

TROUBLESHOOTING

FOX2



Document: Troubleshooting

SECTION 6

Modification journal:

Revision:	Data:	Modification	Initials:
0	2011-01-04	Basic document	SO
1	2013-03-05	Various changes	SO
2	2014-09-19	Added chassis CTMC / choco module	RZ
3			
4			
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Index

SECTION 6

1 Overview display messages	4
2 Service menu „System Check“	7
2.1 Entering the service menu	7
2.2 Inputs	8
2.3 Outputs	9
2.4 Touchpanel Test.....	10
3 Touchscreen FOX	11
3.1 Possible problems with the touchscreen.....	11
3.2 Troubleshooting on touch screen.....	11
3.3 Overview FOX-Print.....	12
3.4 Overview CPU	13
4 Chassis.....	14
4.1 Error messages.....	14
4.2 CTM Front view.....	17
4.3 CTM Back view	18
4.4 CTM Bottom view	19
4.5 CTM ISO view	20
4.6 CTM ISO view 2	21
4.7 CBTM Front view.....	22
4.8 CBTM Back view	23
4.9 CBTM Bottom view	24
4.10 CBTM ISO view	25
4.11 CBTM ISO view 2	26
5 Mechanical module.....	27
5.1 Error messages.....	27
5.2 Water circulation	29
5.3 ISO view	30
5.4 Top view	31
5.5 Back view	32
5.6 Bottom view	33
5.7 ISO view Brewing unit	34
5.8 Quick test	35
6 Hydraulic module	36
6.1 Error messages.....	36
6.2 Top view	37
6.3 Back view	38
6.4 Milk way pump unit	39
6.5 Water way pump unit	40
6.6 ISO view Pump unit	41
6.7 ISO view Valve block	42
6.8 Quick test	43
7 Brew module.....	44
1 Error messages.....	44
2 ISO view	45
3 Back view	46
4 ISO view Sensor	47
5 ISO view Chassis	48
6 Quick test	49
8 Steam module.....	50
8.1 Error messages.....	50
8.2 ISO view	51
8.3 Front view.....	52
8.4 Back view	53
8.5 Quick test steam module	54

1 Overview display messages

SECTION 6

Error no.	Text	Affects module
TX0101	NTC coffeeboiler open	Hydraulics (Kap. 6.1)
TX0104	Empty grounds drawer	Chassis (Kap. 4.1)
TX0105	Drain tub	Brew module (Kap. 7.1)
TX0106	Grounds drawer missing	Chassis (Kap. 4.1)
TX0107	Bean hopper empty (left-hand side)	Mechanics (Kap. 5.1)
TX0108	Service required	Chassis (Kap. 4.1)
TX0109	Clean appliance	Chassis (Kap. 4.1)
TX0110	Voltage low	Chassis (Kap. 4.1)
TX0111	Voltage high	Chassis (Kap. 4.1)
TX0113	Piston error	Chassis (Kap. 4.1) / Mechanics (Kap. 5.1)
TX0114	Bean hopper empty (right-hand side)	Mechanics (Kap. 5.1)
TX0115	Flow error	Mechanics (Kap. 5.1) / Hydraulics (Kap. 6.1)
TX0116	Overtime error	Mechanics (Kap. 5.1) / Hydraulics (Kap. 6.1)
TX0117	Change water filter	Chassis (Kap. 4.1)
TX0118	Interface error	Chassis (Kap. 4.1)
TX0119	Powder error	Mechanics (Kap. 5.1)
TX0121	NTC steamboiler error	Steam (Kap. 8.1)
TX0122	Steamboiler not ready	Steam (Kap. 8.1)
TX0123	Low water level in steamboiler	Steam (Kap. 8.1)
TX0124	Hot water rinse Press rinse key	Steam (Kap. 8.1)
TX0125	Waterflow error	Hydraulics (Kap. 6.1)

1 Overview display messages

SECTION 6

Error no.	Text	Affects module
TX0128	Cleaning interrupted Open POD	Chassis (Kap. 4.1)
TX0136	Please ask for assistance	Chassis (Kap. 4.1)
TX0137	Please add milk	Chassis (Kap. 4.1)
TX0138	Steamboiler fill error	Steam (Kap. 8.1)
TX0139	Bean hopper missing or command unit open	Chassis (Kap. 4.1) / Mechanics (Kap. 5.1)
TX0141	NTC coffee boiler short-circuit	Hydraulics (Kap. 6.1)
TX0143	Machine locked Start cleaning	Chassis (Kap. 4.1)
TX0145	Add coffee beans Press ok to proceed product dispensing	Mechanics (Kap. 5.1)
TX0146	Press stop key	Chassis (Kap. 4.1)
TX0149	Insert coffee pad	Chassis (Kap. 4.1)
TX0150	Remove cleaning tablets	Chassis (Kap. 4.1)
TX0151	No waterflow detected	Hydraulics (Kap. 6.1)
TX0153	Cleaning done Standby	Chassis (Kap. 4.1)
TX0154	Milk pump: no pulse	Hydraulics (Kap. 6.1)
TX0155	Water pump: no pulse	Hydraulics (Kap. 6.1)
TX0161	Please wait	Hydraulics (Kap. 6.1)
TX0162	Error grinder right-hand side	Mechanics (Kap. 5.1)
TX0163	Error grinder left-hand side	Mechanics (Kap. 5.1)
TX0164	Cleaning interrupted Please press rinse key	Chassis (Kap. 4.1)
TX0167	Cleaning interrupted Remove grounds drawer	Chassis (Kap. 4.1)
TX0174	Remove and empty grounds drawer	Chassis (Kap. 4.1)

1 Overview display messages

SECTION 6

Error no.	Text	Affects module
TX0188	Check milk temperature	Chassis (Kap. 4.1)
TX0201	Cold start rinse Please press rinse key	Chassis (Kap. 4.1) / Hydraulics (Kap. 6.1)
TX0241	Machine rinsing ATTENTION HOT!	Chassis (Kap. 4.1)

2. Service menu „System Check“

SECTION 6

2.1 Entering the service menu

There are two different codes which each provide another programming level in the software:

User level: Code 111111

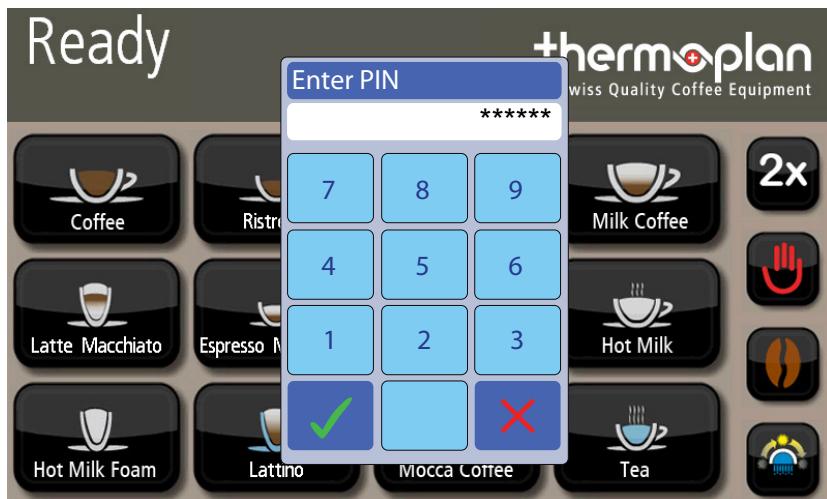
In the user level only few settings like product parameters, datetime and language can be set.

Technician level: Code 137900

In the technician level all settings can be looked-up and set.

To enter the different service levels, follow these steps:

1. Push and hold left top corner.
2. The „Enter PIN“ window appears. Enter code and confirm with .



3. Following screen appears:



The service menu can always be left by pressing the top left corner of the display.

2. Service menu „System Check“

SECTION 6

2.2 Inputs

Parameter	Description	Status Normalbetrieb	CT	CTM	CTS	CTMS	CBT	CBTM
Boiler temperature	Shows the temperature of coffee boiler	91 °C	x	x	x	x	x	x
Pot temperature	Shows the temperature of coffee brewer	50 °C					x	x
Ground Drawer detected	Remove grounds drawer to check the contact. If a X is shown, insert the grounds drawer correctly.	✓	x	x	x	x	x	x
Flowmeter ticks/sec	The value (ticks) must not change in the system check menu. If the value changes, it means that the flowmeter turns without the machine running -> there is a leakage in the area right after the flowmeter.	0	x	x	x	x	x	x
Brewing motor in endposition	Shows if the brew chamber on the mechanical module is in its starting position (touches the end switch).	✓	x	x	x	x	x	x
Motorrotation detected	Turn the spindle wheel of the brew chambre slowly manually to check the 24VDC motor. The value should alternate between ✓ and X.	X	x	x	x	x	x	x
Beanhopper & panel ok	Remove bean hopper or move up the control panel to check the signal.	✓	x	x	x	x	x	x
Pot level	Shows current fill state in % of the full coffee brewer tank's capacity.	20%					x	x
Pot level step	Shows the current level of the coffee brewer's tank.	0					x	x
Milkcleaningkey	Remove cleaning key to check the contact.	✓	x	x	x	x	x	x
Milkcleaningtablet	Remove cleaning key and press the contact pin inside the cleaning key's housing to check the contact.	X	x	x	x	x	x	x

2. Service menu „System Check“

SECTION 6

2.3 Outputs

Press the output you wish to check to start its function. For example press on „Grinder 1“ so the left grinder starts to move. Press a valve to open it.

Following outputs can be checked:

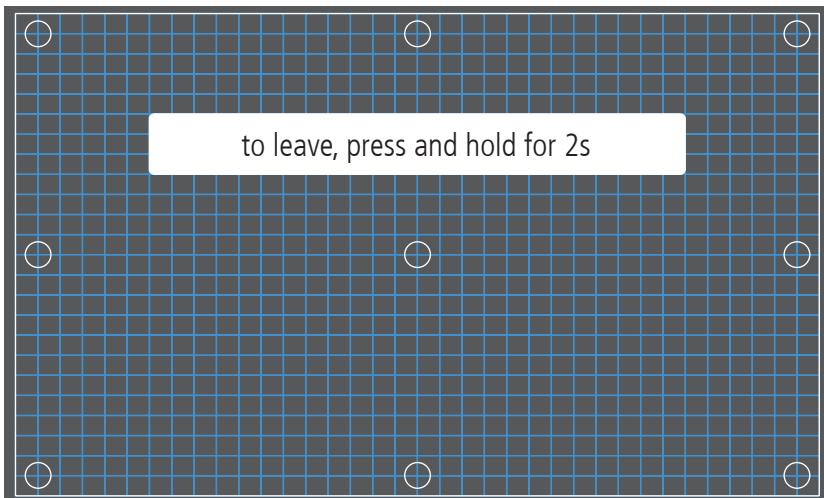
Parameter	Description	CT	CTM	CTS	CTMS	CBT	CBTM
Grinder 1	Function check: Grinder motor (230V). The rotation of the motor is in direction of the left grinder which will grind coffee. If the grinder should be blocked, use the parameter „Grinder 2“ so that grinder 1 turns in the opposite direction.	x	x	x	x	x	x
Grinder 2	Function check: Grinder motor (230V). The rotation of the motor is in direction of the right grinder which will grind coffee. If the grinder should be blocked, use the parameter „Grinder 1“ so that grinder 2 turns in the opposite direction.	x	x	x	x	x	x
Coffeeheater	Coffee boiler is heating. Attention: The heater is not secured against overheating!	x	x	x	x	x	x
Coffeepump	Water pump starts. Attention: Only press shortly because the valves are closed and the pump is heating up!		x		x		x
Milkpump	Milk pump starts.		x		x		x
Potpump	Tank pump starts. Attention: Only press shortly because the valves are closed and the pump is heating up.					x	x
Potheater	Tank is heating. Attention: Heater is not secured against overheating!					x	x
Brewvalve	Brew valve on valve block opens (you should hear a „click“ noise)	x	x	x	x	x	x
Bypassvalve	Bypass valve on valve block opens (you should hear a „click“ noise)	x	x	x	x	x	x
Teavalve	Tea valve on valve block opens (you should hear a „click“ noise)	x	x	x	x	x	x
Milkdrainvalve	Milk drain valve on valve block opens (you should hear a „click“ noise)		x		x		x
Milkselectvalve	Milk selection valve on valve block opens (you should hear a „click“ noise)		x		x		x
Milkdraingatevalve	Milk drain gate valve on valve block opens (you should hear a „click“ noise)		x		x		x
Milkairvalve	Milk air valve on valve block opens (you should hear a „click“ noise)		x		x		x
Milkrinsevalve	Milk rinse valve on valve block opens (you should hear a „click“ noise)		x		x		x
Milkcleanvalve	Milk clean valve on valve block opens (you should hear a „click“ noise)		x		x		x
Coldmilkvalve	Cold milk valve on valve block opens (you should hear a „click“ noise)		x		x		x
Refrigeratorrinsevalve	Refrigerator rinse valve on valve block opens (you should hear a „click“ noise)		x		x		x
POD/Cleaningvalve	Cleaning valve on valve block opens (you should hear a „click“ noise)	x	x	x	x	x	x
Potvalve	Tank valve on valve block opens (you should hear a „click“ noise)					x	x
Coffeeoutletvalve	Coffee outlet valve on valve block opens (you should hear a „click“ noise)					x	x
Tankdrainvalve	Tank drain valve on valve block opens (you should hear a „click“ noise)					x	x

2. Service menu „System Check“

SECTION 6

2.4 Touchpanel test

The system check menu also contains an option to check the touchscreen for its functionality. Press on „Touchpanel test“ to start the test program. A grid will appear on the screen. After every touch on the screen a red „dot“ should appear on the same spot.



To leave the test screen, press for 2 seconds on any place on the touchscreen.

3. Touchscreen FOX

SECTION 6

3.1 Possible problems with the touchscreen

- Slow reaction of the touchscreen
- Screen is flickering
- Some product buttons have disappeared
- Display shows unreadable hieroglyphics instead of text
- Machine does not start completely: „Ready“ is not displayed
- Blue box with error message on left top corner of the screen
- Screen stays black
- White screen (screen only returns white light)

3.2 Troubleshooting on touch screen

Follow these instructions step by step to determine the error the fastest way.

Requirement: The CF card must be formatted with FAT or FAT32!
NTFS data system does not work!

Step 1

- Switch off machine
- Wait for 10 seconds
- Switch machine back on
- If this action does not solve the problem, proceed with step 2

Step 2

- Switch off machine
- Remove CF card (position CF card can be seen in section „3.3 Overview FOX-Print“)
- Check if there are any defects on the pins in the CF card slot
- Reinsert the CF card
- Switch machine back on
- If this action does not solve the problem, proceed with step 3

Step 3

Check FOX-Print index (see section „3.3 Overview FOX-Print“)

- Recommendation of CF card for FOX 70-Print index A-C: CF card type „take MS“
- From FOX 70-Print version D the CF card type does not matter anymore
- If this action does not solve the problem, proceed with step 4

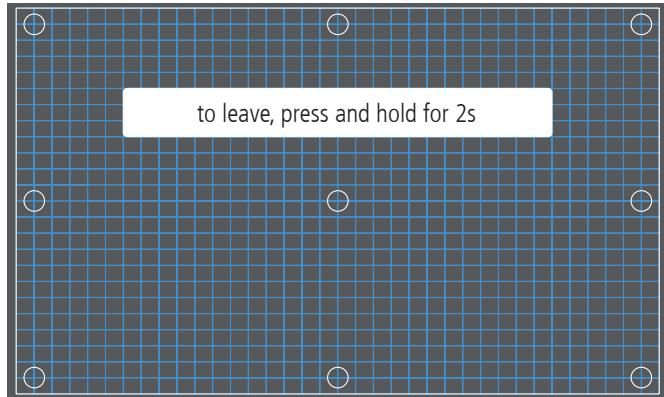
3. Touchscreen FOX

SECTION 6

3.2 Troubleshooting on touch screen

Step 4

Perform a touch panel test in the service menu „System Check“ to check the reaction time



Step 5

Communication control CPU <-> FOX-Print by LEDs.

LEDs must be blinking on both CPU and FOX-Print!

If the LEDs do not blink (LEDs are marked in section „3.3 Overview FOX-Print“ and „3.4 Overview CPU“), but are out of action or glow permanently, follow these steps:

- Switch off machine
- Plug out connection cable (see section „3.3 Overview FOX-Print“ and „3.4 Overview CPU“)

CAUTION: The machine must be turned off at the main switch before plugging the connection cable in or out. Else there can be discharges on the electronics, which can cause errors like in section „3.1 Possible problems with the touchscreen“.

- Control the contacts on both: CPU and FOX-Print
- Plug connection cable back in
- Switch machine back on and check LEDs
- If there is still no connection repeat this step using a new connection cable
- If this action does not solve the problem, proceed with step 6

Step 6

- Switch off machine
- Change the FOX-Print
- Reconnect all cables and switch machine back on
- If this action does not solve the problem, proceed with step 7

Step 7

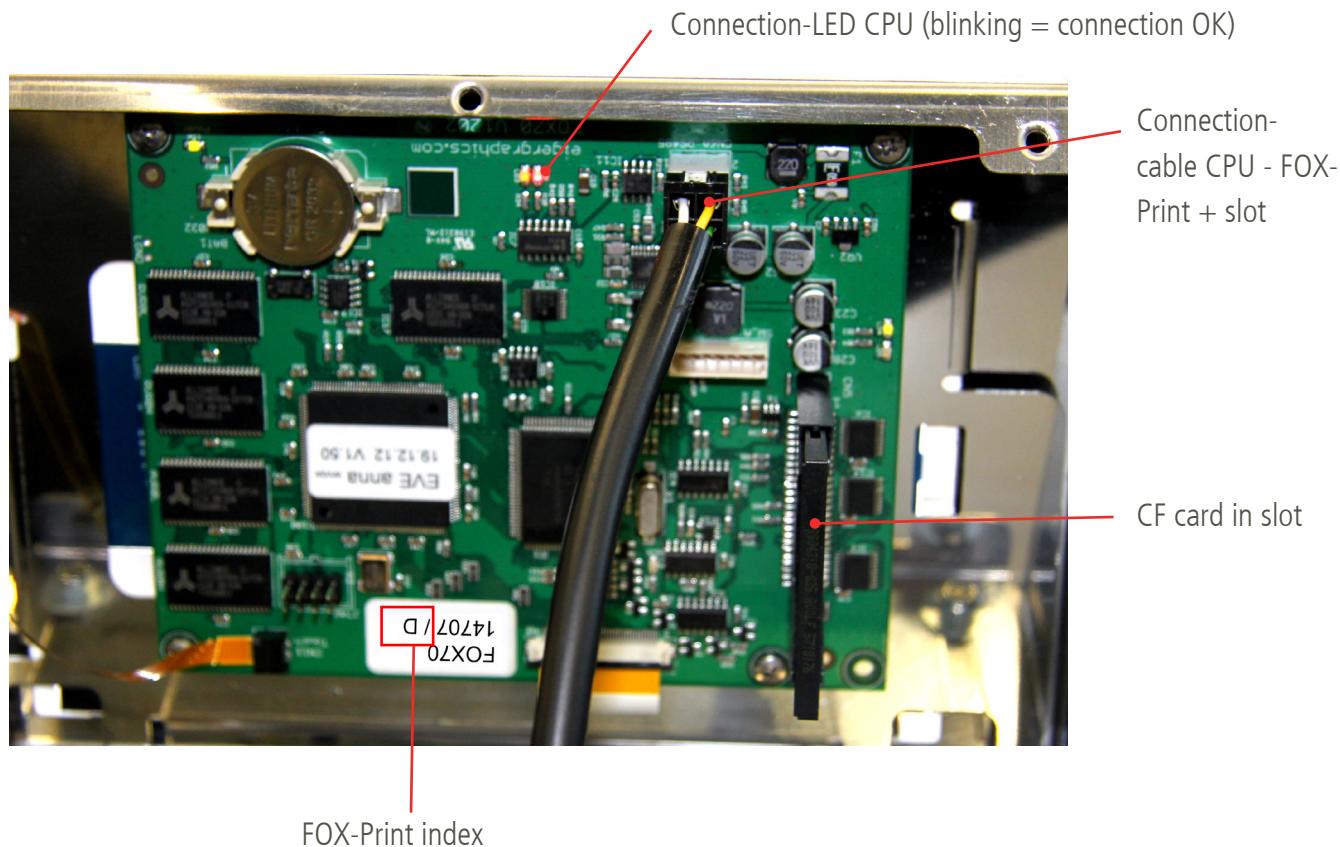
- Switch off machine
- Change the CPU
- Reconnect all cables and switch machine back on

3. Touchscreen FOX

SECTION 6

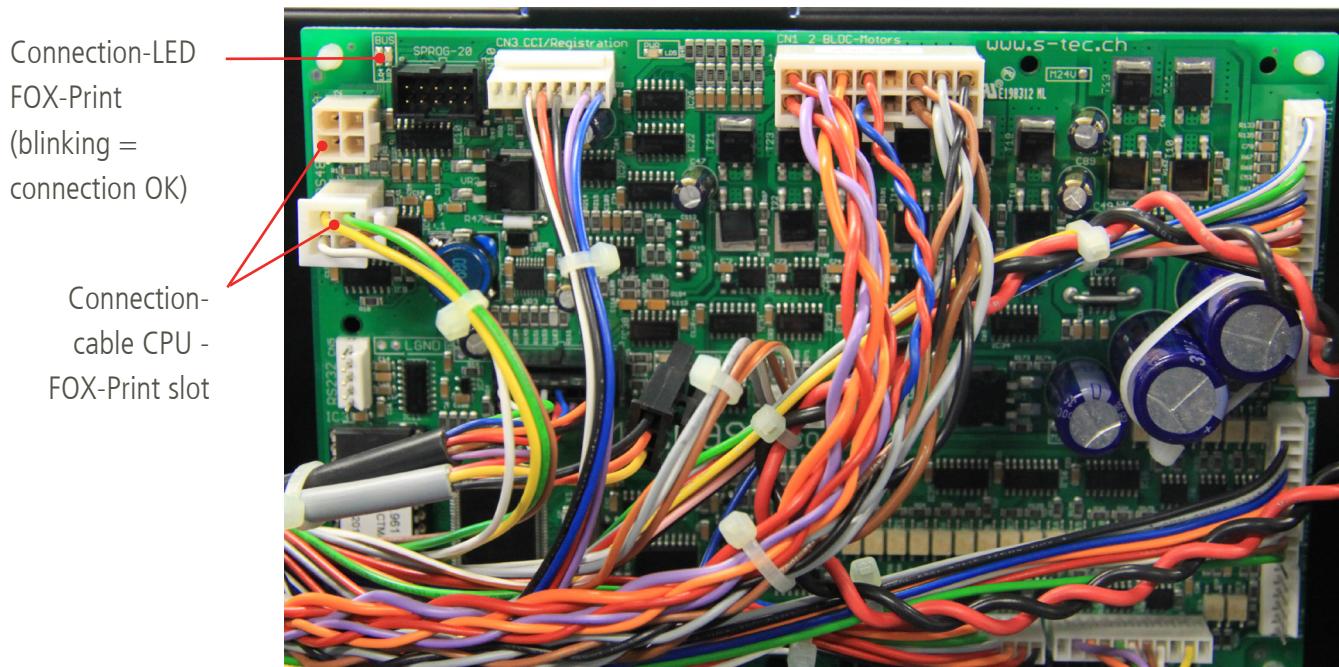
3.3 Overview FOX-Print

The FOX-Print is located on the back of the touchscreen.



