of this current.

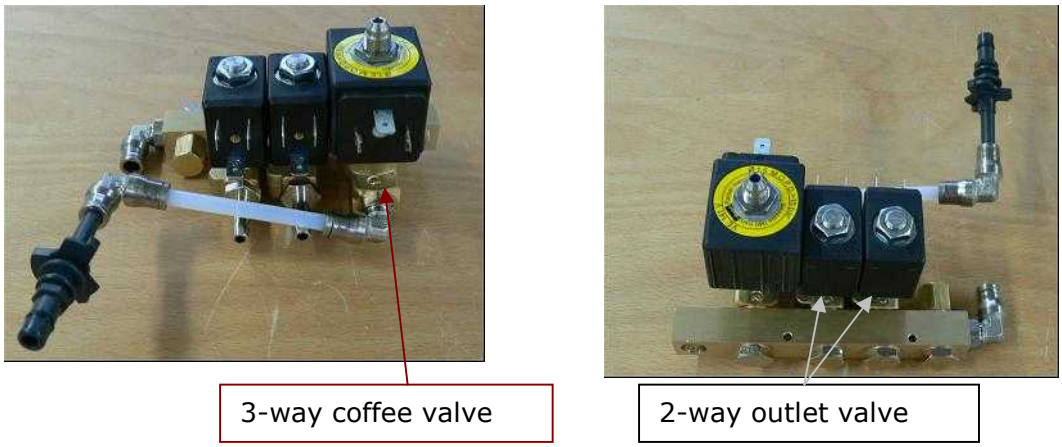
5.1.7 Position of valves in the hot water system

The manifold (messing block) with valves is connected straight on the boiler with a bold. This connection is needed to keep the manifold with valves on temperature if the machine is not used for a while.
If the temperature of the valves is too low the first consumption can be to cold.
This construction together with temperature compensation in the boiler guarantees a high output temperature for the first consumption.

Overview of the positions of the different valve in the hot water system of 9CND machines:




Expansion valve
2 - BAR
2-bar pressure
12-bar pressure


3-way coffee valve
2-way outlet valve

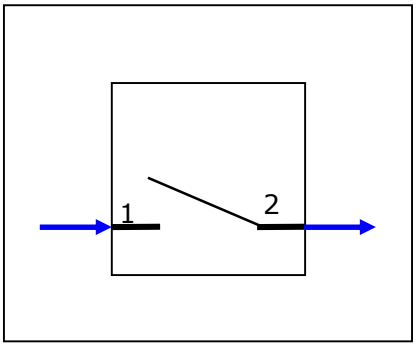
5.1.8 2-way valve / outlet valve

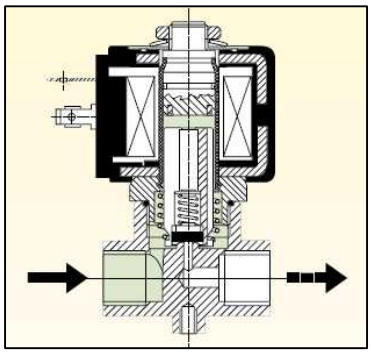
The two way valve is the outlet from the hot water system to a component.
The moveable plunger has an integral seat which, when the solenoid coil is energized, moves off the valve (direct operated) orifice opening the valve.
When the coil is de-energized, a return spring repositions the plunger in the original closing position on the valve, thus cutting off the flow of the fluid.
The valve is controlled by 24VDC from the IO-board.

Water connections:

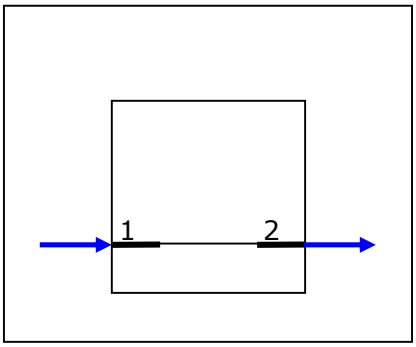
Number	Function	Description
1	Input	Connected to manifold
2	Output	Connected to component (whipper, hot water or 2-bar valve)

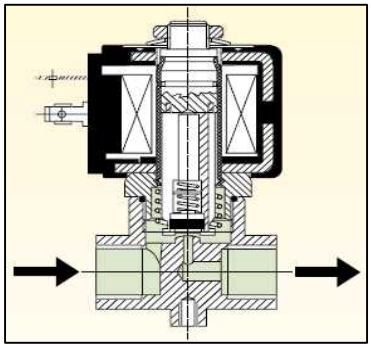
Water flow in valve if coil de-energized:



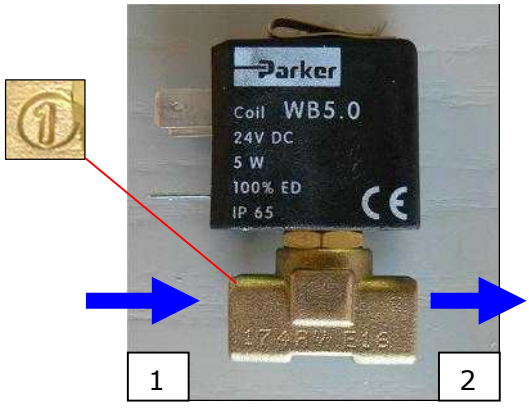


Water flow in valve if coil energized position:





The water connections on the valve are identified by numbers:



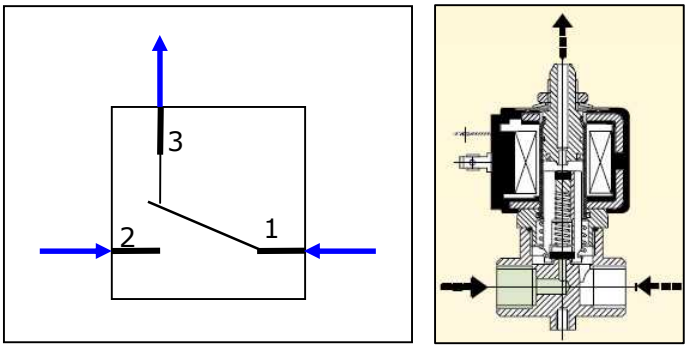
5.1.9 3-way valve / brewer valve

The three way valve is the outlet from the hot water system to the CoEx Brewer (coffee valve) and has a channel from the brewer into the drip tray. Herewith the coffee residue can flow back from the brewer into the waste bucket.
The function of the valve is based on a spring together with the system pressure which is pressing the plunger on the valve-seat.
The valve is controlled by 24VDC

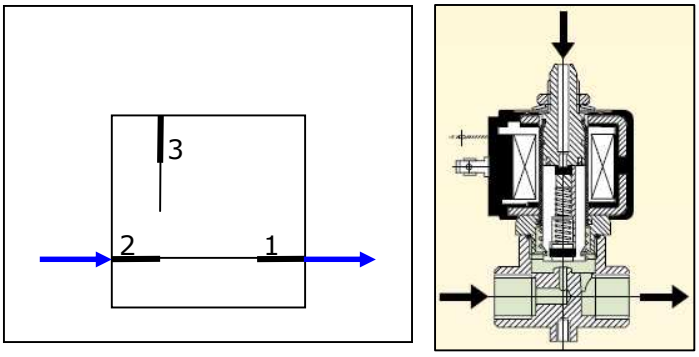
Water connections:

Number	Function	Description
1	Output	Connected to brewer
2	input	Connected to manifold
3	Drain	Drain to drip tray

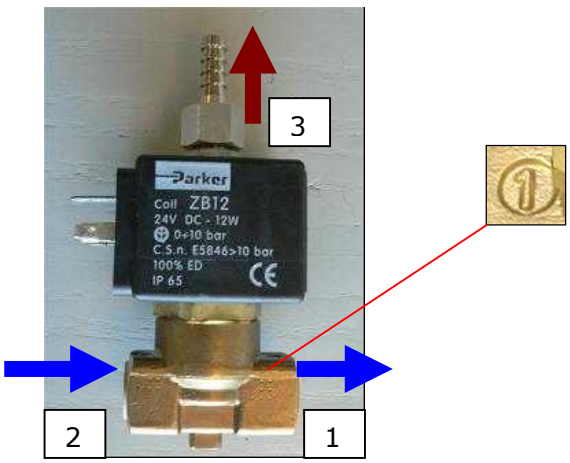
Water flow in valve if coil de-energized:



Water flow in valve if coil energized position:



The water connections on the valve are identified by numbers.:

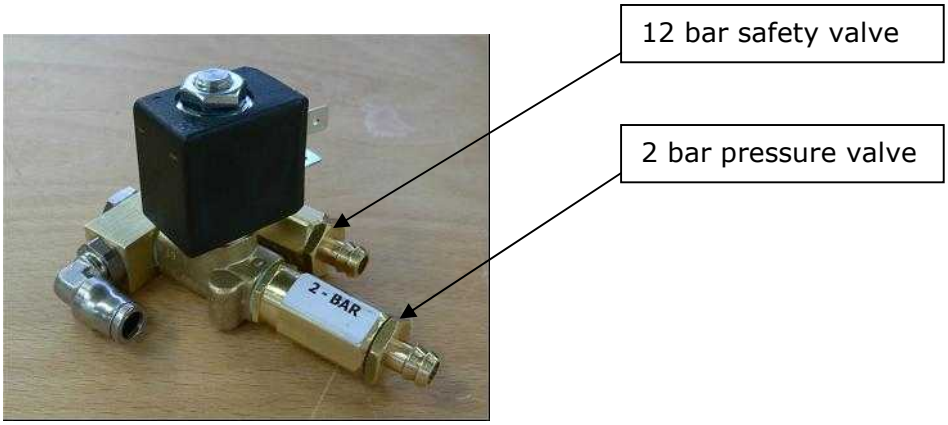


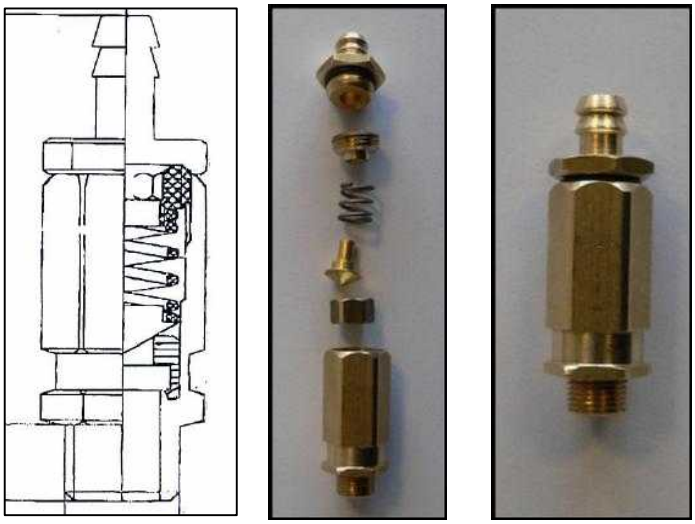
5.1.10 Pressure valve 2 bar

The 2 bar pressure valve is a mechanical pressure valve. The valve automatic opens if a 2 bar pressure is reached, this pressure valve can be switched off by an outlet valve electronically. The 2-bar pressure valve is switched off during a cycle. If the system is in 'standby' the pressure valve is switched on if the heaters are switched on, so the maximum pressure in the system is 2 bar

5.1.11 Safety pressure valve 12 - bar

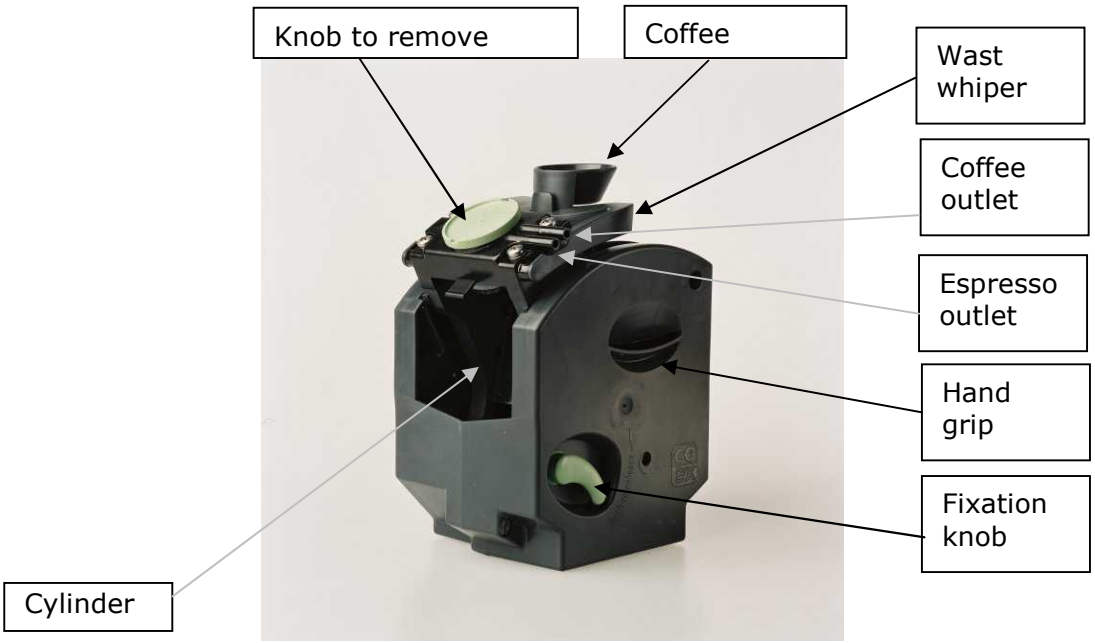
The 12 bar pressure valve is a mechanical pressure valve. The valve automatically opens when the 12 bar pressure is reached. The maximum pressure in the system can never be above 12 bar if this valve is functioning correctly.

