ANIMO

OptiBean NG OptiBean XL NG
Model 2016
Reversed brewer

Feel like a barista.

service book

instruction video

TABLE OF CONTENTS

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FOREWORD

Purpose of this document
This document is intended as a service appendix in addition to the user manual with which a**uthorised trained service personnel** can install, program and maintain this machine.

- By **authorised trained service personnel** is meant: persons who can install, program, maintain and carry our repairs on the machine.

Most of the settings, including the product settings are secured by a PIN code. This PIN code is intended to prevent the user accessing the service menu.
It is recommended not to leave this document with the user after installation and to change the standard factory PIN code.

All chapters and sections are numbered. The various figures referred to in the text can be found in the illustrations at the front of this booklet or with the subjects concerned.

Pictograms and symbols

NOTE
General instructions for: WARNING, CAUTION or NOTE.

CAUTION !
Warning of possible serious damage to the device or bodily harm

WARNING
Warning of electricity and / or current danger

WARNING
Warning of electrostatic discharge (ESD) to electronics.

WARNING
Warning for serious crushing injury

1. INTRODUCTION OPTIBEAN NG

Explanation OptiBean NG type designation:

Designation	Meaning	Description	Cup volume	Dispensing Hight cup	Thermos jug
1e digit	Number canisters	1 - 3			
-	standard brewer	6,5-9,5 gram	50-150ml	60-115mm	167mm
XL	XL brewer	9,5-13,4 gram	150-230ml	60-115mm	167mm
NG	Next Generation	Reversed brewer and new mixer system			
H&C	Hot&Cold	prepared for cabinet with cool unit			

OptiBean

1
2
3
2 H&C
3 H&C

OptiBean
Hot & Cold

2 XL
3 XL
2 XL H&C
3 XL H&C

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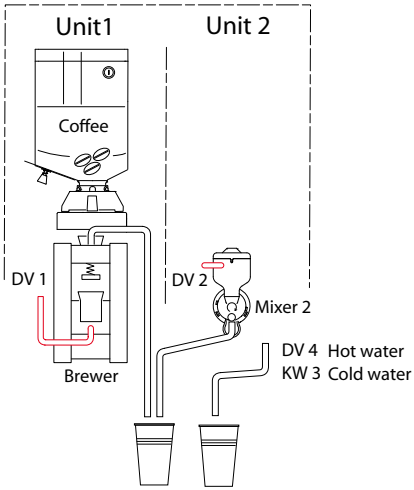
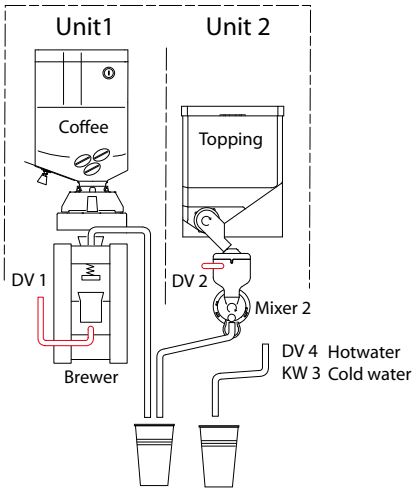
1.1 Principles of operation

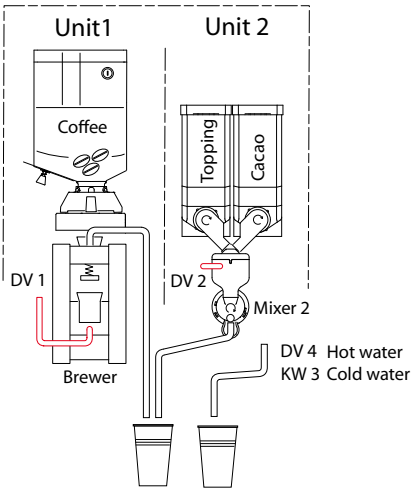
OptiBean 1 NG



OptiBean 2 (XL) NG

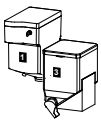


OptiBean 3 (XL) NG



1.2 Model code

The OptiBean NG models are standard executed according below canister configuration.

OptiBean (XL)		Model code		Canister configurations			
		Std.	XL	1		3	4
1		**2B 1D**	-	**Coffee beans**			
2		**2B 2D**	**2B 2N**	**Coffee beans**		**Topping**	
		2B 4D	2B 4N			Cocoa	
		2B 5D	2B 5N			Tea	
3		**2B 3D**	**2B 3N**	**Coffee beans**		**Topping**	**Cocoa**
		2B 6D	2B 6N			Topping	Sugar
		2B 7D	2B 7N			Topping	Tea
		2B 8D	2B 8N			Tea	Cocoa
		2B 9D	2B 9N			Tea	Sugar
		2B AD	2B AN			Topping	Coffee inst.
		2B BD	2B BN			Topping	Decaf inst.

Button settings

Download here an overview of the standard-and optional recipes:
http://www.animo.eu/en/sd

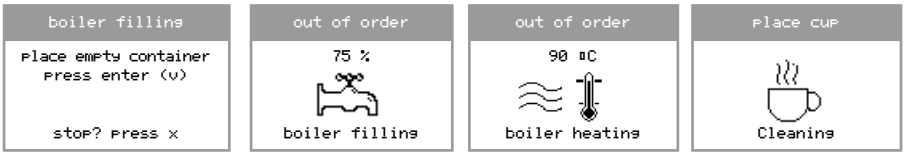
Enter the web site address in your web browser and your can download the relevant technical documentation without requiring a login code.

2. FIRST MENU SETTINGS AFTER INSTALLATION

The following data must be set in the operator and service menus immediately after the machine's first use. The language factory setting is English.

Switch ON the machine

- *Follow the instructions on the display*



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Operatormenu (Page 46)

• *1.1*	*Clock*	*Time*	*(set)*
		Date	*(set)*
• *1.7*	*PIN-code*	*2 - 2 - 2 - 2 - 2*	*(PIN-Code)*

Service menu (Page 49)

• *2.4*	*Settings*	*Language*	*(set)*
• *2.6*	*Service boiler*	*Service moment*	
		Cups	*(set)*
		Months	*(set)*

Cups
The message indicates that the device must be descaled. If a water filter is fitted (recommended), this is also an indication that the filter must be replaced.

We strongly recommend to use a water filter. Calculate your fillter capacity by using the capacity information provided with the filter. Set the amount of cups into the menu so the signal [Service Boiler] appears on the display.

Months (from software V5.15)
If desired a point of time can de set when the service boiler needs to appear.
Example: If 12 months is set during installation the boiler service message will appear on the display 12 months after installation.

Water hardness table

Water quality	Hardness				Service moment after (cups)
	°D	°F	mmol/l	mgCaCo3/l	
Very hard	18-30	32-55	3,2-5,3	321- 536	5,000
Hard	12-18	22-32	2,2-3,2	214-321	12,500
Average	8-12	15-22	1,4-2,2	268-214	20,000*
Soft	4-8	7-15	0,7-1,4	72-268	40,000
Very soft	0-4	0-7	0- 0,7	0-72	0 = off

- *2.2 Button settings <Recipe name> (set)*

  Every machine contains pre-programmed basic recipes. Each key can be changed, if required. Which recipes are factory-set can be found in recipes settings document which can be downloaded.
  See http://www.animo.eu/en/sd
  The same table also indicates which additional recipes in the software are available.

  See chapter 2.1 How to program a recipe

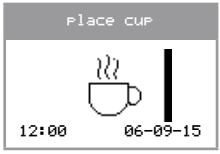
- *2.1 Quick recipe Pro <Recipe name> Cup volume (ml) (set)*
  Coffee (sec.)
  Topping (sec.)
  Chocolate (sec.)

  The Coffee(bean) setting is the real grinding time from the grinder in seconds.
  This setting is <u>not</u> linked to the cup volume setting.

  The Topping and Cocoa setting is a dispensing time in seconds for a 100ml drink.
  When increasing the cup volume the Topping and/or Cocoa dispensing will be automatically proportional increased (not visible in the display).

  See chapter 2.2 How do you correct a recipe?

- *Run the cleaning program (without cleaning tablet) to reset the cleaning message*

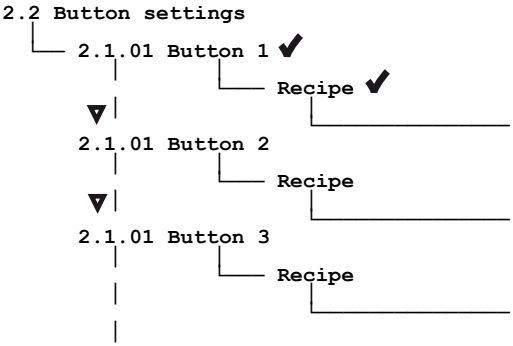


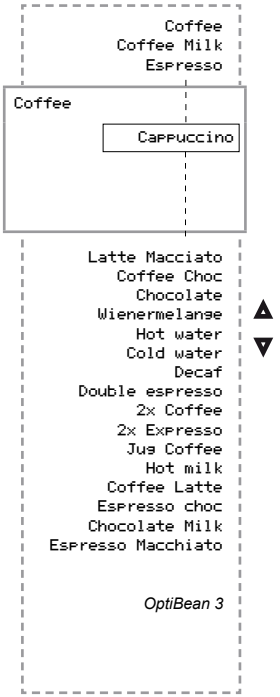
Shut down

Please follow chapter 6 Transport / Shut down to empty the boiler system before transporting or putting the machine in storage.

2.1 How to program a recipe?

Every machine contains pre-programmed basic recipes. Each key can be changed, if required. In below example button 1 will be change from **coffee** into **cappuccino**.





1. Navigate to above mentioned service menu item.
2. Go to Button 1 - Recipe and confirm (v).
   The 1st line in de display shows the programmed recipe.

   The 2nd line in the display shows the first recipe from a hole range (see dotted frame) of pre-programmed and extra recipes.
3. Scrol with the navigation buttons though the range untill the desirable recipe and confirm 2x (v)

Which recipes are factory-set can be found in recipes settings document which can be downloaded. See http://www.animo.nl/en/downloads/service-documentation/

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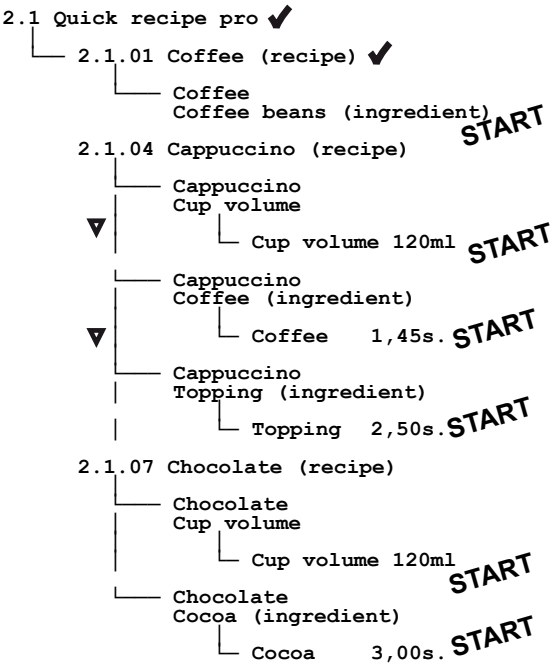
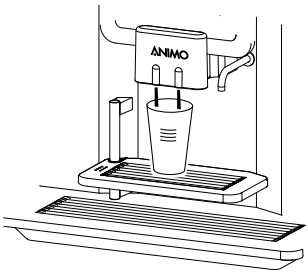
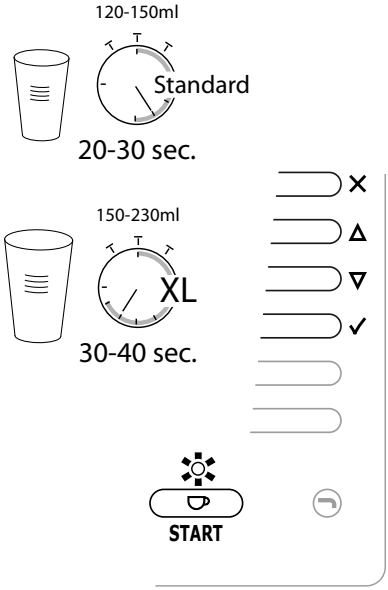
2.2 How do you correct a recipe?

Easy way to check the dispensed drink- volume and taste without leaving the menu!







1. Navigate to above service menu item
2. Change one or more settings and confirm (v), (START led blinks).
3. Place a empty cup under the outlet and press the START button. You drink is made.

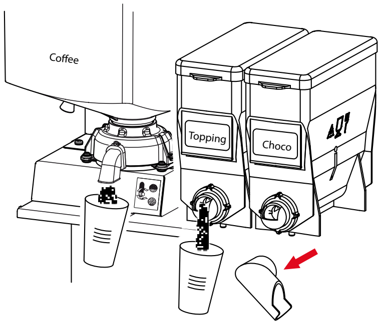
When the Cup volume (menu parameter) is increased, instant products Topping and Chocolate will be automatically proportional increased. **The coffee however will not automatically increased!**

If the optimum settings are found for the first coffee button copy the set grinder time for all the coffee drinks; Coffee Milk, Espresso, Cappuccino, Latte Macchiato, etc.

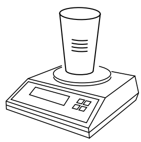
2.3 How do you measure the weight of an ingredient only?

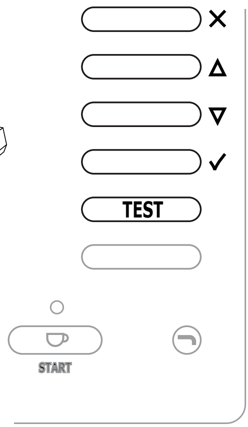
Only the grinder / ingredient motor will be driven (no water is dispensed).

It is strongly recommended to check the coffee measurement using a set of mini scales. These are simple to order via the Internet.




```
2.1 Quick recipe pro ✔
└── 2.1.01 Coffee (drink) ✔
      └── Coffee                                TEST
    ▼ |   Coffee beans(ingredient)
    2.1.04 Cappuccino (drink)
      └── Cappuccino                            TEST
    ▼ |   Coffee beans(ingredient)
      └── Cappuccino
          Topping (ingredient)                  TEST
```





1. Navigate to above service menu item
2. Hold a empty cup under the outlet.
3. Press the TEST button, only the chosen ingredient will be dispensed.
4. Measure the weight of the ingredient*

**Coffee*	
Standard espresso group:	*min. 6,5 - max. 9,0 g.*
XL espresso group:	*min. 9,5 - max. 12,5 g*

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2.4 Adjustment rules

2.4.1 Espresso group

The OptiBean can be executed with following espresso group:

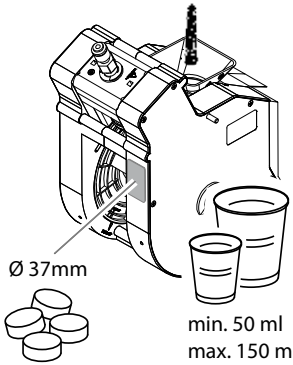
Standard espresso groep

- A good cup of coffee (lungo) can be made With 7.5 - 8 grams (0,26 - 0,28 ounce) of coffee.
- Suitable for a maximum of 9.0 g (0,32 onnce) ground coffee (1 cup of coffee).
- Not suitable to brew a double cup of coffee in one brew cycle.
- There is a double-cup recipe (2x Coffee) available in the software (double brew cycle)

(imp)

Standard (0,23 oz)
min. 6,5 - max. 9,5* gram (0,34 oz)

✔ * max. 9,0 gram (0,32 oz)
✘ * max. 9,5 gram (0,34 oz)



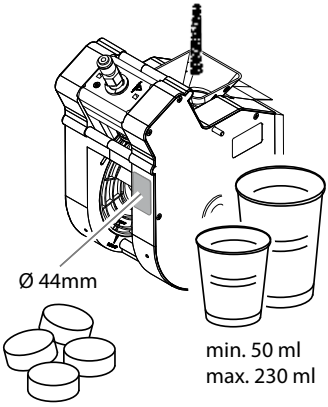
min. 50 ml (1,8 fl oz)
max. 150 ml (5,3 fl oz)

XL espresso group

- Suitable for a maximum of 12,5 gr (0,44 ounce) ground coffee (1 cup of coffee).
- Suitable to brew a double cup of espresso (2x 70ml) or double cup coffee (2 x 115ml) in one single cycle.
- Not suitable to brew a double cup of coffee > 115ml in one cycle.

XL (0,34 oz)
min. 9,5 - max 13,4* gram (0,47 oz)

✔ * max. 12,5 gram (0,44 oz)
✘ * max. 13,4 gram (0,47 oz)



min. 50 ml (1,8 fl oz)
max. 230 ml (8,1 fl oz)

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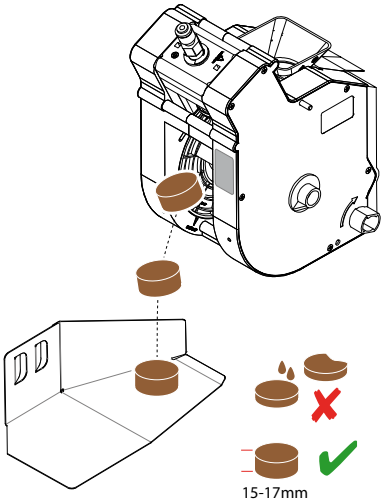
2.4.2 Coffee Waste (puck)

- It is very important how the compressed puck looks like when it is thrown out of the brewer.

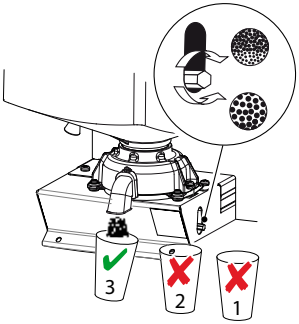
  A too wet puck falling apart is a sign too little coffee is being dispensed and / or the coffee grind is too coarse tuned!
- Catch the puck while adjusting the compressed puck. Tip; use the stainless steel brewer cover.
- A good puck is whole, dry and at least 15-17mm thick.
- It is normal that a small amount of water leaves the brewer when it opens.



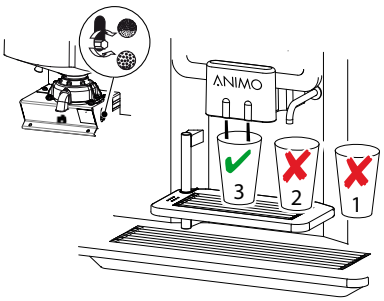
2.4.3 Coffee grinder

There are two factors that affect the output of the coffee grinder. The grinder rotation time (**2.1 Quick recipe pro / Coffee)** and the **grinding fineness** of the coffee grinder. Try to find a balance between:

- Cup volume (menu setting)
- Amount ground coffee (menu setting)
- Ground coffee coarse or fine (grinder adjustment)



- When the coffee grinder is set coarser, the volume of the grind increases.
- When the coffee grinder is set finer, the volume of the grind decreases.
- Only adjust the grinder finer when the grinder is running! Adjustment from fine to coarse can be done when the grinder is stationary.
- Only adjust the grind setting in steps of 1/4 turn. Note: only the 3rd cup of coffee is 100% made with the changed grind fineness! (do not measure the first 2 cups).



Run in period grinding discs

Tests have shown that new ceramic grinding discs have a run in period of 10 kg of coffee beans (about 1350 cups at 7.5 g / XL=1000 cup at 9.5 g.).

We recommend to re-adjust (finer) the grinder after this period.

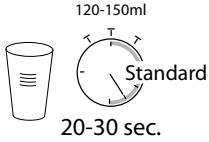
2.5 How to adjust a coffee?

After installation, the machine must always be adjusted for the coffee beans to be used. Use this chapter to help you do this. Once the coffee-making process has been set, the user must always use the same bean melange (mixture).

Coffee crème (lungo)

Always start with adjusting a **Coffee** (usually button 1). First make a couple of coffee without changing the settings and measure the brewing time of this cup of coffee.

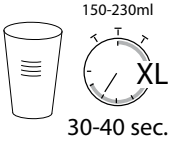
The coffee brewing process time is from the moment when the pump starts until the moment the pump stops.



The brewing time of a coffee is dependent on two factors:

- grind
- coffee dosage

Adjust the grinder in such away that a good cup of coffee is made in accordance with the brewing times shown on the right. Make use of Chapters 2.2 to 2.4



Espresso

Once the coffee Creme has been set, there is not much more to be set for the Espresso.

Because the same coffee grind is used for an Espresso based drink, the brew time for an Espresso (50 ml) will be much shorter than a normal coffee.

If there is still volume left in the brew chamber from the espresso group (Standard: max. 9,0 g. / XL: max.12,5 g.) its possible to increase the grinding time.

By increasing the grinder time for the espresso drink in small steps, more coffee will be dispensed into the brewer chamber. This created more resistance and a longer brewing time.

```
2.1 Quick recipe pro
    └── 2.1.03 Espresso (drink)
            └── Espresso
                Coffee beans (ingredient)
```

Cappuccino and Latte Macchiato

Milk based drinks are drinks such as Coffee Latte, Cappuccino and Latte Macchiato.

f the prefect setting for the espresso has been found just copy this setting to all espresso based drinks, like Cappuccino, Latte Macchiato.

```
2.1 Quick recipe pro
└── 2.1.04 Cappuccino (drink)
        ├── Cappuccino
        │   Coffee beans (ingredient)
        │
        └── Latte Macchiato
            Topping (ingredient)
```

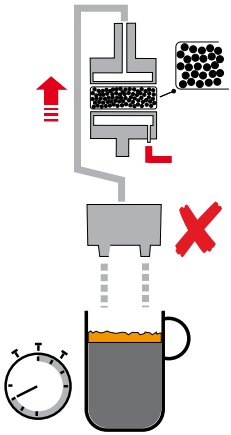
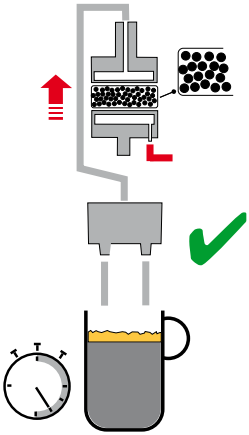
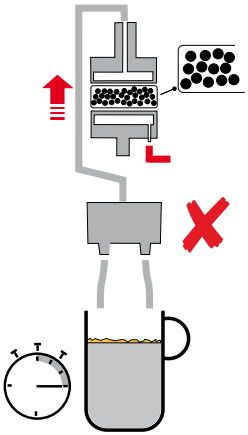
When the Cup volume (menu parameter) is increased, instant products Topping will be automatically proportional increased.

Chocolate / Chocolate + Milk

```
2.1 Quick recipe pro
└── 2.1.05 Chocolate (drink)
        │   └── Chocolate
        │       Cocoa (ingredient)
        │
    2.1.06 Chocolate Milk (drink)
        │   ├── Chocolate Milk
        │   │   Cocoa (ingredient)
        │   │
        │   └── Chocolate Milk
        │       Topping (ingredient)
```

When the Cup volume (menu parameter) is increased, instant products Topping and Chocolate will be automatically proportional increased.

2.6 Adjustment tips

Cream layer too low	Cream layer perfect	Cream layer missing or too light
- Grind too fine - Bitter - Preparation too long - Too much ground dosing - Coffee drips from splitter	- The right grind - Perfect coffee taste - The right preparation time - The right coffee measurement - Coffee sprays full and parallel	- Grind too coarse - Weak - Preparation too short - To low ground coffee dosing - Coffee sprays bent outwards
The coffee is ground too fine, or the dispensed coffee is too high. The extraction is too extreme due to a too long contact time. (to many bitter substances).	The coffee is ground well, the taste extraction is optimal. The cream layer is firm and persists for a long time.	The ground coffee is too coarse for reaching a good extraction. The coffee will be under-extracted. Little or no cream layer.
		
Advice: set the coffee grinder coarser (adjustment anti-clockwise). Also shorten the coffee dosing by 0.1 sec. **Note!** When setting the grinder coarser there is a risk of excess measurement (coffee volume/ weight increases) as a result of which the espresso group can jam.	Advice: enjoy your coffee	Advice: set the coffee grinder finer (adjustment clockwise). Adjust the grind setting only in steps of a maximum 1/4 turn each time. Only the 3rd cup of coffee is 100% made with the changed grind fineness! (do not measure the first 2).

2.7 Advanced recipe settings

Before changing the advanced recipe settings (service menu 2.3) you should first know how the various parts such as valves, coffee grinder, ingredient motors and mixers work together, see Section 2.8 Time line recipe settings.