3.4 Overview CPU

The CPU is located on the back of the chassis (see particular chassis ISO views).



4. Chassis

SECTION 6

4.1 Error messages chassis

Error no. / picture	Text	Possible causes and fixes
TX0104 	Empty grounds drawer	<p>Grounds drawer full</p> <ul style="list-style-type: none"> Remove grounds drawer, empty, reinsert (wait min. 5 seconds) <p>No magnet on grounds drawer</p> <ul style="list-style-type: none"> Mount new magnet <p>Magnet switch on chassis defective</p> <ul style="list-style-type: none"> Go to service menu and check „System Check“-> „Ground Drawer detected“: OK = ✓ not detected = ✗ If ✗, replace magnet switch <p>Cable between magnet switch and CPU has short circuit</p> <ul style="list-style-type: none"> Check cable and replace if necessary
TX0106 	Grounds drawer missing	<p>Grounds drawer not inserted correctly</p> <ul style="list-style-type: none"> Remove grounds drawer, empty, reinsert (wait min. 5 seconds) <p>No magnet on grounds drawer</p> <ul style="list-style-type: none"> Mount magnet again <p>Magnet switch on chassis defective</p> <ul style="list-style-type: none"> Go to service menu and check „System Check“-> „Ground Drawer detected“: OK = ✓ not detected = ✗ If ✗, replace magnet switch <p>Cable between magnet switch and CPU has short circuit</p> <ul style="list-style-type: none"> Check cable and replace if necessary
TX0108 	Service required	<p>Amount of brew cycles for service programmed in machine has been reached</p> <ul style="list-style-type: none"> Provide annual service on machine. Reset counter in service menu „Statistics“, to delete message. Machine starts counter again from 0.
TX0109 	Clean appliance	<p>Since the first product dispensing 48 hours have passed (coffee products only) or 24 hours have passed (if milk products were dispensed).</p> <ul style="list-style-type: none"> Machine must be cleaned to unlock.
TX0110 	Voltage low	<p>Voltage too low, operation is stopped as soon as voltage is below the set tolerance (adjustable from 0-30%). If the voltage gets too low during a product dispensing, the product will be finished, then the operation stops.</p>
TX0111 	Voltage high	<p>Voltage too high, operation is stopped as soon as voltage is above the set tolerance (adjustable from 0-30%). If the voltage gets too high during a product dispensing, the product will be finished, then the operation stops.</p>

4. Chassis

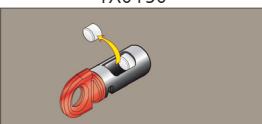
4.1 Error messages chassis

Error no. / picture	Text	Possible causes and fixes
TX0113 	Piston error	<p>Incorrect brew unit movement (no move or too slow)</p> <ul style="list-style-type: none"> Check gear belt. Remount gear belt correctly If the gear belt is defective, replace <p>Brew chamber is blocked</p> <ul style="list-style-type: none"> Check brew chamber and its spindle Try moving the brew chamber by hand. Turn gear belt of the brew chamber drive. Remove any obstructions in the brew chamber Grease spindle with "Molykote E-Paste" Art. No. 101.979 <p>Mobile piston is blocked; brew cylinder cannot travel back to the micro switch</p> <ul style="list-style-type: none"> Check mobile piston (counterpart to fix piston, located inside of the brew chamber) Check head of mobile piston for defects Replace mobile piston <p>The brew cylinder cannot travel over the fix piston</p> <ul style="list-style-type: none"> Check if fix piston is correctly mounted and in position Check fix piston's cuff seal Replace fix piston
TX0117 	Change water filter	<p>Pre-set amount of water has flown through water filter</p> <ul style="list-style-type: none"> Change water filter, then reset counter in service menu
TX0118 	Interface error	<p>„Interface“ is activated in software. Either wrong, defective or no payment interface connected</p> <ul style="list-style-type: none"> Check interface settings in service menu. If no interface is connected, switch option to „off“
TX0131 	Cleaning interrupted Open POD	<p>Cleaning switch on POD on wrong side</p> <ul style="list-style-type: none"> Change POD's switch to product mode <p>The reed switch of the cleaning switch has magnetic contact</p> <ul style="list-style-type: none"> The reed switch has a short circuit. Go to service menu and control „System Check“, „POD Switch“. Product mode =  Cleaning mode =  To check a short circuit or connection break of the reed switch by measurement, plug out reed switch Check cable, position of the reed switch and the plug connections
TX0136 	Please ask for assistance	<p>Only shows up in self-service mode so consumers do not try to fix the problem themselves.</p> <ul style="list-style-type: none"> Press and hold  until actual display message shows up. Follow orders or look the actual message up in error list for further information.

4. Chassis

SECTION 6

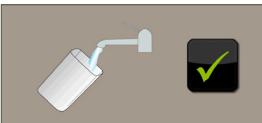
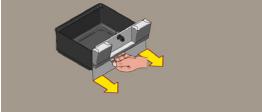
4.1 Error messages chassis

Error no. / picture	Text	Possible causes and fixes
TX0137 	Please add milk	<p>Milk is empty</p> <ul style="list-style-type: none"> • Refill milk <p>Level sensor defective</p> <ul style="list-style-type: none"> • The milk suction tube has a cable break, is defective or the plug connection is interrupted. Check in the menu „System Check“ -> „Milk level 1“ or „Milk level 2“ (for 2-milk system only). Milk detected = ✓, No milk detected = ✗ • To check an interrupt of the milk suction tube or the cable harness by measurement, disconnect milk suction tube or the part of the cable harness to be checked from the CPU.
TX0139 	Bean hopper missing or command unit open	<p>Bean hopper is not mounted or the command desk is open</p> <ul style="list-style-type: none"> • Place bean hopper correctly • Close command desk <p>One or more than one of the three series connected reed switches (grinder left + right, control panel) have a cable break or no magnetic contact.</p>
TX0143 	Machine locked Start cleaning	Since dispensing the first milk product after last cleaning 24 hours have passed (48 hours, if only coffee has been dispensed) and machine has to be cleaned. This daily cleaning cycle cannot and must not be avoided.
TX0149 	Insert coffee pad	<p>Coffee machine preparing for dispensing a POD product</p> <ul style="list-style-type: none"> • Open POD, insert coffee pod, close POD
TX0150 	Remove cleaning tablets	<p>Cleaning tablets are in cleaning key when cleaning not in progress</p> <ul style="list-style-type: none"> • Remove cleaning tablets from cleaning key. They must only be inserted during cleaning. <p>Cable break in tablet sensor</p>
TX0153 	Cleaning done Standby	<p>After daily cleaning, the machine changes to standby mode</p> <ul style="list-style-type: none"> • Press OK to get the machine back to „Ready“ from standby
TX0164 	Cleaning interrupted Please press rinse key	<p>Cleaning has been interrupted</p> <ul style="list-style-type: none"> • Press rinse key to restart cleaning procedure

4. Chassis

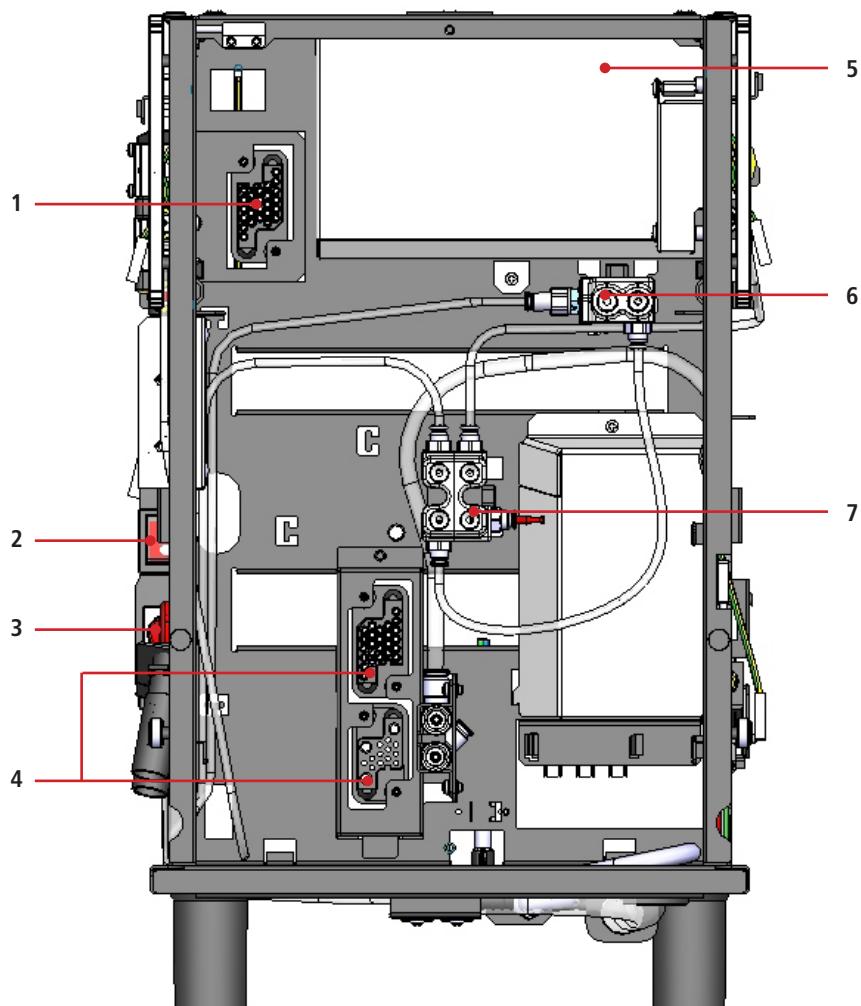
SECTION 6

4.1 Error messages chassis

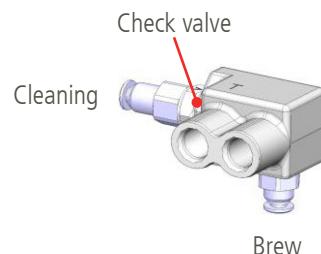
Error no. / picture	Text	Possible causes and fixes
TX0167 	Cleaning interrupted Remove grounds drawer	Cleaning has been interrupted <ul style="list-style-type: none">• Remove and reinsert grounds drawer
TX0174 	Remove and empty grounds drawer	Grounds drawer has to be removed for next action <ul style="list-style-type: none">• Remove grounds drawer
TX0188 	Check milk temperature	Milk temperature too high <ul style="list-style-type: none">• Check milk temperature• Switch on refrigerator• Check temperature sensors
TX0201 	Cold start rinse Please press rinse key	Rinse for start- and warm-up of machine <ul style="list-style-type: none">• Press rinse key
TX0241 	Machine rinsing ATTENTION HOT!	Warning note during rinse <ul style="list-style-type: none">• Wait until rinse has finished

4. Chassis

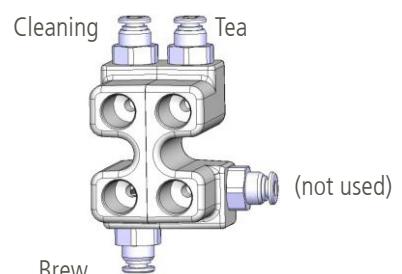
4.2 CTM front view



*Mechanical clip



**Hydraulic clip

**Pos. Description**

1 Connection mechanical module

2 Main switch

3 Cleaning key

4 Connections hydraulic module

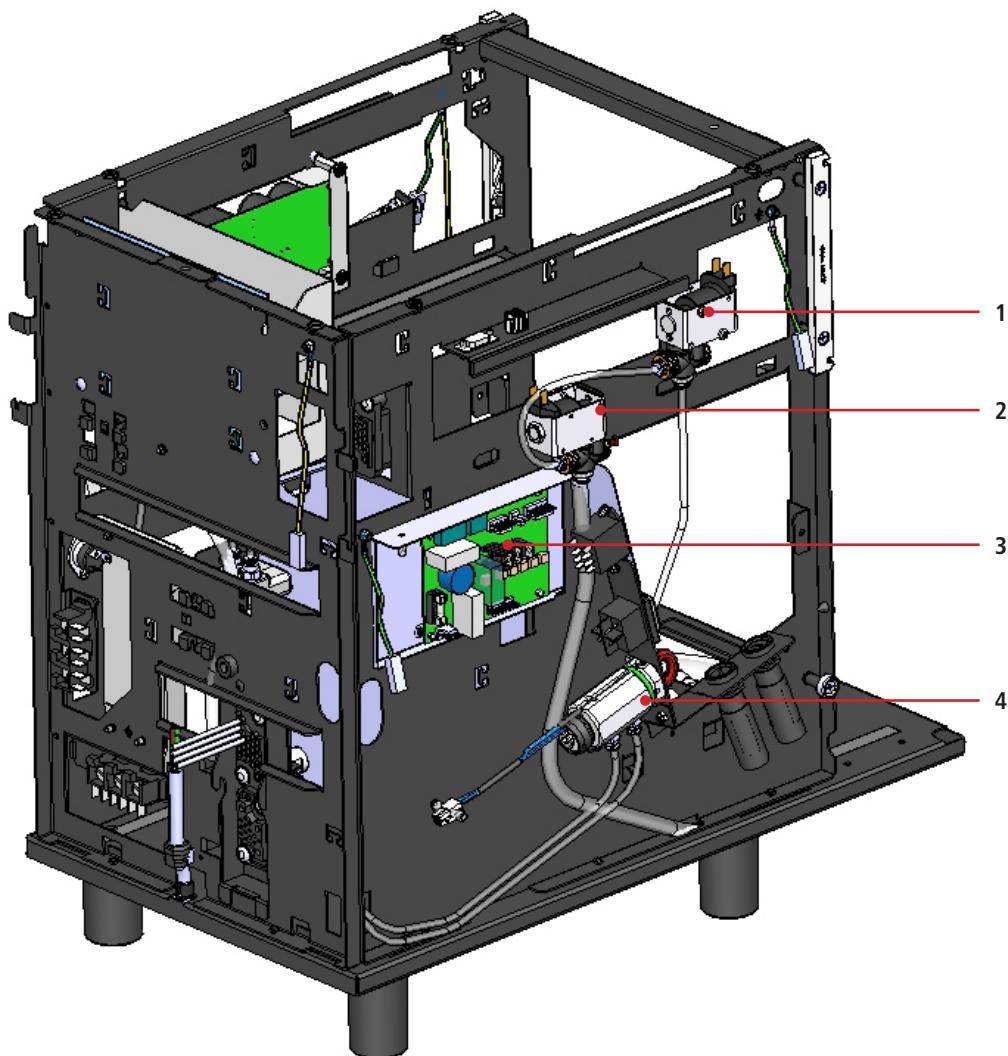
5 CPU

6 Mechanical clip*

7 Hydraulic clip**

4. Chassis

4.6 CTM ISO view 2

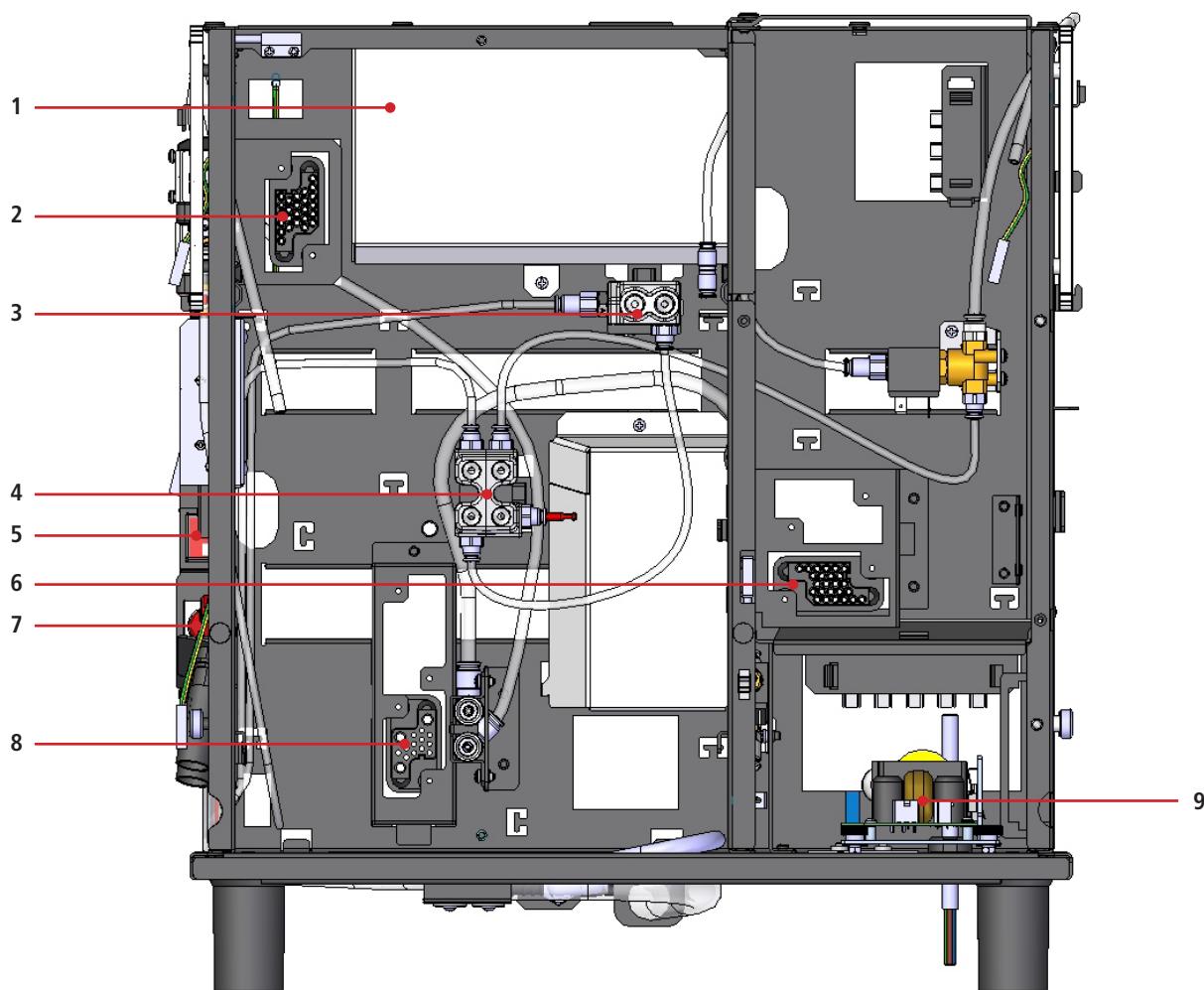


Pos.	Description
1	Drain gate valve
2	Milk valve
3	Power print (Powerboard)
4	Cleaning key

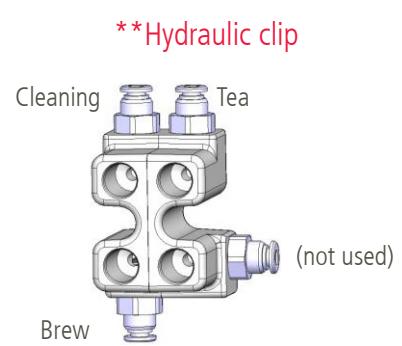
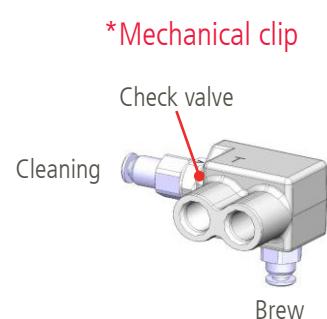
4. Chassis

SECTION 6

4.7 CBTM front view



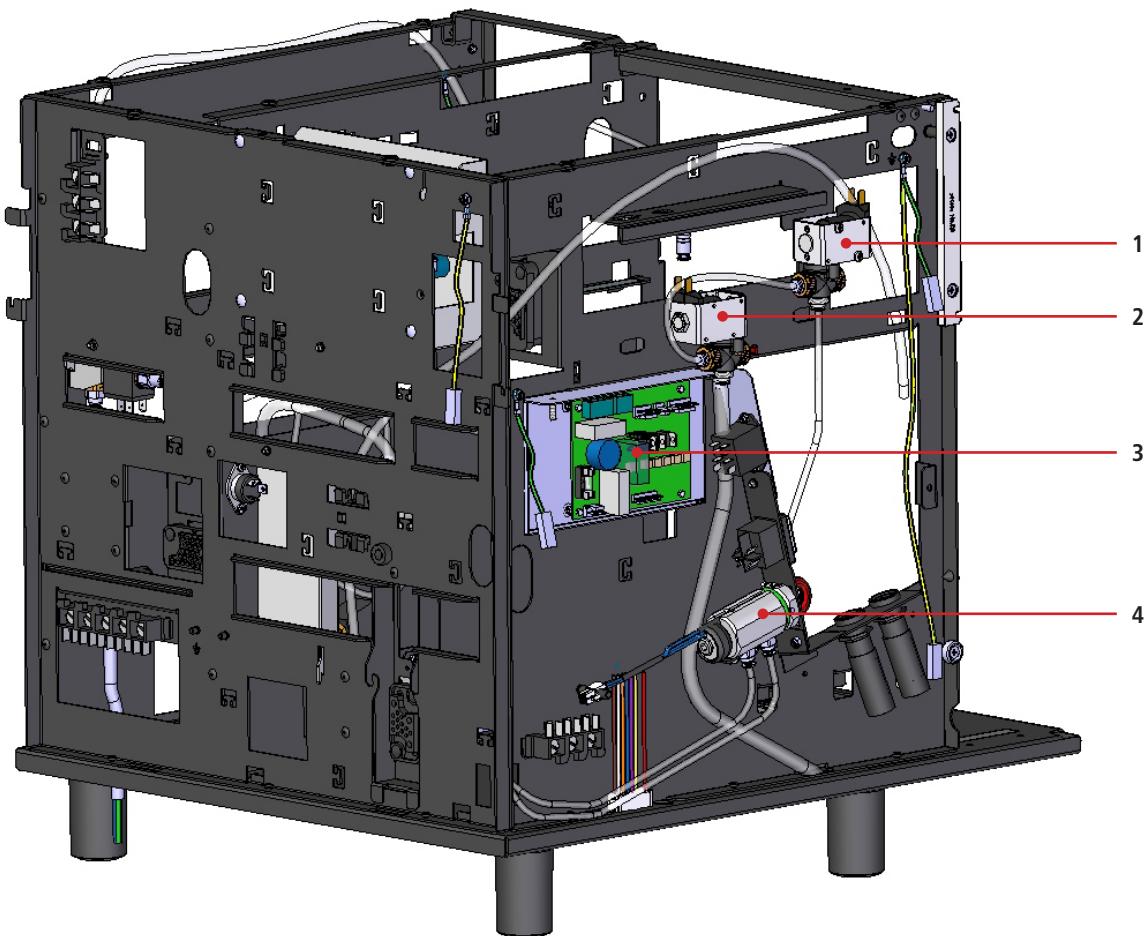
Pos.	Description
1	CPU
2	Connection mechanical module
3	Mechanical clip*
4	Hydraulic clip**
5	Main switch
6	Connection Brew module
7	Cleaning key
8	Connection hydraulic module