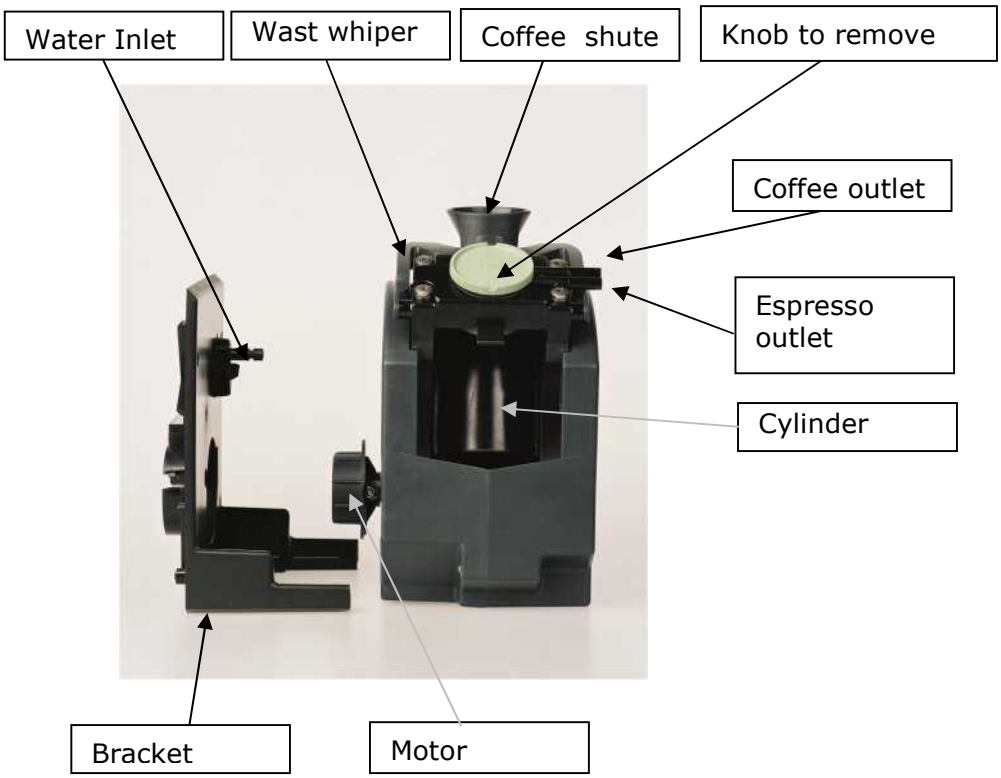




5.2 CoEx brewing system

The combined coffee and espresso brewer. The brewer is one of the most important parts in the machine. The quality of the coffee depends very much on the condition of the brewer. It is very important to keep the unit clean, also for a good functionality.





5.2.1 Removal of the brewer

Removal of the brewer is necessary for performing maintenance.

Carry out the following procedure for removal of the brewer:

1. Open the door of the machine.

2. Remove the outlet pipe from the brewer.

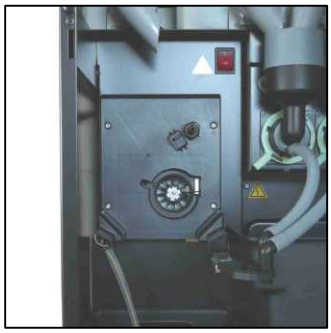
3. Push the green handle upwards and pull the brewer out off the machine at the same time.

A

B

C

4. Ready.



5.2.2 Install the brewer

Carry out the following procedure to replace the brewer:

1. Place the brewer in the bracket.

2. Push the brewer firmly in the machine till you hear "click" and the green handle is turned downwards in its home position.

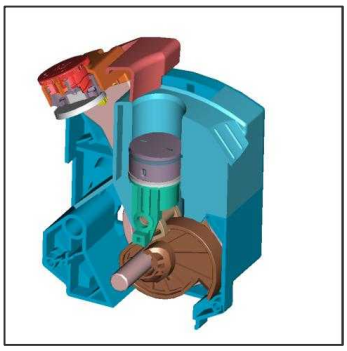
Make sure that the green handle is in the down position. When the brewer isn't installed correctly, the brewer can jump out of the fitting during a cycle.

3. Place the tubes.

4. Check the function of the brewer by making a test drink. Place a cup under the outlet.

5.2.3 Brewer cycle

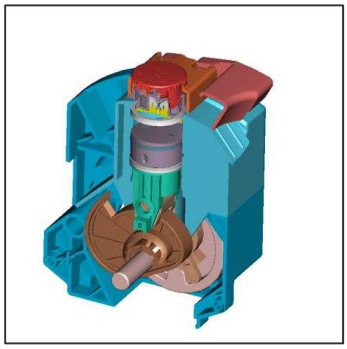
1. Home position



The start position. In this position the coffee is dosed into the brewer chamber.

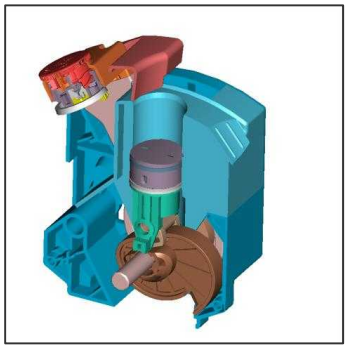
After dosing the coffee the brewer start running. The motor runs clockwise.

2. Closed position



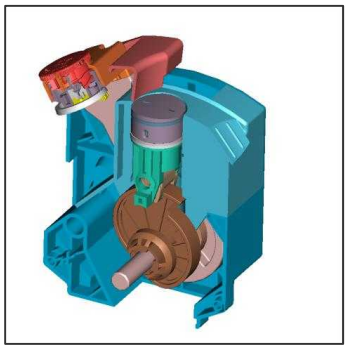
The dosed coffee is pressed together between the upper and lower piston. The current of the motor can be adjusted to press the coffee more or less together. After pressing the coffee together the water is dosed through the piston, into the coffee cake and flows through the screen out into the top and outlet of the brewer.
The pressure from the piston on the coffee cake is regulated by the adjusted current of the motor.

3. Open position



If enough water is dosed the brewer runs anti clockwise to the open position.

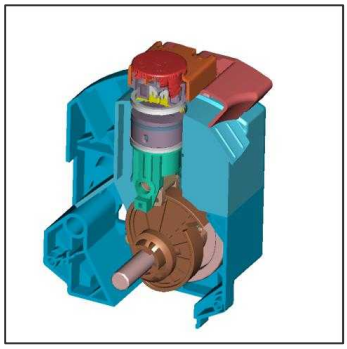
4. Waste wipe



The brewer runs through, herewith the lower piston moves to the top position. Now the brewer starts running clockwise and the coffee cake is whipped from the piston into the waste bucket.

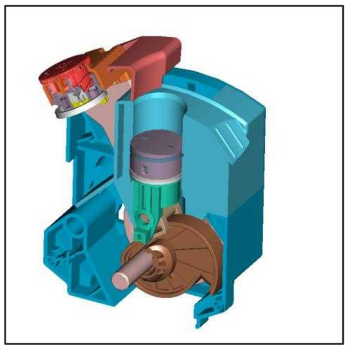
5. Back to home

After whipping the coffee cake away the brewer runs in the clock wise direction to the home position.



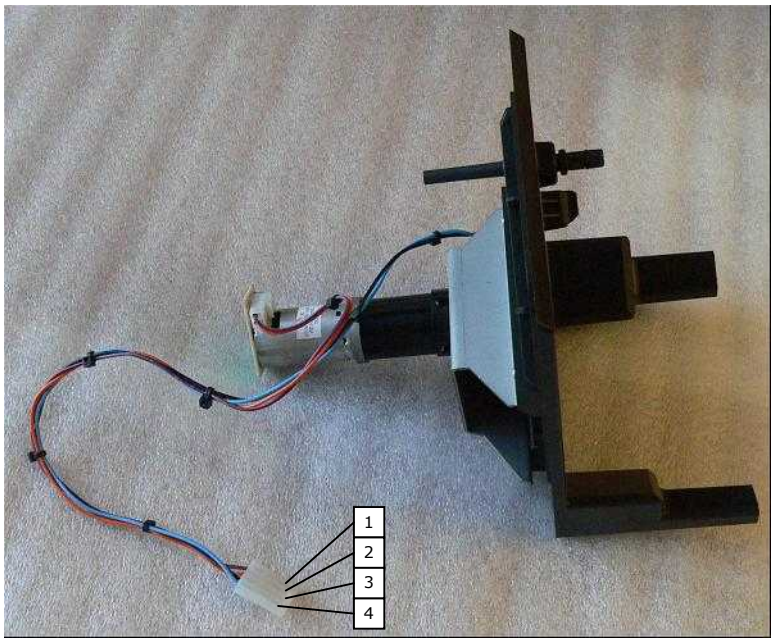
6. Start position

The brewer is ready for a new cycle.



5.2.4 Brewer motor and micro switch

The brewer motor and micro switch are mounted on the bracket.
The motor is a 24V DC motor, the speed is 32 RPM and delivers a minimum torque of 6,5 Nm.
The motor is controlled in two directions, clockwise and anti-clockwise. The position of the brewer is controlled by the micro switch and timers in the control system.



Electrical connections:

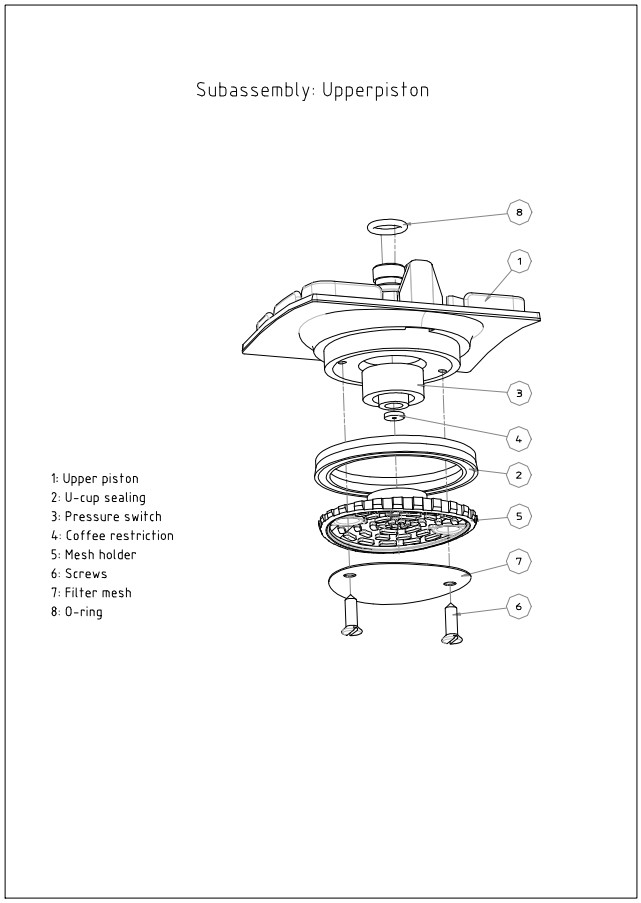
Number	Wire color (motor loom)	Wire color main loom)	function
1	Purple-red	Grey	Motor
2	Orange	Grey-white	Motor
3	Black	Purple-green	Micro switch
4	Blue	Grey-black	Micro switch

5.2.5 Upper piston

The upper piston is mounted in the top of the CoEx brewer.

This upper piston is removable with the fixation knob on the top of the brewer.

The upper piston contains the filter, restrictions and pressure switch. This part switches mechanical to the coffee or espresso outlet.



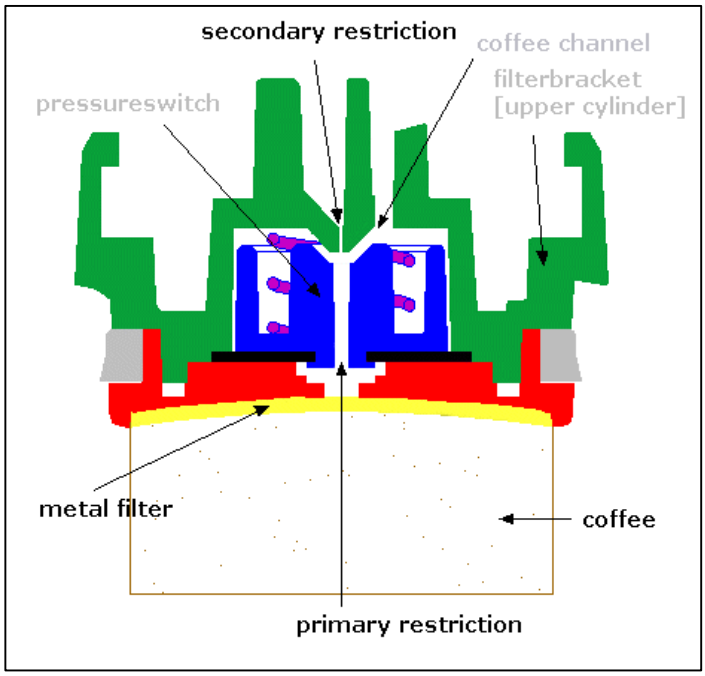
5.2.6 Controlling coffee/espresso pressure switch

With the unique patented system the CoEx®-brewer makes a Coffee and espresso. The pressure for coffee and espresso is different, coffee is made with 2 bar pressure, Espresso with a 9 bar pressure.

The volume of a drink is easy changeable in the software settings on the machine.

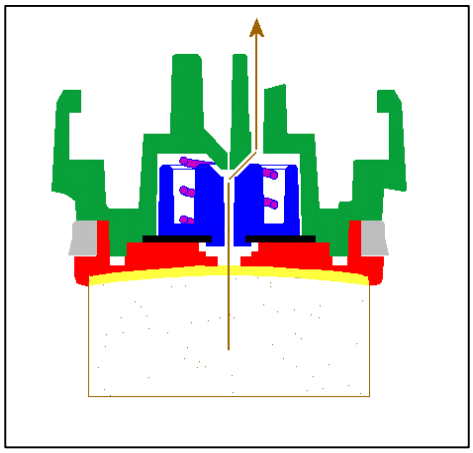
The time that the water is in contact with the coffee powder is a very important factor in the performance of the brewed coffee and is about the same for coffee and espresso. The optimal water-coffee contact time is 15 - 25 seconds

To derive this value a restriction in the system must be used. By the combination of a higher pressure, lower volume and an equal coffee contact time the area of the restriction for espresso must be much smaller than the restriction of coffee. In the following figures the solution for making these two beverages in one system is shown.

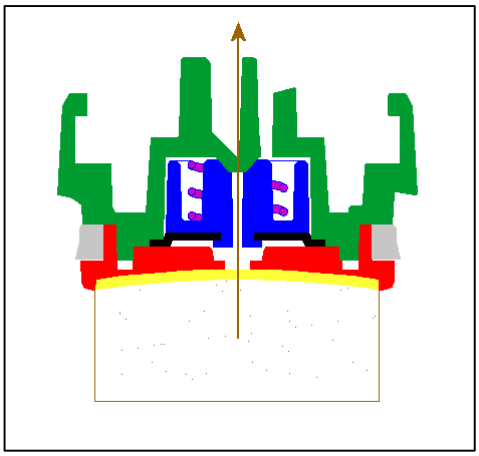


Coffee cycle:

When coffee is chosen, the pressure is low and will not activate the pressure switch. (Spring is strong enough to keep pressure switch in low position) The coffee passes the primary restriction and can then be flowing through the large coffee channel.

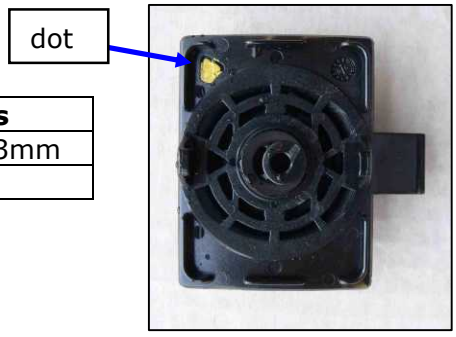


Espresso cycle:
When espresso is chosen, the pressure is high and will activate the pressure switch. (Spring is not strong enough to keep pressure switch in low position) The coffee channel is closed and the espresso is forced through the secondary restriction.