Keep to the following guidelines:

- Unit sequence means: Coffee with milk: Unit 1-2 first coffee (unit 1) then milk (unit 2). Cappuccino and/or Latte macchiato: Unit 2-1 first milk (unit 2) then espresso (unit 1).
- Ingredient dispensing times are set in seconds (steps of 0.01 sec.)
- All parameters (water and ingredients such as topping and cocoa) are based on a 100 ml drink and converted automatically in the programme to the cup volume as set in 1.4 Quick recipe / 2.1 Quick recipe pro 2) and 2.2 Key settings.
  Note: The coffee measurement (coffee grinder) is not linked to the cup volume setting.
- When a drink consists of DV1 and DV2, the sum of these water quantities must always be 100 ml.
- A rinse parameter is used to ensure that the mixer is properly rinsed after the mixers is almost empty a small amount of hot water is dispensed to the mixer so that it is clean as possible on completion. A realistic rinse value is 8 ml. Note; this does not have to be deducted from the water quantity. The programme calculates this automatically! Example: set parameter DV2 = 100 ml, Rinse 2 = 8 ml --> Programme carries out action as follows: DV2 = 92 ml, Rinse 2 = 8 ml

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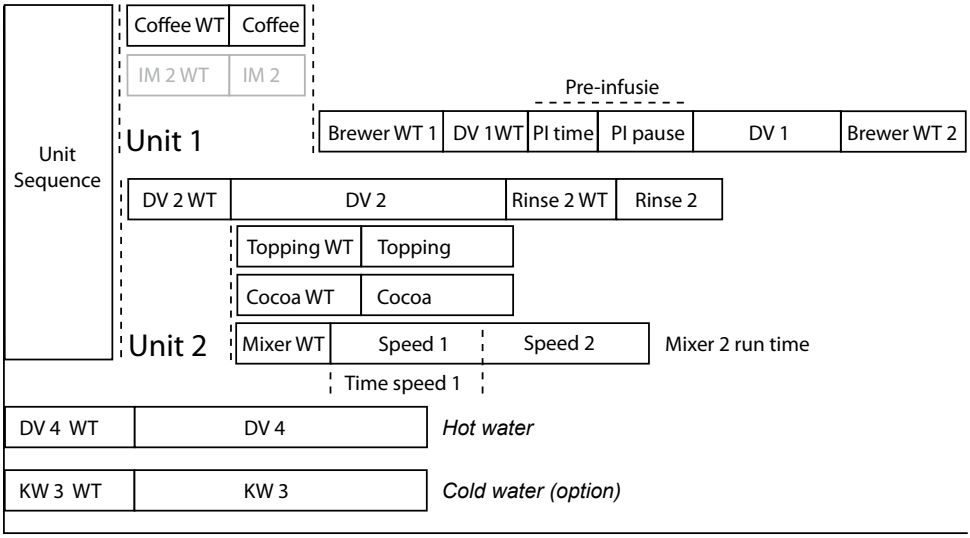
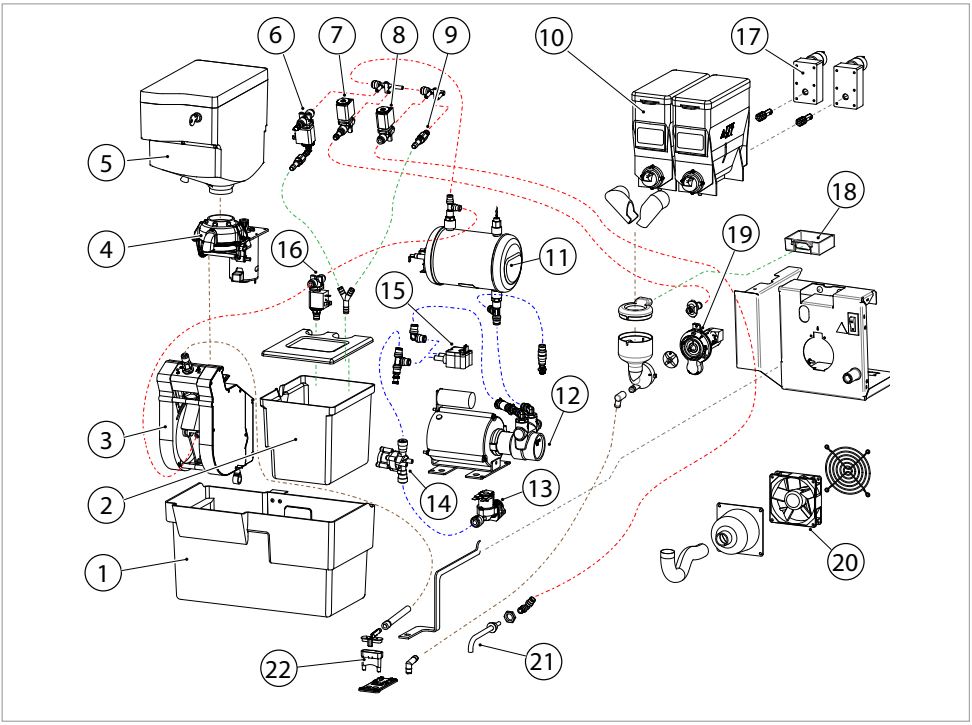
2.8 Time line recipe settings



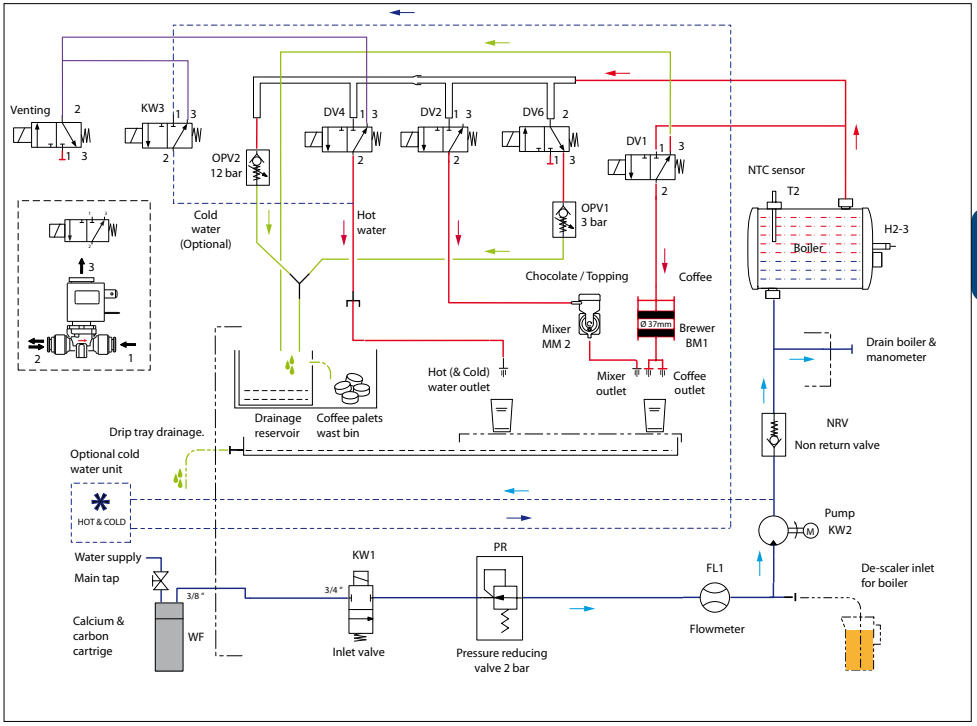
3. PRINCIPLES OF OPERATION



Item		Description
1.		Coffee waste bin
2.		Drainage reservoir
3.	BM1	Espresso group (reversed)
4.	IM1	Coffee grinder
5.		Coffee bean canister
6.	DV6	Expansion water valve + OPV 3 bar
7.	DV2	Mixer valve 3/2 way
8.	DV4	Hot water valve 3/2 way
9.	OPV2	Pressure relief valve 12 bar
10.		Instant canisters
11.	H2-3	Pressure boiler

Item		Description
12.	KW2	Pump 10 bar
13.	KW1	Inlet valve
14.	PR	Pressure reducer 2 bar
15.	FL1	Flow meter
16.	DV1	Brewer valve
17.	IM2-3	Canister drive motor
18.		Cassette moisture extraction
19.	MM2	Mixer system
20.		Fan
21.		Hot water outlet
22.		Coffee / Drink outlet

3.1 Water management



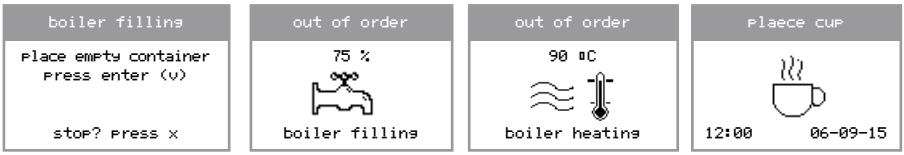
Code	Description
WF	Water filter
KW1	Inlet valve
PR	Pressure reducer 2 bar
FL1	Flow meter
KW2	Pump 10 bar
NRV	Non-return valve
H2-3	Pressure boiler
T2	NTC sensor
DV1	Brewer valve 3/2 way (N.C.

Code	Description
DV2	Mixer valve 3/2 way (N.C.)
DV4	Hot water valve 3/2 way (N.C.)
DV6	Water expansion valve 3/2 way (N.O.)
KW3	Cold water valve (H&C optional)
OPV1	Pressure relief valve 3 bar water expansion
OPV2	Pressure relief valve 12 bar
BM1	Espresso group
MM2	Mixer system
DV7	Venting valve 3/2 way (H&C optional)

EN

3.1.1 Commissioning

Switch the machine on using the ON/OFF switch. The display illuminates with the text; ‘Position drip tray and press start’. The inlet valve [KW1] opens, the water flows via the Pressure reducer [PR], Flow meter [FL1], Pump [KW2] to the Pressure boiler [H2-3], which is filled. Inlet valve [KW1] closes when Flow meter [FL1] has measured 1.3L. The excess water (approx. 0.2 litres) flows via Pressure relief valve [DV1] to the coffee outlet and drip tray. When the boiler has reached temperature, the machine is ready for use. Once the commissioning menu has been activated, the control remembers that the water system has been filled. If the machine must be taken out of use for an extended period, the water system must be drained, See chapter 7. Shut down.



3.1.2 Shut down

Activate the shut down menu in the service menu and following the instructions on the display. To drain the boiler, an Ø 8 mm drain hose must be connected to the boiler supply. To do this, remove the rear panel of the machine. The control now knows that the water system is empty and reconnection will automatically activate the commissioning menu.

3.1.3 No preparation

When no drinks are dispensed by the machine, the pressure in the pressure boiler [H2-3] is maintained at 3 bar. Any expansion water from the boiler drains away via valve [DV6] which is switched as an NO valve. The 3 bar overpressure relief valve OVP1 drains any boiler expansion water to the drainage reservoir.

3.1.4 Coffee preparation

When a coffee is chosen, the coffee grinder measures approx. 7.5 g coffee (9.5 g OptiBean XL) into the espresso group, which then turns to the set position (brew). Inlet valve [KW1], coffee valve [DV1] and expansion valve [DV6] are activated. Note; the expansion valve [DV6] is connected as an NO valve (normally open). Once activated, the pressure relief valve [OPV1] is closed, as a result of which it is possible to increase the pressure to 10 bar while the coffee is made. The ground coffee is first (PI-time) moistened with a small quantity of water (Pre-infusion). This is done at a low water pressure of 2 bar. After a short soak interval (PI-pause) the water pump [KW2] starts, the pressure is increased to 10 bar and the actual coffee-making process begins. Depending on how fine the coffee is ground and the addition of water, the coffee-making process takes between 15 and 25 seconds. After the flow

meter [FL1] has measured the set amount of water, the coffee-making process is stopped. +KW1 and DV1 close and DV6 opens. While the brewer turns to the start position [fill], the coffee residue (pellet) is ejected into the waste bin.

3.1.5 Chocolate preparation

For preparing instant, only the water pressure is used.
When a chocolate is chosen, inlet valve [KW1] and mixer valve [DV2] open. The pressure in the mains water supply is reduced to 2 bar by the pressure reducer [PR] and flows via the pressure boiler [H2-3] and mixer valve [DV2] to the mixer system [MM2]. The chocolate ingredient is measured by ingredient motor 4 [IM4]. After the flow meter [FL1] has measured the set amount of water, the water dispensing process is stopped. KW1 and DV2 close. Shortly thereafter the pressure boiler is brought back up to the operating pressure of 3 bar by the pump.

3.1.6 Coffee with Milk preparation

The pressure boiler system does not allow two pressure valves to be opened at the same time.
This means that for a combination drink such as Coffee with milk first the coffee is made and then the milk can be added to it. For the preparation of Cappuccino and Latte Macchiato, first the milk (froth) and then the coffee (espresso) is prepared. The preparation of the coffee with milk proceeds in the same way as for the coffee and the chocolate preparation. In the software the required unit sequence can easily be specified. For Coffee Milk this is Unit 1-2 (coffee first, then milk), for Cappuccino and Latte Macchiato this is Unit 2-1 (milk first, then coffee).

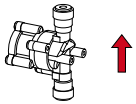
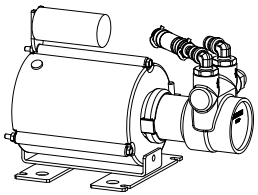
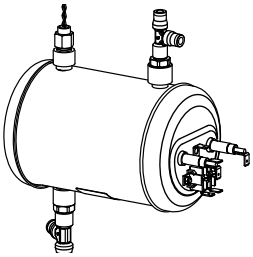
3.1.7 Hot water preparation

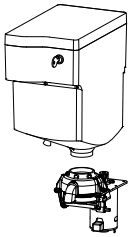
For dispensing hot water, only the water pressure is used.
When hot water is chosen, inlet valve [KW1] and hot water valve [DV4] open. The pressure in the mains water supply is reduced to 2 bar by the pressure reducer [PR] and flows via the pressure boiler [H2-3] and hot water valve [DV4] to the water outlet. After the flow meter [FL1] has measured the set amount of water, the water dispensing process is stopped. KW1 and DV4 close. Shortly thereafter the pressure boiler is brought back up to the operating pressure of 3 bar by the pump.

3.1.8 Cold water preparation (optional)

For dispensing cold water, only the water pressure is used.
When cold water is chosen, inlet valve [KW1] and cold water valve [KW3] opens, and the ‘venting’ valve closes. The pressure in the mains water supply is reduced to 2 bar by the pressure reducer [PR] and flows via the external cooler unit and cold water valve [KW3] to the water outlet. After the flow meter [FL1] has measured the set amount of water, the water dispensing process is stopped. KW1 and KW3 close, and the ‘venting’ valve opens.

3.2 Componenten

Component	Image
Inlet valve KW1 [1001161] Opens and closes the water supply, 24 Vdc coil closure.	
Pressure reducer DR [1000702] Reduces the water supply pressure to 2 bar. The water pressure is not adjustable. Pay attention for the flow direction!	
Flow meter FL [1000530] Measures the supplied quantity of water using rotating magnets and a bi-polar Hall sensor. Pay attention for the flow direction!	
Power Relais [1004596] 3x The heating element, brewer motor and pump is controlled by a power relay.	
Pump KW2 [1000696] **Non-return valve [1000748]** Rotary membrane pump; increases the water supply pressure to an espresso pressure of 10 bar. The rotating membrane cells increase the outlet water pressure. An internal bypass valve pumps the water round in the pump housing if no pressure decrease occurs. See Section 5.7 Check / set the pump pressure.	
Pressure boiler H2-3 [1000530] Closed pressure boiler manufactured entirely from material AISI 316L **Temperature sensor [1000740]** Screw thread M12x1 / material AISI 316L / 100 kΩ/25°C **Boil-dry protection [1000736]** Activation temperature 135°C / 2 pole / manual reset	
Brewer valve DV1 [1000699] Supplies the brewer with hot water at 10 bar. When the valve is energised, the hot water supply to the brewer is opened. When this closes, the brewer is vented.	

Component	Image
Expansion water valve DV6 [1000699] **Pressure relief valve 3 bar [1000734]** This valve is switched as an NO valve. When the coil is not energised, the supply to the 3 bar pressure relief valve is open. When coffee is being made, this valve closes off the 3 bar pressure relief valve so that pump can increase the pressure to 10 bar. After the coffee has been made, this valve opens again and the excess water pressure is fed to the drainage reservoir.	
Mixer valve DV2 [1000699] Supplies the mixer system with hot water. During the water measurement, use is made of the 2 bar water pressure that is reduced by the pressure reducer DR. The valve has an internal meter of 1.5 mm, which results at a supply pressure of 2 bar in a measurement speed of 14 ml/sec. When the valve closes, the mixer supply hose is vented and drains.	
Hot water valve DV 4 [1000699] Supplies the hot water outlet with hot water. During the water measurement, use is made of the 2 bar water pressure that is reduced by the pressure reducer DR. The valve has an internal meter of 1.5 mm, which results at a supply pressure of 2 bar in a measurement speed of 14 ml/sec. When the valve closes, the mixer supply hose is vented and drains.	
Pressure relief valve 12 bar [1000735] Over-pressure protection for the boiler.	
Coffee grinder [1000665] The coffee grinder grinds the beans and fills the brewer with a precisely measured quantity of coffee. See Section **3.5 Grinder** of operation	

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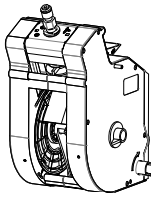
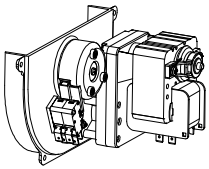
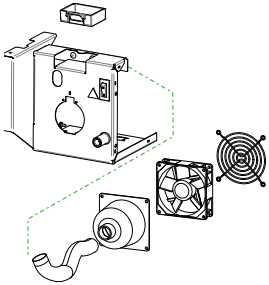
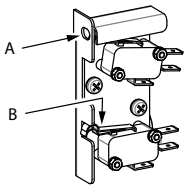
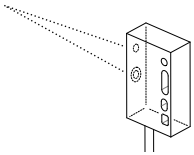
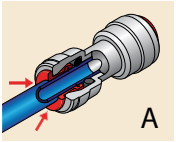
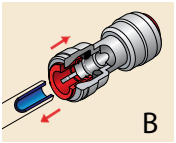
Component	Image
Espresso group (reversed) [1004572] **Espresso group XL (reversed) [1004798]** The brewer is filled with ground coffee from the coffee grinder. Then the coffee is compacted, the pump starts and pumps hot water at a pressure of 10 bar through the coffee. The drink flows via the splitter into the cup. After the coffee has been made, the coffee pellet is ejected into the waste bin. See Section **3.4 Espresso group for** operation	
Drive unit espresso group (reversed) [1004573] The 230Vac motor in the drive unit drives the espresso unit. The drive unit contains two micro switches that check the position of the espresso group. See Section **3.4 Espresso group for** operation	
Instant group Each of the ingredient canisters is driven by a motor running at 130 rpm. The instant product (ingredient) is pushed out of the canister by a worm screw and falls via the dispensing nozzle into the mixer unit. At the same time, hot water is measured into the mixer unit by measuring valve DV2. The instant product and the water are mixed together by the mixer impeller driven by the mixer motor running at 16,500 rpm. The drink flows via the drink outlet into the beaker. See Section **3.6 Instant group** for operation	
Ventilation mixer group Most of the water vapour given off during the mixing is collected by the vapour drain ring and extracted via the extraction tray by the fan. The instant residue is collected by the extraction tray. The extraction tray can be easily removed (for cleaning) by dismantling the mixer unit. This largely prevents water vapour getting into the canister outlet and the ingredient becoming moist. See Section **3.6.2 Ventilation mixer group** for operation	

Component	Image
Door switches There are two door switches on the inside of the right side wall. Switch A is activated when the door is closed, and switches the machine off when the door is opened. Switch B is operated when the door lock is locked and switches the hot water valve DV4 when the lock is opened.	
Cup detection sensor [1003231] Reflection infrared sensor. This sensor can optionally build in the machine door. This sensor checks whether there is a cup / mug positioned under the (correct) spout. See chapter 3**.3 Cup detection** for operation.	
Quick release coupling In this machine various components are used that have quick release couplings. To remove the Teflon hose from this connection, the outer ring [A] must be pushed in first to release the hose [B]. This outer ring does not have to be pushed in when inserting the hose.	 
Telfon® pressure hose High quality Teflon pressure hose is used in this machine. Never shorten this hose with side cutters. This will deform the hose and when it is inserted into the quick release connection it can damage the internal o-ring, resulting in leaks. Always shorten a new hose using the special cutting tool (see the illustration) or cut through it with a sharp knife without exerting too much pressure on the hose.	 

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3.3 Cup detection (optional)

The sensors detect the presence of a cup below the coffee outlet of the beverage dispenser. Coffee is only prepared when a cup has been placed. Also the outlet for hot water is equipped with a cup sensor. The sensitive sensors will detect paper cups, as well as porcelain or glass cups.

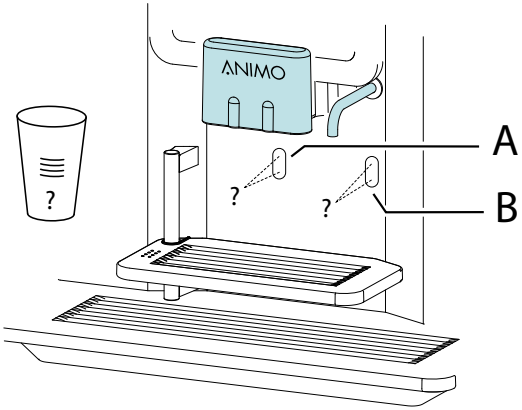
The new cup detection is extremely safe in use and will prevent you from wasting freshly brewed coffee or tea.

WARNING

- Keep the sensor windows free of dirt.
- Don't reach below the drink spouts when a drink is prepared.

Caution

- the cup detection sensors are standard activated.
- run the rinsing program with a closed door.
- when placing a cup the machine awakes itself from the energy safe mode



A: Cup detection for coffee, cappuccino, chocolate spout.

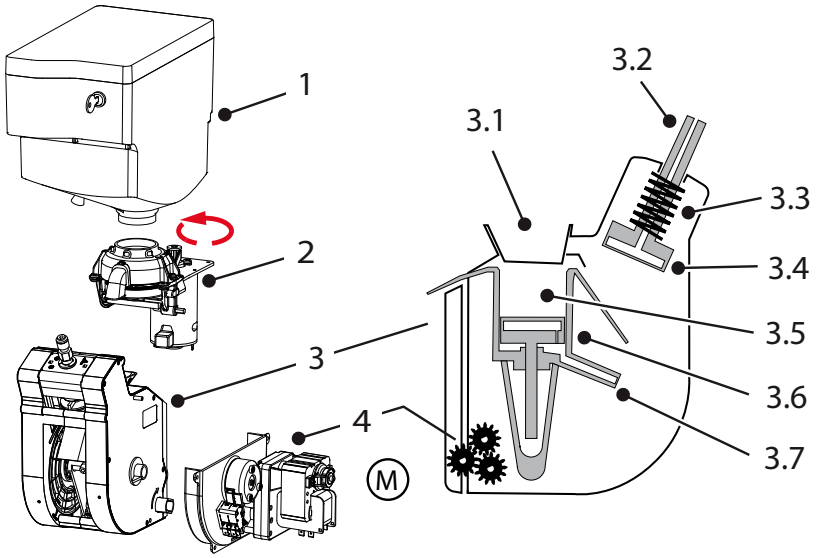
B: Cup detection for tea water spout

3.4 Espresso group (reversed)

The espresso group consists of a drive unit [4] and an espresso unit [3].

The 230Vac motor in the drive unit drives the espresso unit.
The upper [3.4] and lower piston [3.6] are moved up and down by the drive wheels located in the side walls. Their operation is explained in detail in the next chapter.

Major components		Technical data	Material
1. Bean canister		Content 1.5 kg	PC
2. Coffee grinder		See 3.5 Coffee grinder	
3. Espresso group			
	3.1 Filler opening		
	3.2 Coffee outlet	4 mm quick release coupling	
	3.3 Spring		stainless steel
	3.4 Upper piston	150 µm bore	stainless steel
	3.5 Brewer chamber	Ø 37mm Standard / Ø 44mm XL	
	3.6 Lower piston	315 µm bore	stainless steel
	3.7 Water supply		
4. Drive unit		230Vac 50 Hz / 28 rpm	



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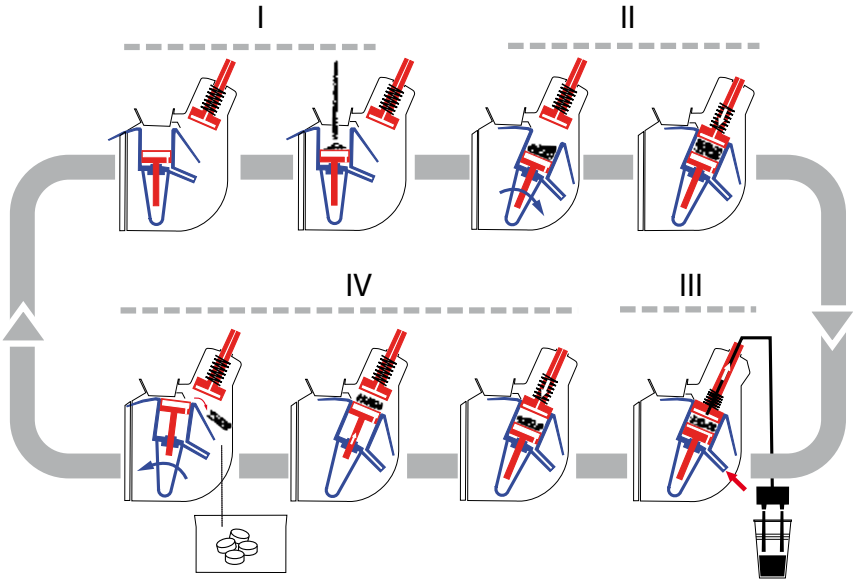
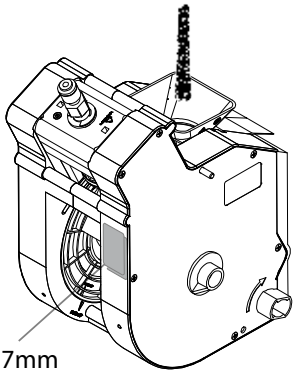
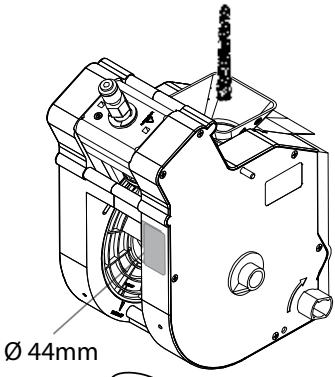
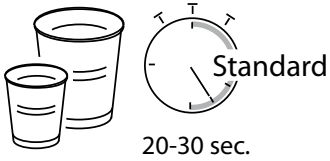
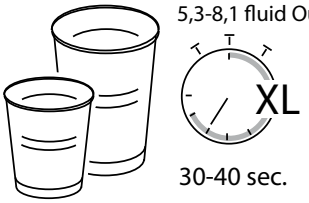
3.4.1 Operation

The ground coffee is measured into the espresso group and then the group closes. Hot water is forced at high pressure through the layer of coffee. The complete espresso cycle is described and illustrated below. This also explains the function of the position switches 1 & 2 (see Section 3.4.4) located in the drive unit.