4. Chassis

SECTION 6

4.11 CBTM ISO view 2

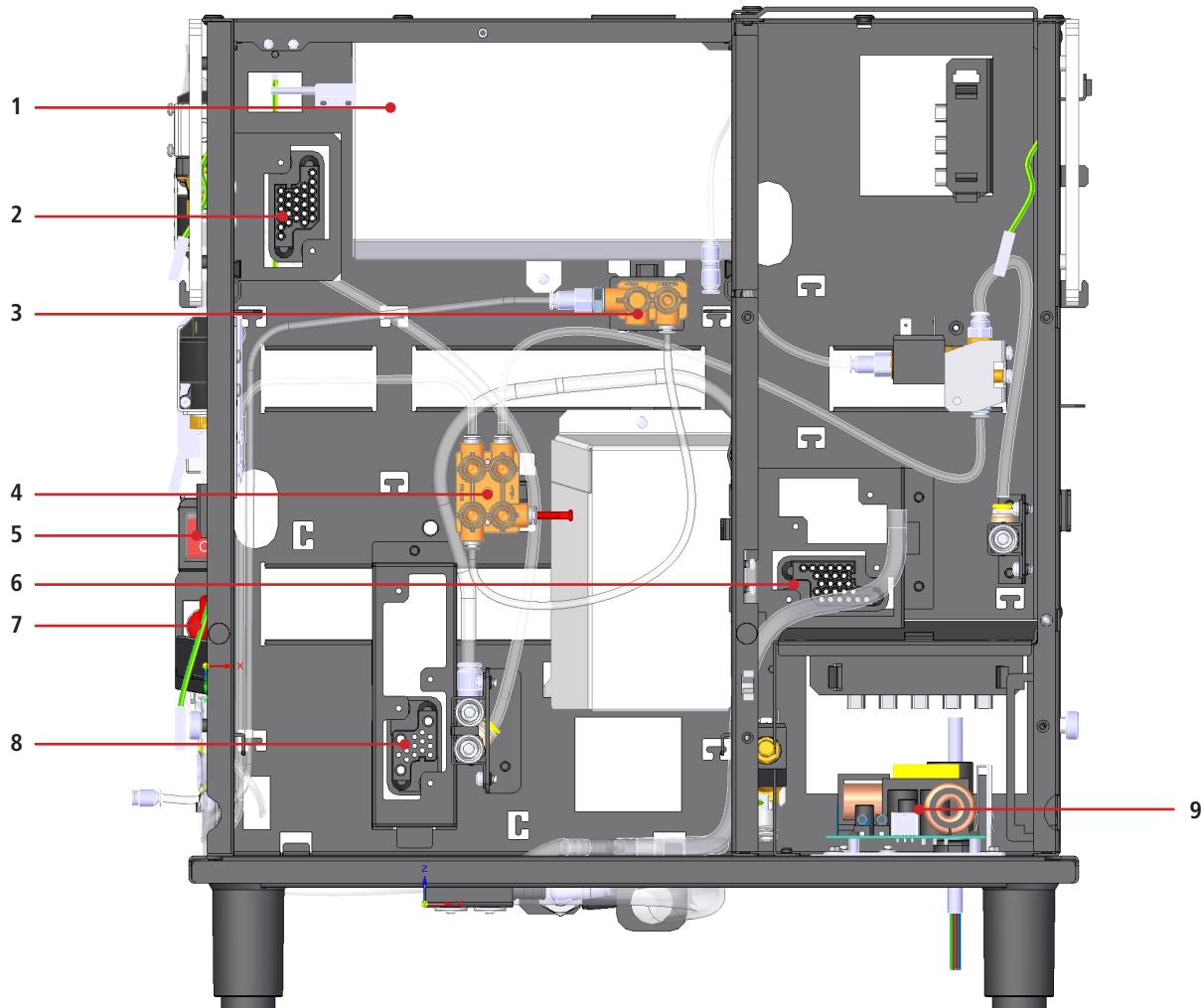


Pos.	Description
1	Drain gate valve
2	Milk valve
3	Power print (powerboard)
4	Cleaning key

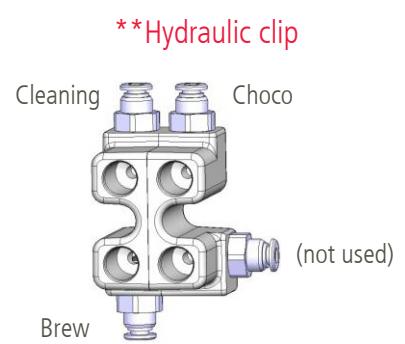
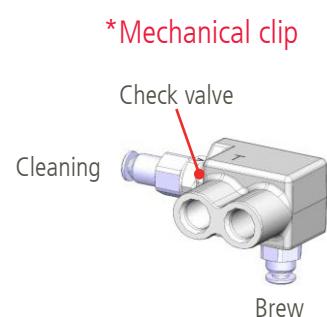
4. Chassis

SECTION 6

4.7 CTMC front view



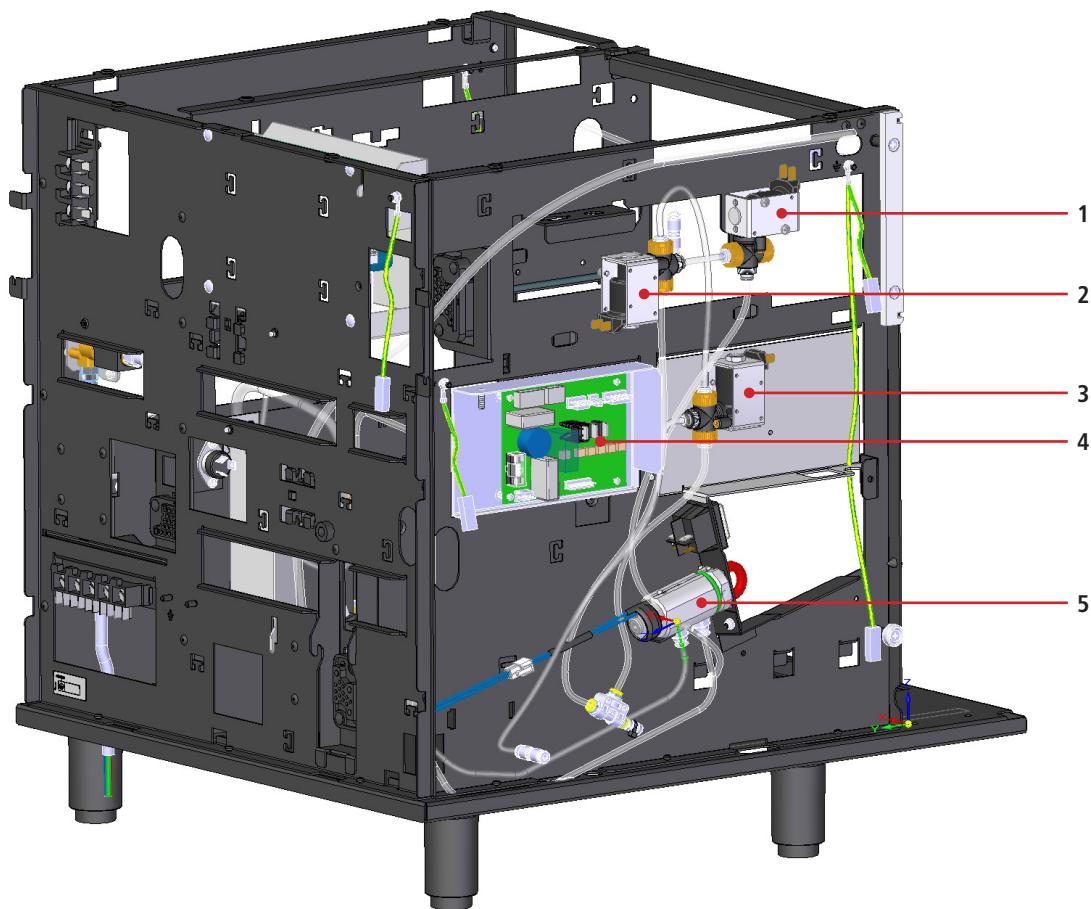
Pos.	Description
1	CPU
2	Connection mechanical module
3	Mechanical clip*
4	Hydraulic clip**
5	Main switch
6	Connection choco module
7	Cleaning key
8	Connection hydraulic module
9	



4. Chassis

SECTION 6

4.11 CBTM ISO view 2



Pos.	Description
1	Milk drain valve
2	Milk drain gate valve
3	Loop gate valve
4	Power print (powerboard)
5	Cleaning key

5 Mechanical module

5.1 Error messages mechanical module

Error no. / picture	Text	Cause
TX0107 	Bean hopper empty (left-hand side)	<p>Cause: After grinding, the brew-chamber moves to far to the front.</p> <ul style="list-style-type: none"> Check in menu "System Check" (see according section). Manual testing of the grinders by pressing the field "Grinder 1" <p>After grinding, the brew cylinder moves completely over the fix piston (like in rinse)</p> <ul style="list-style-type: none"> Check grinding position and powder way <p>Grinder motor or starting condenser is defective</p> <p>Check if coffee beans are grinded</p> <ul style="list-style-type: none"> Check gear belt, gear belt plates and voltage <p>Grinder motor TRIAC (Triode for Alternating Current) on power print is defective</p> <ul style="list-style-type: none"> Check cable connections between mechanical module - power print and CPU <p>Gear belt of grinder motor is defective or not mounted</p> <ul style="list-style-type: none"> Replace belt <p>Axis of grinder is defective</p> <ul style="list-style-type: none"> Replace axis <p>The mobile piston within the brew chamber stays in its initial position (defect springs, adhesion of the mobile piston) and is blocking the powder window</p> <ul style="list-style-type: none"> Check grinder position and powder way Replace springs Clean piston <p>Wrong grinder position of the brew chamber</p> <ul style="list-style-type: none"> Control of grinder position in service menu "Factory Settings", "Move brew chamber" <p>Defective TRIAC (Triode for Alternating Current) on the power print</p>
TX0113 	Piston error	<p>Incorrect brew unit movement (no move or too slow)</p> <ul style="list-style-type: none"> Check gear belt Remount gear belt correctly If the gear belt is defective, replace <p>Brew chamber is blocked</p> <ul style="list-style-type: none"> Check brew chamber and its spindle Try moving the brew chamber by hand. Turn gear belt of the brew chamber drive Remove any obstructions in the brew chamber Grease spindle with "Molykote E-Paste" Art. No. 101.979 <p>Mobile piston is blocked; brew cylinder cannot travel back to the micro switch</p> <ul style="list-style-type: none"> Check mobile piston (counterpart to fix piston, located inside of the brew chamber) Check head of mobile piston for defects Replace mobile piston <p>The brew cylinder cannot travel over the fix piston</p> <ul style="list-style-type: none"> Check if fix piston is correctly mounted and in position Check fix piston's cuff seal Replace fix piston

5 Mechanical module

SECTION 6

5.1 Error messages mechanical module

Error no. / picture	Text	Cause
TX0114 	Bean hopper empty (right-hand side)	<p>Cause: After grinding, the brew-chamber moves too far to the front.</p> <ul style="list-style-type: none"> Check in menu "System Check" (see according section). Manual testing of the grinders by pressing the field "Grinder 2" <p>After grinding, the brew cylinder moves completely over the fix piston (like in rinse)</p> <ul style="list-style-type: none"> Check grinding position and powder way <p>Grinder motor or starting condenser is defective</p> <p>Check if coffee beans are grinded</p> <ul style="list-style-type: none"> Check gear belt, gear belt plates and voltage <p>Grinder motor TRIAC (Triode for Alternating Current) on power print is defective</p> <ul style="list-style-type: none"> Check cable connections between mechanical module - power print and CPU <p>Gear belt of grinder motor is defective or not mounted</p> <ul style="list-style-type: none"> Replace belt <p>Axis of grinder is defective</p> <ul style="list-style-type: none"> Replace axis <p>The mobile piston within the brew chamber stays in its initial position (defect springs, adhesion of the mobile piston) and is blocking the powder window</p> <ul style="list-style-type: none"> Check grinder position and powder way Replace springs Clean piston <p>Wrong grinder position of the brew chamber</p> <ul style="list-style-type: none"> Control of grinder position in service menu "Factory Settings", "Move brew chamber" <p>Defective TRIAC (Triode for Alternating Current) on the power print</p>
TX0115 	Flow error	<p>Product dispensing error</p> <ul style="list-style-type: none"> Try dispensing the product again <p>Water flow too low</p> <ul style="list-style-type: none"> Mains water blocked or connection closed The water inlet valve does not open or is defective The valve for the dispensed product does not open Flowmeter does not recognise water flow, impeller in flowmeter is blocked or cover is defective / not plugged
TX0116 	Overtime error	<p>Product is not dispensed correctly because of too long dispensing time</p> <ul style="list-style-type: none"> Dispense product again <p>Water flow too low</p> <ul style="list-style-type: none"> Mains water blocked or connection closed The water inlet valve does not open or is defective The valve for the dispensed product does not open Flowmeter does not recognise water flow, impeller in flowmeter is blocked or cover is defective / not plugged <p>Check pump</p>

5 Mechanical module

SECTION 6

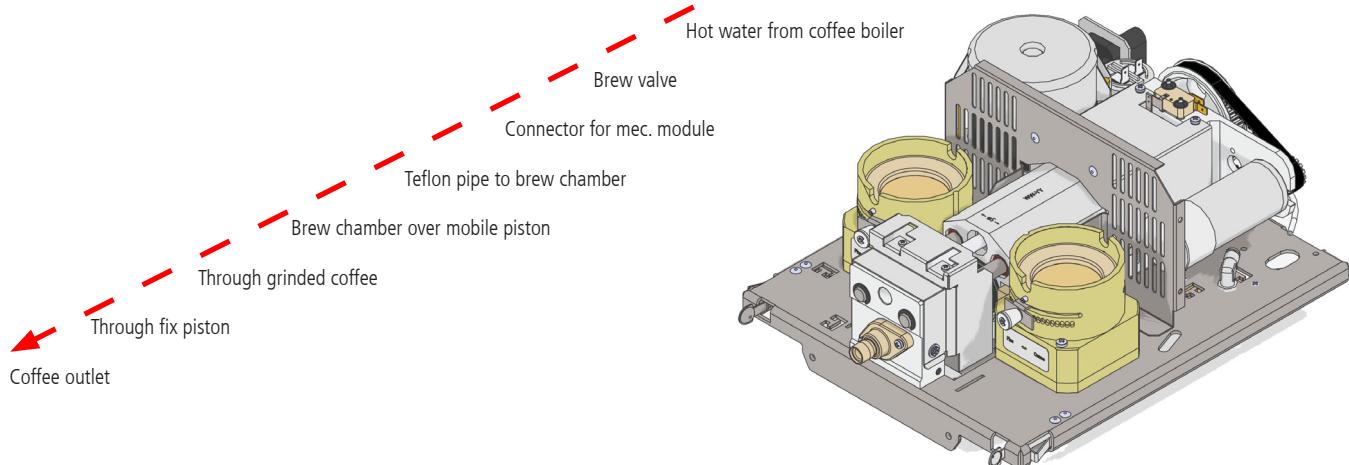
5.1 Error messages mechanical module

Error no. / picture	Text	Cause
TX0119 	Powder error	<p>Coffee grounds of previous product in brew cylinder</p> <ul style="list-style-type: none"> • Perform rinse <p>Grinders blocked</p> <ul style="list-style-type: none"> • Empty grounds drawer and vacuum grinders <p>The grinded powder amount is too high, brew cylinder cannot close</p> <ul style="list-style-type: none"> • Reduce „powder amount“ (grinder time) in „Product settings“ <p>The CPU cannot produce the stopping power for the motor of the brew cylinder anymore, so the brew cylinder is being pressed open during the brewing cycle.</p>
TX0139 	Bean hopper missing or command unit open	<p>Bean hopper is not mounted or the command desk is open</p> <ul style="list-style-type: none"> • Place bean hopper correctly • Close command desk <p>One or more than one of the three series connected reed switches (grinder left + right, control panel) have a cable break or no magnetic contact.</p>
TX0145 	Add coffee beans Press ok to proceed product dispensing	<p>Run out of beans during product dispensing</p> <ul style="list-style-type: none"> • Refill beans and confirm with OK button
TX0162 	Error grinder right-hand side	<p>Grinder error right-hand side</p> <ul style="list-style-type: none"> • Empty grounds drawer + vacuum grinders • Perform rinse • Check mechanical module
TX0163 	Error grinder left-hand side	<p>Grinder error left-hand side</p> <ul style="list-style-type: none"> • Empty grounds drawer + vacuum grinders • Perform rinse • Check mechanical module

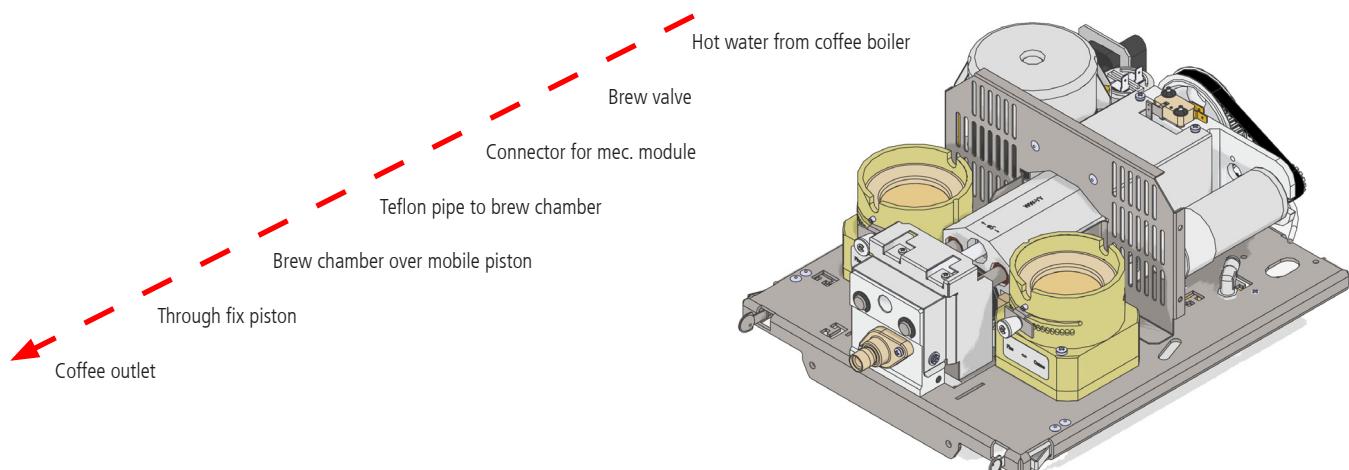
5 Mechanical module

5.2 Water circulation

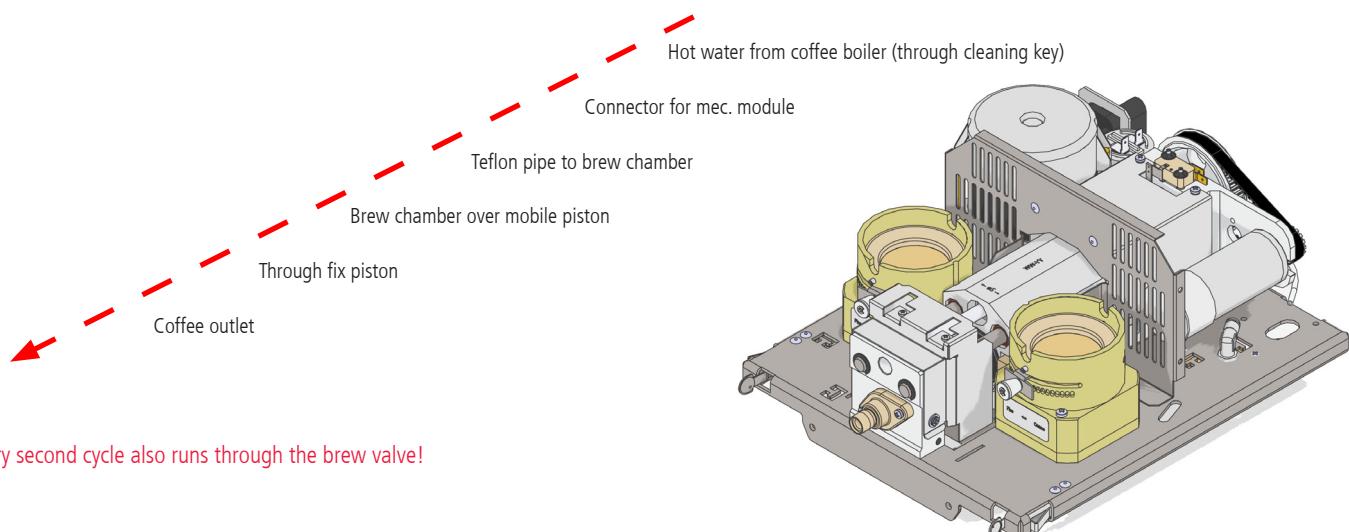
Brew cycle



Rinse cycle



Cleaning cycle

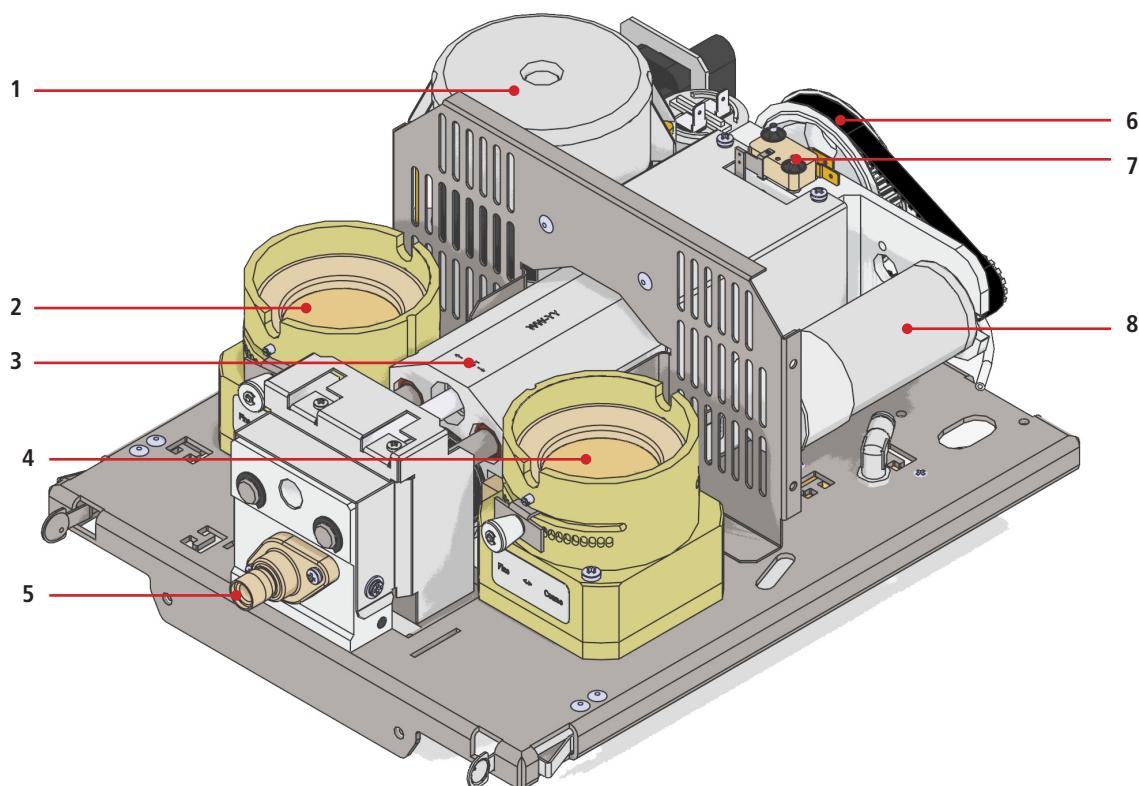


Every second cycle also runs through the brew valve!