This different pressure controlling between coffee and espresso is only used in the B2C espresso machines the CoEx used as paperless freshbrew has no spring to switch between coffee or espresso pressure.

The upper piston is marked with a colored dot:



Machine type	Color	Hole sizes
B2C espresso	Yellow	1,5mm/0,3mm
Paperless fresh brew	white	0,5mm

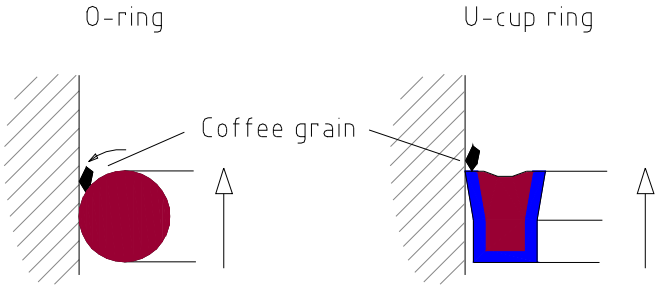
5.2.7 Seals

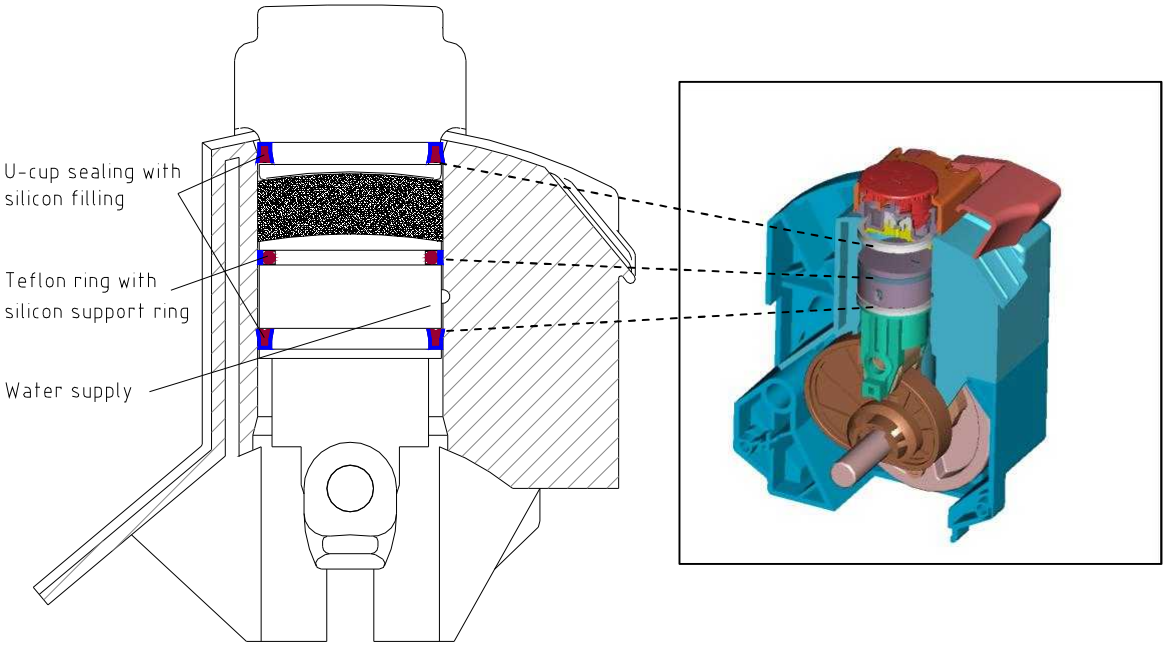
The brewer contains two pistons, the upper piston and lower piston.
There are three sealing responsible for the sealing of the pressure room: Two in the lower piston and one in the upper piston. Hot water enters the cylinder (through the lower piston) between the two sealing rings in the piston.

The mix of water and coffee powder will be filtered by the mesh in the upper piston and then leave the cylinder.

The sealing in the upper piston and the lower sealing in the piston have to resist the pressure of the hot water during the brewing process (10 bars).
As distinct from the most competitors this brewer is not equipped with o-ring sealing, rings which seems an important malfunction factor. In the following figure the impact of a coffee grain between the o-ring and the cylinder is shown. The grain will stuck which will result in twisting of the ring and grooves in the cylinder.

The shape of the selected u-cup ring avoids the grains scratching the cylinder. The sealing consists of a Teflon u-shaped ring filled with silicon. Disadvantages of this ring are the higher cost price and the fact that the piston must be divided into a lower piston and a piston head to fix it. The upper sealing in the piston doesn't have to resist the high pressure but is only a scraper.



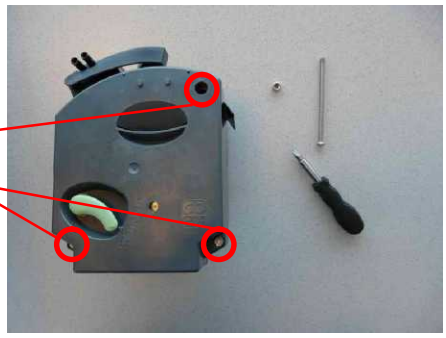


Two different U-cup rings are used in the brewer:
The U-Cup ring in the upper piston has a blue color.
The U-cup ring in the lower piston has a red color.

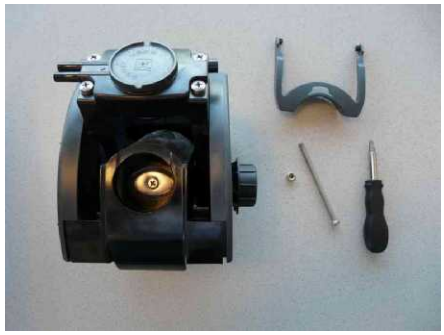
5.2.8 Replace seals in lower piston

1. Needed tool: Screw driver

2. Unscrew the bolt in top of the brewer and loosen the two other bolts 2 turns.



3. Remove waste whiper.



4. Push left and right housing sideward an pull cylinder with piston out of the brewer.

5. Replace parts and install in reversed order

5.3 Mixer/whipper

The mixer consists of a mixer motor, to which a mixer blade and a mixer house are connected.
The mixer is controlled by the control print and ensures a correct mixing of the ingredients and the water.
Furthermore, the mixer takes care of frothy ingredients / instant products. This will grade up the taste and the appearance of the consumption. When the mixer setting is raised, the mixer motor will rotate for a longer time.

Motor specification is 24VDC, 14.000 RPM.
In case of a blockage is the safety actuated on the IO board and the message mixer blocked is shown in the screen.

A restricted inlet diameter of the mixer house is used to create a nice flow in the mixer bowl. The used black mixer house is a special made house with inlet diameter for the pressure water system as used in the virtu 60 an 80 serie.

Disassembling the mixing system:

1. Remove outlet pipes from the mixers.

2. Turn the bayonet catch counterclockwise (approx. 10º).

3. Remove the mixer house.

4. Pull the mixer parts towards you.

5. Pull the whipper blade towards you.

6. Turn the base plate counterclockwise and pull it towards you.

7. Ready

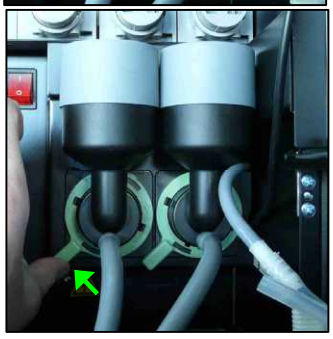
Assembling the mixing system:

1. Install the base plate.

2. Install the whipper blade.
Be sure that the arrow is
at the flat side of the ax.

3. Install the mixer house.

4. Turn the bayonet catch clockwise.



5. Install the outlet pipes on the mixers.

6. Ready.

5.4 Grinder

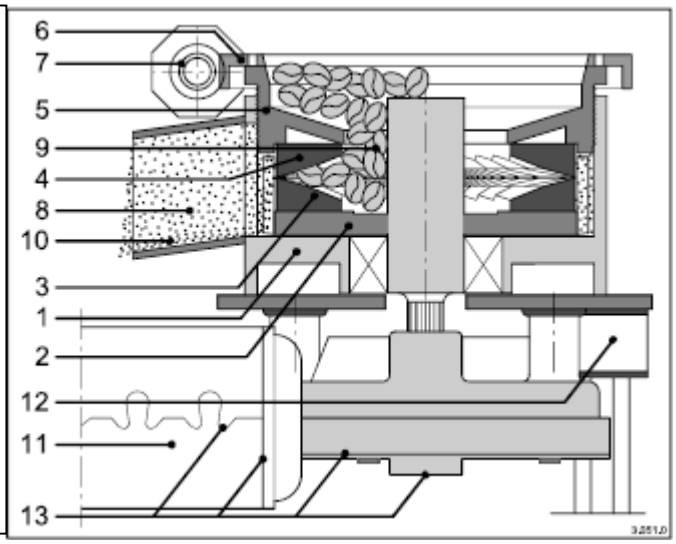
The grinder can be building in the door or on the base plate next to the other ingredient canisters.
In the grinder are the coffee beans ground through the two blades to fresh ground coffee.
The two blades in the grinder are mounted horizontally. The upper blade in the grinder is a fixed blade and the lower blade is rotating, driven by a motor of 24VDC.

Grinder on canister plate

grinder in door

By adjusting the upper grinder blade axially the air gap between the two grinder blades can be adjusted very accurately. This air gap defines the grain size of the ground coffee, what is known as the grinding degree.
The grinding degree setting (the distance between the grinder blades) is made manually on a worm gear. This engages on every quarter turn, and is thus secured against coming loose (losing its setting). The powder (ground coffee) is discharged into the powder outlet through four cams attached evenly around the circumference of the star shaft.

Grinder
1 Grinder housing
2 Star shaft
3 Lower grinder disk
4 Upper grinder disk
5 Upper part of grinder
6 Grinding degree disk (setting scale)
7 Worm gear
8 Powder outlet
9 Coffee beans
10 Ground coffee (coffee powder)
11 Motor / gear
12 Rubber / metal buffer
13 Visual check during service



5.4.1 Grinder in door

The grinder is mounted in a housing fixed with hinges in the cabinet. By opening the door the grinder will stay in the door automatic.
The grinder door can be moved back for making a test drink with coffee from the grinder.

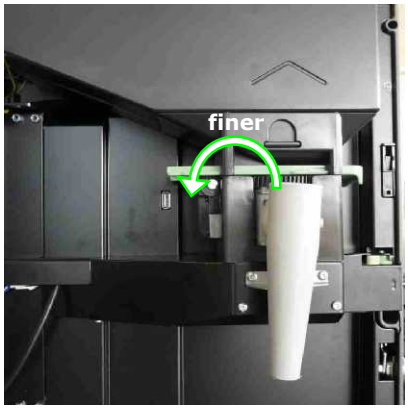
Unlock the grinder door with green locking handle:

Removing canister:

Remove grinder house:

Grinding adjustment:

So for the grind adjustment of the grinder you can adjust the grinder inside the machine without disassembling the grinder. The machine will give a finer grinding by turning the screw to the left and a coarse grained coffee by turning the knob to the right



5.4.2 Grinder on canister base plate

Remove grinder house:

Grinding adjustment:
For the grind adjustment of the grinder you can adjust the grinder inside the machine without disassembling the grinder. The machine will give a finer grinding by turning the adjustment screw to the left and a coarse grained coffee by turning the knob to the right.

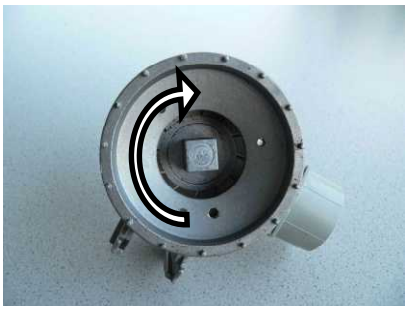
5.4.3 Default grinder setting

The grinder is default set as described below.

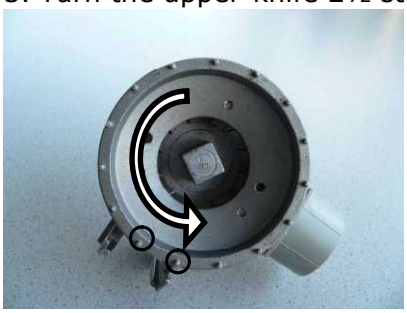
Remove the upper part of the grinder from the machine by pulling it upwards. The motor stays in the machine.

1. Remove lid, knob and plastic ring from grinder.

2. Turn the upper-knife as far as possible to the right.



3. Turn the upper-knife 2½ steps to the left.



4. Place the plastic ring over the upper-knife.

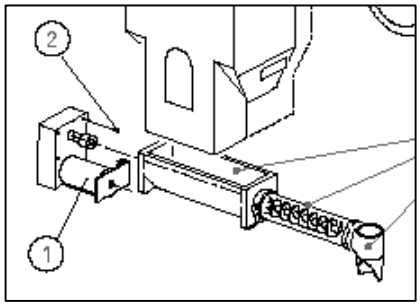
5. Place the adjustment worm-wheel on the left side of the grinder.

6. Place the upper part back in the machine.

5.5 Ingredient canisters

The canisters can have a metal auger or plastic auger.
Metal is used for instant coffee and leaf tea.
Chocolate, Coffee, sugar, milk have a plastic auger.

All the canisters are drive by a 24VDC 120RPM motor.



6 Operation

Installation, transportation and adjustment of the machine is specialized work.
Only properly trained service personnel should carry this out.
De Jong Duke organize training sessions for engineers regular.

6.1 Operation site

These machines may only be used indoors, in a hygienic dry room, with a temperature between 5 and 40 degrees Celsius.
Place the machine on a flat, stable surface.

6.2 Putting the machine out of order

If the machine will not be used for a long period of time it is recommended to turn off the water supply and the electricity (pulling the plug from the socket is sufficient). This will prevent unnecessary use of energy.

