



Zia

Technical Manual
Zia Coffee Machine

**CEC Medium Cabinet
7.000/9.000 CoEx[®] brewer**

5DTCEP20I EN V1.0

Preface

Copyright

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The English language version is the original version. All other language versions are translations of the original version.

Disclaimer

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Introduction

- Before using the coffee machine, please read the safety instructions and all of the information in this manual first.
- Keep this manual in a safe and accessible place for later reference.
- The machine serves hot drinks. Keep a distance from the outlet nozzles after selection, during dispense and when the drink is removed from the machine after dispense.
- Only properly trained service personnel may install, move, adjust and repair the machine.
- This machine can be used by children aged 8 years and older 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 they understand the hazards involved.
- The information in this manual is meant only for persons trained in installation and service of the machine.

- Information about troubleshooting is given in the back of the manual.
- The manual cannot be regarded as a replacement for the training and instruction, but must be seen as an addition to the training, and as a reference work.
- The Technical manual is valid for the machine supplied 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.
- Only use original parts from the manufacturer when the machine needs to be repaired.
- Contact the service center (see contact information below) for maintenance or repairs not explained in this manual.

Service and support

For service and support contact the dealer / supplier of the machine.

Record dealer information in this box or use a dealer stamp.

Telephone Service Number:

Internet:

Company name:

Address:

Area code - City:

Country:

Telephone:

E-mail:

Record the serial number of the coffee machine in this box. Mention it when service is required.

Serial number:

Contents

Preface	2
Copyright	2
Disclaimer	2
Introduction	2
Service and support	3
About this manual	9
Audience	9
Scope	9
Conventions	9
Related documents	10
Availability of this manual	10
1 Safety	11
1.1 Safety and risk levels	11
1.2 Safety and warnings	12
1.3 Installation	14
1.4 Maintenance	14
1.5 Extended down time	14
2 Description	15
2.1 Overview	15
2.1.1 Front view	16
2.1.2 Back view	17
2.1.3 Inside view	18
2.1.4 Door interior	19
2.1.5 Inside view base cabinet — optional	20
3 Installation	21
3.1 Requirements	21
3.2 Unpacking	22
3.3 Installation	24
3.4 Configuration and fine tuning	26
4 Function of the components	27
4.1 Hot water system	27
4.1.1 Schematic diagram of the water system	29

4.1.2 Inlet valve.	30
4.1.3 Pressure reducer.	30
4.1.4 Water flow meter.	32
4.1.5 Water pump.	33
4.1.6 The boiler.	36
4.1.7 Pressure boiler.	36
4.1.8 Open boiler.	39
4.1.9 Temperature / Level sensor pressure boiler.	42
4.1.10 Temperature sensor / Level sensor open boiler.	43
4.1.11 Temperature safety.	45
4.1.12 Positioning of the valves.	47
4.1.13 2-way outlet valve (Pressure boiler).	50
4.1.14 3-way CoEx brewer valve (Pressure boiler).	51
4.1.15 2-way outlet valve (Open boiler).	52
4.1.16 Pressure relief and safety valves	54
4.1.16.1 Pressure relief valve 2 bar.	54
4.1.16.2 Safety pressure valve 12 bar.	54
4.1.17 Mixer.	55
4.1.18 Grinder.	57
4.1.18.1 Schaerer grinder.	57
4.1.18.2 D-grinder.	60
4.1.19 Ingredient canisters.	77
4.2 Brewer CoEx.	79
4.2.1 CoEx® brewing system.	79
4.2.2 Brewer cycle.	80
4.2.3 Remove and place the CoEx® brewer.	82
4.2.4 Brewer motor and micro switch	85
4.2.5 Upper piston / filter head.	85
4.2.6 Controlling coffee/espresso pressure switch.	87
4.2.7 Replace seals in lower piston.	88
4.2.8 Seals.	91
5 Electronics	92
5.1 Power supply.	93
5.2 Control board.	94
5.3 IO board.	95
5.4 Display.	99
5.5 Cup sensor.	100
5.6 Schematic diagrams.	101
6 Service and programming.	102
6.1 Inserting service key.	102
6.2 Functions without password (Before login).	102

6.3 Daily rinse / Daily cleaning cycle.	103
6.4 Brewer cleaning cycle.	104
6.5 Daily Cleaning program milk system.	104
6.6 Out of order message.	104
6.7 Beverage counters.	104
6.8 Software information.	105
6.9 Network information.	105
6.10 Functions with password.	105
6.11 Calibrations.	107
6.12 Connectivity.	108
6.13 Select language.	109
6.14 Recipe settings.	109
6.14.1 CoEx coffee recipe example.	109
6.14.2 Instant recipe example.	111
6.15 Software configurations.	112
6.16 Machine serial number.	113
6.17 Boiler temperature.	113
6.18 Cup sensor.	114
6.19 Payment settings.	114
6.20 Clock/time settings.	116
6.21 Canister settings.	118
6.22 Test outputs.	119
6.23 Images.	120
6.24 Error settings.	121
6.25 Fan turn off delay.	123
6.26 Water filter settings.	124
6.27 Jug settings.	125
6.28 Error log.	125
6.29 Change PIN.	125
6.30 Change menu (Level 4).	125
6.31 Load permissions.	126
6.32 Reset recipe counters (Level 4).	126
6.33 Empty pressure boilers.	126
6.34 Empty open boiler.	127
6.35 Audio settings.	128
6.36 Display settings (Level 4).	128
6.37 EVA-DTS report.	128
6.38 Component available (Level 4).	130
6.39 Counters.	131
6.40 Reset hardware counters (Level 4).	131

7 How to list. 132

7.1 How to load a new configuration file from an USB stick.	132
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7.2 How to load an IPK or FW files from USB.	132
7.3 How to get and load a permission key.	133
7.4 How to calibrate the touchscreen.	133
7.5 How to create a log file.	134
7.6 How to descale the boiler of the coffee machine.	135

8 Troubleshooting. 140

8.1 Messages.	140
8.1.1 Message: Brewer not in home position.	140
8.1.2 Message: Brewer out of position.	140
8.1.3 Message: Clean screen.	140
8.1.4 Message: Cleaning Error.	141
8.1.5 Message: Communication error.	141
8.1.6 Message: Door open.	141
8.1.7 Message: Drip tray full.	141
8.1.8 Message: Empty waste bucket.	142
8.1.9 Message: Enough water?.	142
8.1.10 Message: Filling boiler.	142
8.1.11 Message: Grinder blocked.	143
8.1.12 Message: Heating boiler.	143
8.1.13 Message: Install drip tray.	143
8.1.14 Message: Install waste bucket.	143
8.1.15 Message: Insert coins.	144
8.1.16 Message: Mixer blocked.	144
8.1.17 Message: Machine Blocked.	144
8.1.18 Message: Machine is temporarily out of order.	144
8.1.19 Message: Not all ingredients available.	144
8.1.20 Message: No coffee detected in brewer.	145
8.1.21 Message: No water connected / No water in boiler.	145
8.1.22 Message: Open boiler leaking, inlet closed.	145
8.1.23 Message: Place cup in center.	145
8.1.24 Message: Place cup right.	146
8.1.25 Message: Please load configuration.	146
8.1.26 Message: Please load the User Interface.	146
8.1.27 Message: Replace water filter.	146
8.1.28 Message: Rinse brewer with tablet.	147
8.1.29 Message: Startup problem.	147
8.1.30 Message: Temp. sensor disconnected.	147
8.1.31 Message: Temperature boiler (too) high.	147
8.1.32 Message: Water level too low.	148
8.1.33 Message: Waste bucket full / Empty waste bucket.	148

8.1.34 Message: Water filter installed?	148
9 Technical specifications.	149
9.1 Standards and regulations.	149
9.2 Type plate.	149
9.3 Disassembly and recycling.	150
9.4 Required installation space	150
9.5 Technical specifications.	151
9.6 Cup and jug sizes.	152
9.7 Manufacturer contact information.	153
10 Appendix.	154
10.1 Appendix list.	154
10.2 Declaration of conformity.	155

About this manual

Audience

This manual describes how to install and service the Zia coffee machine. Intended users are staff, trained for the installation and service of the machine.

De **Jong** DUKE assumes that staff will:

- have sufficient technical knowledge and experience to carry out the tasks assigned to them,
- recognize and prevent possible hazards,
- read and understand this manual,
- follow the procedures described in this manual,
- ensure that the machine will not harm personnel and/or damage its environment.

If the responsible staff has permission to perform installations and service or change parameters, De **Jong** DUKE expects that the staff is trained for these tasks.

Scope

This manual contains essential information for proper installation and service of the machine.



CAUTION

Before using or maintaining the machine read this manual carefully to become familiar with the functionality. If any (part of the) information in this manual is unclear contact the supplier.

Conventions

This manual uses the following text conventions:

- Actions that you should perform in a specific sequence are numbered, for instance, e.g.:
 1. Open the door of the coffee machine.
- Black circled numbers (e.g. 1, 2, 3) and numbers between parentheses e.g. (1) in text refer to elements in a figure.
- Bold text is used for (sub)titles and for information that needs special attention: '**Read these instructions carefully**'.
- Menu names in the user interface are shown in bold, for example: return to the **Main menu**.
- Settings in the user interface are shown in italics; for example: *0.45*.

- Soft keys, keyboard buttons and hardware buttons are shown between brackets, for example: **[Start]**, **[Enter]**, **[2]**.
- Messages shown in the user interface are shown between quotation marks and in italics, e.g.:
'Place cup right (see [Message: Place cup right](#) on page 146)'.
'
- Cross-references to sections, tables, figures etc. are indicated as blue text or written as (see "....." on page ..). The main purpose is easy recognition in the paper and on-line (PDF) version of the manual. In the on-line version, the cross-references function as hyperlinks that can be used to navigate through the manual by clicking on them. Example: [Scope](#) (on page 9).
- The safety symbols indicate situations or actions that may endanger the operators and service engineers and are explained in detail in the safety section.
- One additional symbol is available to give the reader additional information:



TIP

Recommendations for the reader.

Related documents

In addition to this manual, the following documentation is available:

- User manuals
contains essential information for proper operation and maintenance of the machine.
- Electrical drawings
contains the electrical drawing/diagrams of the machine.
- Spare parts manuals
containing relevant information for identification of the spare parts.
- Installation manuals
containing relevant information to install hardware options in the machine.
- Third party documentation
contains the available documentation of third-party machine parts and options.

Availability of this manual

De **Jong** DUKE expects this manual to be available to all staff trained in the installation and service of the machine.

Safety

1.1 Safety and risk levels

Four safety and risk levels are used in this manual.

The risk levels and explanations are:

**NOTE**

To show extra information that may help the reader.

**CAUTION**

Indicates a potentially hazardous situation that, if not avoided, can result in minor or moderate injury or damage to the machine or property.

**WARNING**

Indicates a potentially hazardous situation that, if not avoided can result in death, serious injury or machine damage. It includes hazards that are exposed when guards or security features are removed.

**DANGER**

Indicates a hazardous situation that, if not avoided, can result in death or serious injury.

1.2 Safety and warnings

The safety warnings in this section apply to the entire document.

Before using your coffee machine, please read the safety instructions and all of the information in this manual first and keep it for future reference.

The risk level associated with the explanation are:



DANGER

All danger level warnings applicable to the entire document:

- Do not use water in or near the machine unless the instructions contain explicit directions to the contrary. Risk of electrocution when water comes in contact with internal electrical parts.
- Do not use a water jet to clean the coffee machine.
- HOT water! The water system (boiler, pipes, etc.) may contain hot water. Risk of burning when HOT water comes in contact with a person that can cause a scalding injury.
- Don't reach beneath the dispensing nozzles and hot water spout after selection and during dispensing.
- Risk of serious personal (hand and finger) injuries if the machine needs to be moved, lifted or tilted. Always wear protective clothing.
- Moving parts inside the machine, beware of trapped fingers if the service key is placed when the door is open.
- Only qualified service personnel is allowed access to the internals of the machine.



WARNING

All warning level warnings applicable to the entire document:

- Do not shake the machine while in use. Risk that machine can tip over and fall.
- Do not lean on the door when open. Risk that machine can tip over and fall. Risk of serious injury.



CAUTION

All caution level warnings applicable to the entire document:

- Do not use aggressive cleaning products or abrasives to clean (parts of) the machine.
- Do not use a dish washer to clean parts.
- Do not use a damaged machine. Please contact your supplier.
- If a fault occurs disconnect the machine from the electrical and water supplies. Please contact your supplier immediately.

**NOTE**

All note level warnings applicable to the entire document:

- Use the machine only in areas where trained personnel can monitor the operation.
- Water and electrical connections must conform to local regulations.
- Make sure a waterlock is used in the water connection.
- If the power cord is damaged it must be replaced by the manufacturer, the supplier or similar qualified persons.
- Do not use an extension cord.
- Do not use an external timing device to manage the availability of the machine.
- Damaged water connection hoses may only be repaired by trained personnel.
- Make sure to follow instructions on all safety labels on and in the coffee machine.
- Do not remove safety labels.

1.3 Installation

- Installation, transportation, and adjustment of the machine is specialized work, only properly trained service personnel is allowed to do this.
- Check the appliance for transport damage. Do not connect a damaged machine.
- The coffee machine is for indoor use only.
- Make sure the machine is placed on a level, flat and stable surface in a hygienic, dry room with a temperature between 41 and 104 °F.
- Make sure that the electricity and water supply connections comply to local regulations and remain easily accessible after installation.
- Do not use an extension cord.
- Make sure that the machine is connected to an earthed socket.
- Only hose-sets according to IEC 61770 may be used for the connection to the water supply.

1.4 Maintenance

Regular cleaning is needed to ensure hygienic operation of the machine. The User manual explains all cleaning procedures.

1.5 Extended down time

- If the coffee machine will not be used for a longer period of time (more than one week) it is recommended to turn off the water supply and the electricity (if the power switch is not accessible pulling the main power plug from the wall socket is sufficient). This will also prevent unnecessary use of energy. If the coffee machine was used also check the cleaning procedures in section Switch off / Putting out of order.
- In areas where the temperature can drop below freezing point, the boilers must be emptied. When freezing has occurred allow sufficient time for the machine to reach room temperature before switching on the machine. Contact your supplier (see [Service and support](#) on page 3) for more information.

Description

2.1 Overview

The Zia coffee machine is a compact semi-automatic (or fully automatic if a cup dispenser mechanism is included) machine for the preparation and vending of hot (and optionally cold) drinks.

The coffee machine is operated using the touchscreen panel on the door. By tapping one of the buttons on the screen a product choice can be made. Before a beverage is dispensed a cup or jug must be placed under one of the outlets. The next sections contain drawings of the front, the inside and the optional base cabinet of the coffee machine. The drawings show the location and the name of the most important parts of the machine.

More details on the operation and cleaning of the coffee machine can be found in the User manual.

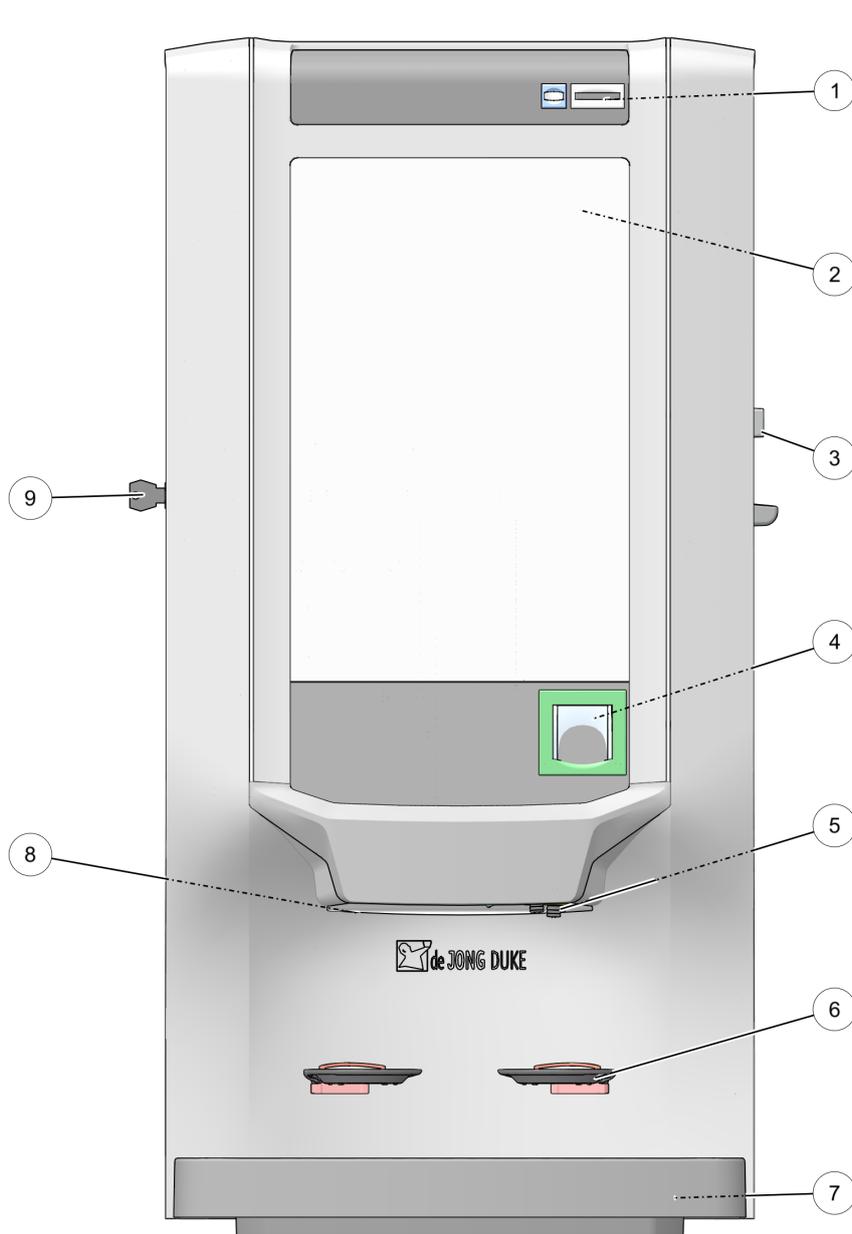
2.1.1 Front view

Front view Zia (medium model)



NOTE

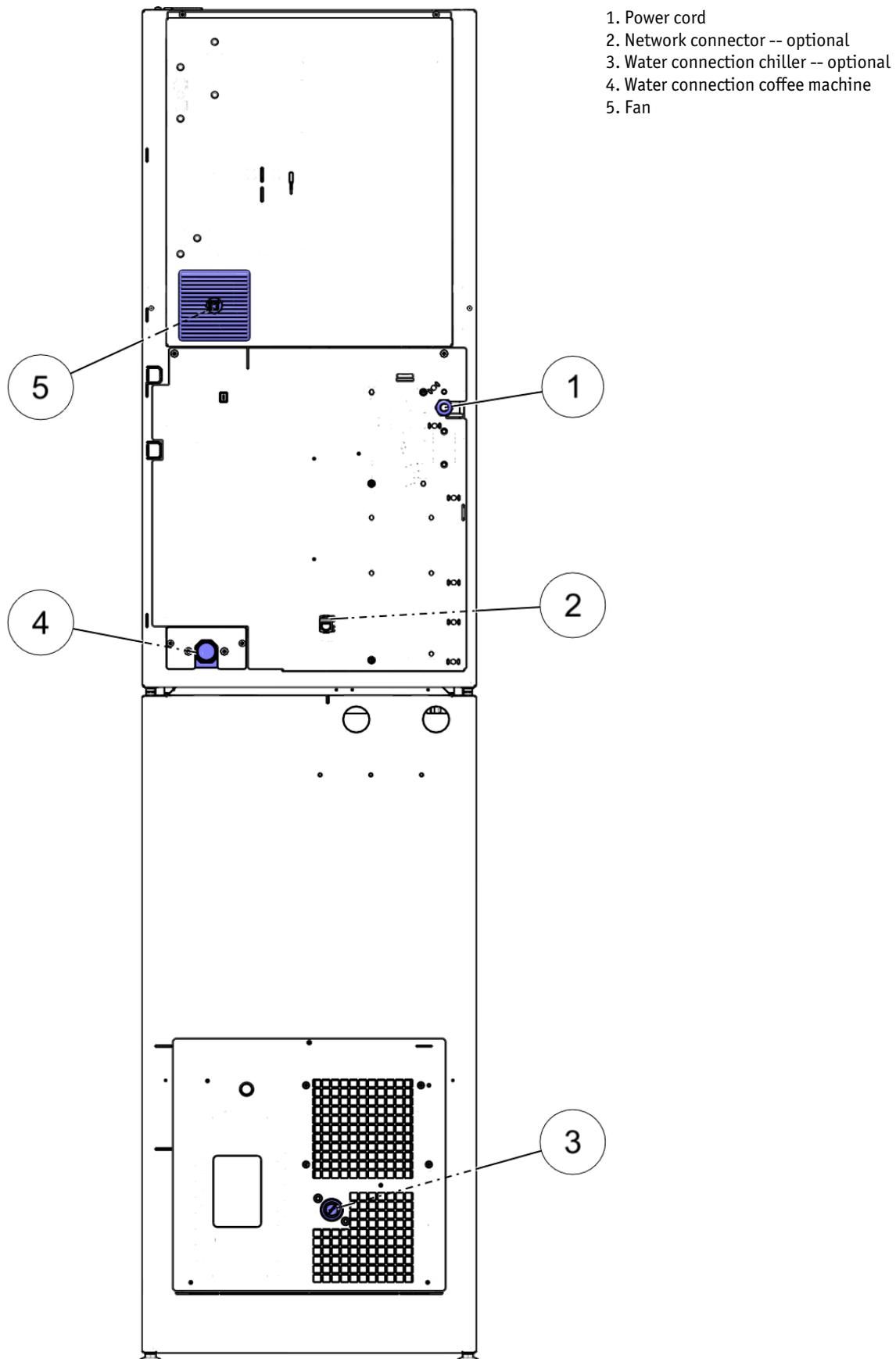
All pictures show a generic configuration. The actual model can be different. To improve clarity, colors in the pictures may be different from the actual colors.



1. Payment system - Change giver coin insert — optional
 2. Touchscreen
 3. Payment system - Coin acceptor — optional
 4. Payment system - Change giver coin return — optiona
 5. Outlet hot water (/ cold water — optional)
 6. Cup stand (*)
 7. Drip tray / Jug stand
 8. Outlet other dispenses
 9. Door lock and key
- *) If the machine contains a cup dispenser, only one cup stand is used and outlets (5 + 8) are centralized.

2.1.2 Back view

Back view CoEx (medium model) with optional Base cabinet



2.1.3 Inside view

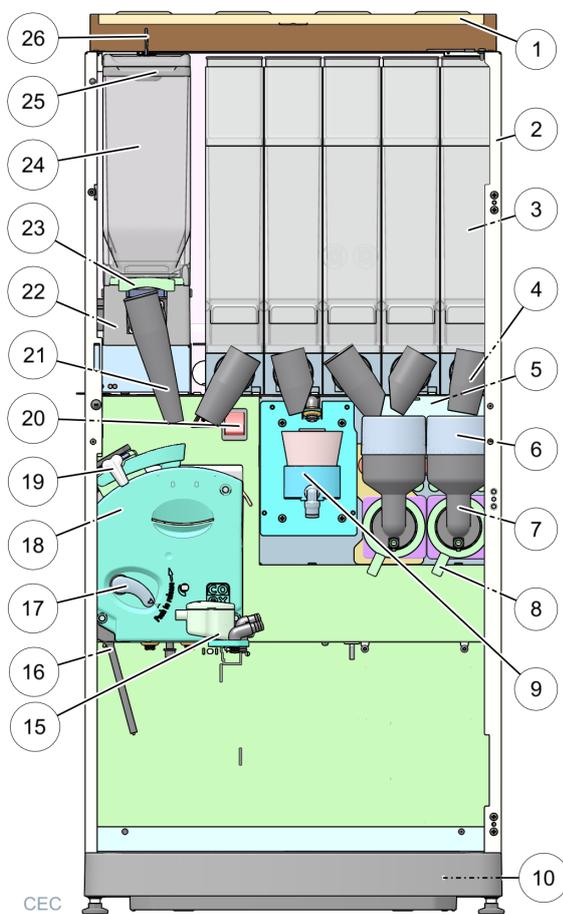
The inside view shows the location and names of the most important parts.



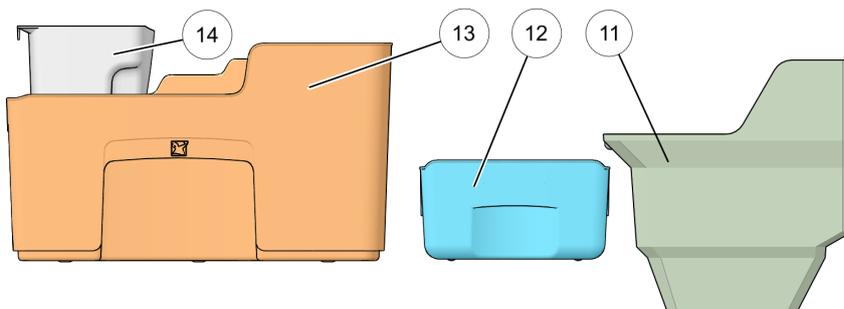
NOTE

All pictures show a generic configuration. The actual model can be different. To improve clarity, colors in the pictures may be different from the actual colors.

Inside view CoEx (medium model)



1. Top lid
2. Cabinet
3. Canisters (Ground coffee / Instant / Topping)
4. Canister outlet
5. Exhaust filter drawer
6. Mixer suction trap
7. Mixer house
8. Mixer bayonet catch
9. Tea brewer
10. Drip tray
11. Waste guide to base cabinet -- optional
12. Brewer drip bucket -- option (used with 11)
13. Waste bucket
14. Brewer drip bucket (used with 13)
15. Dispensing nozzles
16. Brewer drip bucket sensor
17. CoEx fixation handle
18. CoEx brewer
19. CoEx brewer outlet
20. Power switch
21. Grinder outlet
22. Grinder
23. Bean canister locking slider
24. Bean canister
25. Bean canister lid
26. Bean canister lid lock -- optional



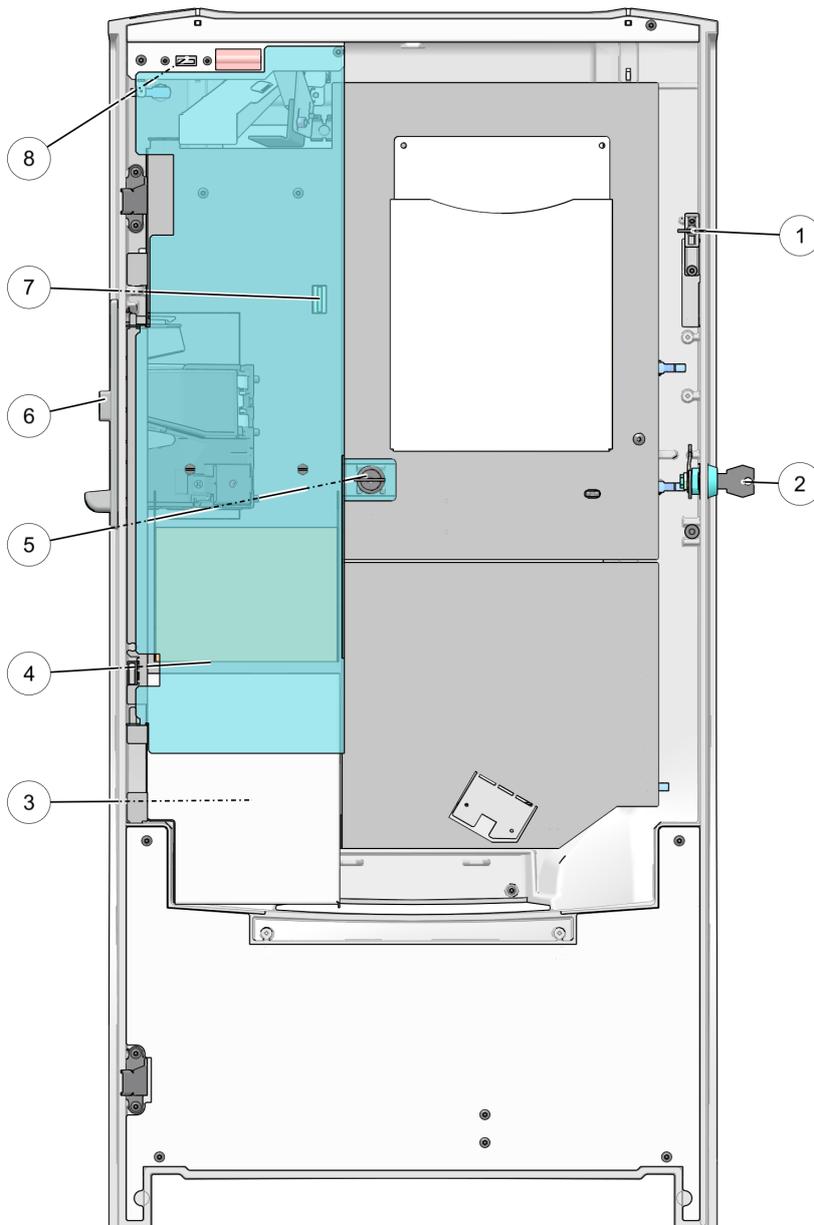
2.1.4 Door interior

Door interior Zia medium model with optional payment devices (coin acceptor and change giver)



NOTE

All pictures show a generic configuration. The actual model can be different. To improve clarity, colors in the pictures may be different from the actual colors.



1. Service key entry
2. Door lock and key
3. Coin box for change giver — optional
4. Cover - payment device — optional
5. Cover lock payment device — optional
6. Payment device - coin acceptor — optional
7. USB port location without change giver
8. USB port location with change giver

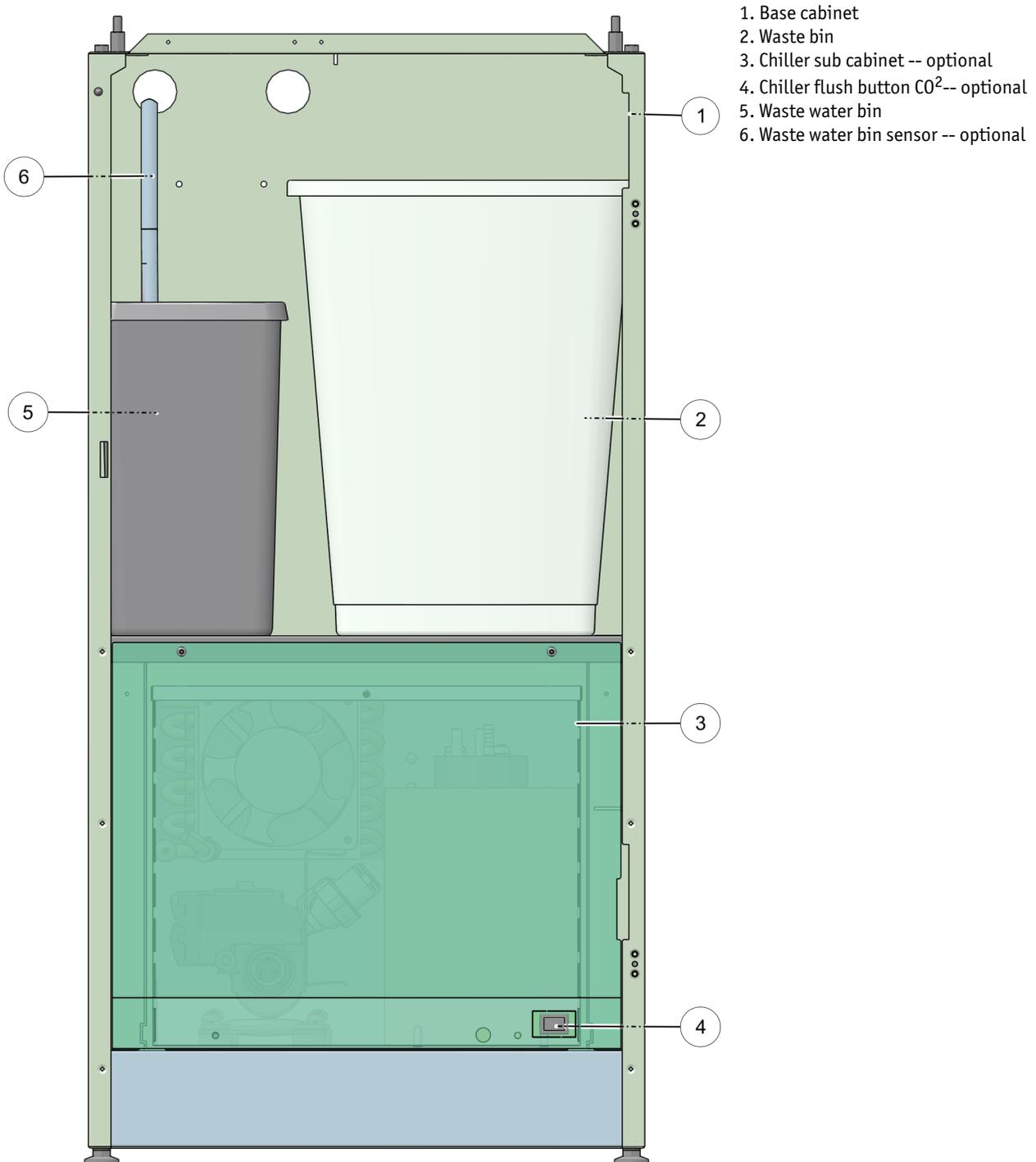
2.1.5 Inside view base cabinet — optional

Inside view base cabinet (medium model)



NOTE

All pictures show a generic configuration. The actual model can be different. To improve clarity, colors in the pictures may be different from the actual colors.