5 Mechanical module

SECTION 6

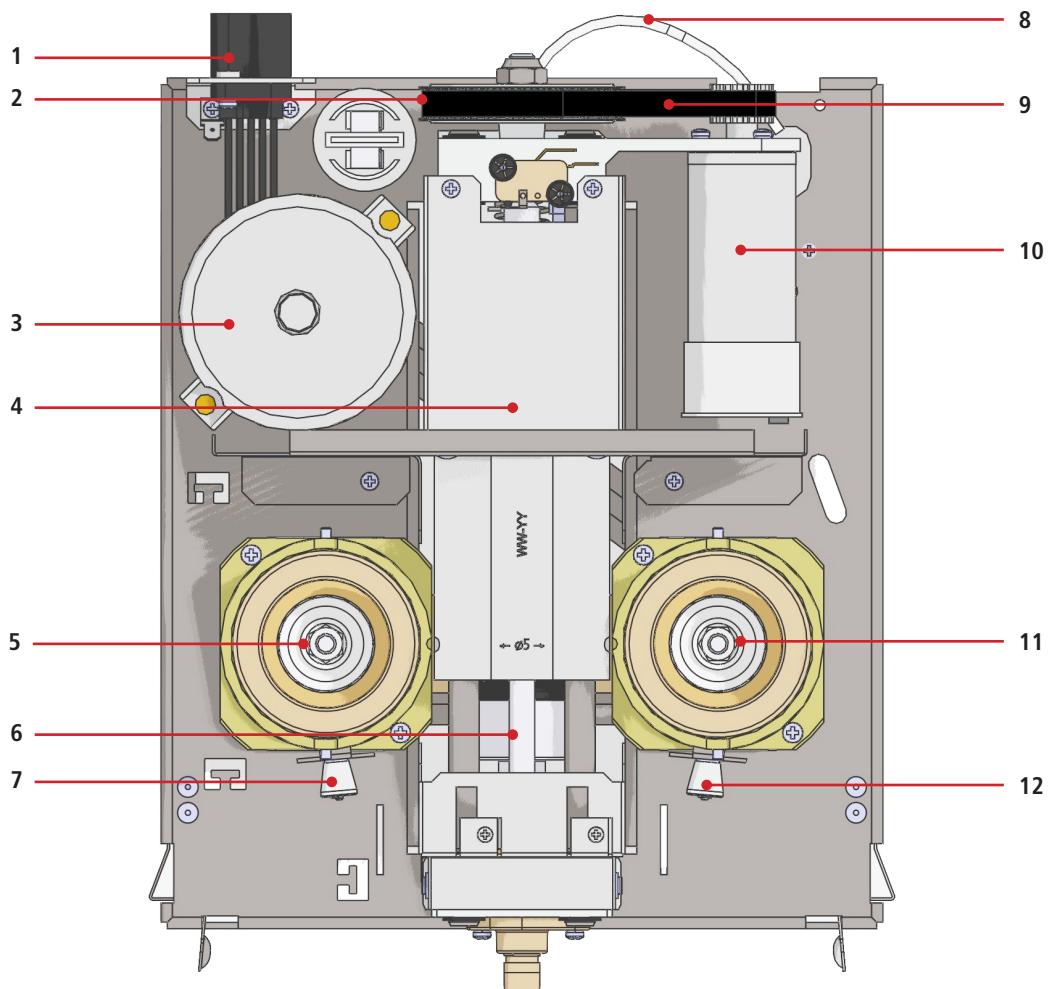
5.3 ISO view



Pos.	Description
1	Grinder motor
2	Grinder left (Software menu „Grinder 1“)
3	Brew chamber
4	Grinder right (Software menu „Grinder 2“)
5	Coffee outlet
6	Gear belt brew chamber drive
7	Coffee outlet valve
8	Brew chamber motor

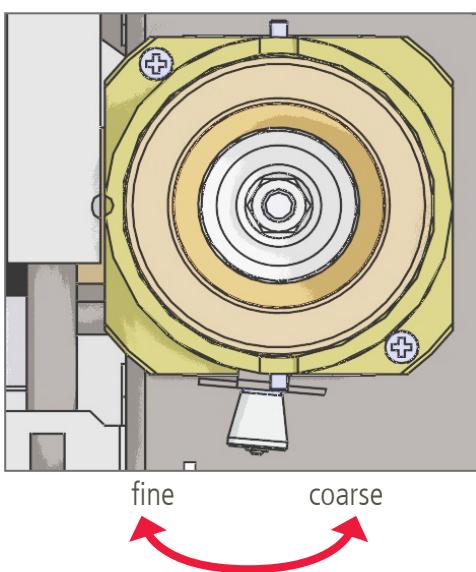
5 Mechanical module

5.4 Top view



Pos.	Description
1	Connection mechanical module
2	Gear
3	Grinder Motor
4	Brew chamber
5	Grinder left
6	Spindle
7	Coarseness setting* grinder left
8	Cleaning connection
9	Gear belt brew chamber drive
10	Brew chamber motor
11	Grinder right
12	Coarseness setting* grinder right

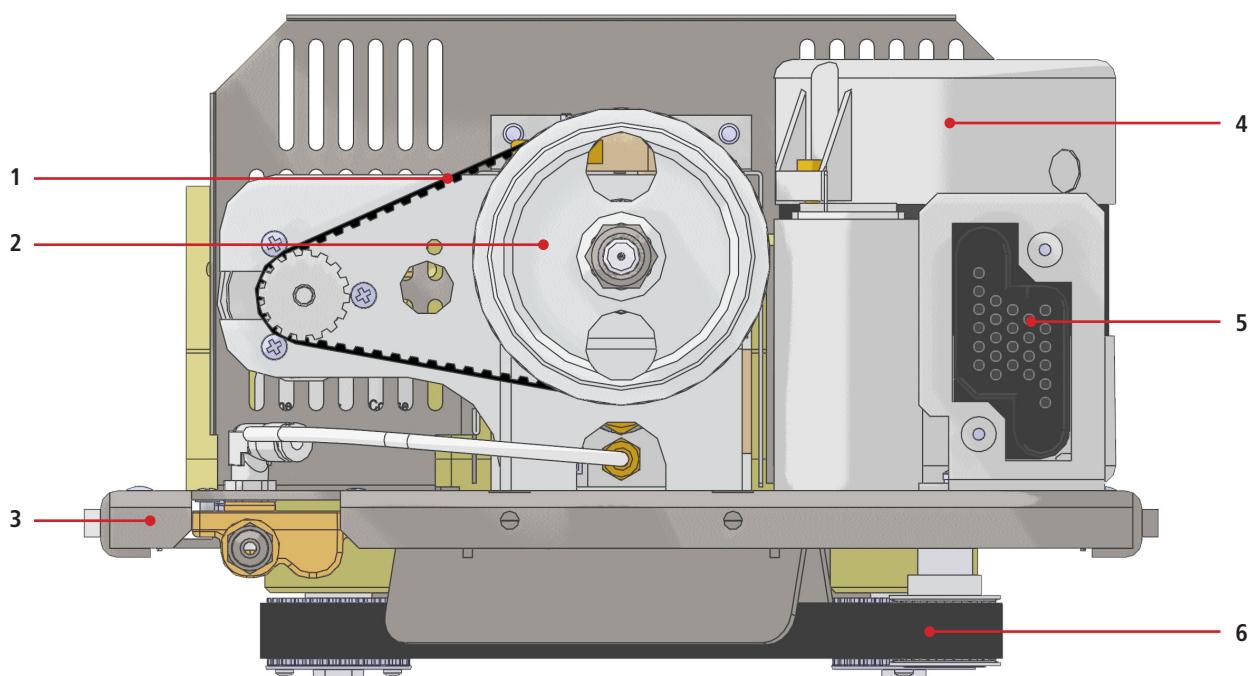
*Coarseness setting



5 Mechanical module

SECTION 6

5.5 Back view

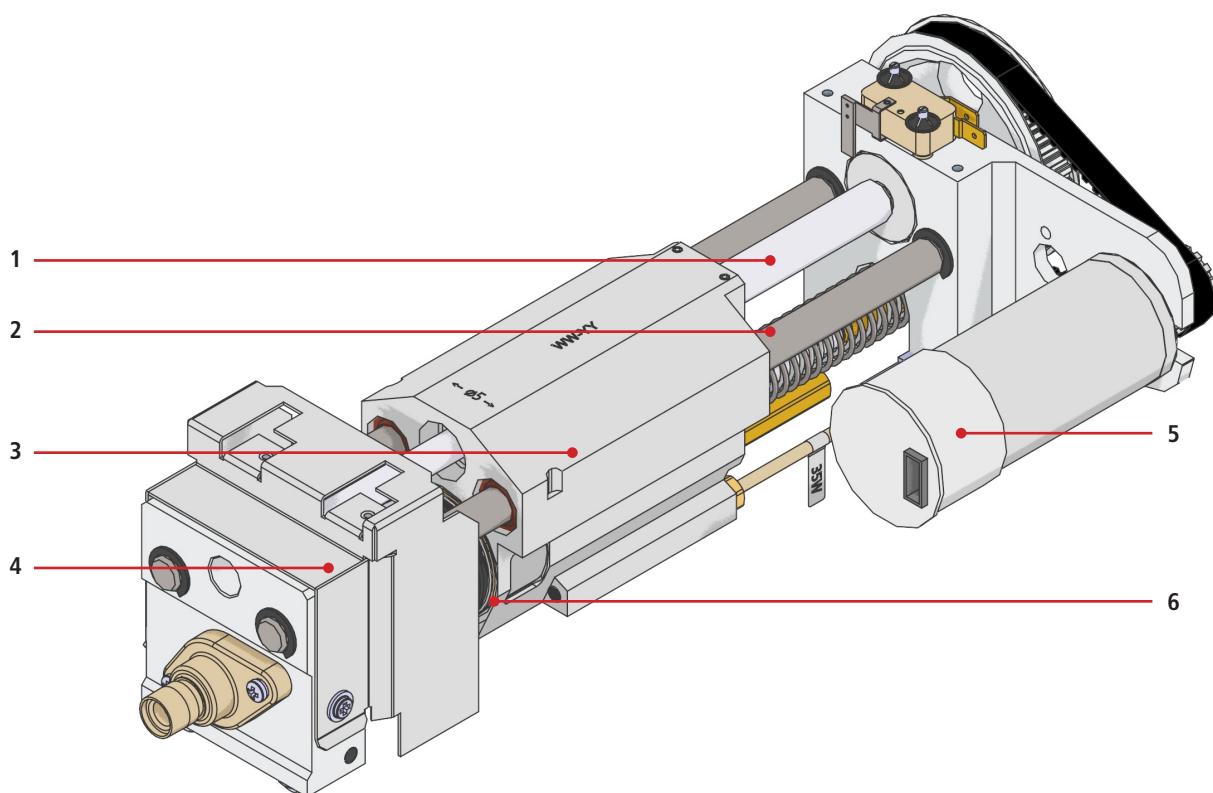


Pos.	Description
1	Brew chamber drive
2	Gear
3	Connection cleaning
4	Grinder motor
5	Connection mechanical module
6	Gear belt grinder drive

5 Mechanical module

SECTION 6

5.7 ISO view brewing unit

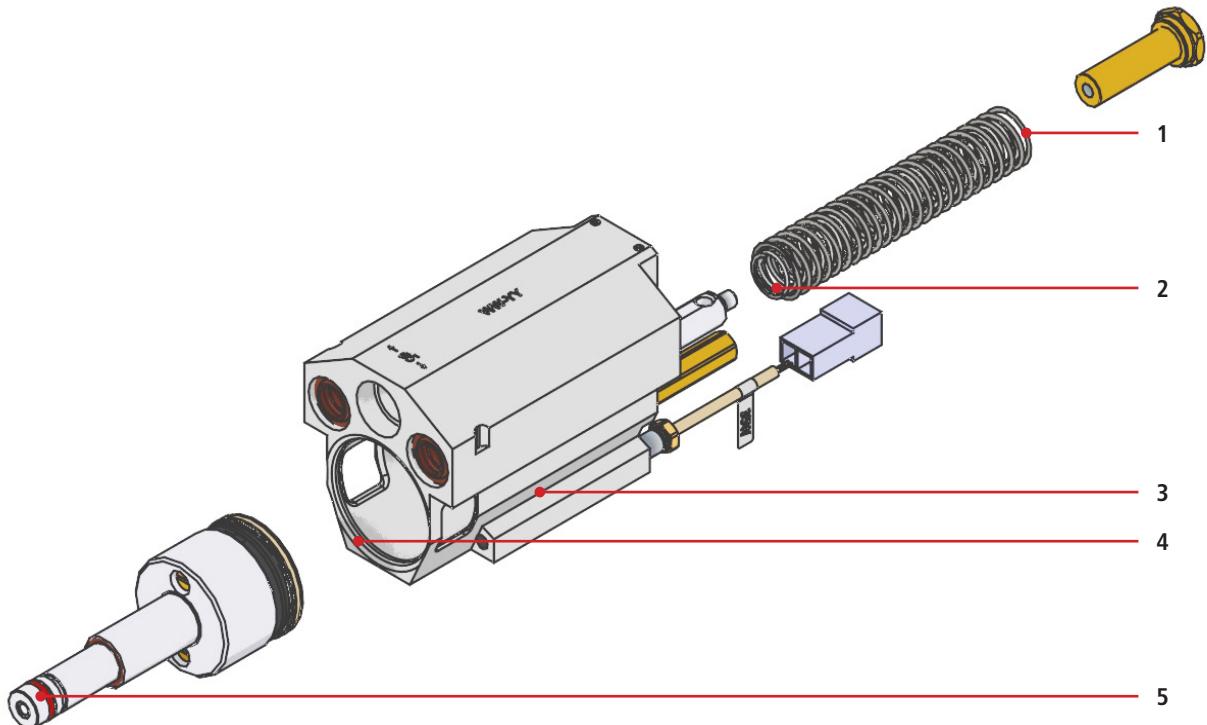
**Pos. Description**

- | | |
|---|------------------------|
| 1 | Backmost bearing block |
| 2 | Spindle |
| 3 | Brew chamber |
| 4 | Front bearing block |
| 5 | Brew chamber motor |
| 6 | Fix piston |

5 Mechanical module

SECTION 6

5.8 ISO view brewing unit

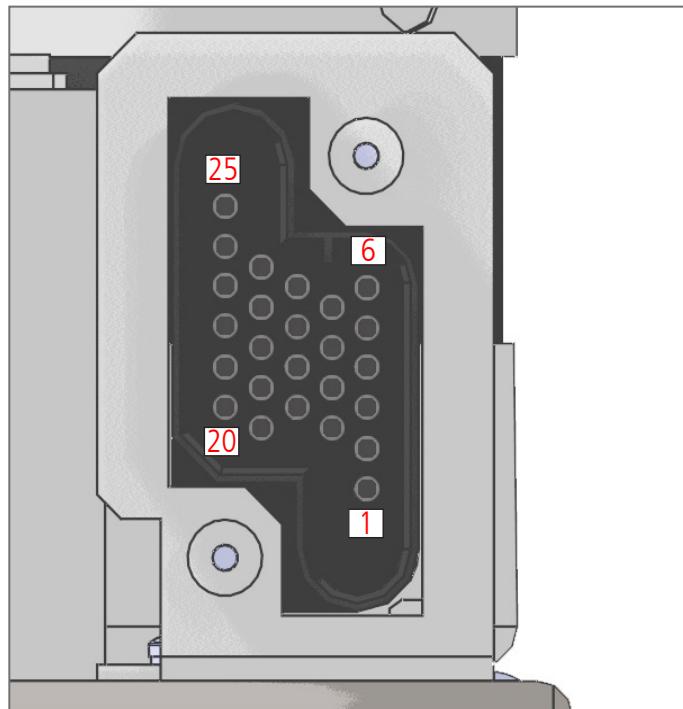
**Pos. Description**

- | | |
|---|-------------------------------|
| 1 | Spring stopper * |
| 2 | Spring kit for brew chamber * |
| 3 | Heating element 35W |
| 4 | Brew cylinder |
| 5 | Mobile piston |

* these two parts need to be removed from the brew chamber to get out the mobile piston.

5 Mechanical module

5.9 Quick test mechanical module

**Rapid test mechanical module**

Connection settings:

1 Brew motor 24VDC+	8 not set	15 not set	22 L1 (Grinder motor, heaters)
2 Brew motor 24VDC-	9 not set	16 not set	23 not set
3 Brew motor 5VDC+	10 not set	17 not set	24 N Grinder 1
4 GND micro switch, brew motor	11 Reed bean hopper 2	18 not set	25 N Grinder 2
5 Signal brew motor	12 24VDC+ (reed, valve)	19 not set	
6 Micro switch 5VDC	13 Coffee outlet valve	20 Grounding	
7 not set	14 not set	21 Heater N	

6 Hydraulic module

SECTION 6

6.1 Error messages hydraulic module

Error no. / picture	Text	Cause
TX0101 	NTC coffeeboiler open	<p>Temperature sensor NTC not connected</p> <ul style="list-style-type: none"> Check temperature in „System Check“ -> „Boiler temperature“ Reference value: 91 °C <p>Temperature sensor NTC cable break</p> <ul style="list-style-type: none"> Check temperature in „System Check“ -> „Boiler temperature“ Reference value: 91 °C <p>Temperature sensor NTC defective</p> <ul style="list-style-type: none"> Check NTC on coffee boiler <p>Hydraulic module is not connected properly</p> <p>Check cable harness and plug connectors</p> <ul style="list-style-type: none"> To check a break of the NTC by measurement, the NTC has to be disconnected. Reference value: 10kΩ/25°C
TX0115 	Flow error	<p>Product dispensing error</p> <ul style="list-style-type: none"> Try dispensing the product again <p>Water flow too low</p> <ul style="list-style-type: none"> Mains water blocked or connection closed The water inlet valve does not open or is defective The valve for the dispensed product does not open Flowmeter does not recognise water flow, impeller in flowmeter is blocked or cover is defective / not plugged
TX0116 	Overtime error	<p>Product is not dispensed correctly because of too long dispensing time</p> <ul style="list-style-type: none"> Dispense product again <p>Water flow too low</p> <ul style="list-style-type: none"> Mains water blocked or connection closed The water inlet valve does not open or is defective The valve for the dispensed product does not open Flowmeter does not recognise water flow, impeller in flowmeter is blocked or cover is defective / not plugged in <p>Check pump</p>
TX0125 	Waterflow error	<p>No water pressure or flowmeter defective</p> <ul style="list-style-type: none"> Open mains water connection Empty grounds drawer Perform rinse <p>Water flow too low</p> <ul style="list-style-type: none"> Mains water blocked or connection closed The water inlet valve does not open or is defective The valve for the dispensed product does not open Flowmeter does not recognise water flow, impeller in flowmeter is blocked or cover is defective / not plugged <p>Check pump</p>