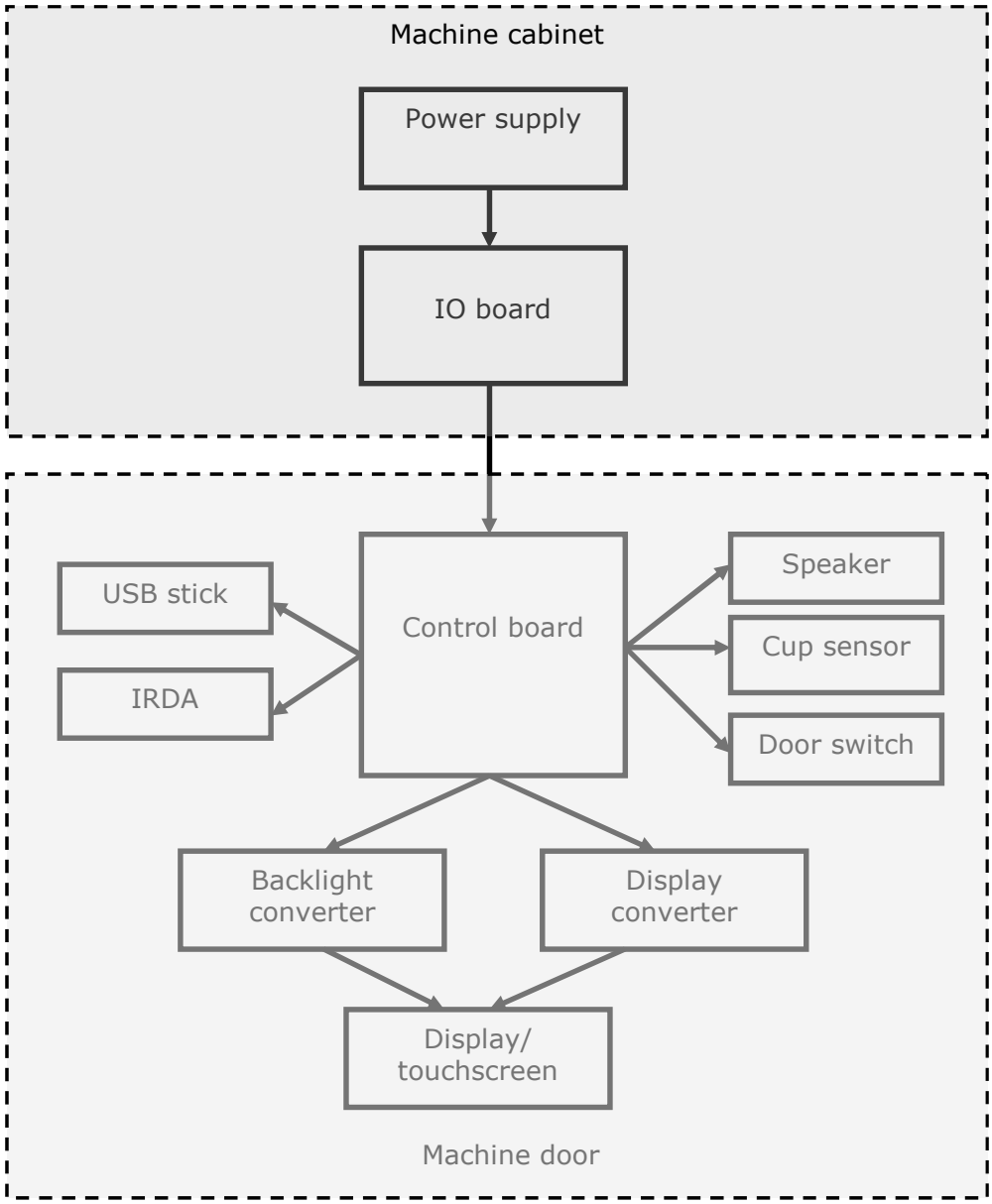
6.3 Maintenance daily weekly monthly

Failing to perform the daily, weekly and monthly maintenance negatively affects the quality of the products and can lead to malfunctioning of the machine.
In the users manual are detailed instructions for daily, weekly and monthly maintenance.

7 Electronic hardware

Hardware MoVeC ICEQ
(Modular Vending Controller for Intelligent Connected Equipment)

The electrical system consists of the following main components:
Power supply board
IO board
Control board
Display board and touch screen



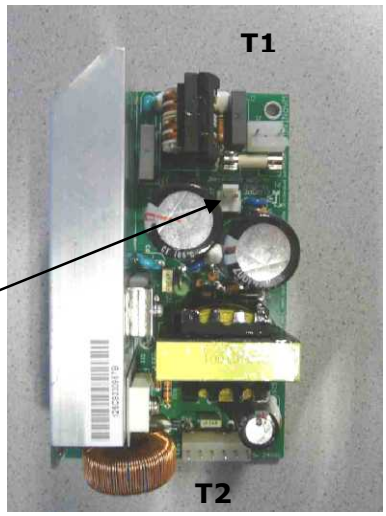
7.1 Power supply

The power supply is located at the backplate of the machine behind the ingredient canisters.
The mains voltage is connected to the power supply. This print supplies power to the outlet print and, as a result of this, supplies power to all other electrical components. For over voltage protection, the power supply has been equipped with a fuse.
Nevertheless, the heating element is connected directly to the mains voltage (can only be interrupted by means of the door switch or the thermostat).

The 4EPR004, a 65Watt power supply is used in the instant machines and the machines with a filter fresh brewer but without a grinder.

Connections on the power supply print:
TB1. Input 230VAC or 120VAC
TB2. Output 24V DC

The 5EPR078, a 120Watt power supply is used in the machines with a CoEx brewer and in Filterfresh machines with a grinder.

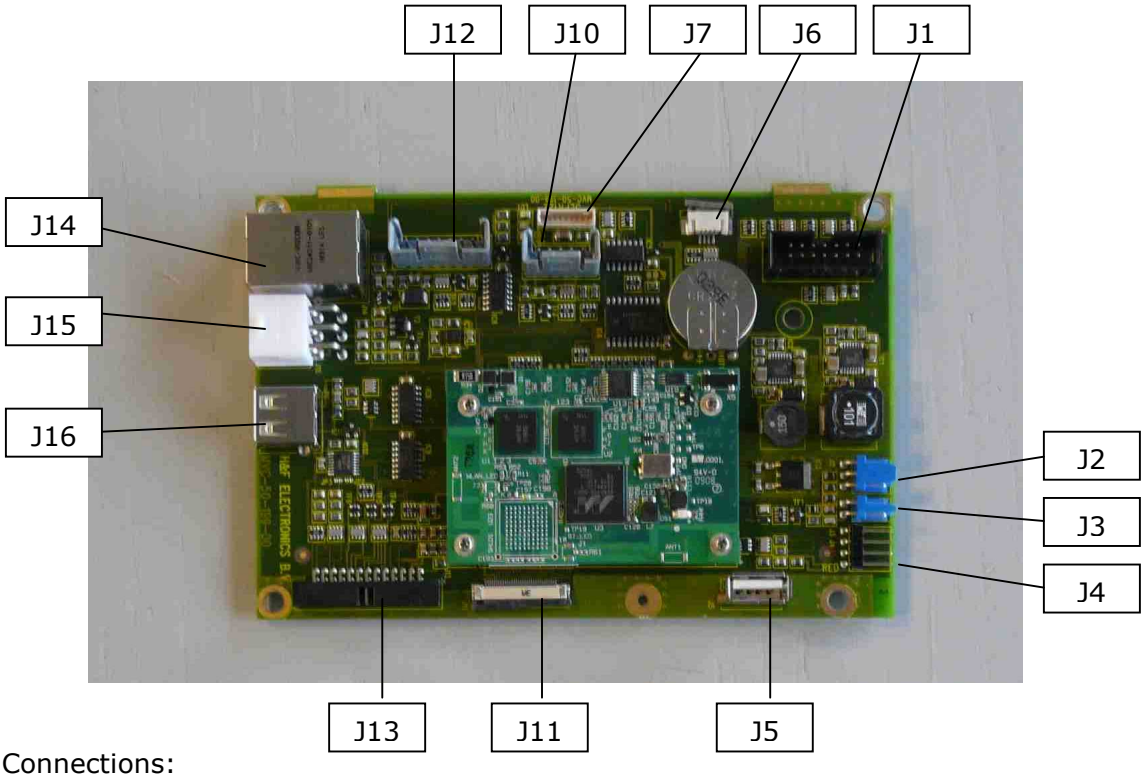


Connections on the power supply print:
TB1. Input 230VAC or 120VAC
TB2. Output 24V DC

If the power supply is used for 120VAC a jumper is connected to the board.

7.2 Control board

The control board is located at the upper side of the door. The control board controls the operation of various components. The program on the board controls after a selection the various components on the right moment. The signals are send to the IO board. On the control board you find the connections for other PCB's and pay systems. The operating system and counter settings are saved on the control board.



Connections:

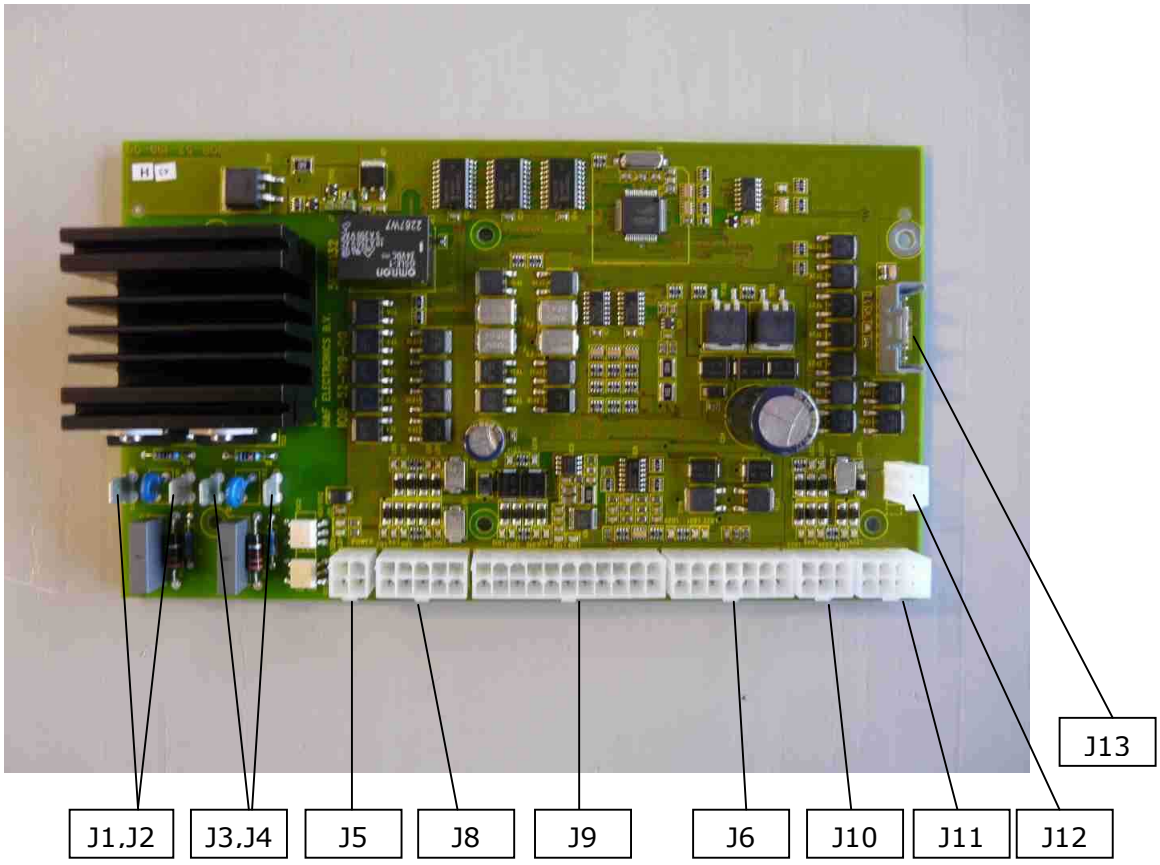
J1	IRDA Board
J2	Speaker
J3	Counter mechanical
J4	USB
J5	USB
J6	Touch screen
J7	backlight converter
J10	Extension
J11	Display
J12	IO bard
J13	cable loom door (cup sensor, door switch)
J14	Network connection
J15	MDB payment system
J16	USB

7.3 I/O board

There are two different IO boards, with different quantities of in and outputs.

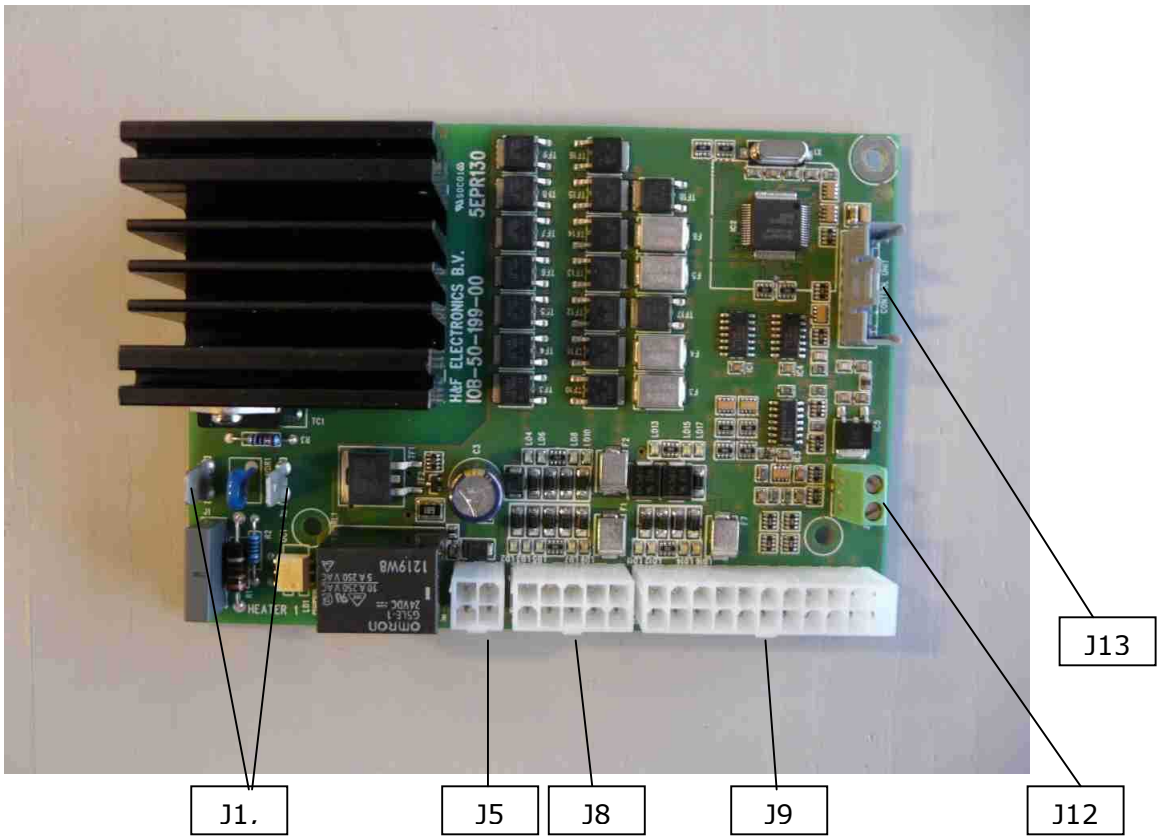
The IO board is controlled by the control board. The I/O board controls the mechanical components such as dosing motors, boiler, brewer motor, mixer and valves.