Installation

3.1 Requirements

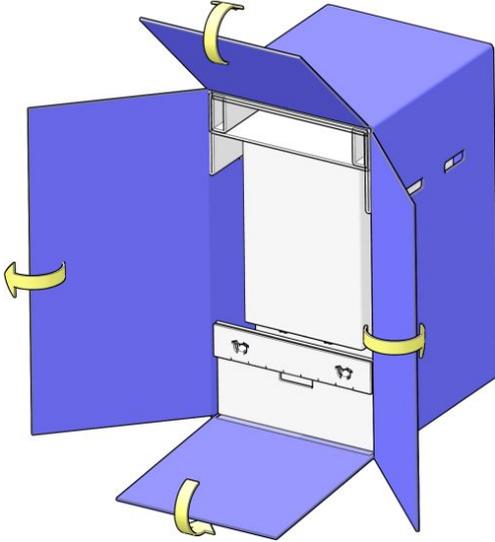
- Safety** Before installing the coffee machine, please read the safety and installation related instructions in the section [Safety](#) (on page 11) first.
- Location** Check the section Required installation space (see [Required installation space](#) on page 150) to make sure that the coffee machine will have enough space and can be serviced properly.
- Electrical connection** The coffee machine needs to be connected to a power wall socket directly.
- The length of the power cable is about 6.6 ft.
 - Refer to the information on the type plate and check if the wall socket can be used.
 - Make sure that the wall socket will be accessible after final installation of the coffee machine.
- Water connection** Always use an electric water lock between water tap and coffee machine.
- Check the [Technical specifications](#) (on page 151) for the minimum required water quality.
 - Use a water filter if the water quality is outside the required values.
- Internet connection** Check if a (wireless) network connection is available.
- A network connection is needed to use the Touchless Interface or ConnectMe.
 - A separate installation manual is available if the machine does not have a network connector.
- Waste water disposal** Check if the coffee machine is prepared to use a fixed waste water connection.
- A separate installation manual is available if the machine is not prepared for a fixed waste water connection.

3.2 Unpacking

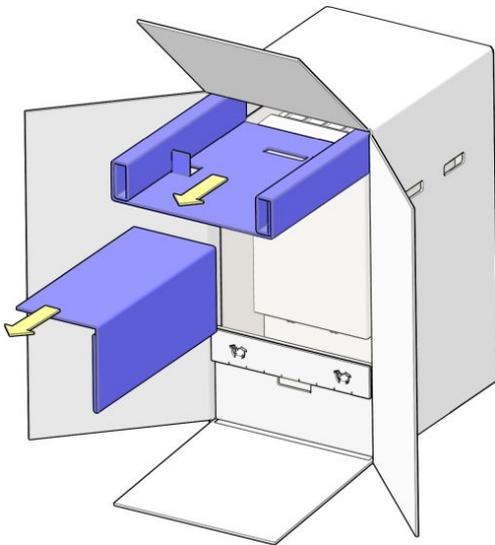
Unpack the machine. Place the packed machine near the desired location.

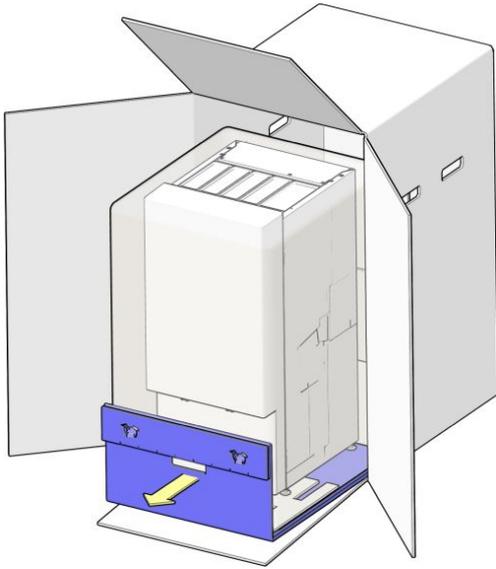
- Preferably on the same level and surface.
- Make sure, the arrows point upwards.

1. Open the front of the box.



2. Remove the canister box and additional filling material from the top of the machine.





3. Use the cardboard handle underneath the machine to pull the machine out of the box.



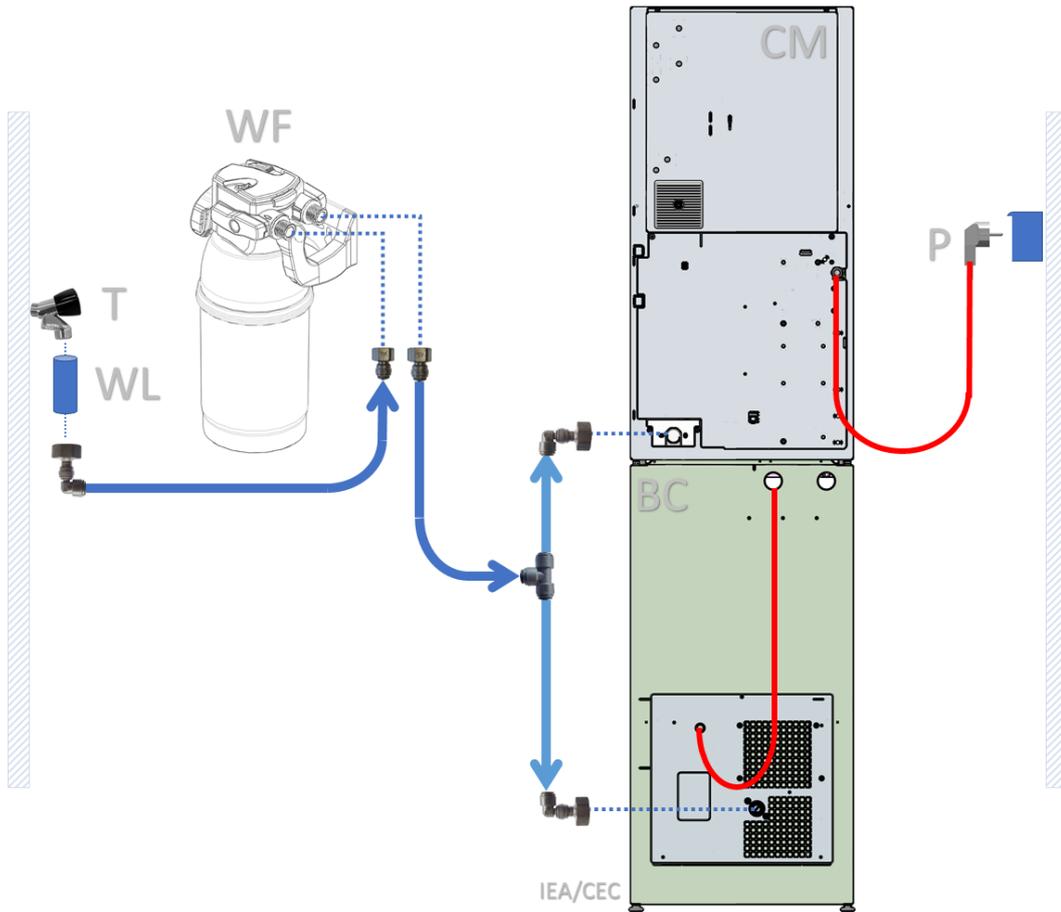
NOTE

Make sure you don't dispose of any spare parts and accessories inside the packaging.

3.3 Installation

Installation Water and electrical connections must comply with local regulations.

Example installation of a coffee machine (CM) on a base cabinet (BC-optional) with a water chiller (optional) and water filter (optional).



- T Water supply
- CM Coffee machine
- BC Base cabinet
- WL (Electronic) Water lock
- WF Water filter - optional
- P Power outlet (with earthed socket)

1. Connect the water filter (optional).
 - Check the information from the manufacturer for installation requirements and adjustments.
2. Connect the chiller (optional).
 - A separate instruction manual is available with detailed information.
3. Connect the water hose(s).

- Adjust the water pressure reducer (see [Pressure reducer](#) on page 30) if needed.
4. Insert the power plug in the wall socket.
 5. Position the machine on the final location.
 6. Switch on the coffee machine.

3.4 Configuration and fine tuning

1. Make sure the latest release of the MoVeq application is loaded.
 - Check the [Software information](#) (on page 105) screen for more details.
2. Make sure the correct configuration is activated.
 - Check the [Software configurations](#) (on page 112) screen for more details.
3. Configure if the coffee machine needs to keep track when the water filter needs to be replaced or not.
 - Check the [Water filter settings](#) (on page 124) for more details.
4. Check if the machine is connected to ConnectMe.
 - Check the Organization Code in the Connectivity screen (see [Connectivity](#) on page 108) for more details.
 - A separate manual is available with more details.
5. Fill up all canisters with ingredients.
 - Calibrate (optional) and set the canister filling levels in the [Canister settings](#) (on page 118) screen.
6. Adjust the grinding degree of the grinder(s) to match the coffee beans (optional).
 - Check the [Change the grinding degree](#) (on page 62) section for more details.
7. Take a test drink.
8. Inform the user about usage and regular cleaning procedures.



NOTE

By showing the 'Brewer cleaning cycle' you also make sure that the cleaning counter will start counting from day one.

Function of the components

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

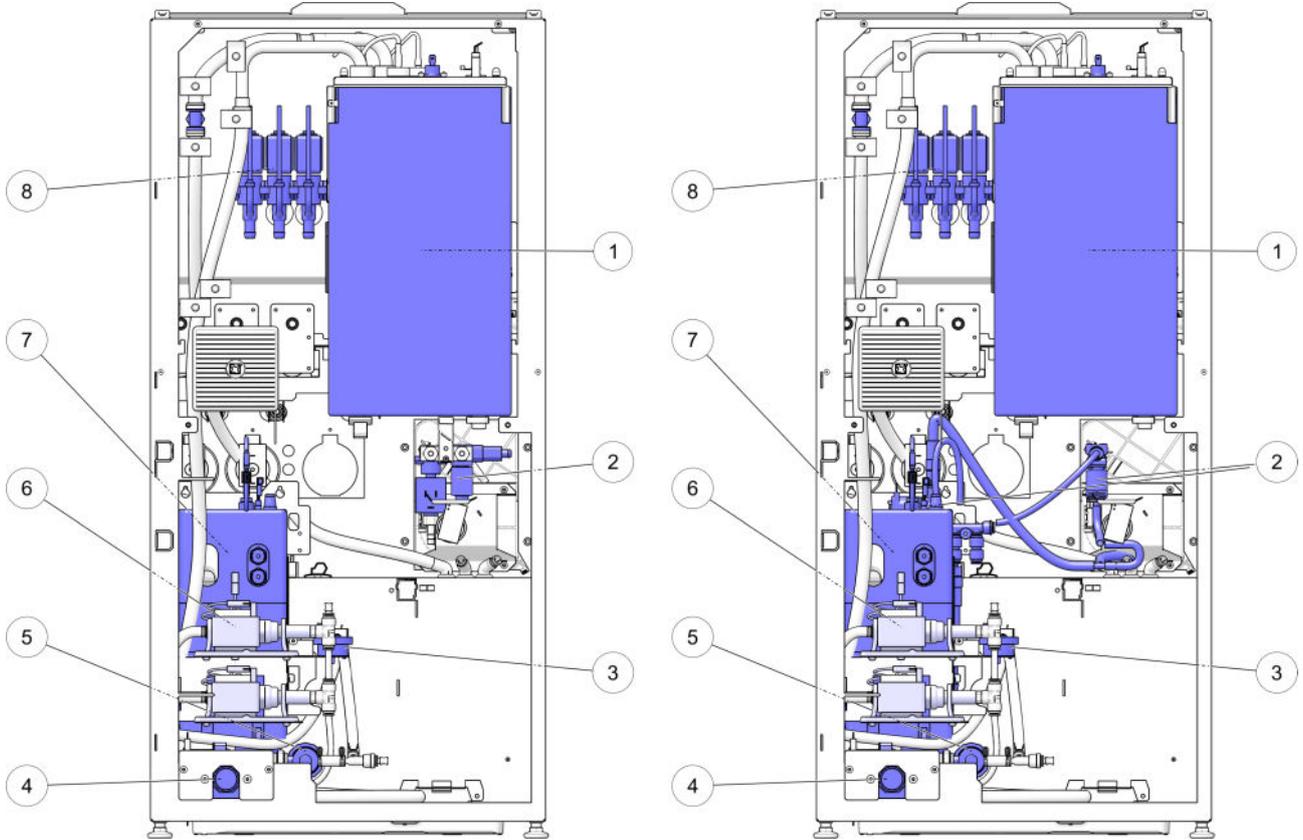
4.1 Hot water system

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 starts filling the boiler(s) automatically. The water system consists of the following main components:

Back inside view CoEx (Medium model)

METAL valves (left)

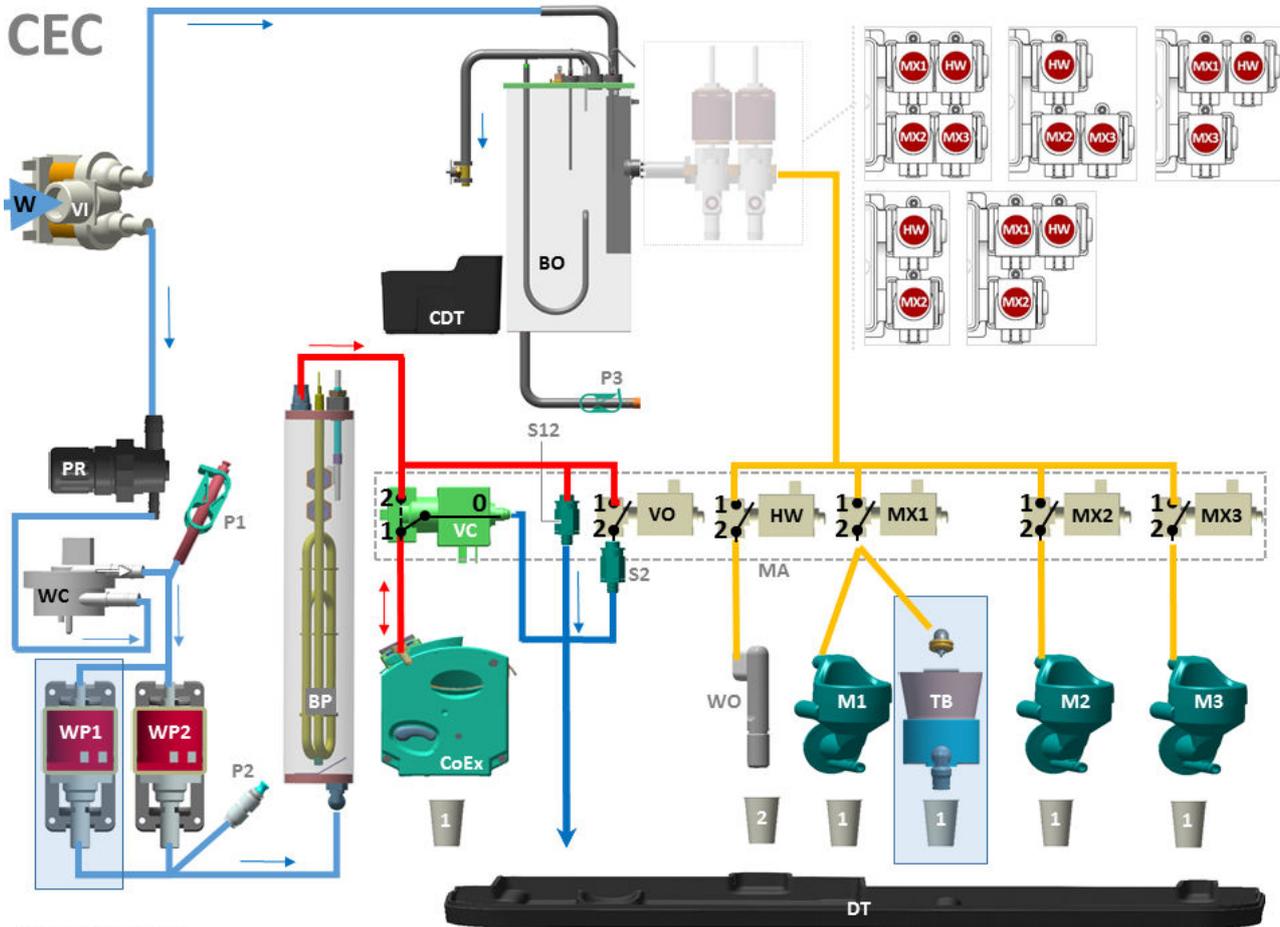
PPSU valves (right)



1. Open boiler
2. Pressure valves (CoEx)
 - METAL (left picture)
 - PPSU (right picture)
3. Water flow meter
4. Inlet valve
5. Pressure reducer
6. Water pumps
7. Pressure boiler
8. Outlet valves open boiler

4.1.1 Schematic diagram of the water system

Diagram of the CoEx water system, medium model with 3 mixers or 2 mixers and tea brewer.

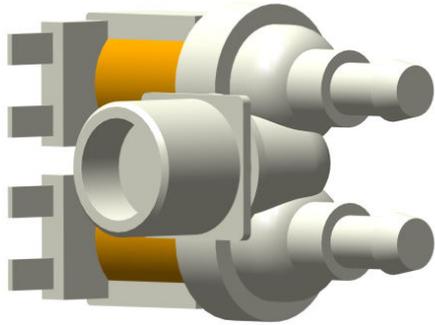


© DJD – Hot Water Systems

BO	Open boiler	S12	Safety valve 12 bar
BP	Pressure boiler	S2	Pressure valve 2 Bar
CDT	CoEx Drip Tray	TB	Tea Brewer (optional - instead of M1)
CoEx	CoEx Brewer	VC	3-way brewer valve (note direction!)
DT	Drip tray	VI	Inlet valve
HW	2-way outlet valve - hot water	VO	2-way outlet valve
M1,M2,M3	Mixers	W	Water in
MA	Manifold	WC	Water flow meter
MX1,MX2,MX3	2-way outlet valves - mixers	WO	Hot water outlet
P1	Plug *	WP1	Water pump
P2	Plug **	WP2	Water pump (9xxx only)
P3	Water clamp	1	Outlet Brewer / mixers
PR	Pressure reducer	2	Outlet Hot water
*)	Use: connect gauge and adjust water pressure using pressure reducer PR		
**)	Use 1: measure pump pressure WPx Use 2: empty boilers		

4.1.2 Inlet valve

The double inlet valve is controlled by the level sensors in the boilers and is switched on during a dispense of hot water to the brewer or mixer. One valve is used for the pressure boiler, the second one for the open boiler.

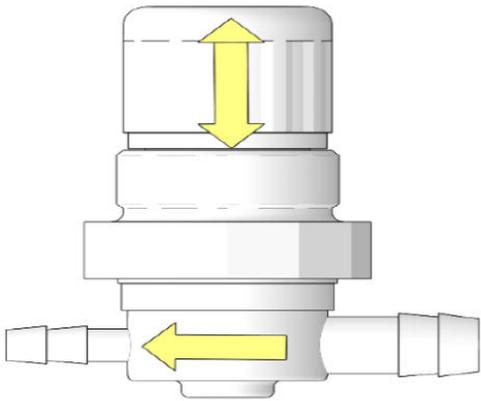


The inlet valves are 24V DC valves. The inlet valves contain a backflow protection. This backflow protection is preventing that water is flowing back into the water supply.

Electrical connections / wire colors

Function	Wiring color
Common (+24V)	Orange
Output (0) valve 1 - open boiler	Red / Green
Output (0) valve 2 - pressure boiler	Orange / Green

4.1.3 Pressure reducer



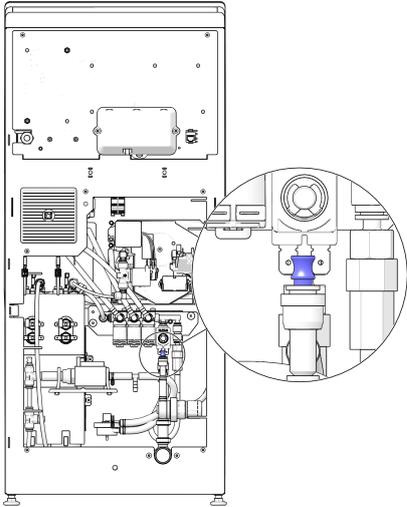
The pressure reducer reduces the water pressure to a stable pressure independent from the inlet pressure from the mains water supply. The required inlet pressure from the water supply is between 1,0 and 6 bar. The pressure reducer is adjusted to an outlet pressure of about 0,8 - 0,9 bar during an espresso 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 side of the reducer indicating the correct water flow direction. The reducer contains a backflow protection. This backflow protection prevents the possibility that water from the machine is flowing back into the main water supply.

Procedure to adjust the pressure

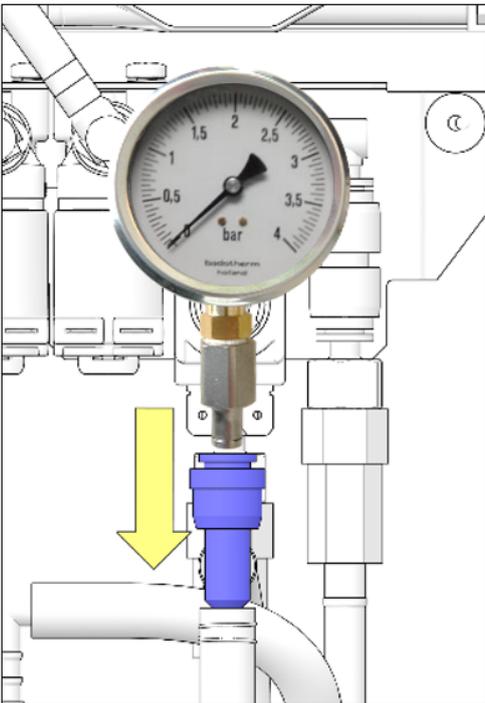
Perform the following steps:

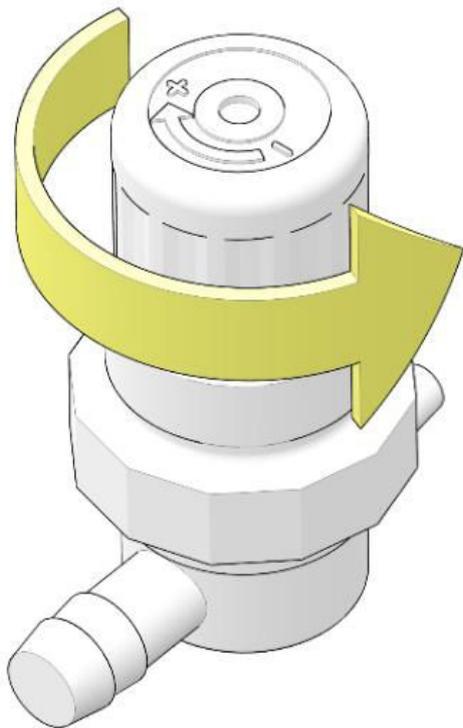
1. Remove the lower plate from the back of the machine.

2. Remove the plug P1 (see inset).
 - Check the [Hot water system](#) (on page 27) inside view for more details.



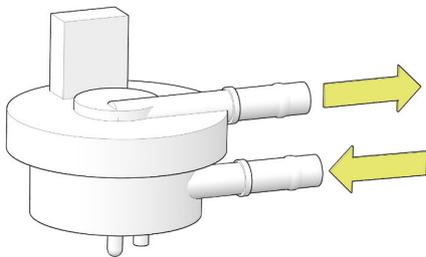
3. Connect the manometer to the hose.
4. Pull out the knob to unlock the reducer.
5. Select an (double) espresso.





6. Adjust the reducer by turning the knob during the pump cycle of the espresso selection.
 - The manometer must show 11.6 - 13.1 psi during an espresso cycle.
 - Turning clockwise => increase output pressure (when seen from above)
 - Turning counter clockwise => decrease output pressure
7. Lock the reducer by pushing the knob downwards.
8. Disconnect the manometer and insert the plug in the hose.
9. Place the back plate on the machine.
10. Ready.

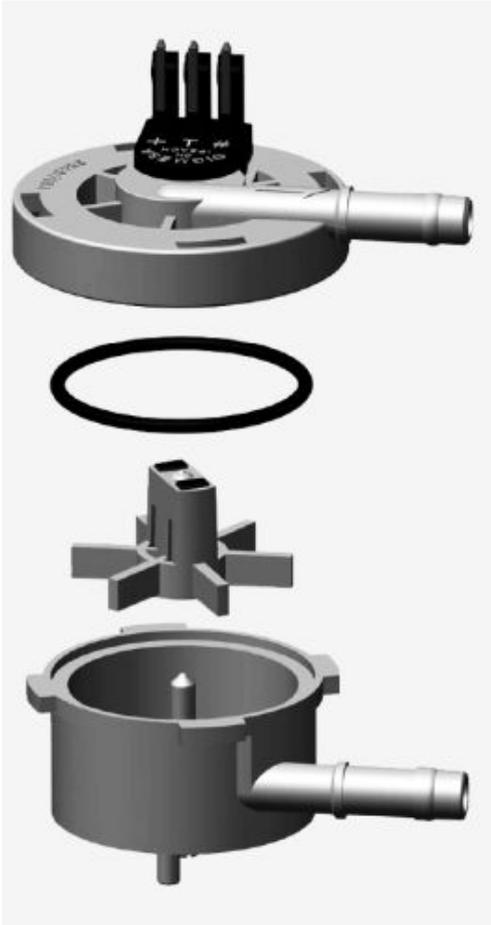
4.1.4 Water flow meter



The water flow meter (water counter) measures the quantity of the water flowing through the hot water pressure system.

Three functions are based on the water flow meter:

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



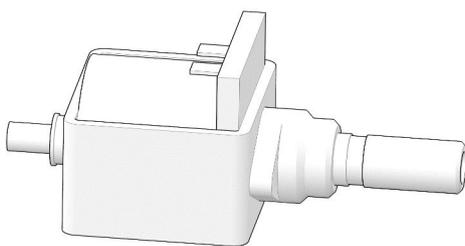
The water flow meter is built in between the pressure reducer and the pumps.

It is a small turbine which produces electrical pulses. Each 360° rotation produces 2 pulses in the sensor (Hall element). The pulses are detected by the control system. The tube to the water flow meter must be connected in the correct position; the flow meter cannot detect water in the reverse mode. There is a small arrow on the water flow meter which shows the right direction. The water flow meter is a 0.07 inch type. Each pulse is about 0.03 fl oz water.

Electrical connections / wire colors

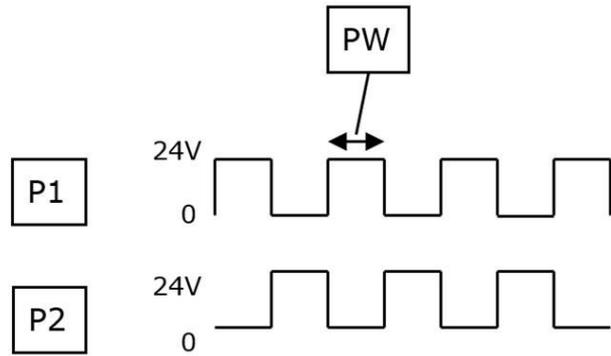
	Function	Wire color
1	common (+)	Red / White
2	null (⊥)	Green / Purple
3	signal to the IO board (#)	Black / Blue

4.1.5 Water pump



The pumps are generating the pressure and flow of the water. The pumps increase the pressure to the required brewing pressure (between 21.8 and 145 psi). The pump is a vibration pump. The plunger vibrates up and down to build up pressure.

The pump is a 24VAC pump, the electrical signal to the pump is a 24V 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. This figure can be set in the service program, individual for every consumption. Because of the high frequency of the pulses this electronic signal cannot be measured with an ordinary volt meter. The pulses for the two pumps run out of phase, so a stable high pressure is offered to brew an espresso.

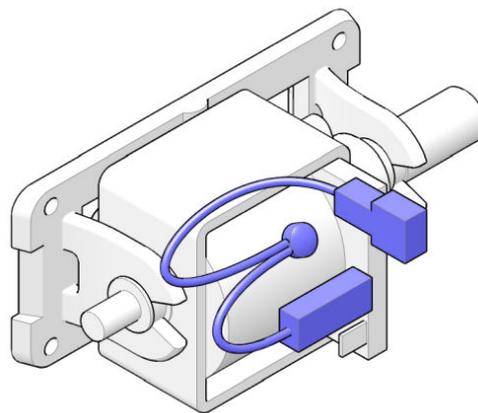


P1 Pump 1
P2 Pump 2
PW Pulse width

Electrical connections / wire colors

Function	Wire color	Wire color
Pump	P1	P2
Common (+24V)	Grey / Blue	Black / Pink
Output (0)	Yellow / Brown	Orange / White

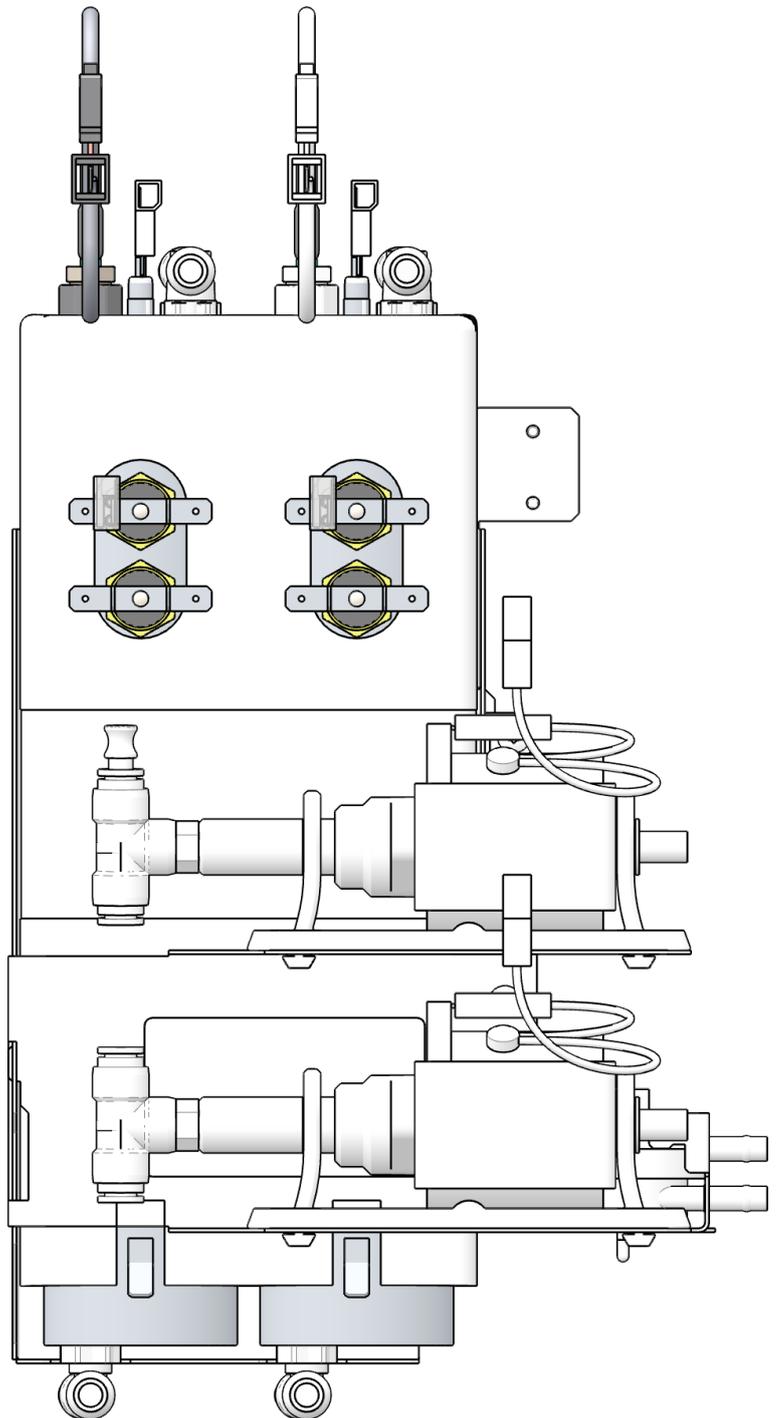
Thermal protection



The pump is protected with a self resettable thermal cutout, acting as a safety. If the pump runs for more than 15 minutes continuously without water, this thermal cutout gets too hot and switches the power to the pump off. When the pump and the thermal cutout are cooled down again, the

thermal cutout switches on automatically.