Position		Action	Switch position	2	1
I	Start / fill	Idle position of the espresso group. Ground coffee is measured into the brewer chamber		0	0
II	Compact	The espresso group moves to the brew position. The upper piston compacts the ground coffee.		0	1
III	Brew	A very small quantity of low pressure hot water is added to the coffee pellet (pre-infusion). Then the pump starts and pumps hot water at a pressure of 10 bar through the compacted coffee.		1	1
IV	Eject	The espresso group moves back to the start position and ejects the coffee residue.		0	1
	Error E24	If the switch position shown here occurs, an error E24 brewer error occurs		1	0



3.4.2 Espresso brewer spec's

Standard brewer	XL Brewer
min. 6,5 - max. 9,5* gram min. 0,23 - max. 0,35* Ounces	min. 9,5 - max 13,4* gram min. 0,34 - max 0,47* Ounces
	
	
120-150ml 1,8-15,3 fluid Ounces  20-30 sec.	150-230ml 5,3-8,1 fluid Ounc  30-40 sec.
min. 50 - max. 150 ml ✔ * max. 9,0 gram ✘ * max. 9,5 gram	min. 150 - max. 230 ml ✔ * max. 12,5 gram ✘ * max. 13,4 gram
min. 1,8 fl oz - max. 5,3 fl oz ✔ * max. 0,32 Ounces ✘ * max. 0,34 Ounces	min. 5,3 - max. 8,1 fl oz ✔ * max. 0,44 Ounces ✘ * max. 0,47 Ounces

EN

3.4.3 Dismantling

Espresso group

The espresso group can be disconnected from the drive unit as follows

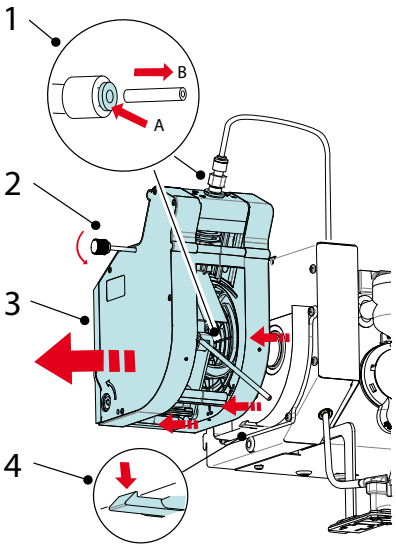
1. Switch the machine off.
2. Remove both hoses [1] from the espresso group.

To remove the Teflon hose from this connection, the outer ring [A] must be pushed in first to release the hose [B]. This outer ring does not have to be pushed in when inserting the hose.

3. Unscrew the locking pin [2].
4. Unlock the snap hook [4] so the espresso group [3] separates from the drive.
5. Lift the espresso group [3] from the drive unit.
6. Remove any coffee residue from the group by rinsing it with warm water.

Do not clean the espresso group in the dishwasher. Do not overtighten the locking pin [2].

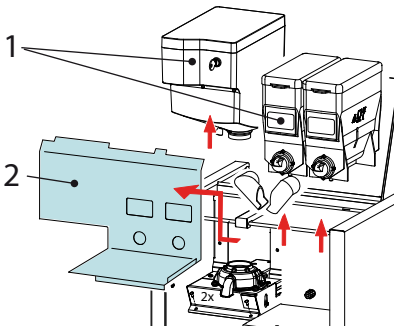
7. After the espresso group is placed back (see 3.4.4), the group will initializes automatically when the machine is switched on and the door is closed.



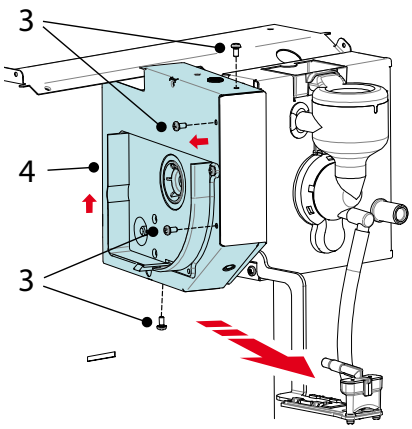
Drive unit

The drive unit can taken out as follows

1. Remove the Bean- and ingredient canisters [1] and dismantle the cover [2] behind it.



2. Remove the screws [3] around the motor housing [4]
3. Carefully take the motor house [4] away from the machine.
4. Disconnect the connectors from the drive unit.



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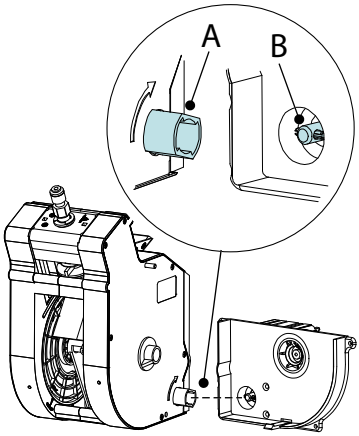
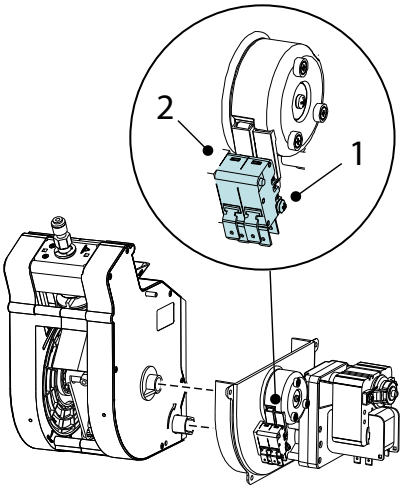
3.4.4 Replace

Turn the drive shaft [A] into the position so that motor shaft [B] fits well when replacing the espresso group.

After closing the machine door, the software checks the espresso group by running it through a complete cycle.





The drive unit contains two micro switches that check the position of the espresso group.

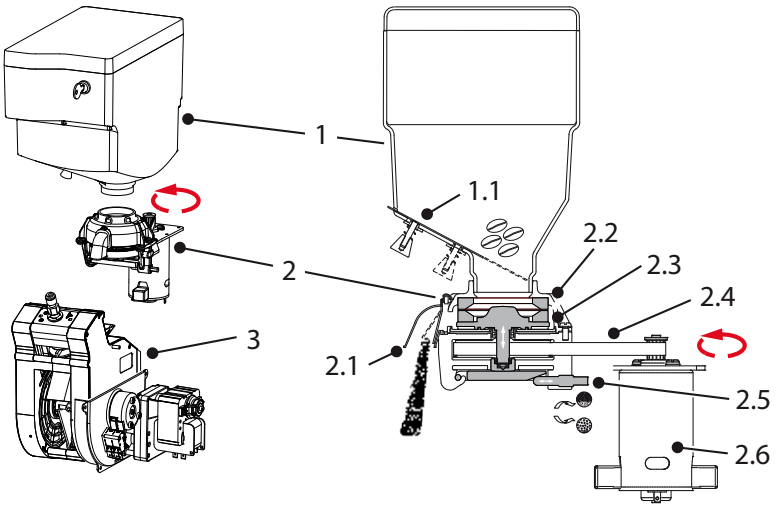
Switch [1] checks (white lever, right) whether the espresso group is in the Brew position (brewing coffee).

Switch [2] checks (grey lever, left) whether the espresso group is in the Load position (filling ground coffee).

3.5 Grinder

The grinder is driven by a powerful DC motor [2.6].
The upper grinding disk [2.2] is fixed. The lower grinding disk [2.3] is driven by a drive belt [2.4]. The grind fineness can be set with an adjustment screw [2.5]. When the screw is turned clockwise, the distance from the upper grinding disk reduces; anti-clockwise it increases.
The ground coffee leaves the grinder via the coffee outlet [2.1]. A rubber flap prevents the entry of moisture.

Major components	Technical data	Material
1. Bean canister	Content 1.5 kg	PC
2. Coffee grinder	Sound level < 70 dB(A)	
2.1 Coffee outlet		ABS
2.2 Upper grinding disk	Ø 65 mm	Ceramic
2.3 Lower grinding disk	Ø 65 mm	Ceramic
2.4 Drive belt		Rubber
2.5 Fine adjustment	Hex. screw + 	
2.6 DC motor	230Vdc	
3. Espresso group	See Section 3.4	



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3.5.1 Basic adjustment

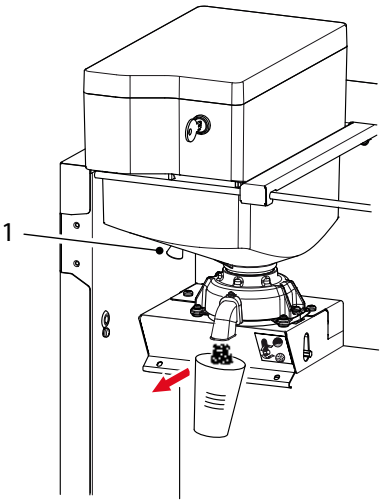
The coffee grinder is factory set for an average grind fineness.

WARNING

- Keep your fingers away from the grinding mechanism when the machine is in operation.

WARNING

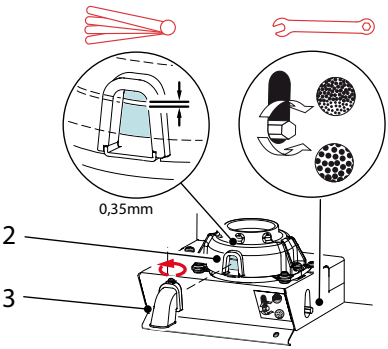
- If there is a sound of two stones rubbing against each other, make the grind coarser.
- The grinding disks must never come into contact with one another.
- The grind fineness and grind capacity depends on the type of coffee beans and the roasting.
- Always adjust the coffee grinder from coarse to fine with the grinder running or empty. Adjusting from fine to coarse can be done when the grinder is stationary.



1. Close the bean canister plug.
2. Remove the stainless steel coffee guide [1].
3. Hold a beaker under the coffee grinder outlet and run the grinder until it is empty.

Tip; go to the service menu: **2.7 Hardware test / Outputs / IM1** Press recipe key 11 until the coffee grinder is empty (the speed increases).

5. Unscrew the black plastic coffee outlet [3] on the grinder.
6. Set the distance between the grinding disks [2] so that a 0.35 mm feeler gauge fits between them.
7. After adjusting the grind fineness, carefully check the operation of the brewer, see Section 2.4.3 Adjust the grind fineness as necessary!



3.5.2 Service life

The service life of the ceramic grinding disks is approximately 3x longer than steel grinding disks. The service life depends on the type of coffee beans* and is approx. 3,000 kg of coffee beans. With an average measure of 7.5 g/cup. that makes approx. 400,000 shots (XL=300,000 shots 9.5 g/cup)

When you reach these grind quantities, we advise you to replace the complete grinder. Not only the grinding disks need to be replaced, but the bearings, carbon brushes and drive belt have also reached their maximum service life. In case of a damaged grinding disk (due to stones or other foreign objects) they can be ordered and replaced as a separate set.

** light to dark roast, dry or oily, caramelized*

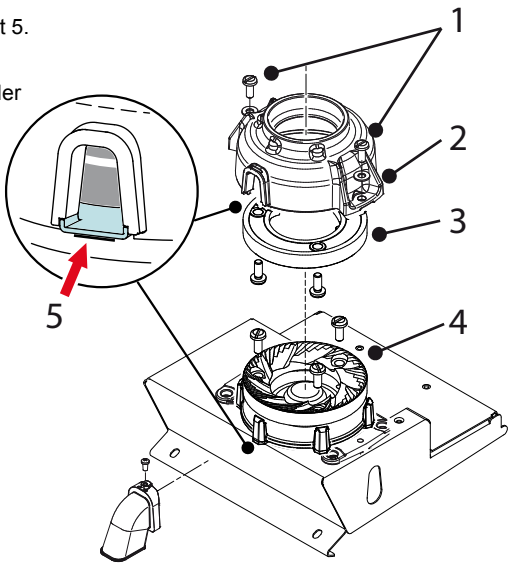
3.5.3 Run in period grinding discs

Tests have shown that new ceramic grinding discs have a run in period of 10 kg of coffee beans (about 1350 cups at 7.5 g / XL=1000 cup at 9.5 g.). We recommend to re-adjust (finer) the grinder after this period.

We recommend to re-adjust (finer) the grinder after this period.

3.5.4 Replacing grinding disks

1. Follow chapter 3.5.1 Basic adjustment till point 5.
2. Switch the machine off.
3. Loosen the screws [1] and dismantle the grinder head [2].
4. Remove the grinding disks [5] by loosening the three screws [4].
5. Thoroughly clean all parts.
6. Fit the new grinding disks in reverse order.
7. Position the lower plastic sealing disc [5] so it shuts the bottom of the grinder spout.



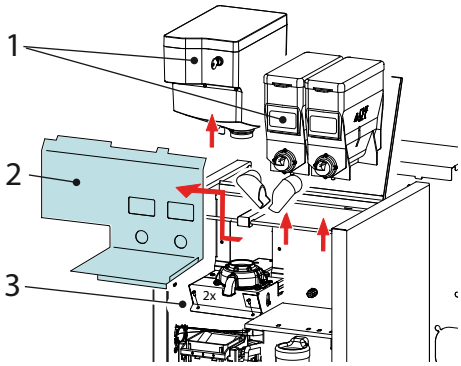
WARNING

- Do not drop the ceramic grinding disks
- The grinding disks must never come into contact with one another.
- After assembly, adjust the grind fineness.

3.5.5 Replacement drive belt

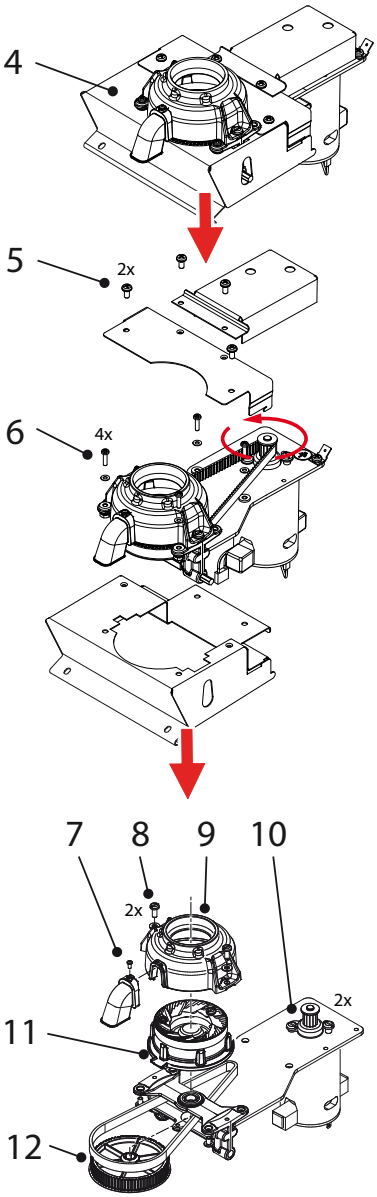
Coffee grinder housing disassembly

1. Remove the bean- and instant canister [1] and remove the cover plate [2] behind it.
2. Disconnect the electrical connections to the small coffee grinder circuit board (via the rear wall).
3. Remove the two screws [3] on the underside of the housing.



Drive belt removal

4. The whole assembly [4] can now be removed from the machine.
5. Remove the three screws [5] and remove the belt cover plate.
6. Remove the four screws [6] from the mounting rubbers and remove the coffee grinder with motor plate.
7. Loosen the screen [7] on the coffee outlet and remove it.
8. Remove the two screws [8] from the grinder housing [9].
9. Remove the grinder housing [9].
10. Slightly loosen the motor screws [10] so that the drive belt tension is released.
11. Pull the grinding disk [11] carrier vertically upwards.
12. Remove the belt disk and belt [12] and replace these parts.
13. Fit the new belt disk and drive belt [12] in reverse order.
14. Tension the belt disk and re-tighten the motor screw [10].



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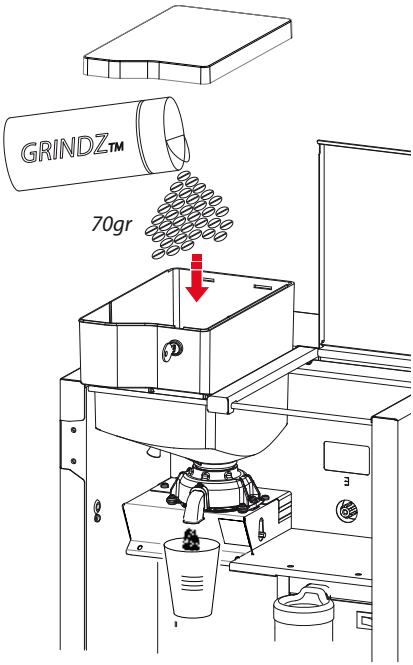
3.5.6 Cleaning

Depending on the fineness of the grind and the intensity of use, coffee residue collects in the grinder housing and on the grinding disks (fine particles, coffee oil, coffee residue), which can affect the grinding capacity, the measuring accuracy and also the taste.



Cleaning frequency
To guarantee a constant grind quality, it is recommended to clean the coffee grinder at least every 6 months.

Recommended cleaning agent

- Coffee grinder cleaner 430 g. GRINDZ ™
- Art. no. 1000151
- Shelf life 18-24 months
- Gluten free

What is GRINDZ ™? Is it harmful?

GRINDZ ™ consists of 100% biological, natural materials (including grain, starch) and is absolutely harmless for the health. It binds the coffee oil and cleans the grinder housing and grinding disks by friction. If small residual particles mix into the follow-up shots, this does not affect the extraction or the taste.

Cleaning with GRINDZ ™

1. Close the bean canister plug.
2. Hold a beaker under the coffee grinder outlet.
3. Run the grinder until it is empty.

Tip; go to the service menu: **2.7 Hardware test / Outputs / IM1.** Press recipe key 11 until the coffee grinder is empty (the speed increases).

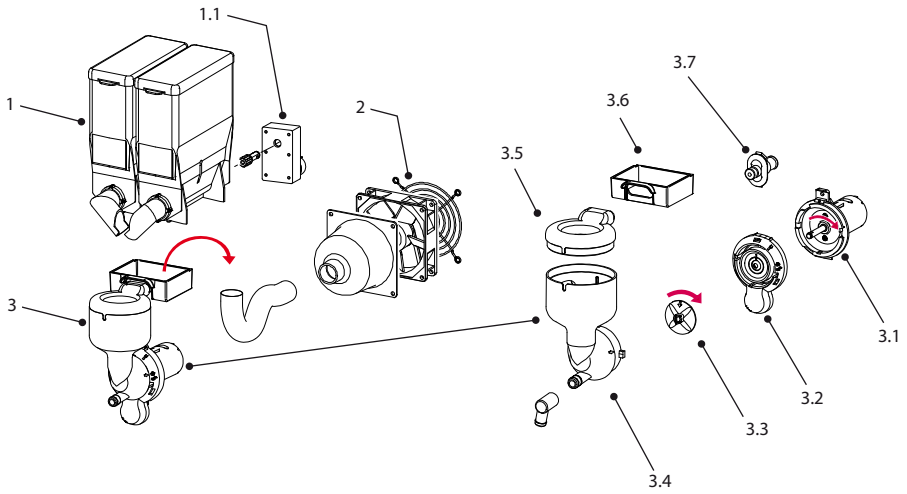
4. Lift the bean canister off the coffee grinder and remove the coffee beans.
5. Place 70 g GRINDZ™ (2x content of the cover) in the bean canister.
6. Grind the GRINDZ™ with the grinder and collect the ground product.
7. Grind approx. 6 shots of coffee to ‘flush’ the GRINDZ™ residue out of the grinder housing.

3.6 Instant group

The instant product (ingredient) is pushed out of the canister [1] by a worm screw and falls via the dispensing nozzle into the mixer unit [3.4]. At the same time, hot water is dispensed into the mixer unit. The instant product and the water are mixed together by the mixer impeller [3.3] driven by the mixer motor [3.1] running at 16.500 rpm . The drink flows via the drink outlet into the cup.

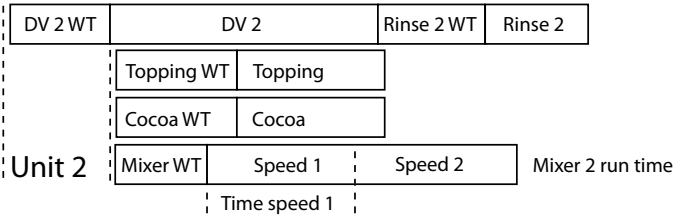
Most of the water vapour given off during the mixing is collected by the vapour drain ring [3.5] and extracted via the extraction tray [3.6] by the fan [2]. The instant residue is collected by the extraction tray. The extraction tray can be easily removed (for cleaning) by dismantling the mixer unit. This largely prevents water vapour getting into the canister outlet and the ingredient becoming moist.

Major components		Art. no.	Technical data
1. Instant canister			
	1.1 Ingredient motor	02906	24Vdc / 130 RPM
2. Extraction System			
3. Mixer group serie 247			
	3.1 Mixer motor	1003567	24Vdc / 16.500 RPM
	3.2 Mounting ring cpl	1003568	
	3.3 Mixer rotor	1003569	
	3.4 Mixer bowl	1003570	
	3.5 Extraction ring	1003571	
	3.6 Extraction drawer	1003273	
	3.7 Water inlet adapter	1004667	Ø 4 mm

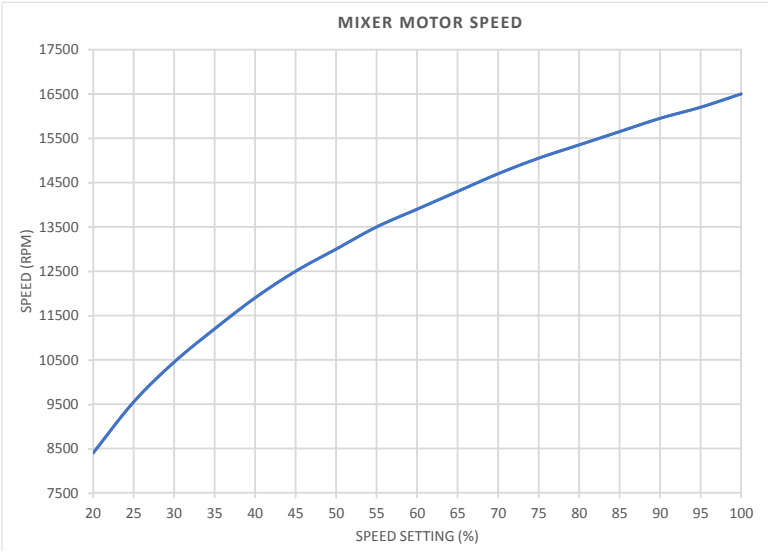


3.6.1 Adjustable mixer speed

The mixer speed is adjustable from 20 to 100%.
During the **Running time** two speeds can set, **Speed 1** and **Speed 2**.
It's possible to adjust the percentage of **Time speed 1.**
Speed 2 is then performed over the remaining **mixing time**.



At low speed, instant product is less whipped as it is at a high speed.



EN

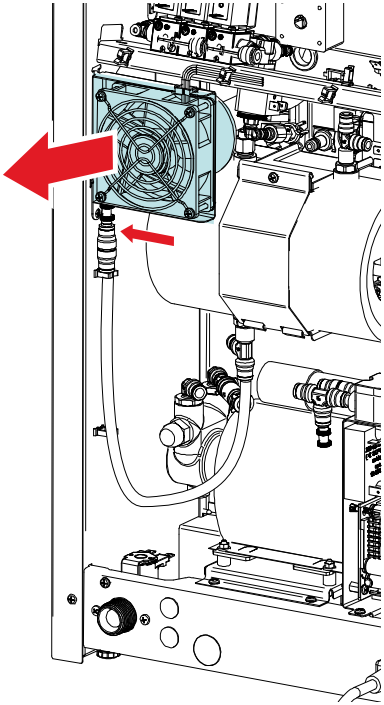
3.6.2 Ventilation mixer group

The fan on the rear side of the machine ventilates the mixer group.

The fan is easy to remove by turning the screw underneath.