5EPR132, 27 outputs and 2 heater outputs



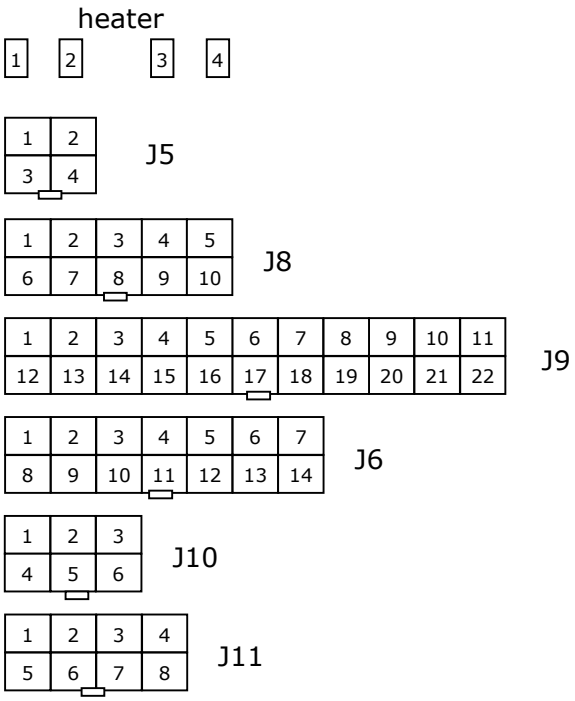
J1,J2 Switching wires heater 1
J3,J4 Switching wires heater 2
J5 Mains voltage
J6 In and outputs
J8 Outputs
J9 In and outputs
J10 Outputs
J11 In and outputs
J12 Input potential-free contact
J13 Control board

5EPR130, 16 outputs and 1 heater output



J1,J2 Switching wires heater 1
J5 Mains voltage
J8 Outputs
J9 In and outputs
J12 Input potential-free contact
J13 Control board

7.4 Connectors on the IO board

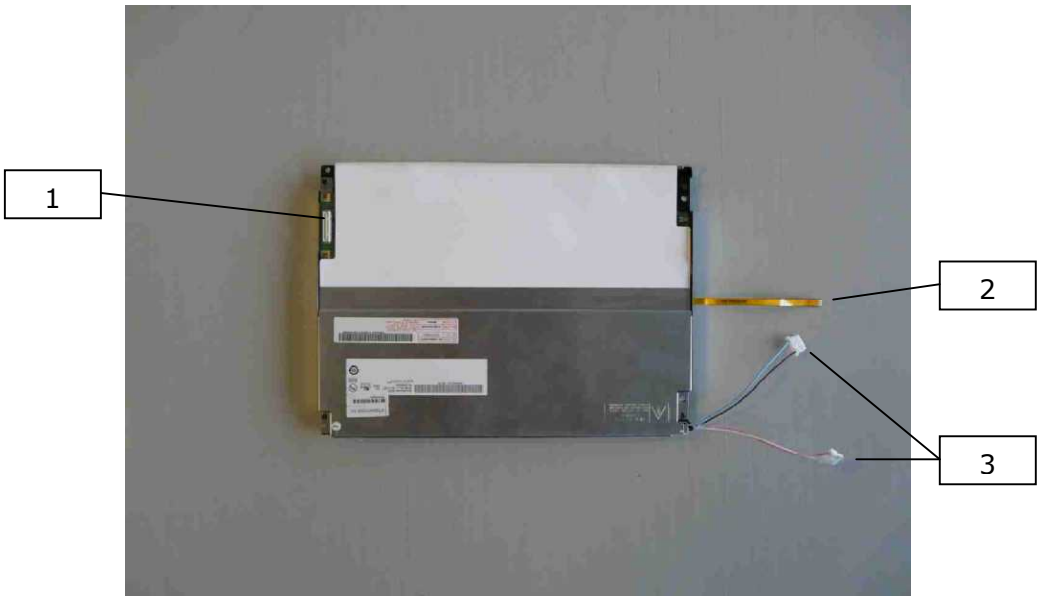


Connector	Component	Wiring color
J 1	Heating element 1	Blue
J 2	Heating element 1	Blue
J 3	Heating element 2	Blue/white
J 4	Heating element 2	Blue/white
J5-1	+24V DC supply	Red
J5-2	+24V DC supply	Red
J5-3	-	Black
J5-4	-	Black
J8-1	+24VDC (common)	Orange
J8-2	Valve brew/mix 2	Purple/white
J8-3	Ingredient motor 3	Blue/White
J8-4	Ingredient motor 4	White
J8-5	Brew/mix 2	Purple/Red
J8-6	Valve brew/mix 3	Orange/Brown
J8-7	Chilled water valve	Black/Orange
J8-8	Ingredient motor 5	Blue/Green
J8-9	Ingredient motor 6	Purple/Black
J8-10	Ingredient motor 7	Transparant

J9-1	+24V DC (common)	Orange
J9-2	Ingredient motor 1 coffee or grinder	Purple
J9-3	Ingredient motor 2 coffee or grinder	Brown/Red
J9-4	Brewermotor +	Gray/White
J9-5	Brewermotor -	Gray
J9-6	Brewermicro	Gray/Black
J9-7	Paperswitch	Blue/Pink
J9-8	Common sensors	Green/Purple
J9-9	Driptray detect	Black/Yellow
J9-10	Driptray full detection	Yellow
J9-11	Driptray common	Green/White
J9-12	Inlet openboiler	Red/Green
J9-13	Fan	Black/White
J9-14	Level sensor 2 common	Green/Purple
J9-15	Valve hotwater	Red/Blue
J9-16	Micro wastebucket	Yellow/Orange
J9-17	Teabrewer micro	Brown/Gray
J9-18	-	
J9-19	Temp 1 common	Green/Purple
J9-20	Temperature 1	Pink
J9-21	Level detection 1	Red/Black
J9-22	Level detection 1 common	Green/Purple
J6-1	+24 volt DC (common)	Orange
J6-2	Pump 1	Gray/Blue
J6-3	Pump 2	Black/Pink
J6-4	Flowmeter supply	Red/White
J6-5	Flowmeter signal	Black/Blue
J6-6	Flowmeter common	Green/Purple
J6-7	Level 2	Brown/Black
J6-8	Expansionvalve	Blue/Yellow
J6-9	Pump 1	Yellow/Brown
J6-10	Pump 2	Orange/White
J6-11	-	
J6-12	Temperature 2	Pink/White
J6-13	Temp 2 common	Green/Purple
J6-14	Level 2 common	Green/Purple
J10-1	+24 V DC (common)	Orange
J10-2	Output 23 Spare	N/A
J10-3	Output 24 spare	N/A
J10-4	Carbonated water valve	Brown/Blue
J10-5	Output 26 Spare	N/A
J10-6	Brew/mix 4	Yellow/Red
J11-1	+24 V DC (common)	Orange
J11-2	Outletarm	Purple/Yellow
J11-3	Microswitch cupsplitter	Gray/Purple
J11-4	Microswitch outletarm	Orange/Red
J11-5	Cupsplitter	Gray/Orange
J11-6	Cup column mover	Gray/Pink
J11-7	Cups microswitch	Brown/Pink
J11-8	Common sensors	Green/Purple

7.5 Display and touch screen

The display and touch screen board



1 = Display converter
2 = Touch screen
3 = Backlight converter (both connectors have the same function)

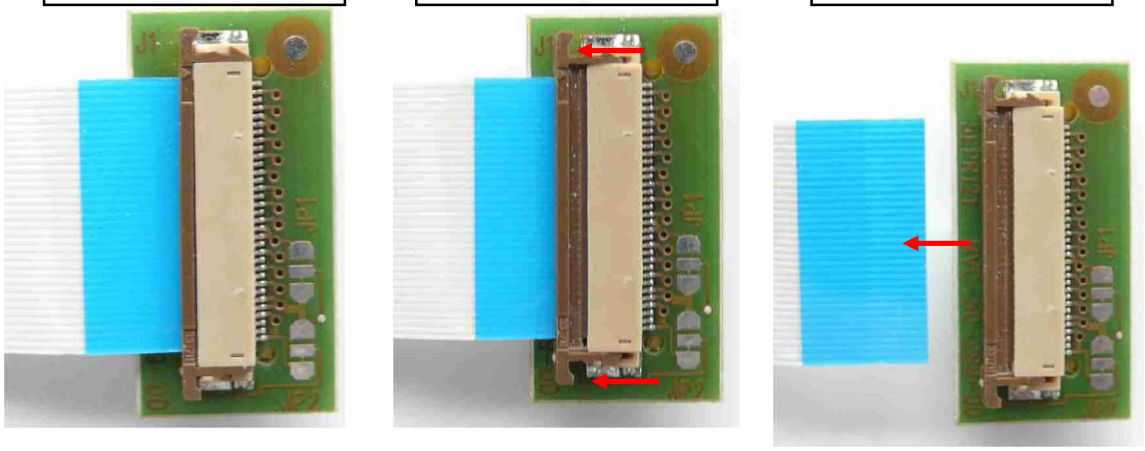
7.6 Backlight converter

1 = Control board
2 = Display (both connectors have the same function)

Display converter

Connection: Remove this cable carefully !!

1. Closed position	2. Slide lock off	3. Pull cable



7.7 Speaker

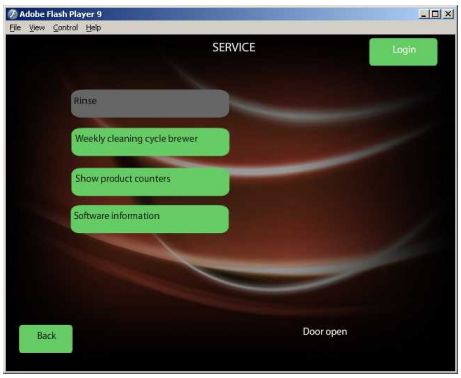
7.8 Cup sensor

The cup sensor registries a cup on the cup stand. Maximum two cup sensors can be connected in the machine. One for the left outlet and one for the right outlet. A cup must be placed on the cup stand before the cycle can start.
The sensitivity of the sensor is adjustable, see chapter cup sensor settings.

8 Service mode (open door)

8.1 Mode without password

After opening the door the service mode is shown in the screen.



This screen gives the options:
- Rinse
- Weekly cleaning cycle brewer
- Show product counters
- Software information

The rinse cycle will only work if the service key is inserted in the door.
(This key is in the machine for safety reasons, conform CE no component may run without a safety key after opening the door)

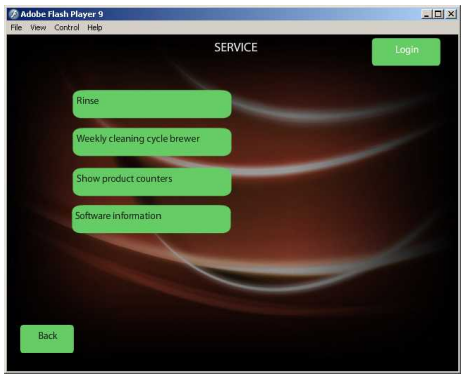
8.2 Insert safety key

Insert the safety key and turn a quarter turn clockwise:

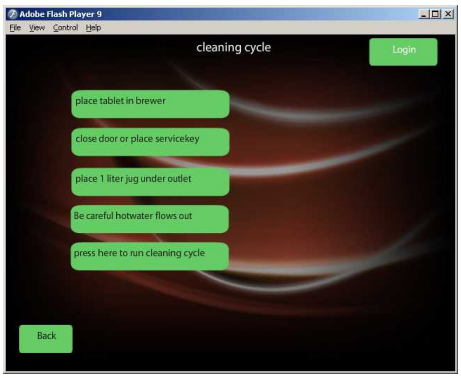
8.2.1 Rinse functions

Installation of the safety key makes all the rinse functions available for use.

Rinse:
The rinse cycle needs to be done daily. Pressing the rinse button will start a rinse cycle for mixers and brewer directly. A jug or bin needs to be installed under the outlet nozzles.

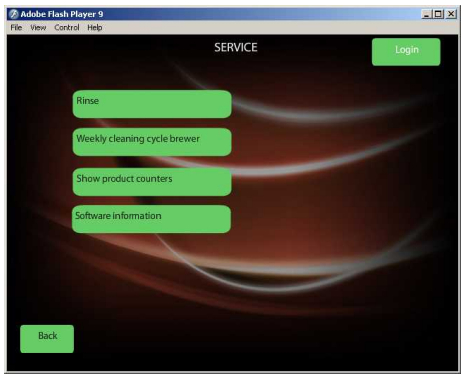


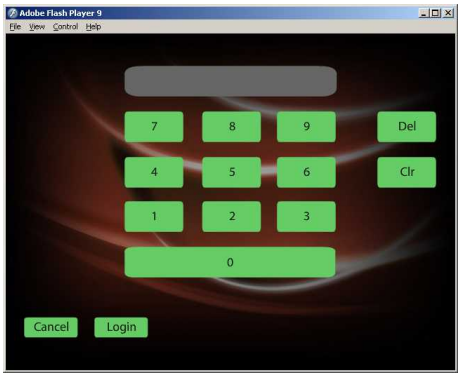
Weekly cleaning cycle:
The weekly cleaning cycle needs to be done weekly. Pressing the weekly cleaning button will show a second screen with instructions. Follow the instructions and finish the whole procedure.



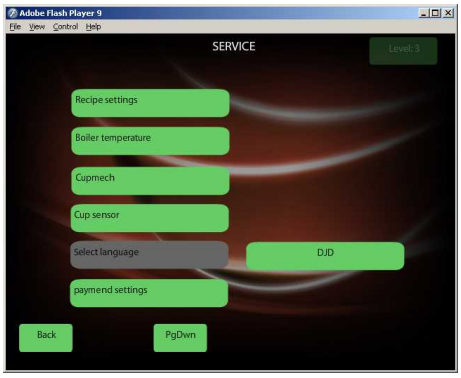
8.3 Service mode with password access

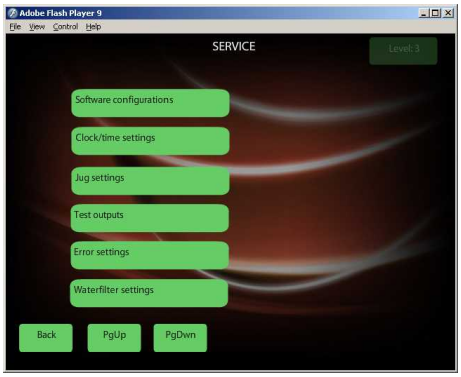
After opening the door the service mode is shown.
Press the login button right at the top, enter the password and press the login button left under.