6 Hydraulic module

SECTION 6

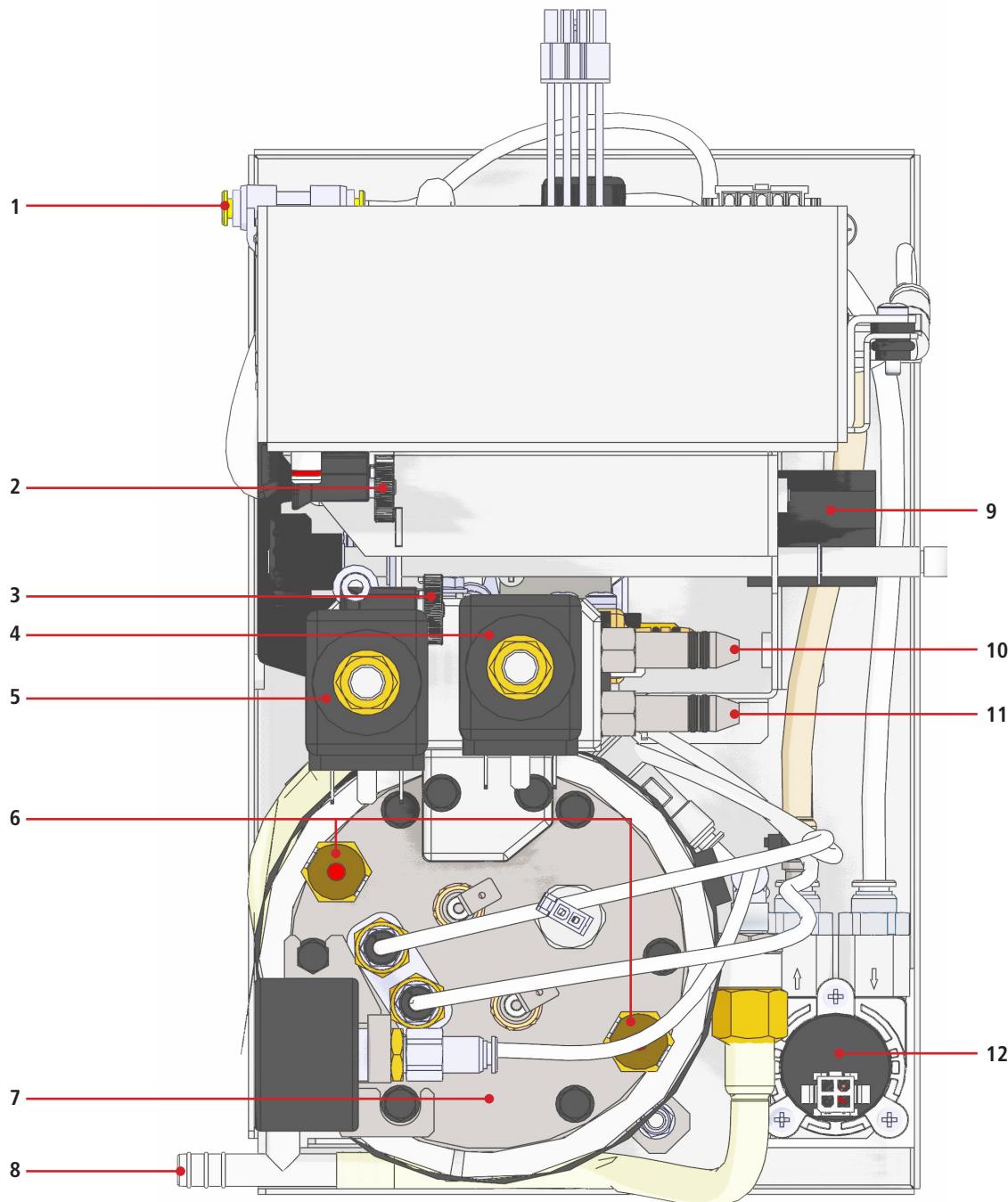
6.1 Error messages hydraulic module

Error no. / picture	Text	Cause
TX0141 	NTC coffee boiler short-circuit	<p>Temperature sensor NTC had a short circuit</p> <ul style="list-style-type: none"> Check temperature in „System Check“ -> „Boiler temperature“ Reference value: 91 °C <p>Check cable harness and plug connectors</p> <ul style="list-style-type: none"> To check a break of the NTC by measurement, the NTC has to be disconnected. Reference value: 10 kΩ / 25 °C <p>Temperature sensor NTC defective</p> <ul style="list-style-type: none"> Check NTC on coffee boiler
TX0151 	No waterflow detected	<p>No water pressure or flowmeter defective</p> <ul style="list-style-type: none"> Open mains water connection Empty grounds drawer Perform rinse <p>Water flow too low</p> <ul style="list-style-type: none"> Mains water blocked or connection closed The water inlet valve does not open or is defective The valve for the dispensed product does not open Flowmeter does not recognise water flow, impeller in flowmeter is blocked or cover is defective / not plugged <p>Check pump</p>
TX0154 	Milk pump: no pulse	<p>Milk pump not recognised</p> <ul style="list-style-type: none"> Check connectors
TX0155 	Water pump: no pulse	<p>Milk pump not recognised</p> <ul style="list-style-type: none"> Check connectors
TX0161 	Please wait	<p>Machine rinses</p> <ul style="list-style-type: none"> Wait until rinse is finished
TX0201 	Cold start rinse Please press rinse key	<p>Rinse for start- and warm-up of machine</p> <ul style="list-style-type: none"> Press rinse key

6 Hydraulic module

SECTION 6

6.2 Top view hydraulic module

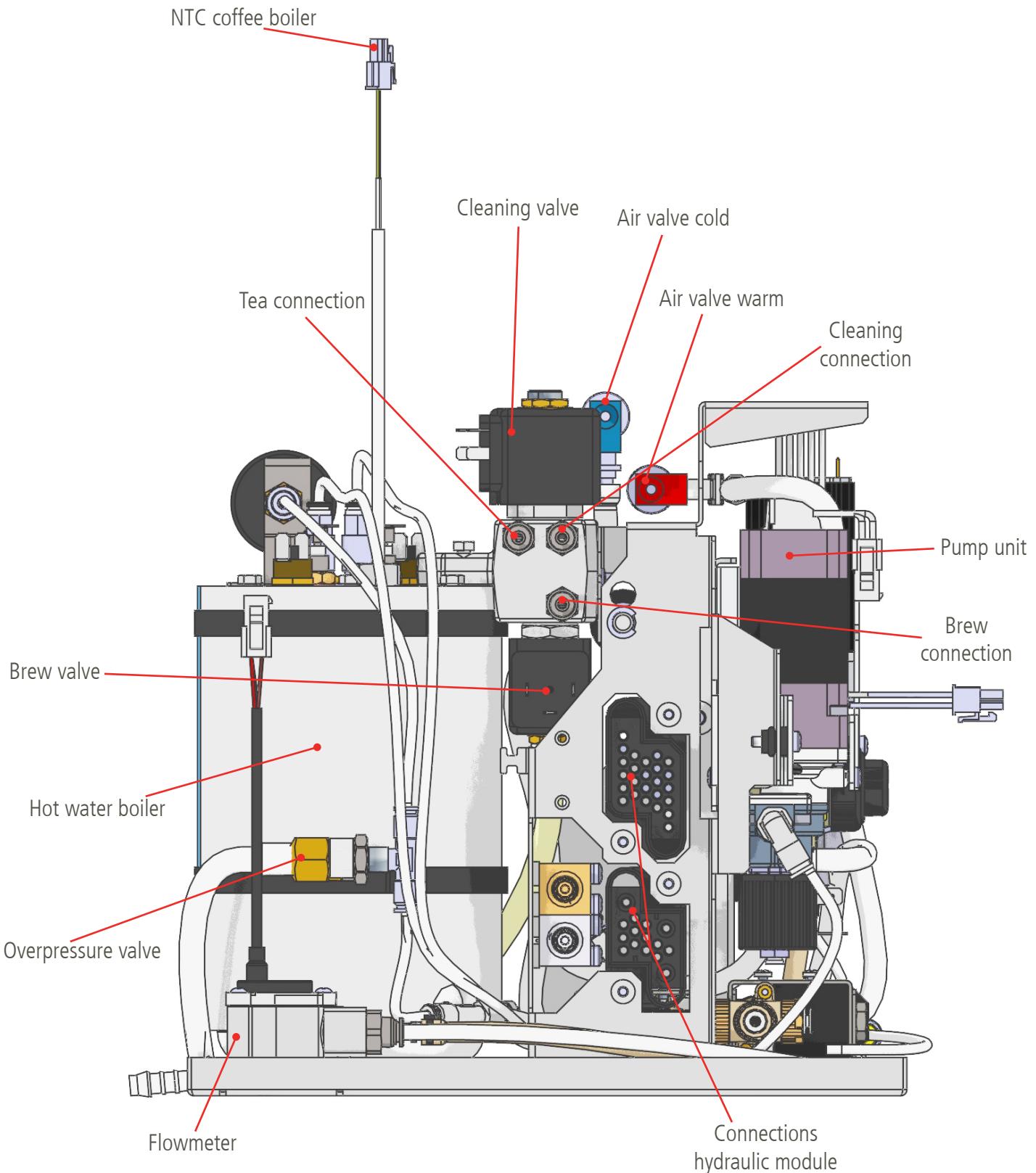


Pos.	Description
1	Milk outlet
2	Air regulator warm
3	Air regulator cold
4	Cleaning valve
5	Tea valve
6	Heater cutouts (after overheating press middle button in again)

Pos.	Description
7	Hot water boiler
8	Overpressure / drain
9	Connection hydraulic module
10	Cleaning connection
11	Tea connection
12	Flowmeter

6 Hydraulic module

6.3 Back view

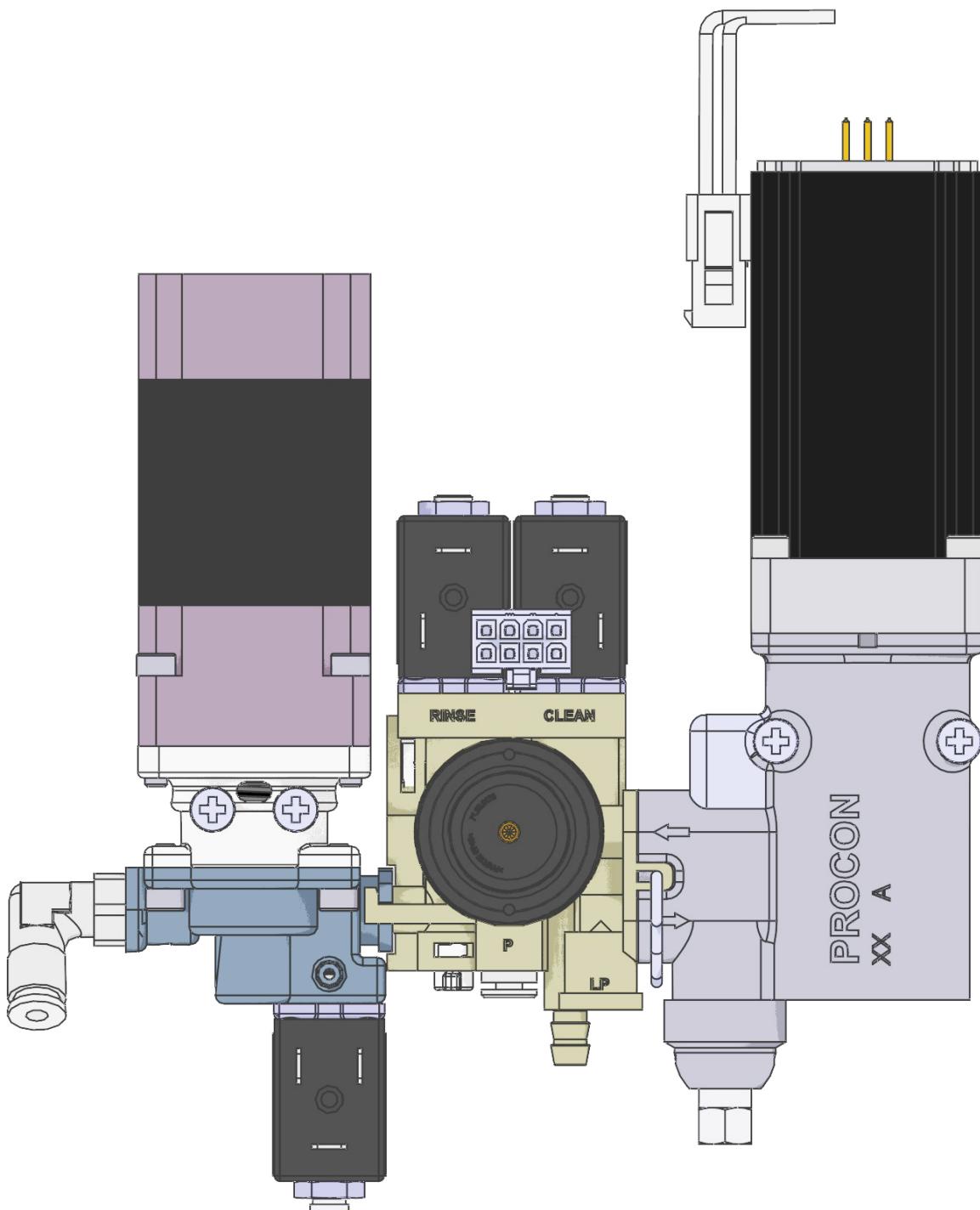


6 Hydraulic module

SECTION 6

6.4 Milk way pump unit

— Milk way / Cleaning way

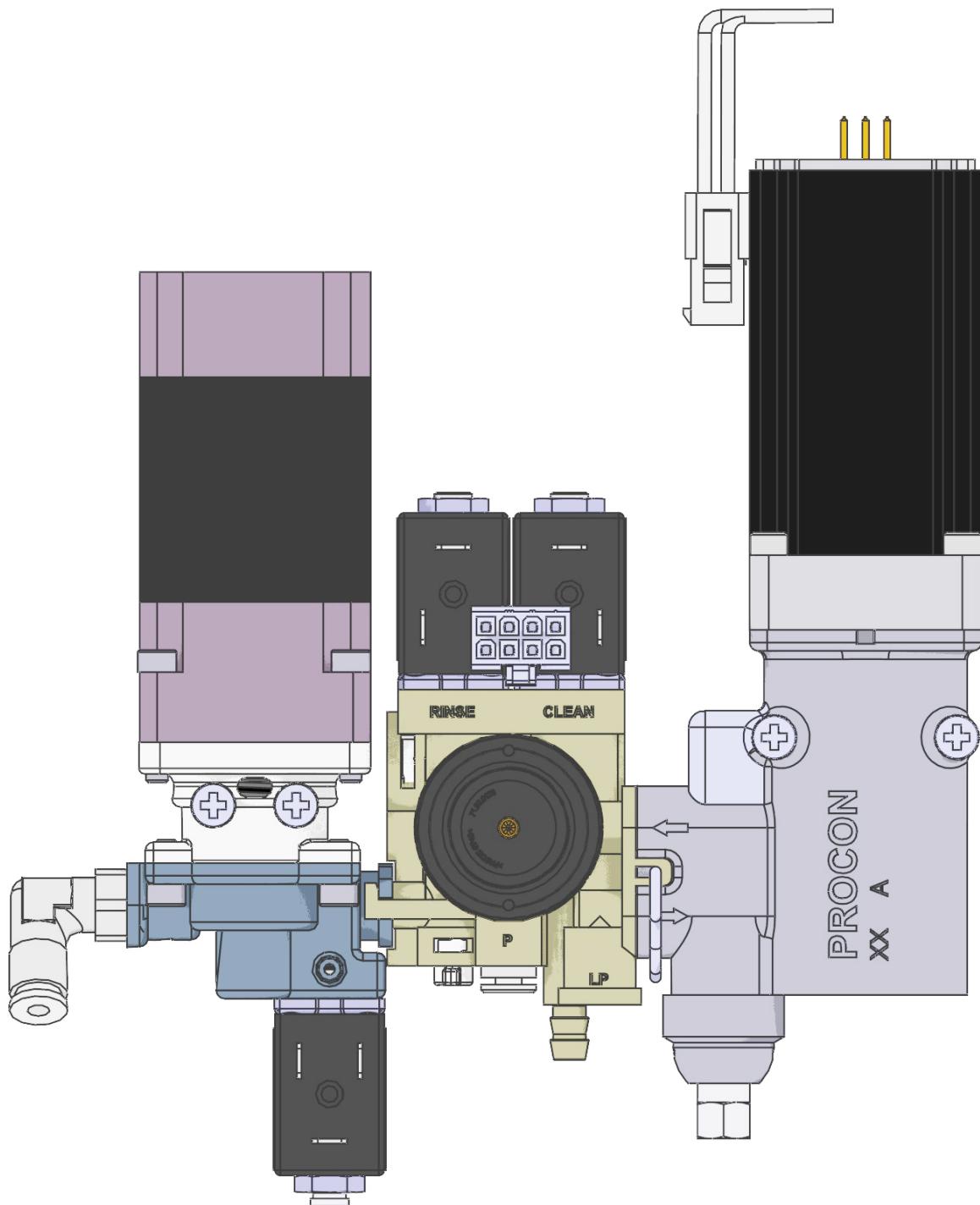


6 Hydraulic module

6.5 Water way pump unit

— Water way

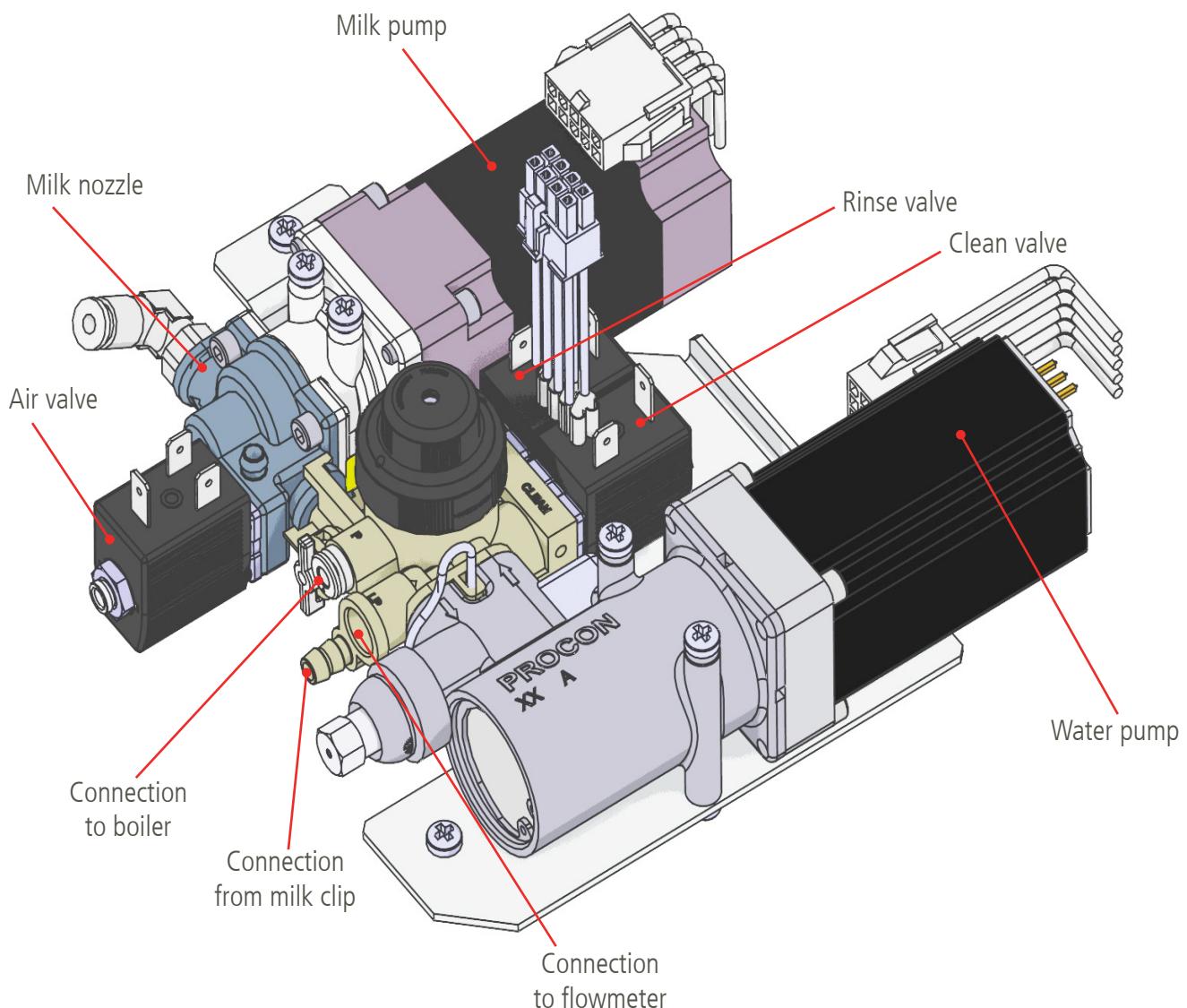
— Cleaning way



6 Hydraulic module

SECTION 6

6.6 ISO view pump unit



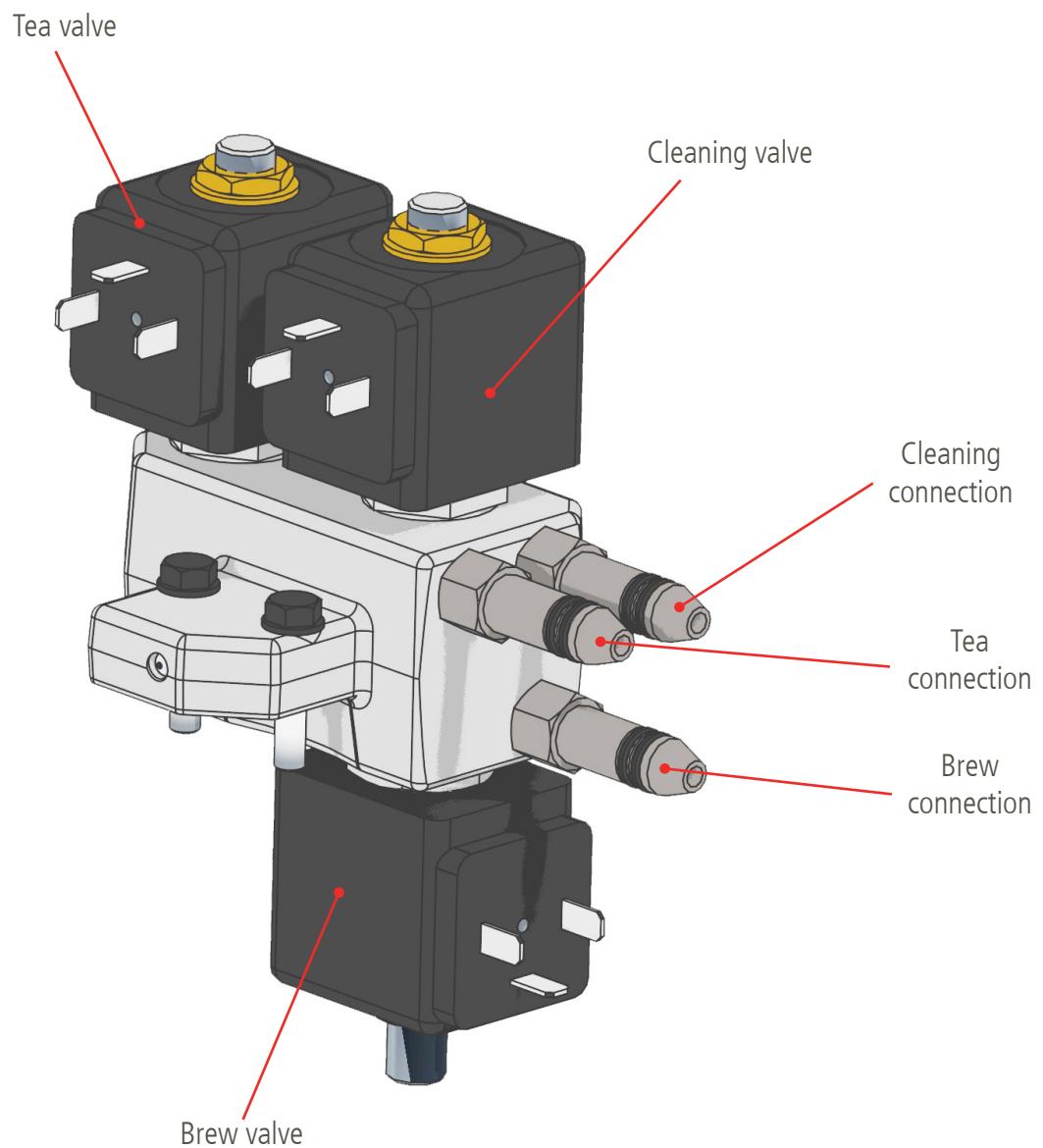
Rinse valve: Needed to rinse the milk system after every milk product dispensing.

Clean valve: Needed to clean the complete system.

Air valve: Needed to add air to the milk for producing milk froth.

6 Hydraulic module

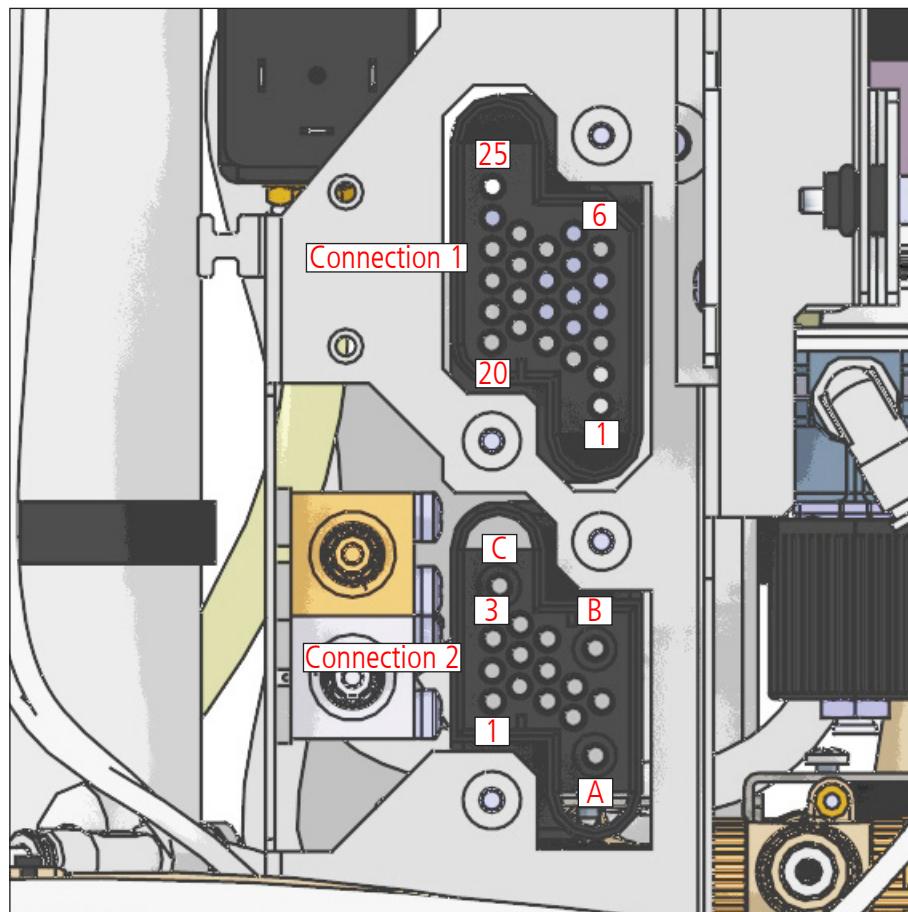
6.7 ISO view valve block



6 Hydraulic module

SECTION 6

6.8 Quick test hydraulic module

**Quick test hydraulic module**

Connection settings 1:

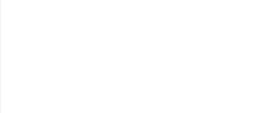
1 Brew valve	8 not set	15 GND Flowmeter	22 Motor water pump hall C
2 Tea valve	9 Air selection valve / cold milk valve	16 not set	23 Motor milk pump hall A
3 Cleaning valve	10 24VDC+ Valves pump unit	17 not set	24 Motor milk pump hall B
4 not set	11 Milk clean valve	18 Signal Flowmeter	25 Motor milk pump hall C
5 Milk air valve	12 Pump motors 24VDC+	19 Signal NTC coffee boiler	
6 Milk rinse valve	13 Pump motors 24VDC-	20 Motor water pump hall A	
7 Air selection valve / cold milk valve	14 NTC coffee boiler / flowmeter 5VDC+	21 Motor water pump hall B	

Connection settings 2:

1 not set	7 Motor water pump coil A	A Heater N
2 not set	8 Motor water pump coil B	B Heater L
3 not set	9 Motor water pump coil C	C Grounding
4 not set	10 Motor milk pump coil A	
5 not set	11 Motor milk pump coil B	
6 not set	12 Motor milk pump coil C	

7 Brew module

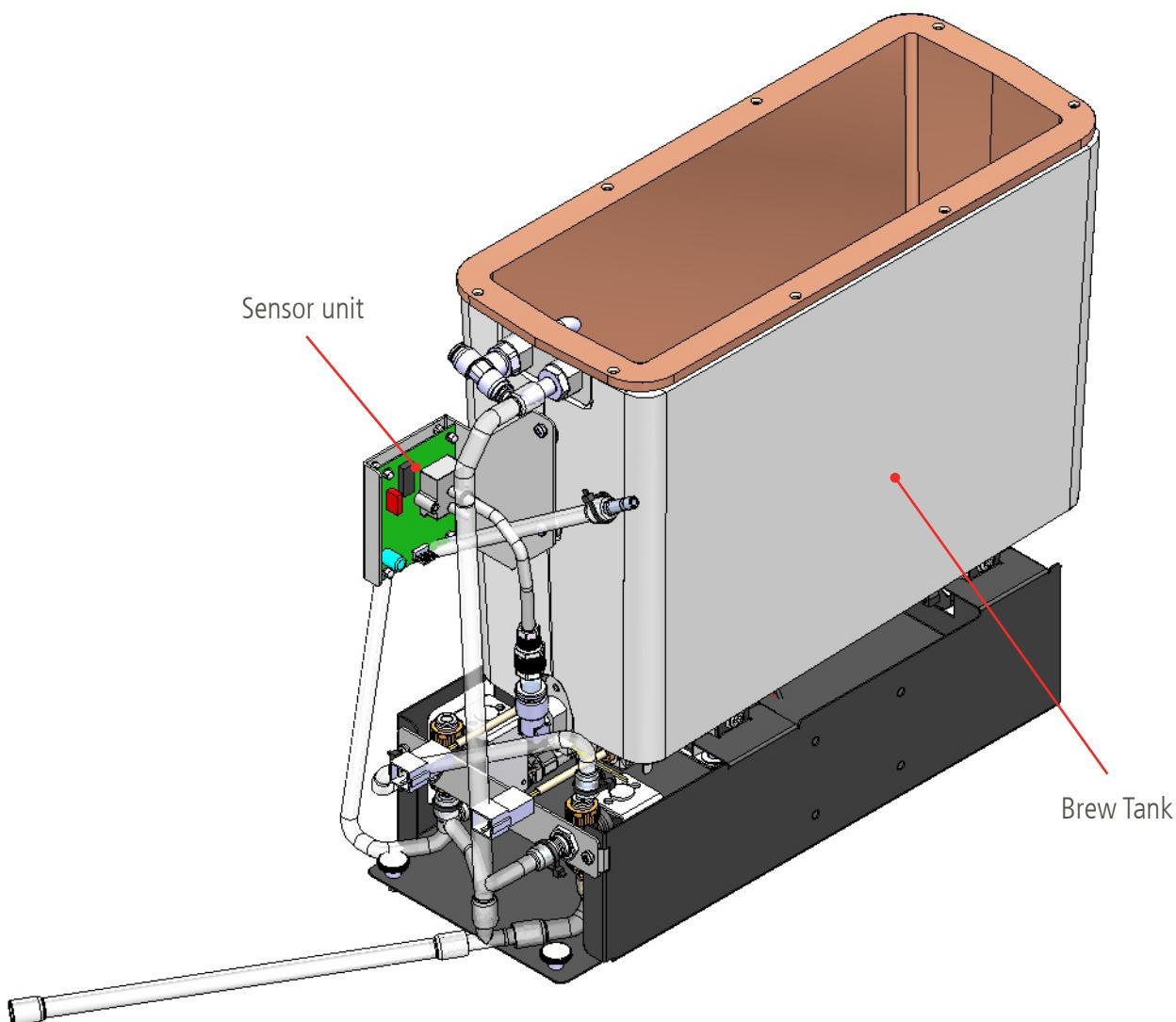
7.1 Error messages brew module

Error no. / picture	Text	Cause
TX0105 	Drain tub	<p>Leckage on mechanical or hydraulic module</p> <ul style="list-style-type: none">• Check mechanical and hydraulic module <p>The sensor (the two screw heads) on the ground below the grounds drawer have detected a short circuit of the sensor through water, coffee grounds or a metallic connection</p> <ul style="list-style-type: none">• Check tub sensors and replace if necessary <p>Short circuit on cable between tub sensors and CPU</p> <ul style="list-style-type: none">• Check cable and replace if necessary

7 Brew module

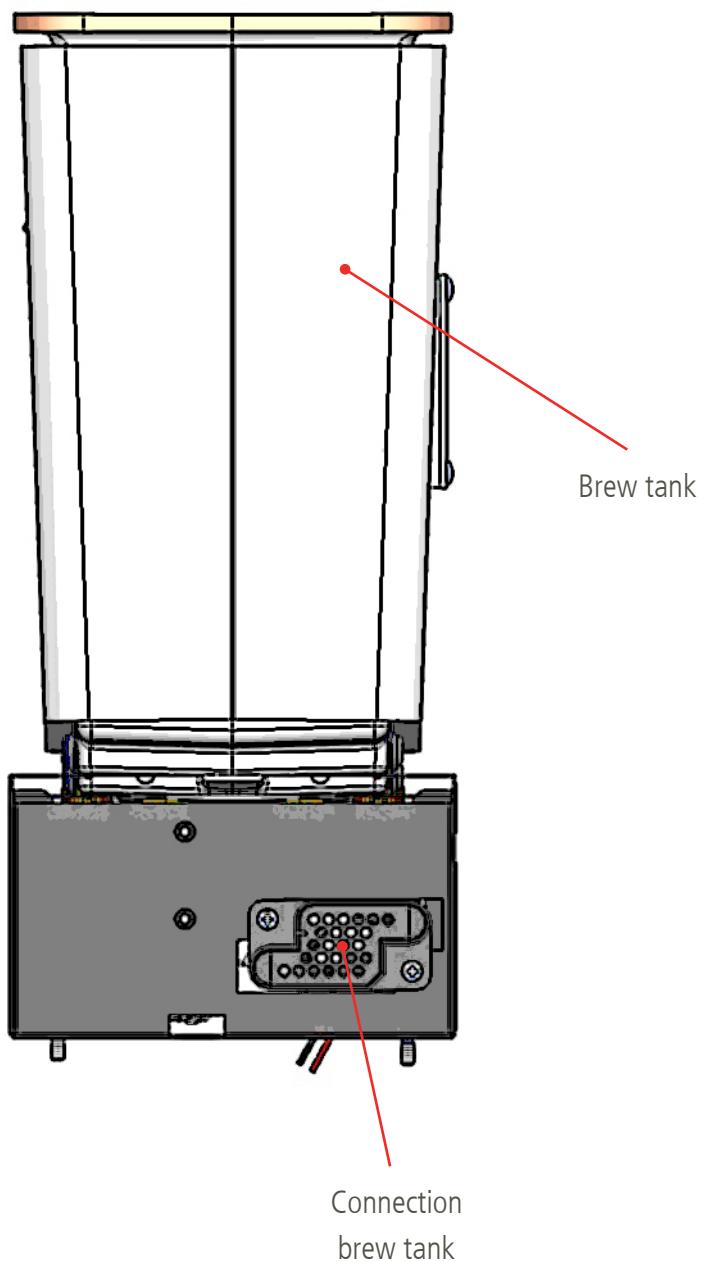
SECTION 6

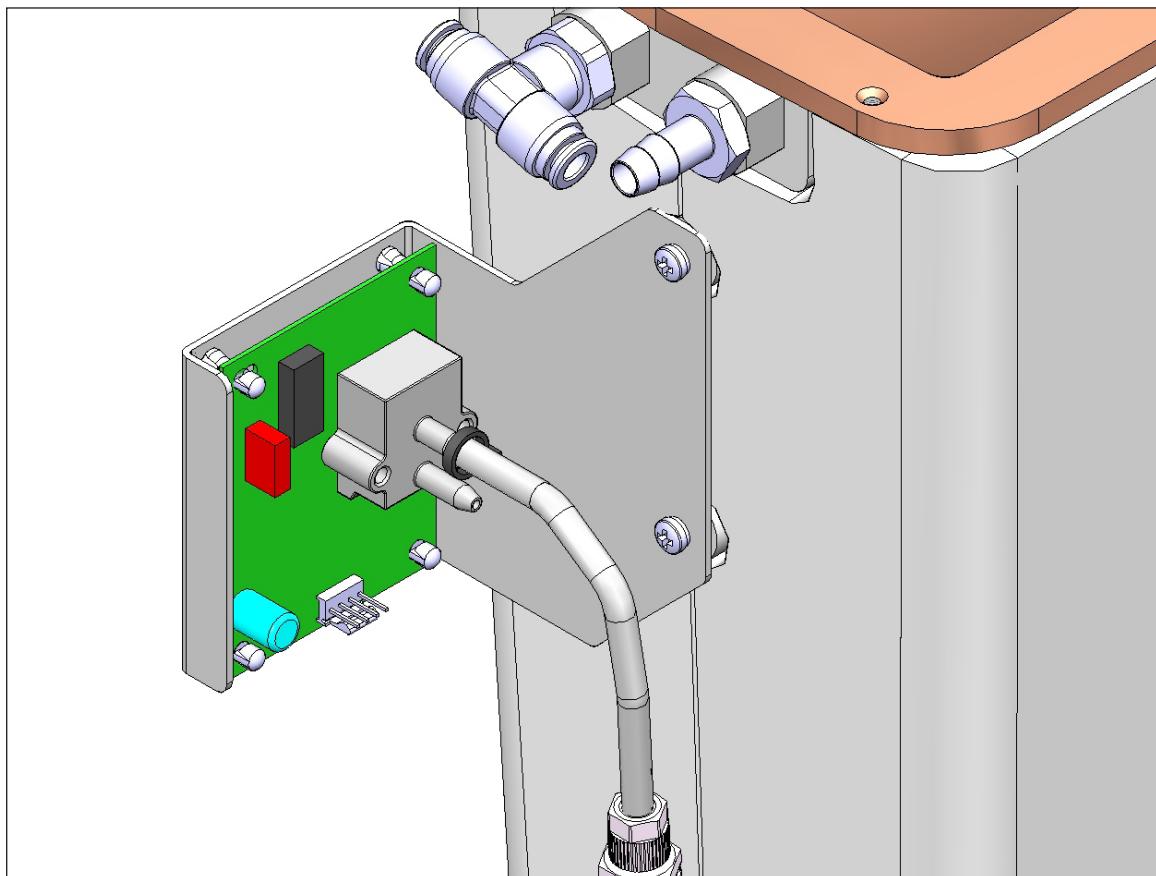
7.2 ISO view



7 Brew module

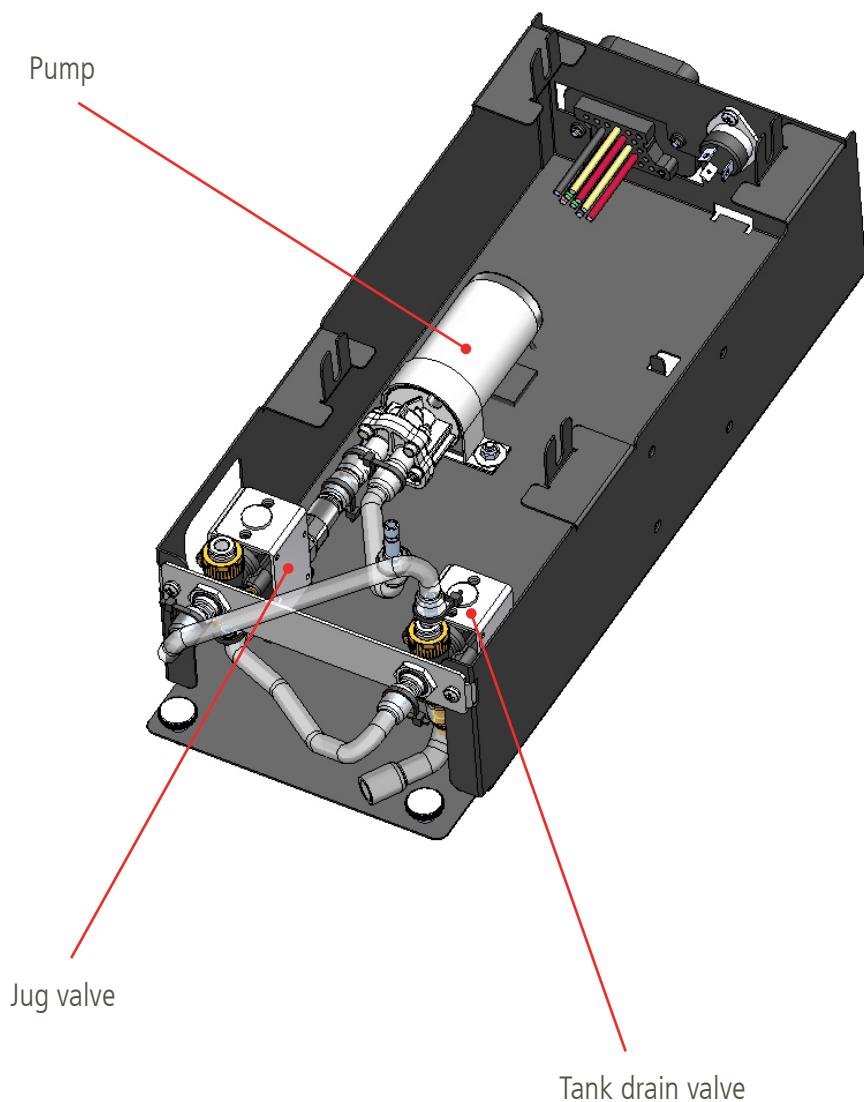
7.3 Back view



7 Brew module**SECTION 6****7.4 ISO view sensor**

7 Brew module

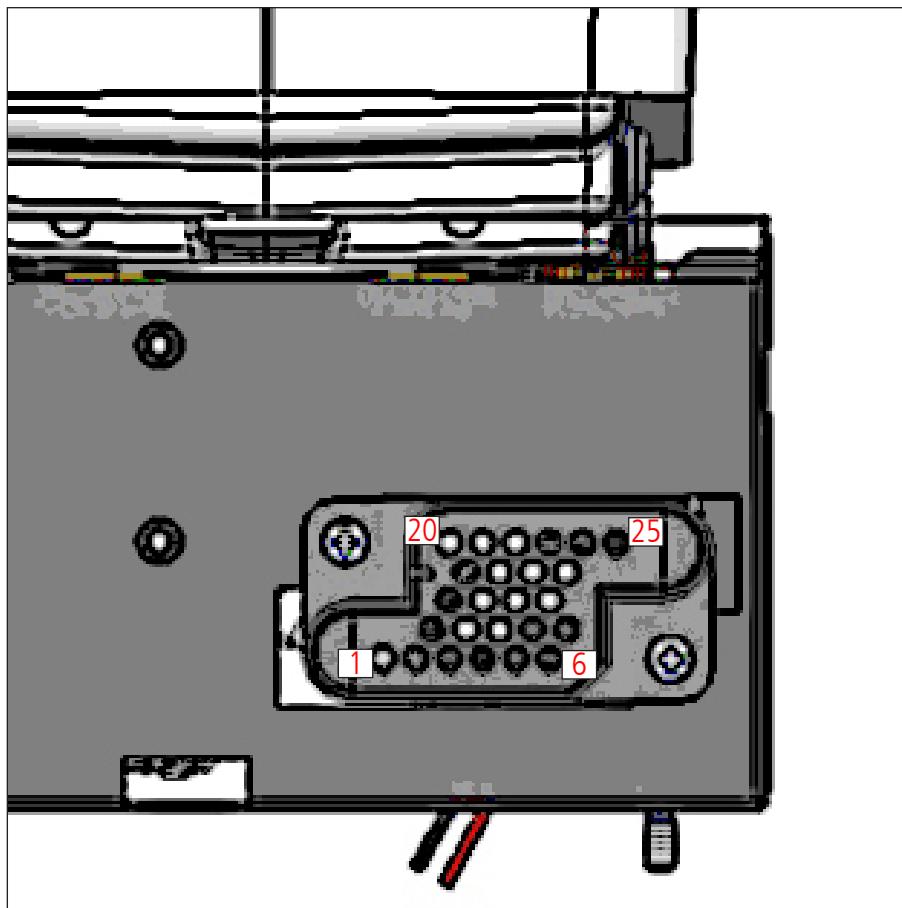
7.5 ISO view chassis



7 Brew module

SECTION 6

7.6 Quick test brew module

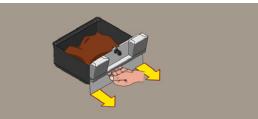
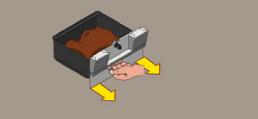
**Quick test brew module**

Connection settings:

1 NTC coffee tank 5VDC+	8 Print pressure sensor	15 not set	22 Triac A2
2 NTC coffee tank signal	9 not set	16 not set	23 Triac G
3 Print pressure sensor	10 not set	17 not set	24 Triac A1 (N)
4 Print pressure sensor	11 not set	18 Tank drain valve	25 Heater (L)
5 not set	12 not set	19 24VDC+ (Motor coffee p., print, valve)	
6 not set	13 Motor coffee pump 24VDC-	20 not set	
7 Print pressure sensor	14 not set	21 Grounding	

8 Steam module

8.1 Error messages

Error no. / picture	Text	Cause
TX0121 	NTC steamboiler error	NTC in steam boiler is defective or short circuit • Exchange NTC in steam boiler
TX0122 	Steamboiler not ready	Steam boiler is in warm-up phase • Let steam boiler heat up Temperature sensor defective • Check and replace temp. sensor
TX0123 	Low water level in steamboiler	Too low water level in steam boiler Wait until boiler is filled up Level sensor defective • Check and replace level sensor
TX0124 	Hot water rinse Press rinse key	Boiler must be rinsed • Press rinse button
TX0138 	Steamboiler fill error	Steam boiler could not be filled • Open mains water connection Level sensor defective • Check and replace level sensor

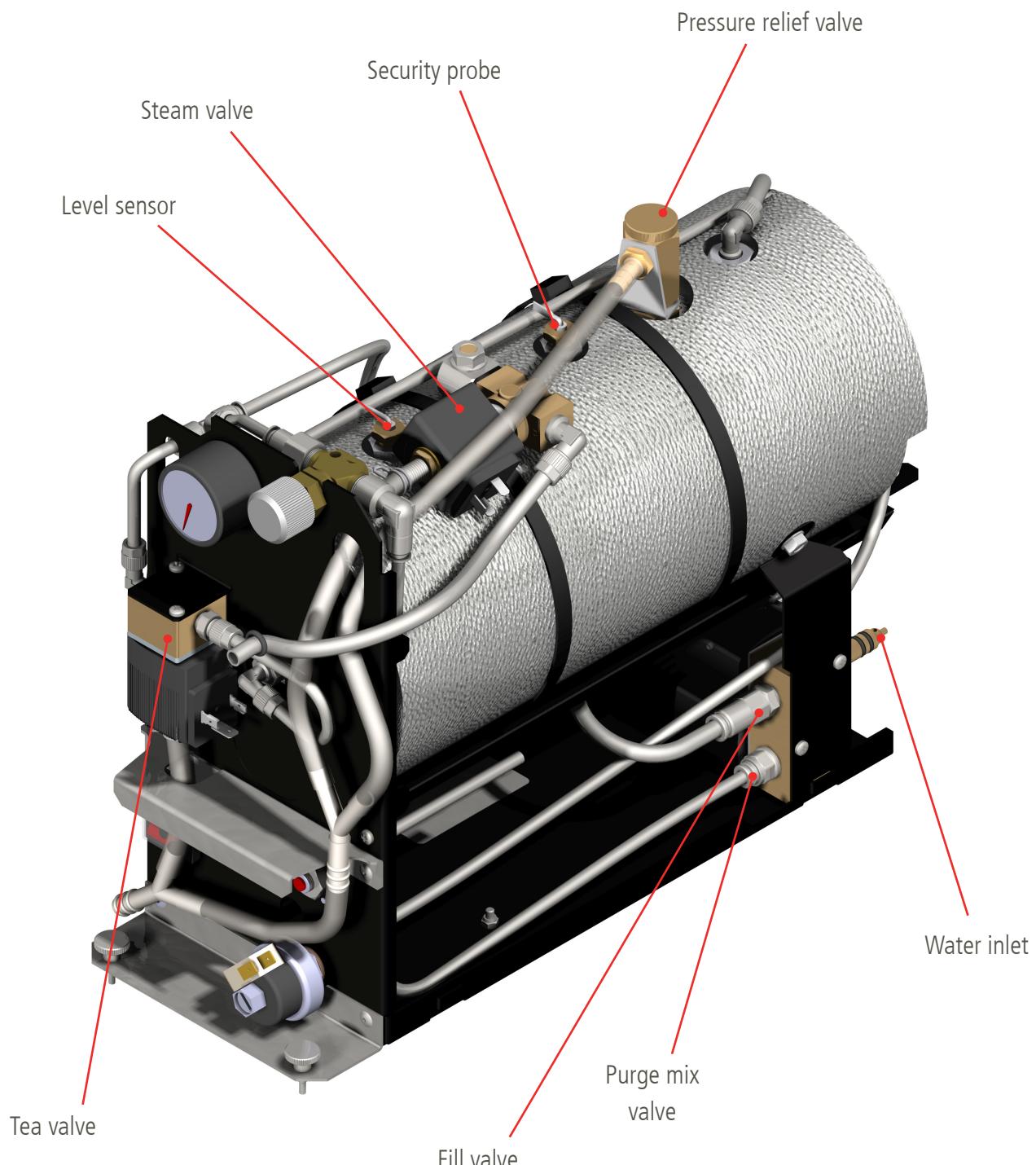
Notice:

These error messages of the steam module are only shown on the model BW3-CTS. The BW3-CTMS does not show these messages, because in the BW3-CTMS a complete TS module is built-in!

8 Steam module

SECTION 6

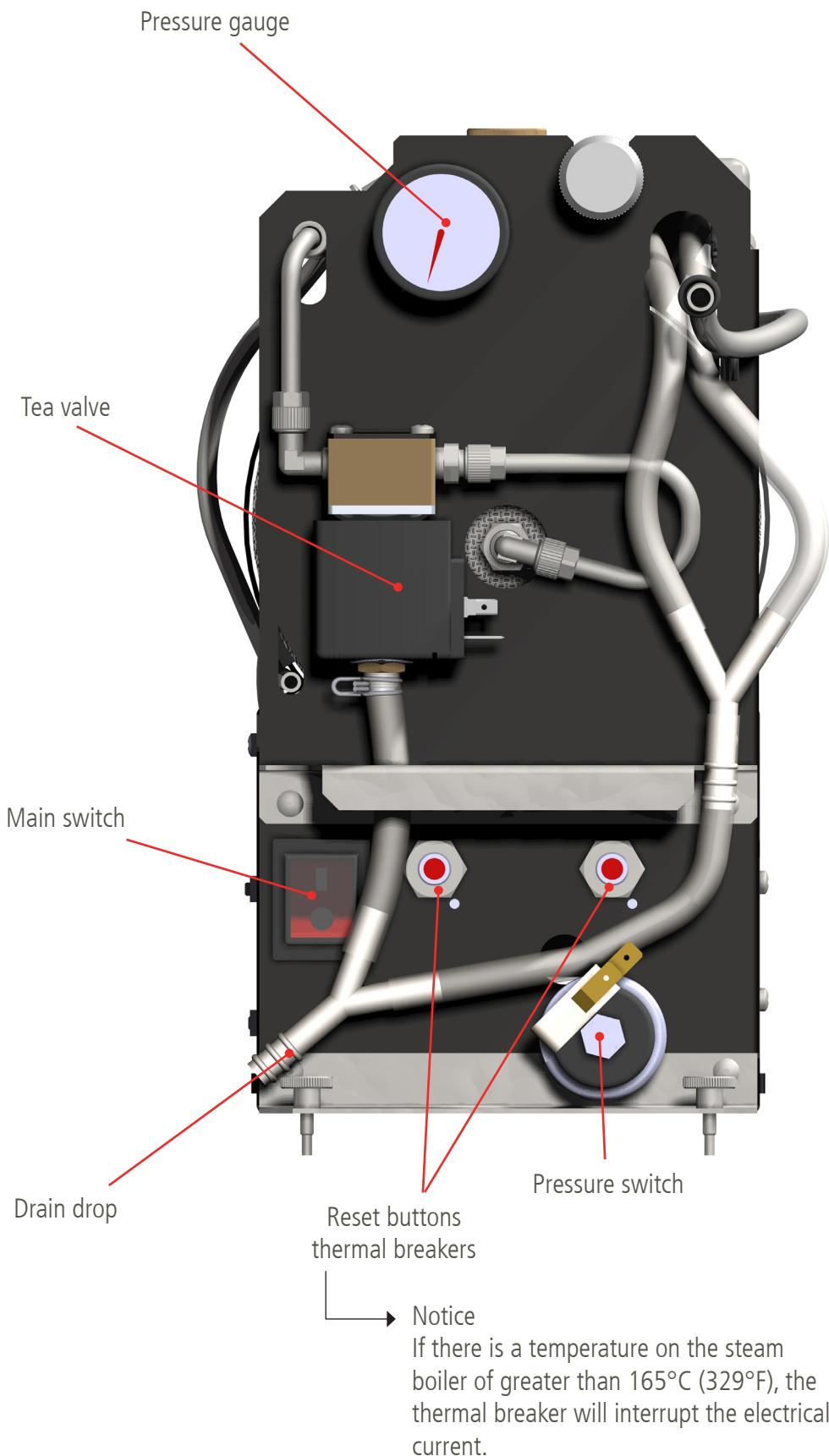
8.2 ISO view



8 Steam module

SECTION 6

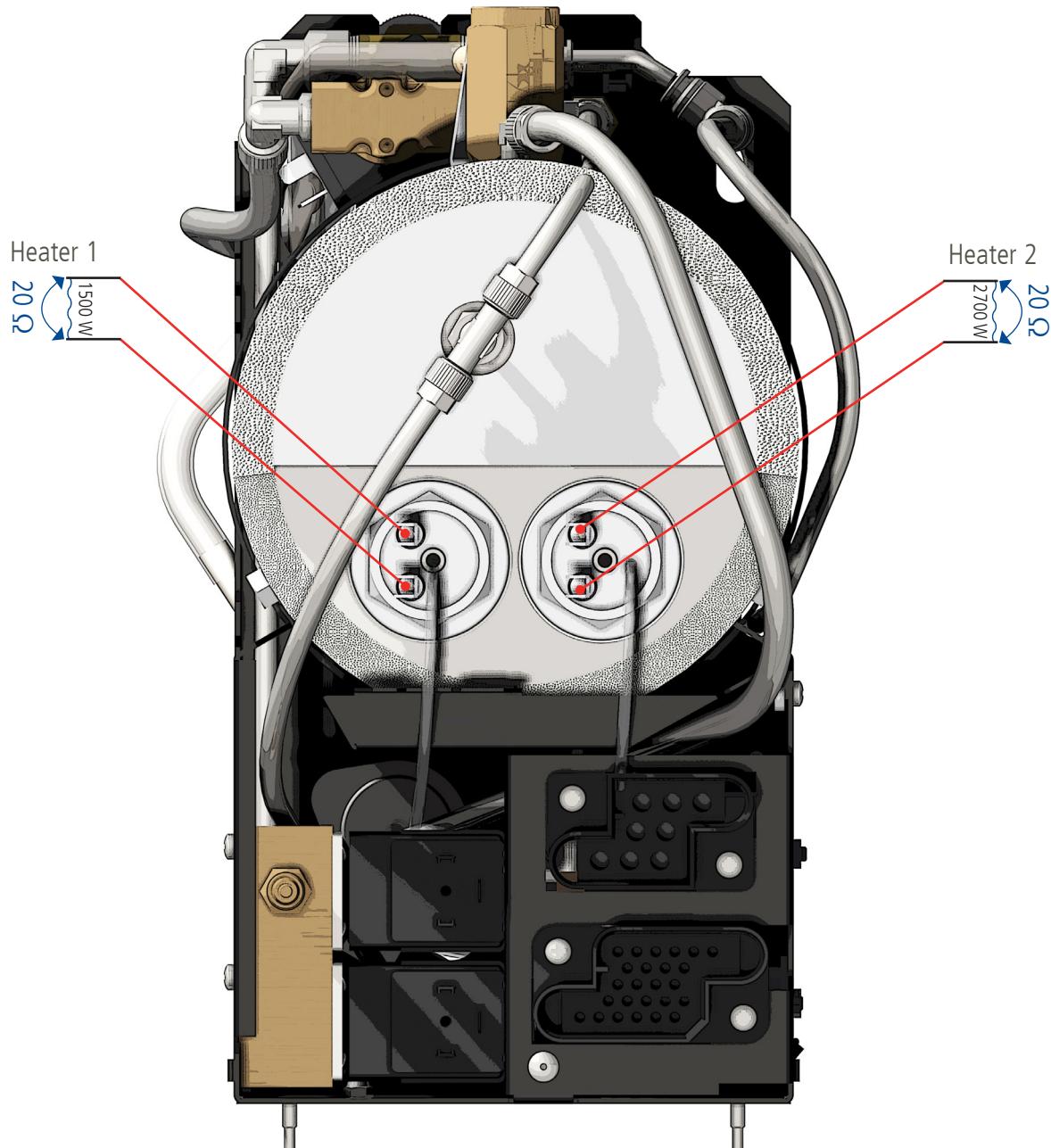
8.3 Front view



8 Steam module

SECTION 6

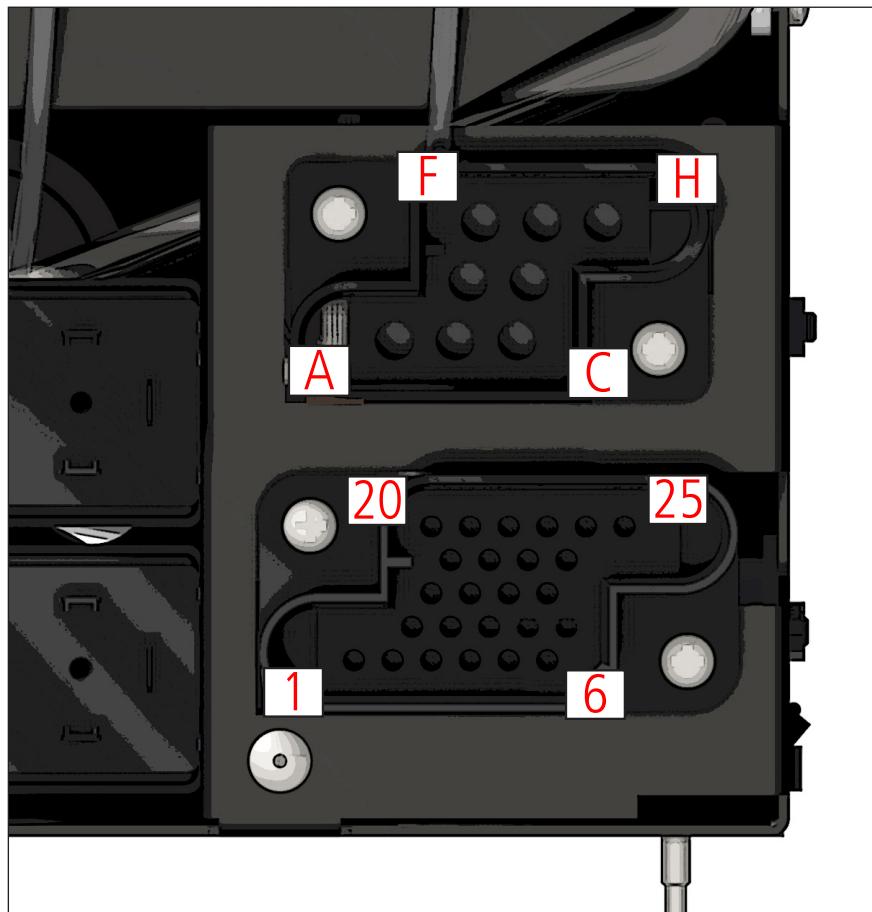
8.4 Back view



8 Steam module

SECTION 6

8.5 Quick test steam module

**Quick test TS module**

Connection settings upper connector:

A L2	C N	E not set	G not set
B not set	D GND	F L3	H N

Connection settings lower connector:

1 Working Level Probe	8 not set	15 24VDC	22 Gate Triac Steam 1
2 Security Level Probe	9 Pressure Switch Signal	16 not set	23 A2 Triac Steam 1
3 GND	10 Pressure Switch 5VDC	17 not set	24 Gate Triac Steam 2
4 not set	11 not set	18 not set	25 A2 Triac Steam 2
5 not set	12 Mixing / tea valve	19 not set	
6 not set	13 Steam valve	20 L	
7 not set	14 Filling valve	21 N	

9 Choco module

SECTION 6

9.1 Error messages

Error no. / picture	Text	Cause
TX0115 	Flow error	<p>The error message „Flow error“ appears</p> <ul style="list-style-type: none">• A problem with the water flow of the hydraulic module has appears, see chapter 6.1 „Error message hydraulic module“ on page 45 to fix the error. <p>When dispensing a choco product, only water and milk is dispensed</p> <ul style="list-style-type: none">• Fill the choco container with choco powder• Check if the choco chute is open (arrow on switch must point downwards)• Clean the module to remove any choco remains, which could be blocking the system. <p>The choco product is dispensed without milk</p> <ul style="list-style-type: none">• Refill milk <p>The mixing / „Austragungswendel“ motor is not working</p> <ul style="list-style-type: none">• Clean the module to remove any choco remains, which could be blocking the system.• Check if the fuse was triggered on the print of the choco module and replace it if needed.

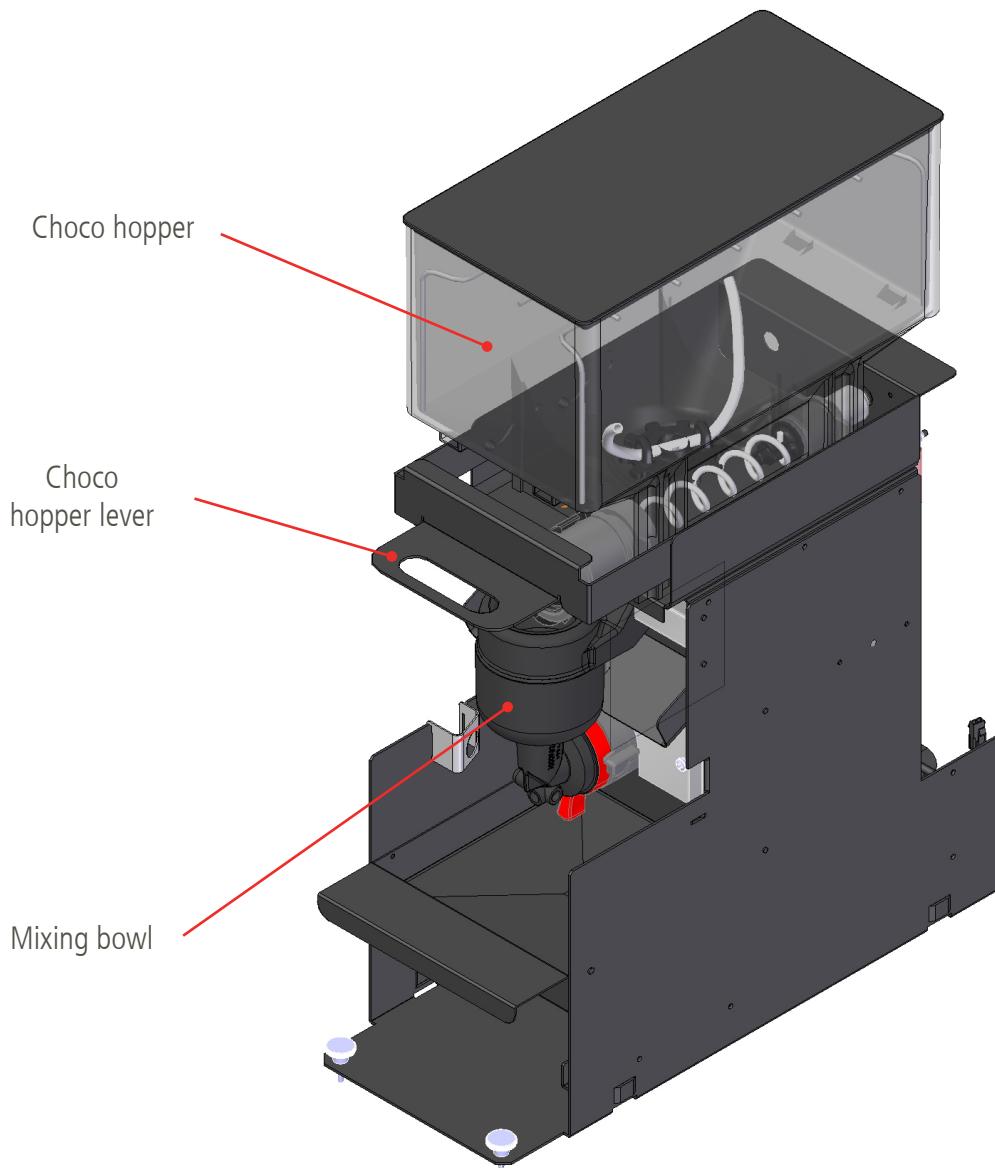
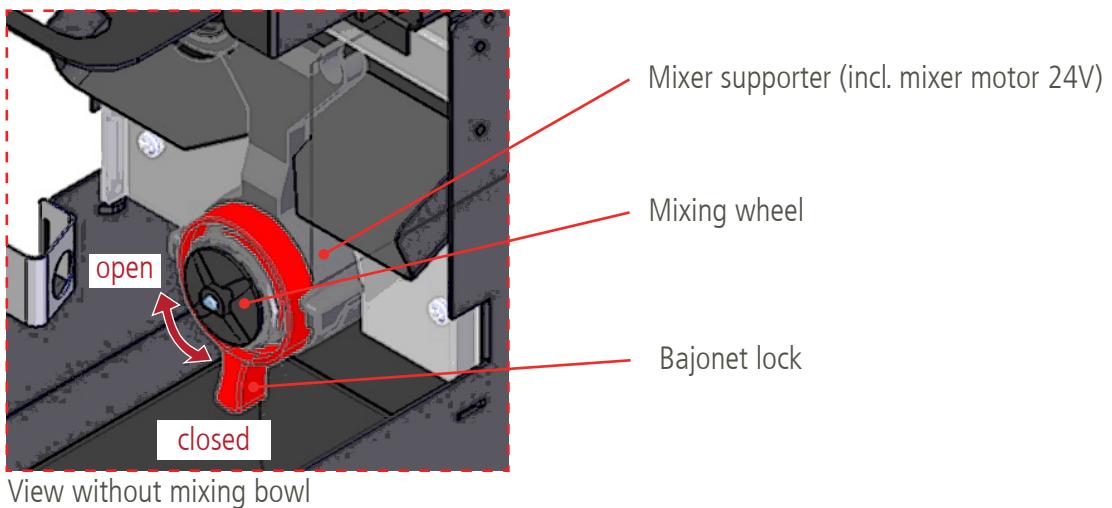
Notice:

As the choco module is not monitored by sensors, the machine will not show any error messages on the touchscreen. There will be no display messages indicating that no choco powder is left, if a choco product gets dispensed the machine will only dispense water and milk until sufficient choco powder is refilled.