The fan speed can be adjusted in the service menu:

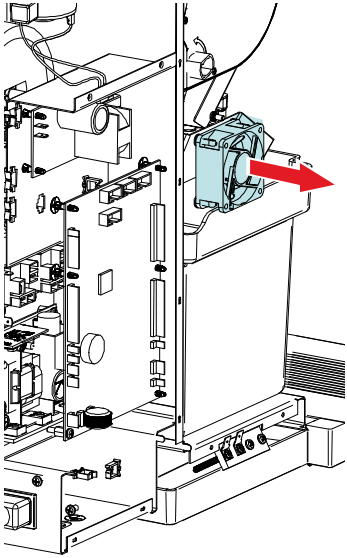
```
2.4 Settings
    └── 2.4.05 Ventilator
            ├── Fan time
            ├── Fan speed 1
            └── Fan speed 2
```



3.6.3 Ventilation waste bin

The fan on the side of the machine ventilates the waste bin.

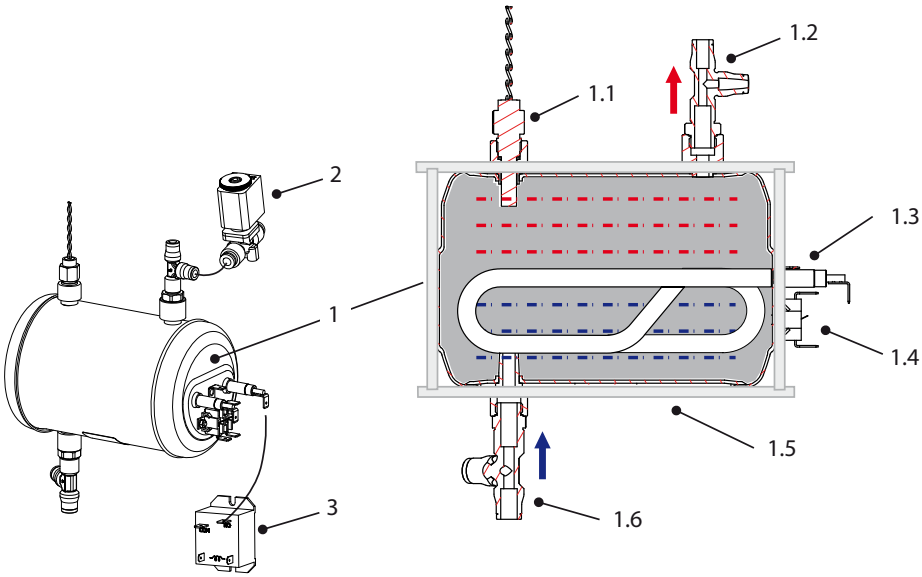
The fan runs as long as the machine is switched on.



3.7 Boiler system

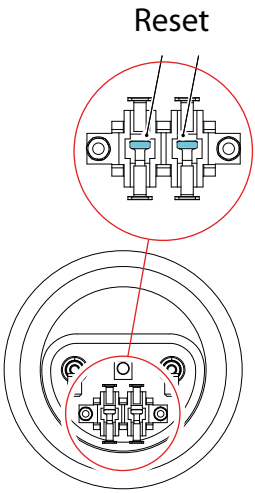
Turn on the device using the ON/OFF switch. The display will light up. If the boiler [1] is empty (first installation or after running the shut down menu) the commissioning menu will automatically starts and will guides you trough the filling up sequence. If the boiler is filled the heating element [1.3] will be switched on by the solid state rails (SSR) [3]. As soon as the NTC sensor [1.1] measures the set temperature, the heating element [1.3] will be switched off. The insulation [1.5] prevents the boiler from cooling down. The boiler is tested at a overpressure of 13 Bar (1,3MPa) constructed for working pressures of 10 bar (1,0 MPa).

Major parts		Technical data	Art.No.	Material
1. Boiler system		1,1 Litre	1000530	st.st.
	1.1 Temperature sensor NTC	100 kΩ/25°C / M12x1	1000740	st.st.
	1.2 Boiler outllet	G1/4" x Ø 6mm (2x)		st.st.
	1.3 Boiler & heating element	230V 1800W / art.nr.	1000530	st.st.
	1.4 Dry boil protection	230V 16A / art.nr.	1000736	st.st.
	1.5 Insulation			PEC
	1.6 Boiler inlet	G1/4" x Ø 8mm (2x)		st.st.
2. Dispensing valve (3 way)		See 3.7.1 Dispensing valve	1000699	
3. Power relay		24Vdc / ~250Vac 30A	1004596	



Dry boil protection

This double pole dry boil protection [1.4] protects the heating element [1.3] against dry boiling. When the switch detects a temperature above 135°C both contacts switch off and disconnect both heating connection from the electric mains. Reset is only possible after de boiler has cooled down and both contacts are manually reset by hand.



WARNING

- Always disconnect the machine from the mains, the reset buttons are life!

If the dry boiler protection [1.4] is activated a Error 21 shall appear on the display after 6 minutes.

The reason from activating the protection can be caused by air in the waters main which is transported to the boiler, or an other malfunction of the heating system

Temperature regulation

The heating element [1.3] is turned on when the water temperature falls below the temperature setting. The temperature in the water reservoir is measured using an NTC precision sensor [1.1] mounted trough the wall of the boiler.

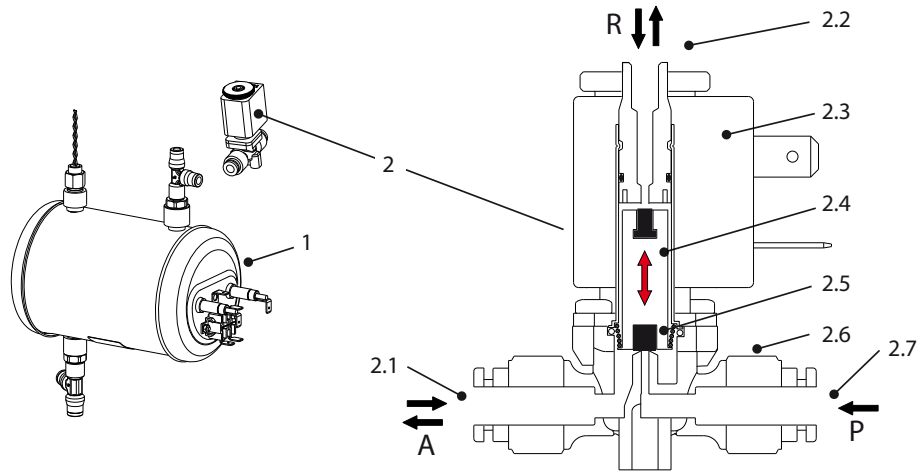
The heating element always switches off when the maximum boiler temperature of 105˚C is reached, a E6 error will appear on the display.

3.7.1 Dispensing valves

The dispensing valves [2] used in the OptiBean are all the same and are so called 3-way valves. Brewer valve DV1, mixer valve DV2 and hot water valve DV4 are used as N.C. valve (Normally Closed). The connection P [2.1] is connected to the pressurised side. At a de-energized valve, outlet A [2.7] is in open connection with the outlet R [2.2], so the tubes towards the mixer and hotwater outlet always runs empty. During a drink selection one of the dispensing valves [DV] is ACTIVATED and opens. Outlet R [2.2] closes and pressurised water flow from connection P to A.

The (expansion) dispensing valve DV6 is build-in as a N.O. valve (Normally Open). Connection A [2.7] is connected to the pressurised side. Expansion water from the boiler can escape from connection R [2.2]. The valve DV6 will be closed when a coffee (10 bar) is made.

Major parts		Technical data	Material
1. Boiler system		1,1 Litre	AISI 316
2. Dispensing valve 12 bar (3-2 way)		art.no. 1000699	
	2.1 Inlet (P)	Ø 6mm push fit	
	2.2 Aeration (R)	M5	
	2.3 Coil	24Vdc - 8,3W - 100% ED	
	2.4 Plunger		St.St.
	2.5 Seal		EPDM
	2.6 Body	DN 1,5 (Diameter Nominal)	PPSU
	2.7 Outlet (A)	Ø 6mm push fit	VMQ



Printed-on black arrow: Flow in direction of the arrow on the valve body ←

EN

3.7.2 Removing / replacing valves

WARNING

- Pressurised hot water! Do not remove components like valves, couplings, plugs and hoses before depressurise the boiler system.

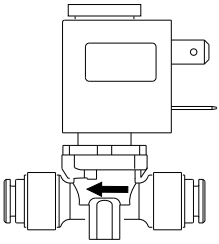
Most valves (DV2, DV4, DV6) are accessible by dismantling the back cover. The brewer valve (DV1) is accessible by dismantling the right side of the machine.

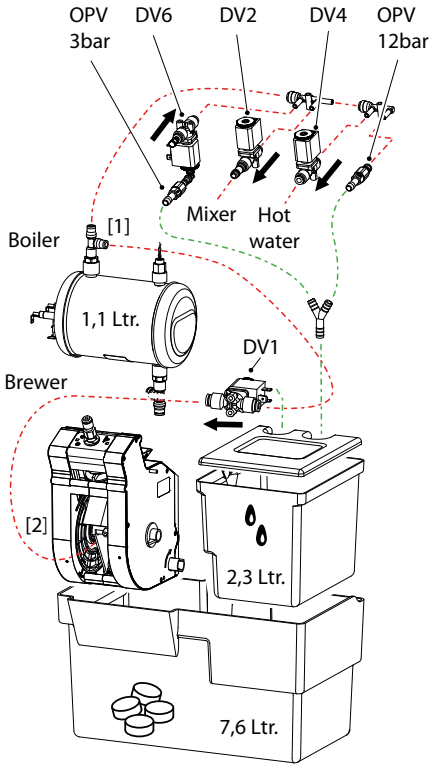
1. Activate the shut down menu in the service menu **2.14 Installation / Shut down** and following the instructions on the display.
2. For just releasing the pressure in the boiler it is not necessary to disconnect the supply hose. Press enter (v)

3. Stop the process, the boiler is now depressurised.

   Dispensing valves DV2, DV4 and DV6 can be reached by removing the back.

   Dispensing valve DV1 can be reached by removing the right side cover. Remove the brewer so that the valve mounting screws are visible and unscrew them. Remove the valve hose from the boiler [1] and brewer [2].
4. Remove a valve by pressing the outer ring of the push fit couplings.
5. Replace the valve for a repaired or new one. Check the flow direction before fitting it in place.





Rest water per recipe:

- Coffee abt. 21 ml
- Cappuccino abt. 26 ml
- Hot water abt. 2 ml

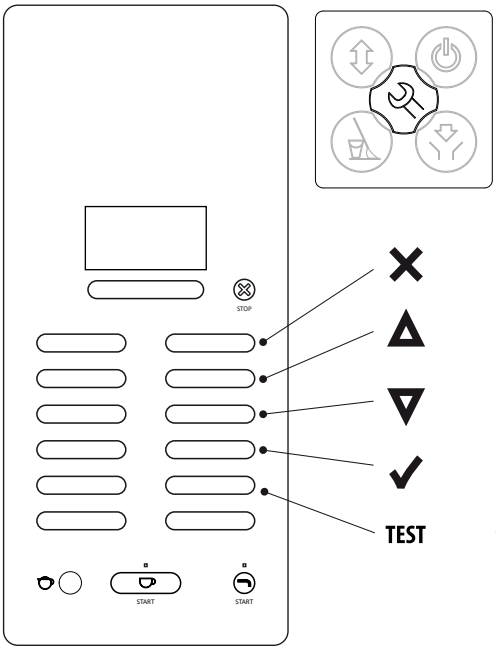
4. MENU STRUCTURE

4.1 The operator / service menu

Most of the settings, including the product settings are secured by a PIN code. This PIN code is intended to prevent the user accessing the service menu.

It is recommended not to leave this document with the user after installation and to change the standard factory PIN code.

This chapter describes the various settings that can be changed by **trained, authorised service personnel**. How you gain access to the **service menu** is described below. Once in the service menu, the control panel has the following functions:



Escape (return without changing)

Previous (menu item / increase value)

Next (menu item / decrease value)

Enter (accept menu option)

Test (test button for hardware test)

- Menu items are connected to each other in a ‘loop’.
- Exit the Operator menu; press the X key 1x.
- Exit the Service menu; press the X key 2x.
- After exiting the service menu, a long peep signal follows as a sign that changed settings are being stored in the memory.
- If the service menu has to be opened again within 5 minutes, the machine will not ask for a PIN code again.

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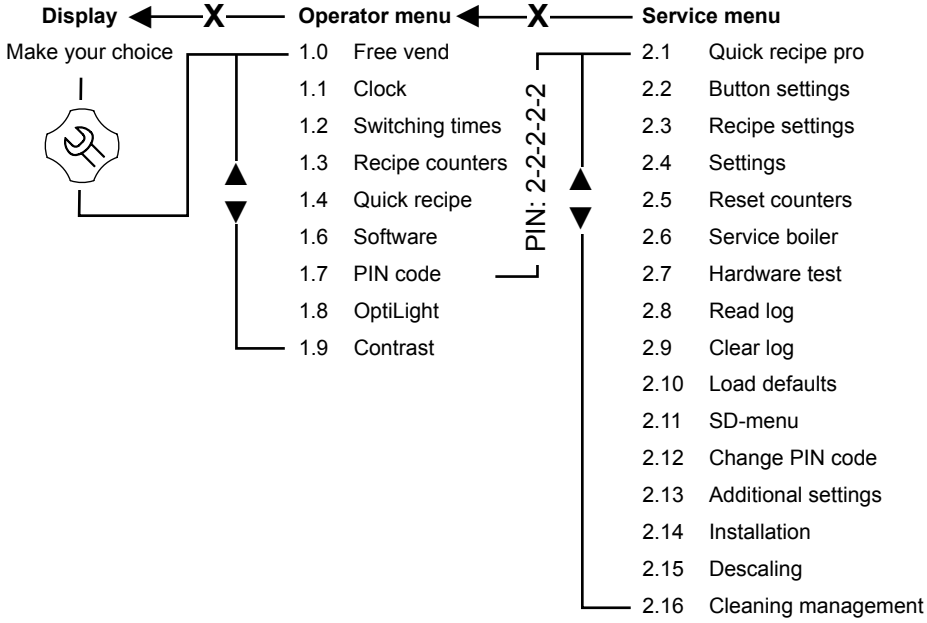
Menu overview:



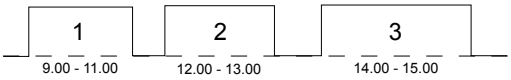
The operator and service menu of the OptiBean is constructed almost the same as the OptiVend NG and OptiFresh NG machines.

4.2 The operator menu

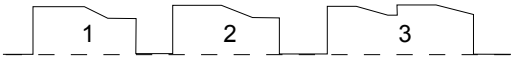
Operator menu					
Main item	Sub-item		Range	Set	Description
1.0 Free vend			yes-no	yes	Set the machine for free or paid vending.
1.1 Clock	Time		HH:MM		Set the clock to the correct local time.
	Date		DD-MM-YYYY		Set the clock to the correct local date.
1.2 Switching times	Mo-Fri	Mo-Fri1 Mo-Fri 2 Mo-Fri 3	Machine stand-by	On time Off time	**Stand-by**: blocks keys and switches off. Set the time (max. 3 timers) when the machine must be in operation. When the timer switches the machine off it automatically goes into **stand-by** and/ or **energy mode** (if activated). **Pricing at time period:** On/Off time set (max 3 timers.): The machine performs in this period the set **price choice, Price low** or **Free**. If no time is set **price high** will be used. **Price choice:** Specify here at what pricing choice, **free, price high or price low**, the machine must handle.
			Pricing time per.	On time Off time	
			Price choice	Free High Low	
	sat	sat 1 sat 2 sat 3	Stand-by	On time Off time	
			Pricing time per.	On time Off time	
			Price choice	Free High Low	
	sun	sun 1 sun 2 sun 3	Stand-by	On time Off time	
			Pricing time per.	On time Off time	
			Price choice	Free High Low	
	Energy save mode	Active	yes-no	yes	**Energy save mode active**: after the set time the machine goes to power save (sleep mode) and uses less energy. The product keys remain active but the boiler cools down in steps of 5°C. When a product is chosen, the machine 'wakes up' and after a short warm-up period is ready for operation again.
		Time	15-240 min.	30 min.	
		LCD	yes-no	yes	Backlight LCD display during energy save mode.
		OptiLight	0-100%	15%	OptiLight during energy save mode. 0=off
		Boiler temp.	off / 60-80°C	off	Boiler temperature during power save.

Example:

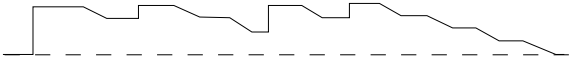
Three switching times set
Machine automatically switches from Stand-by to ON at 9 am. At 11am back to Stand-by, etc., etc.
During stand-by the key panel is switched off and the boiler temperature drops to the set stand-by temperature (menu 2.4 Settings / Stand-by temp / off - 60-80°C (by default the stand-by temp is set to 'off')



Three switching times set & Energy save mode activated.
When the machine is ON and it is not in use, it switches to power save after 30 min.
The boiler temperature decreases by 5°C every 30 minutes. If a product is chosen after 2 hours, the machine springs back into life. In this way, less energy is used if the machine is switched on but is used little or if someone forgot to switch it off.

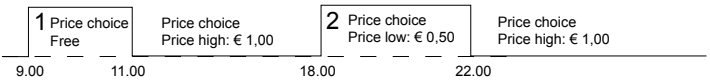


Energy save mode activated (no switching times set)
If there is no dispensing, the machine switches to power save after 30 min. The boiler temperature decreases by 5°C every 30 minutes. If a product is chosen after 2 hours, the machine springs back into life. In this way, less energy is used if the machine is switched on but is used little or if someone forgot to switch it off.



Example:

Three set prices for beverages Mon-Fri.



Service menu / 2.2 Button settings / Button 1- - - - 10 Price / Price high 1,00 + Price low 0,50

Service menu / 2.4 Settings / Payment system / G13
Operator menu / 1.0 Free vend / No

1.2 Switching times / mo-fri / mo-fri 1

9.00 till 11.00 free — Pricing time / on time 9.00 & off time 11.00
Price choice / free

If no time is set from 11:00 to 18:00 the machine is automatically switched from free to price high rate.

1.2 Switching times / mo-fri / mo-fri 2

18.00 till 22.00 price low (0,50) — Pricing time / on time 18.00 & off time 22.00
Price choice / price low 0,50

After 22:00 the machine will automatically switch over from low price to high price. When Saturday and Sunday have not been set the machine stays these days on price high rate.

EN

Operator menu continued...					
Main item	Sub-item		Range	Set	Description
1.3 Recipe counters	Recipe 1 Recipe 12	Total	cups		Total count per recipe (from free till jugs).
		Free	cups		Number of drinks free
		Paid price	cups		Number of drinks paid price
		Jug	cups		Number of drinks dispensed in jug
	Recipes total	See above	cups		Total count for all recipes with the same subdivision as above
	service counters	Rinse			Rinse programme counter
		Clean			Cleaning programme counter
	Reset counters				Reset all counters if activated
	Save counters 				Copy your counter readings to an SD card - Place an SD memory card in the slot - Press enter; save as: file.CNT - Press Enter → please wait → saved - Remove the SD card - Place the SD card in your computer and open the file.CNT with notepad or Word pad. See the example on page 45 Error messages: SD card error: lock function on SD card ON No SD card present: no SD card inserted
1.4 Quick recipe	Recipe name 1 Recipe name 12	Cup volume	25-350 ml	120 ml	Here you can easily set the volume and strength of coffee, milk, sugar, cocoa yourself for each recipe (drink key). Only the ingredients for the recipe concerned are visible.
		Coffee (1)	-5 / +5%	0%	
		Topping (3)	-5 / +5%	0%	
		Cocoa (4)	-5 / +5%	0%	
1.6 Software	Software				Software version Vx.xx.xxx Model file *.MDD Recipe file *.RCD Laguage file *TLF Software version ANILCD Vx.xx.xxx
	Hardware				Main board Rev 1 Interface board Rev 0
1.7 PIN-code			2-2-2-2-2		Pin code is press the 2 key 5x
1.8 OptiLight	Red		0-100%	0%	Set your LED lighting colour yourself by setting the colours red, green and blue. When Random is set, the LED mood lighting cycles through the whole colour spectrum at the set time. 0= off
	Green		0-100%	0%	
	Blue		0-100%	100%	
	Random		0-60 min.	10 min.	
1.9 Contrast			0-100%	25%	Set the contrast of the LCD display
1.10 Cup sensors	Cup sensor left		yes-no		yes; cup sensor active no; cup sensor not active
	Cup sensor middle		yes-no		
	Cup sensor right		yes-no		

4.3 The service menu

Service menu					
Main item	Sub-item	Item	Bereik	Set	Beschrijving
2.1 Quick recipe pro	<Recipe name> 1 | <Recipe name> 12	Cup volume	25-350 ml	120ml	Here you can easily set the volume and strength of coffee, milk, sugar, cocoa yourself for each recipe (drink key). Only the ingredient for the recipe concerned is visible.
		Coffee (1)	0,0 - 5,00 s		
		Topping (3)	0,0 - 5,00 s		
		Cocoa (4)	0,0 - 5,00 s		
2.2 Button settings	Button 1 | Button 12	Recipe	Coffee ↓ list ↓		Change any recipe buttons here that standard factory settings. All settings that correspond to selected recipes are automatically loaded. See chapter 2.1 How to program a recipe?
		Recipe active	Yes/no	Yes	Use this to place the product concerned out of service.
		Price			
		Price high	0,05-2,00	0,10	For paid dispensing a price high can be set here for each product button.
		Price low	0,05-2,00	0,25	For paid dispensing a price low can be set here for each product button.
		Kopvolume	25-350 ml	120ml	Set the desired cup volume here. When the Cup volume (menu parameter) is increased, instant products Topping and Chocolate will be automatically proportional increased. The coffee however will not automatically increased!
		Multicup	0-10	0	Set the number of cups that should be dispensed when the key switch is in the jug setting.
		Key switch	0-1-2-3-4		Set the required operation of the key switch. See table 2
		Push & Hold	Yes-No	No	If set to yes; when this key is held the dispensing of the hot/cold* water starts and stops when it is released. Use this option only with DV 4 and KW3 in combination with a hot/cold* water recipe key. * Cold water is optional
		Drip time	0-10 sec.	2 sec.	The time that the product continues to run out of the brewer or mixer. After this interval has elapsed a new drink selection can be made.
		Pre-infusie	ja-nee	ja	**Pre-infusion for optimum espresso extraction.** Pre-infusion is the advance moistening of the ground coffee just before the coffee is made. This ensures an even better extraction and creaming of the coffee. This option only works for the coffee and espresso recipes.

EN

OptiLight colour recipes

OptiLight	red	green	blue	OptiLight	red	green	blue
Red	100%	0%	0%	Light blue	0%	100%	100%
Green	0%	100%	0%	White	100%	100%	100%
Blue	0%	0%	100%	Pink	100%	0%	10%
Yellow	100%	50%	0%	Orange	100%	15%	0%
Purple	100%	0%	100%				

Table 1

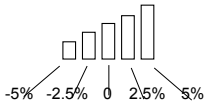
Key switch

Software menu parameter				Key switch	
Key switch	Multicup	Free vend	Payment system G13 / MDB	(off)	(on)
0	0	Yes	n.a.	free cup	free cup
		No	Yes	paid cup	free cup
			No	free cup	free cup
	>1	Yes	n.a.	free jug	free jug
		No	Yes	paid jug	free jug
			No	free jug	free jug
1	0	Yes	n.a.	free cup	free cup
		No	Yes	paid cup	free cup
			No	free cup	free cup
	>1	Yes	n.a.	free cup	free jug
		No	Yes	paid cup	paid jug
			No	free cup	free jug
2	0	Yes	n.a.	not possible	free cup
		No	Yes	not possible	free cup
			No	not possible	free cup
	>1	Yes	n.a.	not possible	free jug
		No	Yes	not possible	paid jug
			No	not possible	free jug
3	0	Yes	n.a.	free cup	free cup
		No	Yes	paid cup	free cup
			No	free cup	free cup
	>1	Yes	n.a.	free cup	free jug
		No	Yes	paid cup	free jug
			No	free cup	free jug
4	0	Yes	n.a.	free cup	free cup
		No	Yes	paid cup	free cup
			No	free cup	free cup
	">1 (2)"	Yes	n.a.	free jug	free jug
		No	Yes	paid jug	free jug
			No	free jug	free jug

Table 2

Service menu continued ...						
Main item	Sub-item	Sub	Item	Range	Set	Description
2.3 Recipe settings	<Recipe name> 1 … <Recipe name> 12	Unit 1	DV 1 WT	0,0-30,0 s		WachtTijd DoseerVentiel 1
			DV 1	0-100 ml		Doseerhoeveelheid DoseerVentiel 1 (Brewer)
			Koffie WT	0,0-30,0 s	0,5 s	Wachttijd koffiemolen
			Koffie	0,00-5,00 s		Koffiedoseertijd koffiemolen
			Brewer WT1	0,0-30,0 s	0,5 s	Wachttijd 1 brewer na koffiemalen.
			PI time	0,0-15,0 s	Stand 1,0 s. XL 1,5 s.	**Pre-infusion time (PI time).** The brewer valve is open for the set PI time, the coffee powder is moistened at water supply pressure (approx. 2 bar). **Note:** if coffee is still coming out of the brewer, the PI time is too long.
			PI pause	0,0-15,0 s	2,2 s.	**Pre-infusion pause (PI pause).** The brewer valve is kept closed during the set PI pause; the coffee swells up. **Note:** the Pre-infusion function can simply be turned ON/OFF in menu 2.2 Button settings) / Pre-infusion).
			Brewer WT2	0,0-15,0 s	3,0 s.	Brewer delay time 2 after making coffee. This affects the residual moisture in the coffee pellet.
			Pressure WT1	0,0-15,0 s		Delay time between unit 2 and unit 1 Mainly used for extending the time between topping and coffee for Latte macchiato.
			Pressure time	0,0-15,0 s		The pressure boiler is brought to low pressure.
			Pressure WT2	0,0-15,0 s		Delay time 2 after the pressure boiler is reduced to low pressure again.

EN

Service menu continued ...					
Main item	Sub-item	Sub	Item	Range	Description
2.3 Recipe settings (continued....)	<Recipe name> 1	Unit 2	DV 2 WT	0,0-30,0 s	Pressure valve delay time 2
			DV 2	0-100 ml	pressure valve measurement quantity 2
			Rinse 2 WT	0,0-20,0 s	Pressure valve rinse water delay time 2
			Rinse 2	0-15 ml	Pressure valve rinse water quantity). Is automatically offset by DV 2
			Topping WT	0,0-30,0 s	Topping delay time
			Topping	0,00-5,00 s	Topping product dispensing time
			Cacao WT	0,0-30,0 s	Cocoa delay time
			Cacao	0,00-5,00 s	Cocoa product dispensing time
			Mixer 2 WT	0,0-30,0 s	Delay time Mixer 2
			Mixer 2		
			Running time	0,0-10,0 s	Mixing time Mixer 1
			Speed 1	20-100%	1st speed Mixer 1
			Time speed 1	0-100%	Time 1st speed Mixer 1
	<Recipe name> 12		Speed 2	20-100%	2nd speed Mixer 1
		DV 4 WT		0.0-30.0 s	Pressure valve 4 delay time
		DV 4		0-100 ml	Pressure valve 4 dispensing quantity (hot water dispensing)
		DV 5 WT		0.0-30.0 s	n.a.
		DV 5		0-100 ml	n.a.
		Range ingredient	Coffee strength	0-10%	With the strength range item an ingredient can be added to the strength control. Ingredient strength control: 0 = off / >1 = on Example: [coffee] 5% 
			Topping strength	0-10%	
			Cocoa strength	0-10%	
		Unit sequence		Unit 1-2 Unit 2-1	*Set the unit sequence here.* *For example, Coffee with Milk:* *Unit 1-2 first Coffee (unit 1) then milk (unit 2).* *Cappuccino and/or Latte macchiato:* *Unit 2-1 first Milk (unit 2) then Espresso (unit 1).*
		KW 3 WT		0.0-30.0 s	Cold water valve 3 delay time *
		KW 3		0-100 ml	Cold water valve 3 dispensing quantity * (* Optional cold water dispensing)

Service menu vervolg ...					
Hoofd item	Sub item	Item	Bereik	Set	Beschrijving
2.4 Settings	Language	English			Display language selection. English is factory set. Other languages on request (if available)
		Nederlands (Dutch)			
		Deutsch (German)			
		Français (French)			
		Svenska (Swedish)			
		Norsk (Norwegian)			
		Suomi (Finnish)			
		Dansk (Danisch)			
	Temperature	Temperature boiler	70-97°C *	90°C *	Boiler temperature
		Temperature hysteresis	0-10°C	0°C	Temperature decrease after which the boiler must heat up again
		Output block	70-80°C	70°C	Boiler temperature at which no more vending can take place. Display: [Out of service, boiler heating]
		Output release	80-90°C	80°C	Boiler temperature at which vending can be released again
		Temperatuur stand-by	uit / 60-80°C	uit	Boiler temperatuur tijdens stand-by
	Display	Show clock	Yes/no	No	Show clock in display
		Show date	Yes/no	No	Show date in display
		Daylight saving time			
		Autom saving time	Yes/no	Yes	Automatic summer time
		Summertime zone	EU/USA zone	EU	Summer time zone
		Time differences	+1 / -1 DTS	+1	Time difference
	Use beeper		yes-no	yes	Sound signal on or off
	Ventilator	Fan time	0-300 sec.	60 s.	Duration of fan speed 2 after dispensing.
		Fan speed 1	40-100%	40%	Fan speed when idle
		Fan speed 2	40-100%	70%	Fan speed during dispensing

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Service menu continued ...						
Main item	Sub-item	Item		Range	Set	Description
2.4 Settings (continued...)	Coin system	None				No payment system connected
		G13	Coin channel 1 ... Coin channel 6	0-100.00 + Token	€ 0.05 € 0.10 € 0.20 € 0.50 € 1.00 € 2.00	Coin value per channel setting. Resp. € 0.05 to € 2.00. 0.00 = free TOKEN = coffee coin.
			Single vend	yes-no	yes	Yes: any excess money inserted is not kept for the following drink. No: is kept for the following drink.
			Max coin acception	€ 0.05-100.00	€ 2.00	Insertions higher than, for example, € 2.00 will be refused and returned via the coin groove of the coin mechanism. Set to the highest recipe product price.
			Point position	0-2	2	The position of the decimal point in the amount.
			Show credit	yes-no	yes	Display credit (Cr.) on the display
		MDB	Single vend	yes-no	yes	Yes: any excess money inserted is not kept for the following drink. No: is kept for the following drink.
			Max coin acception	€ 0,05-100,00	€ 2,00	Insertions higher than, for example, € 2.00 will be refused and returned via the coin groove of the coin mechanism. Set to the highest recipe product price.
			Point position	0-2	2	The position of the decimal point in the amount.
			Show credit	yes-no	yes	Show credit (Cr.) on the display.
			Purchase obligation	yes-no	yes	Whether money is returned or not when the return handle is pressed.
			Pre pay	yes-no	no	Whether or not a drink selected can be made after sufficient money has been inserted.
			Cash and Card	yes/no	no	yes: when Y-cable is used for coin- and card system on one MDB connection
			External release?	yes/no	no	yes: the machine can be released by using a potential-free contact (pulse).
			External release time	0-255 sec.	20 s.	Set the time that the machine may be released

# Coin channel settings foreign currencies		Danish Krone	Swedish Krone	Norwegian Krone	South African Rand	Jordanian Dinar
		DK	SKR	NOK	ZAR	JOD
	CH 1	0,50	0,50	1,00	0,50	0,50
	CH 2	1,00	1,00	5,00	1,00	1,00
	CH 3	2,00	5,00	10,00	2,00	25,00
	CH 4	5,00	10,00	20,00	5,00	50,00
	CH 5	10,00	1,00	10,00	5,00	1,00
	CH 6	20,00	0,00	20,00	0,00	0,00
	Max coin accep.	10,00	10,00	10,00	2,00	50,00

Service menu continued ...					
Main item	Sub-item	Item	Range	Set	Description
2.4 Settings (continued...)	I/0 reset counters		yes-no	no	Add menu item Reset counters to the operator menu.
	I/0 Quick recipe		yes-no	no	Menu item Snelrecept aan het operatormenu toevoegen
	Drip tray signal		yes-no	yes	Deactivate the drip tray sensor warning in the software.
	Demo modus		yes-no	yes	This function can be used when the machine is in a showroom or at a trade fair. The machine does not then need to be connected to a water supply. In the display, DEMO is shown on the bottom line. Keys, LEDs and the Display operate normally.
	Stop button		yes-no	yes	If this function is standard set to yes. To deactivate the stop button, set no
	Direct choice		yes-no	no	If this function is set to Yes, the chosen product will be started immediately, without the start key being pressed. Strength setting is possible.
	Free vend		yes-no	yes	Set the machine for free or paid vending.
	I/0 Free vend		yes-no	yes	Add/remove menu item 1.0 Free vend to the operator menu.
	Cup sensors	Cup sensor left	yes - no	yes	yes; cup sensor active no; cup sensor inactive
		Cup sensor middle	yes - no	yes	
		Cup sensor right	yes - no	yes	
		I/0 Cup sensors	yes - no	yes	Add/remove menu item 1.10 Cup sensors to the operator menu.
	Optilight brewing process	blink during process	yes - no	no	Blinking OptiLight during dispensing a drink
		blink rate	0,1 - 10,0	0,3	blinking rate setting
		Optilight	R G B	red	coulour setting during blinking
	Telemetry	None			No telemetry system connected.
		MDB			Telemetry system connected via MBD port. Insert SD card with min. 1Gb in card holder, here the EVA DTS file will be stored. Data transfer via MDB connection.
		DEX-UCS			Telemetry system connected via DEX port. Insert SD card with min. 1Gb in card holder, here the EVA DTS file will be stored. Data transfer via DEX connection.

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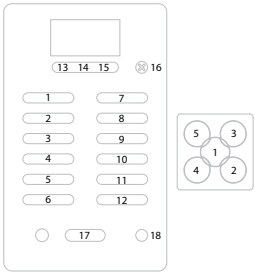
Service menu vervolg ...					
Hoofd item	Sub item	Item	Bereik	Set	Beschrijving
2.5 Reset counters	Service counters	Rinse counter?			Reset rinse counter.
		Clean counter?			Reset cleaning counter.
	Recipe counters	Recipe counter 1 - 12			Reset recipe counters for each recipe.
		Reset total counter			Reset total counters.
	Reset all counters				Reset all counters at once.
2.6 Service boiler	Service moment	Cups	0-50.000	20.000	After reaching the set service moment (cups), the message Service boiler appears in the display on switching on. See also Chapter 6 Service.
		Month	0-18	0	If desired a point of time can be set when the **Service boiler** signal should appear. Example: If 12 months is set during installation the service boiler message will appear on the display 12 months after installation.
	Service counter	Cups		20.000 ↓ 0 ↓ -20.000	The total number of vended cups is counted down here. It can be checked here at any time how far away the machine is from periodic maintenance (boiler descaling or water filter replacement). When the counter reaches 0 it continues with a negative count.
		Month			
	Reset service counter				After periodic maintenance has been carried out (boiler descaled or filter replaced) the service counter must be set to zero.

Water hardness table

Water Quality	Hardness					Service moment after x (cups)
	°D	°F	°K	mmol/l	mgCaCo3/l	
Very hard	18-30	32-55	11-18	3,2-5,3	321- 536	5000
Hard	12-18	22-32	7-18	2,2-3,2	214-321	12.500
Average	8-12	15-22	5-7	1,4-2,2	268-214	20.000*
Soft	4-8	7-15	2-5	0,7-1,4	72-268	40.000
Very soft	0-4	0-7	0-2	0- 0,7	0-72	0 = uit

* factory setting

EN

Service menu continued ...				
Main item	Sub-item	Sub	Range	Description
2.7 Hardware test	Inputs	Temp	Boiler temp °C	Shows the status of the sensors/switches concerned 
		Drip tray sensor	yes/no	
		Waste bin	yes/no	
		Door switch 1 (pin)	yes/no	
		key switch	yes/no	
		brewer switch 1 (right)	yes/no	
		brewer switch 2 (left)	yes/no	
		Door switch 2 (lock)	yes/no	
		Key panel		
		Service panel		
		Cup sensor left	yes-no	
		Cup sensor middle	yes-no	
		Cup sensor right	yes-no	
		Jumper detection	yes-no	
	Outputs **Test by holding in recipe button 11.** # During test the display shows the Nominal current (mA). When the Nominal current of a output rises above the set current * mentioned output will be shut off.	KW1	500mA	Inlet valve (Boiler)
		DV1		Dispensing valve 1 (Brewer)
		DV2		Dispensing valve 2 (Mixer 2)
		DV4		Dispensing valve 4 (Hot water)
		DV5		Measuring valve 5 (n.a.)
		DV6		NO valve
		IM1 #	-	Grinder motor 1
		IM3 #	600mA	Ingredient motor 3
		IM4 #	600mA	Ingredient motor 4
		BM #	900mA	Brewer motor
		MM2 #	2000mA	Mixer motor 2
		Ventilator	-	Fan
		LED's		LED's
		KW2		Pump (via SSR)
		KW3	500mA	Valve KW3 cold water
		OptiLight	Red, Green, Blue	

Service menu continued ...				
Main item	Sub-item	Sub	Item	Description
2.7 Hardware test (continued...)	Calibration water system	Flow meter	1.850 p/ml (1.700-2.000)	With this (if necessary) the flow meter can be calibrated. The calibration is not described because it is not expected that it will ever have to be carried out.
		KW1		
		Pump		Check/set the pump pressure (10 bar). Connect the manometer to the boiler inlet. Caution! Release the pressure in the boiler first using 2.14 Installation / Shut down. Press the test key, activate KW1 (inlet valve), KW2 (pump) and DV6 (NO valve). Adjust the pump pressure (see Section 5.4) with the adjustment screw on the pump housing. Stop measurement; press any key.
	Operating hours	Brewer/Mixer(s)	Brewer	Day - Hour : Min. 0 - 00 : 00 Number x activated _ _ _ _ x
			Mixer 2	
		Ingredient motor(s)	IM 1 (grinder)	
			IM 3 (topping)	
			IM 4 (cocoa)	
		Pump	KW2 (pump)	
		Valves	DV1 (brewer)	
			DV2 (mixer)	
			DV4 (hot water)	
			DV5	
			DV6 (NO valve)	
			KW1 (inlet valve)	
			KW3 (cold water)	
		Element	Element 1	
			Element 2	

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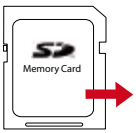
Service menu continued ...			
Main item	Sub-item	Item	Description
2.8 read log			Last 20 error messages including time and date will be saved
2.9 Erase log	Are you sure?		Log will be erased
2.10 Load defaults # See Section 1.2 Model code			
	Model **#** OB1 OB3	Type code Stand XL 2B1D 2B1N 2BAD 2BAN	The defaults must be loaded when a new circuit board is installed. When loading the defaults, the OptiBean model stated on the type plate must be set. Only after confirming the question 'are you sure?' the right model settings will be loaded. **Note:** ● When you confirm this setting, all factory settings are loaded into the control and all changed programmed values are lost. ● After loading the defaults, the PIN code is 2-2-2-2-2 again and the language is set to English again. Change as necessary.
2.11 SD menu Before loading or saving data, place an empty SD memory card in the card reader. This is located behind the stainless steel panel on the inside of the door.	Load data 	Personal settings	With this menu item **Personal settings** can be loaded into the machine using an SD memory card (uploaded). This file contains the (changed) personal settings for the menus; **2.4 Settings / 2.6 Service boiler / 2.13 Additional settings**. The data file (2Bxxxx00.MDU) must be on the SD card.
		Language	With this menu item, a **non-standard language** set can be loaded into the machine. The data file (xxxxxx.TLF) must be on the SD card.
		Recipe	With this menu item **Personal recipes** can be loaded into the machine using an SD memory card (uploaded). This file contains the (changed) personal recipes for the menus; **2.1 Quick recipe / 2.2 Button settings / 2.3 Recipe settings**. The data file (2Bxxxx00.RCU) must be on the SD card.
		Counters	With this menu item **Recipe counters** can be loaded into the machine using an SD memory card (uploaded). There must be a data file (2Bxxxx00.CNT) on the SD card. This file contains all recipe counters from the **1.3 Recipe counters** Use this function only when, for example, a new control must be installed in the machine and the counters must be 'moved' from the old control to the new one. Do not misuse this function!
		Operating hours	With this menu item **Operating hours** can be loaded into the machine using an SD memory card (uploaded). There must be a data file (2Bxxxx00.TMR) on the SD card. This files contains all the operating hours from the menu **2.7 Hardware test / operating hours**. Use this function only when, for example, a new control must be installed in the machine and the counters must be 'moved' from the old control to the new one. Do not misuse this function!

Service menu continued ...			
Main item	Sub-item	Item	Description
2.11 SD menu (continued....)	Save data 	Personal settings	With this menu item **Personal settings** can be saved on an SD memory card and/or copied to another machine. All changed settings made in the menus; **2.4 Settings / 2.6 Service boiler / 2.13 Additional settings** are saved in a data file (2Bxxxx00.MDU) on the card.
		Recipes	With this menu item **Personal recipes** can be saved on an SD memory card and/or copied to another machine. All changed settings made in the menus; **2.1 Quick recipe pro / 2.2 Button settings) / 2.3 Recipe settings** are saved in a data file (2Bxxxx00.RCU) on the SD card.
		Counters	With this menu item **Recipe counters** (personal recipes) can be saved on an SD memory card. All counter readings from the menu; **1.3 Recipe counters** are saved in a data file (2Bxxxx00.CNT) on the SD card. **Note;** after the counters have been saved you will be asked if the counters in the machine must be reset. Press Esc. (X) for NO, press Enter (V) for YES.
		Log	With this menu item the **Log** (error messages overview) can be saved on an SD memory card. All error messages from the menu; **2.8 Read log** are saved in a data file (2Bxxxx00.LOG) on the SD card. **Note;** Depending on your settings, Windows can see this file as a TXT file.
		Operating hours	With this menu item the **Operating hours** can be saved on an SD memory card. All operating hours from the menu; **2.7 Hardware test / Operating hours** are saved in a data file (2Bxxxx00.TMR) on the SD card. **Note;** after the operating hours have been saved you will be asked if the counters in the machine must be reset. Press Esc. (X) for NO, press Enter (V) for YES.
	Remove SD-card	yes > no	

Service menu continued ...					
Main item	Sub-item	Item	Range	Set	Description
2.12 Change PIN code	New PIN code	Repeat PIN code	With this menu item the PIN code can be changed. Use only the keys 1 to 4. The complete service menu is secured behind this PIN code. This PIN code prevents unintentional changes to the machine settings by untrained personnel. • The factory PIN code is **2-2-2-2-2** PIN code forgotten? In the PIN code input display (operator menu item 1.7) a number is displayed on the right. Enter the associated PIN code (see the list below) to access the service menu.		
					
2.13 Additional settings	Waste bin management	Number of makings	0-1000	80	After reaching the set number of brewer movements, the vending is blocked and on the display the message is shown; **Out of order - Waste bin full**
		Hysteresis	0-100	20	After reaching the set number of brewer movements minus the hysteresis, on the display the message is shown; **waste bin almost full**
		Time-out reset	0-50 sec.	15 s	The time that the waste bin must have been removed from the machine (to empty it). When it is replaced, the (internal) waste bin counter is reset. Any display messages disappear.
		Waste bin signal	ja-nee	ja	Deactivate waste bin sensor in software (bypass).
	Cycly counter	xxxxx	0-100.000		This cycle counter counts the number of brews the brewer has made. Tip; this counter can be reset after major maintenance when, for example, the brewer is checked.
	Reset cycly counter	Reset counter?			Reset cycle counter (Brewer)
	Service brewer		0-50.000	25.000	When the set number of brews (Brewer) is reached, the display shows the message 'Service brewer'.
	Reset service brewer	Reset counter?			Reset the Service brewer signal after maintenance has been carried out on the brewer.

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Pin Code Table

No.	Pin code				
1	3	4	2	4	2
2	3	1	4	3	4
3	4	1	3	4	3
4	4	3	2	3	2
5	2	3	3	4	1
6	4	2	1	3	1
7	2	4	2	4	4

No.	Pin code				
8	2	3	2	4	1
9	2	4	3	2	3
10	3	1	3	3	2
11	1	3	3	3	2
12	1	2	4	1	3
13	4	3	1	2	1
14	1	1	1	4	2

No.	Pin code				
15	2	1	2	1	1
16	1	2	2	3	3
17	3	4	1	4	4
18	4	1	4	3	3
19	3	1	2	4	1
20	2	2	3	2	4

Service menu continued ...					
Main item	Sub-item	Item	Range	Set	Description
2.14 Installation	Commissioning				When a new machine is switched on, the commissioning menu starts automatically. Follow the instructions on the display.
	Shut down				Start this shut down menu if the machine's boiler system has to be emptied for transport and/or maintenance. Follow the instructions on the display.
2.15 Descaling					Start the descaling menu when the boiler system has to be descaled. Follow the instructions on the display.
2.16 Cleaning management	Rinsing	rinse mandatory	yes - no	no	If rinsing mandatory is set to YES, the machine is locked if it is NOT rinsed after the set number of cups or days. **Out of order / rinse** After the rinse programme has been completed, the machine is released again.
		cups		0	
		days		1	
		Rinse via front	yes - no	no	When rinsing via the front is set to YES, the rinse programme can be activated using the stop key on the front of the machine. Press and hold the Stop key for 10 seconds and then follow the instructions.
	Cleaning	Cleaning mandatory	yes - no	no	If cleaning mandatory is set to YES, the machine is locked if it is NOT cleaned after the set number of cups or days. '**Out of order / clean** After the cleaning programme has been completed, the machine is released again.
		cups		0	
		days		7	

5. SOFTWARE

5.1 Memory card specs

Geheugen kaart spec's

Type: SD (Secure Digital card)
Size: 16 Mb or bigger

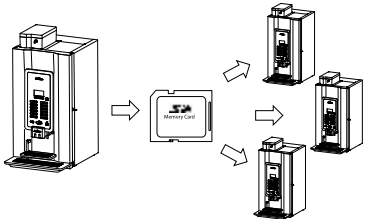
5.2 Machine setting management

The following changed settings can be saved on an SD memory card and/or copied to another machine:

- Personal settings
- Recipes

The following data maintained by the machine can be saved on an SD memory card and reloaded (e.g. when fitting a new circuit board):

- Counters
- Log
- Operating hours



See Page. 61 & 62 menu item 2.11 SD menu of this service book for further explanation.

Reading files on a computer

The following files can simply be opened on a computer.

Counter file	*.CNT
Log file	*.LOG
Operating hours file	*.TMR

Place the SD card in your computer and open the required file with notepad or wordpad. See the example

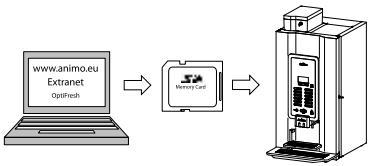
Note: Depending on your settings, Windows can see the LOG file as a TXT file.

```
Generated on 2014-11-10,
14:10:38
Software version: V5.50.1729

Button 1 (koffie creme)
Free:         15
PayedLow:     0
PayedHigh:    8
PayedToken:   0
Test:         24
Total:        47
Pot:          6
PriceLow:     0
PriceHigh:    0
PriceTotal:   400

        .
        .
        .

Button 12 (heet water)
Free:         20
PayedLow:     0
PayedHigh:    0
PayedToken:   0
Test:         1
Total:        21
Pot:          11
PriceLow:     0
PriceHigh:    0
PriceTotal:   0

Totals
Free:         69
PayedLow:     0
PayedHigh:    9
PayedToken:   0
Test:         46
Total:        124
Pot:          17
PriceTotal:   450

Other counters
Clean:    2
Service: 19940
Service Month: -91
Operating: 152
```

5.3 Software installation

New software can easily be installed on the machine. New software can be made available in the following ways:

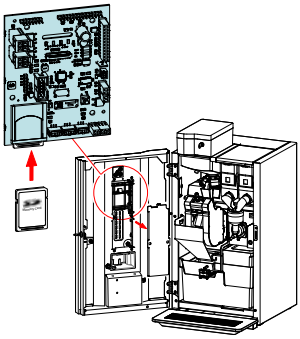
- www.animo.eu / dealer login: Extranet
- by e-mail



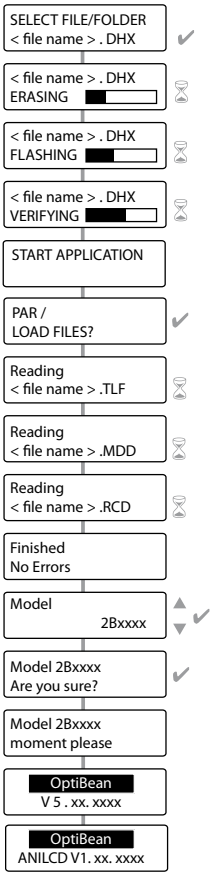
When loading new software the following changed settings (data) are lost:

- Changed recipes
- Changed personal settings
- A non-standard language file will be overwritten by the standard language file NL/GB/DU/FR

Counts, Log and operating hours will be preserved!



1. Download the OptiBean NG software from the Animo extranet site.
2. Unpack the ZIP file and copy all files to an SD card.
3. Remove the cover plate on the inside of the door.
4. Insert the SD card in the card holder.
   Tip: Save any changed settings first on an SD card. This can be the same SD card as the one containing the new software. Go to service menu item 2.10 SD menu / Save data and save the required settings.
5. Switch the machine off (0).
6. Switch the machine on again (I).
7. Press the Enter key (key 10). The new software will now be installed automatically. The following procedure takes about 5 minutes.
8 Choose the appropriate model and confirm your selection with Enter.
9. The display now shows ‘Make your choice’.
10. The new software has now been installed.
11. Now reload the Personal recipes and settings saved in step 4 into the machine. Go to service menu item 2.10 SD menu / Load data and reload the saved settings back into the machine.
12. Remove the SD card from the card holder.



After installation, check the display contrast in the **Operator menu / 1.9 Contrast**

Attention: during the software installation the display can show some contrast fluctuations. This is a normal symptom because the contrast parameter is first active after the whole software is installed.

6. MAINTENANCE

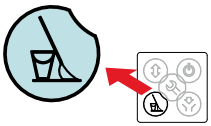
6.1 Daily rinsing program

After 1 day the display shows RINSE.
This message will disappear again after the rinsing program is executed.

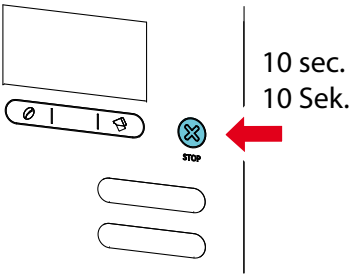
1. a) Activate the rinsing program [1a] and follow the instructions in the display.

   b) The rinsing program can also be activated by pressing the STOP button for 10 sec. [1b].
2. Confirm with the V-key [2] to start the rinsing. The brewer and mixer unit are rinsed with clean water.

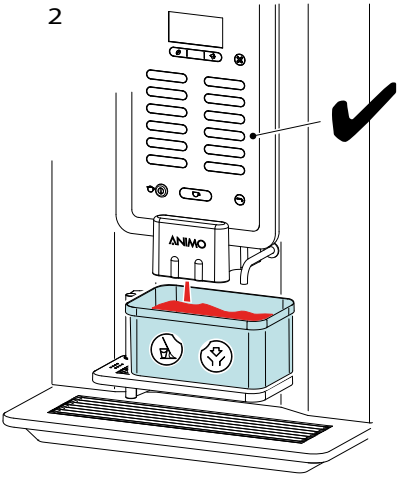
1a



1b



2



In the **Service menu / 2.16 Cleaning management / Rinsing mandatory** (yes / no), the user can even be obliged to carry out the rinsing program. If the rinsing program is not activated the machine blocks.

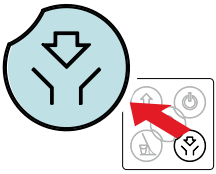
EN

6.2 Weekly cleaning program

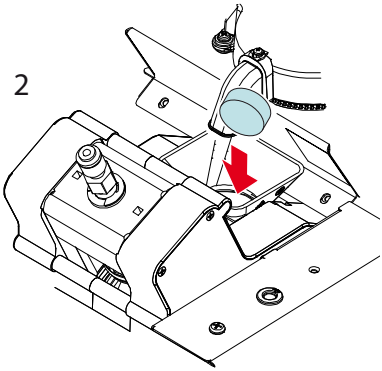
After 7 days appears the display shows CLEANING. This message will disappear again after the cleaning program is executed.

1. Activate the cleaning program [1] and follow the instructions in the display.
2. The cleaning program for the espresso brew unit is started. By adding the coffee cleaner tablet [2] the brew unit will be cleaned from coffee oils.
3. Confirm with the V-key [3] when the coffee cleaner tablet is added in the brewer chamber.
4. After the cleaning cycle the rinsing program start automatically and rinses the brewer (and mixer) with clean water.

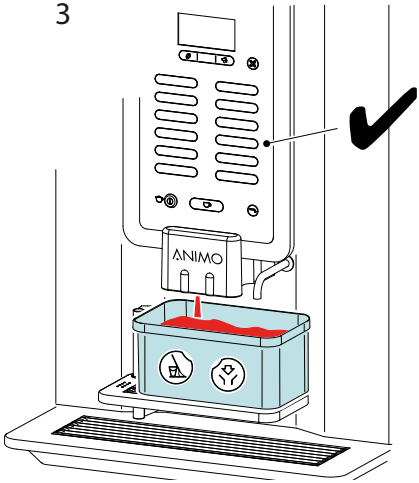
1



2



3



In the **Service menu / 2.16 Cleaning management / Cleaning mandatory** (yes / no), the user can even be obliged to carry out the cleaning program. If the cleaning program is not activated the machine blocks.

6.3 Periodic maintenance

6.3.1 Service boiler

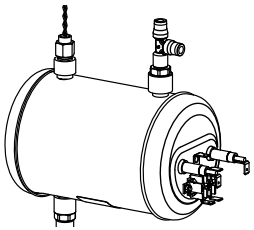
During installation of the machine the boilers service moment has been set. See service menu item **2.6 Service boiler / 2.6.1 Service moment**

During use, the drinks are counted. When the boiler service moment is reached the text [*Service Boiler*] will appear in the display.

1/ Descale Boiler

Reaching the service boiler time is an indication that the boiler need descaled. Follow the instructions in section **6.5 Descaling.**

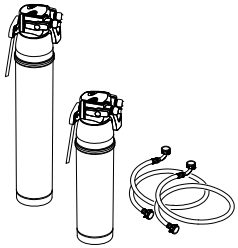
1



2/ Replace water filter

If a water filter is used (advice), this is the signal to replace the filter.

2



Reset after descaling or water filter change the service boiler signal service in the service menu:

```
2.6 Service boiler
        |
        └── 2.6.02 Reset Service counter
```

6.3.2 Service brewer

The service moment brewer is factory set. See service menu item **2.13 Other Settings / 2.13.2 Service brewer**

During use the brewer movements are counted. When the service brewer moment is reached the text [*Service brewer*] will appear in the display.

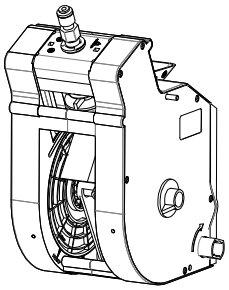
Achieving the service brewer moment indicates that the brewer needs servicing.

1/ Espresso group

After 25,000 cycles the filter and seals must be replaced. See chapter 6.6
Requirements; replacement kit 25K

After 50,000 cycles a complete inspection of the espresso group is recommended and any worn parts must be replaced.

1



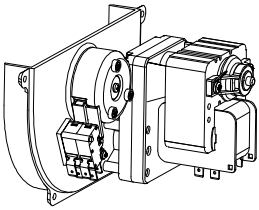
2/ Drive unit

Service life 2 years or 50,000 cycles

After 25,000 cycles, check the operation of the drive unit and clean it.

After 50,000 cycles, check the whole drive unit and replace as necessary.

2



After the brewer maintenance reset the service brewer signal in the service menu:

```
2.13 Other settings
        |
        └── 2.13.04 Reset Service brewer
```

6.4 Service contracts

Preface

Preventive maintenance will extend the service life of the machine and reduce the chance of malfunctions. Read the (safety) instructions carefully in the user manual, service manual and on the cleaning agents to be used before carrying out maintenance.

The instructions for use, service manuals and software updates are available on the Extranet part of www.animo.eu. If you do not yet access to this, report this via our site for your personal login code.

Water filter

We strongly recommend using a water softener and/or a water filter if the mains water supply is too chlorinated or too hard. This increases the quality of the drink and prevents you having to descale the machine too often.

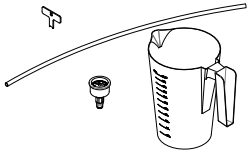
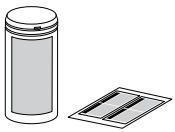
EN

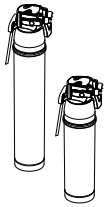
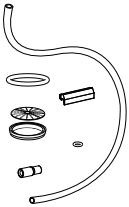
Brewer unit

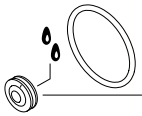
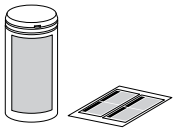
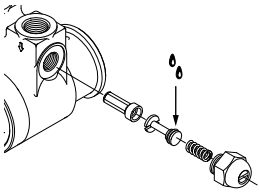
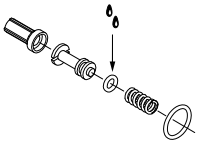
In some cases, use is made of an exchange brewer during maintenance.
The exchanged brewer can then be reconditioned in the workshop and used again for later maintenance.

6.4.1 Servicing

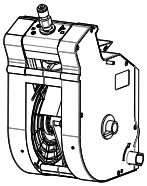
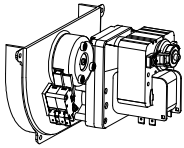
With an estimated output of < 25,000 cups/year, maintenance once a year.
With an estimated output of > 25,000 cups/year, maintenance every 6 months.

Activities	Time	Consumables	Art.no.	OptiBean	
				2	3
Boiler 1-2	45 min.				
Descale - Descale the boiler system by starting the descaling program **2.15 Descale** - Reset the **2.6 Service boiler** signal in the service menu			1001365		
- Use the boiler service kit and Animo descaling agent.			00009 (can) / 49007 (sachet)		

Activities	Time	Consumables	Art.no.	OptiBean	
				2	3
Boiler 2-2	10 min				
Change filter cartridge - In case a water filter is installed , replace the cartridge for a new one. - Reset the **2.6 Service boiler** signal in the service menu					
Grinder	10 min.				
Empty the grinder. Fill with two caps of cofee grinder cleaner, hold a drip try under the outlet and run the grinder until it is empty.			1000151		
Brewer	20 min.				
Clean the brewer Check for correct operation.					
Build in the replacement kit 25,000 cups Reset the service brewer signal in the service menu. **2.13 Additional settings / 2.13.4 Reset service brewer**			Standard brewer 1004917	1x	1x
			XL brewer 1004918	1x	1x
Carry out cleaning procedure using cleaning tablets.			1001397		
Mixer(s)	10 min.				
Check the motor shaft for dirt and wear. Replace mixer in case it runs heavy or raw.					
Replace mixer blade.			1003569	1x	1x

Activities	Time	Consumables	Art.no.	OptiBean 2	OptiBean 3
Replace the shaft seal and O-ring in the green mixer mounting ring. Lubricate the inside shaft seal with food grade grease.			1000742	1x	1x
			1003572	1x	1x
Lubricate mixer house water inlet with food grade grease.					
Clean the mixer components with Animo cleaning agent			00008 (bus) / 49009 (sachet)		
Espresso pump (Yearly)	5 min.				
Yearly lubricate O-ring with food grade grease.				1x	1x
or install a new bypass valve. Fitts on brass and stainless steel pump.			1004217	1x	1x
Checking (general)					
Check the complete machine operation. Check parts for damage/wear and/ or leaks.					
Cleaning (general)					
Clean the espresso group brewer and mixer unit for weekly cleaning. Complete machine, inside and out.					

EN

Activities	Time	Consumables	Art.no.	OptiBean	
				2	3
Dispensing valves (2 Yearly)	20 min.				
Dispensing valves			1000699	4x	4x
Safety valves (2 Yearly)	10 min.				
Overpressure valves 3 bar			1000734	1x	1x
Overpressure valves 12 bar			1000735	1x	1x
Mixer (2 Yearly)	1 min.				
Mixer motor			1003567	1x	1x
Brewer unit (2 Yearly)	5 min.				
Brewer unit reversed standard 37mm			1004572	1x	1x
Brewer unit reversed XL 44mm			1004798	1x	1x
Drive unit (2 Yearly)	5 min.				
Drive unit 230Vac			1004573	1x	1x

WARNING

- During maintenance activities, remain with the machine.
- When de-scaling, always follow the instructions for the de-scaling agent used.
- It is advisable to wear safety glasses and protective gloves when de-scaling.
- After de-scaling, let the machine complete at least three cycles.
- Wash your hands thoroughly after de-scaling.
- The machine must never be immersed in or sprayed with water.

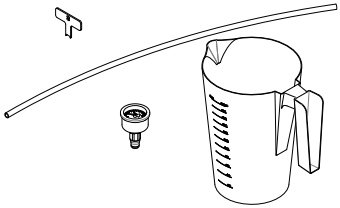
WARNING

- Pressurised hot water! Do not remove components like valves, couplings, plugs and hoses before depressurise the boiler system.

6.5 De-scaling instructions

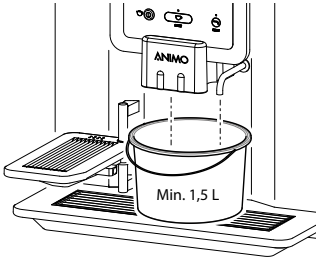
Animo supplies a descaling agent in the following quantities:

- Descaling agent 48x 50 g sachets art. no. 49007
- Descaling agent 1 kg can art. no. 00009



Time required, agents and tools:

- Time: approx. 45 min.
- Animo Descaling Agent
- Drip tray of approx. 1.5 L
- Crosshead screwdriver
- Service kit [art. no. 1001365] (measurement beaker, hose, manometer)



Descaling

1. Start the descaling programme. **Service menu / 2.15 Descale** and follow the instructions on the display.

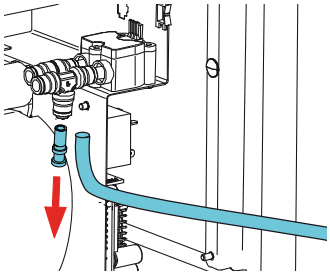
2. Close the door and place an empty bucket under both outlets.

Descaling
Place empty container Press enter (√) Stop? Press ×

Descaling
Boiler depressurising moment please

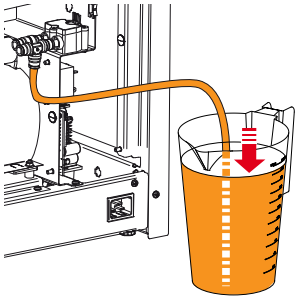
3. Prepare 2 litre de-scaler solution. Read the warnings and instructions for the Animo de-scaling agent first.

4. Remove the back and connect the suction tube to the tee of the flow meter (remove plug).



Descaling
Place suction tube in descaler solution Press enter (v)

5. The first acid solution (approx. 1 litre) is pumped into the boiler and heated. A soaking period of 300 sec. follows*.

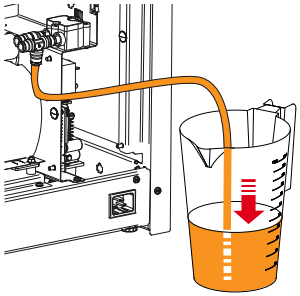


Descaling
Pumping solution through system Moment please

Descaling
boiler temperature is increased (...°C)

Descaling
Moment please Soaking: 300 sec.

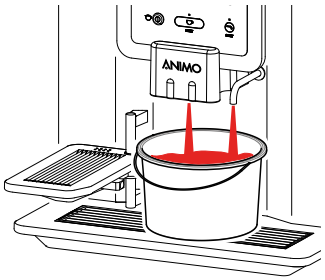
6. Then for 12 seconds the second acid solution (approx. 1 litre) is pumped through each of the dispensing valves. The fresh acid solution is now heated in the boiler again and a soaking period of 600 seconds follows*.



Descaling
Pumping solution through system Moment please

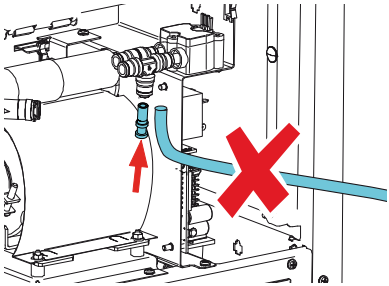
Descaling
boiler temperature is increased (...°C)

Descaling
Moment please Soaking: 600 sec.



** soaking periods can be skipped by pressing the x-button.*

7. After the soaking interval, the suction hose must be removed and the plug refitted.



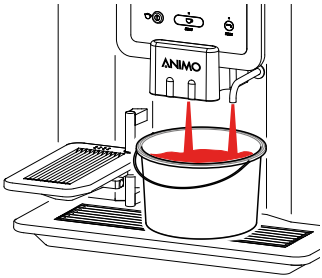
Descaling
Remove hose Place stop Place empty container Press enter (v)

8. The boiler is flushed (6 times*) with fresh water. In between, empty and secure the drip tray.

Descaling
Flushing Moment please 6x

Descaling
boiler temperature is increased (...°C)

Descaling
Place empty container Press enter (v)



9. Reset after descaling the service boiler signal in the service menu:

2.6 Service boiler
└── 2.6.02 Reset Service counter

10. The machine is now ready for use again.

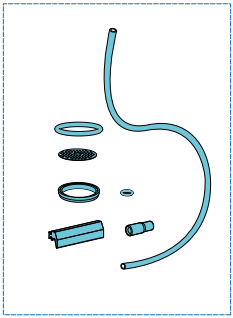
Always check if no de-scaler solution stayed behind in the heating system. Draw some hot water and mix some coffee milk through it.
If the milk curdle, additional flushing of the heating system is required.

EN

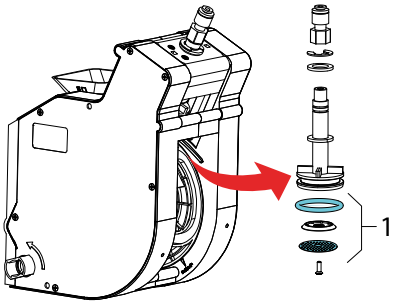
6.6 Maintenance espresso group

6.6.1 Brewer replacement kit 25K

- After 25,000 cycles the filters and seals must be replaced. The display shows [*Service brewer*].

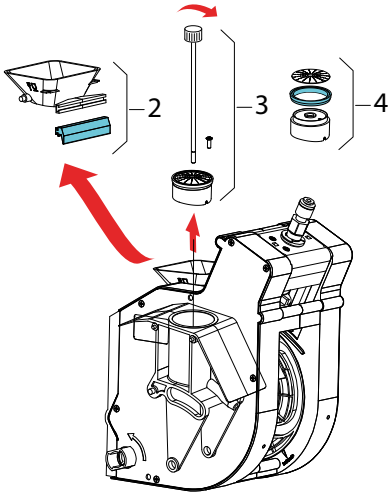


Brewer reversed replacement kit 25K	Brewer	
	Standard	XL
Art. No.	1004917	1004918
O-ring big	1x	1x
Wiper	1x	1x
Filter 150 µm	1x	1x
Teflon ring	1x	1x
O-ring small	1x	1x
Dispensing hose	1x	1x



- After 50,000 cycles a complete inspection of the espresso group is recommended and any worn parts must be replaced.

1. Re-place the O-ring + filter [1] onto the upper piston (leave the piston in place).
2. Remove the funnel [2] by pulling it backward from the housing, place a new wiper.
3. Unscrew the brewer filter with a small croshead screw driver. Use the brewer fixation pin (as a corkscrew) to pull out the lower piston.
4. Wait until point 8 before place a new Teflon ring [4] .



5. To place a new O-ring [8] first unscrew bold [5].
6. Pull out piston-rod [6].
7. Unscrew the two screws which hold the lower flange [7].
8. Place a new O-ring [8] and replace all parts in reversed order.
9. Place a new brewer outlet hose [9].

Always place the outlet hose according the drawing below

10. After the brewer maintenance reset the service brewer signal in the service menu:

```
2.13 Other settings
    └─ 2.13.04 Reset Service brewer
```

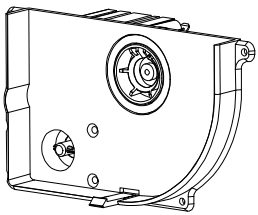
New brewer installed?

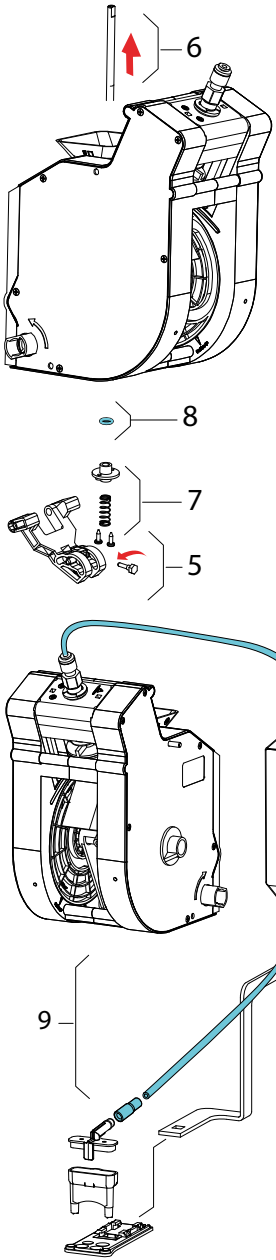
After a new brewer was installed reset the cycle counter in the service menu:

```
2.13 Other settings
    └─ 2.13.02 Reset Cycle counter)
```

6.6.2 Drive unit

- Clean out potential coffee dust from the drive unit.





EN

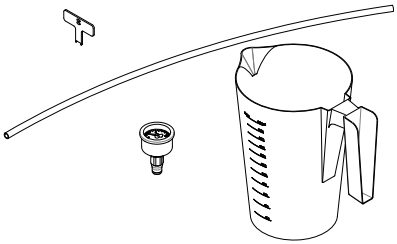
6.7 Check / set the pump pressure

WARNING

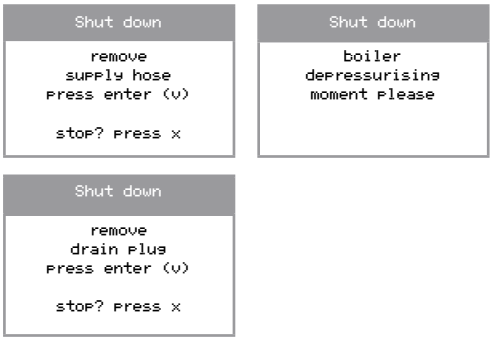
- Pressurised hot water! Do not remove components like valves, couplings, plugs and hoses before depressurising the boiler system.

Required equipment and tools:

- Crosshead screwdriver
- Service kit [1001365] (measuring cup, hose, manometer)

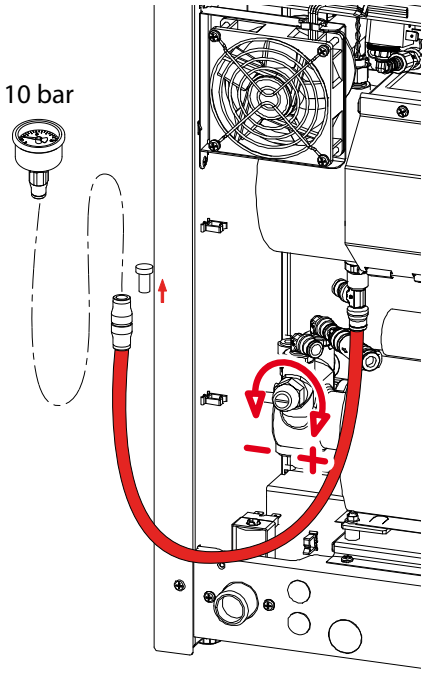


1. Activate the shut down menu in the service menu **2.14 Installation / Shut down** and following the instructions on the display.
2. For just releasing the pressure in the boiler it is not necessary to disconnect the supply hose. Press enter (v)



3. Stop the process, the boiler is now depressurised.
4. Remove the rear wall. Take the drain hose out of the holder and remove the plug (press the metal ring in to unlock the plug).
5. Connect the manometer to the boiler inlet using the 8 mm hose.
6. Activate the menu

```
2.7 Hardware test
    └── 2.7.02 Calibration water system
            └── Pump TEST
```



7. Start the pump by pressing the **Test button** (recipe key 11) on the front panel.
8. Set the correct espresso pressure (10 bar) with the adjustment screw on the pump housing. Anti-clockwise: less pressure / Clockwise: more pressure.

   To stop the measurement; press any button

7. TRANSPORT / SHUT DOWN

⚠ WARNING

- Pressurised hot water! Do not remove components like valves, couplings, plugs and hoses before depressurise the boiler system.
- The drain hose becomes HOT!!
- After the boiler has been emptied the pump starts to pump out water from the tubing!

Required equipment and tools:

- Crosshead screwdriver
- Tray of approx. 1.5 L

EN

1. Activate the shut down menu in the service menu **2.14 Installation / Shut down** and following the instructions on the display.
2. Close the water supply tap and remove the water supply hose.

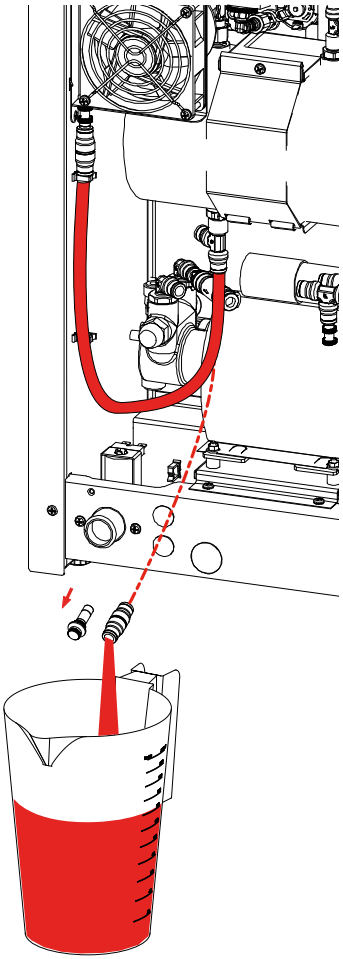
Shut down	Out of order
Remove supply hose Press enter (v) Stop? Press x	Boiler depressurising Moment please

3. There is now no pressure in the boiler. The shut down menu can be cancelled if necessary. Follow the menu to empty the complete water system.
4. Remove the rear wall, remove the drain hose from the rear plate and remove the drainage plug. Let the boiler drain into an empty tray (approx. 1.5 litres).

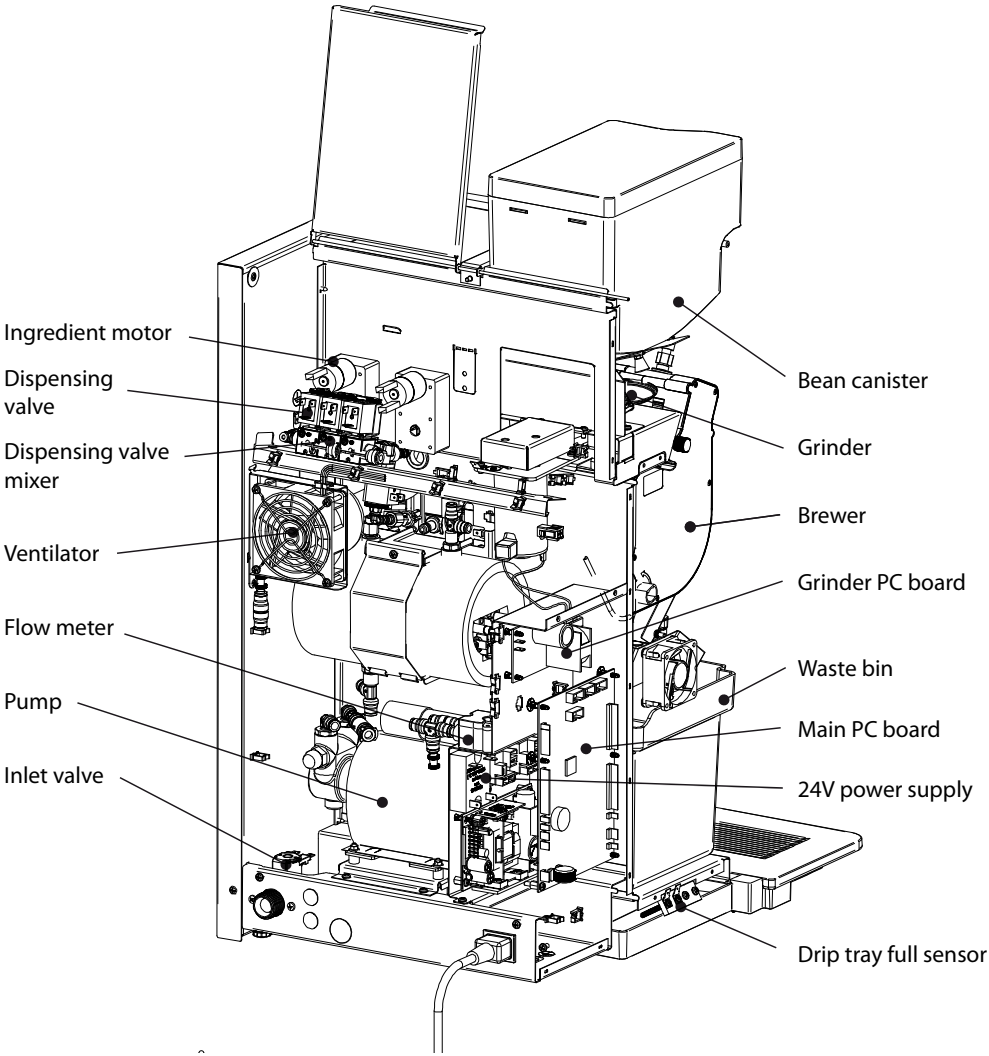
Out of order	Out of order
Remove drain plug Press enter (v) Stop? Press x	Boiler draining Moment please

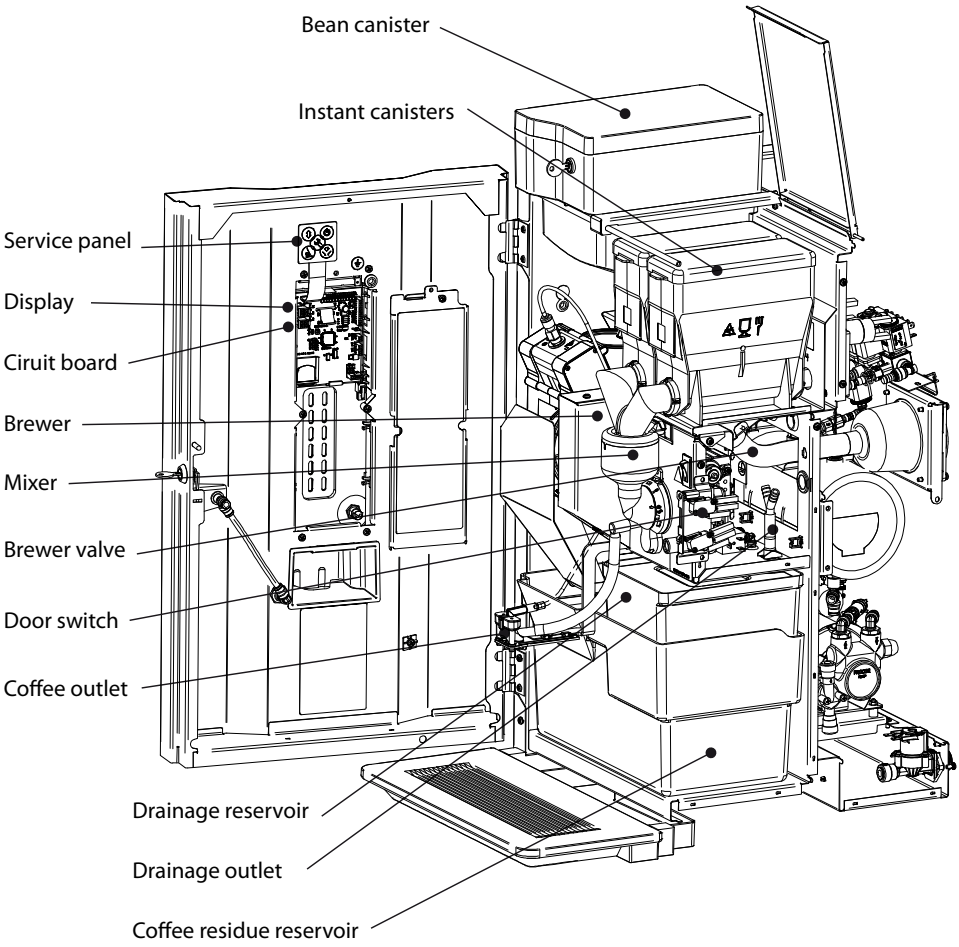
Out of order
Boiler is empty switch off machine

5. The software now knows the water system is empty. If the unit is reinstalled the commissioning menu will automatically be activated.



8. COMPONENT ACCESSIBILITY




Bean canister
Instant canisters
Service panel
Display
Ciruit board
Brewer
Mixer
Brewer valve
Door switch
Coffee outlet
Drainage reservoir
Drainage outlet
Coffee residue reservoir

9. ELECTRONICS OVERVIEW

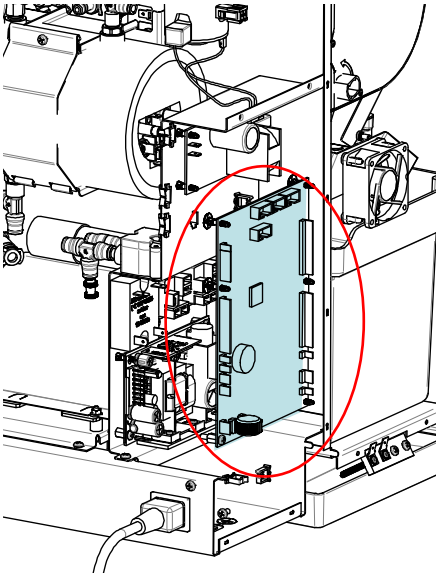
WARNING

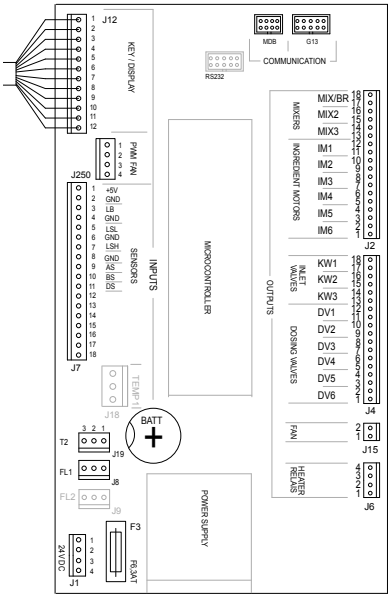
During repair and/or maintenance activities, avoid electrostatic discharges (ESD) to the control.

9.1 Main control

This control is the machine's main control. The control can be accessed by removing the left side panel.
On the control are the following major components;

- Fuse 6.3A S (art.no. 03391); to protect the control supply.
- Battery 3V Li CR2032 (art.no. 02816); to maintain the clock function when there is no supply to the machine.





9.1.1 Main circuit board inputs

Connector J12
Connecting cable between the main circuit board and the door circuit board

Connector J250 (PWM fan)			
Pin	**Fan**	**Colour**	**Notes**
1	PWM signal	black	
2		-	
3	pos	red	
4	neg	blue	

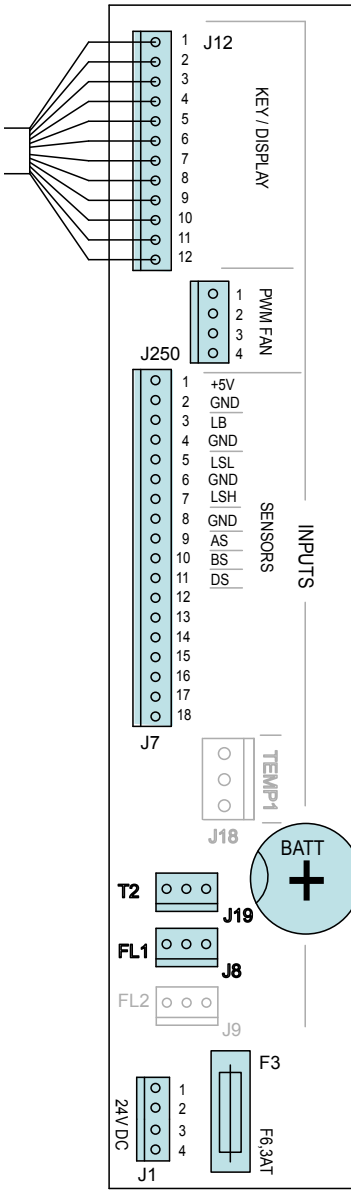
Connector J7 (Inputs)			
Pin	**Sensor**	**Colour**	**Notes**
1-2	-	-	
3	LB Drip tray	Yellow	
4	GND Drip tray	Black	
5-8	-	-	
9	AS waste bin	Pink	Waste bin in position; contact closed
10	-	-	
11	DS Door 1	Orange	Door closed; contact closed
12-13	-	-	
14	IN1 Brewer 1	Blue	Brewer in fill position; contact ‘open’
15	IN2 Brewer 2	Grey	Brewer in fill position; contact ‘open’
16	IN3 Door 2	Pink	Door lock locked; contact closed
17-18	-	-	

Connector J19 / T2 (NTC sensor)			
Pin	**Sensor**	**Colour**	**Notes**
1	NTC sensor	Violet	
2	-	-	
3	NTC sensor	Violet	

Connector J8 / FL1 (Flow meter)			
Pin	**Sensor**	**Colour**	**Notes**
1	Pulse	brown	
2	Ground	earth shield	
3	Pluse	white	

Battery B1	**Lithium 3V Type CR2032**	**art.no. 02816**

Fuse F3	**6.3 A slow**	**art.no. 03391**



EN

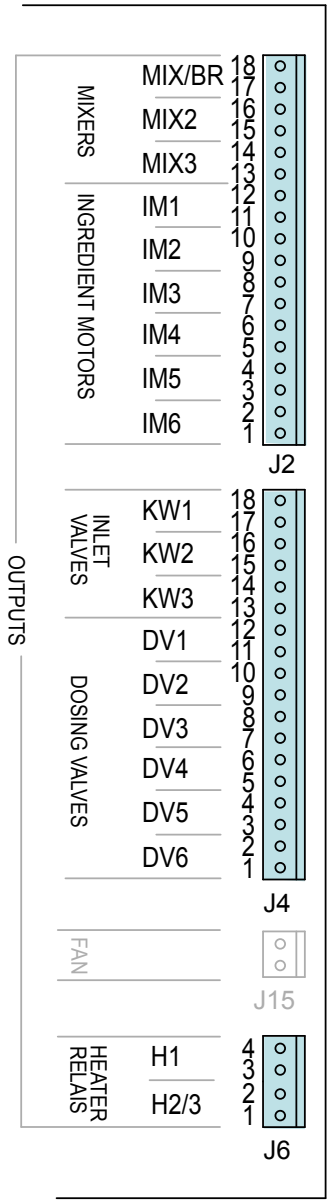
Connector J1 (Supply)			
Pin		**Colour**	**Notes**
1	Ground (GND)	black	
2	Ground (GND)	black	
3	+24 Vdc	red	
4	+24 Vdc	red	

9.1.2 Main circuit board outputs

Connector J2			
Pin	**Motor**	**Colour**	**Notes**
17-18	Brewer	Black	**Pay attention to the right direction!** Common +24 Vdc (red wire) to red point on Brewer, Mixer and Ingredient motor.
15-16	Mixer 2	Violet	
13-14	-	-	
11-12	Grinder signal 1	Brown	
9-10	-	-	
7-8	Ingredient Motor 3	White	
5-6	Ingredient Motor 4	Yellow	
3-4	-	-	
1-2	-	-	

Connector J4			
Pin	**Valve**	**Colour**	**Notes**
17-18	KW 1 (inlet valve)	Violet	Red wire is common +24 Vdc connection
15-16	KW 2 (pump via solid state)	Rose	
13-14	KW 3 (optional)	Blue	
11-12	DV 1 (brewer valve)	Brown	
9-10	DV 2 (mixer 2 valve)	White	
7-8	-	-	
5-6	DV 4 (hot water drain)	Green	
3-4	DV 5	Grey	
1-2	DV 6 (NO valve)	Orange	

Connector J6			
Pin	**Relay**	**Colour**	**Notes**
4	-	-	
3		-	
2	H2 /H3 Element via solid state relay	Red	
1		White	

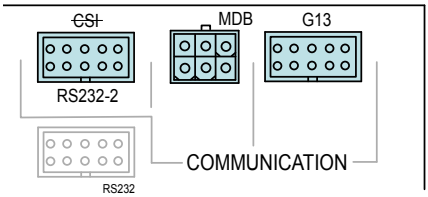


9.1.3 Main circuit board communication

The machine has standardized vending machine connections for connecting coin mechanism, coin changer or cashless payment systems.

These connectors meet the MDB protocol for vending machines.

For further information or advice please contact our support department.



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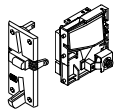
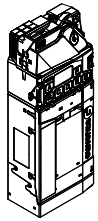
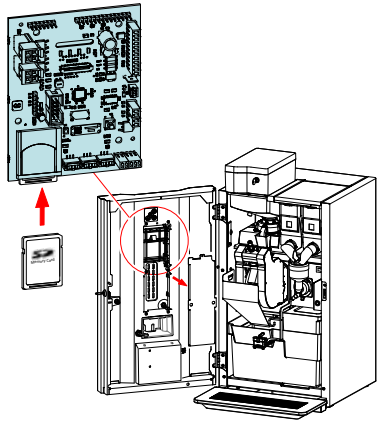
Communication		
Conn	**Protocol**	**Notes**
G13	Parallel interface  art. no. 04025 03267	- Coin acceptor NRI G13 - External release contact* **the machine can be released by using a potential-free contact (pulse).* - G13 Kabel 1 meter art. no. 03392 - Extern vrijgave contact; kabel 1004237
MDB	Serial interface MDB (Multi Drop Bus)  art. no. 03433	- Coin changer NRI C^2 - Cashless payment system - Telemetry EVA DTS (SD card needed)  - MDB cable 1 meter art. no. 03479 - MDB cable 1 meter art. no. 1004564 (2x male connector) - MDB Y-kabel art.no. 1002008
RS232-2	Serieel interface DEX UCS new from sept 2015	- Telemetry EVA DTS / DEX UCS (SD card needed) 
RS232		not used

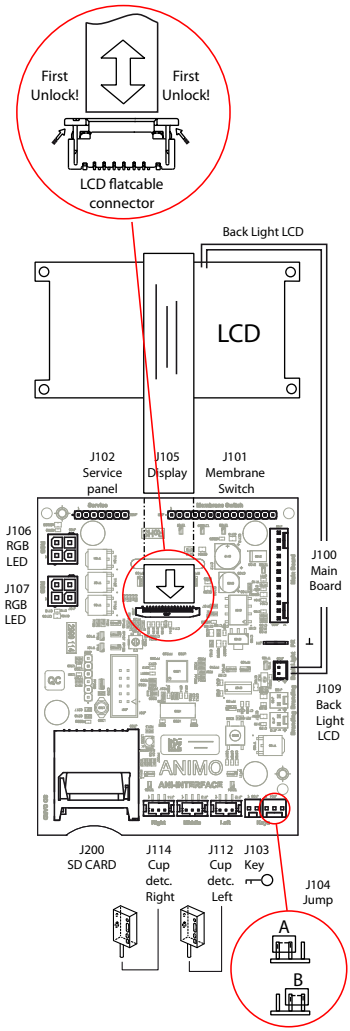
9.2 Interface / Display

The interface connects all the components located in and on the door and is connected by a cable to the main control.

9.2.1 Connections

Interface & Display		
Conn		**Notes**
J100	Main control	
J101	Front membrane panel	
J102	Service membrane panel	
J103	Key switch	
J104	Jumper position A-B	A = cup sensor; no B = cup sensor; yes
J105	Display connection	See dismantling instructions
J106	RGB LED	
J107	RGB LED	
J108	-	not used
J109	Backlight display	
J110	-	not used
J112	cup sensor left	coffee spout position
J113	cup sensor middle	
J114	cup sensor right	hot water spout position
J200	SD card holder	





9.3 Power supply

The 24 Vdc supply consists of a 24 Vdc – 65 W switched power supply and can be accessed by removing the rear wall.

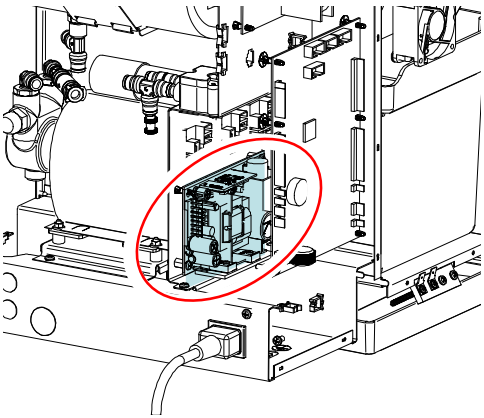
- On an overload, the power supply switches itself off automatically. Reset the power supply by turning the main switch off and on again.

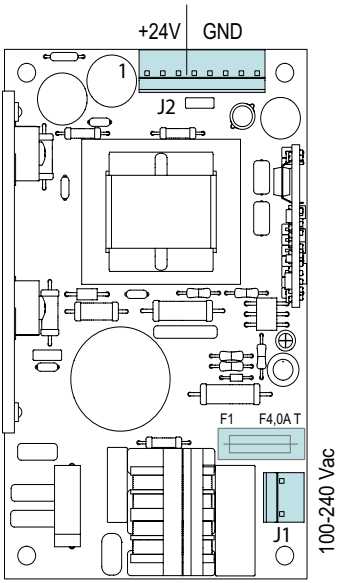
9.3.1 Connections

Connector TB2 24Vdc			
Pin		**Col-our**	**Comments**
1-3	24 Vdc +	red	
4-7	24 Vdc -	black	
8	-	-	

Connector TB1 100-240Vac			
Pin		**Col-our**	**Comments**
1	230 Vac Neutral	blue	
3	230 Vac Phase	yellow	

Fuse F1	4A slow	art.no. 1004957





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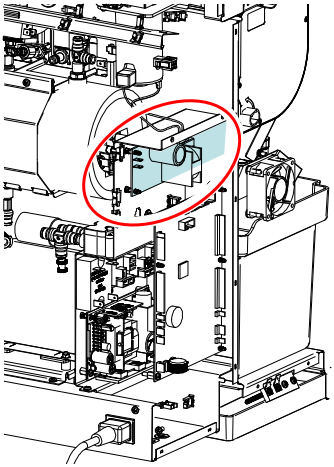
9.4 Grinder print 230Vac / 230Vdc

This grinder circuit board converts 230 Vac (alternating current) into 230 Vdc (direct current) with a rectifier to drive the grinder motor.

The IM1 signal (24 Vdc) from the main control is connected to connection J5-J6 (the red LED lights). This signal controls the grinder motor with a triac.

This control can be accessed by removing the rear wall.

- Fuse 3.15 A S art.no. 02580; to protect the grinder motor.



9.4.1 Connections

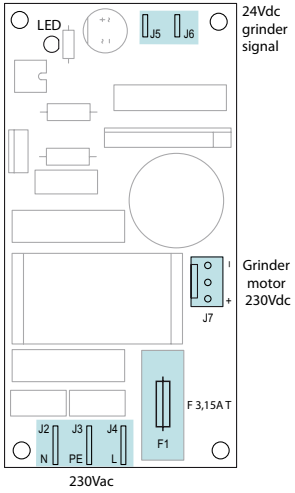
24 Vdc ingredient 1 signal			
Pin		**Colour**	**Notes**
J5	24Vdc +	red	polarity not important
J6	24Vdc -	brown	

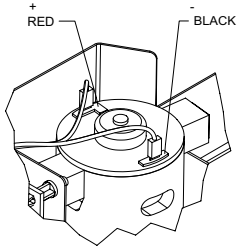
230Vdc			
Pin		**Colour**	**Notes**
1	230Vdc +	red	polarity is important!
3	230Vdc -	black	

230Vac			
Pin		**Colour**	**Notes**
J2	230 Vac Zero	blue	
J3	PE (ground)	y/gr/	
J4	230 Vac Phase	brown	

Fuse F1	
3.15 A slow blow	**art.no. 02580**

Grinder motor 230Vdc			
Pin		**Colour**	**Notes**
	230 Vdc +	red	**Note the right direction!** +24 Vdc (red wire) according to drawing
	230 Vdc -	black	





10. FAULT RECTIFICATION

WARNING

- When there are defects and for (cleaning) activities on the machine, the plug must be removed from the wall socket before the machine is opened

Introduction

Check, before troubleshooting whether all the components are still in the right location. To do this, remove the rear wall of the machine and check that all circuit boards, connectors, wiring looms and hoses are still properly mounted.

After a general inspection of the components, use the fault analysis table below to check what the possible cause of the problem is.

#) If the 'solution' column advises replacing the component concerned, there is always the possibility that the defect is caused by another problem. Therefore, test the machine thoroughly for operation to check whether the defect occurs again.

EN

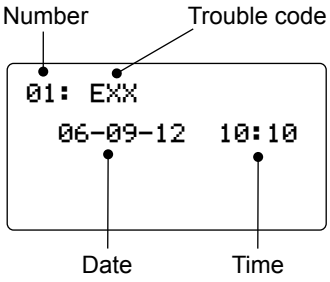
10.1 Read log

During use, the last 20 error messages displayed

are registered and saved.

To read these error messages, activate the menu item Read log (menu 2.8) in the service menu. The first error displayed is the most recent error message.

- In the 1st line the same error codes are displayed as used in the fault analysis table (see Section 10.4).
- In the 2nd line are the date and time at which the error code occurred.



10.2 Erase log

Use the Clear log function (service menu 2.9) to clear the log.

10.3 Display messages during use

Display	Possible cause	Action	
Make your choice  Rinsing	Rinse program not activated in time.		Run the rinse program and follow the instructions in the display. See chapter **6. Maintenance / 6.1 daily rinsing program**
Make your choice  Cleaning	Cleaning program is not activated in time.		Run the cleaning program and follow the instructions in the display. See chapter **6. Maintenance / 6.2 Weekly rinsing program**
Make your choice  Service boiler	Boiler needs maintenance.	See chapter **6.3 Periodic maintenance / 6.3.1 Service boiler.**	
Make your choice  Service brewer	Brewer needs maintenance.	See chapter **6.3 Periodic maintenance / 6.3.2 Service brewer and 5.4.4 Servicing**	
Out of order  Boiler filling	When used for the first time: boiler is still empty and is being filled.	No action needed. Follow the instructions on the display. When the boiler is filled, 'Boiler heating' follows.	
Out of order  Boiler heating	The boiler temperature is (temporarily) too low because too much water has been used.	Once the temperature is restored, the message automatically disappears and the drink selection buttons are reactivated.	
	If this text remains in view for 6 minutes, an E21 boiler time out follows.	See E21 boiler timeout.	
Out of order  Drip tray full	Drip tray full.	Once the drip tray is emptied, the message automatically disappears and the drink selection buttons are reactivated.	
Out of order  Waste bin full	The maximum number of coffee cups that the waste bin can hold has been reached.	Empty waste bin. The cup counter is automatically reset when the waste bin is replaced.	
Out of order  Waste bin missing	Waste bin is not detected.	Check the waste bin.	

Display	Possible cause	Action	
Out of order  Door open	For safety reasons, the machine automatically switches off if the door is opened.	The machine can be operated with the door open by using the door pin.	
Out of order  Stand-by	The machine is on standby.	This function can be set manually or automatically.	
 Close door	Door lock not closed properly. Hot water dispensing not possible.	Close door lock.	
Out of order  Rinsing	Rinse program not activated in time. The machine locks up.		Run the rinse program and follow the instructions in the display. See chapter **6. Maintenance / 6.1 daily rinsing program**
Out of order  Cleaning	Cleaning program is not activated in time. The machine locks up.		Run the cleaning program and follow the instructions in the display. **6. Maintenance / 6.2 Weekly rinsing program**
Coffee Place cup 	no cup positioned under the spout.	position a cup under the spout.	
Coffee place cup under correct outlet 	no cup positioned under the correct the spout.	position a cup under the correct spout.	
your drink has canceled	the cup was taken away to quickly	keep the cup in position during the drink preparation.	

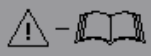
EN

Display	Possible cause	Action
Make your choice  cup sensor left error	the cup detection sensor as shown in the display is faulty cup detection window is dirty	the fault can be (temporarily) be neutralized by pressing the stop button. after 20 reset attempts the error will be registered in the log menu clean the cup detection sensor windows. replace the cup detection sensor
Make your choice  cup sensor middle error		
Make your choice  cup sensor right error		

10.4 Troubleshooting

Display	Possible cause	Action
Out of service  E3 Fill error	Boiler is filling too slowly. During commissioning the inlet valve KW1 must have filled the boiler within 180 seconds.	Check the water pressure, fully open the water supply tap, check the connecting hose for kinks. Switch the machine off and on again.
E5 Brewer error	Brewer does not run to BREW position (closed) during brewing proces. Detected by brewer switch 1 (right).	Check whether the brewer is properly positioned in the motor unit. Check brewer switch 1 & brewer lever right for correct operation in the service menu **2.7 Hardware test**
E6 Boiler temperature	Temperatuur sensor measures a temperature over 105°C	Check the water supply for air.
		Check the temperature sensor operation in the service menu **2.7 Hardware test**
		Check whether the boil-dry protection was activated. Reset as necessary.
E8 Mixer 2 error	Mixer 2 motor stalled. Mixer 2 motor output(s) overloaded (current too high). The control has disabled the output.	Check whether mixer 2 is contaminated or incorrectly mounted. Clean and/or check whether the rotor turns freely. Switch the machine off and on again.
E10 Valve error	Valve output(s) overloaded (current too high). The control has disabled the output.	Check the valves and wiring for short circuits. Switch the machine off and on again.
E11 Ingredient motor error	Ingredient motor(s) stalled. Ingredient motor output(s) overloaded (current too high). The control has disabled the output.	Check the operation of the drive motors in the service menu **2.7 Hardware test**. Empty the canister(s) and clean thoroughly. Switch the machine off and on again.
E13 Mixer group error	Brewer and Mixer output group overloaded (current too high). The control has disabled the output.	Carry out the checks as specified for E7 and E8. Switch the machine off and on again.
E14 Output group error	Ingredient motor output group overloaded (current too high). The control has disabled the output.	Carry out the checks as specified for E11. Switch the machine off and on again.
	Valve output group overloaded (current too high). The control has disabled the outputs.	Carry out the checks as specified for E10. Switch the machine off and on again.
E17 MDB error	There is no communication between the machine and the MDB payment system.	Check the connection between the machine and the MDB payment system.
E18 Mixer group FET error	Brewer or mixer motor output remains activated.	Brewer or mixer motor output (FET) defective. Replace control.

EN

Display	Possible cause	Action
Out of service  E19 output FET error	Ingredient motor / valve / fan output remains activated	Ingredient motor / valve / fan output (FET) defective. Replace control.
E20 Software error	Software error	Reset the machine. Load the defaults. Install new software.
E21 boiler timeout	Heating element active for 6 minutes. If the boiler has still not come up to temperature, this error results.	Check the water supply for air.
		Check the boil-dry protection on the boiler.
		Check the log menu. If E6 boiler temperature, the boiler has boiled dry. Check the NTC sensor and wiring/ connection and check SSR.
		Check the heating element.
E22 recipe timeout	Maximum preparation time exceeded (120 sec). The time for preparing a recipe has been exceeded.	Switch the machine off and on again. Run the rinse programme.
		Switch the machine off and on again. Run the cleaning programme.
		Switch the machine off and on again. Check the pump pressure (10 bar).
		Switch the machine off and on again. Check that the coffee grind is not too fine.
		Replace the brewer filters.
E23 inlet valve error	Flow meter registers water flow while the inlet valve is electrically closed..	Switch the machine off and on again. Check the operation of the inlet valve.
E24 brewer error	Brewer schakelaars komen niet in de juiste positie tijdens het zet-proces. Gedetecteerd door brewer schakelaar 2 (links)	Controleer of brewer goed in motor unit is geplaatst. Controleer brewer schakelaar 2 & brewer hendel links op juiste werking in het servicemenu **2.7 Hardware test**

Display	Possible cause	Action
Out of service  E25 flow meter error	Inlet valve is electrically open but the flow meter does not register a water flow.	Check the water pressure, fully open the water supply tap, check the connecting hose for kinks. Check the operation of the inlet valve and flow meter. Switch the machine off and on again.
	The water pressure is low or the water tank (stand alone set) is empty.	Check after which recipe the error occurs and check if dispensing valve functions which belongs to the recipe. DV1 brewer, DV2 mixer, DV4 hot water recipe. Replace if necessary. Switch the machine off and on again.
E26 Low temperature	Temperatuur sensor measures a boiler temperature below 0°C	Boiler and/or NTC sensor is below -0°C. Let the machine warm up to room temperature.
E27 NTC short circuit	Temperatuur sensor measure a temperature higher than 125°C or has a short circuit	Boiler over heated, first let the boiler cool down. Check if dry-boil protection was triggered. Check the NTC sensor and wiring / connection.
E28 NTC not detected	Temperatuur sensor is not detected.	Check the NTC sensor and wiring / connection.
E29 Brewer leave home timeout	Brewer did not leaf his starting position	Check if brewer motor runs. Check if brewer unit is blocked
E30 Brewer reach brew timeout	Brewer leaf his starting position bud did not reached his brewer position	Check if brewer motor runs. Check if brewer unit is blocked.
E31 Brewer leave brew timeout	Brewer did not leaf his brewing position	Check if brewer motor runs. Check if brewer unit is blocked
E32 Brewer reach home timeout	Brewer leaf his brewing position bud did not reached his start position	Check if brewer motor runs. Check if brewer unit is blocked

EN

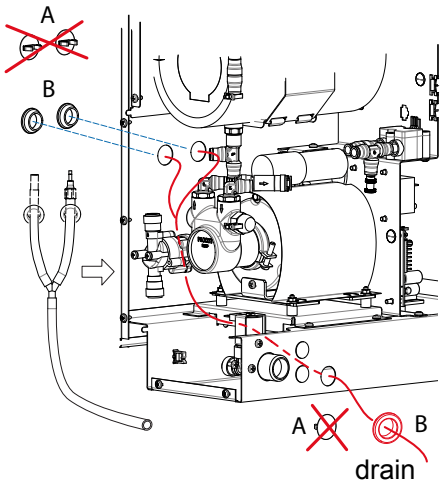
11. SPECIAL OPTIONS

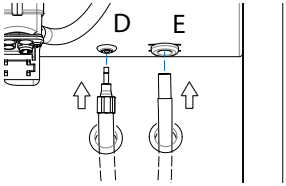
1.1 Installation drain set

Required equipment and tools:

- Crosshead screwdriver
- Drain hose kit OptiBean NG[1004945]

1. Remove the plastic plugs [A] and position the plastic sleeves {B].
2. Feed the drain hose kit behind the pump to the sleeves [B].
3. Press the tubes in the push-in fittings [D] and [E].
4. Connect the drain hose to a drain or jerry can.
5. Remove the drainage reservoir from the machine.
6. Check whether the installed drain set drains the residual water properly to the drain by making a number of test drinks.



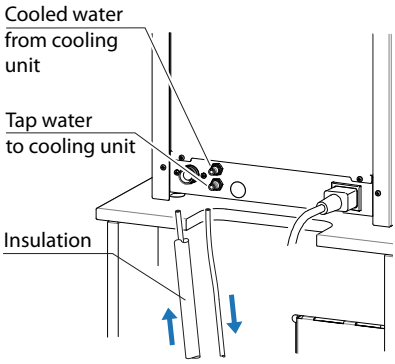


11.2 Installation OptiBean Hot&Cold

Required equipment:

- OptiBean H&C
- Base cabinet with cooling unit [1001569].

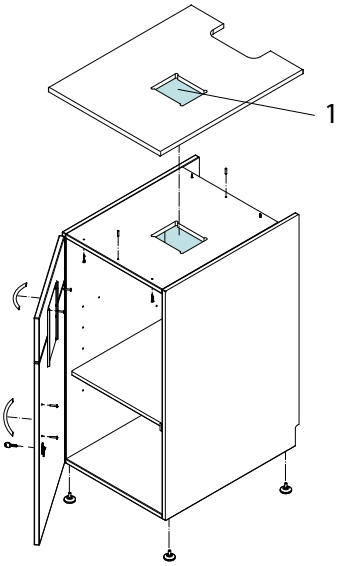
1. Build the cooling unit in the cabinet according the instructions supplied.
2. Connect the OptiBean to the water (incl. water filter) and electricity. Connect the cooling system to the electricity.
3. Connect the tube which come from the cooling unit to the push fit connectors at the back of the Optibean.
4. Program the cold water recipe onto one of the empty buttons.
5. Flush and venting the cold water system by dispensing a number of litres of water.



11.3 Installation with waste to litter bin

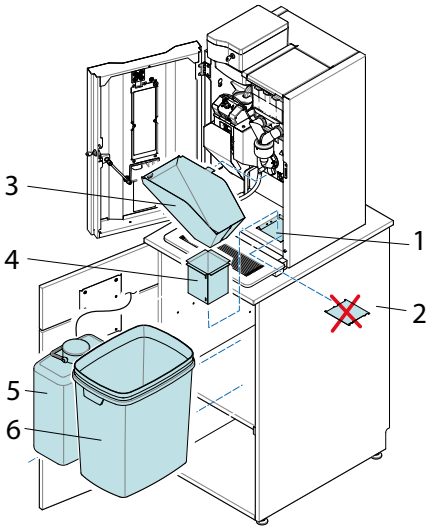
Required equipment:

- OptiBean NG
- Base cabinet with access to litter bin [1004979]
- Top board with access to litter bin, [65031] small or [65032] large.



1. Build up the cabinet according the instructions supplied.
2. Install the drain set which is supplied with the cabinet, see chapter 11.1
3. Remove the stainless steel hatch [2] in the bottom of the OptiBean NG, and centre the machine over the top board opening [1].
4. Place the stainless steel casing [4] through the opening [1] in the bottom.
5. Replace the standard coffee waste bin for the special stainless steel funnel [3] and place it into the OptiBean NG.
6. Connect the OptiBean NG to the water (incl. water filter) and electricity.
7. Connect the drain water into the jerrycan [5] supplied or to a drainpipe (when available).
8. Change the cup amount counter: **Service menu / 2.13 Other settings / Waste bin management / cup amount** between 300 to 500 cups.

```
2.13 Other settings
        |
        └── 2.13.0 Waste bin management
                  |
                  └── 2.13.00 Cup amount
```



We don't recommend to switch off the waste bin signal. By taking out the stainless steel funnel [3] and casing [4] regularly for cleaning, the counter will be reset automatically.

9. Place the big litter bin [6] directly under de transit case.

12. PAYMENT SYSTEMS

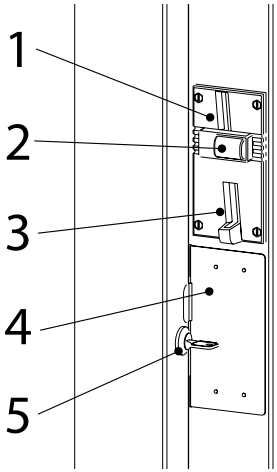
12.1 Coin mechanism (optional)

The OptiBean is available with an optional coin mechanism suitable for euros (€ 0.05 to 2.00). Other currencies are available on request.

The coin mechanism can also be easily programmed for a token (coffee coin).

Retroactively fitting a machine with a coin mechanism is also possible.

The right side wall is replace with a wide side wall into which the coin mechanism and money drawer is built.

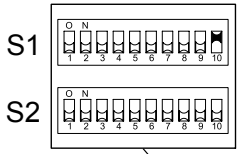


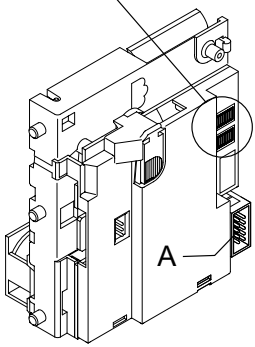
1. Coin slot
2. Return button
3. Return groove
4. Money drawer
5. Door lock (locks the money drawer at the same time)

12.1.1 Standard configuration

The figure shows the standard configuration of the DIL switches, S1-10 ON

The coin mechanism is connected to the machine by connector A.





12.1.2 Blocking coins

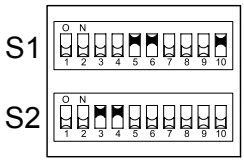
If required, certain euro coins can be blocked using DIL switch block S1 + S2

Coin €	S1	S2
€ 0.05	S1-1	S1-7
€ 0.10	S1-2	S1-8
€ 0.20	S1-3	S2-1
€ 0.50	S1-4	S2-2
€ 1.00	S1-5	S2-3
€ 2.00	S1-6	S2-4
Token 607	-	S2-5
Token Eagle	-	S2-6
Token new	-	S2-7
Token new	-	S2-8
ON = locked / OFF = free		

Coin £	S1	S2
£ 0.05	S1-1	-
£ 0.10	S1-2	-
£ 0.20	S1-3	-
£ 0.50	S1-4	S2-1
£ 1.00	S1-5	S1-7
£ 2.00	S1-6	S1-8
£ 0.05 new	S1-4	-
£ 0.10 new	S1-5	-
Token 607	-	S2-6
Token Eagle	-	S2-7
Token new	-	S2-8

For example, to block € 1.00 and € 2.00 coins

- S1-5, S2-3 -> ON (€ 1.00 blocked)
- S1-6, S2-4 -> ON (€ 2.00 blocked)



12.1.3 Activate existing token

The token shown opposite is already programmed as standard in the coin mechanism.

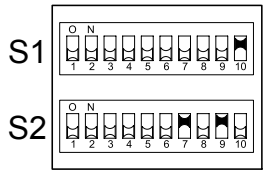
Set the service menu as described in the following section from step 4.

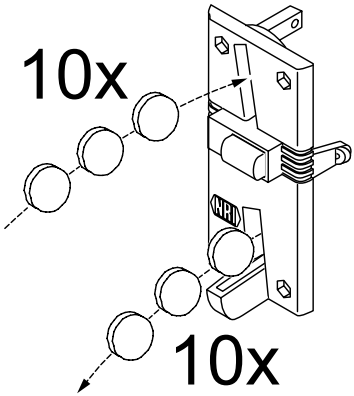
Art. No. token 03344

12.1.4 Programming a new token

- Required; 10 coffee coins
- Note; remember the DIL switch positions for any blocked coins. Leave S1.10 set to ON

1. Set the following DIL switches on switch block S2 upwards to ON.
   a) first set S2-9 Teach-mode (learn) to ON
   b) then set S2-7 coin channel 6 (TM) to ON
2. Insert at least 10 tokens (not the same one 10 times). After inserting 10 coins, the blocking coil (internal) activates once.
3. Complete the programming by setting DIL switch S2-9 downwards to OFF. If the storage was successful, the blocking coil activates once again. The set S2-7 back to OFF. (To interrupt programming, first set S2-7 and then S2-9 to OFF).
4. Service menu; change coin channel 6 (menu item 2.5 Payment system from €2.00 to TOKEN.
5. The token will now be accepted by the coin mechanism as payment.





12.1.5 Accepting euros & tokens

Carry out Section 12.1.3 and 12.1.4 first.

- Open the service menu
- Set a price in menu 2.2 Button settings / Button 1-12) / Price (e.g. € 0.50)
- The recipe keys are released when sufficient euros or a token is inserted!

12.1.6 Other currencies (no euros)

Are foreign currencies used, your coin system is adapted. In the software the coin channels need sometimes special attention! If a new software is loaded the coin channel settings are euro's. See **Service menu / coin systems / G13 / Coin channel 1-6** .

EN

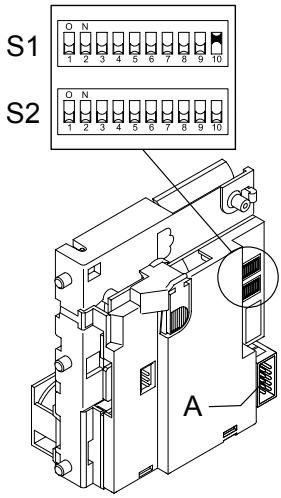
12.1.6 Accepting Tokens only (no Euro's)

Carry out sections 12.1.3 and 12.1.4 beforehand.

1. Open the service menu
2. Set to TOKEN using menu 2.2 Button settings / Button 1-12 / Price.
3. Block the €0.05 - €2.00 coins using the coin mechanism DIL switches and the table below.
4. The recipe buttons are only activated after a token is inserted!

Coin €	S1	S2
€ 0.05	S1-1	S1-7
€ 0.10	S1-2	S1-8
€ 0.20	S1-3	S2-1
€ 0.50	S1-4	S2-2
€ 1.00	S1-5	S2-3
€ 2.00	S1-6	S2-4
ON = locked / OFF = free		

Coin £	S1	S2
£ 0.05	S1-1	-
£ 0.10	S1-2	-
£ 0.20	S1-3	-
£ 0.50	S1-4	S2-1
£ 1.00	S1-5	S1-7
£ 2.00	S1-6	S1-8
£ 0.05 new	S1-4	-
£ 0.10 new	S1-5	-



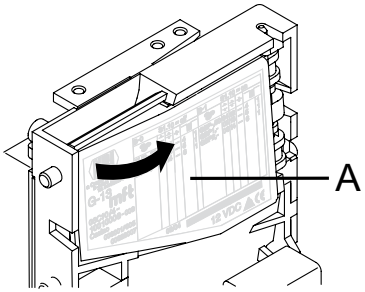
12.1.7 Coin channel cleaning

From time to time, the coin mechanism should be cleaned with a light, damp cloth (lukewarm water containing a mild cleaning agent).
No further maintenance is necessary.

ATTENTION

- The cloth must not be so wet that liquid enters the system or the circuit board could be damaged.
- Do not use any solvents and/or abrasive cleaning agents that could attack the plastic.
- We advice to use a water free Surface cleaner (e.g. Surface 95) to remove the coin channel from grease, and dirt.

1. Turn off the device.
2. Take the coin mechanism out of the side panel.
3. Carefully open the coin holder valve and hold it open.
4. Clean the coin holder with a cloth and close the valve again.
5. Turn on the device again.



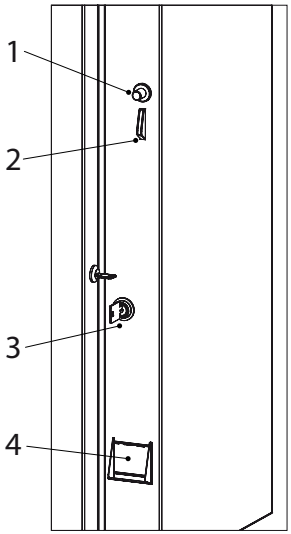
12.2 Coin changer (optional)

The OptiBean is available with an optional coin changer suitable for euros (€ 0.05 to 2.00).

Other currencies are available on request.

The changer has 6 change tubes (€ 0.05 / 2x 0.10 / 0.20 / 0.50 / 1.00).

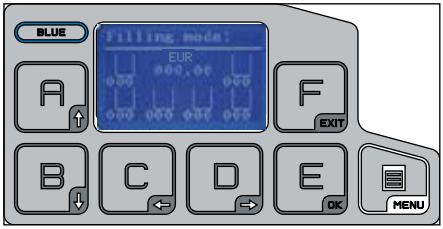
1. Return button
2. Coin slot
3. Door lock
4. Change
5. Return lever
6. Coin insert funnel
7. Display
8. Key panel
9. Cassette removal Lever
10. Tube cassette



12.2.1 Tube filling

We advice to fill the coin tubes by inserting coins via the coin insert /slot.

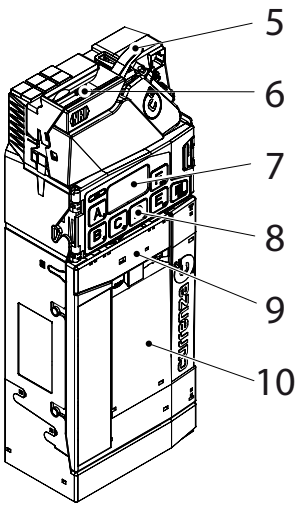
1. Activate filling mode:
   `Main menu > F = Filling mode`



2. Insert coins individually in opening [2] or [6].
3. The tubes are full if the machines displays [*insert* money]. If display shows [*insert exact money*] the coin tubes does not contain enough coins (change).
4. Go back to operator mode by pressing MENU key 2x

12.2.2 Tube emptying

Remove the complete tube cassette [10] by pulling it out by the cassette removal lever [9].



12.2.3 Programme a new token

The token shown opposite is already programmed in the coin changer [Token A].

For programming a new token {[B] see detailed token teach instructions in the NRI technical documentation.

Attention; switch the machine OFF/ON twice after a new token has been programmed.

12.2.4 Coin channel cleaning

Only the changer's coin path, flight deck and sorter cover must be cleaned from time to time.

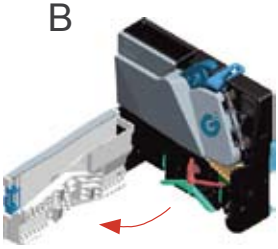
ATTENTION

- The cloth must not be so wet that liquid enters the system or the circuit board could be damaged.
- Do not use any solvents and/or abrasive cleaning agents that could attack the plastic.
- We advice to use a water free Surface cleaner (e.g. Surface 95) to remove the coin channel from grease, and dirt.

1. Turn power OFF.
2. Unlatch sorter cover (blue latch on the right of the display) and swing it open [A & B].
3. Open flight deck at the insert funnel and hold it open [C].
4. Remove any debris. Dust off any accumulation with a small brush or compressed air.
5. Clean the complete coin path, front and back, with a slightly wet cloth.
6. Allow to dry.
7. Close flight deck and latch sorter cover.
8. Turn power ON.

A

B

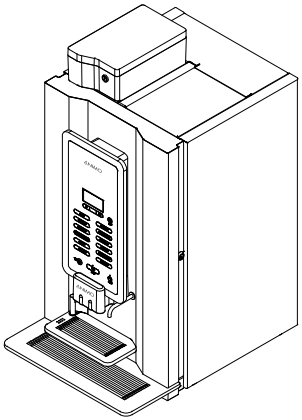


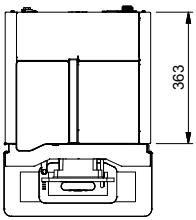
C

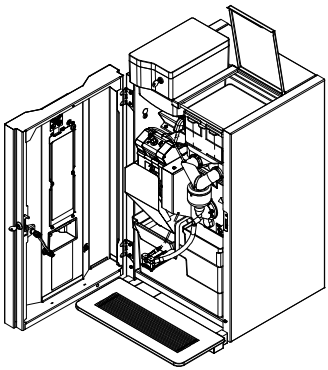
12.2.5 Fault analysis

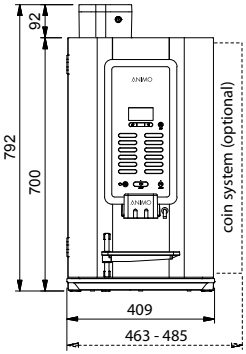
For a detailed diagnosis of the fault, see the NRI technical documentation.

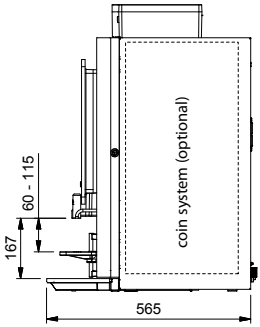
EN

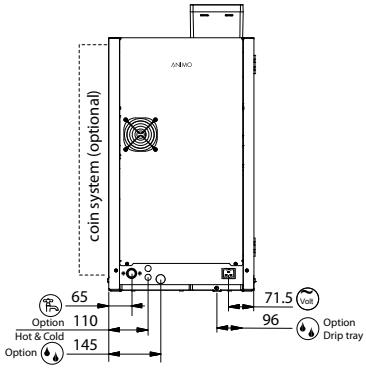


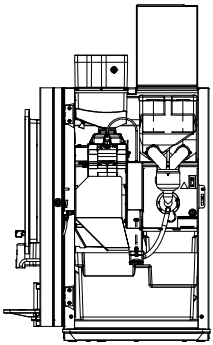

363

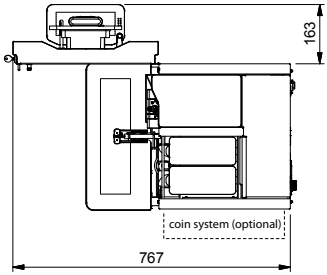


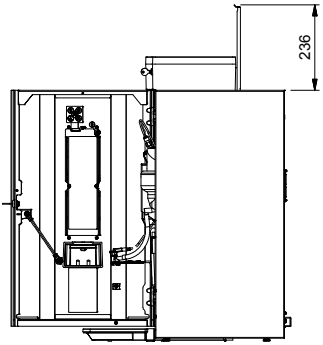

92
792
700
409
463 - 485
coin system (optional)


60 - 115
167
565
coin system (optional)


coin system (optional)
65
Option
Hot & Cold
Option
110
145
71.5
Volt
96
Option
Drip tray




163
coin system (optional)
767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