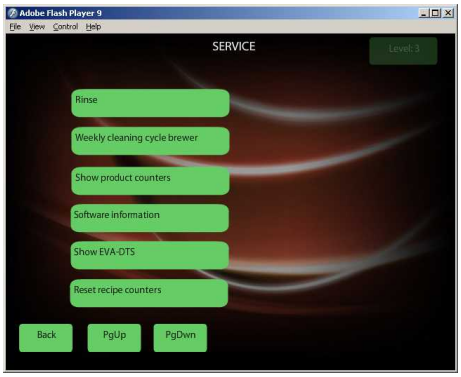


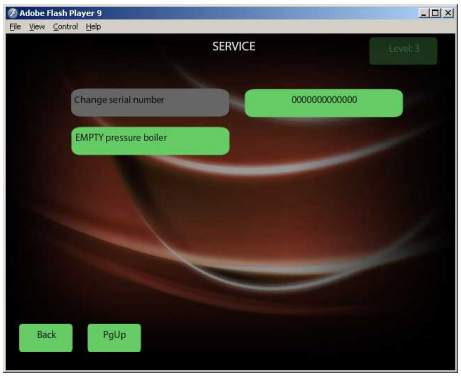


The available service menu items:
- Recipe settings
- Boiler temperature
- Cupmechnism
- Cup sensor
- Select language
- Payment settings
- Software configurations
- Clock/time settings
- Jug settings
- Test outputs
- Error settings
- Water filter settings
- Rinse
- Weekly cleaning cycle
- Show product counters
- Software information
- Show EVA-DTS
- Change serial number
- Empty pressure boiler



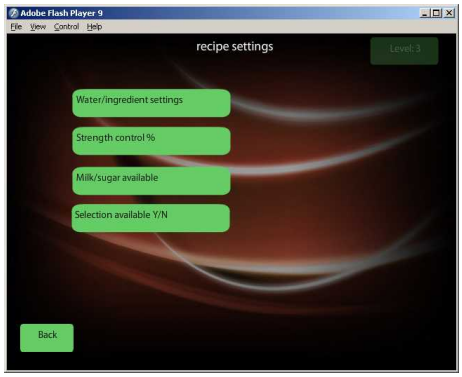






8.4 Recipe settings

The items in the service menu recipe settings:



- Water/ingredient settings.
The water and ingredient dosage can be adjusted per available recipe.
The next paragraph gives a detailed explanation about the recipes.

- Strength control %.
The strength control for coffee and milk/sugar can be adjusted on the max. and min. percentage from the default settings.
Example:
The Coffee percentage is adjusted on 10%.
A strong coffee is selected.
In this consumption is 10% more coffee dosed.

- Milk/Sugar available.
The milk or sugar option can be switched off.
The selection will disappear from the menu.

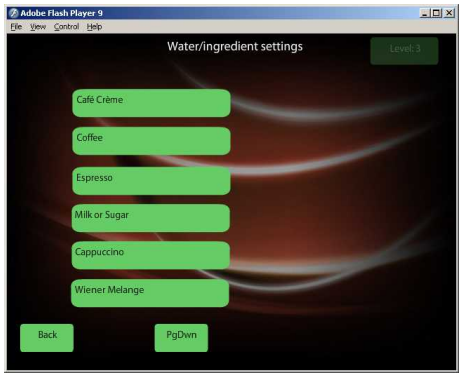
- Selection available.
Every recipe can be available or not. If not available is selected the selection is not available in the menu screen.

8.4.1 Recipe settings sub menu

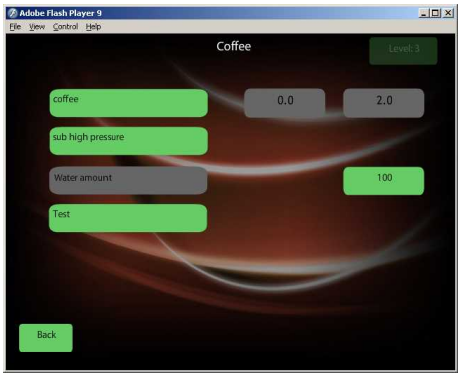
All available recipes are shown in the water/ingredient settings menu.

Select the recipe you want to change

The sub menu shows the available timers and amount of water



8.4.2 Coffee recipe in a bean to cup machine



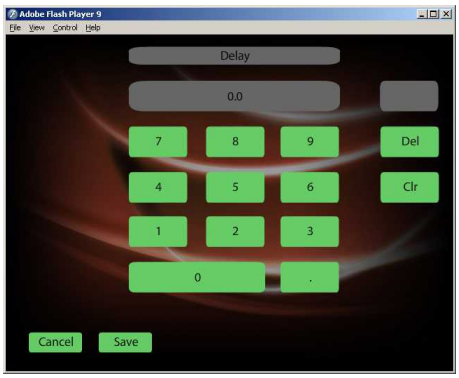
Coffee = the amount of coffee dosed in the brewer.
0.0 = no delay
2.0 = a duration of 2 seconds. The duration of 2 seconds give a certain amount of coffee (proxy 7 gram) from the coffee canister.

Sub high pressure = the amount of water dosed in high pressure mode to give a nice cream on top of the coffee. Press sub high pressure to see the water amount for this part of the recipe.

Water amount = the amount of water dosed in the 'main' recipe of the coffee selection.

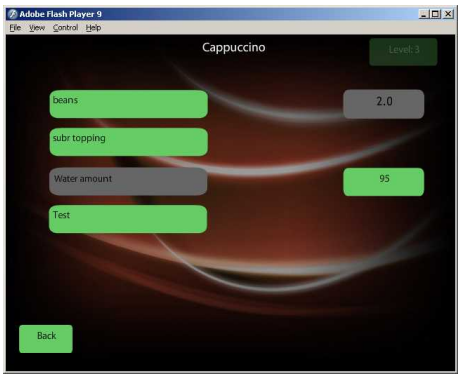
The water amount in the pressure boilers is adjusted in pulses generated from the flow meter. 1 pulse = 0,8 ml
Water amount 100 = proxy 80ml
This coffee selection exist out of 100(main recipe) + 40 (sub high pressure) = 140 pluses = 140 x 0,8 =112ml

With the test button this recipe is dispensed in the service mode.



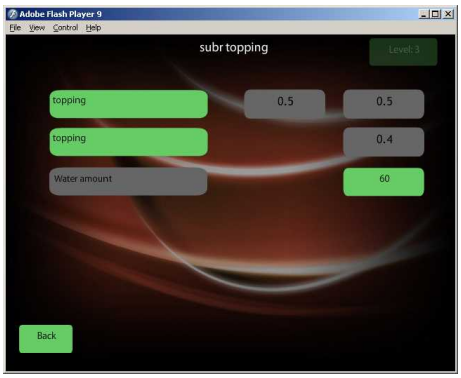
Change a recipe setting:
1. Select the setting you want to change by pressing the green button.
2. Press Clr to clear the setting.
3. Enter the new value.
4. Press save to save the new setting.

8.4.3 Cappuccino recipe in a bean to cup machine



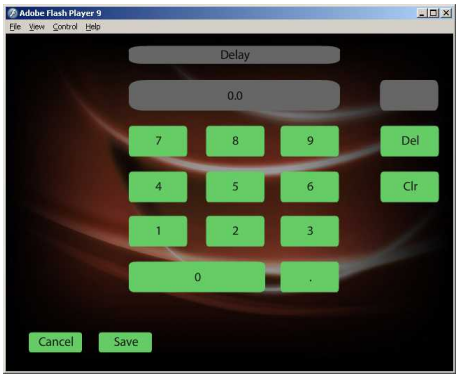
Beans = the amount of coffee dosed.
2.0 mean duration of 2 seconds for the grinder.
The grinder timer is split in two duration.
The base duration is always 3 seconds *.
The total duration is 2+3 = 5 seconds.

Water amount = the amount of water dosed through the brewer.



Subr topping = the milk dosage in the cappuccino.
1. Topping
0.5 in the first column means a delay of 0.5 (so first we have water in the mixing bowl)
0.5 in the second column means a duration of 0,5 seconds for the milk powder motor.
2. topping
0.4 in the second column means a second milk powder dosage after a fixed delay of 0,2 seconds.

Water amount = the amount of water dosed through the mixer.

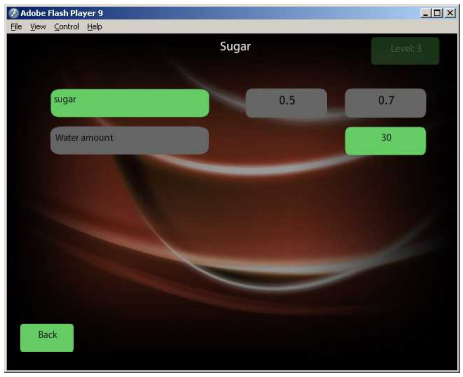


Change a recipe setting:
1. Select the setting you want to change by pressing the green button.
2. Press Clr to clear the setting.
3. Enter the new value.
4. Press save to save the new setting.

* The grinder motor runs in two timers with a short delay in-between. Herewith the maximum power can be provided from the power supply to the motor.

8.4.4 Sub product milk and sugar

The sub product milk and sugar have there own water and product setting



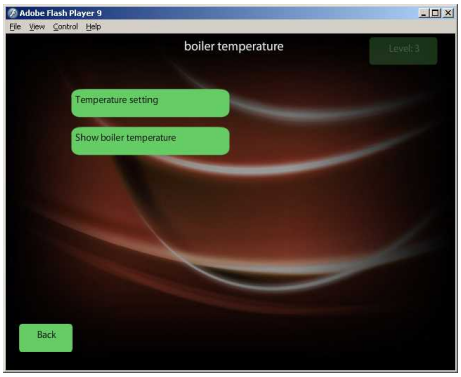
8.5 Boiler temperature

Show boiler temperature will show the actual temperature in the screen.

In the example screen is the measured temperature in Boiler 1 96,4 degrees Celsius and the temperature in boiler 2 95,2 degrees Celsius.

Temperature settings give the possibility to change the boiler temperature.

The Default settings:



Virtu 60 and 80 series	
boiler	**temperature**
B1	90
B2	92

8.6 Cup sensor

The sensitivity of the cup sensor is adjustable. The value can be adjusted between 0 and 2000.

The value 0 means switched off.

The machine will work now like there is no sensor available. A higher value means less sensitive.

A lower value means more sensitive. The sensitivity is default adjusted on 1000, this is the optimal value and gives the best detection for the most cup types.

If there are two cup sensors in the machine, both are individual adjustable.

Black cups or a tea glass are not detectable, we advise to switch off the sensors if black cups or a tea glass are used.

8.7 Language

Select the required active language. DJD is the default English factory text.
Depending on the configuration setup is a language selection available in the main menu.

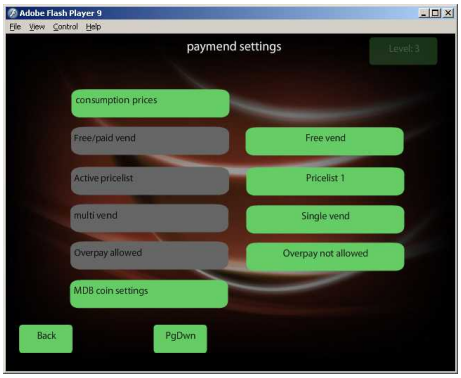
8.8 Payment settings

With the payment settings menu the product prices and the functions of the pay systems can be adjusted.

- Consumption price:
To adjust the price for all available consumptions.

- Free/paid vend
To set the machine in free vend or paid mode.

- Active price list
Activate the required price list.



- Multi vend
A payment system can run in multivend or single vend.
Multivend means you can select more consumptions, your change or card will be returned after pressing the return button on change giver or card reader.
Singe vend means you always receive your change or card direct after dispensing the drink.

- Overpay allowed
It is allowed to insert more money as the highest consumption price.
Overpay not allowed means a more money as the highest consumption price is not allowed.

- MDB coin settings
The coin settings are adjustable in the software if they are set in the configuration file loaded in the machine.

8.9 Software configurations

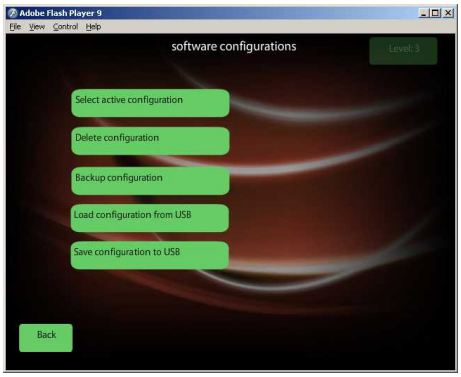
With the service item software configurations software can be copied, activated or deleted.

With a special developed MoVeC ICEQ tool are the configurations programmed.
These configurations can be up and downloaded to the machines with a USB stick.

The board can contain more configuration files. Select the required configuration in the service menu '**select active configuration'**.

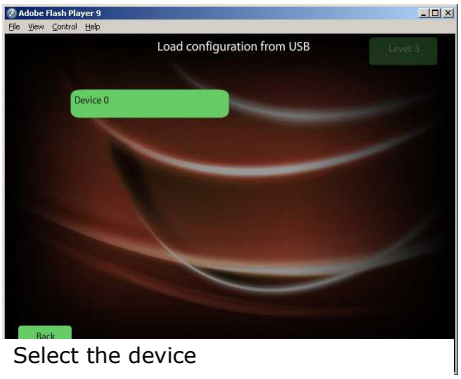
Delete an existing configuration from the board in the service menu '**delete configuration**'.

Copy the active configuration into a backup file in the service menu '**Backup configuration'**.
The back-up file name exists out of the original name added with an extension year, month, day and time:
Example:
Original file name: 8124a00
Backup file name: 8124a00_1001121430
10 = year 2010
01 = month 01 January
12 = day 12
1430 = time 14.30



Service menu software configurations

A new file can be loaded from the usb stick into the board. After selecting **load configuration**, select the correct device, and select the correct file.
The new loaded file from the USB is activated as active configuration automatically.

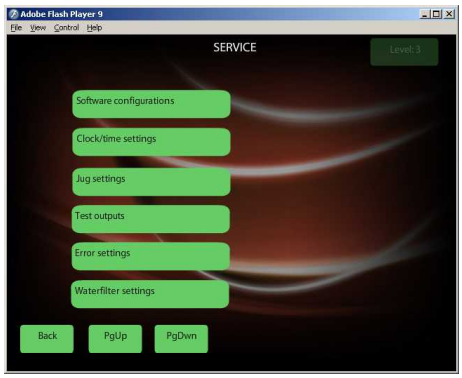


Select the device

The function **save configuration** to USB will save the active configuration file to the USB stick.

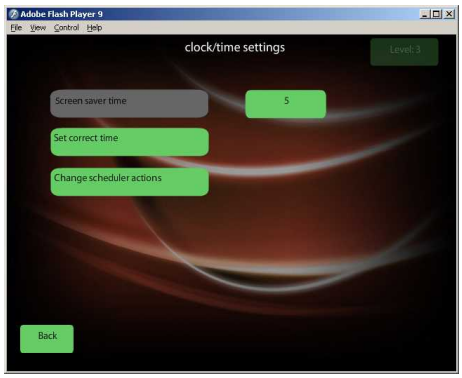
The files on the USB stick

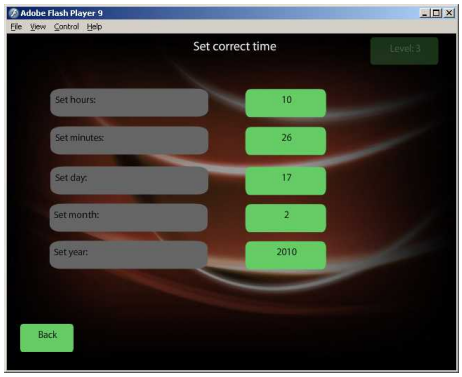
8.10 Clock time settings



- Screen saver time
Is the adjusted time, after how many minutes the screen save picture show-up in the screen.
If the the time is set on 0, the screen saver picture will never show-up in the screen

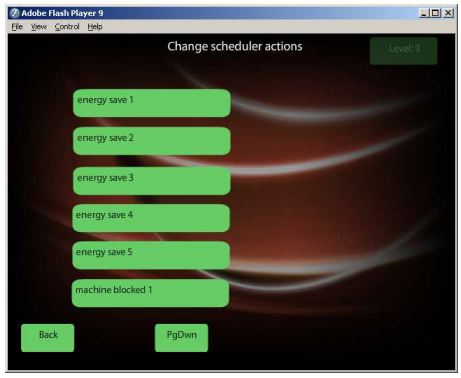
- Set correct time
The actual time can be set correctly in this menu.