9 Choco module

SECTION 6

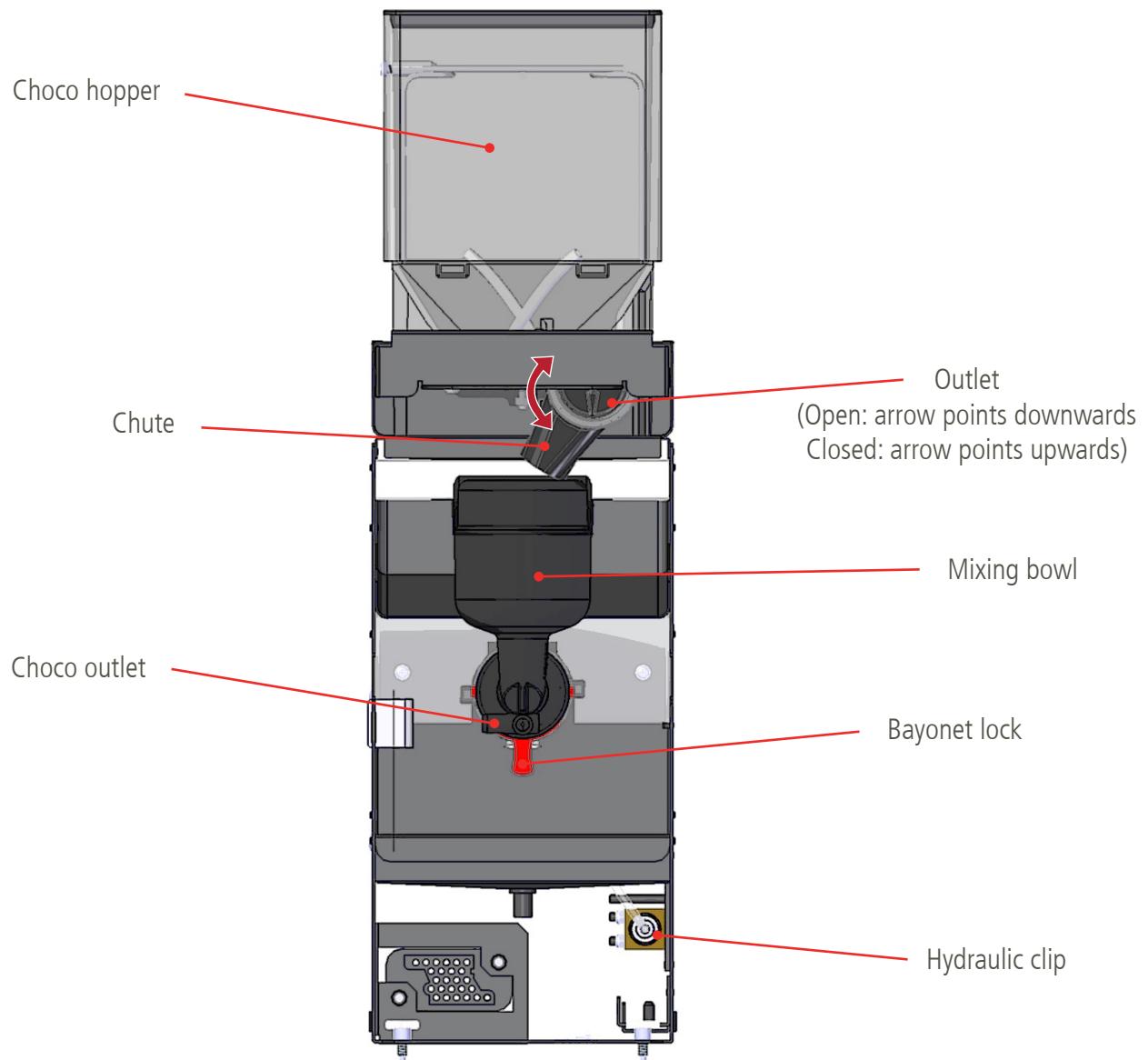
9.2 ISO view



9 Choco module

SECTION 6

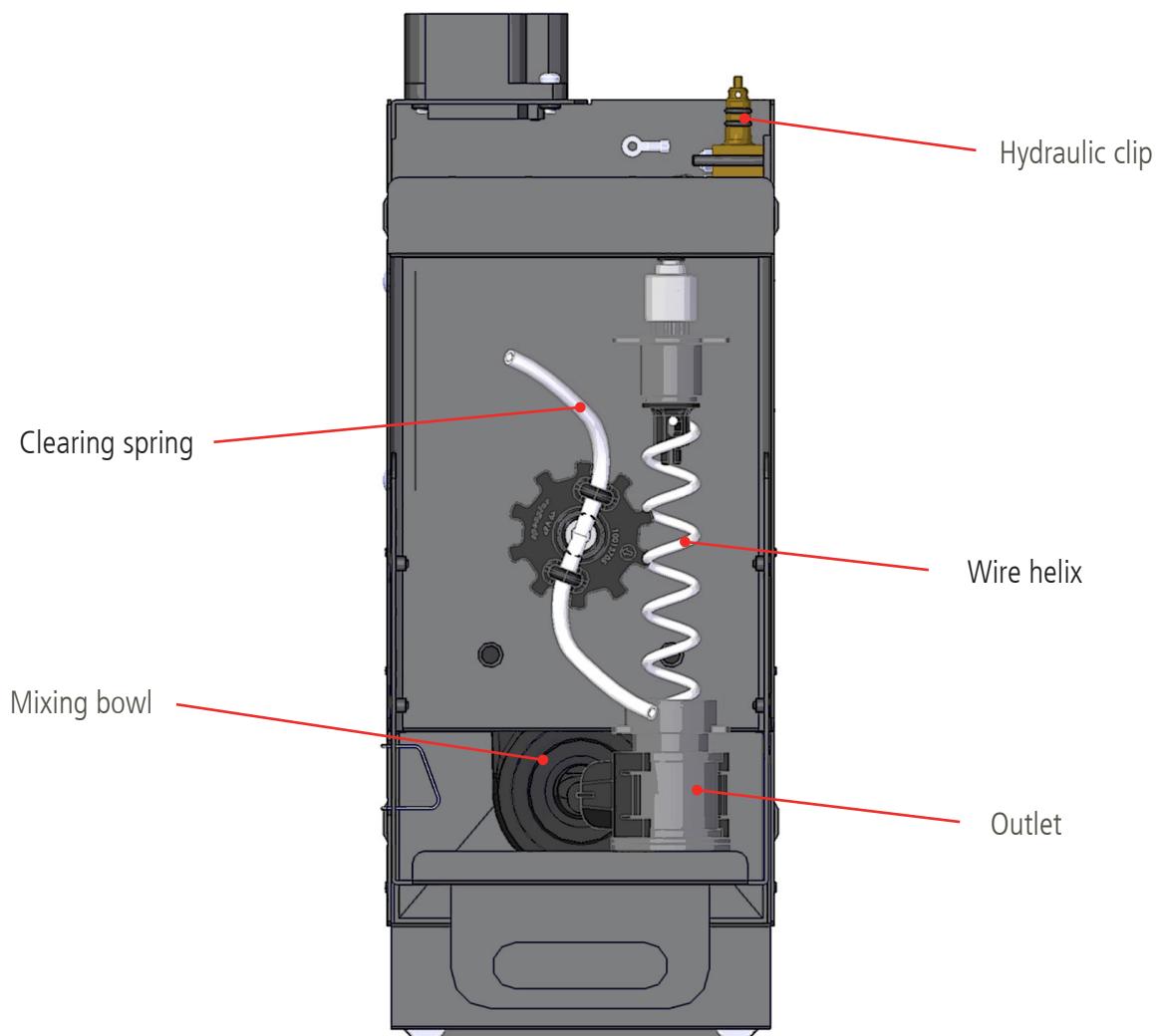
9.3 Front view



9 Choco module

SECTION 6

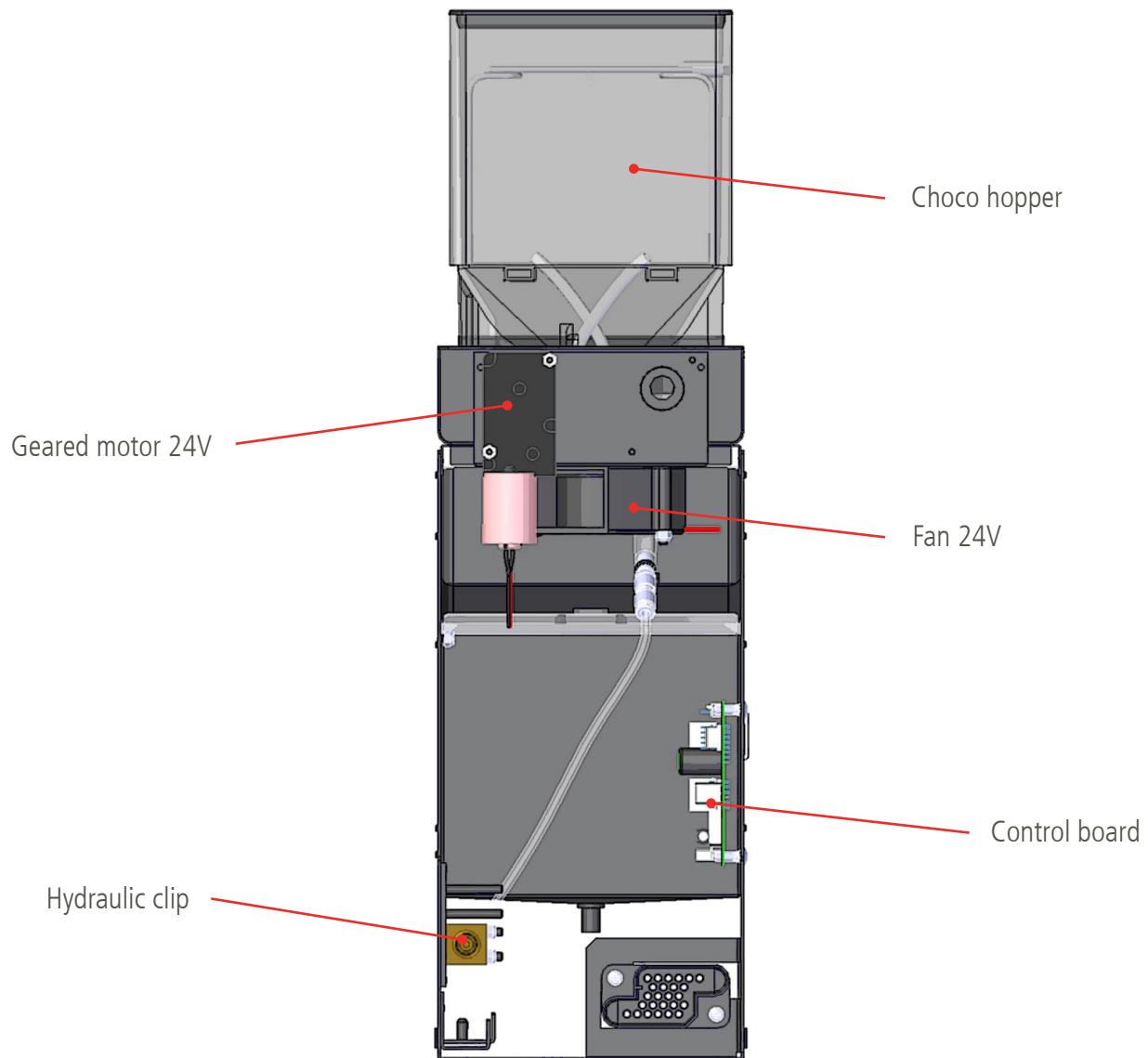
9.4 ISO view



9 Choco module

SECTION 6

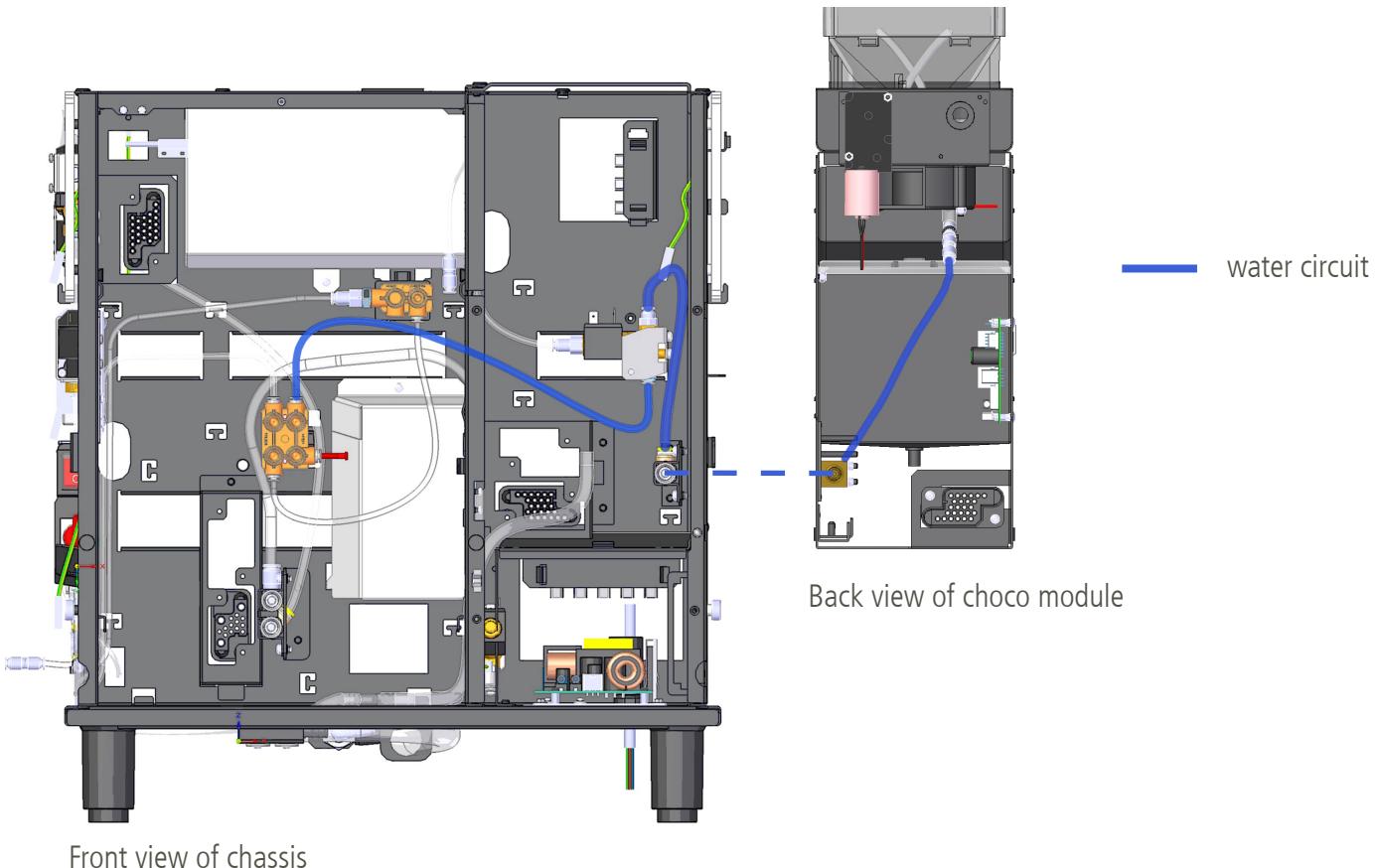
9.5 Back view



9 Choco module

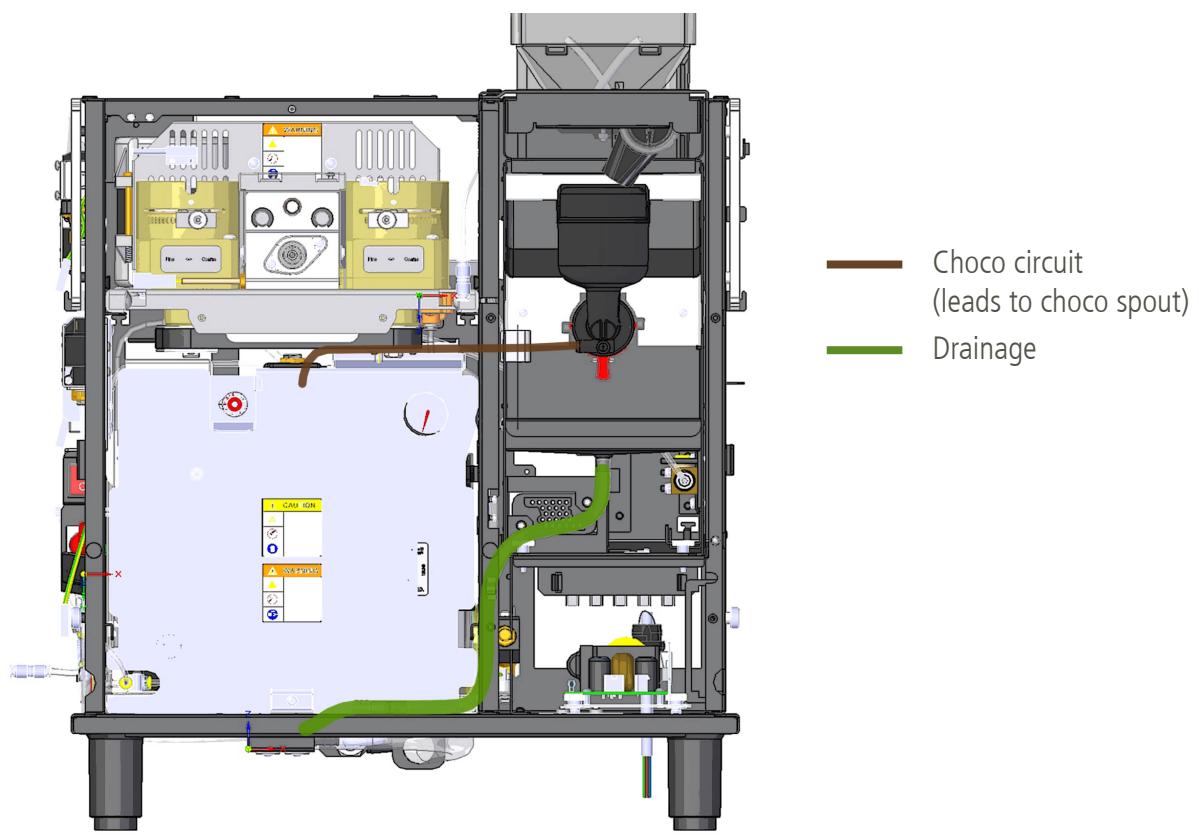
SECTION 6

9.6 Water and choco circuit



Front view of chassis

Back view of choco module

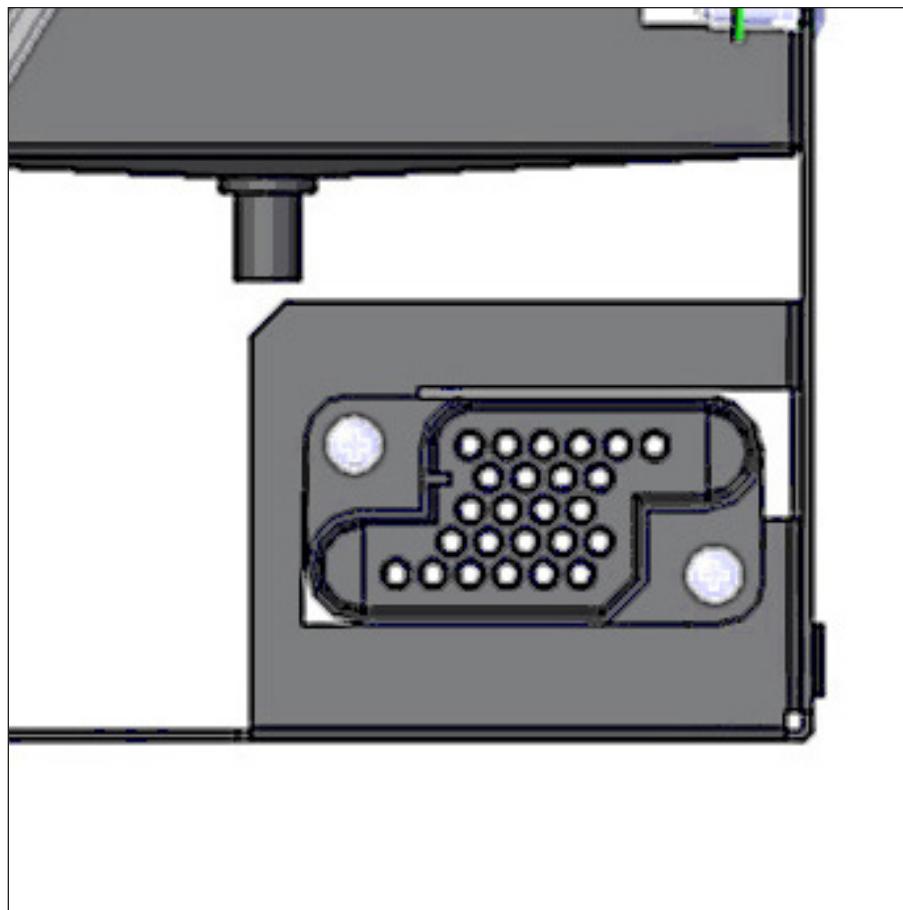


Front view of chassis (with installed modules)

9 Choco module

SECTION 6

9.7 Quick test choco module

**Quick test choco module**

Connection settings:

1 NTC coffee tank 5VDC+	8 Print Drucksensor	15 not set	22 Triac A2
2 NTC coffee tank Signal	9 not set	16 not set	23 Triac G
3 Print Drucksensor	10 not set	17 not set	24 Triac A1 (N)
4 Print Drucksensor	11 not set	18 Tankabflussventil	25 Heating (L)
5 not set	12 not set	19 24VDC+ (Motor Kaffeep., Print, Ventil)	
6 not set	13 Motor Kaffeepumpe 24VDC-	20 not set	
7 Print Drucksensor	14 not set	21 Ground	