Layout of a 2 pump system.



4.1.6 The boiler

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 starts filling the boiler(s) automatically.

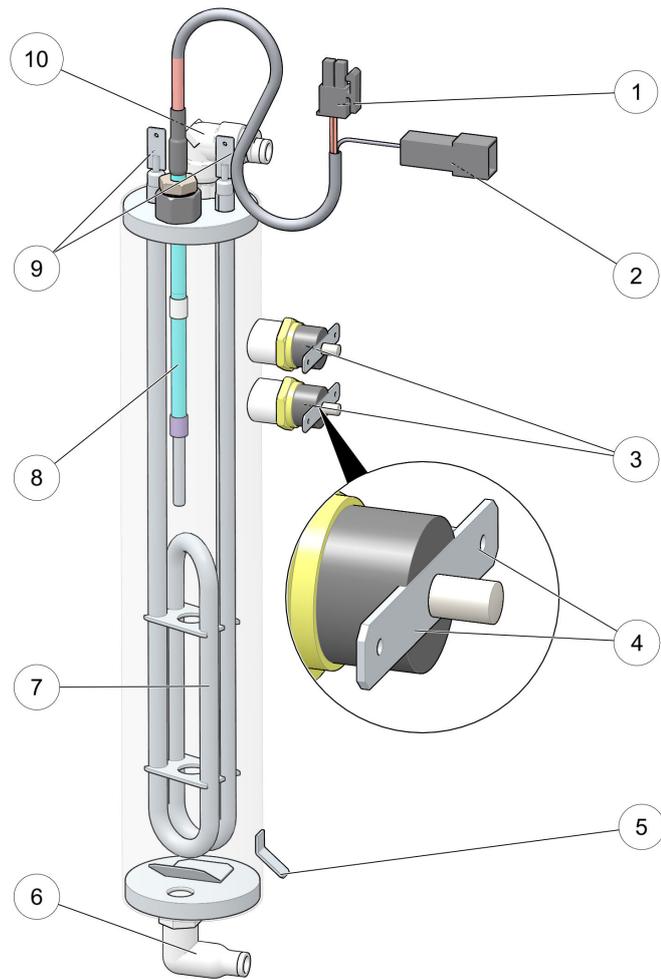
The CoEx medium model contains one pressure boiler that provides hot water for the CoEx brewer and one open boiler that provides hot water for the mixers (, optional tea brewer) and the hot water outlet.

4.1.7 Pressure boiler

The boiler is used to prepare hot water and is made out of stainless steel. The water inlet is in the bottom of the boiler, the outlet at the top. The coffee machine contains one pressure boiler.

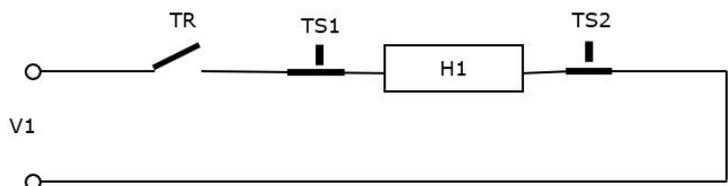
For details how to empty the boilers check Empty pressure boiler (see [Empty pressure boilers](#) on page 126).

Pressure boiler details (1660 Watt model shown)



1. Temperature sensor connector
2. Level sensor connector
3. Temperature safety (2 Clixons)
4. Clixon connections
5. Boiler ground connection / level
6. Water inlet
7. Heater element
8. Combined temperature/level sensor
9. Heater element connectors
10. Water outlet

Electrical boiler connections *Pressure boiler heater diagram*



V1 Mains power in (240VAC/120VAC)

TR	Triac (on IO Board)
TS1	Temperature safety (Clixon 1)
TS2	Temperature safety (Clixon 2)
H1	Heater element

Connections pressure boiler(s) / wire colors

Function	Wiring color Boiler 1	Wiring color Boiler 2 (Small model only)
Temperature common	Green / Purple	Green / Purple
Temperature	Pink	White / Pink
Level detection	Dark-red / Black	Brown / Black
Heater phase	Black	Black
Heater neutral	Blue	Blue / White
Temperature safety	Black	Black
Temperature safety	Brown	Brown / White
Earth boiler housing	Yellow / Grey	Yellow / Grey

Heater The heater is welded in the top of the boiler. The boiler has a 1660W/240VAC (or 1400W/240VAC if the serial number < 2021.14.0428.001) or a 1,1KW/120VAC heater. The volume in one boiler is 0,36 liter. The boiler and heater are made of stainless steel.

The winding resistance of the pressure boiler heater

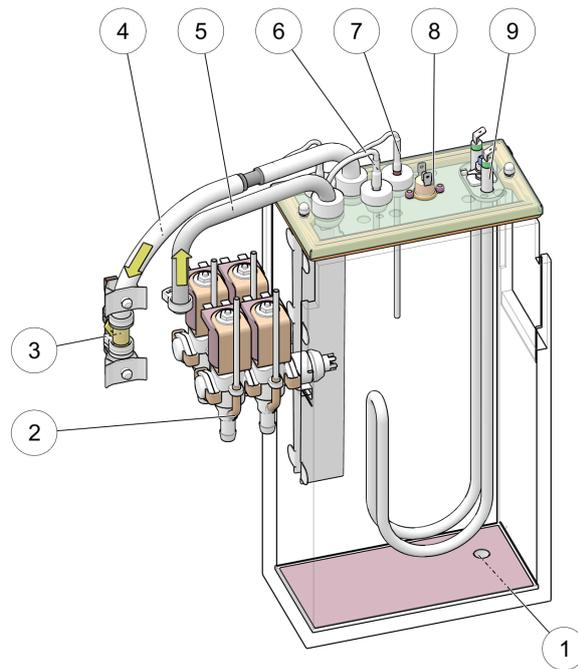
Heater	Resistance
1400W 240VAC	39 - 40 Ω
1660W 240VAC	34 - 35 Ω
1100W 120VAC	12 - 13 Ω

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

4.1.8 Open boiler

The open boiler water system consists of the following main components:

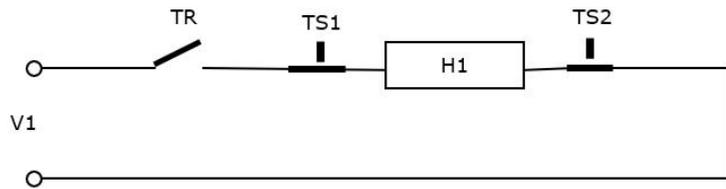
Open boiler details



1. Boiler drain
2. Outlet valves
3. Temperature safety (clixon)
4. Overflow
5. Water inlet
6. Level sensor
7. Temperature sensor
8. Boil dry safety (clixon)
9. Heater element

Electrical boiler connections

Open boiler heater diagram



- V1 Mains power in (240VAC/120VAC)
- TR Triac (on IO Board)
- TS1 Temperature safety (Clixon 1)
- TS2 Temperature safety (Clixon 2)
- H1 Heater element

Connections open boiler / wire colors

Function	Wiring color
Temperature common	Green / Purple
Temperature	Pink
Level detection	Red / Black
Heater phase	Brown
Heater neutral	Blue
Temperature safety	Brown
Temperature safety	Brown
Earth boiler housing	Yellow / Green

Heater The boiler has a 2,25 KW/240VAC or a 1,2KW/120VAC heater. The boiler and heater are made of stainless steel. The heater is in the top of the boiler.

Resistance of the heater element

Heater	Resistance
2250W 240VAC	24 - 24,3 Ω
1200W 120VAC	12 - 12,3 Ω

The heater is controlled by the control system, based on the detected temperature by the sensor.



NOTE: Default boiler temperature in relation to the altitude of your location.

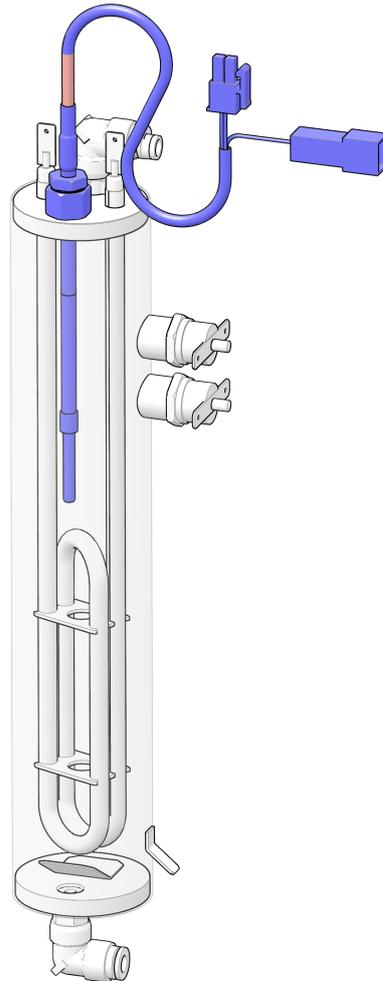
The default boiler temperature for the open boiler must be adjusted according to the altitude and the boiling point on site. The default setting of the boiler temperature in the configuration file is based on a boiling point of 212 °F at 14.5 psi (sea level). For every 492 feet increase in altitude, the boiling point of water is approximately 1.8 °F lower. If your coffee machine has both a



pressure boiler and an open boiler, you only need to adjust this for the open boiler.

4.1.9 Temperature / Level sensor pressure boiler

Temperature/Level sensor The sensor in the pressure 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.



NOTE

If replacement is needed, always replace the complete sensor, including the nuts.

Temperature *Recommended temperature settings pressure boiler*

Temperature	Value
Normal	198 °F
High	216 °F
Low	167 °F

Standby	149 °F
---------	--------

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	203 °F
100 kΩ	77 °F
126.7 kΩ	68 °F

Temperature sensor

The temperature is adjustable in the service menu ([Boiler temperature](#) (on page 113)). The optimal temperature setting of the pressure boiler is 197.6 °F. If no consumptions are made, the temperature in the boiler will automatically rise by 11 °F in about 25 minutes. The first consumption with a cold brewer is now brewed with incoming water on a higher temperature, compensating the colder brewer.

The control system contains safeties and the warning messages are 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.
- Unlikely temperature measured, replace temperature sensor(s).

Level sensor

The water level in the boiler is detected by the temperature/level sensor. The boiler is connected to ground. On the isolated sensor housing a positive signal is applied from the control system. If the water level reaches the sensor, a current will pass through the water to the ground and the control system will detect this.

4.1.10 Temperature sensor / Level sensor open boiler

Sensors

The open boiler contains two separate sensors, a level sensor and a temperature probe. The sensors are isolated from the boiler housing with a plastic isolation clamped with two nuts around the stainless steel sensor housing.



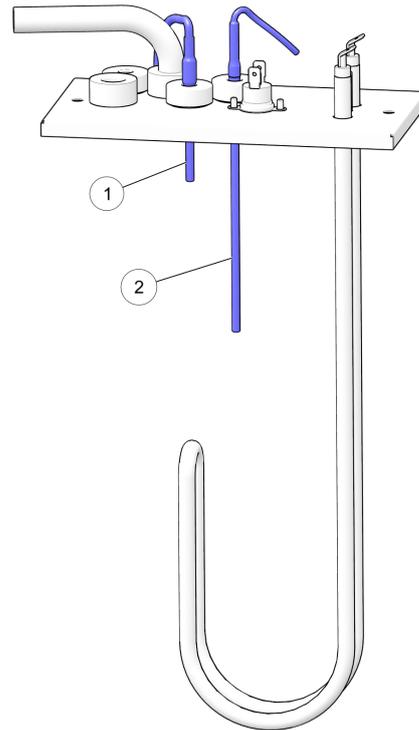
NOTE

Make sure to use the correct isolation (stop fitting) for each

i sensor. Check the spare parts manual for the correct part number.

i **NOTE**
If replacement is needed, always replace the complete sensor, including the nuts.

Open boiler temperature and level sensors



- 1. Level sensor
- 2. Temperature sensor

Temperature *Recommended temperature settings open boiler*

Temperature	Value
Normal	196 °F
High	208 °F
Low	158 °F
Standby	149 °F

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 k Ω	203 °F
100 k Ω	77 °F
126.7 k Ω	68 °F

Temperature sensor The temperature is adjustable in the service menu. The optimal temperature setting is 196 °F.

The control system contains several safeties and will display warning messages based on the detected value of the temperature sensor:

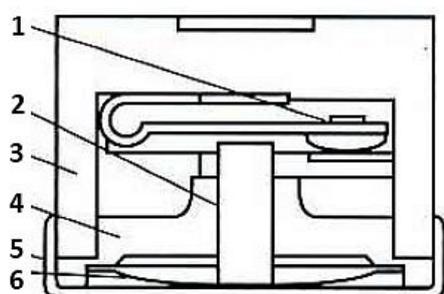
- A too high temperature, too low temperature, shortcut or disconnected sensor
- Disconnected temp. sensor is generated if the resistance is above 350 k Ω .
- Shortcut temp. sensor is generated if the resistance is below 1 k Ω .

Level sensor The level in the boiler is detected by the stainless steel housing of the level sensor. The boiler is connected to ground. On the sensor housing a positive signal is applied from the control system. If the water level reaches the sensor, a current will pass through the water and the control system will detect this.

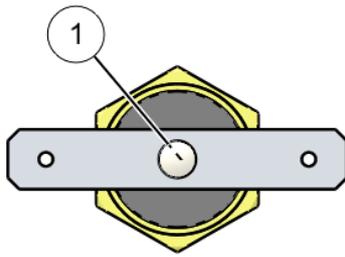
4.1.11 Temperature safety

Temperature safety / clixon The temperature safety (also known as clixon) protects the heater against overheating if the control system does not switch off the heater. The safety interrupts the current to the heater directly, if the boiler is overheating. The safety is a housing with a bi-metal disc. If the device gets too hot, the bi-metal disc opens a (normally closed contact) switch.

Internals of the Temperature safety



1. Switching arm
2. Transfer pin
3. Base
4. Disc retainer
5. Cap
6. Bi-metal Disc



After cooling down, the safety switch can be reset by pressing the pin (1) by hand.

Temperature Safety values

This coffee machine contains one open boiler and one pressure boiler:

The open boiler contains two different clixons.

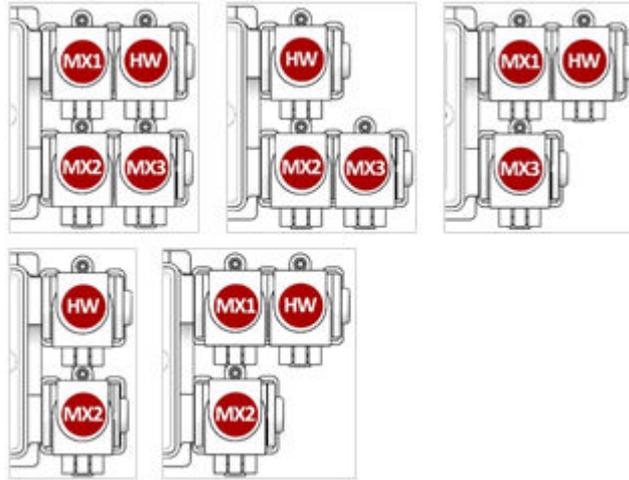
- A boil dry safety, positioned on the top lid of the open boiler. This clixon switches off when the temperature is over $230\text{ }^{\circ}\text{F} \pm 9\text{ }^{\circ}\text{F}$.
- A temperature safety, positioned in the overflow hose of the open boiler. This clixon switches off when the temperature of the overflow water is over $194\text{ }^{\circ}\text{F} \pm 9\text{ }^{\circ}\text{F}$.

The pressure boiler contains two identical clixons.

- They are both positioned on the side of the pressure boiler. They switch off when the temperature is over $230\text{ }^{\circ}\text{F} \pm 9\text{ }^{\circ}\text{F}$.

4.1.12 Positioning of the valves

Open boiler valves *Possible layouts for open boiler outlet valves (CoEx - medium model)*



Connections outlet valves open boiler

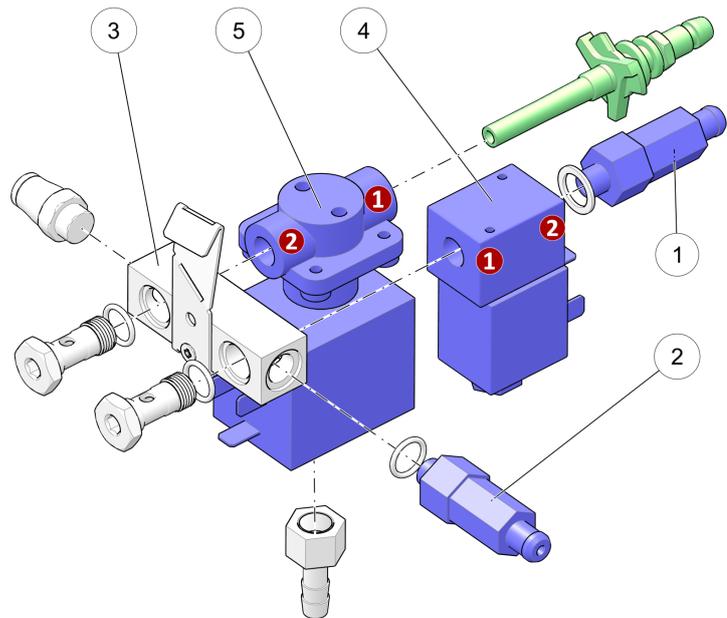
Code	Function	Wire colors
MX1	Mixer 1	Yellow / White
MX2	Mixer 2	Violet / White
MX3	Mixer 3	Orange / Brown
HW	Hot water	Red / Blue

Depending on the model, up to four outlet valves are connected to the open boiler. They supply water to the hot water outlet and to the mixers.

More details about the outlet valves in the section Open boiler 2-way valve / outlet valve (see [2-way outlet valve \(Open boiler\)](#) on page 52).

Pressure boiler valves (METAL)

Positioning of the pressure boiler valves metal (CoEx medium model)



1. Pressure valve 2 bar (S2)
2. Safety valve 12 bar (S12)
3. Manifold
4. 2-way valve (V0)
5. 3-way valve (VC)

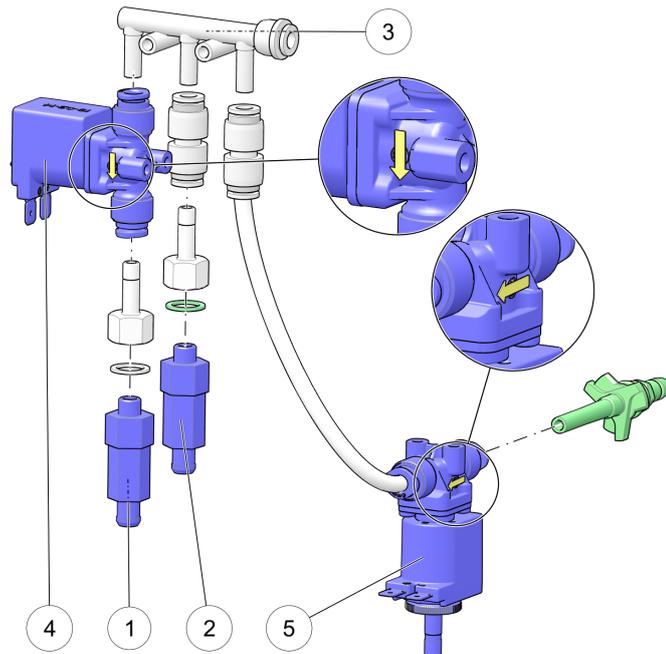


NOTE

The metal valves have numbers to indicate the normal flow (from 1 to 2). Note that the 3-way CoEx valve is mounted the other way around!

Pressure boiler valves (PPSU)

Positioning of the pressure boiler valves PPSU (CoEx medium model)



1. Pressure valve 2 bar (S2)
2. Safety valve 12 bar (S12)
3. Manifold
4. 2-way pressure relief valve (V0)
5. 3-way valve CoEx (VC)

NOTE

The arrow on the valve shows the flow of the water. The CoEx brewer valve is mounted the other way around.

Connections / wire colors of the pressure boiler outlet valves

Code	Function	Wire colors
VC	3-way valve to brewer	Yellow/White
V0	2-way valve to 2 bar	Blue/Yellow

The 3-way valve (VC) is used for hot water to the CoEx brewer. The 2-way pressure relief valve (V0) is switched on during standby

and limits the maximum pressure in the hot water system with the 2 bar safety valve (S2). The pressure relief valve switches off during a coffee preparation cycle. The pressure is then limited by the 12 bar safety valve (S12).

More details:

- Pressure relief and safety valves (see [Pressure relief and safety valves](#) on page 54)
- Pressure boiler 2-way valve / outlet valve (see [2-way outlet valve \(Pressure boiler\)](#) on page 50)
- Pressure boiler 3-way valve / brewer valve (see [3-way CoEx brewer valve \(Pressure boiler\)](#) on page 51)

Used Materials The 2-way and 3-way valves can be provided in metal, with metal manifold or non-metal with a plastic (PPSU) manifold.

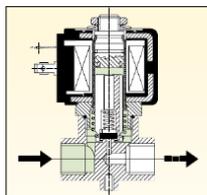
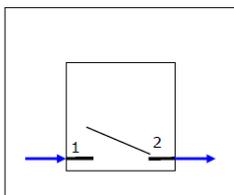
4.1.13 2-way outlet valve (Pressure boiler)

The 2-way valve is the outlet from the hot water system to a component. The movable 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, cutting off the flow of the fluid. The valve is controlled by 24VDC from the IO-board.



NOTE

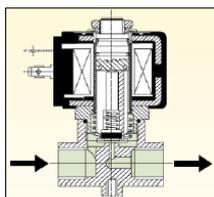
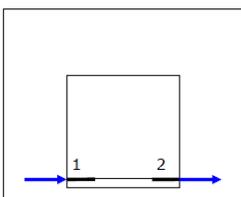
There are 2-way valves in PPSU and metal. The metal valve has numbers to show the input (1) and output (2). The PPSU valves only uses an arrow that shows the direction of the flow.



Water flow in valve if coil de-energized: (no flow)

Water connections:

1. input - connected to manifold.
2. output - connected to component (mixing system, hot water or 2 bar valve).



Water flow in valve if coil is energized: (flow)

4.1.14 3-way CoEx brewer valve (Pressure boiler)

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. With this channel, 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.



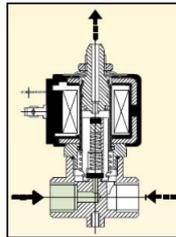
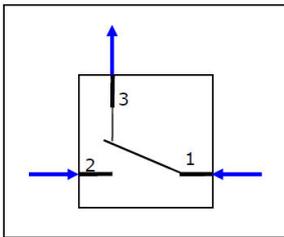
NOTE

There are 3-way valves in PPSU and in metal. The metal valve has numbers to show the input (1) and output (2). The PPSU valves only uses an arrow that shows the direction of the flow.



IMPORTANT

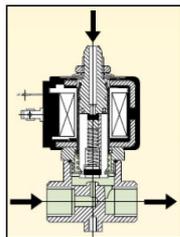
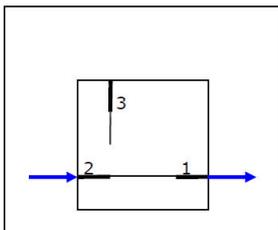
The 3-way brewer valve is mounted the other way around, the water flows from 2 to 1 (metal valve). The PPSU valve shows a **black** arrow in the correct direction.



Water flow in valve if coil de-energized:

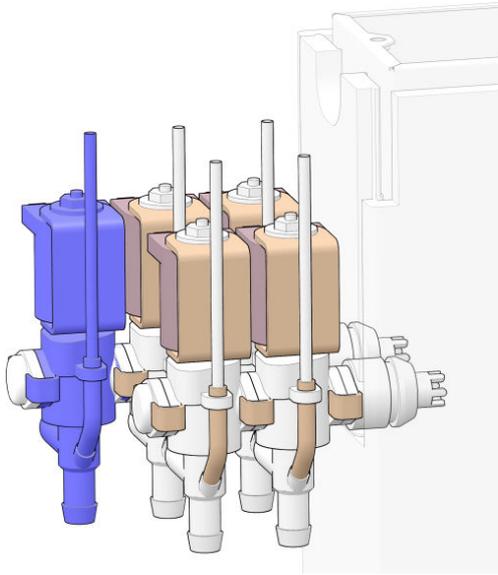
Water connections:

1. Output - connected to brewer
2. Input - connected to manifold
3. Drain - drain to drip tray



Water flow in valve if coil energized position:

4.1.15 2-way outlet valve (Open boiler)

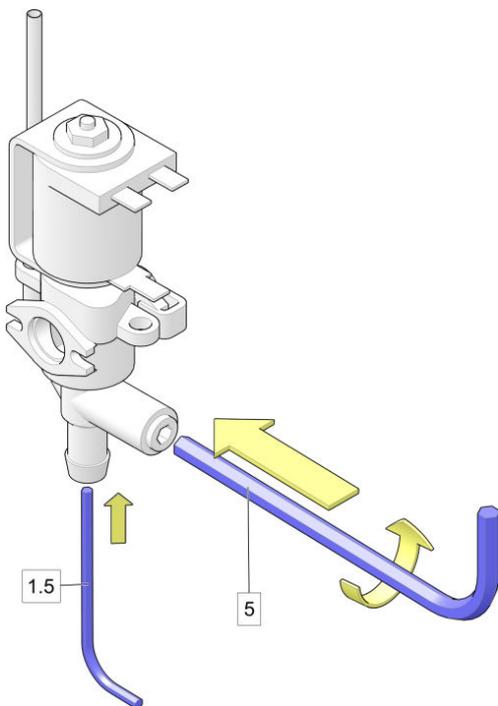


The 2-way valve is the outlet from the hot water system to a component. The valves are stacked and connected to the boiler.

The normally closed (NC) valve is controlled by 24VDC from the IO-board. When a drink is selected, the control system sends a signal to one of the outlet valves to open for a set time. This time (the dosed water quantity) is set in the control system of the machine. The dosing amount of the outlet valve can be adjusted on the outlet valve itself (calibrated). As a result of this, it is possible to dose more ingredients at the same dosed water quantity. This is particularly applicable to dissolve instant ingredients.

Calibrate the valve (when not installed)

The valves are factory set to open 1.5 mm.

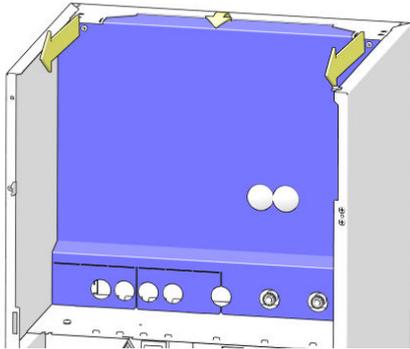


To set a new valve to 1.5 mm before installation: insert a 1.5 mm Hex wrench as a measuring device into the valve outlet and use a 5 mm Hex wrench to close the nozzle until it 'grips' the 1.5 mm wrench. Install the valve.

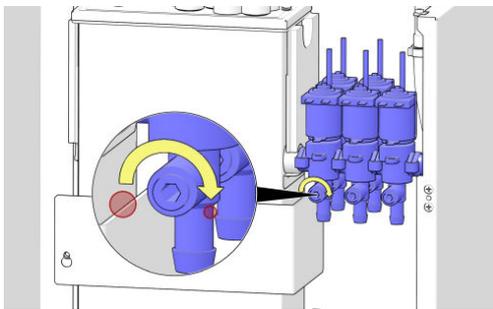
Calibrate the valve (when installed)

To calibrate an open boiler valve inside the coffee machine, follow these steps:

1. Open the door.



2. Remove the canisters.
3. Remove the cover behind the canisters by removing two screws.
4. Login to the Service Menu
5. Select the Menu 'Test outputs / Calibrate valves'
6. Place a measuring cup on the cup stand.
7. Test the valve (check the picture in 'Positioning of the valves' to see which valve).
8. The correct amount is 4.40 fl oz (in 7 seconds).



9. Adjust the setting of the valve.
 - Turn counter clockwise for more water (see inset)
 - Turn clockwise for less water
10. Test 3 times, add the results and divide by 3. A result between 4.31 fl oz and 4.49 fl oz is OK.
11. Ready.

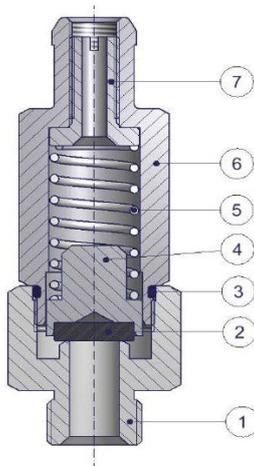
4.1.16 Pressure relief and safety valves

The expansion (pressure relief) and safety valve are mechanical valves.



NOTE

Do not adjust the expansion or safety valve in case of a malfunction. They are specially set to 2 or 12 bar, and cannot be set correctly without special tools and knowledge. In case of malfunction replace for a new one.



Pressure valve internal details

1. Body
2. Seal
3. O-ring
4. Shutter
5. Spring
6. Sleeve
7. Pressure regulator

4.1.16.1 Pressure relief valve 2 bar

The 2 bar pressure valve is a mechanical pressure valve. This valve opens if 2 bar pressure is reached.

This pressure valve can be switched off electronically by the 2-way valve, in front of this 2 bar valve. The 2-way expansion valve is switched off during a vend cycle. If the system is in 'standby', the expansion valve is switched on (open) if the heaters are switched on, so the maximum pressure in the system during standby is 2 bar.

4.1.16.2 Safety pressure valve 12 bar

The 12 bar pressure valve is a mechanical pressure valve, in open line with the water system after the pumps. The valve automatically opens if 12 bar pressure is reached. Therefore the maximum pressure in the system can never be above 12 bar if this valve is functioning correctly.

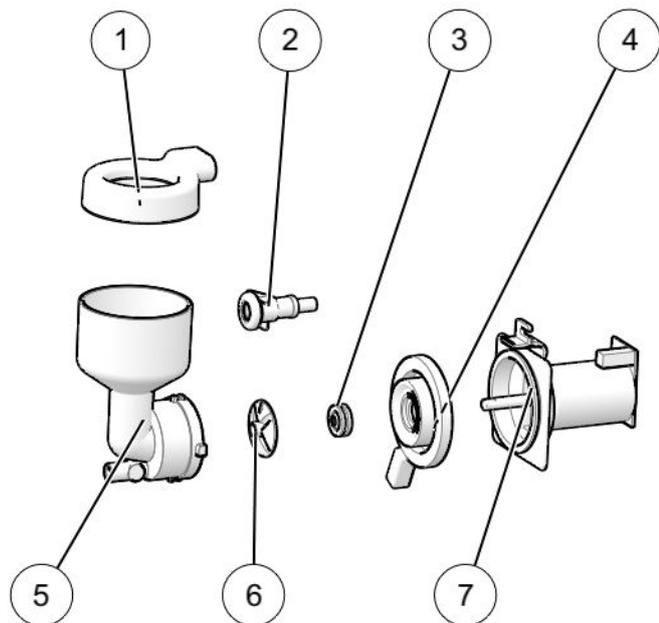
4.1.17 Mixer

The mixer consists of a mixer motor, a mixer propeller and a mixer house. The mixer is controlled by the control board and ensures a correct mixing of the ingredient(s) and water. By the rotation of the mixer propeller, air is mixed with the water and ingredient(s) and a foam layer is formed. This will improve the taste and the appearance of the consumption.

Motor specification: 24VDC, 14.000 RPM. In case of a blockage, a safety is 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.

Overview of mixer parts (small and medium models)



1. Suction trap
2. Adapter (*)
3. Seal
4. Mixer bayonet catch
5. Mixer house (*)
6. Mixer propeller
7. Mixer motor

*) Mixer house and adapter colors: black for the pressure boiler system, grey for the open boiler system.



TIP

To further extend the lifespan of the green seal (3) on the mixer



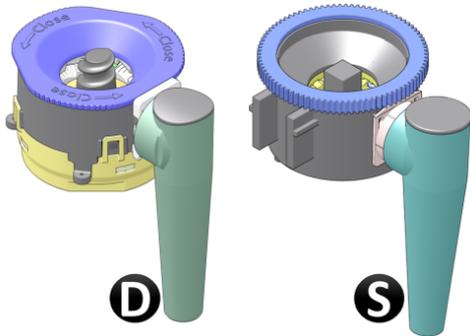
motor, it is recommended to apply a small amount of Molycote grease on the shaft of the mixer motor (7) every three months.

Connections mixers / wire colors (CoEx brewer small and medium model)

Mixer	Function	Wiring color
1	mixer common (+)	Violet / Red Orange
2	mixer common (+)	Violet / Blue Orange
3	mixer common (+)	Yellow / Red Orange

4.1.18 Grinder

Grinder type Determine the grinder type.



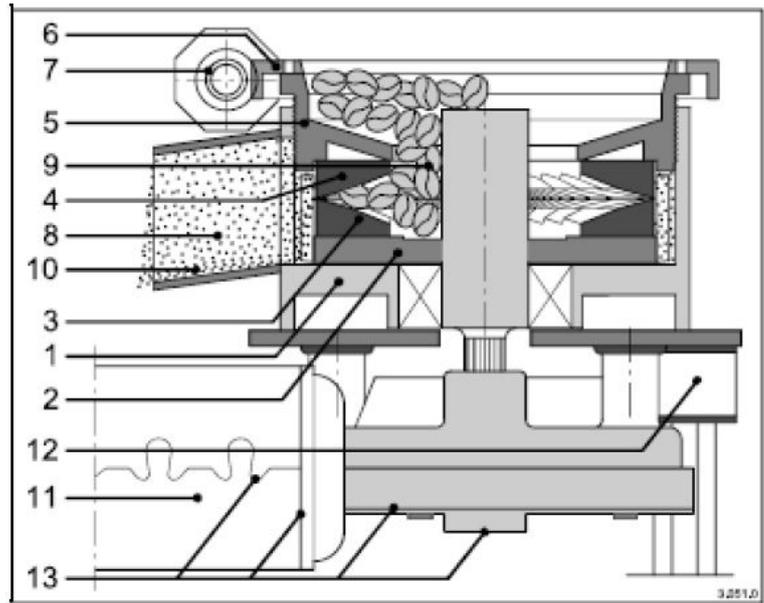
1. If the coffee machine contains a grinder, one of two grinder types are possible:

- D) the D-grinder, recognizable by the grinder top house that can be removed or
- S) the original Schaefer grinder, that contains a gear-like top.

The grinder assembly is mounted inside the machine on the canister-plate or in the door (small model coffee machine only).

4.1.18.1 Schaefer grinder

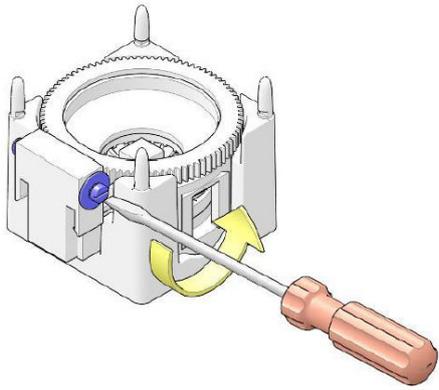
By adjusting the upper grinder blade axially, the air gap between the two grinder blades can be set very accurately. This air gap defines the grain size of the ground coffee, what is known as the grinding degree. The grinding degree setting is made manually on a worm gear. The powder (ground coffee) is discharged into the powder outlet through four cams attached evenly around the circumference of the star shaft.



1. Grinder housing
2. Star shaft
3. Lower grinder disc
4. Upper grinder disc
5. Upper part of grinder
6. Grinding degree disc (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

Changing the grinding degree

The grinder is set to a default grinding degree of 2.5 during production. However, the type of coffee beans used and (local) flavor expectations will probably be different. Adjust the grinding degree for the best ground coffee and 'fine-tune' for the best flavor coffee and espresso. The grinding degree can be changed without removing the canister or disassembling the grinder. The grinder uses a screw (see picture) to adjust the grinder degree.



1. Turn the adjustment screw to the left for a finer grinding and to the right for a more coarse-grained coffee.



NOTE

Only adjust the grinding degree when the grinder is running (rotating grinding discs) to avoid blockage of the grinder.

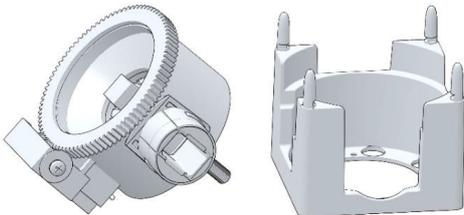


NOTE

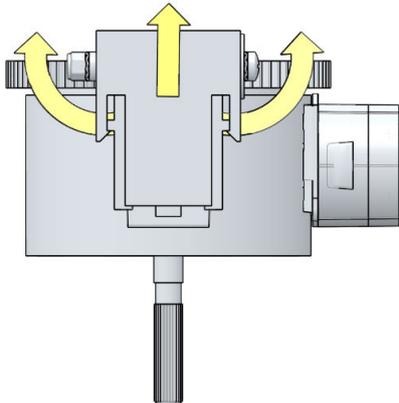
After adjusting the grinder, first take two consumptions, to get rid of the old coffee in the grinder chute. After these two consumptions, check the new grinder setting with taking a test consumption, checking crême layer, taste etc.

Default grinder setting

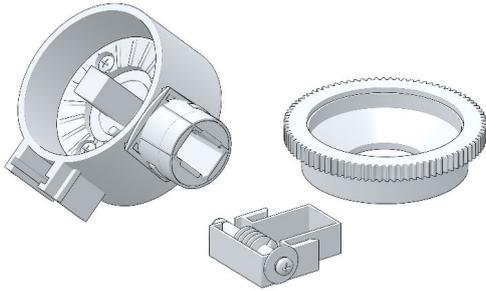
The grinder is default set as described below:



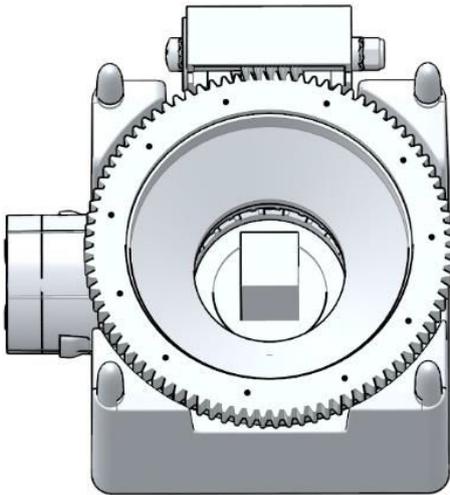
1. Remove the grinder from the grinder base in upwards motion.



2. Remove the black adjustment worm-wheel by pulling the 2 pins outwards and at the same time lifting upwards.



3. Remove the upper grinding disc and black gear ring in a counter clockwise rotating motion.
4. Be sure there are no beans left on the grinding discs and in the housing. Thoroughly clean the grinding discs with a brush.
5. Replace the upper grinding disc and rotate it gently as far as possible in clockwise motion until the top and bottom grinding discs meet.
6. Mark the position of the upper grinding disc compared to a fixed point on the housing and rotate the disc 2½ steps (1 step is one pin position) in counter clockwise motion.
7. Replace the black adjusting worm-wheel.
8. Place the grinder back in the grinder base.
9. Test the result by taking consumptions. Fine adjustments can be done by rotating the adjusting worm-wheel.



4.1.18.2 D-grinder

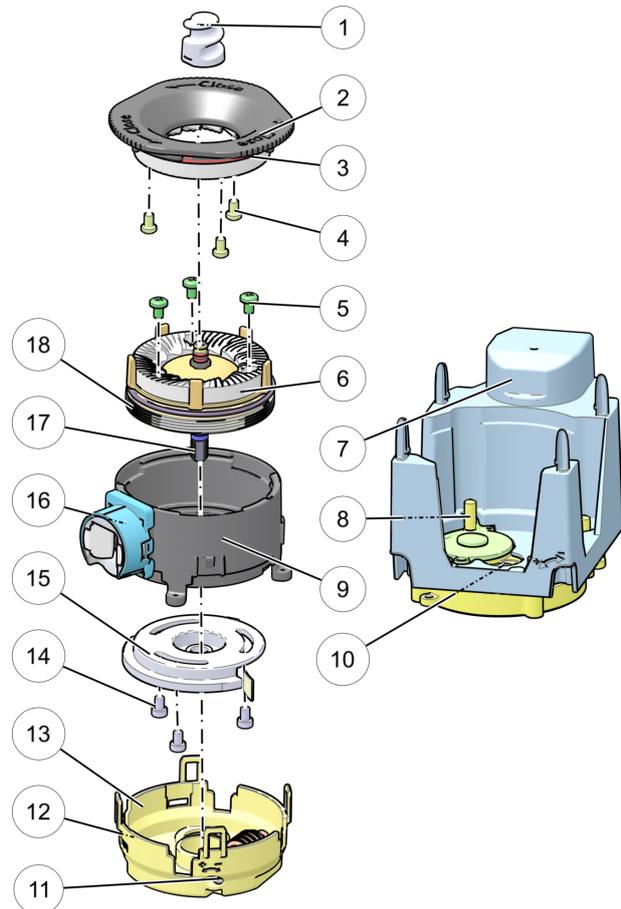
General

The D-grinder uses high performance grinder discs that give a consistent grind and operates at about twice the speed of the Schaefer grinder to grind beans for coffee and espresso. This means that the same amount of ground coffee is created in half the time. Check the specifications at the end of this chapter for more details. The D-grinder is easy to clean and settings (like grinding degree) are maintained when the grinder is opened for cleaning. The grinding degree of the D-grinder is not measured in pins and teeth but displayed in an indicator window on the grinder. The indicator shows a scale from 0 to 12 (actual degrees divided by 10). The D-grinder is set to a default grinding degree of 6 in the factory. Note that the type of beans used and (local) flavor expectations may require a different setting of the grinder in the coffee machine.



NOTE

Existing coffee related recipes/configurations need to be changed if they are used for the D-grinder but made for the Schaerer grinder (because of the higher output of ground coffee).



- | | |
|-------------------------------------|--------------------------------------|
| 1. Auger | 10. Grinder motor drive |
| 2. Grinder house top assembly | 11. Grinding degree adjustment screw |
| 3. Upper grinding disc (stationary) | 12. Grinding degree scale window |
| 4. Screws upper grinding disc | 13. Grinder adjustment cover |
| 5. Screws lower grinding disc | 14. Screws worm wheel assembly |
| 6. Lower grinding disc (rotating) | 15. Adjustment wheel |
| 7. Grinder base / Motor cover | 16. Grinder outlet |
| 8. Grinder stand | 17. Drive shaft |
| 9. Grinder house | 18. Grinding disc assembly bottom |

The grinder unit consists of the top assembly (2) that contains the stationary –non moving- upper grinding disc (3). The top assembly is secured to the grinder house using a bayonet catch for easy access. The grinder house (9) contains the bottom assembly with the rotating lower grinding disc (6). By adjusting

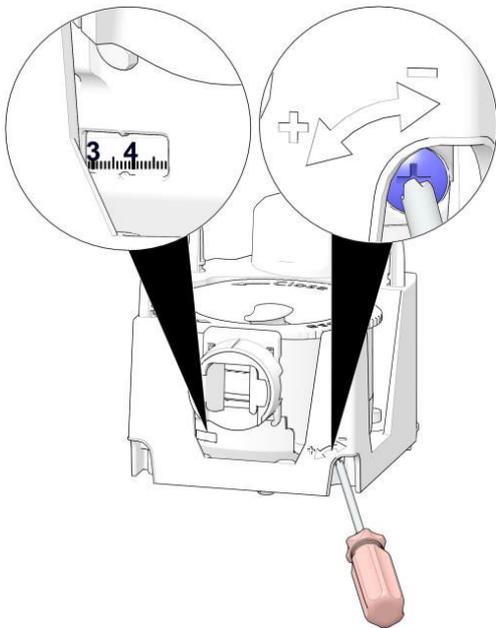
the lower grinding disc up and down, the air gap between the two grinder discs can be set very accurately. The gap between the two grinder discs determines the grain size of the ground coffee also known as the grinding degree. The grinding degree is set manually by rotating the adjustment wheel (15) with an adjustment screw (11). This screw is accessible when the grinder is installed in the coffee machine. The adjustment wheel contains a grinding degree scale that is visible through a small window (12). A 24-volt motor in the grinder base powers the lower grinding disc via a gear box to the drive shaft (17).

Change the grinding degree

The grinding degree can be adjusted without removing the grinder from the coffee machine.

The actual grinding degree is visible in a small indicator window in the bottom left of the grinder.

1. Adjust the grinding degree with the (Philips type) screw, accessible on the bottom right of the grinder base.
 - Turn left (+) for a coarser grinding / higher number.
 - Turn right (-) for a finer grinding / lower number.
 - Turn the screw in the desired direction and check the indicator to see the current grinding degree.



i TIP
Change the grinding degree when the grinder is running. For instance, run a test grind or dispense a beans-based recipe. After adjustment: first run two test grinds to be sure that the grinder will dispense the ground coffee with the correct grinding degree.

Set the grinding degree to the value 6 (factory default) or to the preferred value that was already known.

Take a test beverage to test for taste and write down the finally set grinding degree for future reference.

The outer areas of the scale are marked in red (values lower than 1.5 and higher than 10.5).



i NOTE
Do not set the grinding degree in the red areas. Grinding with a value below 1.5 will result in an inconsistent dispense quantity of ground coffee. A value higher than 10.5 can clog the grinder.

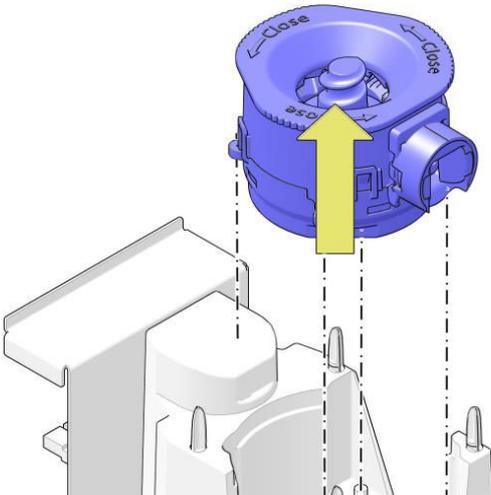
! IMPORTANT
A new grinder needs a so-called break-in period. After about



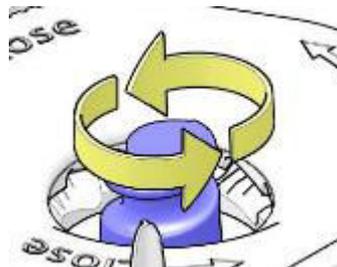
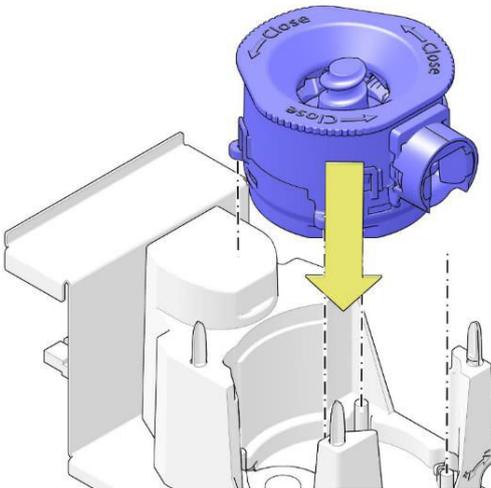
1000 cups of coffee, set the grinding degree again (see above). This is only needed once (or when installing a new grinder or new grinder discs).

Remove and place the grinder

1. To access the grinder, first remove the bean canister.
 - The grinder is placed and positioned on grinder stands inside the grinder base and is secured only using the driving shaft.
2. To remove the grinder, lift it from the grinder base in the direction of the arrow.



3. Place the grinder in the grinder base and make sure the grinder outlet points in the right direction.
 - Rotate the grinder auger to allow the drive shaft to 'fit' and move down completely. The drive shaft must 'fit' in the motor drive.



Clean the grinder

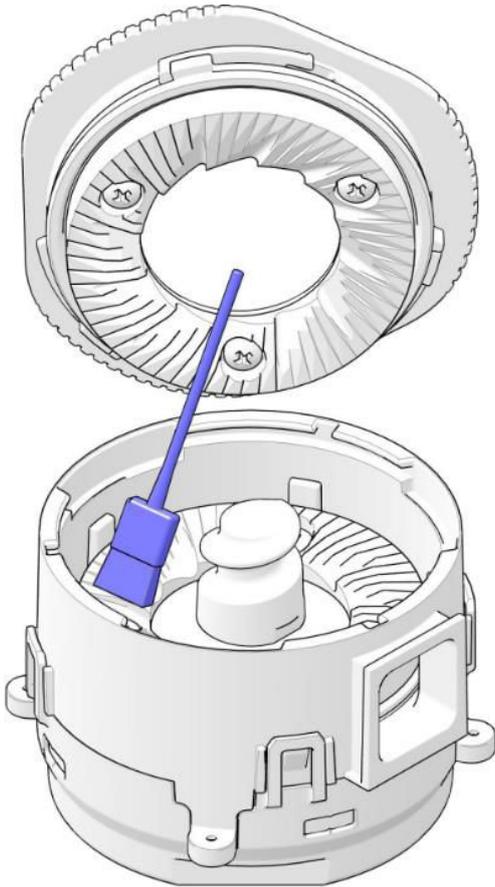
Regular (monthly) cleaning of the grinder is recommended to prevent clogging of old ground coffee inside the grinder house. Also, burned beans and 'foreign' objects (like wood or stones) can block the grinder and need to be removed.

**CAUTION**

Do not open the grinder inside the coffee machine. First remove it from the machine.

Procedure Perform the following steps:

1. Remove the grinder from the machine.
2. Open the grinder house.
3. Clean the grinder discs and the inside of the grinder house (do not forget to clean the gap around the discs).
4. Close the grinder house.
5. Install the grinder in the machine.



Replace the grinder discs

**NOTE**

The grinding discs need to be replaced after grinding 750 kg of coffee beans.

The upper and lower discs are identical.

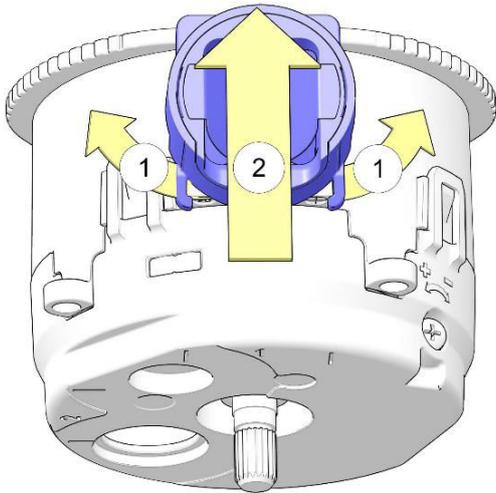
The screws in the lower and the upper disc are NOT identical.

Required tools

- Philips screwdriver

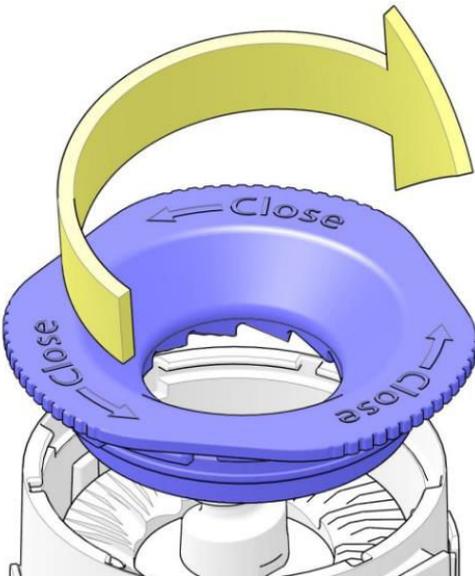
Procedure Perform the following steps:

1. Remove the grinder from the machine.



2. Remove the grinder outlet.

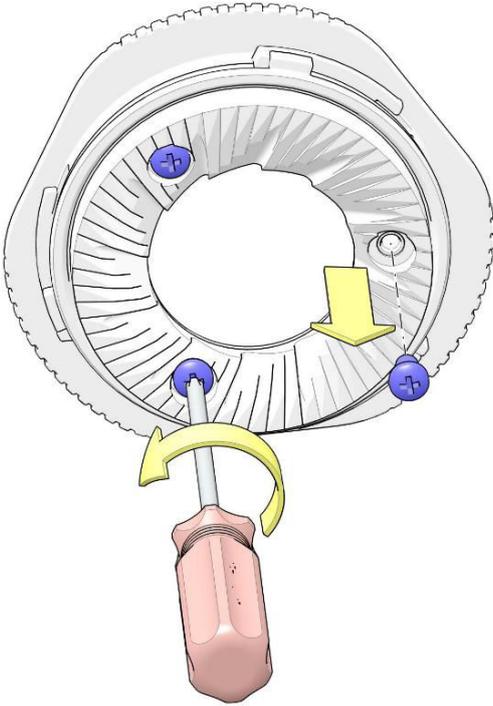
- spread the two fixation clips (1) that secure the outlet to the grinder.
- slide the outlet in the direction of the arrow (2) and remove it from the grinder.



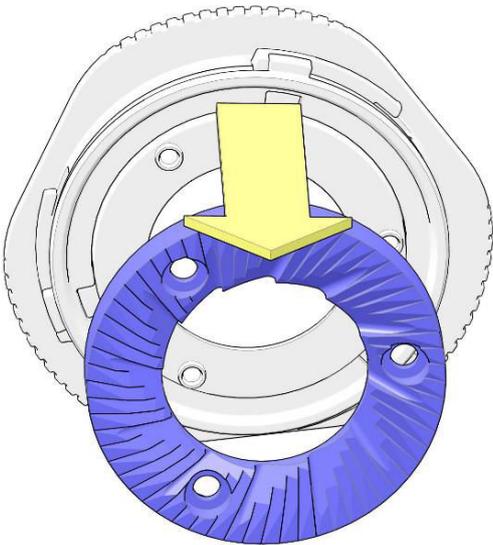
3. Remove the grinder house top assembly.

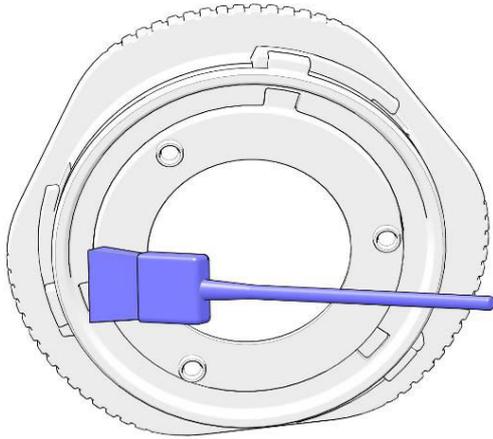
- Turn the cover of the top assembly in the direction of the arrow (clockwise!) to unlock the bayonet catch and remove the top assembly from the grinder.

4. Remove screws from upper grinding disc.



5. Remove the upper disc.

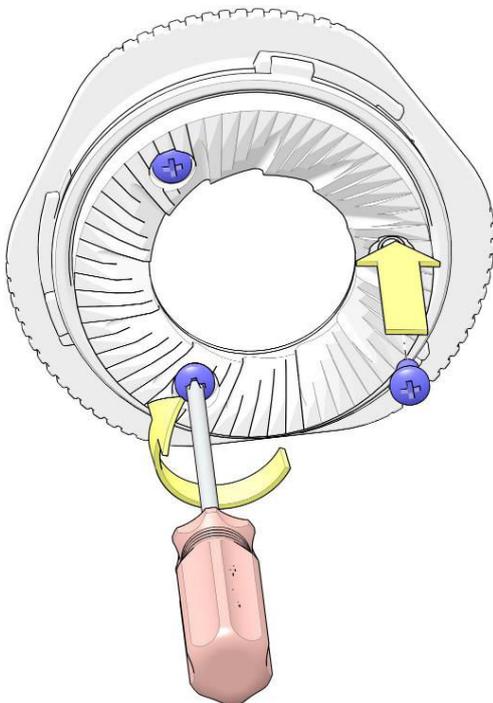




6. Before placing the new upper grinding disc make sure that the mounting surface is clean.
7. Place the upper grinder disc.



NOTE
The upper and lower discs are identical.



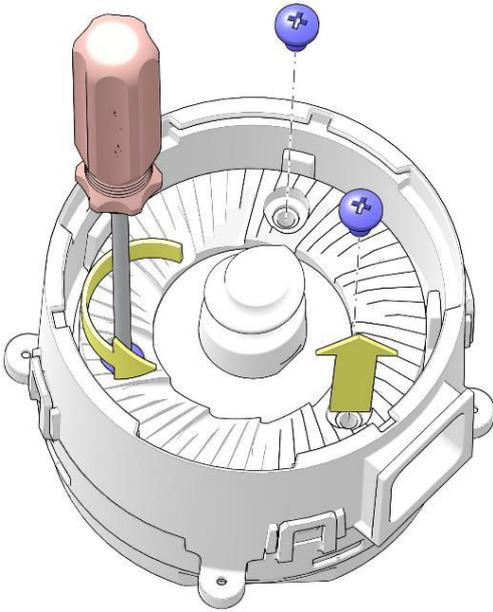
8. Secure the upper disc with three screws.



CAUTION
Make sure to pick the correct screw (see picture).
Tighten the screws gently, but firmly.

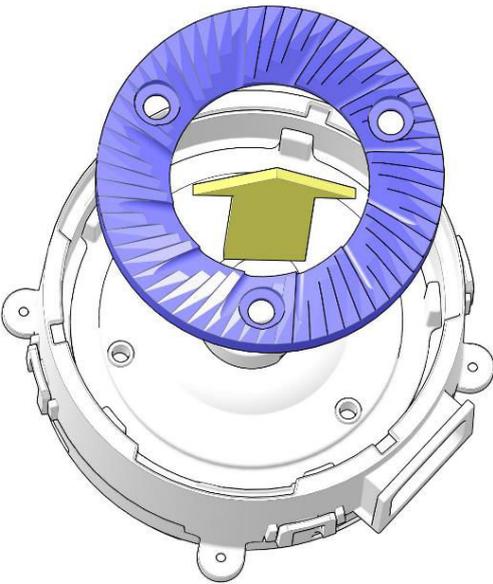


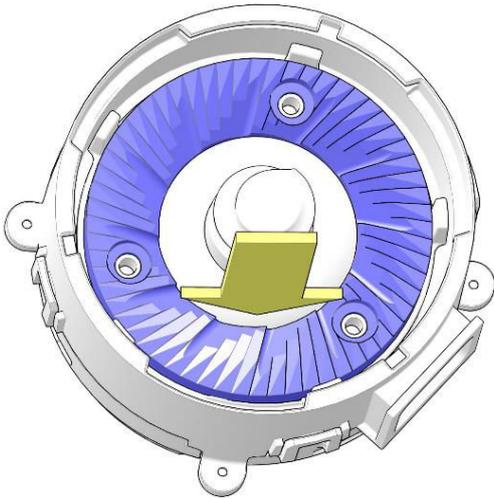
9. Loosen and remove the three screws in the lower disc.



10. Remove the lower disc.

11. Clean up the grinder house and make sure that the mounting surface for the lower grinding disc is clean (to prevent a different grinding degree).





12. Place the new lower grinding disc.



NOTE

The upper and lower discs are identical.

13. Secure the lower grinding disc with three screws.



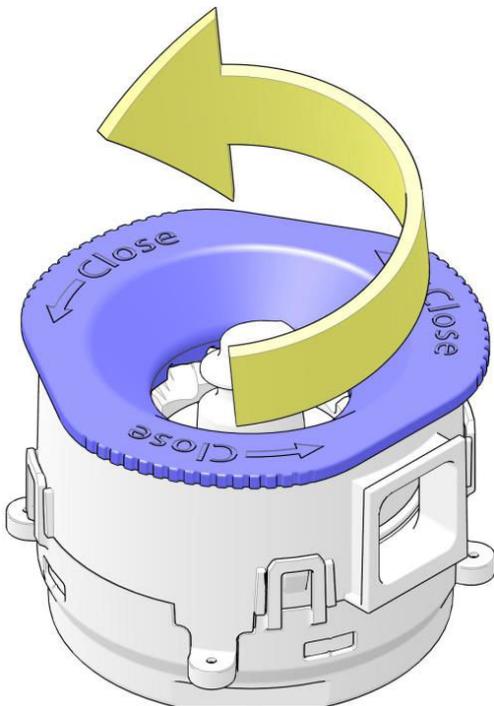
CAUTION

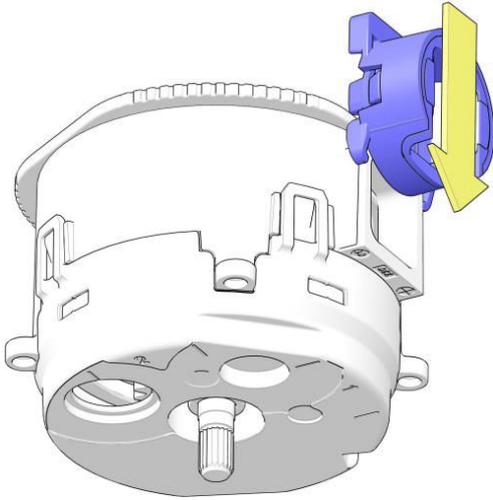
Make sure to pick the correct screw (see picture). Tighten the screws gently, but firmly.



14. Close the grinder house.

- Install grinder house top assembly.
- Place the grinder house top assembly on top of the grinder and turn it in the direction of the arrow (counter clockwise!) to close and lock it to the grinder house.





15. Install grinder outlet.

- Slide the grinder outlet in the direction of the arrow on the outside of the grinder house and make sure the locking clips of the outlet lock properly.

Readjust the D-grinder

The D-grinder has been set in the factory to the default grinding degree of 6, this number corresponds to a gap between the two grinder discs of about 0.01 in.

Readjustment is possible if this number, shown in the little window on the grinder, does not match with the actual gap between the grinder discs. This can happen :

- when new grinder discs are installed.
- after the initial break-in period of the grinder discs (after grinding beans for 1000 cups of coffee).

Required tools

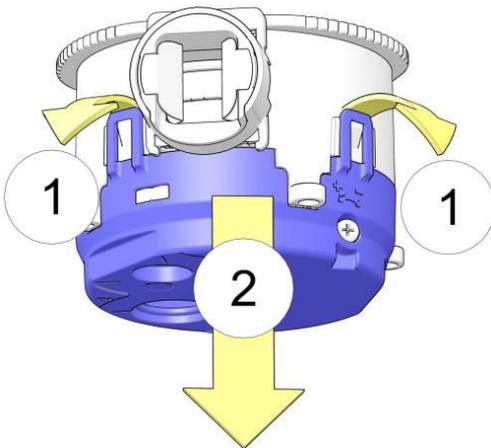
- Torx 15 screwdriver

Procedure

Perform the following steps

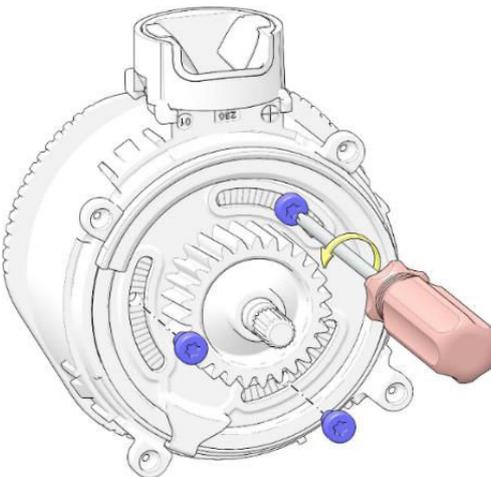
1. Remove the adjustment cover.

- Bend the four locking clips (1) in the direction of the arrows and pull the adjustment cover (2) from the grinder house.

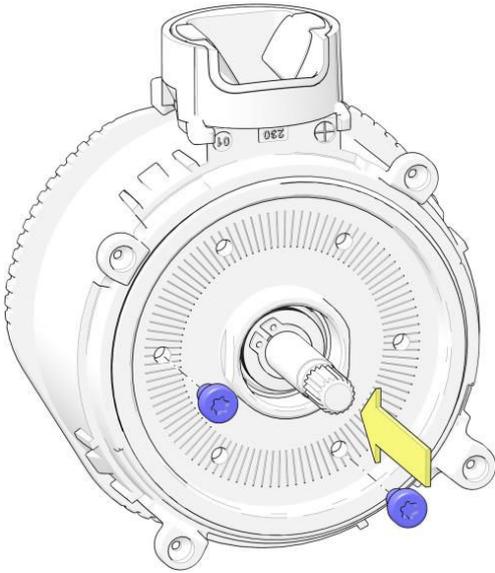


2. Remove the screws that secure the adjustment wheel.

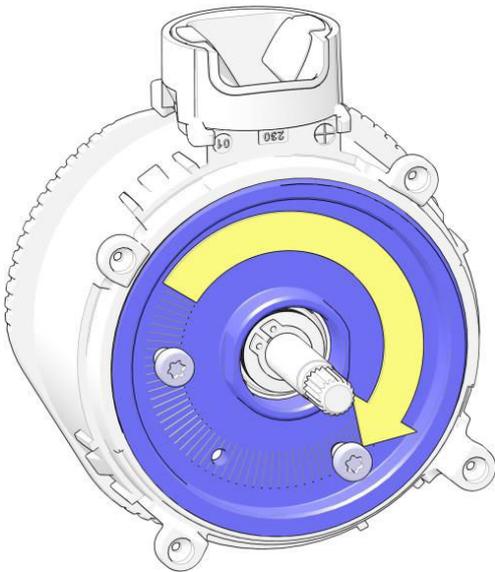
- Pull the adjustment wheel from the drive shaft in the direction of the arrow. The adjustment disc is now visible.



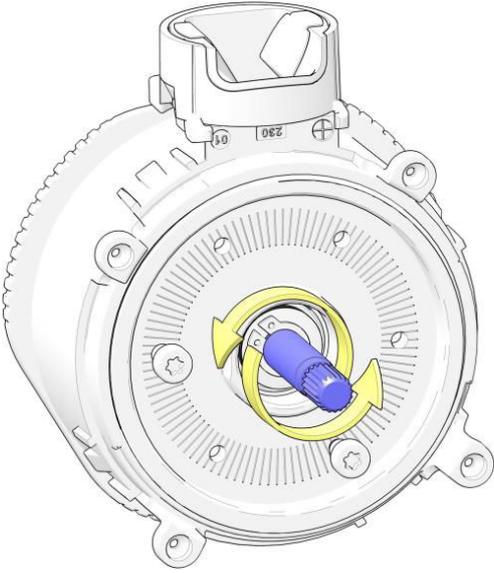
3. To be able to turn the adjustment disc, insert two screws and give them a few turns.



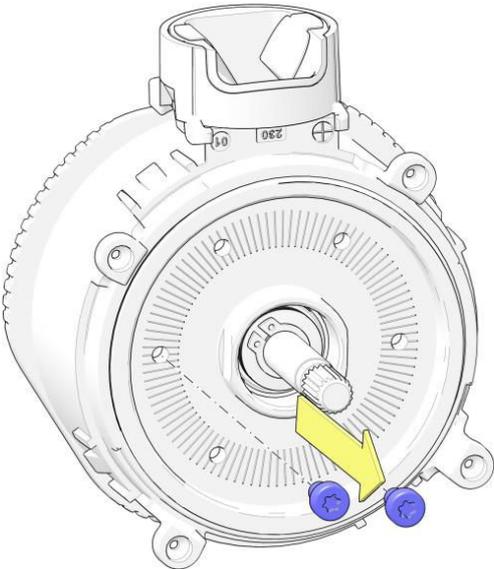
4. Turn the adjustment disc gently in the direction of the arrow until the two grinding discs touch each other.

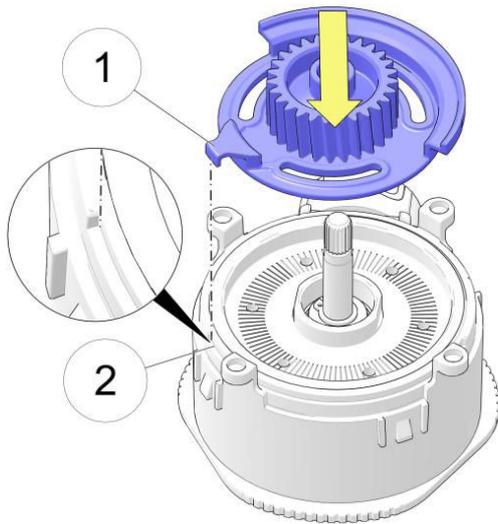


5. Check that the drive shaft cannot be turned anymore.
 - The grinder discs are now reset to 0 (zero).



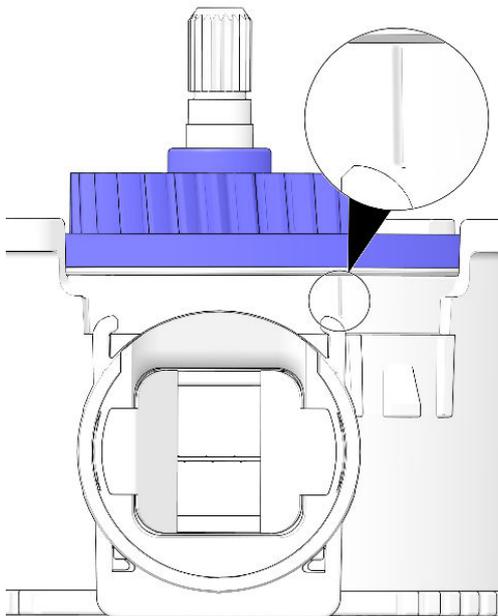
6. Remove the two support screws from the adjustment disc.
 - Make sure not to change the current position of the adjustment disc.





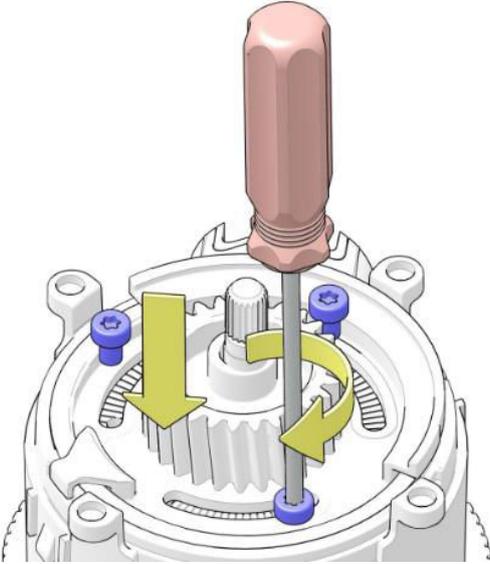
7. Slide the adjustment wheel onto the drive shaft. The adjustment wheel contains a restrictor (1) that fits in a slot on the outside of the grinder house (2). The restriction slot limits the rotation of the adjustment wheel to 120°.

- Push the adjustment wheel down the shaft and turn it clockwise until the restrictor is in the left corner of the slot of the grinder house.

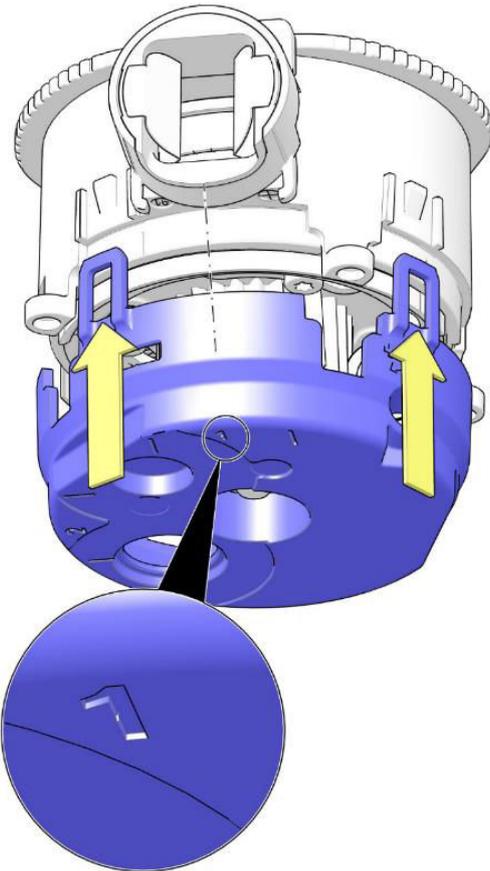


8. A second check: make sure that the number 0 of the scale on the adjustment wheel is positioned above the small vertical mark in the outside of the grinder house near the grinder outlet.

9. Secure the adjustment wheel with three screws.
 - Tighten the screws gently but firmly.



10. Place the cover. The numbers 1 and 2 are embossed on the bottom outside of the adjustment cover. Position the number 1 in line with the grinder outlet.
 - Slide the adjustment cover in the direction of the arrows and make sure that the four clips lock properly to the ledges on the outside of the grinder house.
11. The readjustment is now finished. Continue with the section Grinding degree (see [Change the grinding degree](#) on page 62) to set the grinder to the preferred grinding degree that was already noted down.

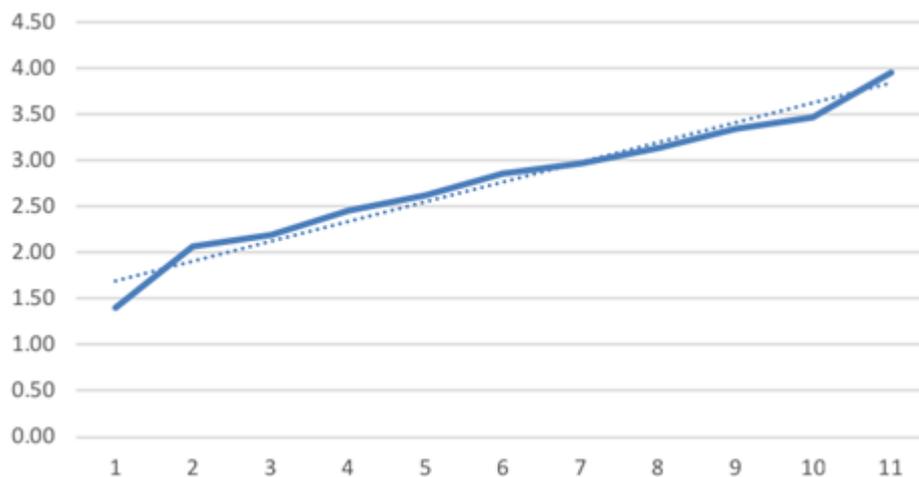


D-grinder specifications

D-Grinder specifications

Power	
Main motor	24VDC
Dosing	
Speed	2 – 3.5 g/s
Deviation (SD 11 g)	0.25 g
Adjustment	
Range	0-0.5 mm
Discs	
Diameter	2.52 in
Material	hardened steel
Rotational Speed	900 RPM
Operating conditions	
Temperature	59 °F to 140 °F
Relative humidity	up to 90% (<i>non condensing</i>)

D-grinder - diagram of dosing speed in grams per second

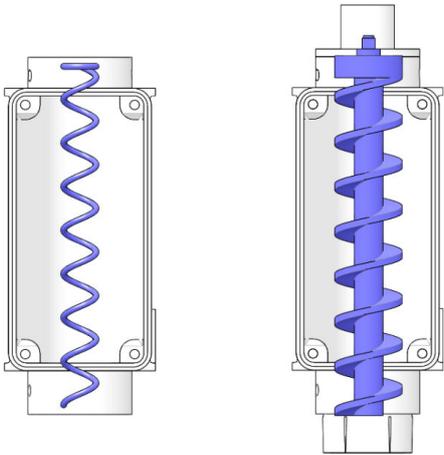


Vertical axis: output of ground coffee in grams per second for several types of coffee beans.

Horizontal axis: grinding degree of the grinder.

The dotted line displays an average and can be used as a guide for other type of beans.

4.1.19 Ingredient canisters



The canisters are provided with a metal or plastic auger. The metal auger is used for instant coffee, instant tea and leaf tea. The plastic auger is used for the other ingredients. Special augers are available for special ingredients or low gram throws.

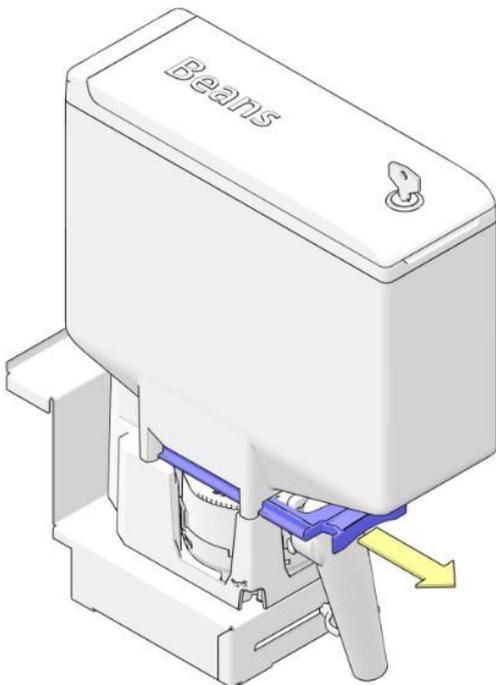
All canisters are driven by a 24VDC 120RPM motor.

Canister plate beans canister

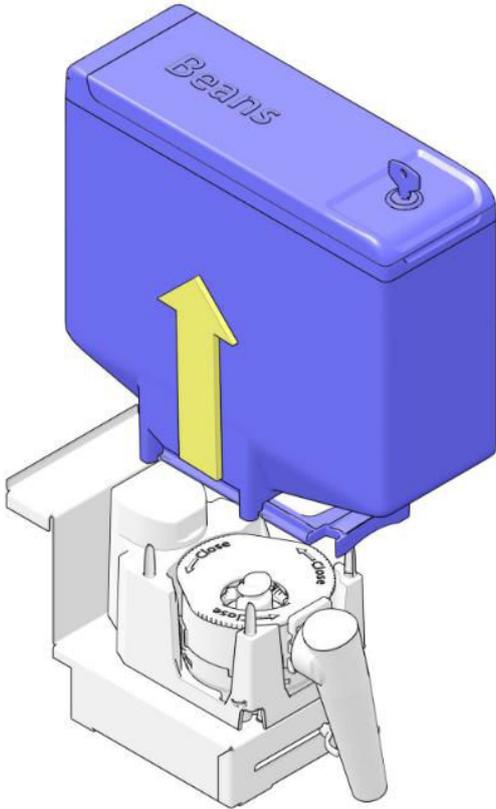
Remove the canister plate bean canister

Perform the following steps:

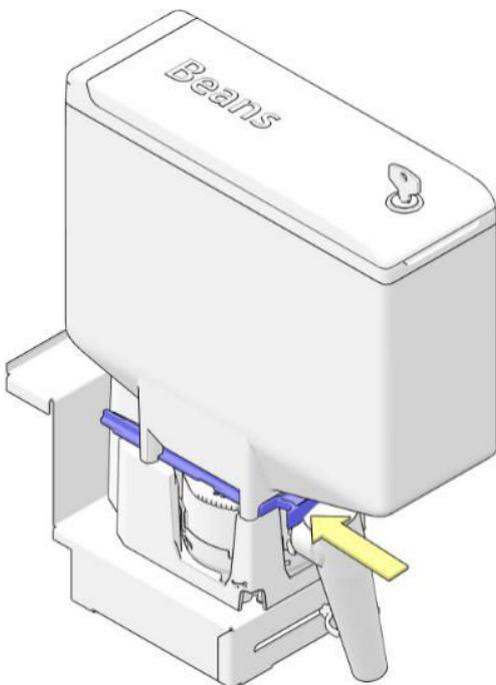
1. Pull the canister lock in the direction of the arrow to release the bean canister from the grinder base.



2. Lift the canister from the grinder base and out of the coffee machine.



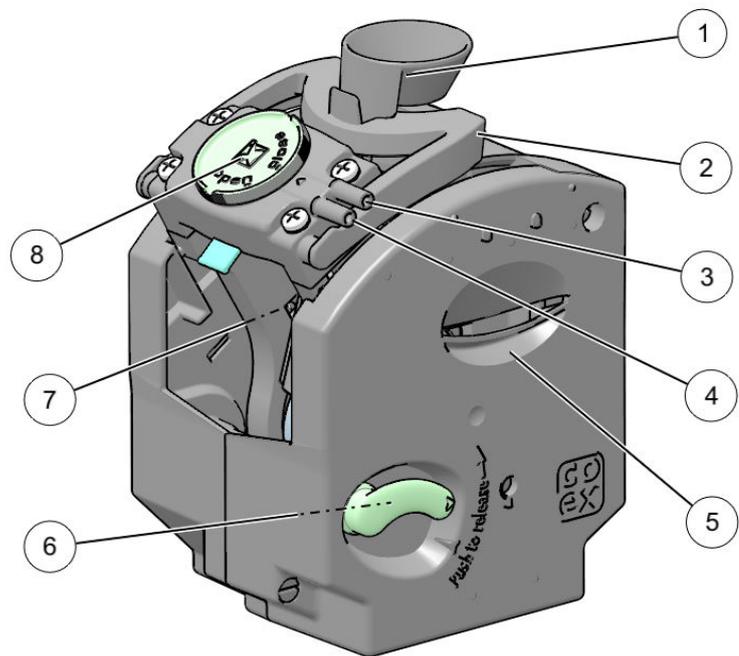
3. Install the bean canister - Place the bean canister on the grinder base and push the canister lock in the direction of the arrow.



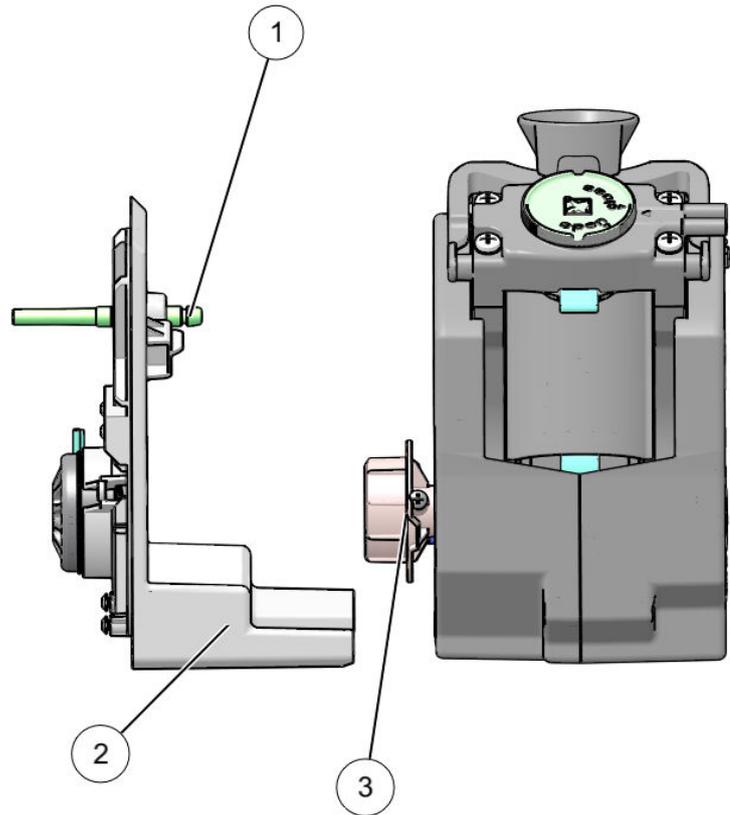
4.2 Brewer CoEx

4.2.1 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.



1. Coffee funnel
2. Waste wiper
3. Outlet 1:
 - with yellow filter head: Coffee
4. Outlet 2:
 - with yellow filter head: Espresso
 - with white filter head: Coffee and Espresso
5. Hand grip
6. Brewer fixation handle
7. Cylinder
8. Knob to remove filter head / upper piston

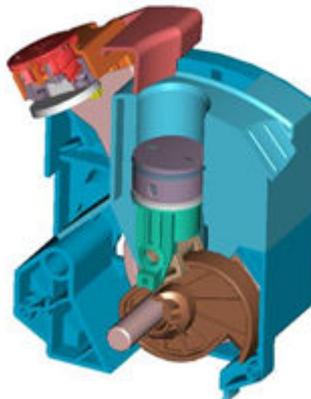


- 1. Water inlet
- 2. CoEx bracket
- 3. Motor coupling

4.2.2 Brewer cycle

Home position / Start position.

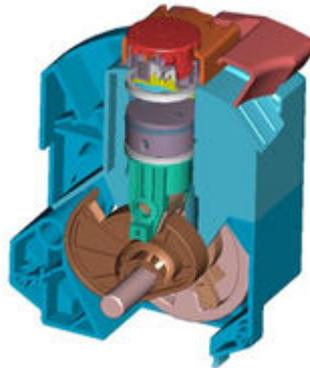
After dosing the coffee the brewer start running. The motor runs clockwise till closed position.



Closed position

The dosed coffee is pressed together between the upper and lower piston. After pressing the coffee together the water is dosed through the piston, into the coffee cake and flows through the filter screen out into the top and outlet of the brewer. The

pressure from the piston on the coffee cake is regulated by the adjustable current of the motor.



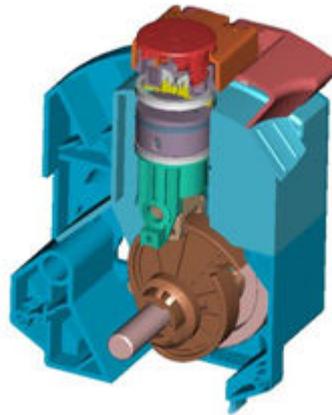
Open position If enough water is dosed the brewer runs counter clockwise to the open position.



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 swiped from the piston into the waste bucket.



Back to home After swiping the coffee cake away, the brewer runs in the clock wise direction to the home position.



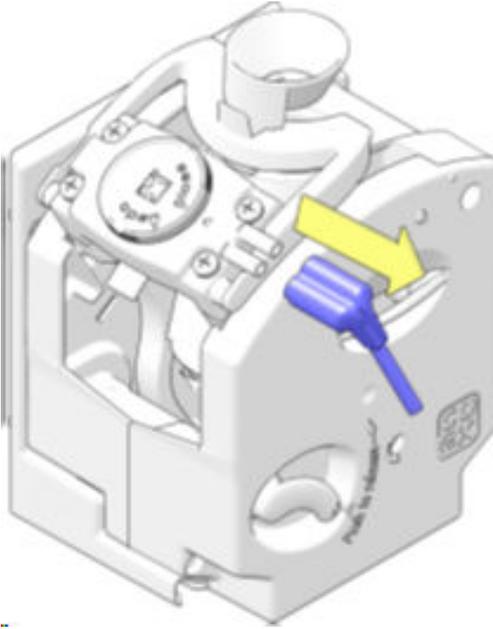
Start/home position The brewer is ready for a new cycle.



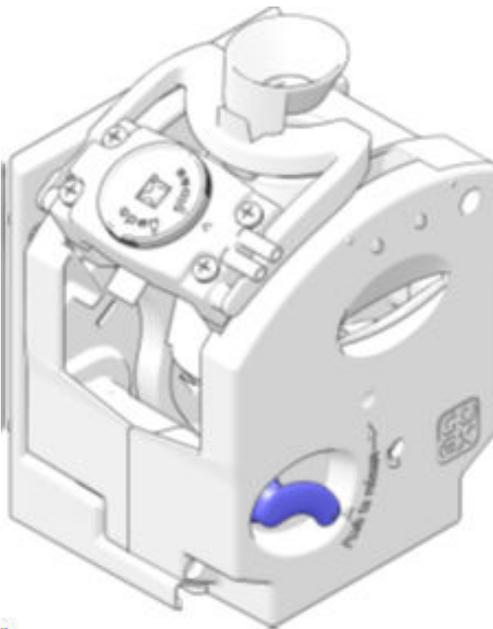
4.2.3 Remove and place the CoEx[®] brewer

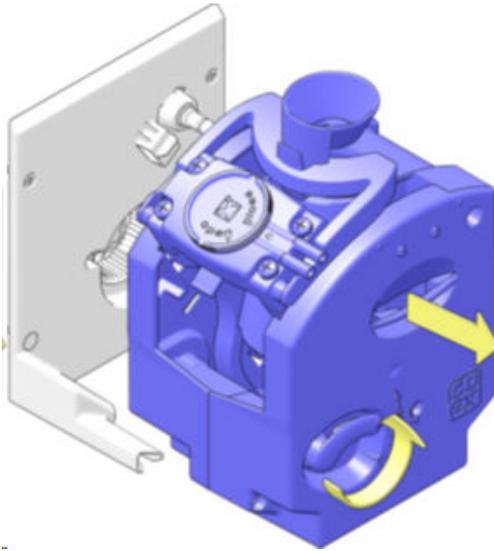
Remove procedure Perform the following steps:

1. Loosen the brewer outlet from the brewer.



2. Locate the fixation handle on the brewer.



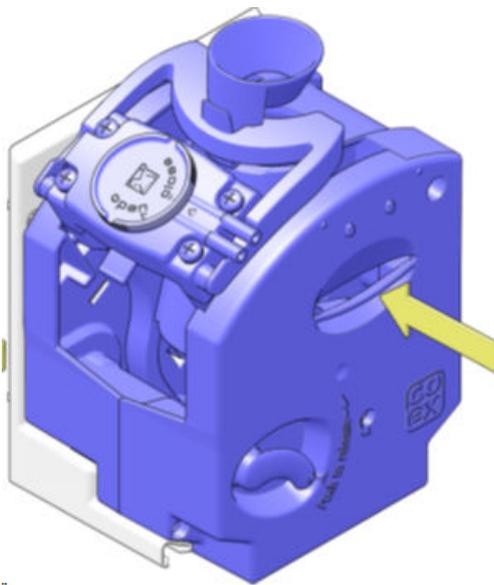


3. Push the fixation handle upwards and, while keeping the handle in the upward position, pull and lift the brewer in the direction of the arrow out of the coffee machine.

Placement procedure

Perform the following steps:

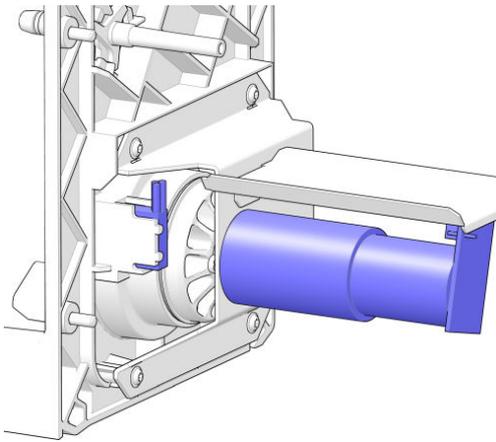
1. Make sure the brewer bracket in the coffee machine is clean.
 2. Place the brewer on the bracket and push the brewer firmly in the bracket until you hear a click.
- Make sure that the fixation handle is in the down position.



CAUTION

When the brewer is not installed correctly, the brewer can cause errors or jump out of the bracket seating during a brew cycle.

4.2.4 Brewer motor and micro switch



The brewer motor and micro switch are mounted on a bracket.

Specification brewer motor

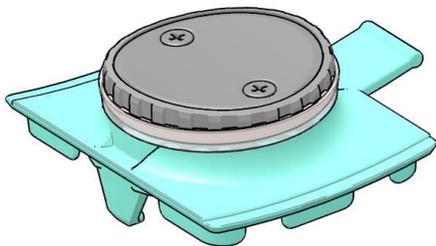
Voltage	24VDC.
No load	32 RPM, 0,10A ± 0,05A
Normal load	25 RPM , 0,45A, 1,5 Nm
Stall	1,8A ± 10%

The motor is controlled in two directions, clockwise and counter clockwise. The position of the brewer is controlled by the micro switch and timers in the control system.

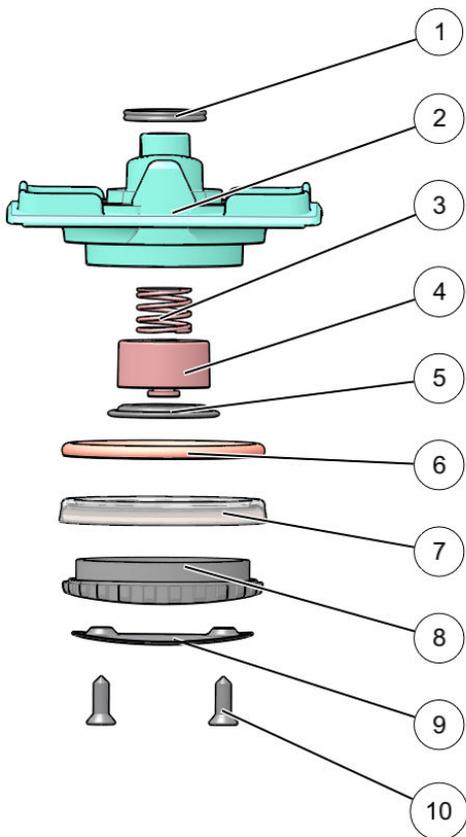
Electrical connections / wire colors

Wire color (motor)	Wiring color (main)	Function
Purple/Red	Grey	Motor
Orange	Grey / White	Motor
Black	Purple / Green (2x)	Micro switch
Blue	Grey / Black	Micro switch

4.2.5 Upper piston / filter head



The upper piston, also known as filter head, is mounted in the top of the CoEx® brewer. This upper piston is removable with the fixation knob on the top of the brewer.



Upper piston internal layout

1. Quad ring (spare part)
2. Upper piston
3. Spring (yellow filter head only)
4. Pressure switch
5. Coffee restriction
6. O-Ring
7. U-cup sealing
8. Mesh holder
9. Filter mesh
10. Screws



NOTE

Do not disassemble the upper piston to avoid warranty issues.

Remove and install the upper piston

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



1. To remove the filter head, turn the knob clockwise.
2. To fit on the brewer: First place the complete upper piston in the right position, then turn the knob counter clockwise.

**NOTE**

After replacing, check if the upper piston is fitted properly. If the upper piston is not correctly placed, the brewer will stall during dispense.

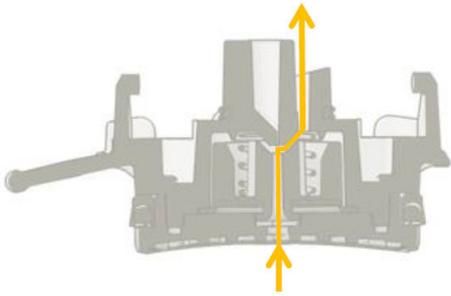
4.2.6 Controlling coffee/espresso pressure switch

With the unique patented system the CoEx[®]-brewer can make Coffee and espresso consumptions in one brewing system. The pressure for coffee and espresso is different, coffee is made with 3 - 4 bar pressure, espresso with 9 bar pressure.

The volume of a consumption is easily changeable in the software settings in the machine.

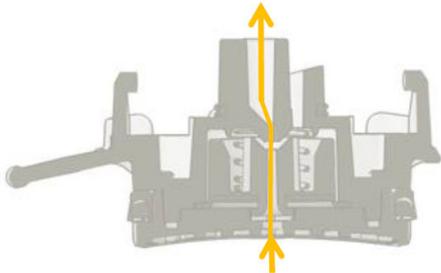
The duration time that the water is in contact with the coffee powder is a very important factor in the performance of the brewer and is about the same for coffee and espresso. The optimal water-coffee contact time is 15 - 25 seconds.

To achieve 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 flow for espresso must be much smaller than the flow for coffee. In the following figures the solution for making these two beverages in one system is shown.



1. Coffee flow

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

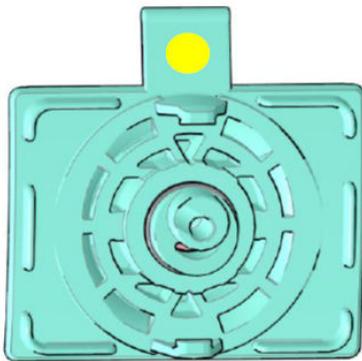


2. Espresso flow

When espresso is chosen, at first the flow is high and will activate the pressure switch. (Spring is not strong enough to keep pressure switch in Coffee position). The coffee channel is closed and the espresso is forced through the secondary restriction, reducing the flow and increasing the pressure to 9 bar.

This different pressure between coffee and espresso is only used in the B2C espresso machines. The CoEx[®] machines used as paperless fresh brew has no spring to switch between coffee or espresso pressure.

The upper piston is marked with a colored dot that refers to the hole size(s) and pressure switch.



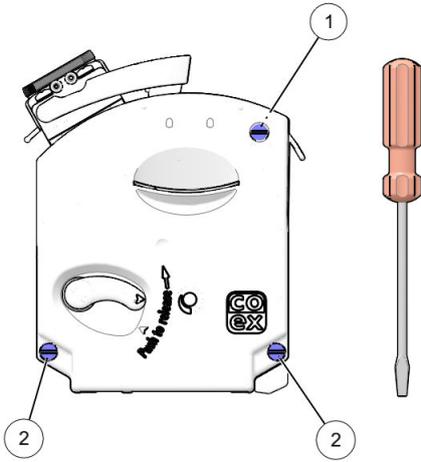
Machine type	Dot Color	Hole sizes
B2C espresso	Yellow	0.59 in/0.12 in
Paperless fresh brew	White	0.2 in

4.2.7 Replace seals in lower piston

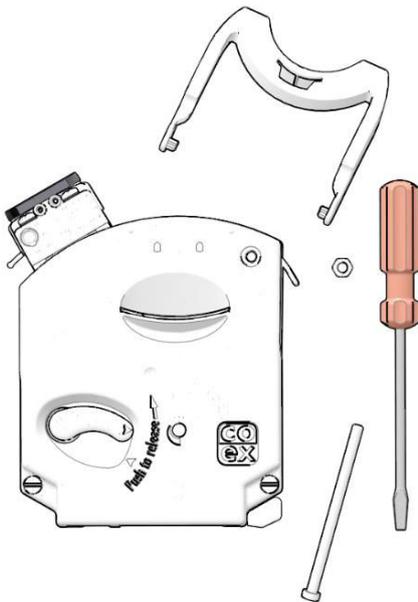
Required tool Screw driver

Procedure Perform the following steps:

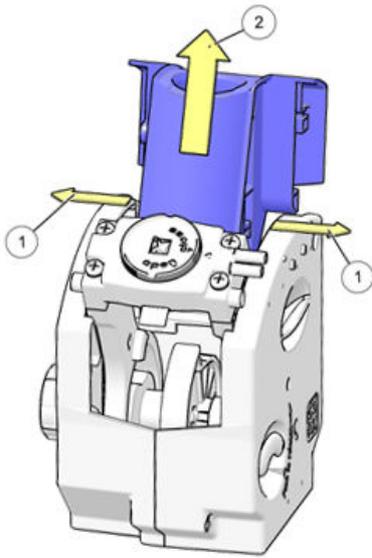
1. Unscrew the bolt (1) of the brewer and loosen the two other bolts (2).



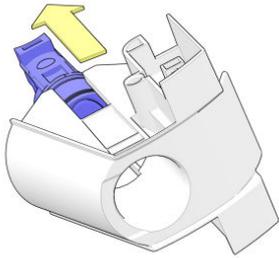
2. Loosen the lower bolts (2) only 1.5 turns. Do not remove them.



3. Pull the left and right housing apart on each side of the cylinder (1) and pull the cylinder and piston upwards out of the brewer (2).

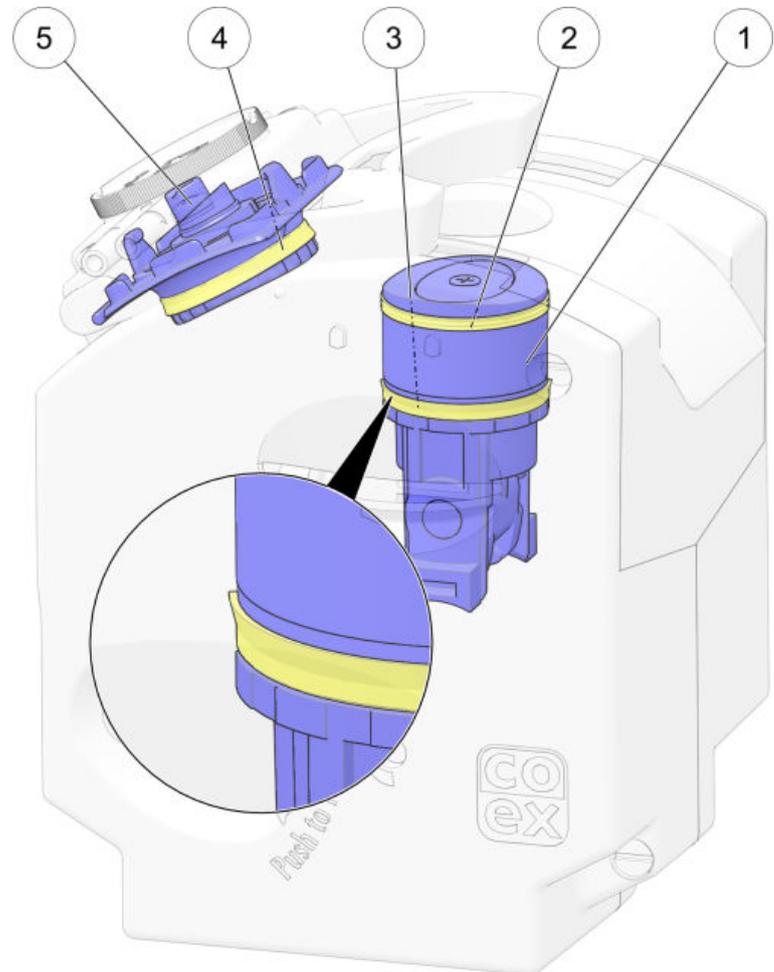


4. Remove the piston from the cylinder.
5. Replace the parts (see next nextion) and install in reversed order.



4.2.8 Seals

The brewer contains two pistons, the upper piston (better known as filter head) and the lower piston. There are three sealing rings responsible for sealing of the pressure room: two in the lower piston and one in the upper piston.



1. Lower piston
2. Sealing ring (lower piston)
3. U-cup sealing ring - RED (lower piston)
4. U-cup sealing ring - BLUE (upper piston)
5. Upper piston / filter head

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). The shape of the selected u-cup ring (3) avoids the coffee grains scratching the cylinder. The upper sealing ring (2) does not have to resist a high pressure but is only a scraping ring.

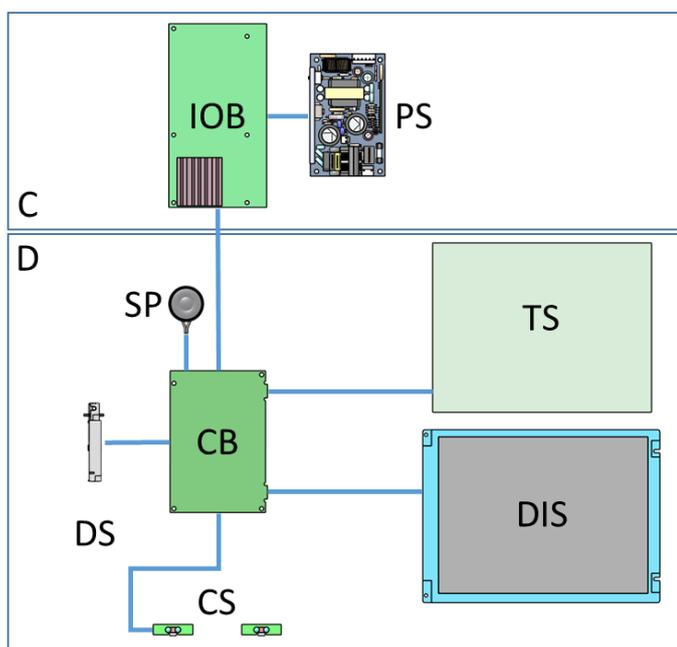
Electronics

The hardware - MoVeC Modular Vending Controller for Intelligent Connected Equipment

The electrical system consists of the following main components:

- Power supply board
- IO board
- Control board
- Display with touchscreen

Electronics overview main components



C. CABINET

IOB. IO-Board
PS. Power Supply

D. DOOR

CB. Control Board
TS. Touchscreen
DIS. Display
CS. Cup sensors
DS. Door switch
SP. Speaker(s)

5.1 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 board supplies power to the I/O board and to all other electrical components. For over voltage protection, the power supply has been equipped with a fuse.

NOTE

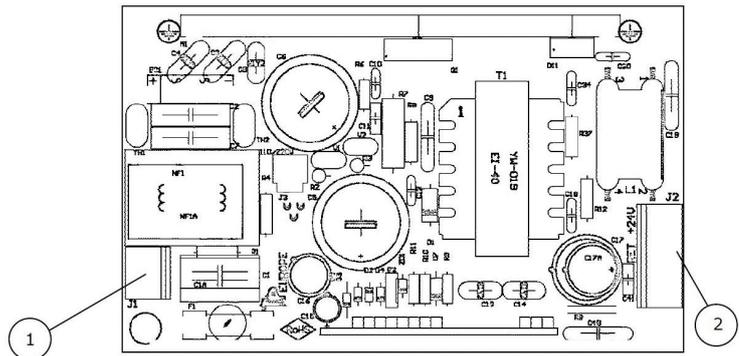
The heating elements of the boilers are connected directly to the mains voltage (and controlled by the temperature sensor, interrupted only by means of the door switch).



IMPORTANT

To prevent Electrostatic discharge (ESD), always use an ESD wrist strap. Make sure to connect it to the door ground cable of the coffee machine before handling the boards.

5EPR076



5EPR076 - Power Supply Board

1. J1 - Input 230VAC or 120VAC (*)
2. J2 - Output 24VDC / 120W

*) If the power supply is used for 120VAC, a jumper needs to be inserted in the board (in location J3).

5.2 Control board

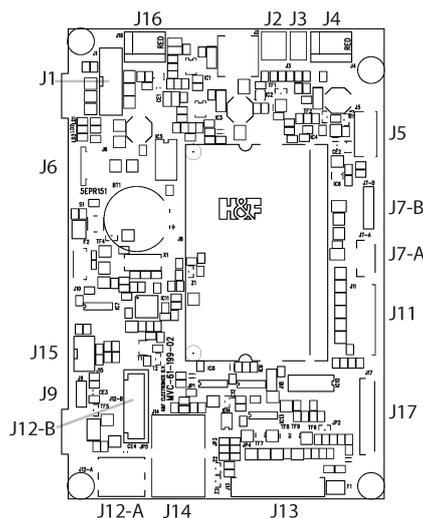
The control board (ICEQ) is located at the inside of the door. The control board controls the operation of various components. The signals are sent to the IO board. On the control board you also find the connections for other PCB's, door and payment system. The operating system, counters and settings are saved on the control board.



IMPORTANT

To prevent Electrostatic discharge (ESD), always use an ESD wrist strap. Make sure to connect it to the door ground cable of the coffee machine before handling the boards.

Control board ICEQ2 (9EPRxxx) - The actual part number of the ICEQ2 control board depends on the loaded software / model coffee machine. Check the spare parts manual for the correct part number.



J1. IRDA board	J7-B. Backlight	J13. Wire harness door
J2. Speaker	J9. USB	J14. Network connection
J3. Mechanical counter	J10. I2C	J15. MDB payment system
J4, J5. USB (*)	J11. Display TTL	J16. USB
J6. Touchscreen	J12-A. HDMI IOB	J17. Display LVDS
J7-A. Backlight (Siro Touch only)	J12-B. Flat cable IOB	

*) USB J4 and USB J5 are internally connected in parallel. Use only one connection at a time.

5.3 IO board

The IO board (IOB) is controlled by the control board. The IO board controls the mechanical components such as dosing motors, boiler(s), brewer motor, mixers and valves.

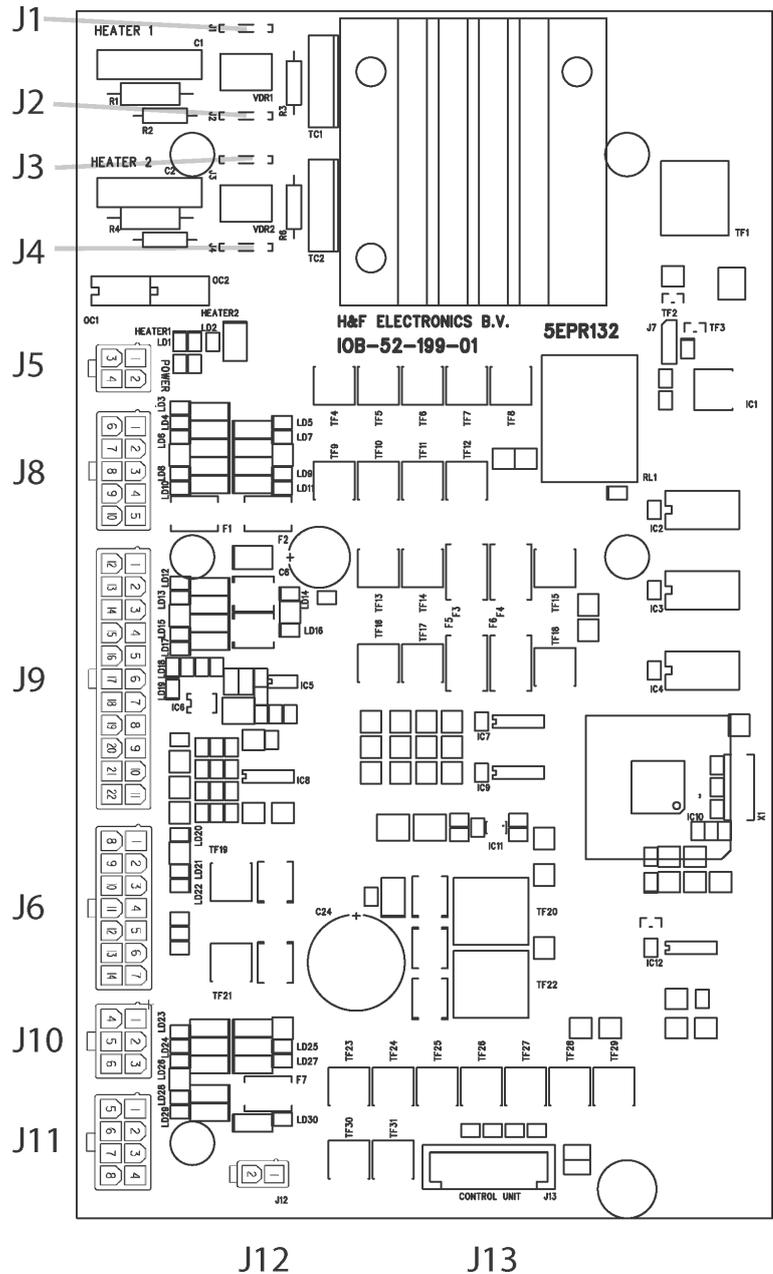


IMPORTANT

To prevent Electrostatic discharge (ESD), always use an ESD wrist strap. Make sure to connect it to the door ground cable of the coffee machine before handling the boards.

5EPR132

IO Board 5EPR132 (with 27 outputs - 2 heating elements)



- J1/J2 - Switching wires boiler 1
- J3/J4 - Switching wires boiler 2
- J5 - 24VDC in
- J6, J8, J9, J10, J11 - General purpose IO
- J12 - General purpose IO (free contact)
- J13 - to Control board

IO Board 5EPR132 connectors

Connector	Component	Wiring color
J1-J4		
J1	Heating element 1	Blue
J2	Heating element 1	Blue

J3	Heating element 2	Blue / White
J4	Heating element 2	Blue / White
J5		
J5-1	+24V DC supply	Red
J5-2	+24V DC supply	Red
J5-3	-	Black
J5-4	-	Black
J6		
J6-1	+24V DC common	Orange
J6-2	Pump 1 common	Grey / Blue
J6-3	Pump 2 common	Black / Pink
J6-4	Flow meter supply	Red / White
J6-5	Flow meter signal	Black / Blue
J6-6	Flow meter common	Green / Violet
J6-7	Level 2	Brown / Black
J6-8	Pressure valve (2 bar)	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 / Violet
J6-14	Level 2 common	Yellow / Grey
J8		
J8-1	+24V DC common	Orange
J8-2	Valve brew / mix 1	Violet / White
J8-3	Ingredient motor 3	Blue / White
J8-4	Ingredient motor 4	White
J8-5	Brew / mix 1	Violet / Red
J8-6	Valve brew / mix 3	Orange / Brown
J8-7	Chilled water inlet valve	Black / Orange
J8-8	Ingredient motor 5	Blue / Green
J8-9	Ingredient motor 6	Violet / Black
J8-10	Mixer 2	Blue / Violet
J9		
J9-1	+24V DC Common	Orange
J9-2	Ingredient motor 1 coffee or grinder	Violet
J9-3	Ingredient motor 2 coffee or grinder	Brown / Red
J9-4	Brewer motor +	Grey / White
J9-5	Brewer motor -	Grey
J9-6	Brewer micro	Grey / Black
J9-7	Paper switch	empty
J9-8	Sensors common	Green / Violet
J9-9	Drip tray detect	Black / Yellow
J9-10	Drip tray full detection	Yellow
J9-11	Drip tray common	Green / White
J9-12	Inlet valve open boiler	Red / Green
J9-13	Fan	Black / White
J9-14	Coffee valve	Yellow / White
J9-15	Valve hot water	Red / Blue
J9-16	Micro waste bucket	Yellow / Orange
J9-17	Tea brewer micro	Brown / Grey
J9-18	-	
J9-19	Temp 1 common	Green / Violet
J9-20	Temperature 1	Pink
J9-21	Level detection 1	Red / Black
J9-22	Level detection 1 common	Yellow / Grey
J10		
J10-1	+ 24V DC common	Orange
J10-2	Output 23 spare	Green / Red
J10-3	Output 24 spare	Green / Grey
J10-4	Carbonated water valve	Brown / Blue
J10-5	Output 26 spare	

J10-6	Brew / mix 4	
J11		
J11-1	+24V DC Common	Orange
J11-2	Outlet arm	Violet / Yellow
J11-3	Micro switch cup splitter	Grey/Violet
J11-4	Micro switch outlet arm	Orange / Red
J11-5	Cup splitter	Grey / Orange
J11-6	Cup column mover	Grey / Pink
J11-7	Cups micro switch	Brown / Pink
J11-8	Common sensors	Green / Violet

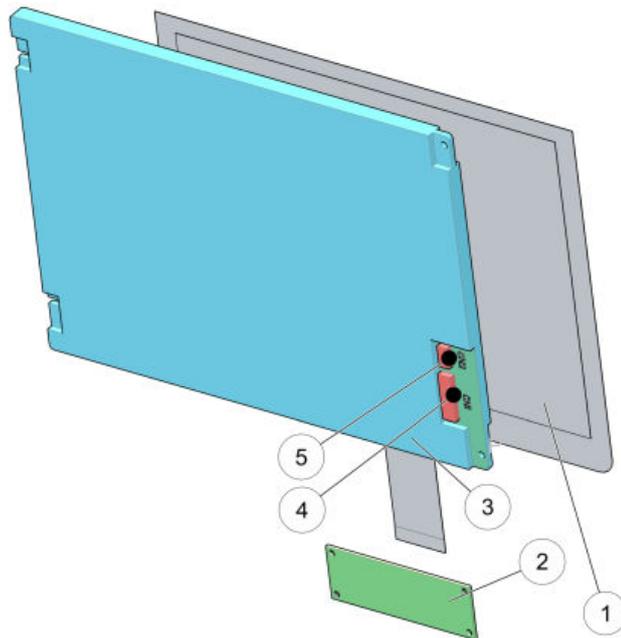
5.4 Display



IMPORTANT

To prevent Electrostatic discharge (ESD), always use an ESD wrist strap. Make sure to connect it to the door ground cable of the coffee machine before handling the boards.

Display *Display and touch screen board*



1. Touchscreen
2. PCT Controller
3. Display
4. LVDS Controller board cable
5. LVDS backlight cable

Specifications *Specifications display*

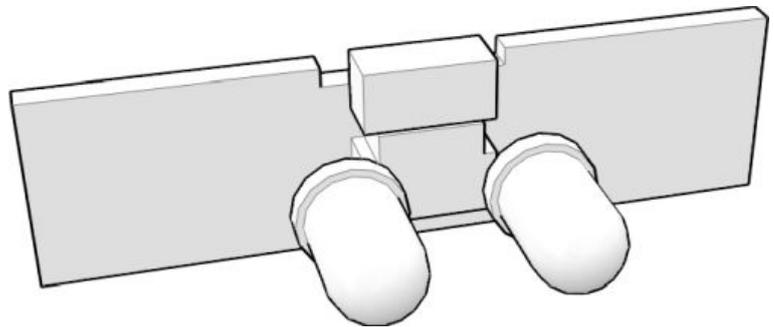
- 10.4 inch a-Si LCD
- Screen resolution: 800 x 600 RGB, 16.2M/262K colors
- Screen outline: 211.2 × 158.4 mm / Component outline: 197.4 x 243.0 x 8.5 mm

5.5 Cup sensor

The cup sensor senses a cup on the cup stand. A maximum of two cup sensors can be connected in the machine. One for the right and one for the left outlet.

A cup must be placed on the correct position on the cup stand before the start button is available and the cycle can start. The sensitivity of the sensor is adjustable in the Service Menu, see [Cup sensor](#) (on page 114).

Cup sensor PCB (all small and medium models)



The sensor housing may vary, depending on machine type. For further details, check the spare parts manual.

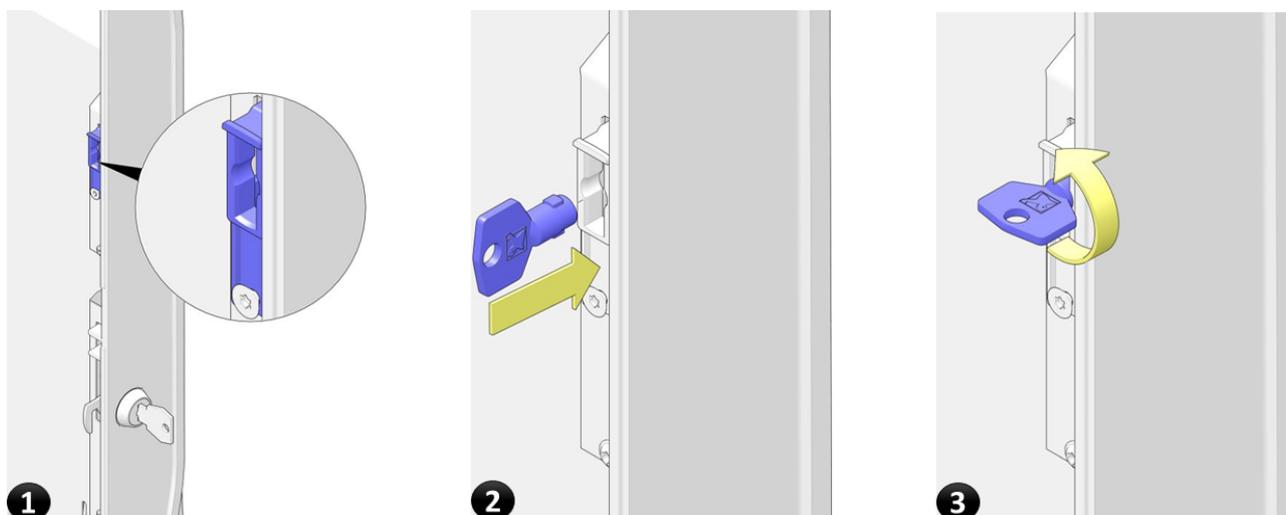
5.6 Schematic diagrams

This chapter will be updated.

Service and programming

6.1 Inserting service key

Insert the service key and turn this key a quarter turn.



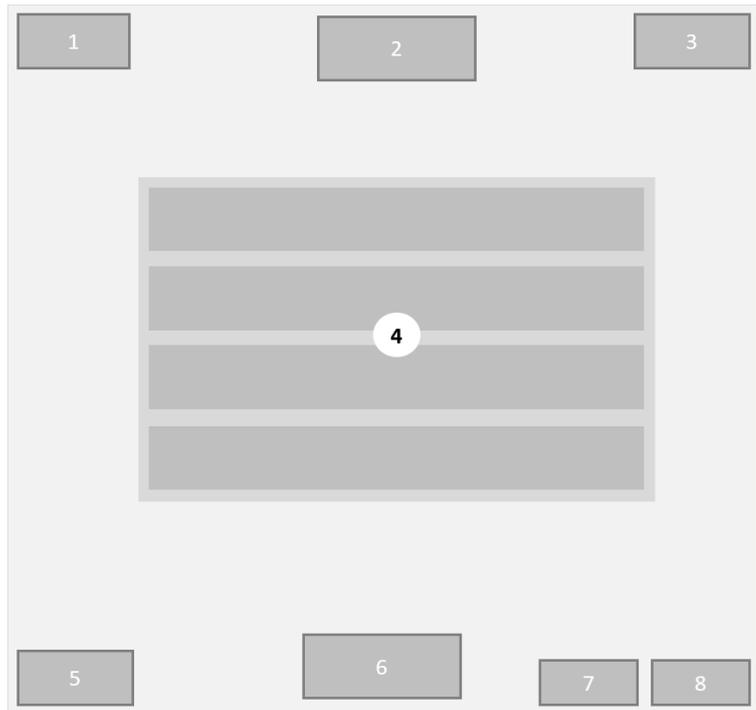
NOTE

Inserting the service key gives electrical power to components. Be aware of the following:

- Possible moving parts inside the machine, beware of trapped fingers if the service key is placed when the door is open.
- Beware of hot parts and hot liquid inside the machine, even after the power is disconnected.

6.2 Functions without password (Before login)

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



1. **[Exit]** button
2. Active menu description
3. **[Login]** button
4. Available options
5. **[Back]** button
6. System messages
7. **[Page up]** button - optional
8. **[Page down]** button - optional



NOTE

If the door is opened, only buttons in light green color work. Buttons who require a part of the machine to work will be in grey and will not function as long as the service key is not placed. For example: 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 after opening the door, unless a safety key is placed).

The menu options shown here depend on the model and are explained in detail in the next sections.

6.3 Daily rinse / Daily cleaning cycle

Main Menu -> Maintenance -> Daily Cleaning cycle

The rinse cycle needs to be done daily. Place a jug or bin under the outlet nozzles before starting the rinse cycle. Pressing the rinse button will start a rinse cycle for mixers (and brewer when available) directly.

6.4 Brewer cleaning cycle

Main menu -> Maintenance -> Brewer Cleaning cycle

The weekly cleaning cycle needs to be done at least 1x weekly. Pressing the weekly cleaning button will show a new screen with instructions. Follow the instructions and finish the whole procedure to reset the cleaning counter. If a *cleaning error* message appears, run the cleaning cycle again.

Check the User Manual for more details.

NOTE

Always complete the entire brewer cleaning cycle. If the cleaning cycle is interrupted, for instance by pressing the **[CANCEL]** button, the cleaning cycle must be repeated in full.

6.5 Daily Cleaning program milk system

This section is only relevant for coffee machines with a fresh milk system. Check the section Clean the fresh milk system in the user manual for more details.

6.6 Out of order message

Main menu -> Maintenance -> Out of order message

Tap the **[Out of order message]** button and tap the **[Yes]** button to disable, or tap the **[No]** button to enable the usage of the coffee machine. When disabled, the screen of the coffee machine shows the message '*Machine is temporarily out of order*'.



NOTE

This function is also available in ConnectMe.

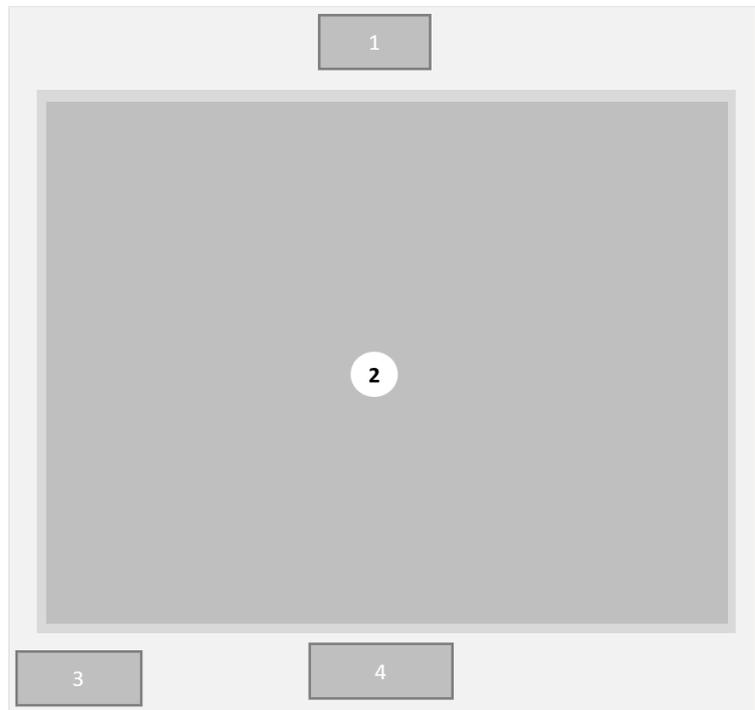
6.7 Beverage counters

This menu tab show the amount of consumptions that have been dispensed for each recipe. The following counters are available:

1. Free counter, tap to see the distributed amount for each free recipe.
2. Paid counter, tap to see the distributed amount for each paid recipe.
3. Test counter, tap to see the distributed amount for each test recipe.
4. Total: Shows total amount distributed consumptions.

6.8 Software information

This screen shows all details of software and hardware information (2) about the machine.



1. Active menu
2. Machine software hardware information
3. **Back** button
4. System messages

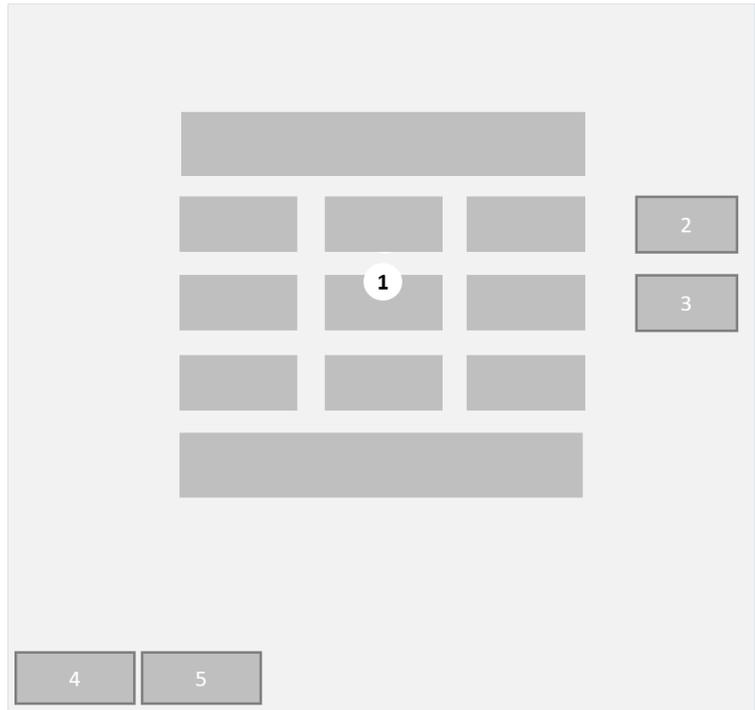
6.9 Network information

This screen shows all network information about the machine.

6.10 Functions with password

Service mode password access

After opening the door, the first level service screen is shown. Press the login button and the 'log in with your credentials' screen will appear. You can now log in with your credentials by entering your technician password and pressing the login button (5). Depending on your log in credentials, information will become available. Some options are only available / visible on the highest level (Level 4).



1. Numeric keypad with **[0..9]** buttons
2. **[Backspace]** button
3. **[Clear]** button
4. **[Cancel]** button
5. **[Login]** button

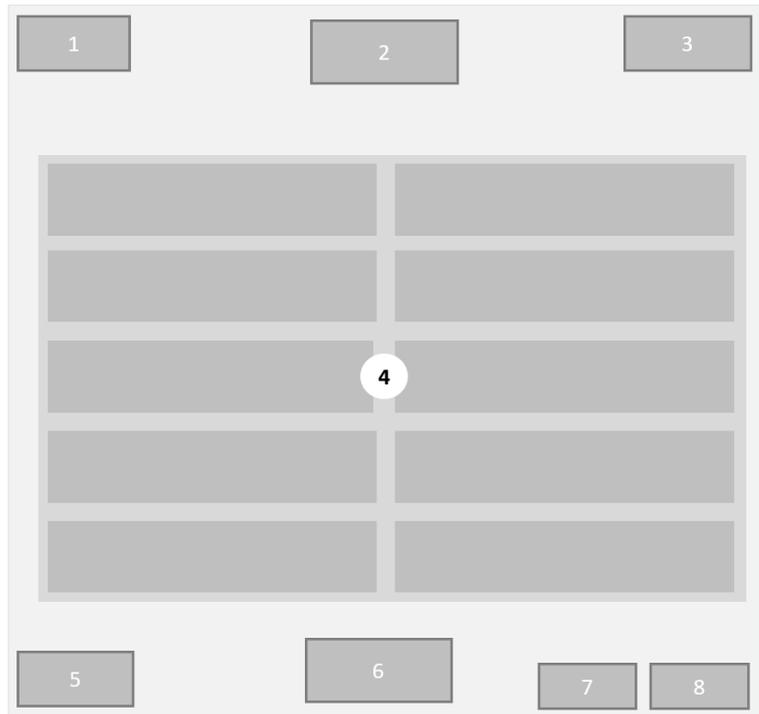
Service menu (After log in)

In the Service menu a number of options are available to change the settings of your machine configuration.



NOTE

The available/shown options depend on the model/configuration and login credentials.



1. **Quit** button
2. Active menu
3. Active level
4. Service menu selection
5. **Back** button
6. Message area
7. **Page up** button
8. **Page down** button

All possible menu options are explained in the next sections.



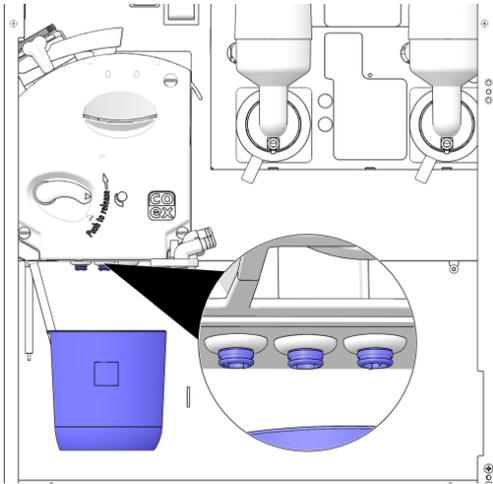
NOTE

Functions available without a password (shown as soon as the door is opened) are listed in the previous sections.

6.11 Calibrations

In this menu tab it is possible to calibrate the water flow meter (water counter) by following the steps:

1. Open and close the door of the coffee machine to display the service menu.
2. Tap the **[Daily rinse]** button to rinse the hoses/boilers and remove air from the system.
3. Login with the highest level.
4. Allow the boilers to heat up and make sure the "Wait, Heating boiler" message is removed from the screen.
5. Adjust the pressure reducer with an espresso recipe.
 - This is only needed when the pressure reducer was replaced.



6. From the menu, tap the selection **[Calibrate]**. The calibration menu is displayed showing all relevant steps.
7. Place a clean, empty cup on a scale and set the scale to 0 using the 'tare' function.
 - or use a measuring cup.
8. Open the door of the machine.
9. Place the cup below the waste water outlets **inside** the machine.
10. Tap the **[press here to start Calibration]** button.
11. The cup is filled with water.
 - when finished, the 2nd part of the menu is displayed.
12. Measure the amount of water in the cup.
13. Enter the amount in the field on the screen. The amount should be about 4.23 fl oz.
 - if the actual amount differs more than 0.169 fl oz, first enter the amount and then repeat the calibration step.
14. Tap the **[press here to end the Calibration]** button to return to the service menu.
15. Leave the service menu and return to the main menu of the coffee machine.



NOTE

The last step is essential to store the changed value and use this value in the recipes.

16. Test a hot water dispense and check if the amount is the same as specified in the hot water recipe.



CAUTION

Hot water will flow out of the outlet.

6.12 Connectivity

View networkinfo View general network information.

Proxy settings View and edit network proxy settings.

Network settings View and edit wifi / server protocol.

GPRS settings View and edit the APN connection server.

Set organization code Set organization code for ConnectMe activation.

- More information about ConnectMe can be found in the 'ConnectMe installation manual'.

6.13 Select language

Select the required active language. Depending on the configuration setup, a language selection is available. This chosen language is the default language for the user screen and the service program. DJD is the factory default English language.

6.14 Recipe settings

Water/ingredient settings All available recipes are shown in the water/ingredient settings menu. The water and ingredient dosage and other recipe settings can be adjusted. By selecting a beverage, you can modify the recipe. This is explained in more detail in the next chapter.



NOTE

We recommend to make a backup first. Check the section 'Backup configuration' in the chapter [software configurations](#) (on page 112).

Strength control % In 'strength control %' you can modify the maximum strength variation (in %) for 'Main product strength' (for example: coffee), and for 'milk' and 'sugar'. This will allow a user to control the preferred strength for a consumption.



NOTE

Strength control modifications for main products in relation to a brewer must not exceed value > 10.

Milk/Sugar available The milk or sugar option can be switched off. If switched off, the milk/sugar selection will not be displayed in the detailed selection menu.

Selection available Recipes will be available for selection for users in the main menu when 'Y' (Yes) is selected in the 'Selection available' menu. If 'N' (No) is selected the consumption type will not be displayed in the main menu.

Number selection available If the selection is set to 'Not available', the number selection button is not displayed in the main menu. Tap the button to toggle the selection between 'Available' and 'Not available'.

6.14.1 CoEx coffee recipe example

Sample Recipe Coffee beans

Beans 1 [or 2]
Sub milk

Sub sugar
Coffee delay
Water amount



NOTE

The available options depend on the model/ configuration and login credentials.

Beans 1 [or 2]

Displays the current grinding duration (Seconds), this value can be modified. If more than one canister is available, select 'yes' for your preferred default ingredient choice of beans. By selecting 'test' you can test the current amount of ground coffee output.



NOTE

Do not modify the grinding speed (The default value is 100).

Sub milk

Displays the current topping feed duration and also the duration of water feed (seconds), these values can be modified.

Displays and the current mixing speed and allows you to modify this value. A higher mixing speed results in more foam.

Sub sugar

Displays the current delay and duration of sugar feed and the duration of water feed, these values can be modified.

Coffee delay

Displays the current grinding delay value (seconds), this value can be modified.



NOTE

Make sure that the coffee delay value is higher than the grinding duration value specified for beans 1 and beans 2

Water amount (ml)

Displays the minimal water volume that will pass through your recipe, this value can be modified.

Total water amount (ml)

Displays the final cup volume (ml) and allows you to modify this value. The final cup volume is the 'Coffee water' volume + Sub recipes volume(s).

**NOTE**

Each sub recipe has a water volume value specified, this value is included in the total water value.

Test

Test the recipe.

6.14.2 Instant recipe example

Sample recipe for Chocomilk

Chocolate mixer
Chocolate
Delay chocolate
Delay for UI release
Sub chocolate flush
Sub chocolate milk

Chocolate mixer

Displays the current mixing speed and delay (seconds), these values can be modified. (Not recommended).

Chocolate

Displays the start delay and duration of your product feed (chocolate topping). It is also possible to modify the auger rotation speed (Not recommended).

**NOTE**

If the product is available more than once in the menu, the product is added in more steps. Select 'product' to modify the duration of each step. The delay in between steps is specified in the Delay chocolate field.

Delay chocolate

Displays the delay duration (seconds) that occurs in between each step of product feed, this value can be modified.

Delay for UI release

Displays the delay (seconds) that occurs at the end of the recipe before 'Ready, take your cup' message appears on the screen, this value can be modified.

Sub chocolate flush

Displays the amount of water (ml) that is used to clean / flush the mixer bowl after recipe, before the 'Delay for UI release', this value can be modified (Not recommended).

Sub chocolate milk

Displays the duration (seconds) of topping feed and also the amount water in seconds, these values can be modified. Also displays the mixing speed, this value can be modified (Note: More speed results in more foam).

Water amount (ml)

Displays the minimal water volume that will pass through your recipe, this value can be modified.

Total water amount (ml)

Displays the final cup volume (ml) and allows you to modify this value. The final cup volume is the 'total water amount' volume + Sub recipes volume(s).



NOTE

Each sub recipe has a water volume value specified, this value is included in the total water value.

Test

Test the recipe:

- Water amount (ml)
- Chocolate amount (seconds running of powder motor)
- Chocolate flush (ml)

6.15 Software configurations

Select active configuration Select the configuration file with which the machine have to work. The configuration file which is currently active is in grey color, all other inactive files are in green.

Delete configuration Delete a configuration file.

Backup configuration This makes a copy of the active configuration with all settings. This saved file can be found back in the menu: "Select active configuration". The back-up file name is the original name and an added timestamp (year, month, day and time).

Example:

Original file name: <MODEL><VERSION>.mvq

<MODEL> = Name and model machine

<VERSION> = Version of the software

Backup file name: <MODEL><VERSION>_YYMMDDTIME.mvq

YY = year (20 = 2020)

MM = month (01 = January)

DD = day (04 = 4th day of the month)

TIME = time (1430 = 14.30)

Load configuration from USB

Standard Device 0 is available (only if a USB stick is placed). It is possible to explore the maps in the stick to find the needed configuration file. The new loaded file from the stick is selected as active configuration automatically.

Save configuration to USB

This will save the current active file to the USB stick.

6.16 Machine serial number

The machine serial number must be entered here. The serial number of the machine is printed on the CE type plate of the machine. The serial number is used if you use the EVA-DTS function to readout data from the machine and for "ConnectMe" functions.

6.17 Boiler temperature

Temperature settings

Temperature setting gives the possibility to change the desired boiler temperature.

Recommended boiler temperature settings:

Boiler	Temperature
Boiler 1 (pressure)	197 °F
Boiler 2 (open)	194 °F

Show boiler temperature

Show boiler temperature will show the actual temperature of the boilers in degrees Fahrenheit.

The optimal temperature setting of the pressure boiler is 197.6 °F. If no consumptions are made, the temperature in the boiler will automatically rise by 11 °F in about 25 minutes. The first consumption with a cold brewer is now brewed with incoming water on a higher temperature, compensating the colder brewer.

6.18 Cup sensor

Show cup sensor signal The signal of both sensors can be read individually. This way the visibility of a cup can be tested also.

Cup sensor setting The sensitivity of the cup sensor is adjustable. The value can be adjusted between 0 and 4000. The value 0 means switched off. In this case the machine works like there is no sensor. A higher value means less sensitive. So for detecting a transparent or dark colored cup the value must be set low.

The default value is 100.

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.

Sensor 1 = Middle sensor.

Sensor 2 = Right hand side sensor, hot (and cold -- optional) water.



NOTE

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

6.19 Payment settings

With the payment settings menu the product prices and the functions of the payment system can be set.

Consumption prices To adjust the price for all available consumptions.

For each individual consumption type, 2 prices are available: Price list 1 and price list 2.

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 multi vend or single vend.

Multi vend means you can select more than 1 consumptions after each other. 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 consumption.

- Overpay allowed**
- Overpay allowed means that it is allowed to insert more money as the highest consumption price.
 - Overpay not allowed means that it is not possible to insert more money as the highest consumption price.

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

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



NOTE

In clock/time settings it is possible to automatically choose between price lists and free or paid for a certain period of time.

6.20 Clock/time settings

Screen saver (delay) time This is a delay time in minutes after the last consumption. After this delay, the standby image(s) will appear. If the time is set to 0, the standby image(s) will never show-up in the screen.

Set correct time The actual date and time can be set in this menu. The correct date and time is also important for the correct timestamps in e.g. scheduler actions and EVA-DTS messages.

Select time zone Select the correct time zone to enable automatic daylight saving settings and network time protocol (NTP).

Change scheduler actions The following automatic actions can be set:

- Energy save / Eco mode
- Machine blocked
- Switch to free vend
- Use other price list
- Machine off
- Mixer kick (do not change)
- Daily rinse (do not change)

Overview of the default (set in the factory) scheduler settings:

Column Header Abbreviations

HR	Hour
MI	Minute
WD	Day of the week
DY	Day of the month
MO	Month
YR	Year
EN	Y = Enabled / N = Disabled

Energy save (Eco mode)

		HR	MI	WD	DY	MO	YR	EN
1	START	21	00	Fri	0	0	0	Y
	STOP	6	30	Mon	0	0	0	
2	START	21	00	Mon	0	0	0	Y
	STOP	6	30	Tue	0	0	0	
2	START	21	00	Tue	0	0	0	Y
	STOP	6	30	Wed	0	0	0	
4	START	21	00	Wed	0	0	0	Y
	STOP	6	30	Thu	0	0	0	
5	START	21	00	Thu	0	0	0	Y
	STOP	6	30	Fri	0	0	0	

Machine blocked

		HR	MI	WD	DY	MO	YR	EN
1	START	0	0	0	0	0	0	N
	STOP	0	0	0	0	0	0	
2	START	0	0	0	0	0	0	N
	STOP	0	0	0	0	0	0	

Switch to free vend

		HR	MI	WD	DY	MO	YR	EN
1	START	0	0	0	0	0	0	N
	STOP	0	0	0	0	0	0	

Use other price list

		HR	MI	WD	DY	MO	YR	EN
1	START	0	0	0	0	0	0	N
	STOP	0	0	0	0	0	0	

Machine off

		HR	MI	WD	DY	MO	YR	EN
1	START	0	0	0	0	0	0	N
	STOP	0	0	0	0	0	0	

Mixer kick

		HR	MI	WD	DY	MO	YR	EN
1	START	22	30	0	0	0	0	Y
	STOP	0	0	0	0	0	0	
2	START	5	30	0	0	0	0	Y
	STOP	0	0	0	0	0	0	

Daily rinse

		HR	MI	WD	DY	MO	YR	EN
1	START	20	0	0	0	0	0	Y
	STOP	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.

Energy save / Eco mode

With the energy save settings, the machine can be switched to an energy saving mode (economic mode) during a period of time. During this time the boiler temperature drops to 149 °F.

After pressing a selection key, the machine will first heat to the normal temperature, before the machine is ready to give consumptions. During the warming up period a message is

shown. If the machine is not used for an hour the machine will go back to the energy save mode.

Machine blocked During this set time, the keys on the front panel are blocked and not visible for the user. No consumptions can be chosen. The boiler(s) stay hot. (The service mode is still working).

Switch to free vend A machine in pay mode can be switched to free vend during the set time.

Use other pricelist In the set time the machine will switch to the other price list.

Machine off The machine is switched off during the set time. The display is completely black.

The elements are switched off. During this time the machine can only be activated in the service mode.

Setting the times in the scheduler The scheduler has a start time for hour, minute and day. On the second page of each scheduled action (press PgDwn), the associated stop times must be set. (depending on the type of action).



TIP

Optional the date, month or year can be set as well. (if not used, set to 0)



TIP

Set all the values to 0 to switch off an action in the machine.



TIP

The value set in day, month and year must be 0 if the action is daily required. In this case only the hour (and eventually minute) must have a value greater than 0

6.21 Canister settings

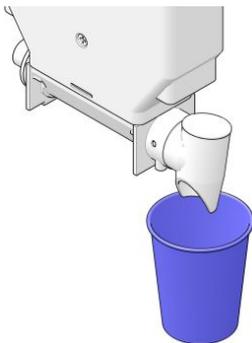
The coffee machine can show a message when the canister contents are running low. If the coffee machine knows the starting weight of the ingredient in the canister and the amount that is dispensed with every recipe, the machine calculates the available amount after every dispense and displays a messages if the predefined levels are reached.

Activate/Deactivate The *canister level detection* message can be activated/deactivated for each canister.

1. Tap the **[Ingredient]** button for the ingredient canister that needs to be activated/deactivated.
2. The *[Canister level detection enabled]* button shows the current setting.
3. Tap the **[On/Off]** button and tap the **[button]** to toggle the setting.

Calibrate Perform the following steps:

1. Fill up the ingredient canister as usual.
2. Weigh the complete filled canister.
3. Tap the correct **[Ingredient]** button.
4. Tap the **[Canister nett weight]** button and enter the amount (in grams).
5. Tap the **[Canister notification level]** button and enter the percentage (filling level) when the *Canister almost empty* message should be displayed.
6. Tap the **[Calibrate product motor]** button.
7. Follow the steps on the screen and explained below.
8. Hold a cup under the canister outlet and tap the **[Start]** button.
 - The product motor runs for 3 seconds (just to fill up the outlets).
 - Empty the cup.
 - The second screen is shown.
9. Hold the empty cup under the canister outlet and tap the **[Start]** button again.
 - The product motor will run for 10 seconds.
 - The last calibration screen is shown.
10. Weigh the amount of ingredient in the cup.
11. Tap the **[Amount]** button on the screen and enter the weight of the cup with ingredients.
12. The calibration is now finished.
13. If needed, tap the **[Canister level detection enabled]** button to activate the settings.



6.22 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.



NOTE

The outputs can only be activated if the service key is placed in the door. Be aware of moving parts and hot liquid.

6.23 Images

This menu contains information and settings for the images displayed on the screen of the coffee machine.

- With the exception of the background and the info panel images, all other images can be handled remotely using ConnectMe. A valid ConnectMe account is needed.
- Uploading videos to the coffee machine is only possible using ConnectMe.

Image specifications Zia

Maximum image file size	1 Mb
Allowed image formats	.png / .jpg / .gif (static)
Display resolution	800 x 600
Image resolutions:	
• Standby images	800 x 600
• Distributing images	750 x 438
• Logo image	250 x 90
• Info panel images	675 x 425
• Background image	800 x 600

Images - general

For each image type, the following functions are available:

- Tap the **[Load <image type> image]** button to load one or more images from a USB stick, inserted in the USB port of the machine.
- Tap the **[Delete <image type> image]** button to remove an image from the machine.

Depending on the image type, additional function buttons can be available.

Logo image

If the Logo image resolutions are specified in the table above, a user logo can be displayed on the screen.

- Tap the **[Select active user logo]** button to select a logo if more than one logo is available on the machine.
 - The logo in grey is active.
 - Only one logo can be shown at the same time.

Standby images

Standby images are displayed on the screen if the coffee machine is not used.

- Tap the **[Select active standby images]** button to select one or more images to be displayed in standby mode.
- Tap the **[Set delay standby images]** button to specify the delay (in seconds) between the consecutive images.

Screen saver time

Tap the **[Screen saver time]** button to specify the delay time after the last dispensed beverage and the display of the first standby image.

Distributing images

Distributing images are displayed during the preparation and dispense of the selected beverage. An image can be connected to all consumptions (General) or to individual consumptions.

- Tap the **[Select active distributing images]** button and then tap the **[General]** button or a specific **[Recipe]** button to select one or more image(s) for display in distributing mode.
- Tap the **[Set delay distributing images]** button to set the delay (in seconds) between the consecutive images.

Info panel image

If the Info images resolutions are specified in the table above an information image can be displayed when tapping the **[Info]** button on the main menu of the coffee machine. The info panel is language dependant.

- Tap the required **[Language]** button first and then load the image from the USB stick.

Background image

The default background image can be changed.

- Tap the **[Select active background image]** button to select an active background image..

6.24 Error settings

This menu contains information and settings (depending on model, type of configuration and login level) for the available warnings and errors. Warning = message on display only. Error = message on display, machine (partly) out of order.

Change error conditions

The condition when a warning or error occurs can be adjusted with this function.

Possible settings:

- Waste bucket warning (residue cakes / total running time of grinder)
Indicates the number of cycles before the message "*Waste bucket full*" is shown on the screen.
- Waste bucket error (residue cakes / total running time of grinder)
Indicates the number of cycles before the message "*Empty waste bucket*" is shown on the screen. If this message is shown, all coffee selections are blocked.
- Cleaning brewer warning (time in seconds) (*)

Indicates the time before the message "*Rinse brewer with tablet*" is shown on the screen. The time is indicated in seconds.

- Cleaning brewer error (time in seconds) (*)

Indicates the time before the message "*Rinse brewer with tablet!*" is shown on the screen. The time is indicated in seconds. If this message is shown, all coffee selections are blocked.

- Water filter warning (consumptions) (**)

This counter counts only the hot consumptions and rinse cycles.

Indicates the amount of consumptions going through the water filter, before the message "*Replace water filter*" is given on the screen.

- Water filter error (consumptions) (**)

Indicates the amount of consumptions going through the water filter, before the message "*Replace water filter!*" is given on the screen.

In case of the "*Replace water filter(!)*" message, the machine keeps on working normally.

- Clean screen (consumptions)

Indicates the number of consumptions before the message "*To start cleaning, press HERE. Screen turns black for cleaning*" is shown on the screen.

*) Depending on the software version these settings are shown here or in the **Main menu -> Error settings -> Edit cleaning settings** screen.

***) Depending on the software version these settings are shown here or in the **Main menu -> Water filter settings** screen.

Read error counters In this menu several counters can be read.

Disable errors In this menu the warnings and errors can be enabled and disabled.



NOTE

If the waste is guided to a big waste bin under the machine, both the waste bucket warning and waste bucket error need to be set to "not available".

View / Reset cleaning settings In this menu the values of the cleaning counters can be viewed or reset (level 4 only).

Edit cleaning settings In this menu the following counters can be changed:

- Brewer cleaning - counts the time and will show the message "*Rinse brewer with tablet*". The clean brewer procedure resets this counter.

Default: Warning time: 7 days, Error time: 9 days.

- Rinse - shows the message "*Daily rinse needed*". The daily cleaning procedure resets this counter.

Default: Warning time: 24 hours, Error time: 36 hours.

- Daily cleaning milk system - shows the message "*Clean the Milk system*". The daily cleaning milk system procedure resets this counter.

Default: Warning time: 24 hours, Error time: 36 hours.



NOTE

The timer will start running after the first dispense containing Fresh Milk.

Tap a button to edit a cleaning setting. The following setting options are displayed:

- Enable [default: Yes] - Tap the button to enable or disable this message counter.
- Warning time (hours) - when the timer reaches this value, the cleaning message is displayed as a warning.
 - All selections can still be used.
- Alternative: Warning days - time in days entered here will be recalculated to warning time (hours).
- Error time (hours) - when the timer reaches this value, the cleaning message is displayed as an error.
 - Brewer cleaning: all coffee selections are disabled.
 - Rinse: all selections are disabled. The window "*Place a cup and press here*" is displayed and forces a daily rinse.
 - Fresh Milk: all fresh milk selections are disabled.
- Alternative: Critical days - time in days entered here will be recalculated to error time (hours).

Reset cleaning error

After pressing this button, the machine beeps, and the brewer cleaning message is cleared from the screen.



NOTE

Be sure the brewer is clean, and no cleaning agent or cleaning powder is left in the brewer.

6.25 Fan turn off delay

The fan will run the set time after the last consumption. Time is set in minutes. If the time is set to 0, the fan stops immediately after the consumption is finished. If the time is set to 99, the fan will run continuously.

6.26 Water filter settings



NOTE

The displayed information depends on the application software version.

Previous version:

No water filter installed

Selecting this button will switch off all messages for the water filter.

Water filter installed

Selecting this button will activate the water filter counters. The warning and error show up after the set number of drink cycles is reached.

Reset water filter

Selecting this button will reset the counter for the number of drink cycles to 0.



NOTE

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

Change conditions

After pressing this button, the same screen appears as after "change error conditions", see 'Error settings'.

Current version:

Water filter installed?

Select this button to indicate if the coffee machine needs to calculate the amount of dispensed water. When the set value is reached a warning of error message is displayed.

- NO - deactivate the counters.
- YES - activate the counters.

When activated, the following fields are shown:

Installation date

Displays the date of installation / activation / replacement of the water filter.

Days since installation

Shows the number of days since activation / replacement.

Amount used (liters)

Shows the total amount of water dispensed in drinks and rinse used since activation.

Expiration amount (liters)

Enter the maximum amount in liters that can be dispensed before an error message is displayed.

Expiration days

Enter the number of days before an error message is displayed.

Warn days before expiring	Enter the number of days that after installation that can pass before a warning message
Warn at % of amount used	Enter the amount of water (in liters) that can be dispensed before a warning message is displayed.
Replace water filter	Press this button when the water filter is replaced. The water filter counters are reset.

6.27 Jug settings

Number of cycles	<ul style="list-style-type: none"> • 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	If this is set to YES, a jug selection button is available for the user in the main screen. If set to NO, this jug selection button is not visible.

6.28 Error log

Shows a log file of events, logged by the machine. This are the EA fields of EVA-DTS. The last 100 events are logged.

6.29 Change PIN

In this menu it is possible to set a PIN code. After setting a PIN code the machine will request entering the code for each consumption. In payment mode when a PIN code is set, the machine will allow a free consumption after entering the PIN code.

6.30 Change menu (Level 4)

Various menu (button) texts on the screens can be changed. If the text is part of a recipe, the text, screen location and default cup size (optional) of the recipe can be changed.

Example 1 - change text: Tap the **[Mainmenu]** button. All texts displayed on the menu are shown. Use the **[PgDwn]** button and locate and tap the **[Coffee beans]** recipe button. Text in the

Coffee beans recipe is displayed. Tap the **[text]** button that needs to be changed. Change the text and tap the **[Save]** button.



NOTE

The first entry in a group of recipes is the menu itself.

Example 2 - change position: In the same recipe, tap the current **[position]** button. Enter the desired position number and tap the **[Save]** button. If the new position already contains a recipe, the positions of the two recipes can be swapped, tap the **[Swap 'x' and 'y']** to confirm.

Example 3 - change the default cup size: In the same recipe, tap the current **[cup size]** button and tap the desired cup size.



NOTE

This only works if the recipe contains the selectable cup sizes.

6.31 Load permissions

Check the section How to get and load a permission key for more details.

6.32 Reset recipe counters (Level 4)

Provides 'Are you sure?' button. By selecting this button the recipe counters will be reset to default.

6.33 Empty pressure boilers



CAUTION

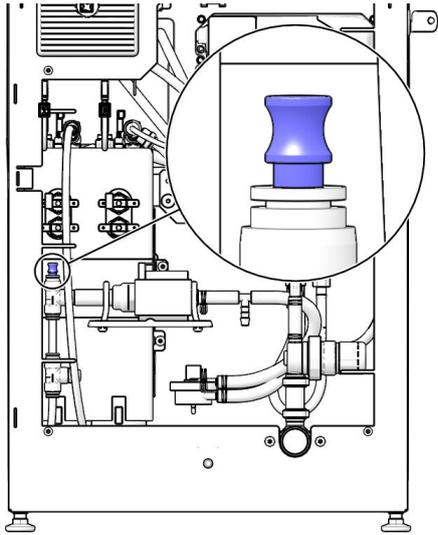
Take care, hot water may come out of the boilers.

In case the machine needs to be stored for a longer time, or needs to be transported (freezing weather, plane) the internal hoses and boilers need to be emptied. The boilers are emptied due to gravity.

Procedure

Perform the following steps:

1. Remove the power cord from the wall socket.
2. Remove the back cover plate from the machine.



3. Remove the plug from the metal elbow or T coupling right after the pump(s). See inset.
4. Connect a 6 mm hose to the elbow.
 - Make sure the outlet of this hose is lower than the inlet valve of the machine.
5. Put the power cord back in the wall socket.
6. Enter the service menu and select: Empty boiler.
 - The pumps will run for a short time, the 3-way valve opens to add air to the system. Slowly all water runs out of the boiler and hoses.

6.34 Empty open boiler



CAUTION

Take care, possible hot water comes out of the boilers.

In case the machine needs to be stored for a longer time, or needs to be transported (freezing weather, plane) the internal hoses and boilers needs to be emptied.

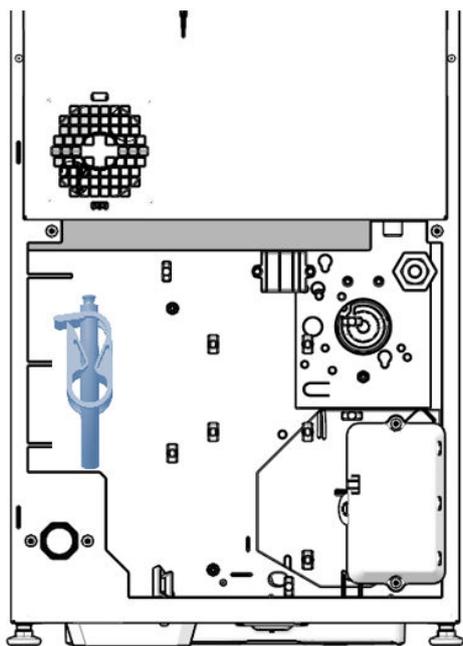
The boilers are emptied due to gravity.

Procedure Perform the following steps:

1. Remove the power cord from the wall socket.
2. Remove the cover on the back side of the machine.
3. Locate the grey hose with plug and the cut off clamp at the back of the machine.
4. Remove the plug at the end of the hose.
 - Hold the end of the hose in a bucket or container (>5L).
5. Loosen the hose cut off clamp carefully.
 - Potentially hot water will be drained out of the boiler.
 - Wait until the boiler is empty.



6. Release the hose cut off clamp and place the plug in the hose.



6.35 Audio settings

In this menu tab it is possible to modify the audio level for multimedia.

Audio level standby (video) Adjust audio level of multimedia in standby modus.

Audio level distribute (video) Adjust audio level of multimedia during dispense.

6.36 Display settings (Level 4)

In display settings, you can invert the backlight. The user menu screen will turn black in case this setting is incorrect. The service menu is always available though. Select "Invert backlight" to solve a blacked out user menu.

6.37 EVA-DTS report

Select and tap one of the **[code]** buttons with the required two characters of the code range.

- the report is displayed.

Available EVA DTS codes and description

Code	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 Initialization
DA202	Number Of Card Vends Since Initialization
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 Initialization
DA402	Value Credited To Card Since Last Reset
VA100	Vending Sales Summary - All Sources
VA101	Value Of All Paid Sales Since Initialization
VA102	Number Of All Paid Sales Since Initialization
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 Initialization
VA202	Number Of Test Vends Since Initialization
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 Initialization
VA302	Number Of Free Vends Since Initialization
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 Initialization
CA202	Number Of Cash Vends Since Initialization
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 Initialization
CA306	Value Of Cash To Cash Box Since Initialization
CA307	Value Of Cash To Tubes Since Initialization
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 Initialization
CA404	Value Of Cash Manually Dispensed Since Initialization
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 Initialization
CA800	Cash Overpay Summary
CA801	Value Of Cash Overpay Since Last Reset
CA802	Value Of Cash Overpay Since Initialization
CA1000	Manual Cash Filling Summary
CA1001	Value Of Cash Filled Since Last Reset
CA1002	Value Of Cash Filled Since Initialization

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 Initialization
TA202	Number of Vend Token Sales Since Initialization
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 Initialization
TA206	Number of Value Token Sales Since Initialization
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 Initialization
PA202	Value Of Paid Product Sales Since Initialization
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 Initialization
PA402	Value Of Free Vends Since Initialization
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	Pre selection number
PP102	Pre selection 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 Initialization
PP106	Value of this additive that has been chosen Since Initialization
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 Initialization (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 Initialization
EA302	Date Of This Read Out
EA303	Time Of This Read Out
EA304	This Terminal / Interrogator Identification

6.38 Component available (Level 4)

In this section it is possible to disable and enable hardware parts in the coffee machine. Recipes (parts) that use a disabled hardware part will be disabled but other recipes (parts) can still be used.

Example: Chocolate, tap the **[Available]** button and tap **[No]**. The ingredient is now disabled and all recipes in the menus that use the Chocolate ingredient are suppressed.

6.39 Counters

The counters section shows different counters in the coffee machine.

- Recipe counters: shows the number of free and paid dispensed beverages.
- User counters: shows the total running time of the grinder, use of PIN code, resets of the waste bin and the number of clean screen messages.
- Component counters: shows the running time of the hardware components.
- Cleaning counters: shows the passed time since the last cleaning messages.

6.40 Reset hardware counters (Level 4)

The counters, explained in the previous section can be reset. Only use this function if requested by the technical support department.

How to list

7.1 How to load a new configuration file from an USB stick

The MoVeC files have the extension .mvq.

1. Copy the new file to a USB stick.
2. Insert the USB stick in the USB port of the machine.
 - check the door interior drawing (see [Door interior](#) on page 19) and look for the *USB port*.
3. Wait for about half a minute, the machine must read the stick first.
4. Login in the Service Menu.
5. Select the option: Load configuration from USB.
6. Select the available device (most of the times: Device 0).
7. Select the needed configuration on the USB stick.
 - The selected configuration is now loaded and automatically started.
8. Remove USB stick.
9. Ready.

Note: if the coffee machine can not be started properly, create an empty file with the name 'configsetup' on the USB stick. The command forces the machine to load the configuration file and activate the configuration file on the machine.

7.2 How to load an IPK or FW files from USB

IPK and FW files are used for packaging User Interface files, the MoVeC Application files and other software.

1. Copy the file(s) to an empty USB stick.
 - Make sure the file(s) are placed in the root directory and not in a sub directory.
 - Make sure the file format of the USB stick is FAT32.
2. Open the door of an active machine and insert the USB stick in the USB port inside the door.
 - The machine will recognize the file(s) and upload automatically.
3. Wait approximately 30 seconds until the touchscreen goes black for 2 seconds.

- In case a FW-file is uploaded the screen will display additional progress information.
 - The software on the machine is now updated.
4. Remove the USB stick.
 5. Check the “Software information” from the service menu to make sure the new software version is active.

7.3 How to get and load a permission key

Collecting coffee machine information

1. Open the door of the machine.
2. The service menu is shown on the screen.
3. Select the “Software information” button on the touchscreen.
4. The Software information screen is shown.
5. Check if the correct software versions are installed:
 - MoVeC ICEQ version :5.3 or higher.
 - Flashfile :3.2 or higher.
 - DJD software ID :9.0 or higher.
6. Within the software information screen, locate the line: IMX6 and write down this number.
7. Write down the complete machine serial number.
 - The machine serial number is 13 character long. (The machine serial number can also be found on the CE sticker inside the machine).
8. Send the IMX6 serial number and the coffee machine serial number to the manufacturer.
9. You will receive a key.mpf file back in return.
10. Save the .mpf file on an empty USB stick.

Load the Permissions

Follow the procedure below to load and activate the permission key on the DJD coffee machine(s).

1. Select the “load permissions” button.
2. Select the “device 0” button.
 - (device0 = USB Memory stick inside the door)
3. Select the file “xxx_key_xx.mpf” button.
 - browse to the correct map if the USB stick contains maps.

7.4 How to calibrate the touchscreen

The touchscreen is calibrated in the factory but can be recalibrated with the 'tscalibrate' command.

1. Create an empty file with the name 'tscalibrate' on an empty USB stick.
2. Insert the USB stick in the USB port of the machine. (inside the door).

3. The calibration program starts and will show crosses on the screen in sequence. Four in the corners and one in the middle.
4. Tap the crosses to determine the position of the coordinates on the touchscreen.
5. The machine will restart itself.
6. Check if beverages can be selected.
7. Remove the USB stick.
8. Ready.

7.5 How to create a log file

In some cases the support department can request a log file of the coffee machine. The command `movecinfo` can be used to create a log file.

1. Create an empty file with the name 'Movecinfo' on an empty USB stick.
2. Insert the USB stick in the USB port of the machine. (inside the door).
3. The command is recognized, the log file (`movecinfo-YYYYMMDD-HHMMSS.txt`) is created on the USB stick.
4. When finished, the screen will switch off shortly.
5. Remove the USB stick.
6. Ready.

7.6 How to descale the boiler of the coffee machine

Purpose Depending on the water quality, limescale can build up inside the pressure (and steam - depending on model) boiler, hoses and other areas of the coffee machine. Limescale can damage the machine and affect the quality of the dispensed drinks. The descaling process removes the buildup of limescale. The total time to descale the coffee machine is about 45 minutes. This includes the preparations, the 10 minute wait for the liquid to dissolve the limescale and the final rinsing time to make sure all descaling liquid and limescale has been removed from the hot water system.

Required

- Torx 15 screwdriver.
- Descaling liquid.
- Descale suction hose, pressure hose L=35cm, or a suction hose prepared with shut-off valve (see preparation section).
- 1.5 liter measuring cup for the descaling liquid mix.
- Descale program for this model machine on a USB stick.

Interval Perform this procedure:

- Every 6 months, depending on the water quality (hardness) and additional water filtering.

Procedure The descale procedure is split up in 4 parts for a medium model coffee machine with one pressure boiler:

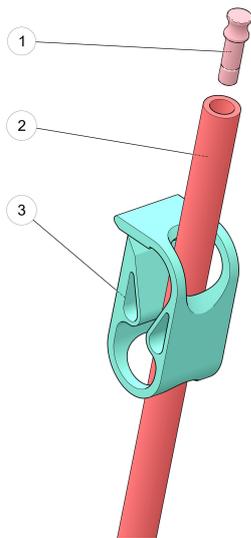
#	ACTION	TIME (min)	AMOUNT (liter)	DESCRIPTION
0	Preparation	5		mix liquid, load program
1	Descale	8 10	0.6 at least	load descale liquid descale soaking period
2	Rinse descale hose	2	0.5	load clean water
3	First full rinse	5	0.9 brewer 0.2 expansion valve	load clean water
4	Second full rinse	5	same as previous step	load clean water
	Successfull completion	5		close machine, load config



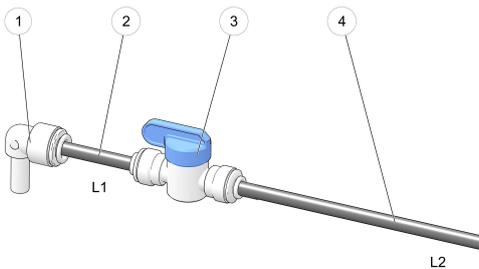
NOTE

The open boiler is not included in this descaling program but can, if needed, be descaled manually.

Prepare Descale Suction Hose



1. If the machine contains a hose clamp (3), the clamp can be used as a shut-off valve. A simple pressure hose with L=35cm max. can be inserted in the drain hose (2) and used as a descale suction hose.



2. For coffee machines without the clamp, a suction hose with shut-off valve is needed, similar as shown in the picture.

- Prepare the hose and make sure that the length (L2) of hose (4) is not more than 30 cm.

Parts:

1. Knee.
2. Pressure hose (L1=4cm).
3. Shut-off valve (shown in 'open' position)
4. Pressure hose (L2 max 30cm).

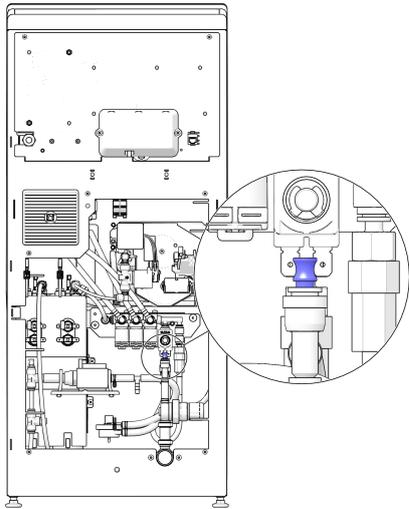
Prepare Descaling Liquid

1. Mix 10 ml* descaling liquid with 1 liter water in a measuring cup.

**) This amount is based on the 4INF010 Descale Liquid, check the actual dilution percentage to create the correct descaling liquid mix.*

Start

1. Remove the lower back panel.



2. Locate the drain hose between the main water inlet and the pumps.
3. Remove the plug from the push-in fitting / drain hose.



CAUTION

Take care, a small amount of hot water can leak from the fitting.

- Leave the machine connected to the opened water supply.
4. Depending on the situation:
 - If the hose uses a clamp: insert the simple descale suction hose into the hose. Leave the clamp closed.
 - If the clamp is not used: insert the knee of the prepared suction hose with shut-off valve in the push-in fitting. Make sure the shut-off valve is CLOSED.
 5. Insert the other end of the descale suction hose in the prepared descaling liquid.
 6. **Empty the drip tray and the waste bucket.**
 7. Open the door of the machine and keep it opened.
 - The Service Menu is displayed.
 - Do not enter the service key.
 8. Place a large bucket under the outlets.
 9. Disconnect the hot water hose in the door and lead this hose to the large bucket as well.



NOTE

Make sure that the hot water hose ends inside the bucket.

10. Login in the Service Menu.
11. First check the currently active configuration of the coffee machine:
 - a. From the menu, tap the [**Software configurations**] button.
 - b. Tap the [**Select active configuration**] button.
 - c. Note down the currently active configuration, visible in grey (if more then one configuration is available, all non active configurations are yellow).
 - d. Tap the [**Back**] button to return to the previous menu.
12. Load the descale program for this machine from the USB stick:
 - a. Insert the USB stick with the descale program in the USB port of the coffee machine.
 - b. Tap the [**Load configuration from USB**] button.
 - c. Tap the [**Select (USB)**] button to see the contents of the USB stick.
 - d. Tap the [**descaling program**] button to load the program. The first screen of the descaling program is shown.

**NOTE**

If the main menu displays the message: "*Caution ! DESCALING ONLY !!*" open the door completely and keep it opened. Do not insert the service key.

- Inlet descale**
1. Close the water supply.

**CAUTION**

When the water tap is not closed, the measuring cup with descaling liquid will be FILLED with water.

2. Open the shut-off valve / clamp in the descale suction hose.
3. Place the service key.
4. Tap the **[Press HERE to start the descale procedure]** button.
 - The boilers are now emptied and the descaling liquid is pumped into the boilers and out, through the hot water outlet, the mixers the brewer and the expansion valve.
 - The message "*Descaling in progress. Please wait*" message is shown.
5. A 10 minute waiting period starts to allow the liquid to dissolve the scale.
6. Wait until the next menu is shown.
7. Remove the service key.
8. **Empty the bucket and the drip tray.**

Rinse - clean descale suction hose

1. Fill a bucket with 0.5 liter clean water.
2. Insert the descale suction hose in the bucket with **clean** water.
3. Insert the service key.
4. From the menu, tap the **[Press HERE to rinse the tube]** button.
 - The descale suction hose is rinsed with clean water (0,5 liter for 2 minutes) using the hot water valve.
5. Wait until the next menu is shown.
6. Remove the service key.
7. Remove the descale suction hose from the fitting.
8. Insert the stop/plug in the drain hose.
9. If the white clamp is used, close the white clamp.
10. **Empty the bucket and the drip tray.**

Rinse 1 - full system

1. Open the water supply.
2. Place the service key.
3. In the menu, tap the **[Press here to rinse the system]** button.
 - The system is rinsed using all water outputs with clean water.

4. Wait until the next menu is shown.
5. Remove the service key.
6. **Empty the bucket and the drip tray.**

Rinse 2 - full system

1. Place the service key.
2. In the menu, tap the **[Press HERE to rinse the system]** button.
 - The full system rinse will be repeated.
3. Wait until the "Successful" screen is shown.
4. Remove the service key.
5. **Empty the bucket and the drip tray.**

Successful Completion - back to normal operation

1. Remove the USB stick from the machine.
2. Connect the hot water hose to the water outlet connector in the door.
3. Load the original configuration:
 - tap the **[Press HERE to activate]** button.
 - select and tap the **[configuration]** button that was originally activated in this machine.
4. Test if the configuration is loaded and displayed on the screen.
5. Install the back panel of the machine.
6. Close the door of the machine.
7. Take a test beverage or run the daily cleaning cycle (see [Daily rinse / Daily cleaning cycle](#) on page 103).

Troubleshooting

8.1 Messages

Always check if a message is shown on the display. If no message is shown and the machine does not work correctly, you still may find the possible cause and solution in the following table. For failures not mentioned in this manual: contact the manufacturer (see [Manufacturer contact information](#) on page 153).

8.1.1 Message: Brewer not in home position

Message *Brewer not in home position.*

Cause The micro switch did not detect the brewer home position on the required moment.

Solution Perform the following steps to solve the problem:

- 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 shaft is broken.
- Check if the brewer is blocked and cannot run.

8.1.2 Message: Brewer out of position

Message *Brewer out of position.*

Solution Perform the following steps to solve the problem:

1. Take out and clean the brewer.
If problem persists: contact the manufacturer (see [Manufacturer contact information](#) on page 153).

8.1.3 Message: Clean screen

Message *Clean Screen.*

Cause After a defined number of consumptions the touchscreen needs to be cleaned. Check the section [Error settings](#) (on page 121) for more details.



NOTE: It is possible to disable this function in the service menu.

8.1.4 Message: Cleaning Error

Message *Cleaning Error.*

Cause The CoEx[®] brewer cleaning cycle did not finish correctly or was interrupted.

Solution Perform the following steps to solve the problem:

Run the cleaning cycle again.



NOTE: It is possible to clear this message in the service menu.

8.1.5 Message: Communication error

Message *Communication error*

Cause Communication between control board and IO board is not correct.

Solution

- Check the cable between the boards on damage.
- A bad connection on control or IO board can generate this message.

8.1.6 Message: Door open

Message *Door open*

Solution Perform the following steps to solve the problem:

1. Close the door or install the green service key to activate the machine.

8.1.7 Message: Drip tray full

Message *Drip tray full*

Solution Perform the following steps to solve the problem:

1. Clean the drip tray in front of machine and/or clean the brewer drip tray inside the waste bucket.

2. Make sure the water level sensors in the drip bucket / drip tray are dry.

See section Daily maintenance.

8.1.8 Message: Empty waste bucket

Message *Empty waste bucket*

Cause The number of cycles is reached to generate the message, waste bucket is full.

Solution Perform the following steps to solve the problem:

- Clean the waste bucket.
- If message is still shown check if the detector switch is clean.
- If a waste bin in a base cabinet is used, reset the waste bin counter or adjust the empty waste bin value in [Error Settings](#) (on page 121).



NOTE

This message and counter are reset by activating the micro switch behind the waste bucket for at least 3 seconds (remove the waste bucket for at least 3 seconds).

8.1.9 Message: Enough water?

Message *Enough water?*

Cause The dispensed drink did not reach the adjusted amount of water (pulses measured by water flow meter) in time.

Solution Perform the following steps to solve the problem:

- If it concerns a drink from the brewer, the filters can be dirty. Run the brewer cleaning cycle with a cleaning tablet to clean the filter.
- Check the main water supply, inlet valve.
- Check the valve(s).
- Check pump(s).
- Check if the water flow meter is connected and working correctly.

8.1.10 Message: Filling boiler

Message *Filling boiler*

- Solution** Perform the following steps to solve the problem:
- Open and close the machine door for restart, wait until boiler is filled.
 - If message continues:
 - Check if main water is connected and available.
 - Check if inlet valve and pumps works.
 - Check water system in machine.

8.1.11 Message: Grinder blocked

Message *Grinder blocked*

Cause A too high current is detected on the output for the grinder.

Solution Perform the following steps to solve the problem:

1. Clean the grinder.

8.1.12 Message: Heating boiler

Message *Heating boiler*

Solution Perform the following steps to solve the problem:

1. Wait until boiler is heated.
2. If message is still shown after 10 minutes:
 - check the clixon(s) and heating element.

8.1.13 Message: Install drip tray

Message *Install drip tray*

Cause External drip tray is not detected.

Solution Perform the following steps to solve the problem:

1. Place the drip tray.
2. Check contacts on drip tray, clean contacts on drip tray and in machine (can be dirty, corroded).

8.1.14 Message: Install waste bucket

Message *Install waste bucket*

Cause The micro switch behind the waste bucket does not detect the waste bucket.

Solution Perform the following steps to solve the problem:
1. Place the waste bucket.

8.1.15 Message: Insert coins

Message *Insert coins*

Solution Perform a full payment with coins, tokens or card.

8.1.16 Message: Mixer blocked

Message *Mixer blocked*

Cause A too high current is detected on the output of the mixer motor.

Solution Perform the following steps to solve the problem:

- Clean the mixing bowl, check the motor.
- Check recipes, no dry powder should drop in the mixing bowl.

8.1.17 Message: Machine Blocked

Message *Machine Blocked*

Cause The coffee machine is locked during this time by the scheduler and not available for use.

Solution

- Change the settings in the scheduler.
- Check if the clock in the coffee machine is set correctly.

8.1.18 Message: Machine is temporarily out of order

Message *Machine is temporarily out of order*

Solution The message is set, on purpose, by the operator in the service menu or remotely, using ConnectMe. Check the section [Out of order message](#) (on page 104) for more details.

8.1.19 Message: Not all ingredients available

Message *Not all ingredients available*

Solution Perform the following steps to solve the problem:
1. One or more canisters must be refilled.

See section Fill the ingredient canisters.

8.1.20 Message: No coffee detected in brewer

Message *No coffee detected in brewer*

Solution Perform the following steps to solve the problem:

1. Check if a canister must be refilled.
See section Fill the ingredient canisters.
2. Check if the grinder runs to fill the brewer.

8.1.21 Message: No water connected / No water in boiler

Message *No water connected / No water in boiler*

Cause No water detected for more than 2 minutes.

Solution Perform the following steps to solve the problem:

- First check if the water supply is opened / connected.
- Open the door of the coffee machine to display the **Service** menu, wait 2 seconds and close the door again to allow the coffee machine to re-activate itself.
- If this does not help restart the coffee machine (Switch the coffee machine OFF, wait 5 seconds and then switch ON again).
- Check inlet valve, pressure reducer and water flow meter.
- Check the earth wire connected to the boiler.

8.1.22 Message: Open boiler leaking, inlet closed

Message *Open boiler leaking, inlet closed*

Cause A leak is detected.

Solution

1. Close the water tap.
2. contact the manufacturer (see [Manufacturer contact information](#) on page 153).

8.1.23 Message: Place cup in center

Message *Place cup in center*

Cause The cup needs to be placed under the correct dispensing nozzle before the **[Start]** button is available.

- Solution** Perform the following steps to solve the problem:
- If cup is placed in the correct position clean the cup sensor.



Note: The sensitivity of the sensor is adjustable (see [Cup sensor](#) on page 114).

8.1.24 Message: Place cup right

Message *Place cup right*

Cause Cup needs to be placed under the water dispensing nozzle before the **[Start]** button is available.

- Solution** Perform the following steps to solve the problem:
1. If cup is placed in the correct position clean the cup sensor.

8.1.25 Message: Please load configuration

Message *Please load configuration*

Cause The configuration was not found.

- Solution**
- Check the section [How to load a new configuration file from an USB stick](#) (on page 132) to load a configuration.

8.1.26 Message: Please load the User Interface

Message *Please load the User Interface*

Cause The User interface files do not match with this configuration or the file is corrupt / missing.

- Solution** Perform the following steps to solve the problem:
- Check the section [How to load an IPK or FW files from USB](#) (on page 132) to load all files including the user interface.

8.1.27 Message: Replace water filter

Message *Replace water filter*

Cause The counter has reached the number of cycles.

Solution

Install a new filter and reset the counter.

8.1.28 Message: Rinse brewer with tablet

Message *Rinse brewer with tablet*

Cause The cleaning cycle is required, the time (set in the service menu) has passed.

Solution Perform the following steps to solve the problem:

Run the cleaning cycle and the message will disappear. The timer is reset.

8.1.29 Message: Startup problem

Message *Startup problem*

Cause The amount of pulses for the water flow meter during start-up is not reached in time.

Solution

- Open and close the machine door for restart.
- If message shows again, check the expansion valve, 2 bar valve, pumps, water inlet from mains and inlet valve.
- Check water flow meter.

8.1.30 Message: Temp. sensor disconnected

Message *Temp. sensor disconnected*

Cause A too high resistance is detected on the input of the IO board.

Solution Check if temperature probe is broken, or wiring is loose.

8.1.31 Message: Temperature boiler (too) high

Message *Temperature boiler (too) high*

Cause A temperature of 10 degrees more as the adjusted temperature is detected.

Solution

- Check if heater is broken and keeps heating.
- Check temperature setting.
- Check temperature probe.

- Check wiring loose/bad contact.
- Check that the boilers are connected correctly, don't switch the wires for boiler one with boiler two.

8.1.32 Message: Water level too low

Message *Water level too low*

Cause No water level is detected by the level probe in the boiler.

Solution

- Check if the tap is opened.
- Check level sensor.
- Check if wire from probe is connected to the wire harness.
- Check if the ground is connected to the boiler.
- Check if the boiler is leaking water due to leakage or wrong connected valve.

8.1.33 Message: Waste bucket full / Empty waste bucket

Message *Waste bucket full / Empty waste bucket*

Solution Perform the following steps to solve the problem:

1. Empty waste bucket.
 - If message is still shown, remove the waste bucket and wait 6 seconds before placing it back.
 - If message is still shown, check if the waste bucket detector switch is clean.
 - If a waste bin in a base cabinet is used, reset the waste bin counter or adjust the waste bin full value in [Error Settings](#) (on page 121).
 - If the problem persists: contact the manufacturer (see [Manufacturer contact information](#) on page 153)..

8.1.34 Message: Water filter installed?

Message *Water filter installed?*

Cause In service mode the correct selection needs to be made.

Solution Check the section [Water filter settings](#) (on page 124) for more details.

Technical specifications

9.1 Standards and regulations

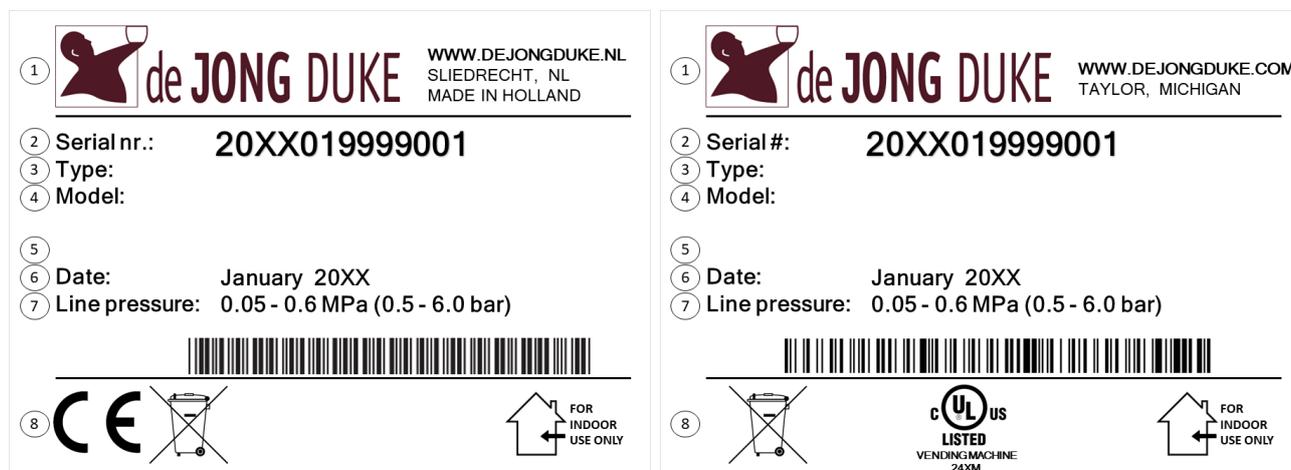
If the type plate inside the machine contains the CE mark in the lower left hand corner it conforms to CE standards.

- Check the appendix of this manual for the Declaration of Conformity.

9.2 Type plate

The type plate is located inside the machine on the left side panel.

Type plate layout examples



- | | |
|-------------------------------|---|
| 1. Manufacturer details | 5. Mains power specifications |
| 2. Serial number | 6. Date of production |
| 3. Model code | 7. Water connection specifications |
| 4. Model name / configuration | 8. Markings for conformity, disposal and use. |



NOTE

Data shown in the picture is for illustration purposes only.

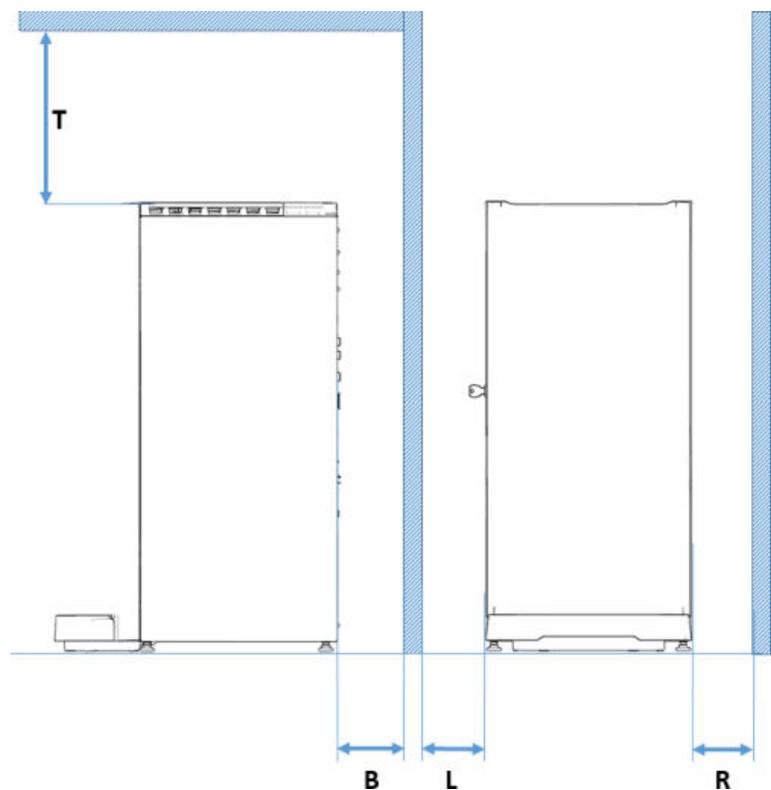
9.3 Disassembly and recycling



The coffee machine contains recyclable materials. Dispose of the coffee machine in conformity with local laws and regulations.

9.4 Required installation space

Side view (left) and front view (right) of the coffee machine



Ref	Distance	Explanation
SIDE VIEW		
T	11.81 in	Space needed to open the top lid and access the canisters.
B	3.94 in	Space needed at the back for ventilation and all connections.
FRONT VIEW		
L	7.09 in	Space needed to access the door lock
R	7.09 in	Space needed to open the door / access coin acceptor (if possible - optional)

9.5 Technical specifications

*Machine dimensions (± 0.39 in) and weight specifications ($\pm 10\%$)
Zia CEC Medium Cabinet*

Height	34.45 in
Height with extended bean canister	40.16 in
Width	17.05 in
Depth	22.64 in
Depth door only	7.28 in
Weight (empty)	121.3 lb

Machine electrical specifications

Mains supply ($\pm 10\%$)	Refer to the type plate (on page 149) inside the coffee machine for the correct values.
Frequency ($\pm 2\%$)	
Max. capacity	

Machine water specification

Water pressure	
Minimum pressure	7.3 psi
Maximum pressure	87 psi
Water connection	$\frac{3}{4}$ BSP connection
Quality of water	
Hardness	5-7° dH (German standard) 8-12 fH (French standard)
pH Value	approx. 7
Temperature water	The incoming temperature may not be above 86°F
Main water connection	Between water tap and coffee machine an (electronic) waterlock needs to be connected

Machine hot water pressure system

Pressure Systems Safety Regulations 2000 (PSSR)	Water vessel
Vessel category	SEP
Operating (rated) pressure	159.5 psi
Maximum allowable pressure	348.1 psi
Design temperature	275°F
Safety relief valve	174.0 psi

Machine ambient temperature specifications

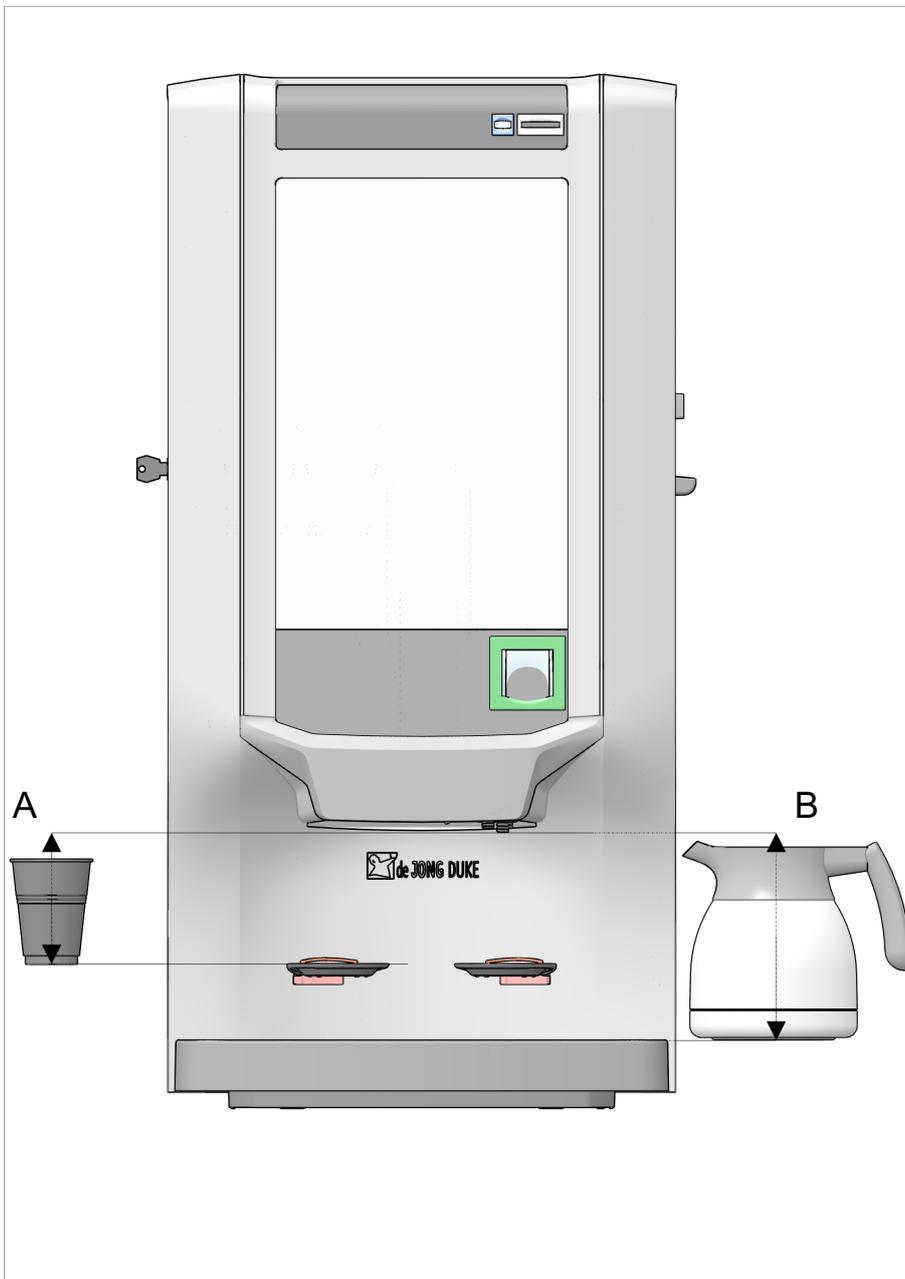
When in storage	+ 50 °F ~ + 122 °F
When in use	+ 41 °F ~ + 104 °F

Machine sound pressure

Standby	< 20 dB(A)
Grinder / Coffee	≤ 61.97 dB(A)

9.6 Cup and jug sizes

Cup and jug dimensions Zia (medium model)



A. Cups

Maximum cup height (*)	4.33 in
Maximum cup diameter	3.35 in

B. Jugs

Maximum jug height	7.09 in
Maximum jug diameter	5.31 in

(*) The height of the cup stand is fixed and depends on specifications during ordering.

9.7 Manufacturer contact information



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Appendix

10.1 Appendix list

Information related to this document and the coffee machine are:

- [Declaration of conformity](#) (on page 155).

10.2 Declaration of conformity



de Jong DUKE
Postbus 190
3360 AD Sliedrecht
The Netherlands
www.dejongduke.com

EG Verklaring van Conformiteit

EC Declaration of Conformity

De firma: J.M. de Jong DUKE Automatenfabriek B.V.
The company: Postbus 190
3360 AD Sliedrecht
The Netherlands

Verklaart geheel onder eigen verantwoordelijkheid dat de onderstaande machines:
Declares under its own sole responsibility that the machines:

- | | | | |
|--------------------|--------------------|--------------------|---------------------|
| ▪ Zia 1.000 Series | ▪ Zia 4.000 Series | ▪ Zia 7.000 Series | ▪ Zia 18.000 Series |
| ▪ Zia 2.000 Series | ▪ Zia 5.000 Series | ▪ Zia 8.000 Series | ▪ Zia 19.000 Series |
| | ▪ Zia 6.000 Series | ▪ Zia 9.000 Series | |

Met veiligheidslimieten: 135 °C/ 5.5 bar (steam vessel)
With Safe Operating Limits: 135 °C/ 12 bar (water vessel)

In overeenstemming zijn met de volgende EG-richtlijnen:
Are in conformity with the following EC directives:

[2014/30/EU](#)
[2014/35/EU](#)
[2006/42/EC](#)
[2009/125/EC](#)
[2012/19/EU](#)
[2011/65/EU](#)
[1907/2006/EC](#)
[2015/863/EU](#)
[2019/1021/EU](#)
[1935/2004/EC](#)
[2014/68/EU](#)
[PSSR2000](#)
[1282/2011/EU](#)
[2023/2006/EC](#)

Electromagnetic Compatibility Directive
Low Voltage Directive
Machinery Directive
ECO Design
WEEE Directive
RoHS Directive
REACH directive
Delegated directive amending directive 2011/65/EU
POPs regulation
Food Safety Directive
Pressure Equipment Directive
UK regulation: Pressure Systems Safety Regulations
Food contact plastics and articles
Good manufacturing practice for materials and articles intended to come into contact with food

Voldoen aan de volgende geharmoniseerde Europese normen:
Comply with the following harmonized European standards:

Electromagnetic Compatibility:

EN 55014 - 1
EN 55014 - 2
EN 61000 - 3 - 2
EN 61000 - 3 - 3
EN 62233

Electric Safety:

EN 60335 - 1
EN 60335 - 2 - 75

Technical documentation for assessment:

IEC 63000:2016

Sliedrecht, April 6th 2021

M.J.C. de Jong - Managing Director