- Change scheduler actions
Energy safe and machine blocked function.

Energy safe:
With the energy safe settings the machine can be switched to an energy safe mode during a period of time, the boiler temperature drops to 65 degrees Celsius.
After pressing a selection key the machine will heat to the normal temperature.
If the machine is not used for half hour the machine will go back to the energy safe mode.



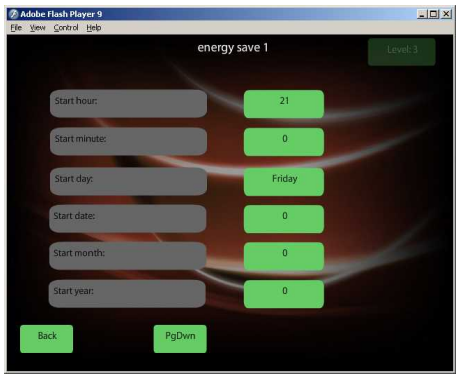
Machine blocked:
The machine is blocked during the adjusted time, the keys on the front panel are blocked. (The service mode is still working)

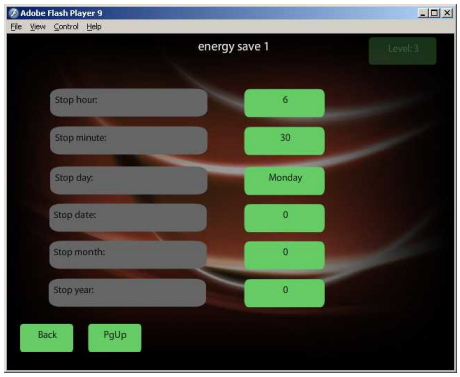
Machine off:
The machine is completely off during the adjusted time, the machine can be activated only by opening the door in the service mode.

4. Free vend.

A machine in pay mode can be switched to free vend during an adjusted time.

The scheduler has a start and stop time, optional the day, date month or year can be set as well.





The default setting for the scheduler actions:

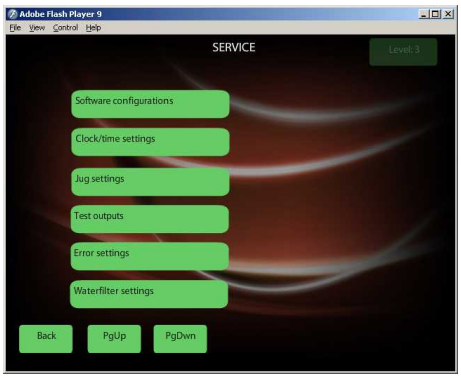
Function	Start hour	Start minute	Start day	Start date	Start month	Start year	Stop hour	Stop minute	Stop day	Stop date	Stop month	Stop year
Energy safe 1	21	00	Friday	0	0	0	6	30	Monday	0	0	0
Energy safe 2	21	00	Monday	0	0	0	6	30	Tuesday	0	0	0
Energy safe 3	21	00	Tuesday	0	0	0	6	30	Wednesday	0	0	0
Energy safe 4	21	00	Wednesday	0	0	0	6	30	Thursday	0	0	0
Energy safe 5	21	00	Thursday	0	0	0	6	30	Friday	0	0	0
Machine blocked 1	0	00	0	0	0	0	0	0	0	0	0	0
Machine blocked2	0	00	0	0	0	0	0	0	0	0	0	0
Switch to free vend	0	00	0	0	0	0	0	0	0	0	0	0
Use other price list	0	00	0	0	0	0	0	0	0	0	0	0
Machine off	0	00	0	0	0	0	0	0	0	0	0	0
Machine off	0	00	0	0	0	0	0	0	0	0	0	0

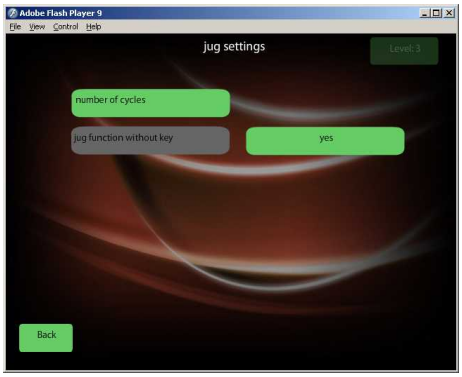
Note:
Set all the values on 0 to switch off an action on the machine.
An action runs daily by setting only the time settings, the value set in day; month and year must be 0 if the action is daily required.

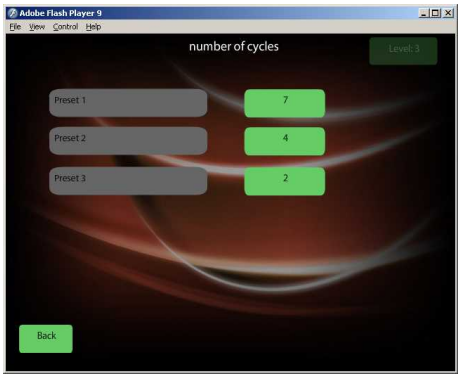
8.11 Jug settings

Number of cycles
Preset 1 is used for the number of cycles in the 1 JUG selection.
Preset 2 is used for the number of cycles in the ½ JUG selection.
Preset 3 is not used.

Jug function without key
Optional a jug key can be installed in the machine. By this key the jug function can be activated and deactivated.
Default are machines set without a key and is the jug selection button default on the main screen.

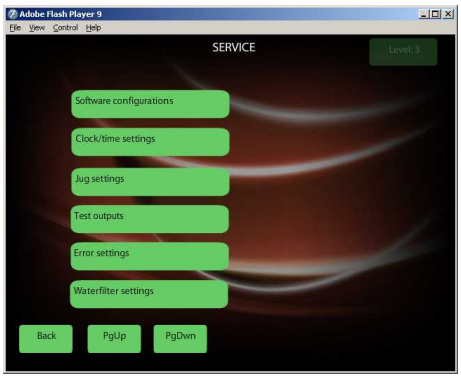


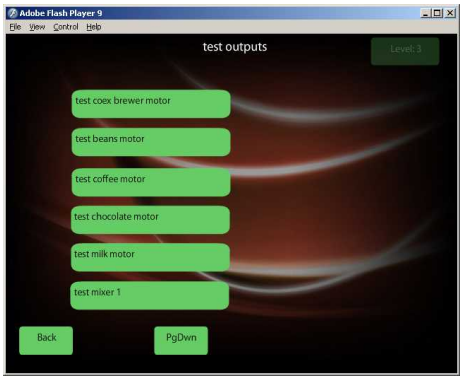




8.12 Test outputs

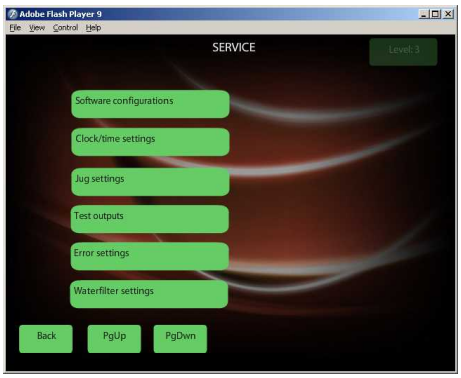
All outputs can be tested via the test output function.
Press the output you want to test and the output is activated for a few seconds.





8.13 Error and water filter settings

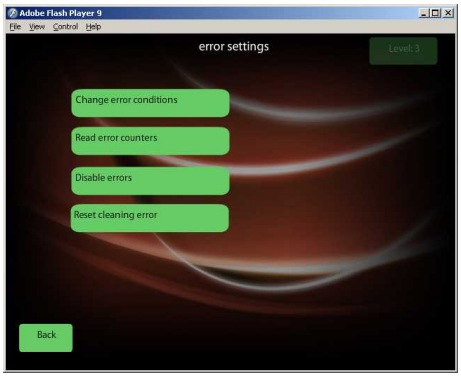
The menu contains information and settings for the available software error and warnings.



8.13.1 Change error conditions

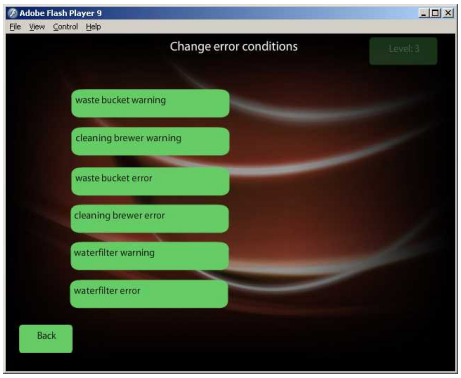
Change error conditions. The software errors can be adjusted with this function.

- Waste bucket warning (in virtu 60 and 80)
Indicates the number of cycles before the warning waste bucket full is shown on the screen.



- Waste bucket error (in virtu 60 and 80)
Indicates the number of cycles before the error waste bucket full is shown on the screen. If the error is shown the coffee selections are blocked.

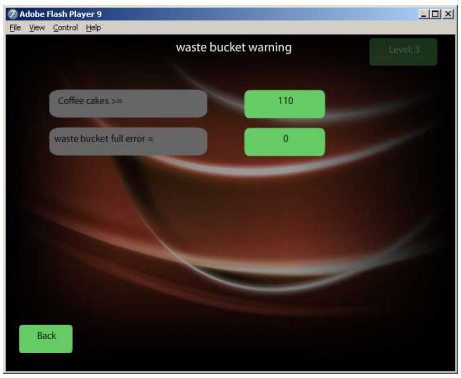
- Clean brewer warning (in virtu 60,70,80 and 90)
Indicates the time before the warning clean brewer is shown on the screen. The time is indicated in seconds.



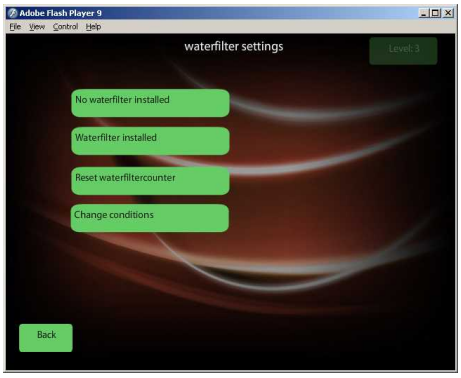
- Clean brewer error (in virtu 60,70,80 and 90)
Indicates the time before the warning clean brewer is shown on the screen. The time is indicated in seconds.

- Disable errors, the available errors can be switched of in this menu.

- Reset clening error.
If a cleaning cycle is stopped before ending the whole cycle the machine will show the message Cleaninge error. This error is only removable by running the cleaning cycle again or reset the cleaning error in the service menu. We advice to run the cleaning cycle again. If the cleaning cycle is not finished correct the system can still contain detergent this must be rinsed out of the system before restart!



8.13.2 Water filter settings



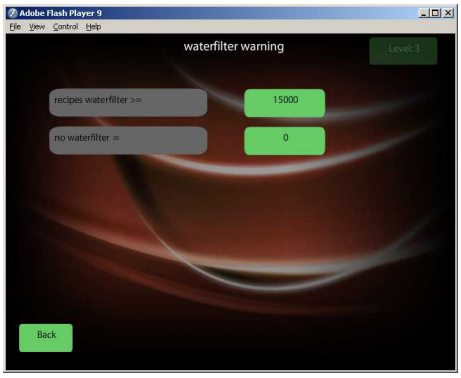
- No water filter installed.
Selecting this button will switch all messages for the water filter off.

- Water filter installed will activate the water filter counters. The warning and error show up after the adjusted number of drink cycles.

- Reset water filter counter reset the counter for the number of drink cycles to 0.

The service key needs to be installed to activate these settings !

Change condition:



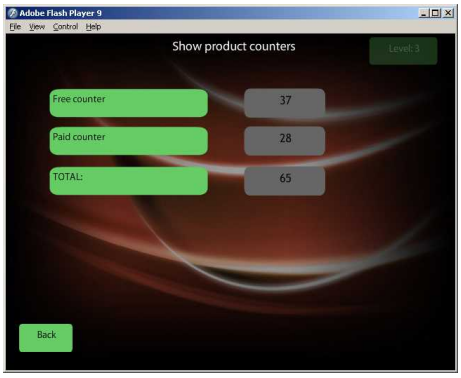
- Water filter warning
Indicates the number of cycles before the warning replace water filter is shown on the screen.

- Water filter error
Indicates the number of cycles before the error replace water filter is shown on the screen.

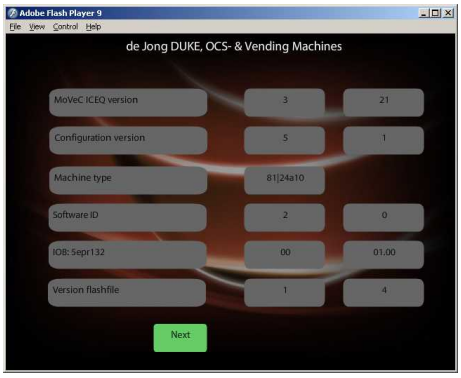
8.14 Recipe counters

Shows the total recipe counter in the screen.

After selecting the counter all recipes counters are shown.



8.15 Software information



Show the active software revisions in the screen.

- Movec ICEQ version = Movec ICEQ software file on the control board.

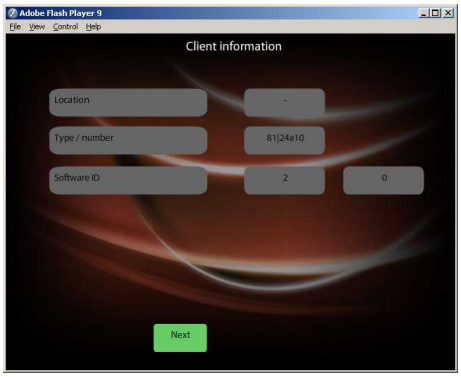
- Configuration version = software configuration file from De Jong Duke.

- Machine type = the machine type where the software can be used for.

- Software ID = ?

- IOB: 5EPR132 = the software version on the IOB board

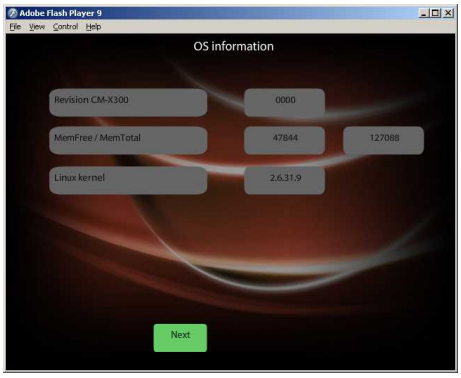
- Version flash file = is de version flash (.swf) file.



- Location = information can be entered in the configuration file.

- Type/number = software type number

- Software ID = ?



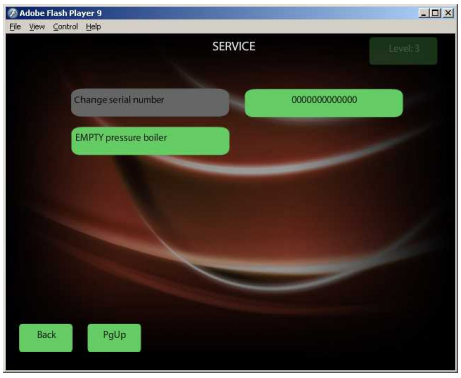
- Revision CM-X300 = software from module board.

- MemFree / MemTotal = the free available memory ad total available memory.

Linux kernel = Linux software version on the board.

8.16 Change the serial number

The serial number is changeable in the service menu. The serial number of the machine is printed on the type plate of the machine. This has to correspondents with the software number in the display. The serial number is used if you use the EVA-DTS function to readout data from the machine.



The serial number is saved in the software file. With the function backup configuration the serial number is also copied!

8.17 Available EVA DTS information in the machine

The available EVA DTS information:

	Element name
ID100	**Machine Identification**
ID101	Machine Serial Number
ID102	Machine Model Number
ID103	Machine Build Standard (operating system number)
ID500	**System Date / Time Report**
ID501	System Date
ID502	System Time
DA100	**Debit Card System Identification**
DA101	Debit Card System Serial Number
DA102	Debit Card System Model Number
DA103	Debit Card System Software Version
DA200	**Debit Card Vending Summary**
DA201	Value Of Card Sales Since Initialisation
DA202	Number Of Card Vends Since Initialisation
DA203	Value Of Card Sales Since Last Reset
DA204	Number Of Card Vends Since Last Reset
DA400	**Debit Card Output Summary**
DA401	Value Credited To Card Since Initialisation
DA402	Value Credited To Card Since Last Reset
VA100	**Vending Sales Summary - All Sources**
VA101	Value Of All Paid Sales Since Initialisation
VA102	Number Of All Paid Sales Since Initialisation
VA103	Value Of All Paid Sales Since Last Reset
VA104	Number Of All Paid Sales Since Last Reset
VA200	**Test Vend Summary**
VA201	Test Vend Value Of Sales Since Initialisation
VA202	Number Of Test Vends Since Initialisation
VA203	Test Vend Value Of Sales Since Last Reset
VA204	Number Of Test Vends Since Last Reset
VA300	**Free Vend Summary**
VA301	Free Vend Value Of Sales Since Initialisation
VA302	Number Of Free Vends Since Initialisation
VA303	Free Vend Value Of Sales Since Last Reset
VA304	Number Of Free Vends Since Last Reset
CA100	**Coin Mechanism Identification**
CA101	Coin Mechanism Serial Number
CA102	Coin Mechanism Model Number
CA103	Coin Mechanism Software Revision

CA200	**Cash Sales Vending Summary**
CA201	Value Of Cash Sales Since Initialisation
CA202	Number Of Cash Vends Since Initialisation
CA203	Value Of Cash Sales Since Last Reset
CA204	Number Of Cash Vends Since Last Reset
CA300	**Cash Input Summary**
CA301	Value Of Cash IN Since Last Reset
CA302	Value Of Cash To Cash Box Since Last Reset
CA303	Value Of Cash To Tubes Since Last Reset
CA305	Value Of Cash IN Since Initialisation
CA306	Value Of Cash To Cash Box Since Initialisation
CA307	Value Of Cash To Tubes Since Initialisation
CA400	**Cash Output Summary**
CA401	Value Of Cash Dispensed Since Last Reset
CA402	Value Of Cash Manually Dispensed Since Last Reset
CA403	Value Of Cash Dispensed Since Initialisation
CA404	Value Of Cash Manually Dispensed Since Initialisation
CA700	**Cash Discounts**
CA701	Value Of Discounts Given (vend price – price paid = discount value) Since Last Reset
CA702	Value Of Discounts Given (vend price – price paid = discount value) Since Initialisation
CA800	**Cash Overpay Summary**
CA801	Value Of Cash Overpay Since Last Reset
CA802	Value Of Cash Overpay Since Initialisation
CA1000	**Manual Cash Filling Summary**
CA1001	Value Of Cash Filled Since Last Reset
CA1002	Value Of Cash Filled Since Initialisation
CA1500	**Value of Tube Contents**
CA1501	Value of all coins stored in all tubes of the change giver
TA200	**Token Sales Summary**
TA201	Value of Vend Token Sales Since Initialisation
TA202	Number of Vend Token Sales Since Initialisation
TA203	Value of Vend Token Sales Since Last Reset
TA204	Number of Vend Token Sales Since Last Reset
TA205	Value of Value Token Sales Since Initialisation
TA206	Number of Value Token Sales Since Initialisation
TA207	Value of Value Token Sales Since Last Reset
TA208	Number of Value Token Sales Since Last Reset
PA100	**Product Identification**
PA101	Product Number
PA102	Product Price
PA103	Product Identification
	* Vended Cups = 999
PA200	**Sales Vends By Product**
PA201	Number Of Products Vended Since Initialisation
PA202	Value Of Paid Product Sales Since Initialisation
PA203	Number Of Products Vended Since Last Reset
PA204	Value of paid products sales since last reset
	* Vended Cups = 999
PA400	**Free Vends By Product**
PA401	Number Of Free Vends Since Initialisation
PA402	Value Of Free Vends Since Initialisation
PA403	Number Of Free Vends Since Last Reset
PA404	Value of free vends since last reset
	* Vended Cups = 999
PP100	**Pre-selections (additives, e.g. sweetener, creamer, etc.**
PP101	Preselection number
PP102	Preselection price
PP103	Identification (e.g. Sugar Coffee; Creamer for Tea)
PP104	Incremental price for each step
PP105	Number of times this additive has been chosen Since Initialisation
PP106	Value of this additive that has been chosen Since Initialisation
PP107	Number of times this additive has been chosen Since Last Reset
PP108	Value of this additive that has been chosen Since Last Reset
SA200	**Ingredient counters (grams dispensed)**
SA201	Ingredient name

SA202	Quantity of dispensed ingredient Since Initialisation (in grams)
SA203	Quantity of dispensed ingredient Since Last Reset (in grams)
EA100	**Event**
EA101	Event Identification
EA102	Date of Event Occurrence
EA103	Time of Event Occurrence
EA104	Duration of the Event (MM)
EA300	**Standard Interrogation Summary**
EA301	Number Of Reads Since Initialisation
EA302	Date Of This Read Out
EA303	Time Of This Read Out
EA304	This Terminal / Interrogator Identification

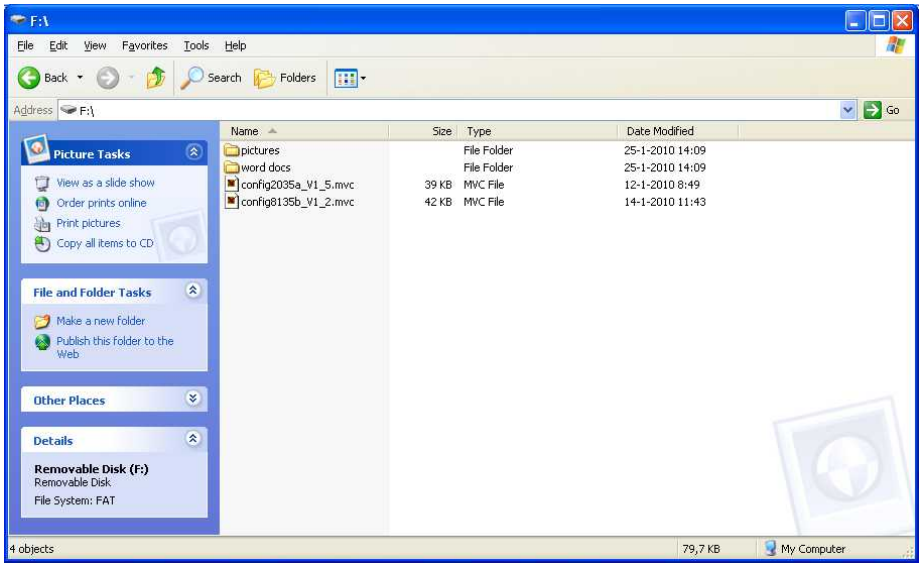
8.18 Load new configuration from USB

Activate a new configuration file from PC in the machine:

The movec has the extension .mvq or can have .mvc for smaller sized files.

1. Copy the new file to a USB stick. The file must be placed in the root directory.

Example files on USB:



2. Insert the USB stick in the USB port of the machine.

3. Acess the service mode on the machine and select the service menu: Software configurations and press enter.

4. Select the option: Load configuration from USB

5. Select the available device.

6. Selected the needed configuration on the USB stick.
The selected configuration is now loaded and automatically started.

5. Remove USB stick.

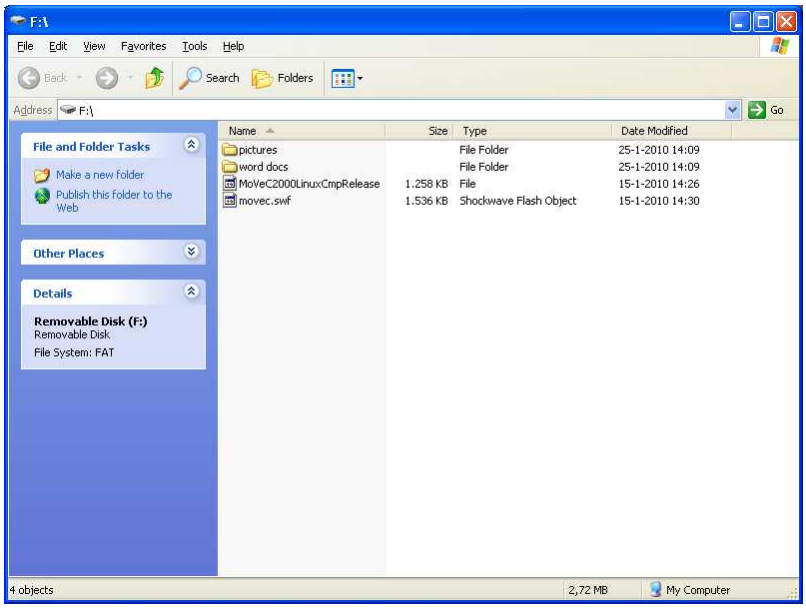
6. Ready.

8.19 Load new Flash(SWF) or MoVec ICEQ file from USB

Upload the MoVeC ICEQ Linux and swf software to the machine:

1. Copy the new files to a USB stick. The files must be placed in the root directory.

Example files on USB:



2. Insert the USB stick in the USB port of the machine.

3. The machine will recognize the files and upload these automatically.

The procedure takes max 60 seconds; the machine is blocked for this period. After these 60 seconds the machine will start working with the new uploaded files.

5. Remove USB stick.

6. Ready.

Note:
The swf file contains the shown pictures, background and text fields.
The MoVeC ICEQ linux file contains the functionality to control payment systems, communicate with the swf file and IO board.

9 Failure and error messages

Always check whether an error message is shown on the display. If no error message is shown and the machine does not work correctly, you may find the possible cause and solution in the following table. For failures not mentioned in this manual, contact the service engineer.

Rinse brewer with tablet
The weekly cleaning cycle is required, the number of cycles is detected.
Run the cleaning cycle and the message will disappear. The cleaning cycle reset the number of cycles.

Brewer not in home position
The micro switch did not detect the brewer nok on the required moment.
Check if the brewer is installed correctly. Remove and replace the brewer following the procedure.
Check if the micro leveler is bend.
Check if the motor is broken.
Check if the brewer is not blocked and cannot run.

Communication error
Communication between control board and IO board is not correct.
Check the cable between the boards on damage.
A bad connection on control or IO board can generate the message.

Cleaning Error
Cleaning cycle did not finish.
Run the cleaning cycle again and finish it correctly.

Door open
Close door or install service key to run the machine.

Drip tray full
Empty the drip tray in front of machine and under the brewer make sure the probes are dry.

Enough water?
The dispensed drink did not reach the adjusted amount of water (pulses by flowmeter)
If it concerns a drink from the brewer, the screens can be dirty. Run the weekly cleaning cycle with a cleaning tablet and clean the screens.
Check is the brewer or valve is not blocked.
Check if another valve is blocked.
Check if the flowmeter is connected correctly.

Empty waste bucket
The number of cycles is reached to generate the message.
Reset the message by activating the micro behind the wastebucket for at least 3 seconds.

Filling boiler
Open and close the machine door for restart., wait until boiler is filled.
Check if water is connected.
Check if inletvalve works.

Grinder blocked
A too high current is detected on the output for the grinder.
Grinder is blocked and needs to be cleaned out.

Heating boiler 1 or WAIT, Heating boiler 2
Wait until boiler is heated.
If message is still shown after 10 minutes, check the clixon and heating element.

Install waste bucket
The micro switch behind the wastebucket does not detect the wastebucket.
Install the waste bucket in the machine.

Mixer blocked
A too high current is detected on the output of the mixermotor.
Clean the mixing bowl, check the motor.

No water connected
No water detected for more then 30 seconds. Open and close the machine door for restart.
Check water supply.
Check inletvalve, pressure reducer and flowmeter.

Place cup in center or Place cup right
Cup needs to be installed on the grid before the start button is available.
The sensitivity is adjustable.

Water filter installed?
In service mode the correct selection needs to be made.

Replace water filter
The counter has reached the number of cycles, new filter needs to be installed and reset counter.

Shortcut temp.sensor
A short cut is detected on the input of the temp. sensor.
Temperature probe is broken, or a shortcut in wiring.

Startup problem
Open and close the machine door for restart.
If message shows again, check the expansion valve, 2 bar valve and flow meter.

Temp. sensor disconnected
A too high resistance is detected on the input of the Io board.
Temperature probe is broken, or wiring is loose.

Temp. boiler to high
A temperature of 10 degrees more as the adjusted temperature is detected.
Check is heater is broken and keeps heating.
Check temperature setting.
Check temperature probe.
Check wiring loose/bad contact and the correct connection to boilers and IO board.

Water level to low
No water level is detected by the level probe in the boiler.
Check if wire from probe is connected to the cable loom.
Check if the ground is connected to the boiler.
Check if the boiler is loosing water due to leackage or wrong connected valve.

Notes:
