

# Troubleshooting



## Modification journal

Revision:	Date:	Modifications	Initials:
0	2011-10-06	Basic document, first edition	SO
1	2011-11-21	Various changes	SO
2	2012-01-31	Added Machine Intervention form	RZ
3	2015-04-07	Complete revision; added model AG220	RZ
4	2015-06-15	Various changes	RZ
5	2015-07-06	Added safety note regarding neglecting preparatory actions	RZ
6			
7			
8			
9			
10			

**⚠ WARNING****Risk of scalding and electric shock by neglecting preparatory actions**

- Empty all boilers before performing preventive maintenance or troubleshooting inside the machine to avoid scalding from hot water: Choose "General Settings ► Emptying Sequence" in the service menu and follow the instructions on the display. All boilers will be emptied. Once reassembled, the machine will perform a cold start (to fill the boilers with water).
- Always disconnect the machine from the power plug socket before opening!

**NOTICE**

Country-specific rules are to be followed and complied with.

National rules and directives may force you to perform a ground continuity and insulation test. The ground continuity and insulation tests have to be performed every time the machine has been disassembled or reassembled in any way. This applies after installation, performing a PM (preventive maintenance) or if the machine has been opened for repairs or troubleshooting.

Thermoplan recommends to use the test device "IR4056" from company HIOKI. In section 2, on the pages 2.8 - 2.11 "Ground continuity and insulation test", you will find instructions, on how to perform these tests using the mentioned test device.

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## Aguila Machine Intervention

Please send the completely filled out file to: [service@thermoplan.ch](mailto:service@thermoplan.ch)

Should you call our Service Team under +41 41 392 12 33 please have the information below always ready!

CSP	Company Name		Market / Country		
	Technician Name				
Complaint	Name		<input type="checkbox"/> Customer <input type="checkbox"/> NN affiliate <input type="checkbox"/> Other		
	Date		Time		
	Description				
Intervention	Customer Name		Customer Location		
	Date	Arrival Time	Departure Time		
	Machine Serial Number (19 digit)				
			<b>A</b>	<b>G</b>	
	Situation / Findings				
	Actions / Work				
Used Parts					
Additional Comment					

If you have any questions regarding...

...the Aguila Campus, please contact: [aguila@thermoplan.ch](mailto:aguila@thermoplan.ch)

...spareparts orders and warranty claims, please contact: [spareparts@thermoplan.ch](mailto:spareparts@thermoplan.ch)

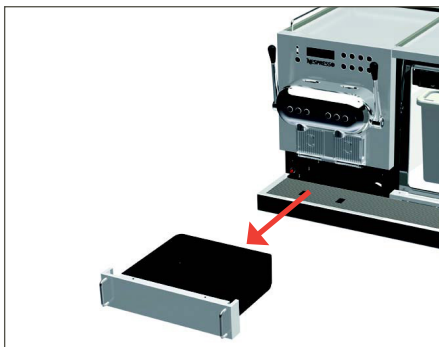
## Access to service menu

The In- and Output Tests will help finding a possible source of malfunctioning part. All assembled valves, sensors etc. can be checked for functionality.

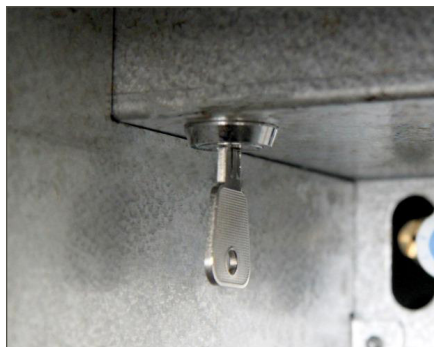
If the valve you have chosen to test (press the enter key to test the components) is connected and working you will hear a click noise. If the component is not a valve you can see the state of the component on the display.

Note: On model AG420 the In- and Output Tests are divided into „Left“ and „Right“ to check the components either in the left or right machine module.

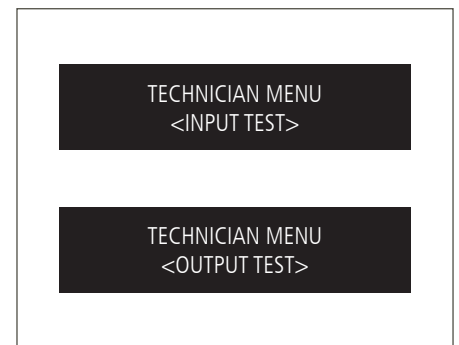
Follow these steps to access the In- and Output Tests in the service menu:



1. Remove the used capsule drawer (AG420: remove used capsule drawer from left module).

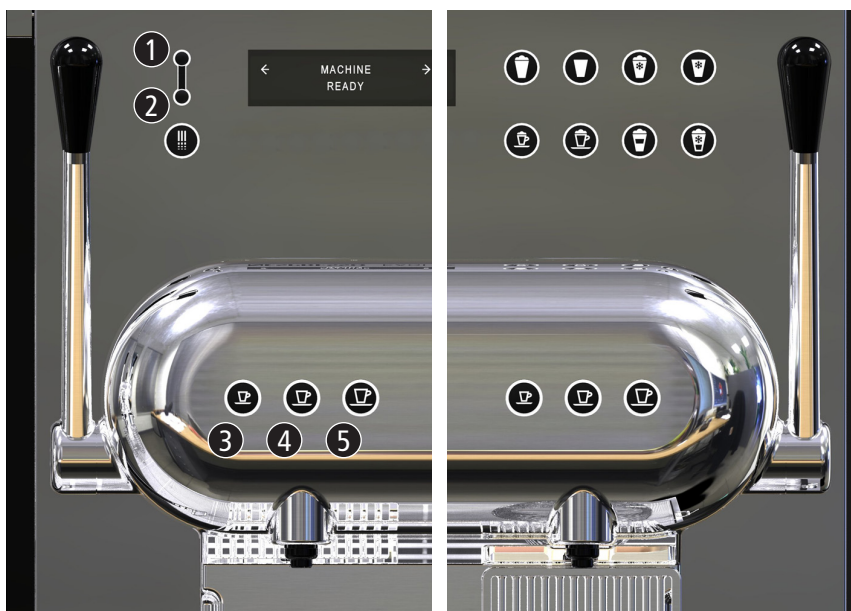


2. Insert programming key in the back of the drawer and turn it clockwise.



3. In the service menu, navigate to „INPUT TEST“ or „OUTPUT TEST“.

## Overview of the keys and their function in the menus „Input Test“ and „Output Test“



1. Up (cleaning key): Next menu
2. Down (rinse key): Previous menu
3. Standard (ristretto key): *No function*
4. Enter (espresso key): Check valve / check state / activate function
5. Cancel (lungo key): Exit menu

In this menu all the electrical components can be tested for function.

Menu	Description
OUTPUT TEST LEFT / RIGHT Water Inlet Valve	Press the <b>Enter</b> -key to open the valve. The valve is functioning correctly if a „click“ noise is heard.
OUTPUT TEST LEFT / RIGHT Chamber Release Valve 1	Press the <b>Enter</b> -key to open the valve. If the brew chamber is closed, a „click“ noise is heard.
OUTPUT TEST LEFT / RIGHT Chamber Release Valve 2	Press the <b>Enter</b> -key to open the valve. If the brew chamber is closed, a „click“ noise is heard.
OUTPUT TEST LEFT / RIGHT Brew Valve 1	Press the <b>Enter</b> -key to open the valve. If the brew chamber is closed, a „click“ noise is heard.
OUTPUT TEST LEFT / RIGHT Brew Valve 2	Press the <b>Enter</b> -key to open the valve. If the brew chamber is closed, a „click“ noise is heard.
OUTPUT TEST LEFT / RIGHT Tea Valve	The Tea Valve opens the water way from the tea / milk boiler through the cleaning tablet valve to the tea valve 2. Press the <b>Enter</b> -key to open the valve. The valve is functioning correctly if a „click“ noise is heard.
OUTPUT TEST LEFT / RIGHT Tea Valve 2	<i>(only available for model AG220)</i> The Tea Valve 2 opens the water way from the coffee boiler to the tea outlet. Press the <b>Enter</b> -key to open the valve. The valve is functioning correctly if a „click“ noise is heard.
OUTPUT TEST LEFT / RIGHT Exhaust Valve	<i>(only available for model AG220)</i> The Exhaust Valve adds air to exhaust the milk way. Press the <b>Enter</b> -key to open the valve. The valve is functioning correctly if a „click“ noise is heard.
OUTPUT TEST LEFT / RIGHT Milk Clean Valve	The Milk Clean Valve opens the rinse way to the refrigerator. Press the <b>Enter</b> -key to open the valve. The valve is functioning correctly if a „click“ noise is heard.
OUTPUT TEST LEFT / RIGHT Milk Rinse Valve	The Milk Rinse Valve opens the rinse way to the milk pump. Press the <b>Enter</b> -key to open the valve. The valve is functioning correctly if a „click“ noise is heard.
OUTPUT TEST LEFT / RIGHT Cold Milk Valve	The Cold Milk Valve is switching between cold and warm milk respectively cold and warm foam. Press the <b>Enter</b> -key to open the valve. The valve is functioning correctly if a „click“ noise is heard.

**Output test**

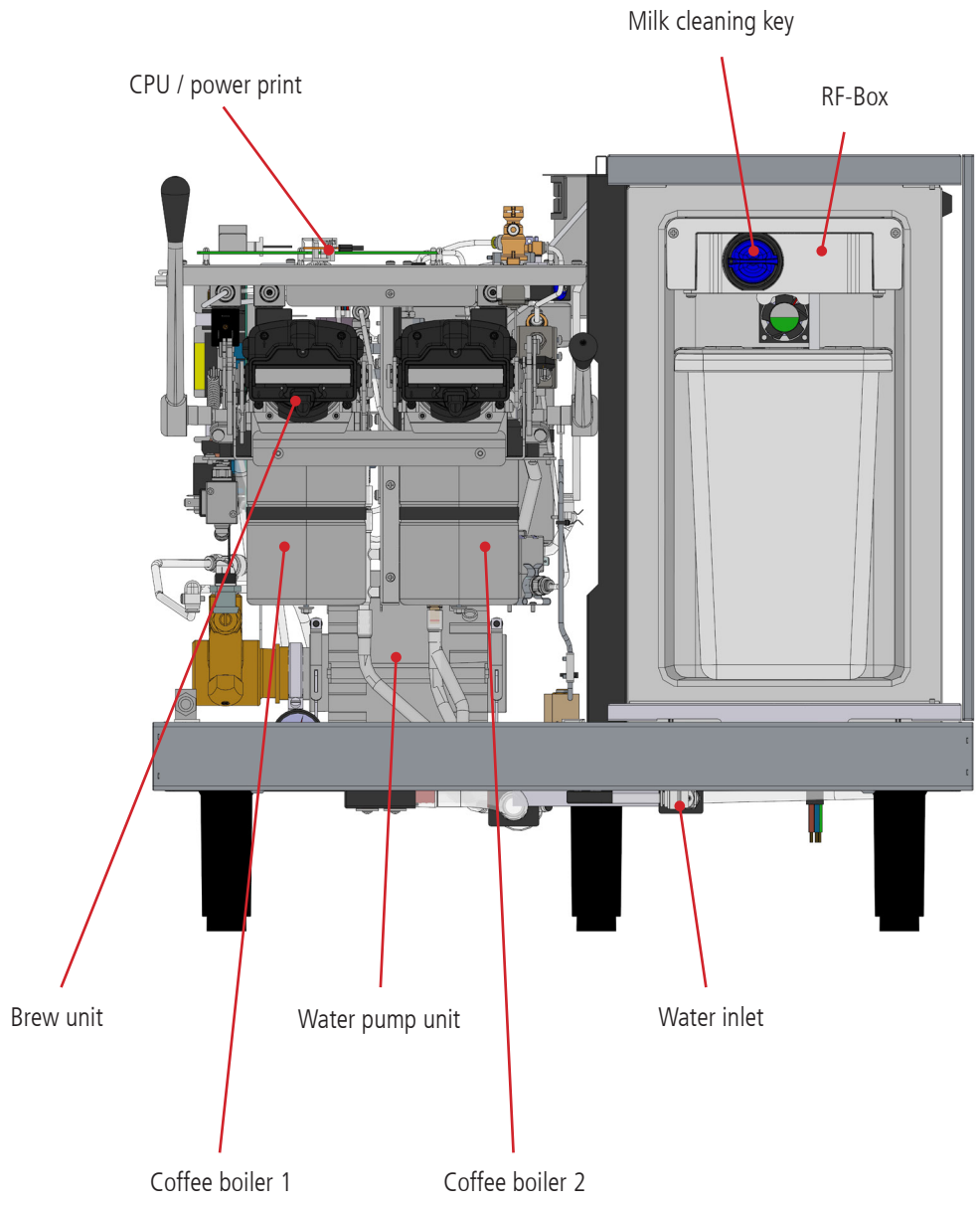
<b>OUTPUT TEST LEFT / RIGHT</b> Milk Outlet Valve	The Milk Outlet Valve opens the way to the milk outlet. Press the <b>Enter-key</b> to open the valve. The valve is functioning correctly if a „click“ noise is heard.
<b>OUTPUT TEST LEFT / RIGHT</b> Milk Drain Valve	The Milk Drain Valve opens the way to the drain. Press the <b>Enter-key</b> to open the valve. The valve is functioning correctly if a „click“ noise is heard.
<b>OUTPUT TEST LEFT / RIGHT</b> Milk Air Valve	The Milk Air Valve opens the air way on the milk pump. Press the <b>Enter-key</b> to open the valve. The valve is functioning correctly if a „click“ noise is heard.
<b>OUTPUT TEST LEFT / RIGHT</b> Air Select Valve	<i>(only available for model AG420)</i> The Air Select Valve opens the additional air way for cold foam. Press the <b>Enter-key</b> to open the valve. The valve is functioning correctly if a „click“ noise is heard.
<b>OUTPUT TEST LEFT / RIGHT</b> Cleaning Tablet Valve	<i>(this valve is located in the right module of model AG420)</i> Press the <b>Enter-key</b> to open the valve. The valve is functioning correctly if a „click“ noise is heard.
<b>OUTPUT TEST LEFT / RIGHT</b> Water Pump	Press and hold the <b>Enter-key</b> to test the Water Pump. The LED „LD2“ (AG220, on power board) resp. „LD12“ (AG420, on CPU) will glow on the power print.
<b>OUTPUT TEST LEFT / RIGHT</b> Refrigerator Fan	<i>(only available for model AG220)</i> Press and hold the <b>Enter-key</b> to test the fan inside the refrigerator.
<b>OUTPUT TEST LEFT / RIGHT</b> Milk Pump	Press and hold the <b>Enter-key</b> to test the Milk Pump.
<b>OUTPUT TEST LEFT / RIGHT</b> Coffee boiler 1 = xx.x °C	The display shows the current temperature of coffee boiler 1. By pressing the <b>Enter-key</b> , the boiler will start heating up. The LED „LD5“ (AG220) resp. „LD2“ (AG420) will glow on the power print. <b>ATTENTION: The regulation is not active, the boiler can overheat!</b>
<b>OUTPUT TEST LEFT / RIGHT</b> Coffee boiler 2 = xx.x °C	The display shows the current temperature of coffee boiler 2. By pressing the <b>Enter-key</b> , the boiler will start heating up. The LED „LD6“ (AG220) resp. „LD3“ (AG420) will glow on the power print. <b>ATTENTION: The regulation is not active, the boiler can overheat!</b>
<b>OUTPUT TEST LEFT / RIGHT</b> Tea/Milk boiler = xx.x °C	The display shows the current temperature of the tea / milk boiler. By pressing the <b>Enter-key</b> , the boiler will start heating up. The LED „LD4“ (AG220) resp. „LD1“ (AG420) will glow on the power print. <b>ATTENTION: The regulation is not active, the boiler can overheat!</b>
<b>OUTPUT TEST LEFT / RIGHT</b> Cup Heater	By pressing the <b>Enter-key</b> , the cup heater will either be switched on or off, depending whether it was already activated before or not. The LED „LD1“ (AG220) resp. „LD4“ (AG420) will glow on the power print.

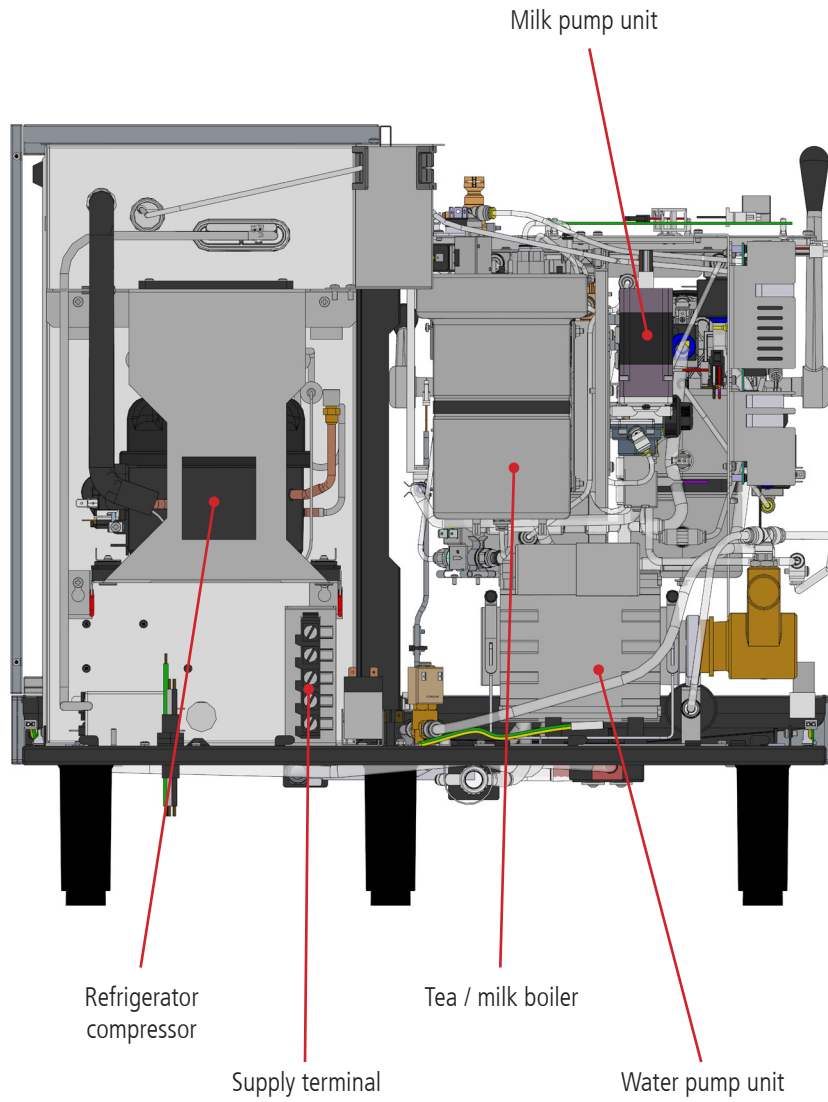
In this Menu all inputs (sensors) can be tested for functionality.

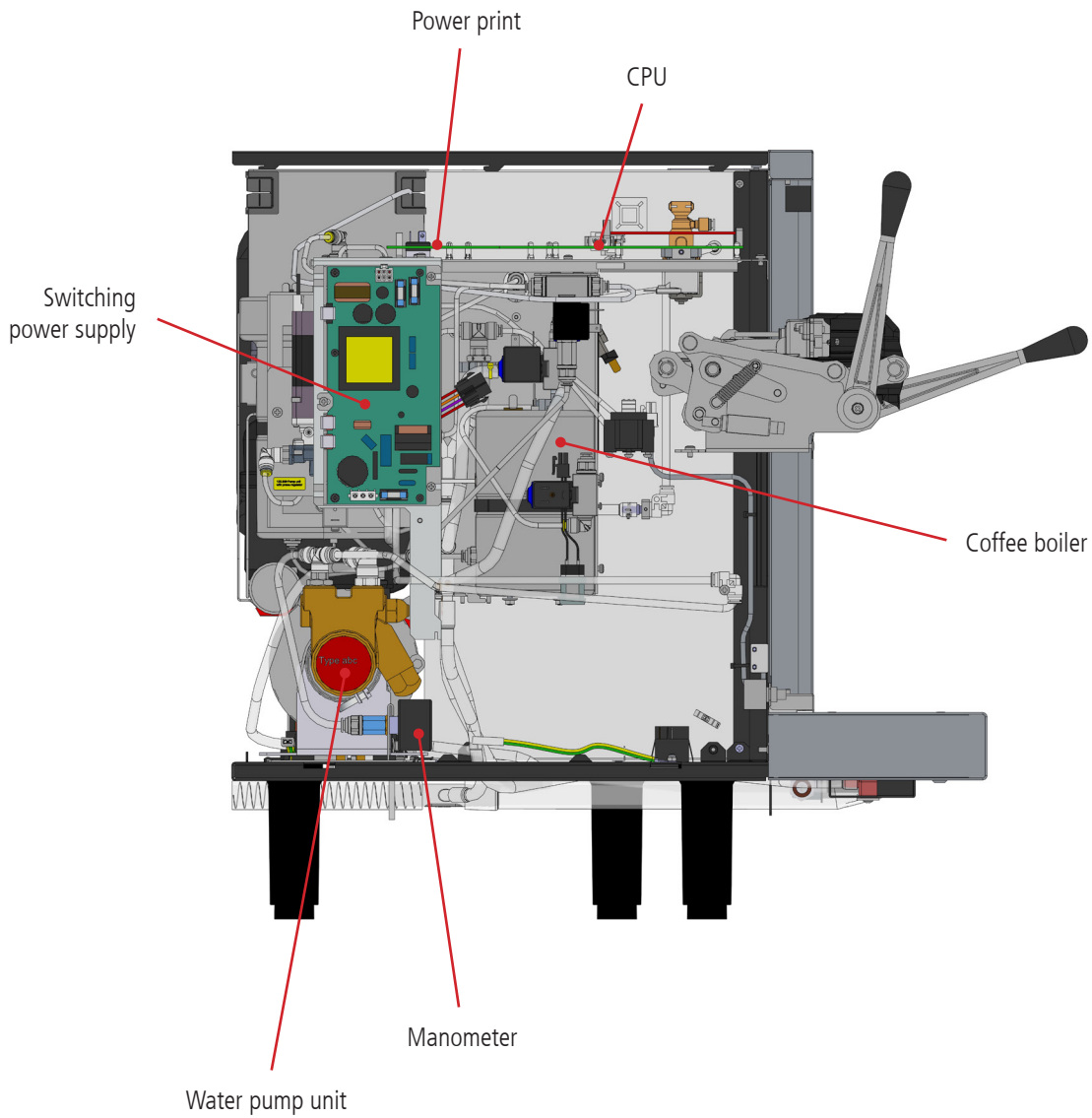
Menu	Description
INPUT TEST LEFT / RIGHT EAPB = detected	<i>(only available for model AG420)</i> The display shows „detected“ if the CPU (EAPB) is correctly connected.
INPUT TEST LEFT / RIGHT Cleaning key = closed	The display shows the current state of the cleaning key. „closed“: cleaning key is detected and mounted correctly (reed switch closed). „open“: cleaning key not detected (reed switch open).
INPUT TEST LEFT / RIGHT Cleaning tablet = No	The display shows, if a cleaning tablet is detected in the cleaning key. „No“: No tablet in the cleaning key detected (reed switch open). „Yes“: Tablet detected in the cleaning key (reed switch closed).
INPUT TEST LEFT / RIGHT Brewchamber 1 = open	The display shows the current state of brew chamber 1. „open“: Brew chamber is open (micro switch is open) „closed“: Brew chamber is closed (micro switch is closed).
INPUT TEST LEFT / RIGHT Brewchamber 2 = open	<i>(only available for model AG420)</i> The display shows the current state of brew chamber 2 (right module). „open“: Brew chamber is open (micro switch is open) „closed“: Brew chamber is closed (micro switch is closed).
INPUT TEST LEFT / RIGHT NTC Boiler 1 = xx.x °C	The display shows the current water temperature of coffee boiler 1. If a temperature of 3276.8 °C is shown, a cable is disconnected or a short circuit occurred on the NTC.
INPUT TEST LEFT / RIGHT NTC Boiler 2 = xx.x °C	The display shows the current water temperature of coffee boiler 2. If a temperature of 3276.8 °C is shown, a cable is disconnected or a short circuit occurred on the NTC.
INPUT TEST LEFT / RIGHT NTC Boiler 3 = xx.x °C	The display shows the current water temperature of tea / milk boiler. If a temperature of 3276.8 °C is shown, a cable is disconnected or a short circuit occurred on the NTC.
INPUT TEST LEFT / RIGHT NTC Refrigerator = x.x °C	The display shows the current temperature of the refrigerator. If a temperature of 3276.8 °C is shown, a cable is disconnected or a short circuit occurred on the NTC.

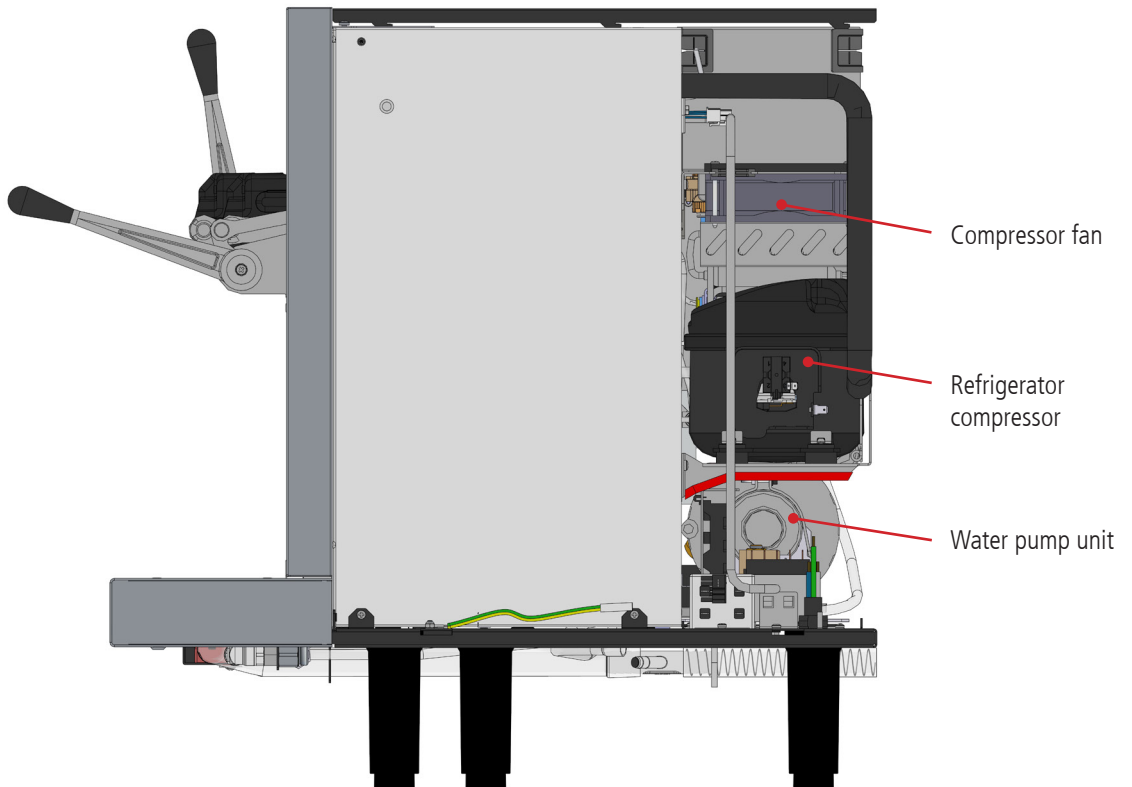
**Input test**

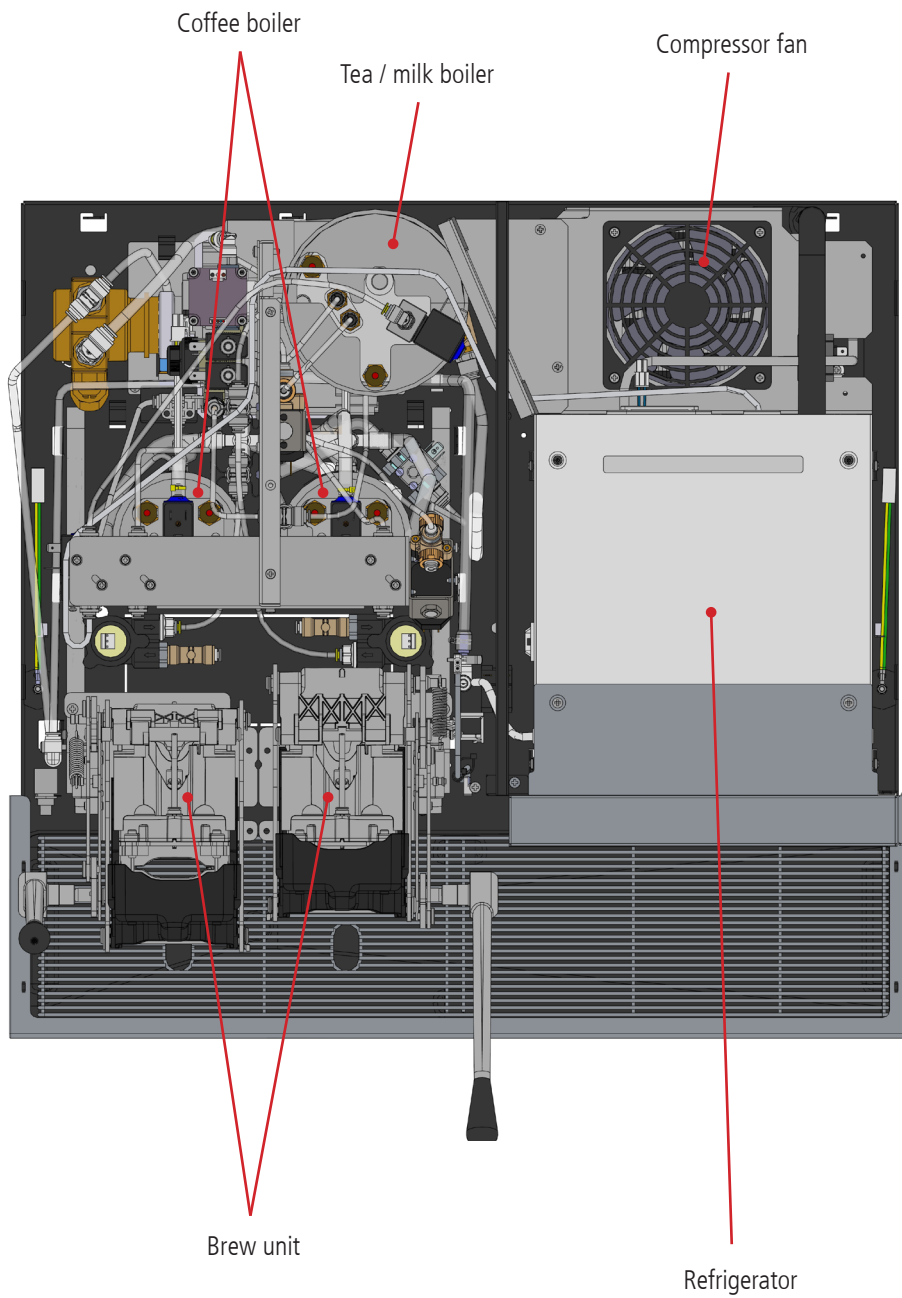
<p><b>INPUT TEST LEFT / RIGHT</b> Milk temperature = x.x °C</p>	<p><i>(only available for model AG220)</i> The display shows the current temperature of the milk.</p> <p>If a temperature of 3276.8 °C is shown, a cable is disconnected or a short circuit occurred on the NTC.</p>
<p><b>INPUT TEST LEFT / RIGHT</b> Flowmeter 1 = 0 ticks</p>	<p>The display shows the impulse of flowmeter 1.</p> <p>Press and hold the <b>Enter</b>-key to test the flowmeter, the number of ticks will be shown (brew chamber must be closed).</p>
<p><b>INPUT TEST LEFT / RIGHT</b> Flowmeter 2 = 0 ticks</p>	<p><i>(only available for model AG420)</i> The display shows the impulse of flowmeter 2.</p> <p>Press and hold the <b>Enter</b>-key to test the flowmeter, the number of ticks will be shown (brew chamber must be closed).</p>
<p><b>INPUT TEST LEFT / RIGHT</b> Milk Level Low = Aus</p>	<p>The display shows the status of the low milk level sensor.</p> <p>„Off“: „Milk level low“ is not reached (passage open), there is still enough milk available in the container          „On“: „Milk level low“ is reached, milk level is below the sensor (no passage), milk is almost empty</p>
<p><b>INPUT TEST LEFT / RIGHT</b> Milk Container Empty = Aus</p>	<p>The display shows the status of the sensor.</p> <p>„Off“: There is still some milk in the container (passage open)          „On“: Milk level is below the sensor (no passage), milk is empty.</p>
<p><b>INPUT TEST LEFT / RIGHT</b> Standby Button = Aus</p>	<p>The display shows the status of the standby button.</p> <p>„Off“: Button is not pressed, Standby mode is not active.          „On“: Button is pressed, Standby mode is active.</p>

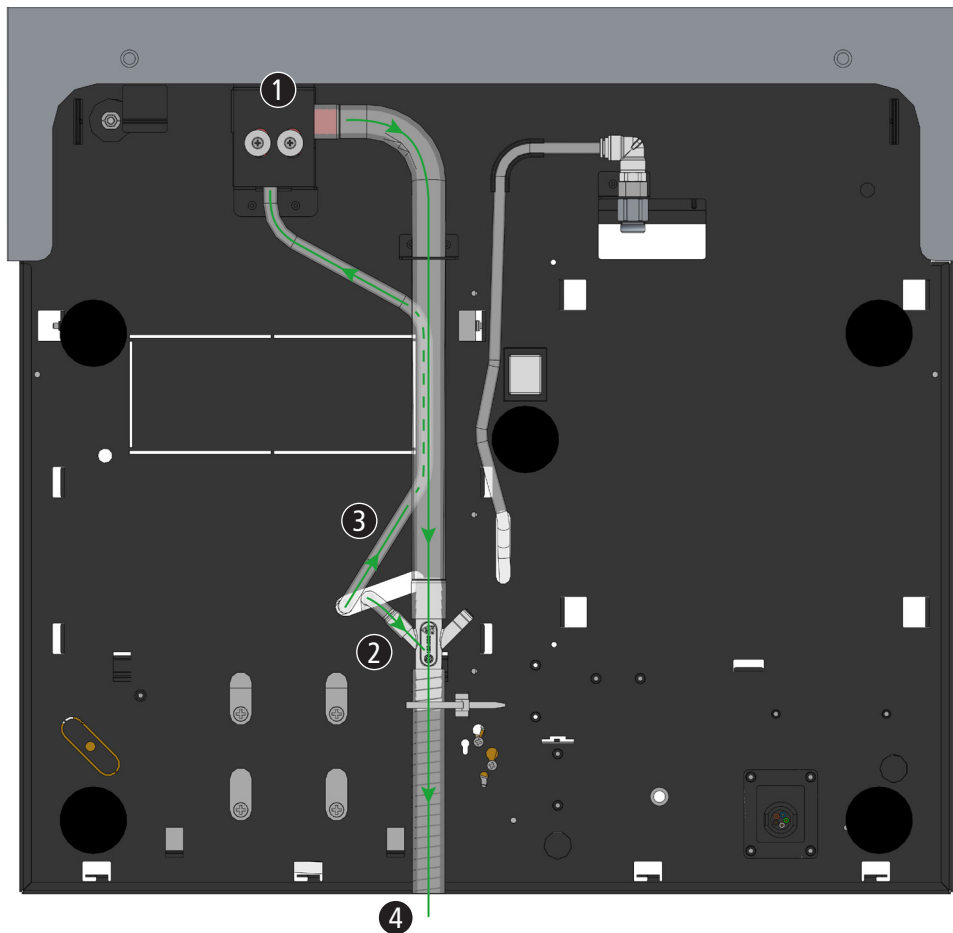




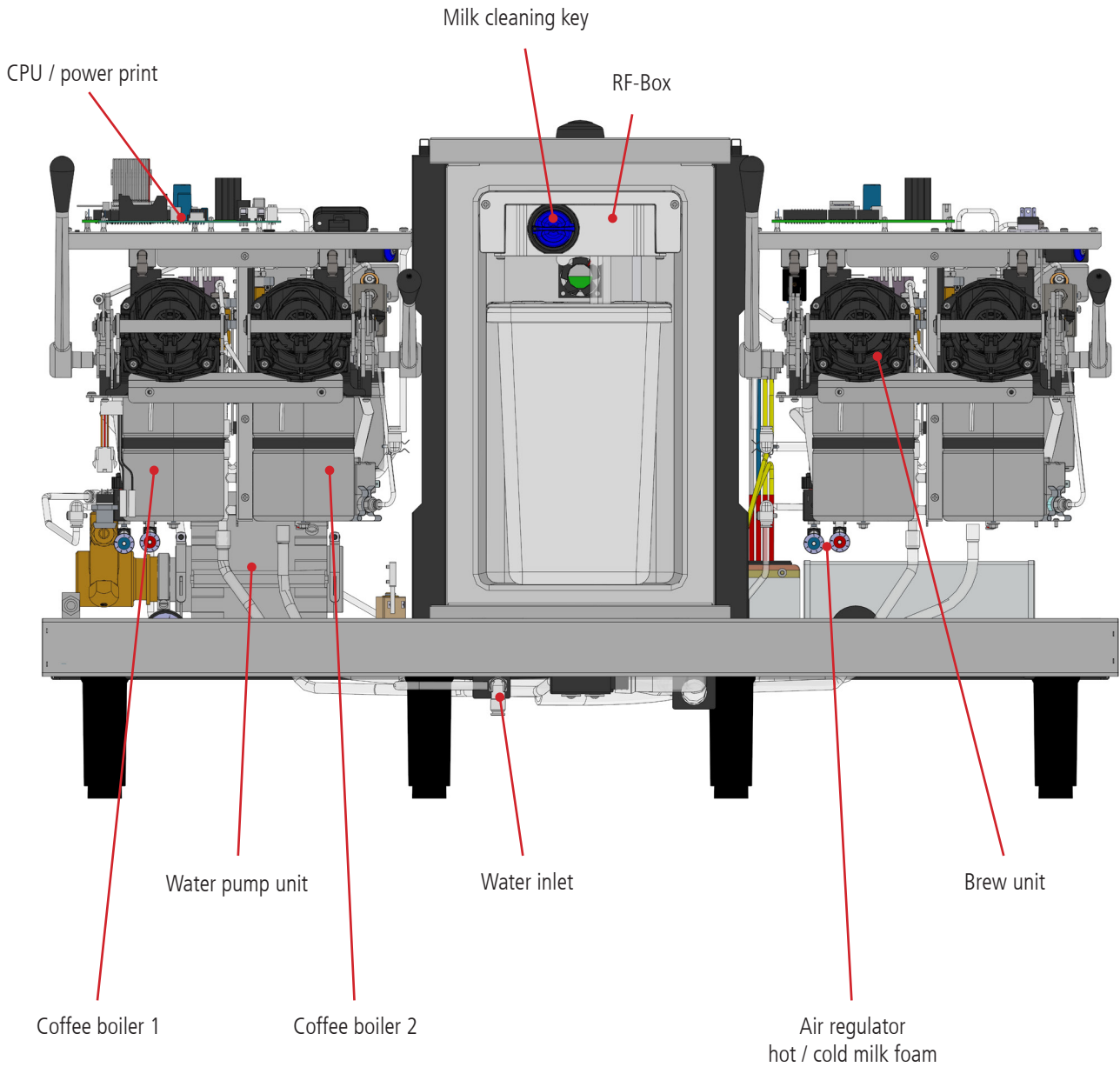


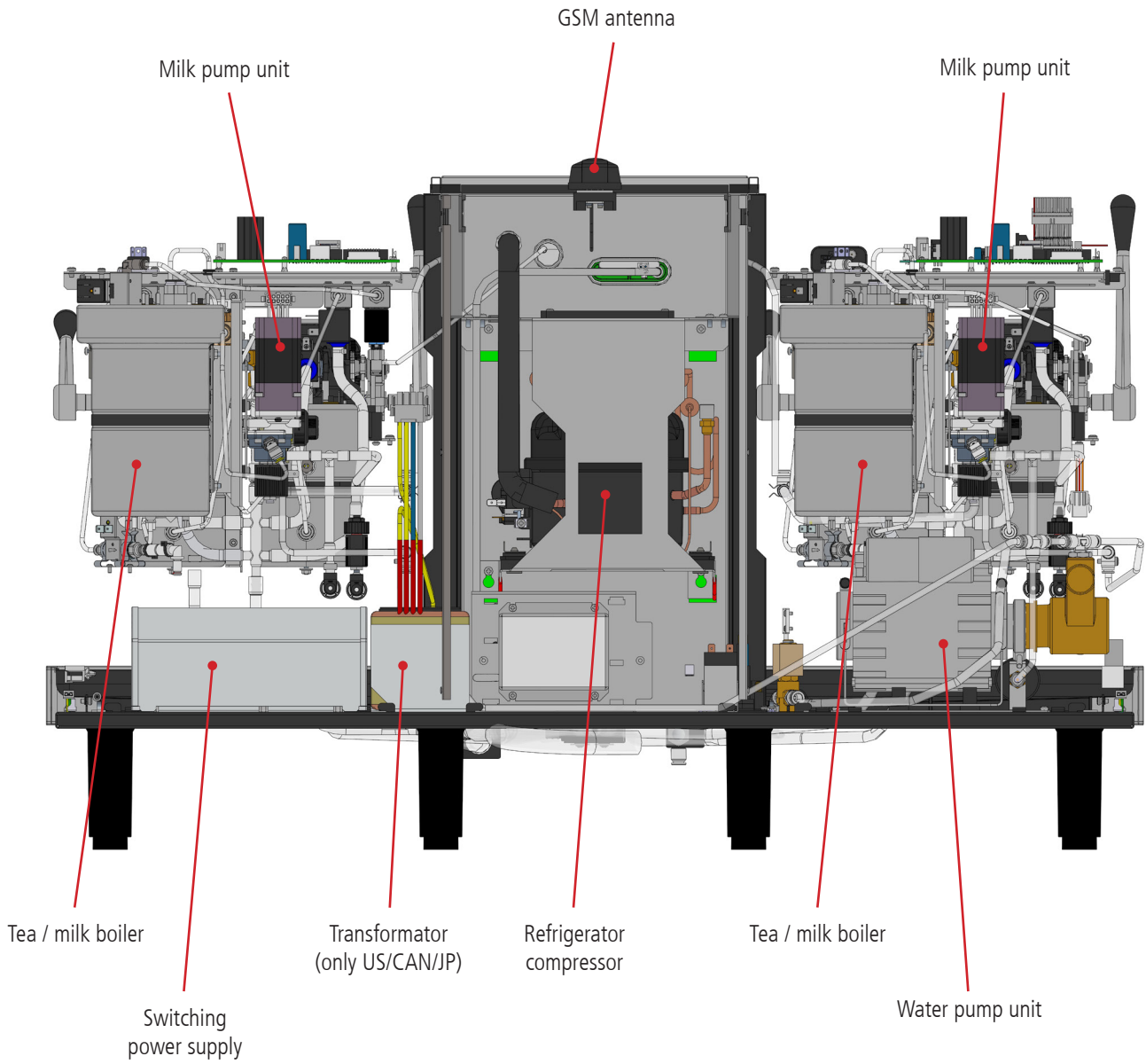


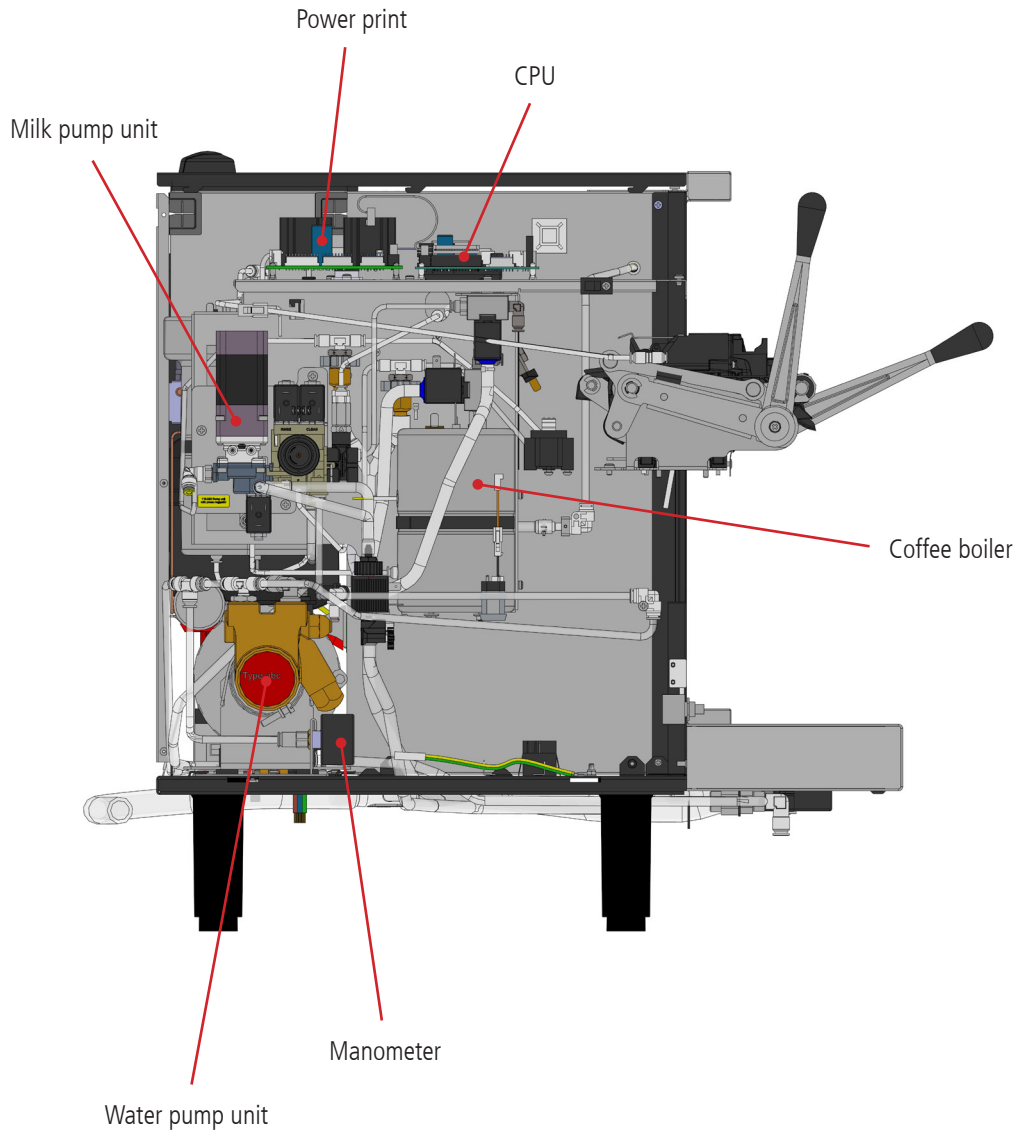


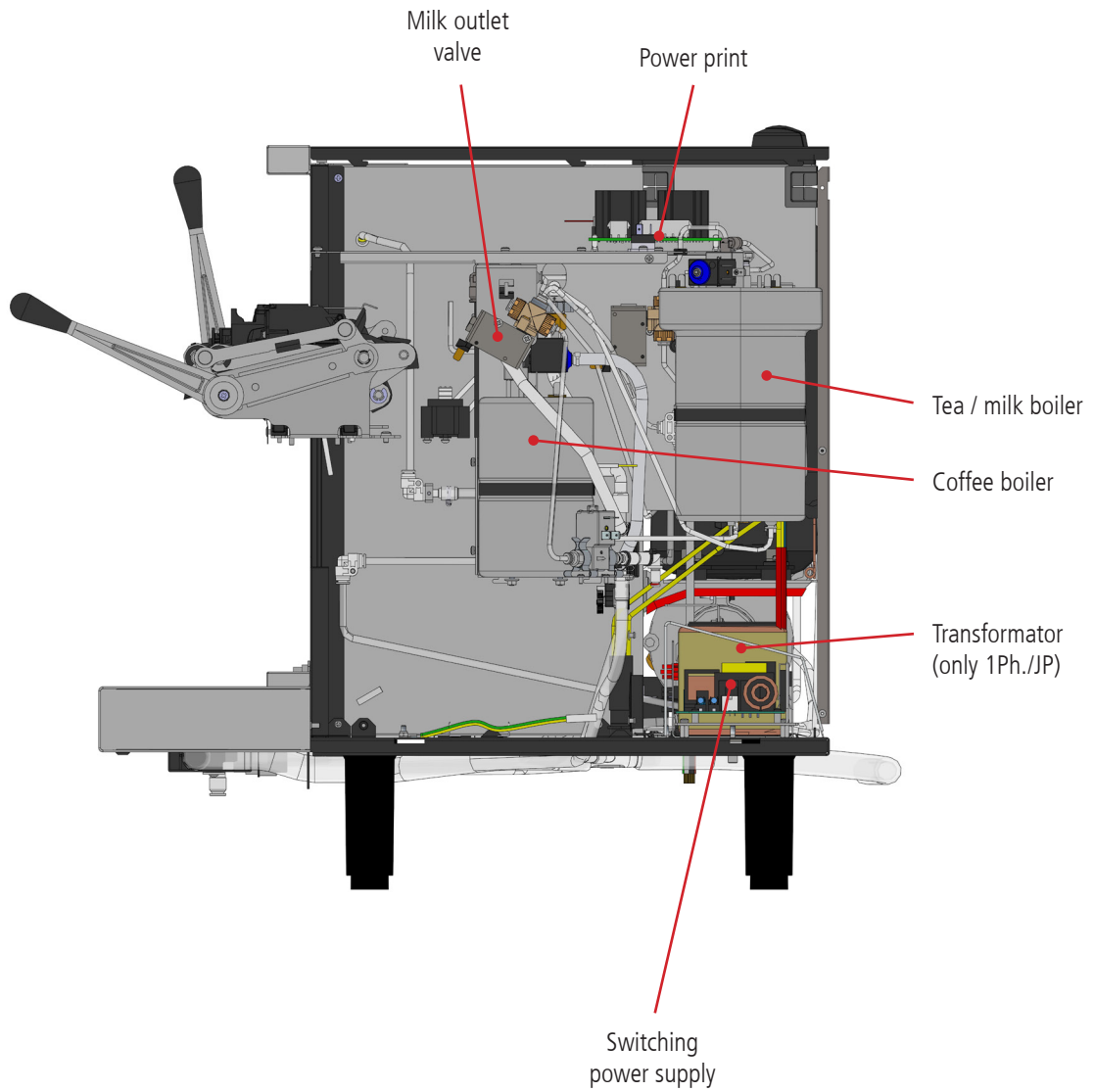


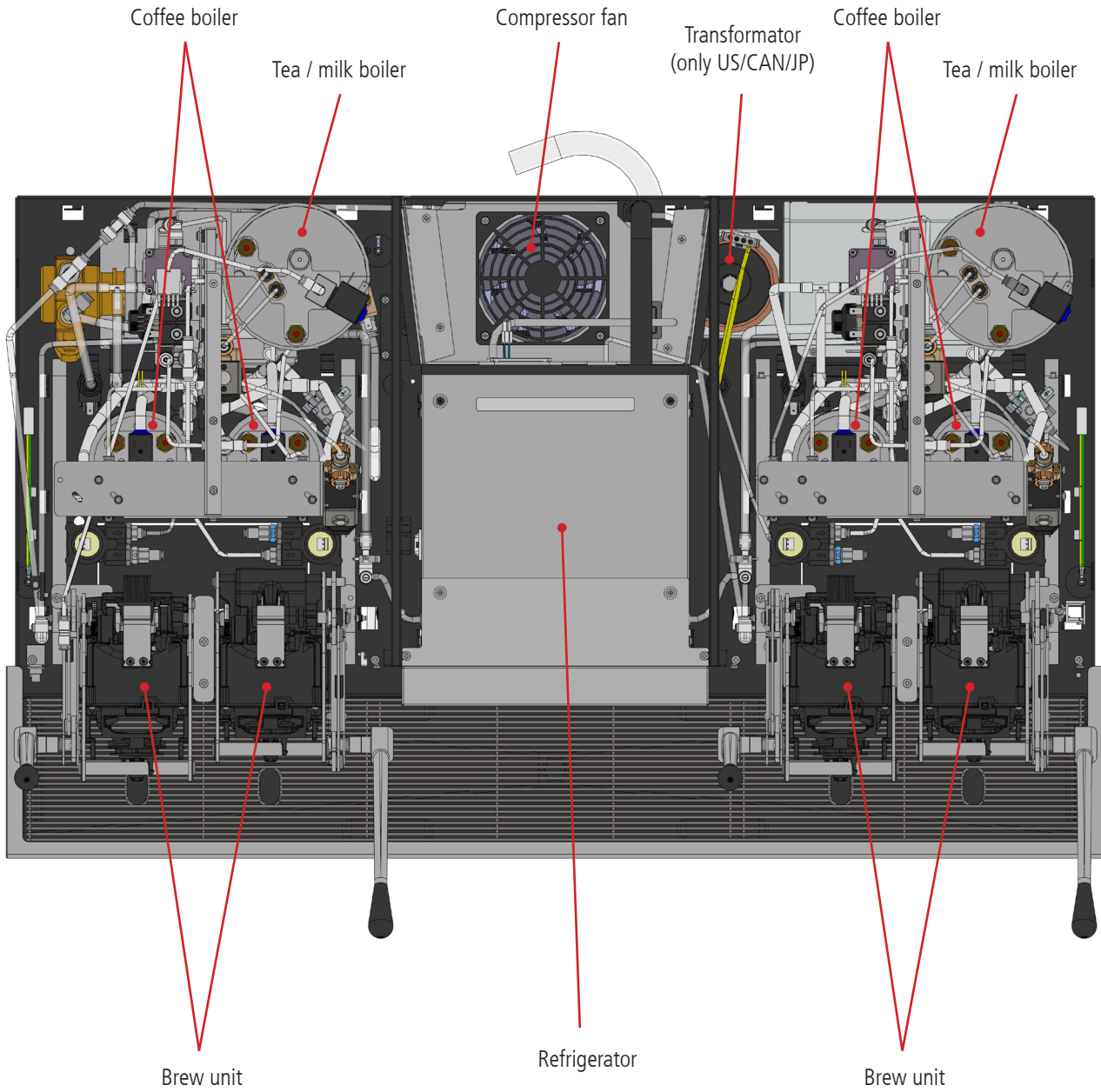
- ① Drain from the drip tray
- ② Milk drain
- ③ Drainage from over pressure valves
- ④ To the drain

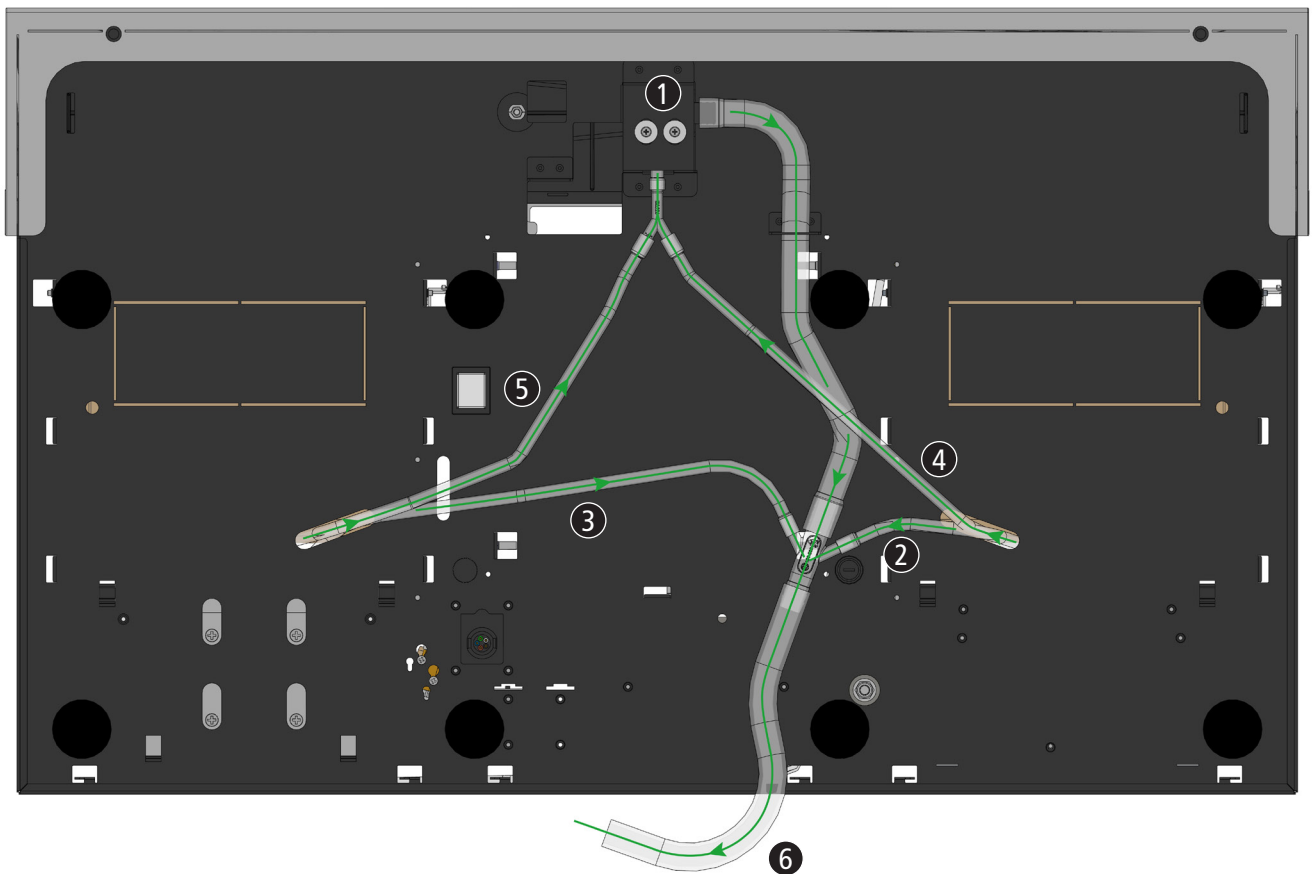












- ① Drain from the drip tray
- ② Milk drainage from right-hand side module
- ③ Milk drainage from left-hand side drain
- ④ Drainage from over pressure valves from right-hand side module
- ⑤ Drainage from over pressure valves from left-hand side module
- ⑥ To the drain

Problem	Possible reason	Solution
No product / Display message „Flowmeter X error“	<ul style="list-style-type: none"> <li>» Tubes of the water circuit or the brew unit are plugged wrong</li> <li>» Plug flowmeter oxidated</li> <li>» Micro switch plugged inverted on brew unit</li> <li>» No water incoming</li> <li>» Filter of water inlet / flowmeter blocked</li> <li>» Water flow too weak or interrupted</li> <li>» Electrical cycle interrupted</li> </ul>	<ul style="list-style-type: none"> <li>» Properly connect all the tubes of the water circuit or the brew unit</li> <li>» Control all and replace if necessary</li> <li>» Properly connect micro switch</li> <li>» Control water inlet valve</li> <li>» Control filter</li> <li>» Check water flow to brew unit</li> <li>» Check electrical cycle to the flow-meter</li> </ul>
Display message „Error: NTC # Short circuit“	<ul style="list-style-type: none"> <li># = 1: Coffee boiler 1</li> <li># = 2: Coffee boiler 2</li> <li># = 3: Tea- / Milk boiler</li> <li>» Short circuit of the boiler NTC</li> <li>» Short circuit in the electrical NTC circuit</li> </ul>	<ul style="list-style-type: none"> <li>» Check the NTC of the correspondent boiler. Measurement: 10 kΩ at 25 °C</li> <li>» Check the electrical circuit of the NTC</li> </ul>
Display message „Error: NTC # Break“	<ul style="list-style-type: none"> <li># = 1: Coffee boiler 1</li> <li># = 2: Coffee boiler 2</li> <li># = 3: Tea- / Milk boiler</li> <li>» NTC signal is interrupted</li> <li>» Electrical NTC circuit is interrupted</li> </ul>	<ul style="list-style-type: none"> <li>» Check the NTC of the correspondent boiler. Measurement: 10 kΩ at 25 °C</li> <li>» Check the electrical circuit of the NTC</li> </ul>
Dripping water under machine	<ul style="list-style-type: none"> <li>» Leakage</li> </ul>	<ul style="list-style-type: none"> <li>» Control brew unit for leakage</li> <li>» Tubes from 3rd way „draining“ not connected to module; cracks in tube; check all tube connections</li> <li>» If it occurs after cold start rinse: clean coffee outlet.</li> </ul>

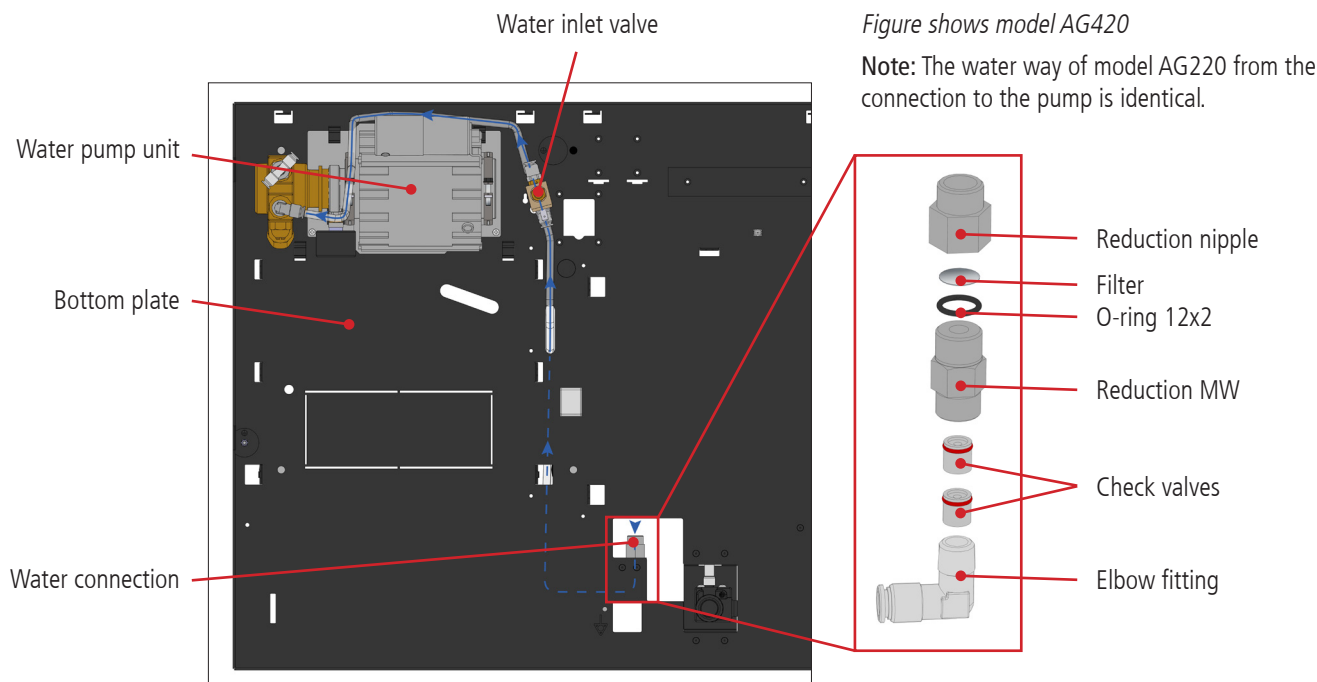
Possible problems

Problem	Possible reason	Solution
<p>Long heating time / Display message „Heating up“ / „Please wait“</p>	<ul style="list-style-type: none"> <li>» Boiler has not yet reached working temperature</li> <li>» Broken NTC on the boiler</li> <li>» Defective part in heating cycle</li> <li>» Boiler calcified</li> <li>» Wrong power supply setting (only AG420)</li> </ul>	<ul style="list-style-type: none"> <li>» Wait until boiler is heated up („Ready“)</li> <li>» Check NTC in service menu „Input test“</li> <li>» Check the full heating cycle: CPU / Powerprint / Triac; thermal overload protections; heat element</li> <li>» Check boiler</li> <li>» Check power supply setting in service menu „Machine parameters ▶ Power“ (only AG420)</li> </ul>



**Water way to the pump**

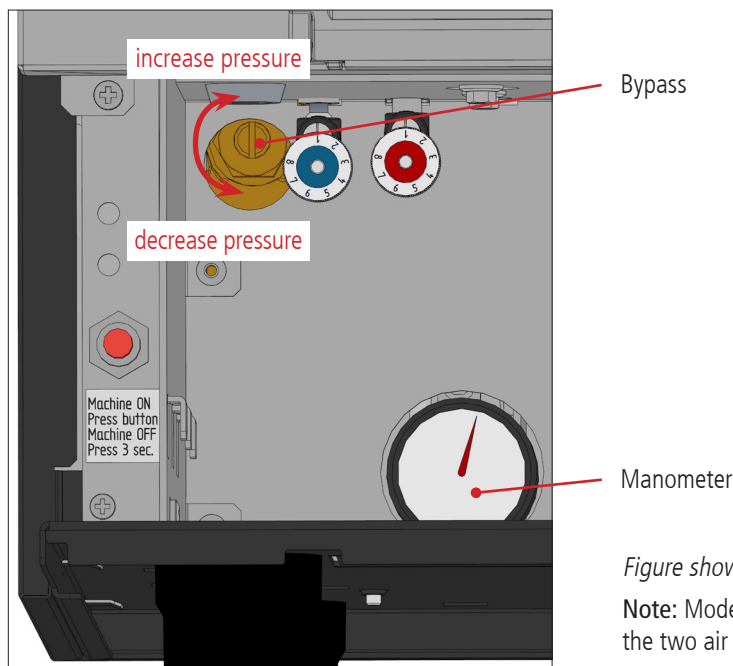
Water way to the pump and detailed view of water connection and check valve:



**Detailed view Manometer / Bypass**

The water pressure coming to the machine must be between 2-4 bar. When a coffee product is dispensed and the water pump is active, the brew pressure must increase to 14.5 bar.

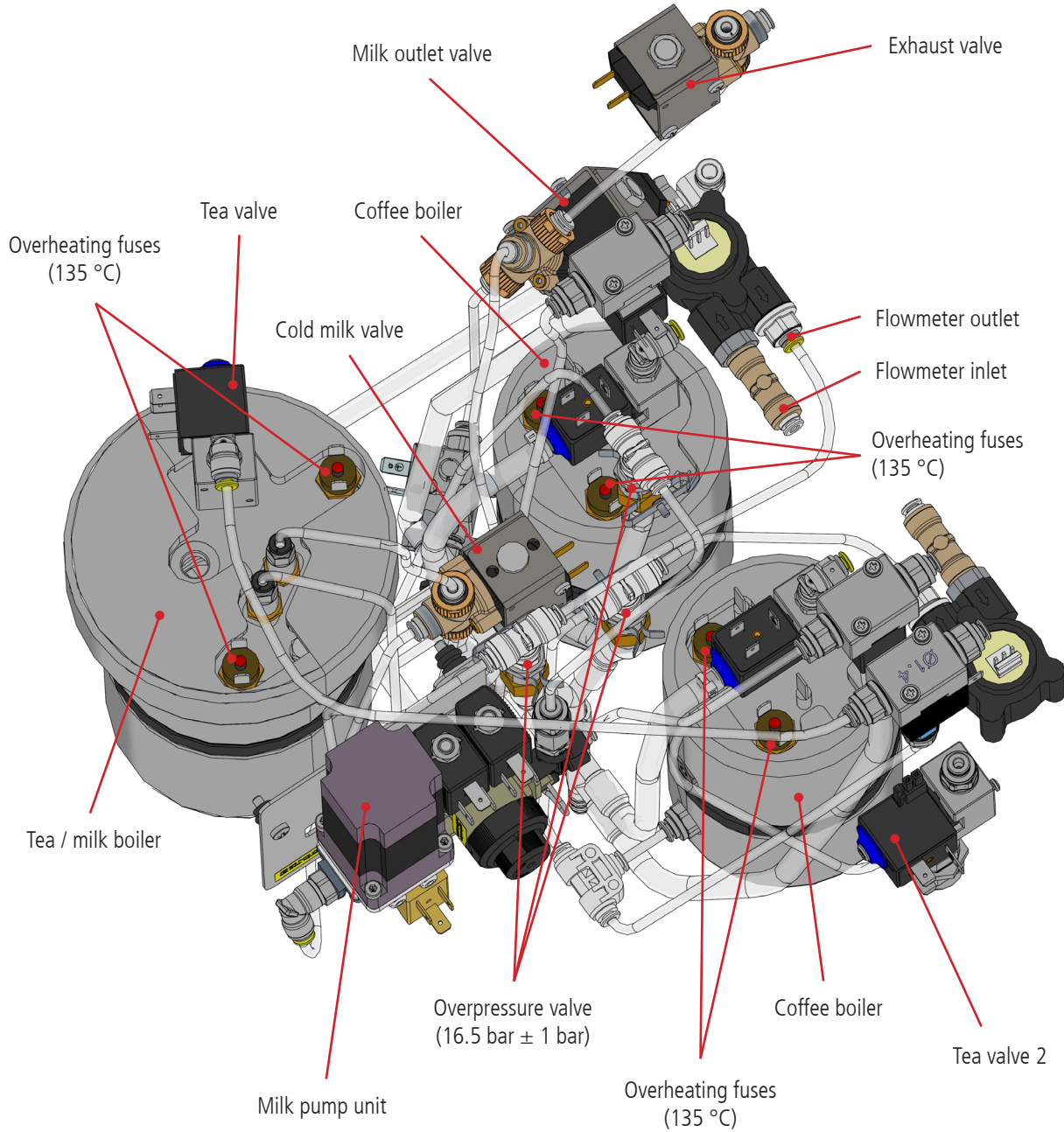
The manometer (to read the pressure) and the bypass (to set the right pressure) are located on the left-hand side behind the used capsule container (AG420: behind the used capsule container of the left-hand side module). To check the pressure while dispensing a product: Remove the used capsule container and attach a magnet on the reed switch, to allow dispensing of products without having the used capsule container in place.



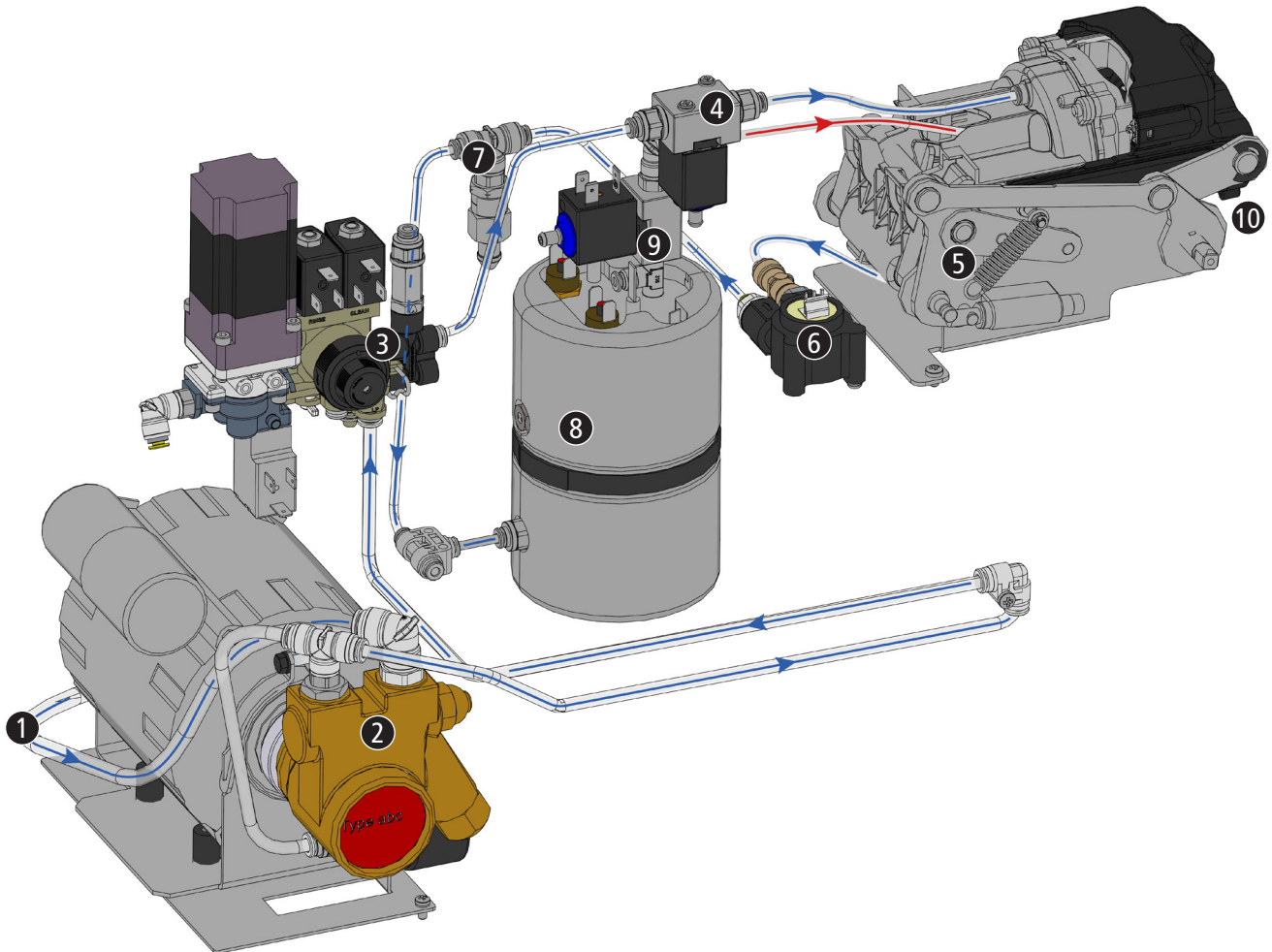
If the brew pressure is not within the correct range, the bypass can be adjusted as follows:

1. Loosen the hexagon nut of the bypass.
2. Adjust bypass:
  - turn clockwise: increase pressure
  - turn counterclockwise: decrease pressure
3. Tighten the hexagon nut

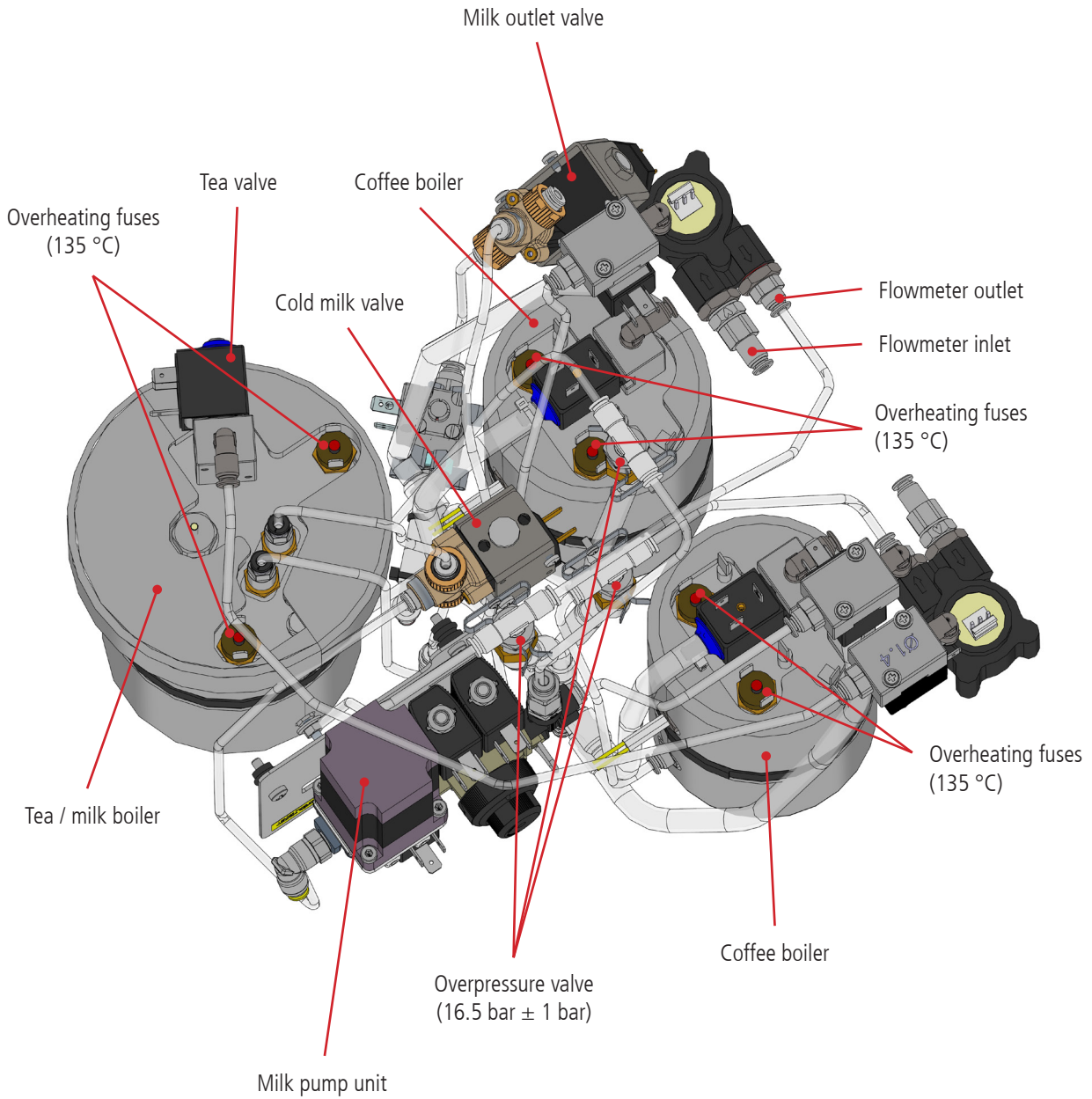
Figure shows model AG420  
 Note: Model AG220 does not feature the two air regulators.



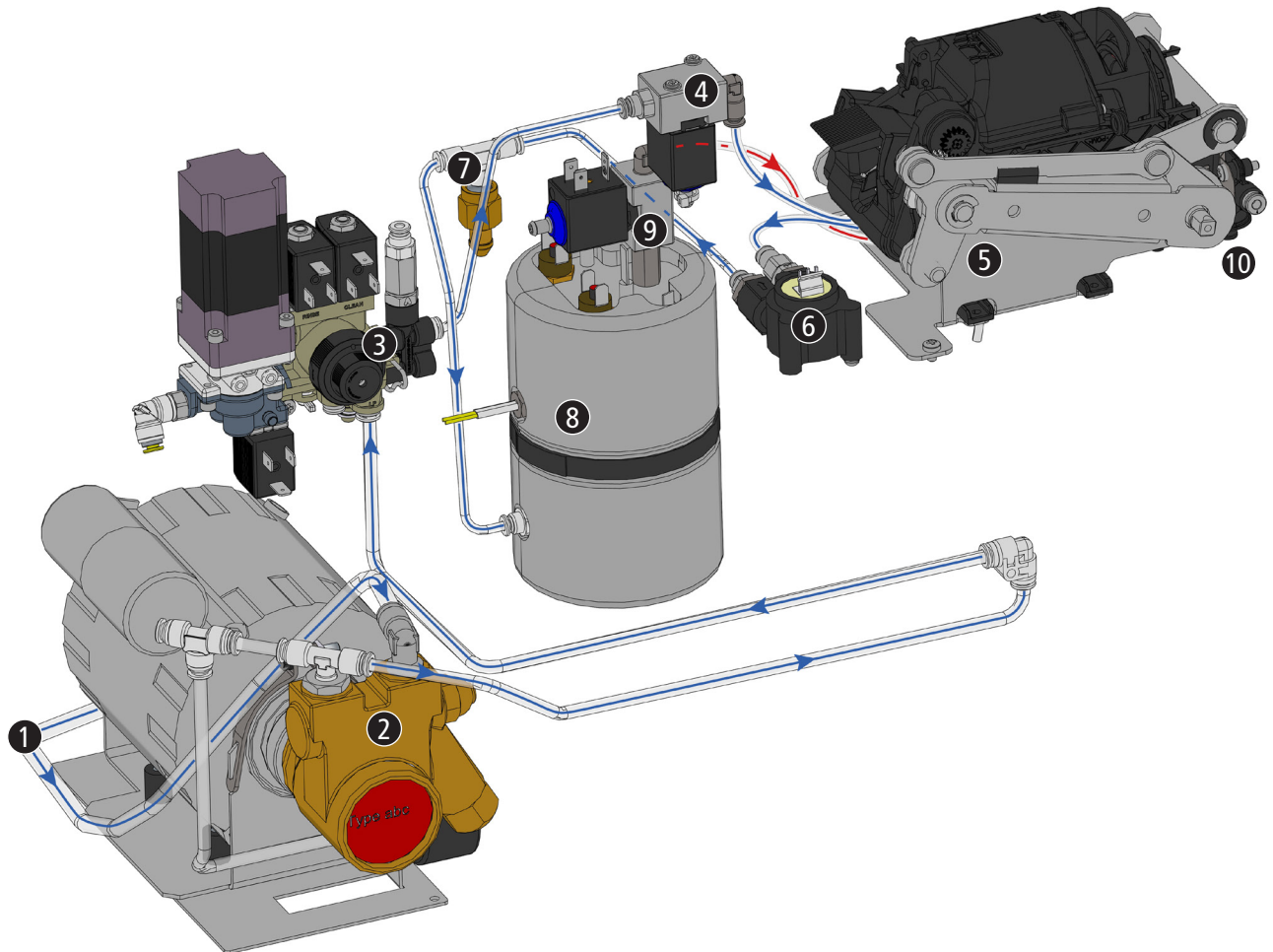
The following figure shows the way of the coffee water from the inlet to the outlet:



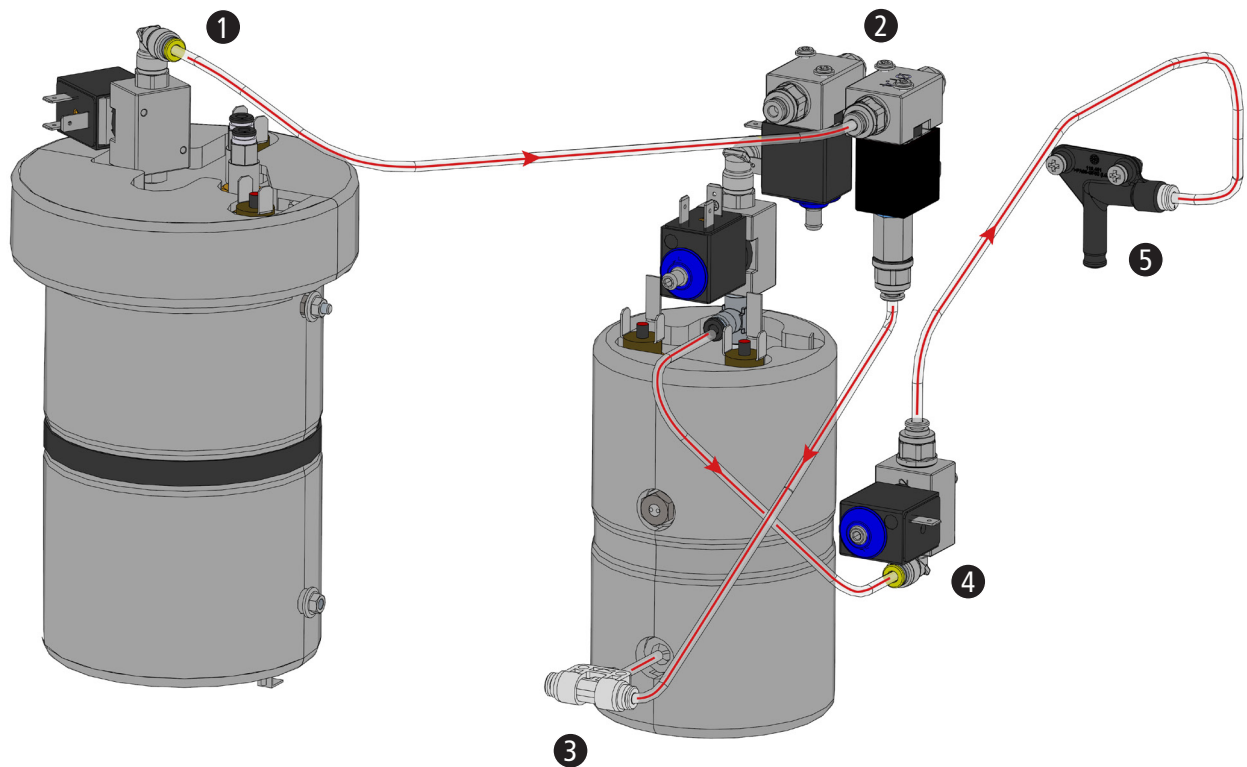
- ① Water inlet
- ② Water pump
- ③ Cleaning block
- ④ Brew chamber valve
- ⑤ Brew unit
- ⑥ Flowmeter
- ⑦ Overpressure valve
- ⑧ Coffee boiler
- ⑨ Brew valve
- ⑩ Coffee outlet



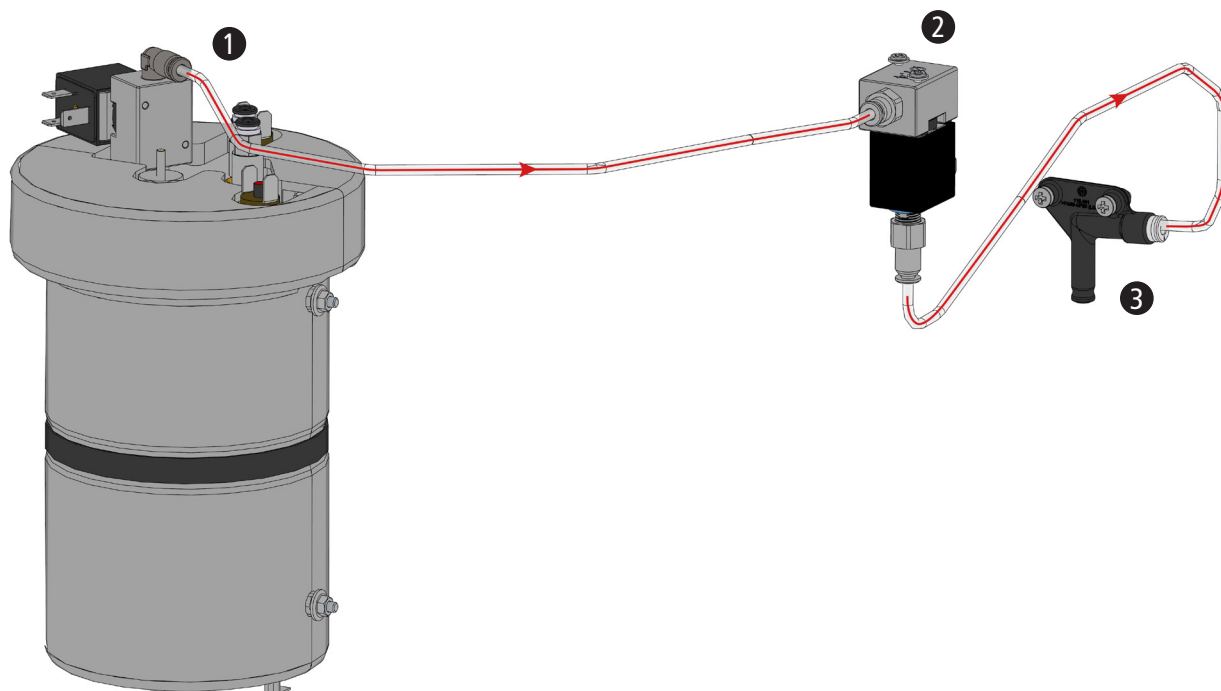
The following figure shows the way of the coffee water from the inlet to the outlet in sequence:



- ① Water inlet
- ② Water pump
- ③ Cleaning block
- ④ Brew chamber valve
- ⑤ Brew unit
- ⑥ Flowmeter
- ⑦ Overpressure valve
- ⑧ Coffee boiler
- ⑨ Brew valve
- ⑩ Coffee outlet



- 1 Tea valve
- 2 Cleaning tablet valve
- 3 Coffee boiler
- 4 Tea valve 2
- 5 Tea outlet

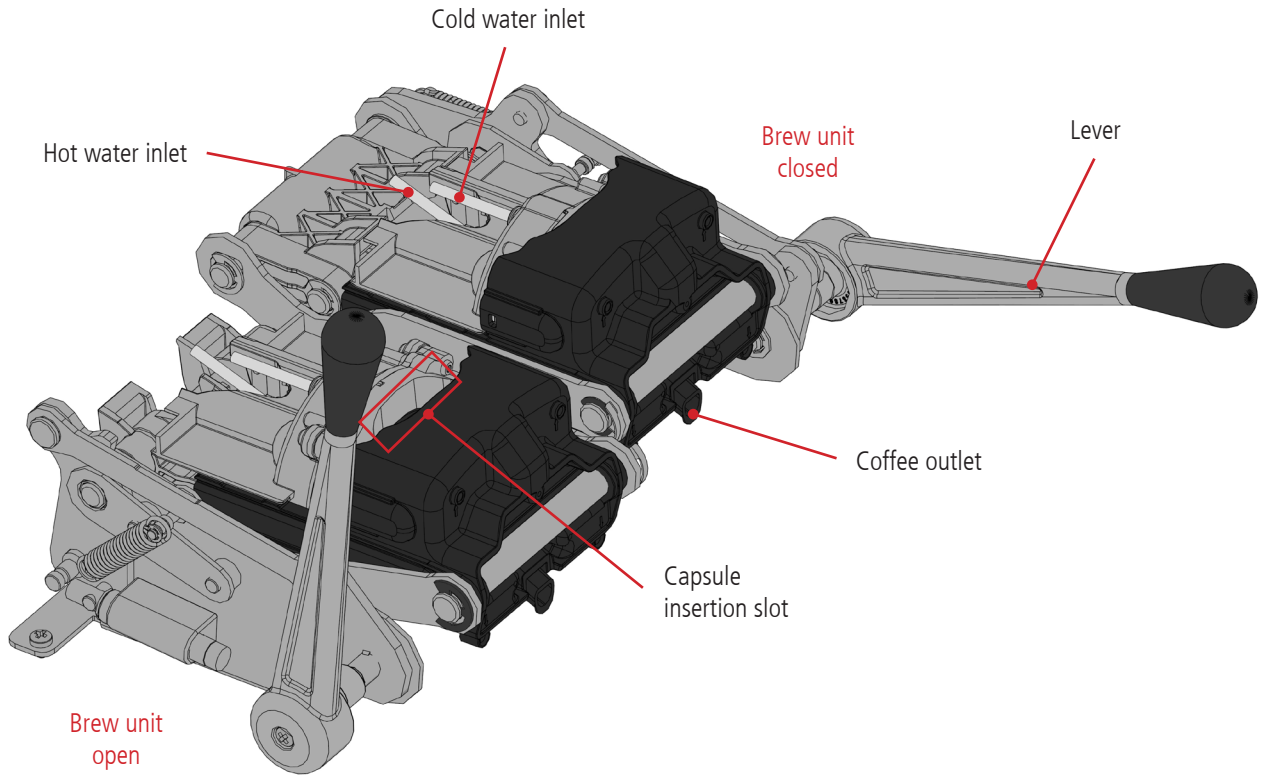


- ① Tea valve
- ② Cleaning tablet valve
- ③ Tea outlet

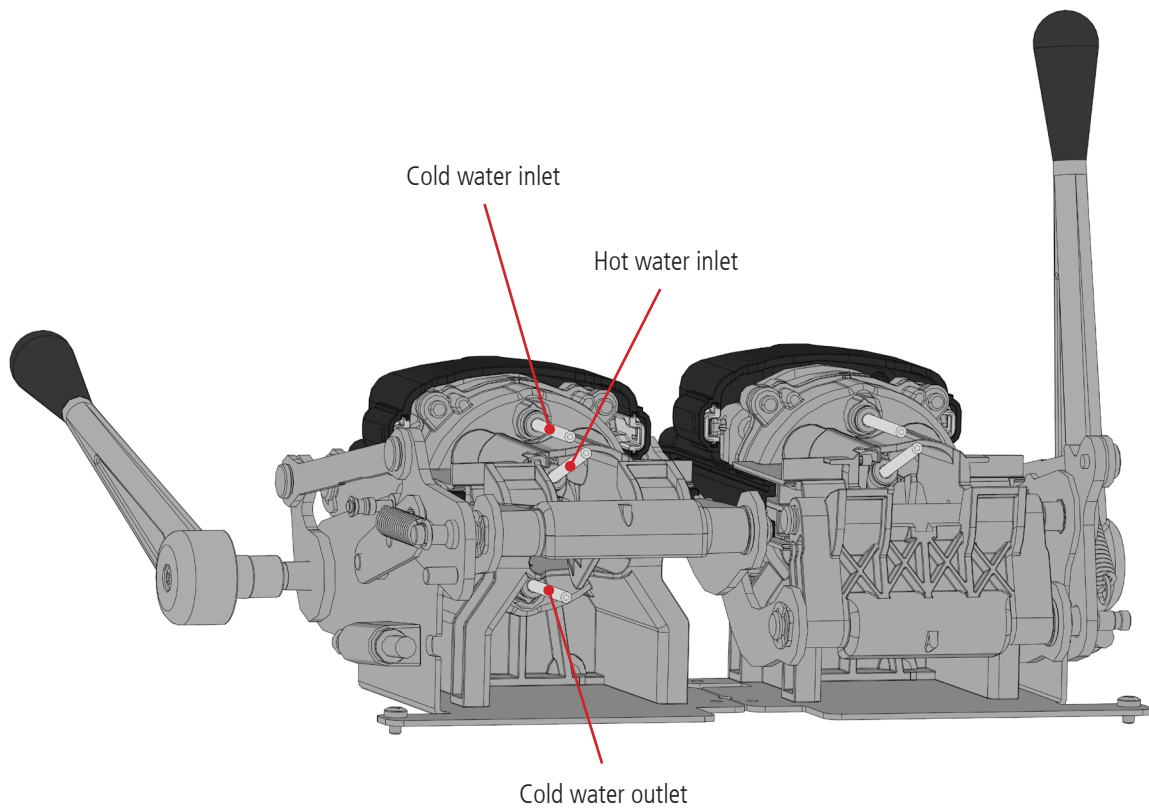
Problem	Possible reason	Solution
Capsule falls through / cannot be thrown in	<ul style="list-style-type: none"> <li>» Lever not in base position</li> <li>» 2nd capsule blocks way</li> </ul>	<ul style="list-style-type: none"> <li>» Retry</li> <li>» Control parts, replace</li> <li>» Plate holder not in place</li> </ul>
Display message „Preparation too short“	<p>Flowmeter detects too much water flow for a certain time.</p> <ul style="list-style-type: none"> <li>» No capsule in brew unit</li> <li>» Leakage in the brew cycle</li> <li>» Brew valves or brew chamber valves are leaky</li> <li>» Check valve on flowmeter defective</li> <li>» Brew unit is leaky</li> </ul>	<ul style="list-style-type: none"> <li>» Properly insert capsule</li> <li>» Check brew cycle (flowmeter to brew chamber)</li> <li>» Check brew valves and brew chamber valves and exchange if necessary</li> <li>» Check the check valve on the flowmeter and exchange if necessary</li> <li>» Check brew unit</li> </ul>
Display message „Preparation too long“	<p>Flowmeter detects insufficient water flow for a certain time.</p> <ul style="list-style-type: none"> <li>» Brew pressure is too low</li> <li>» Water pump not working</li> <li>» Water inlet is interrupted</li> <li>» Faulty capsule</li> </ul>	<ul style="list-style-type: none"> <li>» Check the brew pressure by reading the manometer, pressure must be at 14.5 bar (see p. 6.25)</li> <li>» Check the water pump</li> <li>» Determine the source of error</li> <li>» Use another capsule</li> </ul>
Display message „Flowmeter X error“	<ul style="list-style-type: none"> <li>» Water inlet is interrupted</li> <li>» „Flow reducer“ is blocked (only AG420)</li> </ul>	<ul style="list-style-type: none"> <li>» Determine the source of error</li> <li>» Check the „Flow reducer“ inside brew chamber valve (only AG420)</li> </ul>
Display message „Open lever“ or „Close lever“	<ul style="list-style-type: none"> <li>» Brew chamber is closed / open</li> <li>» Micro switch is defective</li> <li>» Micro switch is not plugged in or connected to wrong brew chamber</li> </ul>	<ul style="list-style-type: none"> <li>» Open / close lever</li> <li>» Check micro switch in Input Test (brew chamber) and replace if necessary</li> <li>» Check cables and connect them to the correct brew chamber</li> </ul>
Display message „Wait for pressure release“	<ul style="list-style-type: none"> <li>» Brew chamber was opened during product dispense</li> <li>» Brew chamber arrestor sheet too weak</li> </ul>	<ul style="list-style-type: none"> <li>» Do not open the lever before the product is fully dispensed, wait until message dissapeared.</li> <li>» Adjust arrestor sheet</li> </ul>

**Possible problems**

<b>Problem</b>	<b>Possible reason</b>	<b>Solution</b>
Lever broken / not in basic position	» Too much force used	» Replace lever
Coffee outlet sprays	» Coffee spout broken / lost	» Mount new coffee spout
No coffee on key-pressing	» Keyboard print broken » Lever not closed » No contact on microswitch	» Replace keyboard print » Check and close lever » Check micro switch and replace if necessary
Cup holder does not stay closed	» Magnet fell out	» Stick magnet on again / replace magnet
No coffee	Capsule does not break: » Brew pressure is too low » Brew valve or brew chamber valve defective or leaky » Surpression valve broken	» Check the brew pressure by reading the manometer, pressure must be at 14.5 bar (see p. 6.25) » Check brew valve or brew chamber valve and replace if necessary » Replace surpression valve
A lot of water inside used capsule container	Cold bilge: » Brew unit leaky » Tube connection leaky » Sealing of piston leaky  Warm bilge: » Sealing of ejector pin » Capsule sealing leaky or fallen out » Tube connection leaky » Brew valve is leaky	» Check brew unit and replace if necessary  » Check brew unit / brew valve and replace if necessary » Control plunger
Display message „BU end of life!“	» The defined amount of capsules for the brewing unit in the service menu „BU max. products“ has been reached.	» Replace the brewing unit (arrow in message points to the BU to replace). Reset the corresponding counter „BU left / right Reset“ in the service menu under „Statistics“.

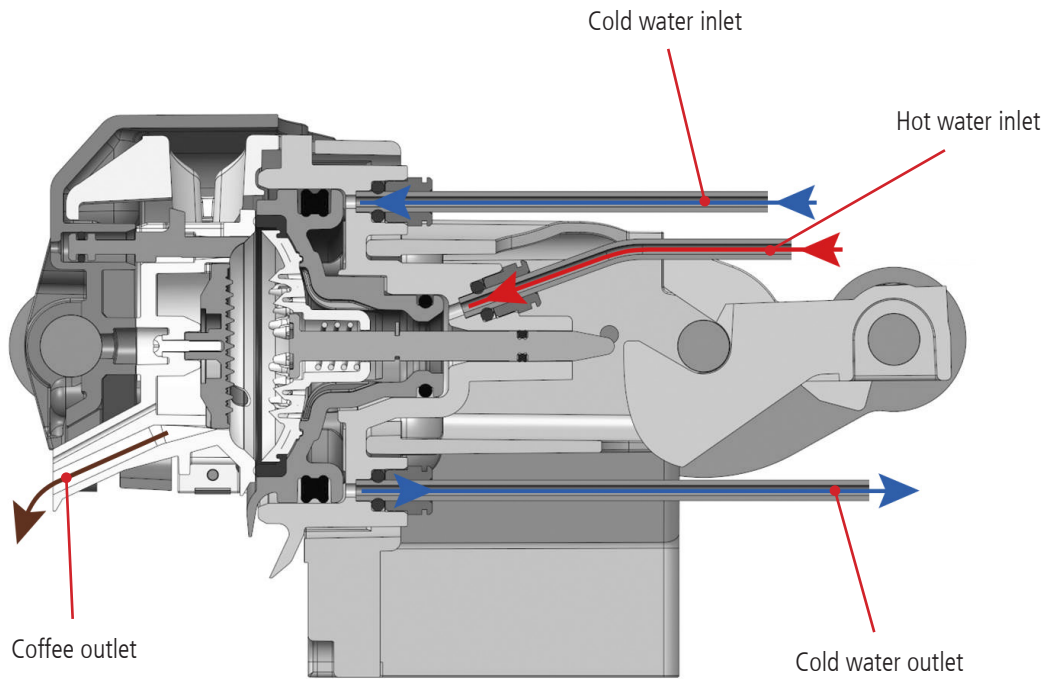


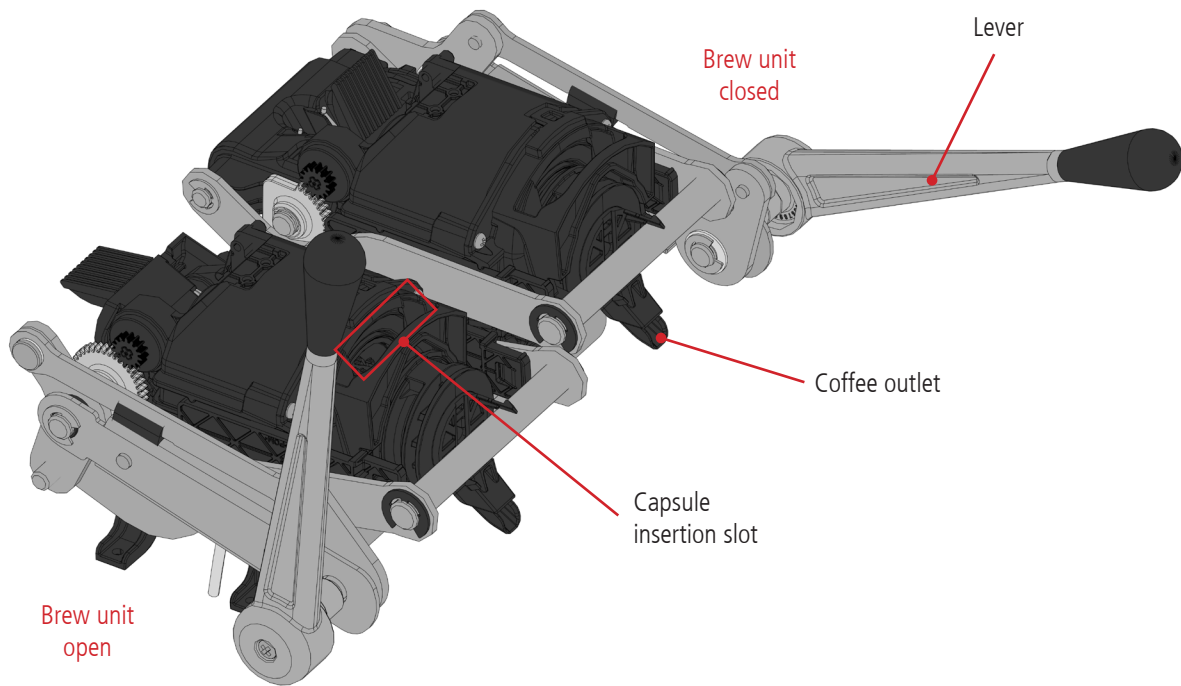
AG220 Brew unit view from behind



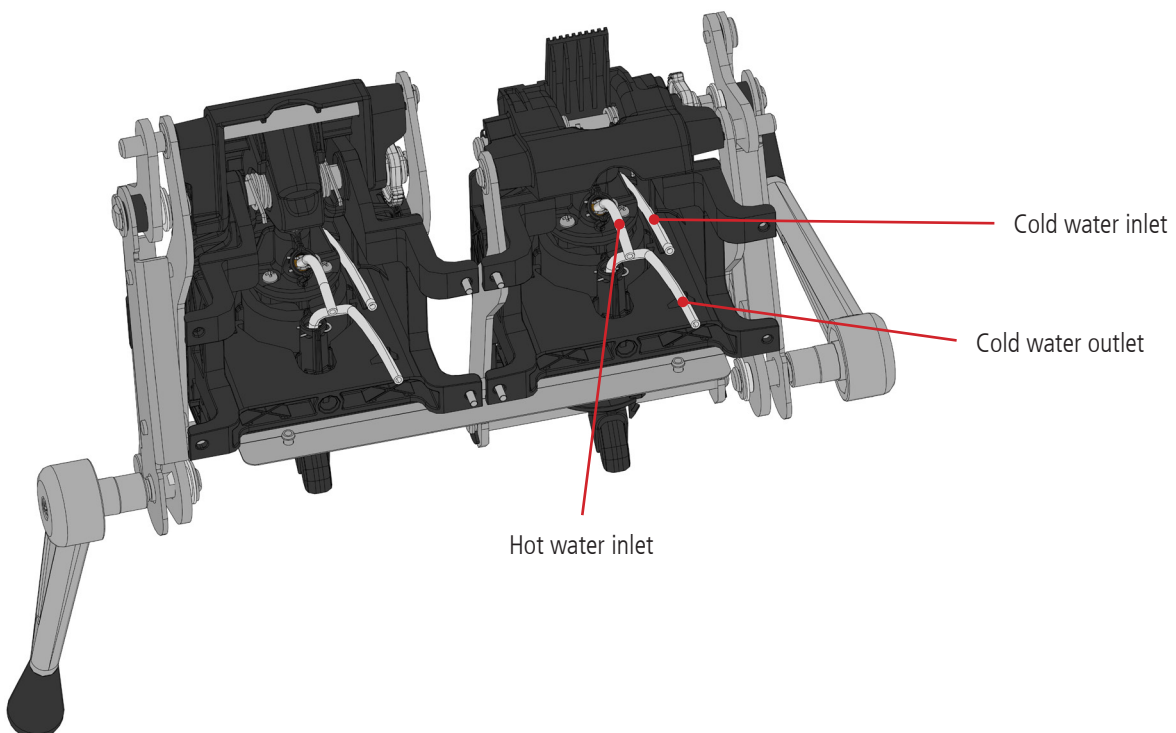
**AG220 Detailed profile view brew unit**

The following figure shows a profile view of the brew unit and the flow cycles inside of it:



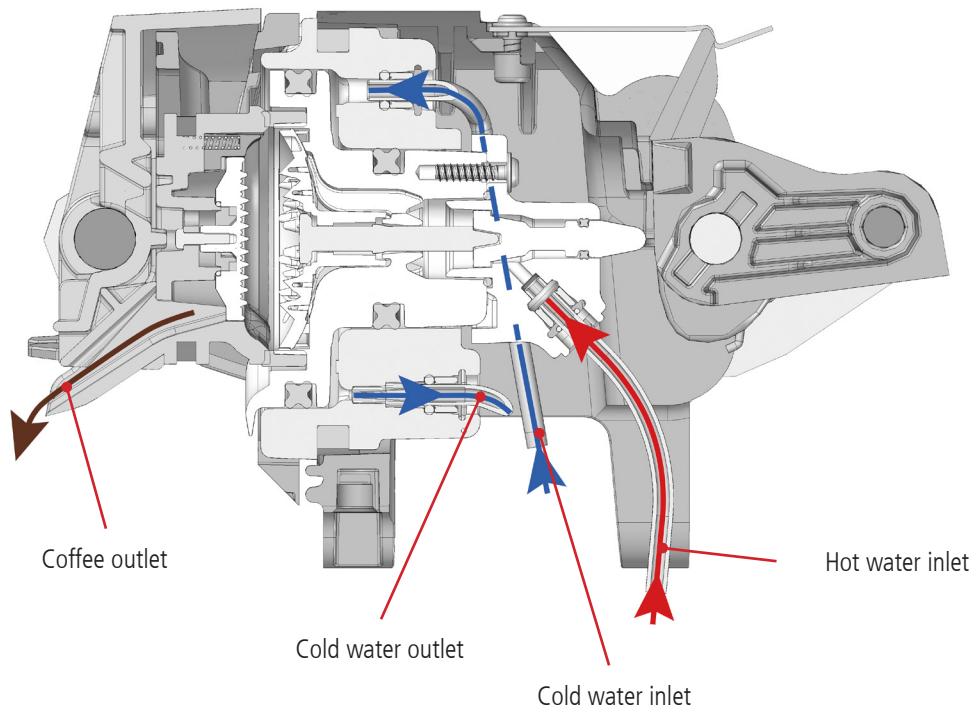


AG420 Brew unit view from below



**AG420 Detailed profile view brew unit**

The following figure shows a profile view of the brew unit and the flow cycles inside of it:

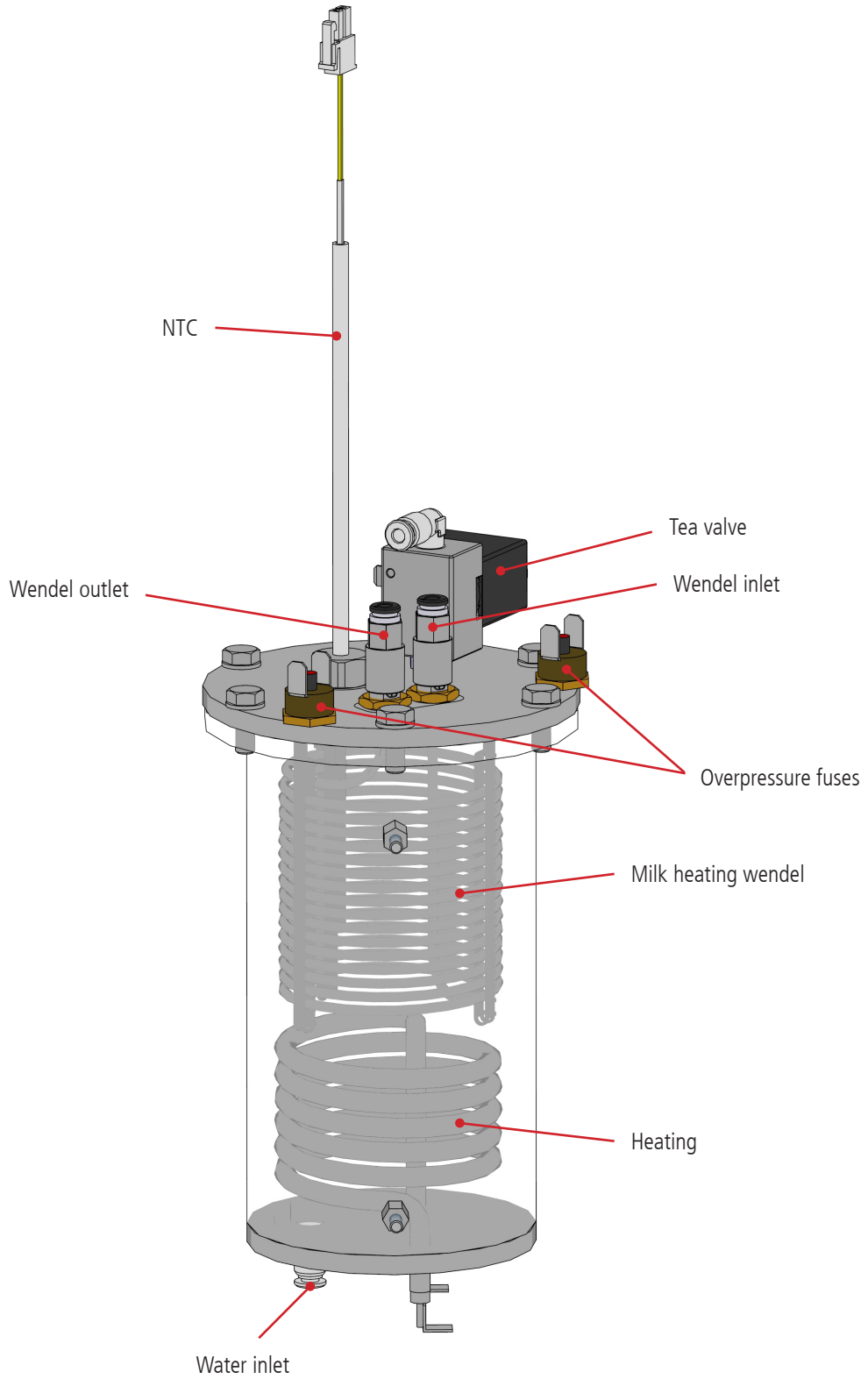


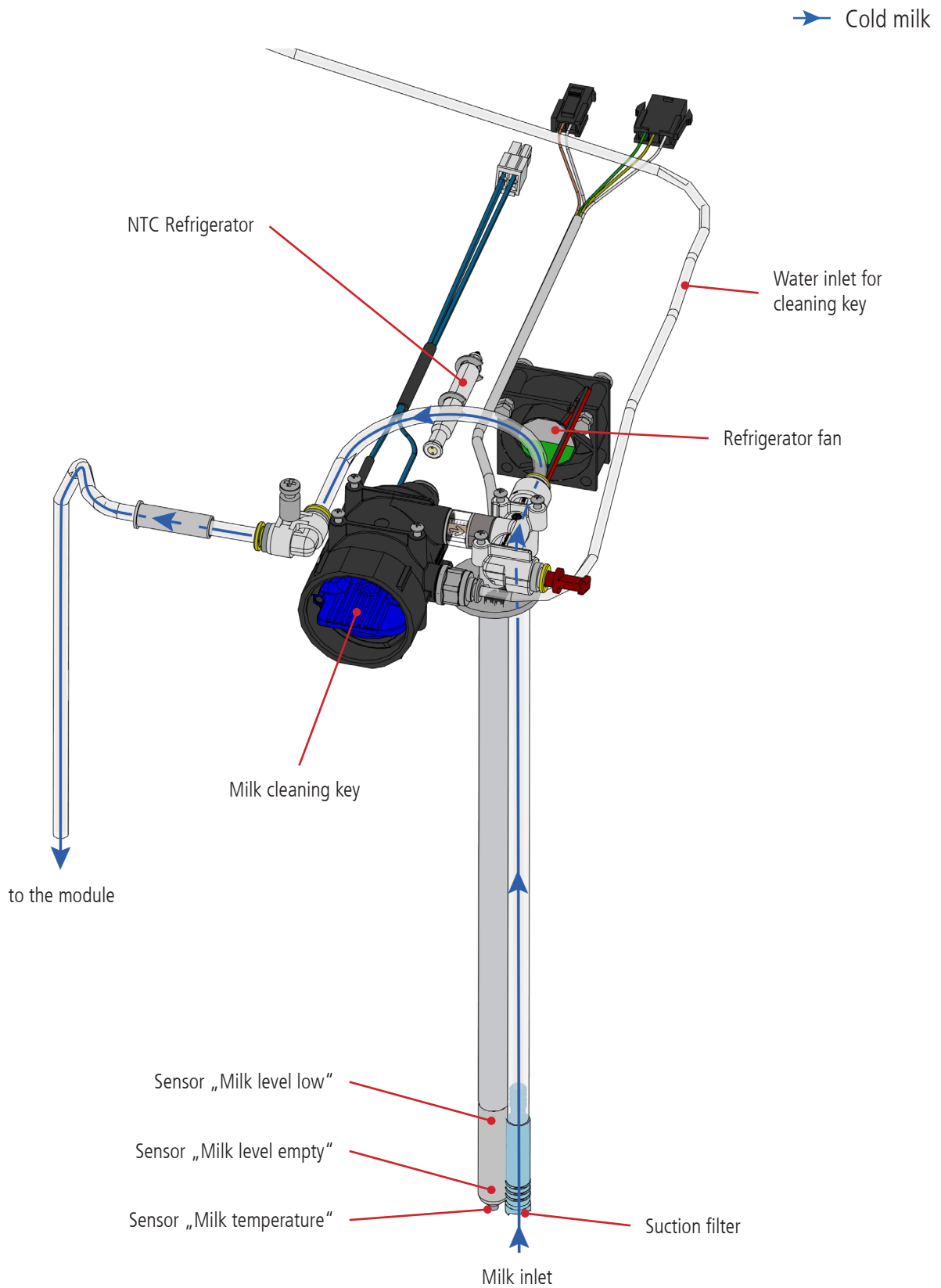
Problem	Possible reason	Solution
No foam	<ul style="list-style-type: none"> <li>» Warm milk was used</li> <li>» Contamination of the milk system</li> <li>» Duckbill from proportional valve (AG220) or air valve (AG420) blocked</li> <li>» Injector on the milk pump outlet blocked (also leads to reduced milk quantity)</li> <li>» Tube not connected / defective (only for AG420)</li> <li>» Air regulator / jet blocked (only for AG420)</li> <li>» Air regulation settings are wrong in the service menu (only for AG220)</li> <li>» Watery milk</li> </ul>	<ul style="list-style-type: none"> <li>» Use cold milk (&lt; 5 °C)</li> <li>» Check the complete milk system, including the milk outlet and milk outlet valve</li> <li>» Dismount duckbill and clean it, replace if necessary.</li> <li>» Clean injector</li> <li>» Check tube (only for AG420)</li> <li>» Adjust air regulator (only for AG420)</li> <li>» Check air regulation settings for „Hot foam“ and „Cold foam“ in the service menu „Milk settings“. (only for AG220)</li> <li>» See problem „Watery milk in milk container“</li> </ul>
Refrigerator too cold / warm	<ul style="list-style-type: none"> <li>» Wrong temperature settings</li> <li>» Door is not sealed</li> <li>» Refrigerator NTC broken</li> </ul>	<ul style="list-style-type: none"> <li>» Adjust the „Fridge temp.“ in the service menu under „Milk settings“</li> <li>» Check the sealing</li> <li>» Check the NTC of the refrigerator and replace if necessary. Measurement: 10 kΩ at 25 °C</li> </ul>
Display message „Milk temperature high“	<p>AG220:</p> <ul style="list-style-type: none"> <li>» The temperature of the milk is a bit high (between 6 and 12 °C).</li> </ul> <p>AG420:</p> <ul style="list-style-type: none"> <li>» The temperature of the milk is too high, milk products are locked.</li> </ul>	<ul style="list-style-type: none"> <li>» The milk temperature is a bit too high, but milk products can still be dispensed.</li> <li>» See display message „Milk temperature too high“ for solutions.</li> </ul>

**Possible problems**

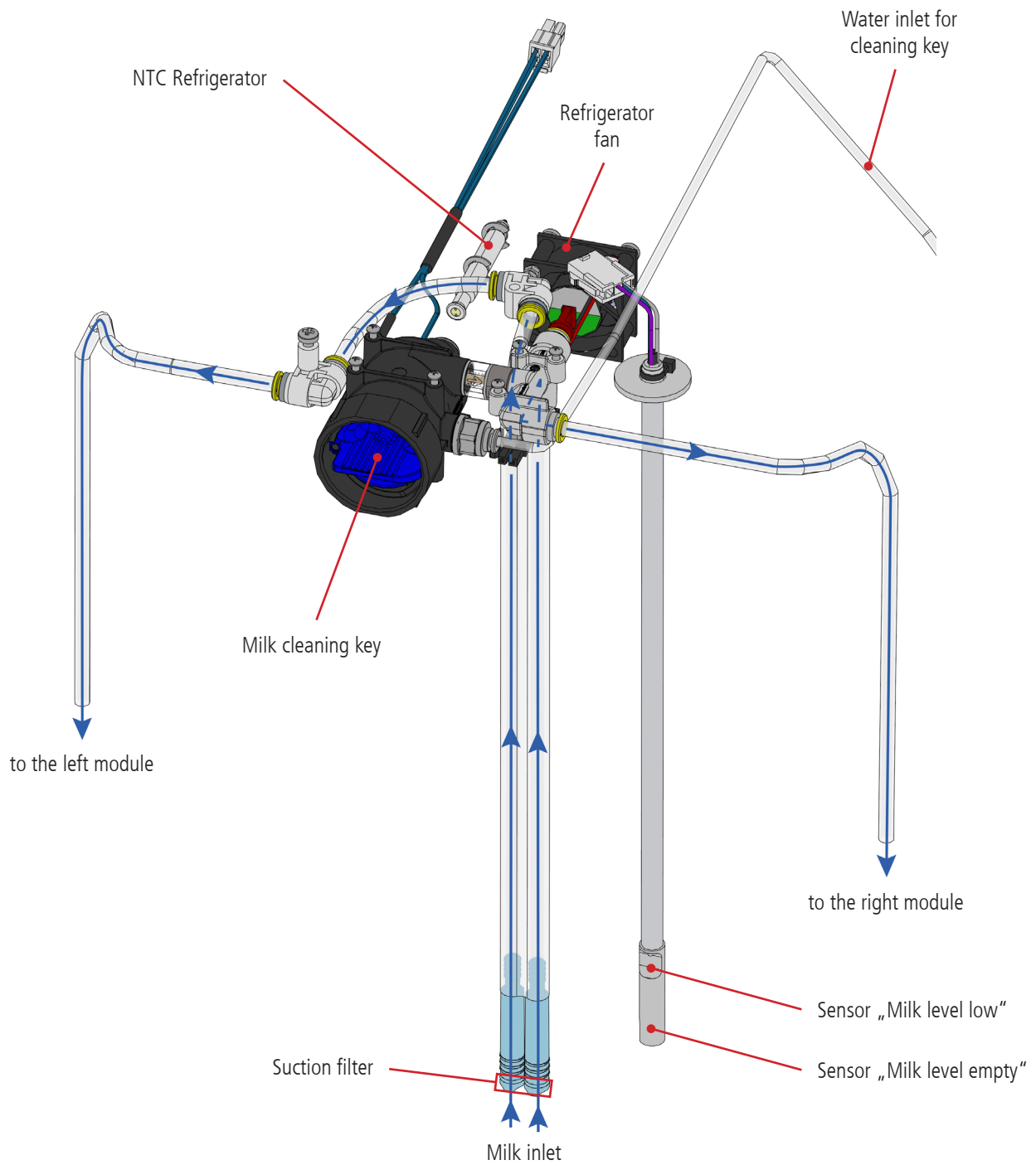
<b>Problem</b>	<b>Possible reason</b>	<b>Solution</b>
Display message „Milk temperature too high Replace with cold milk“ (only AG220)	<ul style="list-style-type: none"> <li>» The temperature of the milk inside the refrigerator is too high (over 12 °C).</li> <li>» The door sealing of the refrigerator is not sealed good enough.</li> <li>» The NTC of the refrigerator is defective</li> <li>» Refrigerator is not cooling</li> </ul>	<ul style="list-style-type: none"> <li>» All milk products are locked; check the milk temperature, only fill in milk with a temperature of max. 5 °C.</li> <li>» Check the door sealing</li> <li>» Check the NTC of the refrigerator and replace if necessary. Measurement: 10 kΩ at 25 °C</li> <li>» Check the cooling unit (check LED on CPU / compressors)</li> </ul>
Display message „Machine is rinsing“	<ul style="list-style-type: none"> <li>» Machine is performing an automatic rinse of the milk system (outlet 2 and 4)</li> </ul>	<ul style="list-style-type: none"> <li>» No product beverage possible, wait until rinsing is completed.</li> </ul>
Refrigerator does not cool	<ul style="list-style-type: none"> <li>» Compressor is broken</li> <li>» Refrigerator NTC is broken</li> </ul>	<ul style="list-style-type: none"> <li>» Check the compressor (the compressor starts 5 minutes after turning on the refrigerator because of security reasons)</li> <li>» Check the NTC of the refrigerator and replace if necessary. Measurement: 10 kΩ at 25 °C</li> </ul>
Watery milk in milk container	<ul style="list-style-type: none"> <li>» Milk check valve defective</li> </ul>	<ul style="list-style-type: none"> <li>» Check the milk check valve: start milk rinse, there must be no water in the milk suction tube.</li> </ul>
Display message „Milk level low Top up milk“ (AG220) „Milk level low Add milk“ (AG420)	<ul style="list-style-type: none"> <li>» Milk is almost empty</li> <li>» The cable connection between the milk level sensor and the minus sensor is interrupted.</li> </ul>	<ul style="list-style-type: none"> <li>» Add milk</li> <li>» Check the electrical milk level connection: the voltage between the milk level sensor and the minus sensor must be at 3.5 VAC.</li> </ul>
Display message „Milk container empty Top up milk“ (AG220) „Milk tank empty Add milk“ (AG420)	<ul style="list-style-type: none"> <li>» Milk is empty</li> <li>» The cable connection between the milk empty sensor and the minus sensor is interrupted.</li> </ul>	<ul style="list-style-type: none"> <li>» Add milk</li> <li>» Check the electrical milk empty connection: the voltage between the milk empty sensor and the minus sensor must be at 3.5 VAC.</li> </ul>
Display message „Error: NTC M short circuit“	<ul style="list-style-type: none"> <li>» Short circuit in the electrical NTC circuit</li> <li>» Short circuit in the electrical circuit of the refrigerator</li> </ul>	<ul style="list-style-type: none"> <li>» Check the NTC of the refrigerator and replace if necessary. Measurement: 10 kΩ at 25 °C</li> <li>» Check the electrical circuit of the refrigerator</li> </ul>

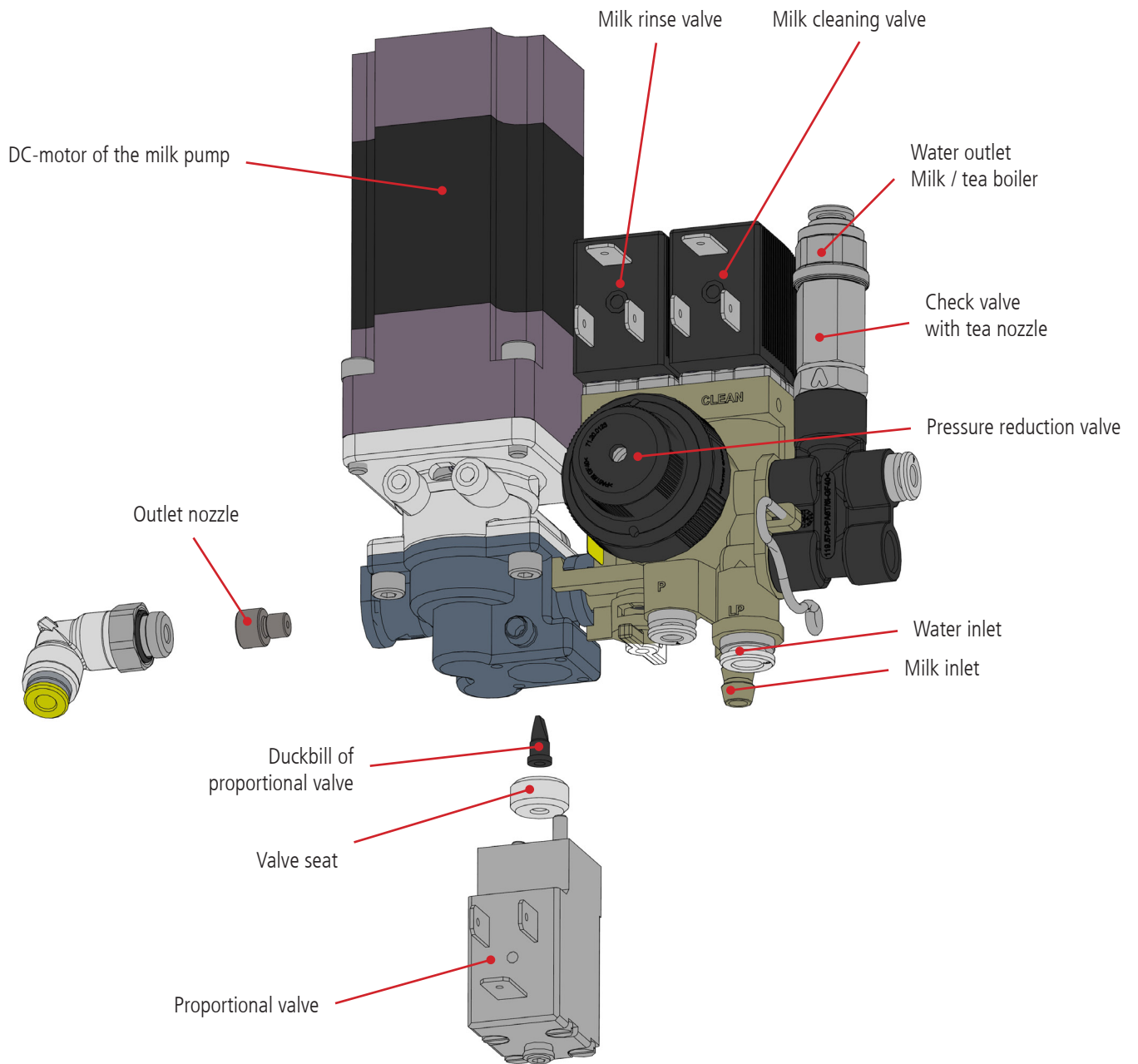
Problem	Possible reason	Solution
Display message „Error: NTC M break“	<ul style="list-style-type: none"> <li>» Electrical NTC circuit is interrupted</li> <li>» Electrical circuit of the refrigerator is interrupted</li> </ul>	<ul style="list-style-type: none"> <li>» Check the NTC of the refrigerator and replace if necessary. Measurement: 10 kΩ at 25 °C</li> <li>» Check the electrical circuit of the refrigerator</li> </ul>
Display message „Milk pump error“	<ul style="list-style-type: none"> <li>» Milk pump does not reach the required revolution</li> <li>» Electrical circuit of the milk pump is broken or a short circuit happened</li> <li>» Milk pump is blocked</li> </ul>	<ul style="list-style-type: none"> <li>» Check the milk pump in the service menu „Output test“ and replace if necessary.</li> <li>» Check the electrical circuit</li> <li>» Replace the milk pump</li> </ul>

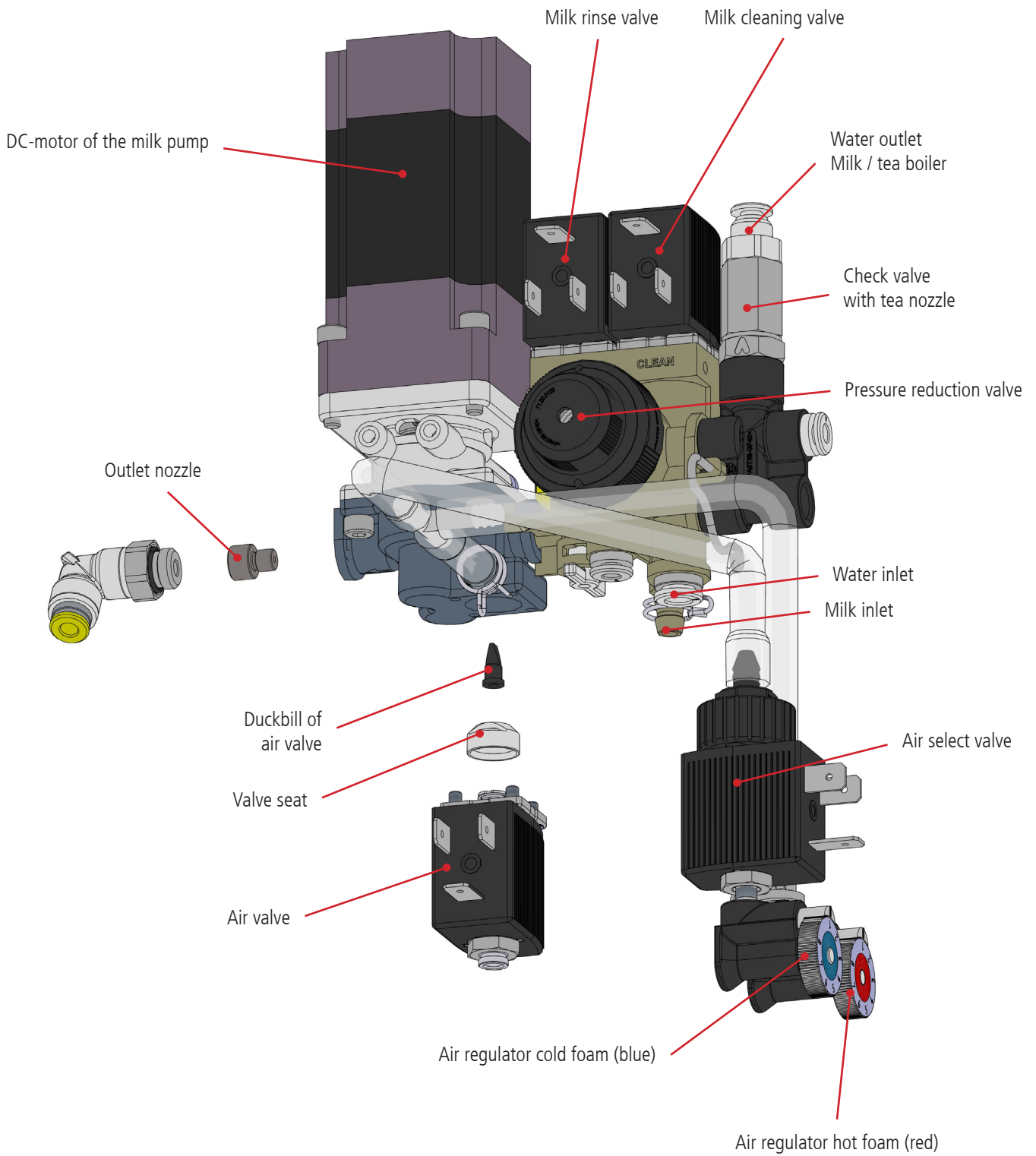




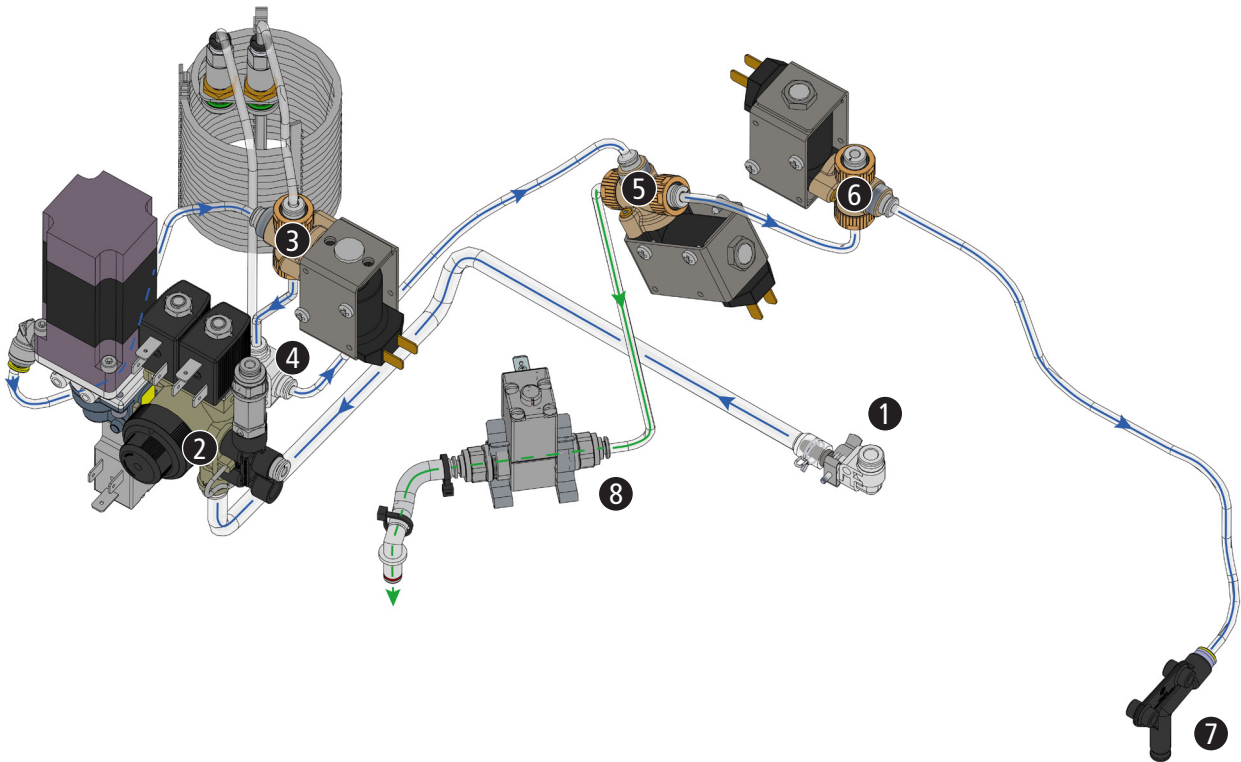
→ Cold milk



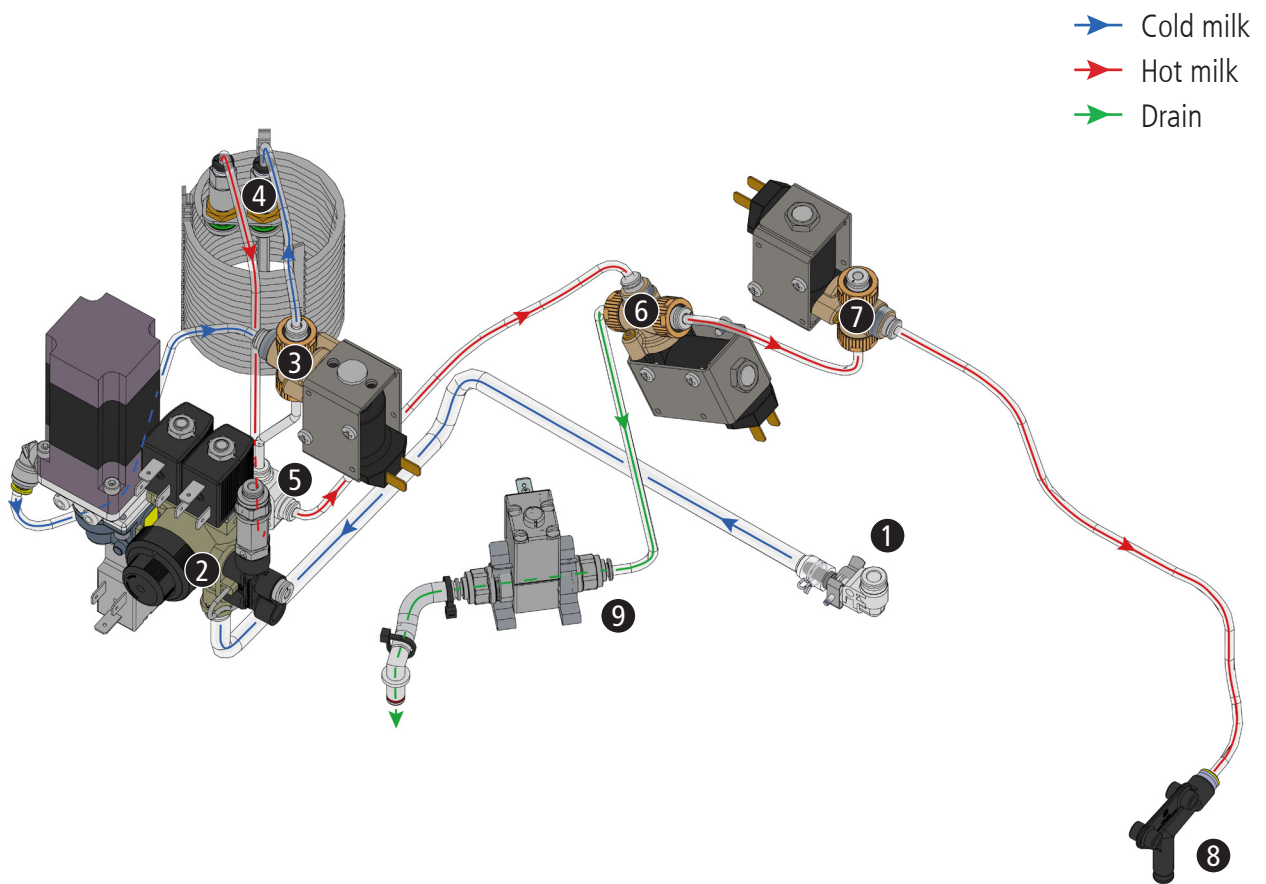




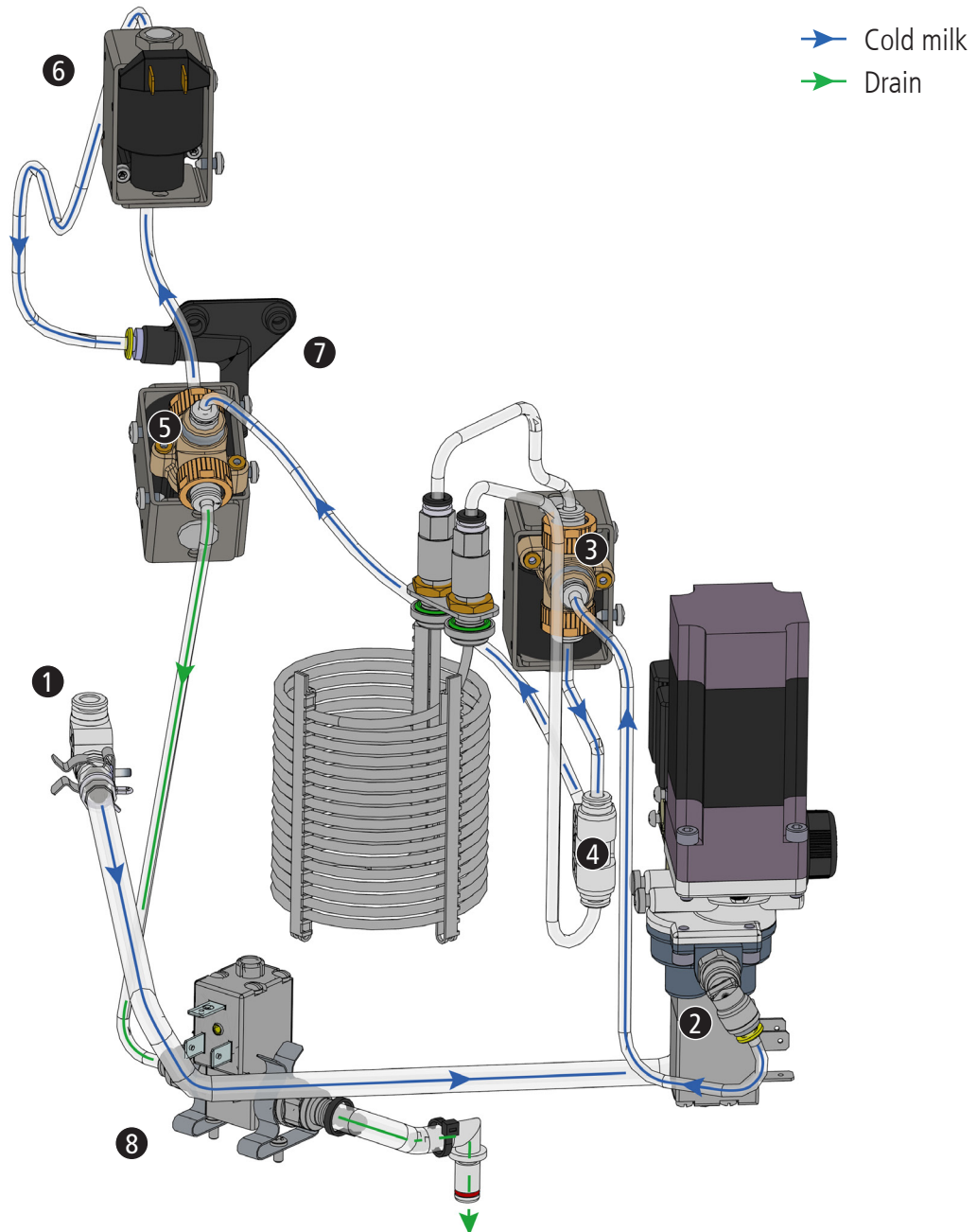
→ Cold milk  
→ Drain



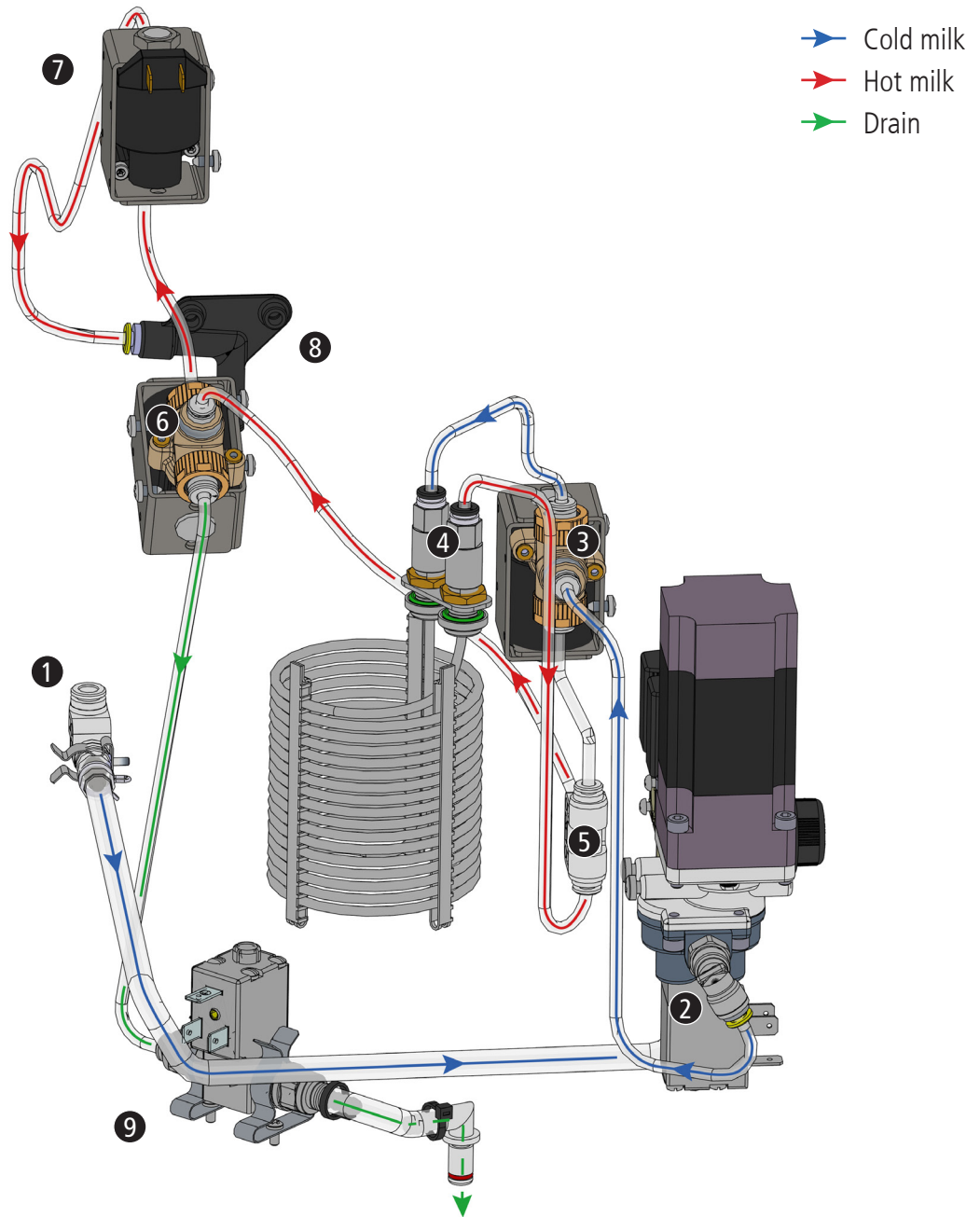
- ① Milk inlet from refrigerator
- ② Cleaning block on milk pump unit
- ③ Cold milk valve
- ④ Plug connector
- ⑤ Milk outlet valve
- ⑥ Exhaust valve
- ⑦ Milk outlet
- ⑧ Milk drain outlet



- ① Milk inlet from refrigerator
- ② Cleaning block on milk pump unit
- ③ Cold milk valve
- ④ Milk heating wendel
- ⑤ Plug connector
- ⑥ Milk outlet valve
- ⑦ Exhaust valve
- ⑧ Milk outlet
- ⑨ Milk drain outlet

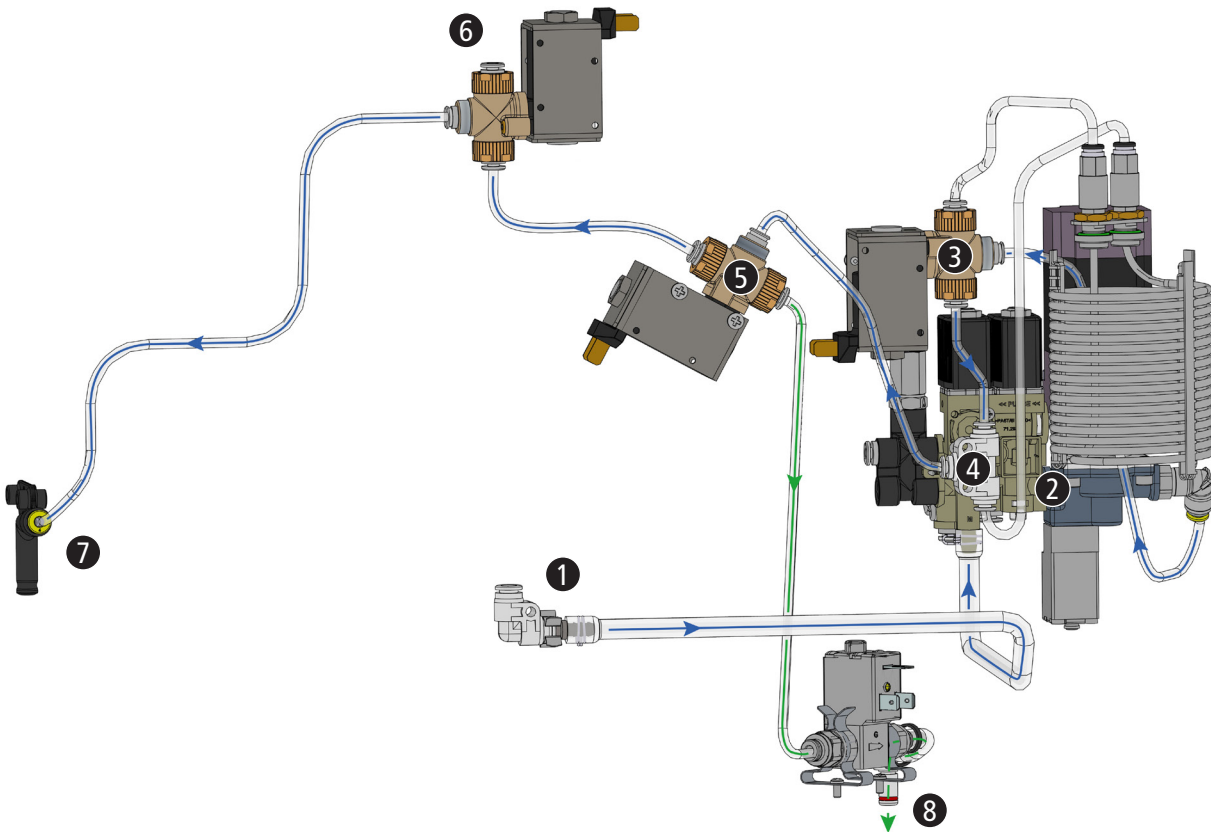


- ① Milk inlet from refrigerator
- ② Cleaning block on milk pump unit
- ③ Cold milk valve
- ④ Plug connector
- ⑤ Milk outlet valve
- ⑥ Exhaust valve
- ⑦ Milk outlet
- ⑧ Milk drain outlet



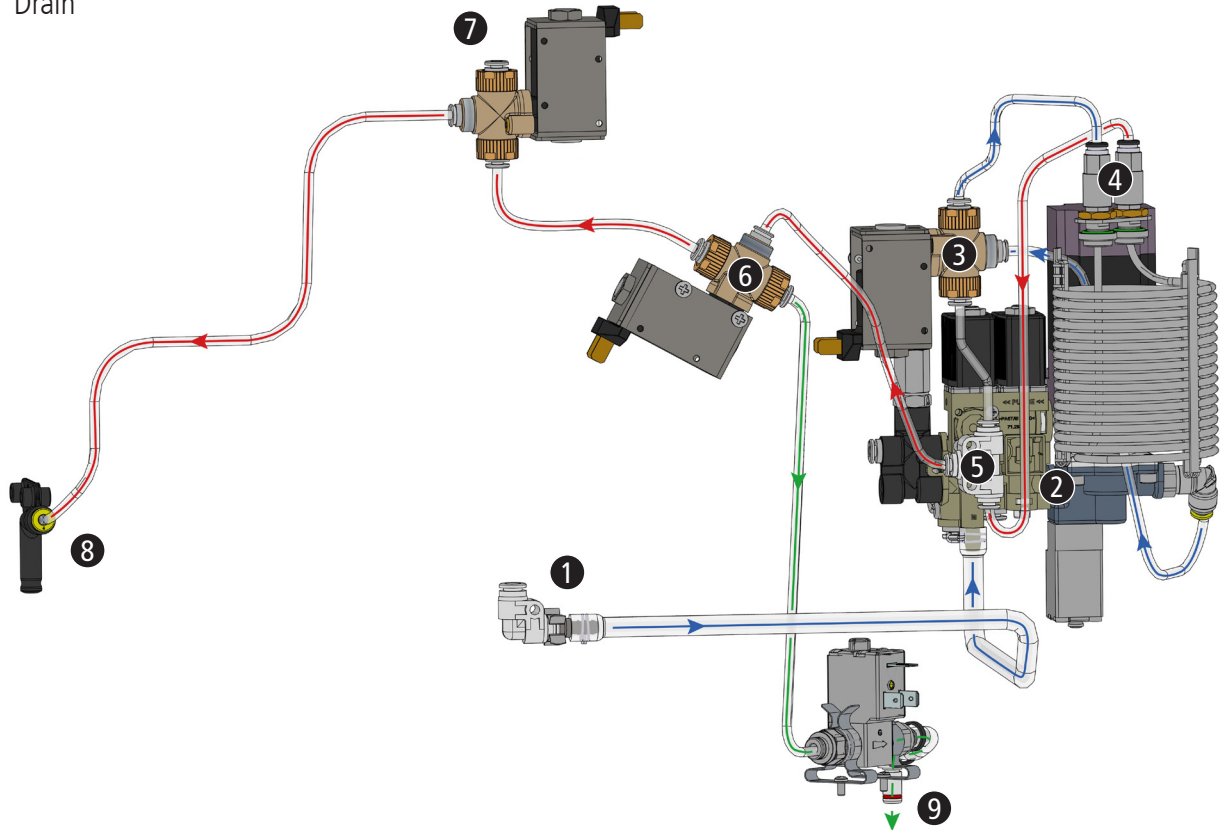
- ① Milk inlet from refrigerator
- ② Cleaning block on milk pump unit
- ③ Cold milk valve
- ④ Milk heating wendel
- ⑤ Plug connector
- ⑥ Milk outlet valve
- ⑦ Exhaust valve
- ⑧ Milk outlet
- ⑨ Milk drain outlet

- ➔ Cold milk
- ➔ Drain



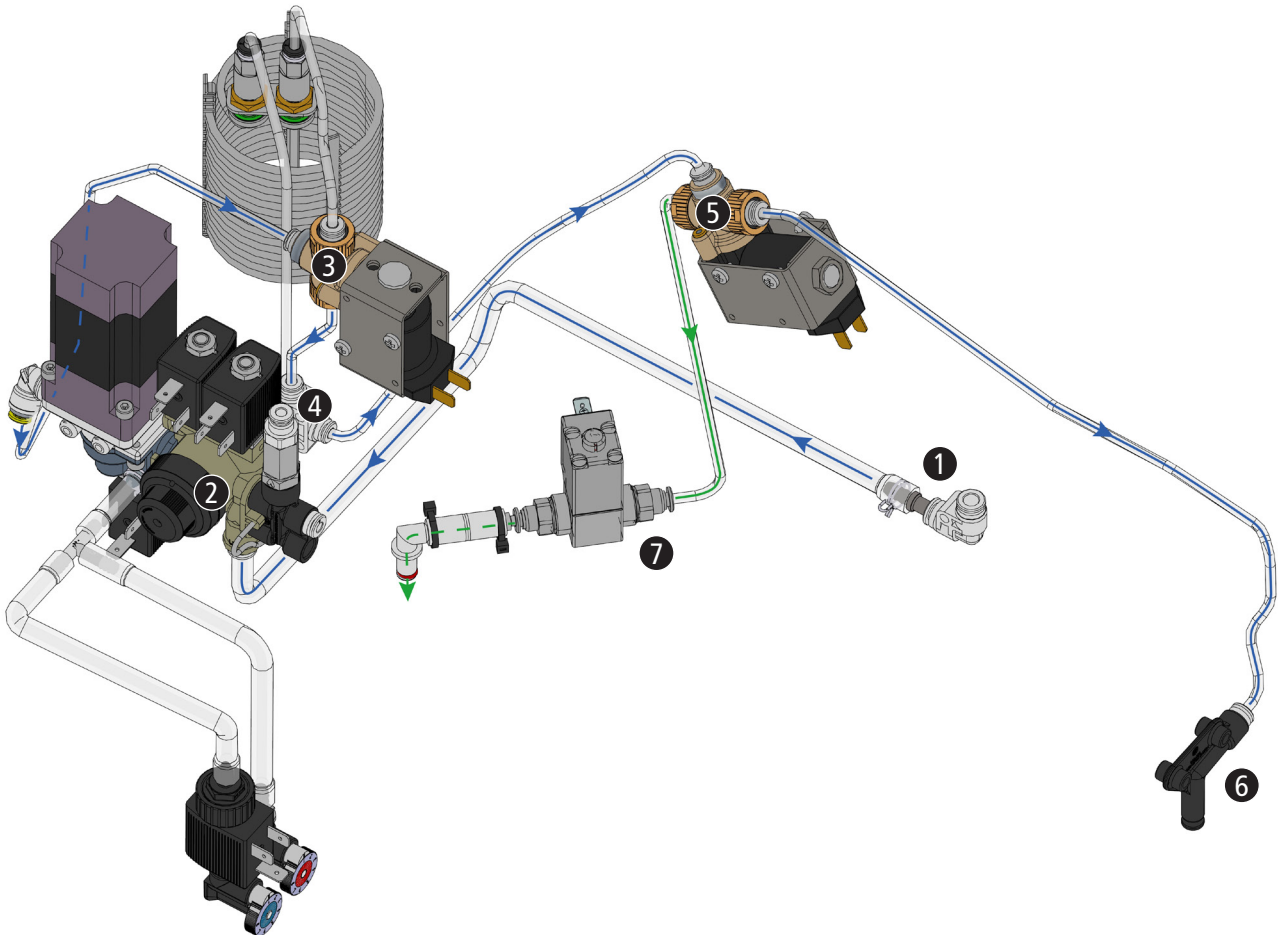
- ❶ Milk inlet from refrigerator
- ❷ Cleaning block on milk pump unit
- ❸ Cold milk valve
- ❹ Plug connector
- ❺ Milk outlet valve
- ❻ Exhaust valve
- ❼ Milk outlet
- ❽ Milk drain outlet

- Cold milk
- Hot milk
- Drain

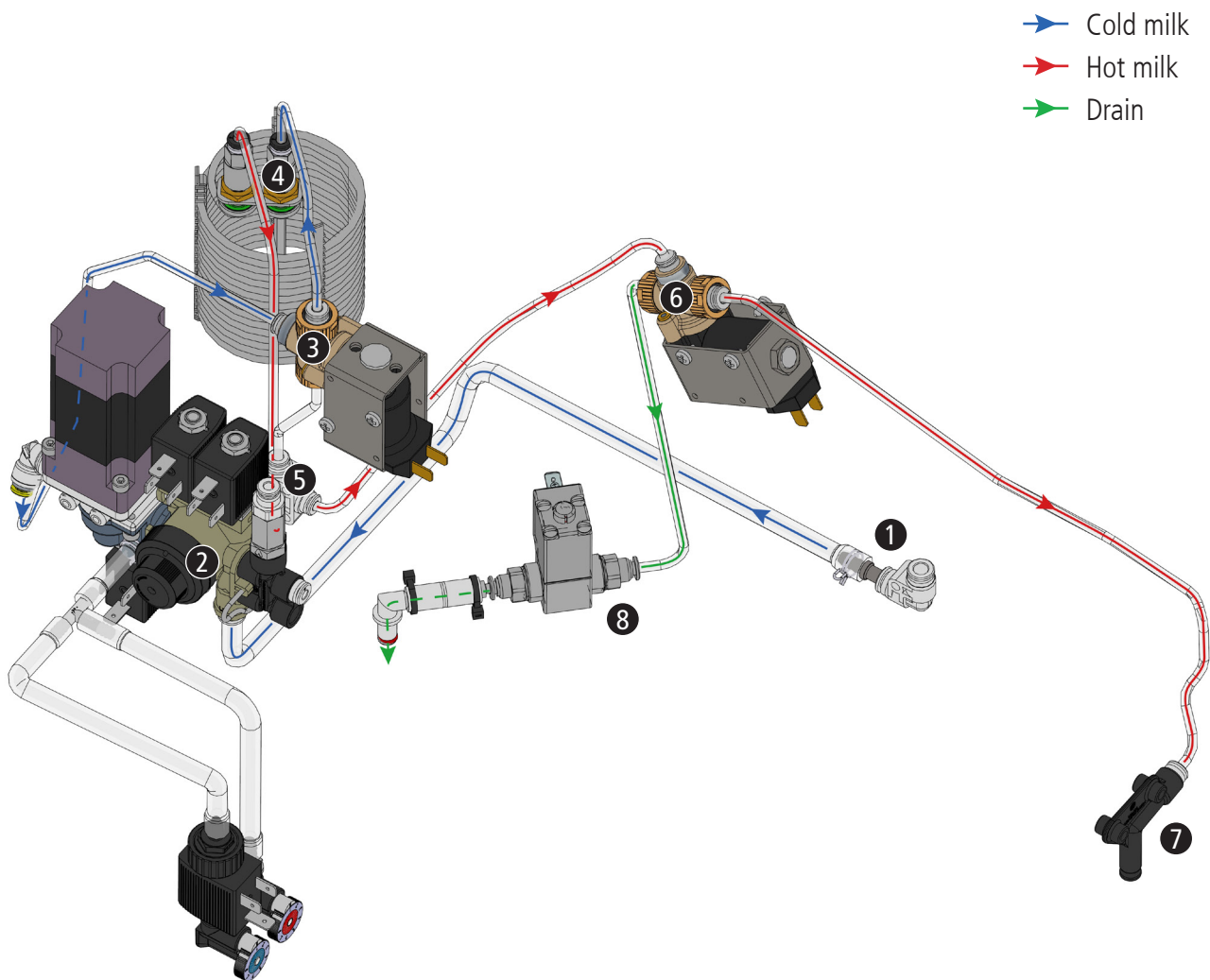


- ① Milk inlet from refrigerator
- ② Cleaning block on milk pump unit
- ③ Cold milk valve
- ④ Milk heating wendel
- ⑤ Plug connector
- ⑥ Milk outlet valve
- ⑦ Exhaust valve
- ⑧ Milk outlet
- ⑨ Milk drain outlet

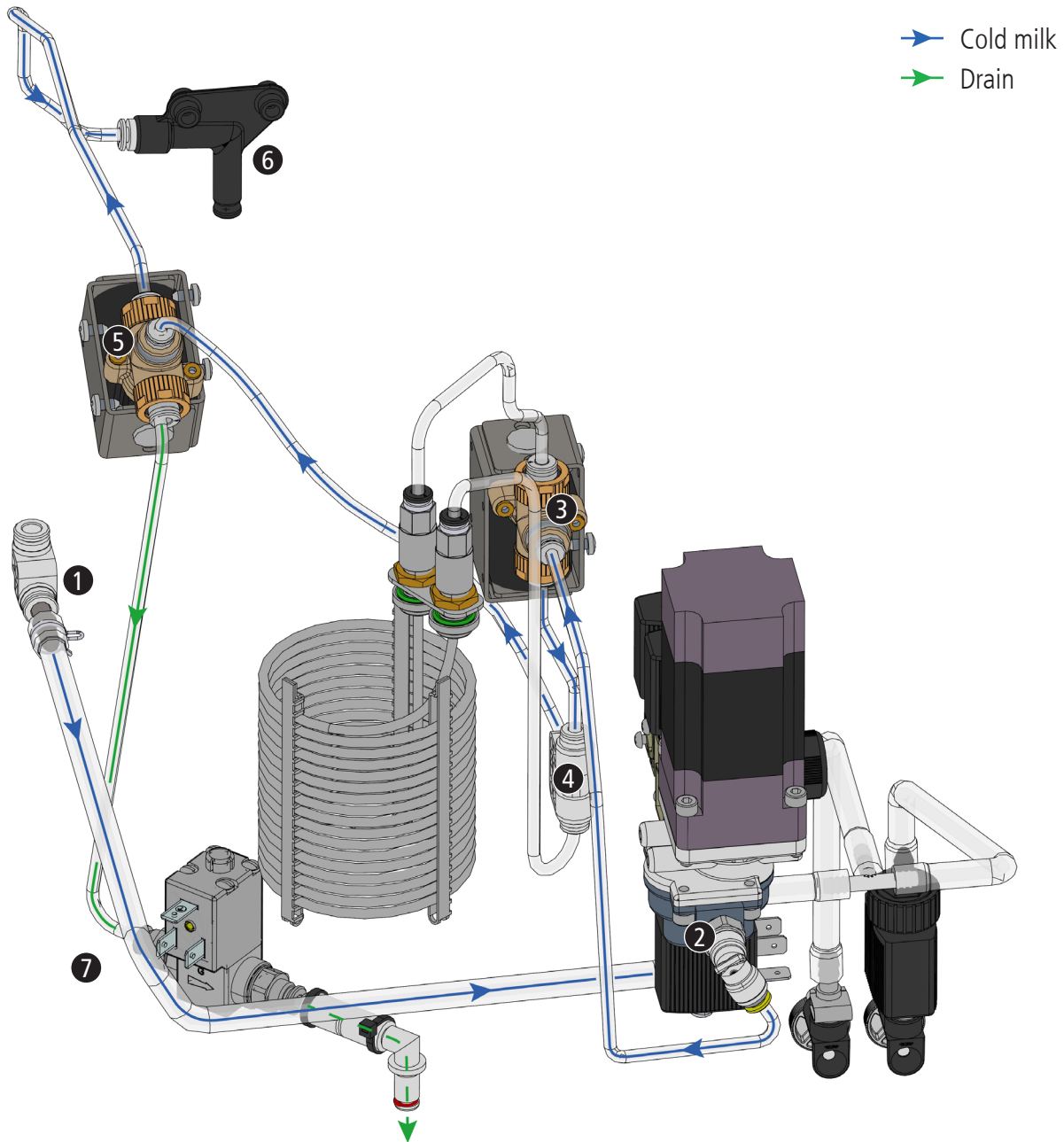
→ Cold milk  
→ Drain



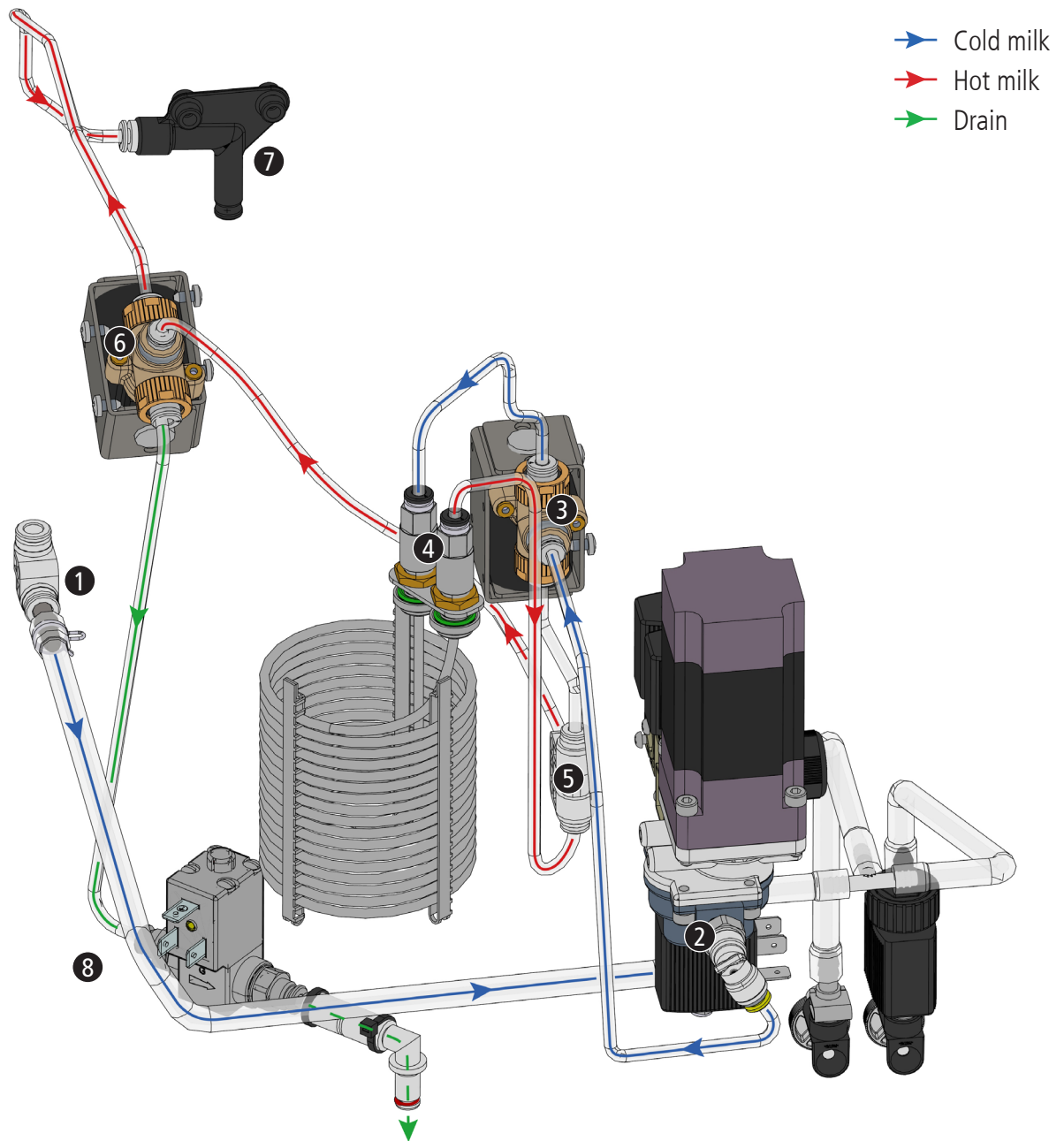
- ❶ Milk inlet from refrigerator
- ❷ Cleaning block on milk pump unit
- ❸ Cold milk valve
- ❹ Plug connector
- ❺ Milk outlet valve
- ❻ Milk outlet
- ❼ Milk drain outlet



- 1 Milk inlet from refrigerator
- 2 Cleaning block on milk pump unit
- 3 Cold milk valve
- 4 Milk heating wendel
- 5 Plug connector
- 6 Milk outlet valve
- 7 Milk outlet
- 8 Milk drain outlet

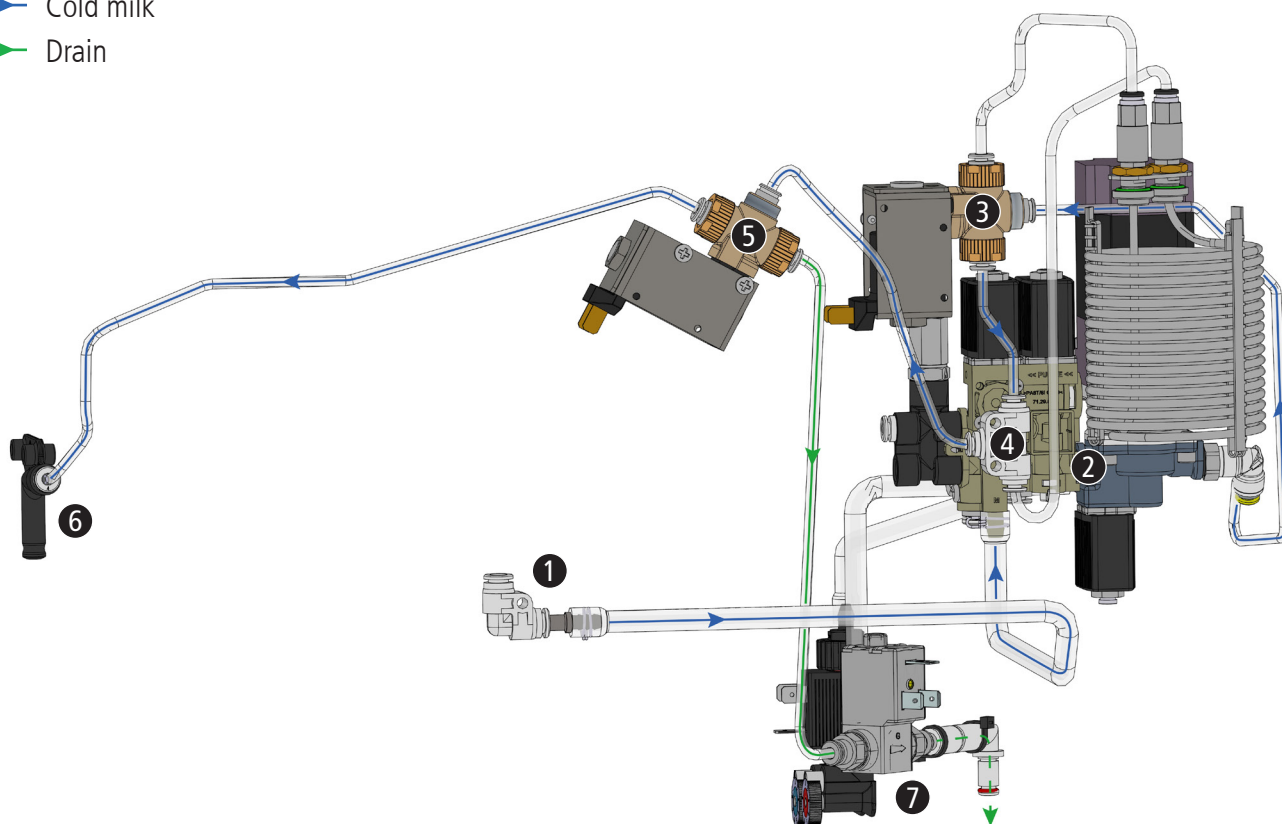


- ① Milk inlet from refrigerator
- ② Cleaning block on milk pump unit
- ③ Cold milk valve
- ④ Plug connector
- ⑤ Milk outlet valve
- ⑥ Milk outlet
- ⑦ Milk drain outlet



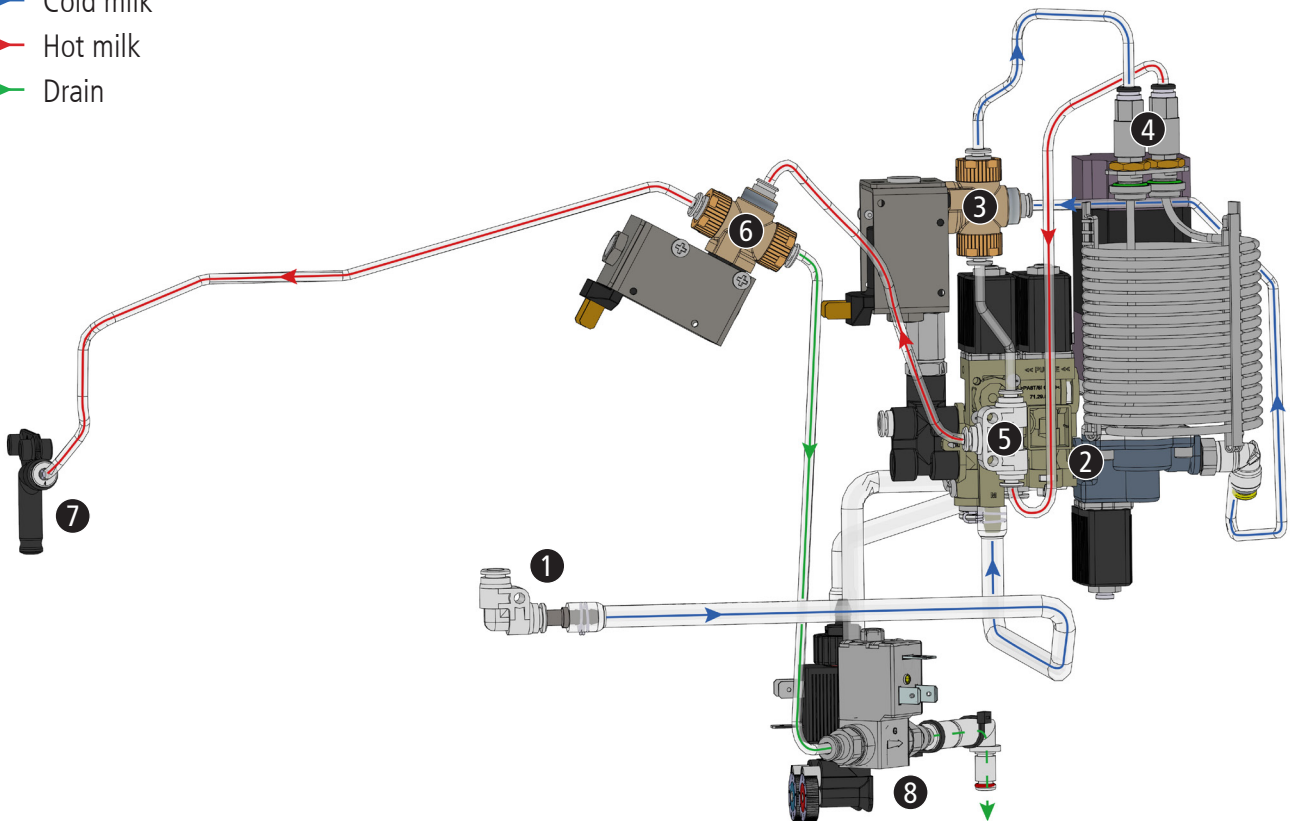
- ① Milk inlet from refrigerator
- ② Cleaning block on milk pump unit
- ③ Cold milk valve
- ④ Milk heating wendel
- ⑤ Plug connector
- ⑥ Milk outlet valve
- ⑦ Milk outlet
- ⑧ Milk drain outlet

- Cold milk
- Drain



- ① Milk inlet from refrigerator
- ② Cleaning block on milk pump unit
- ③ Cold milk valve
- ④ Plug connector
- ⑤ Milk outlet valve
- ⑥ Milk outlet
- ⑦ Milk drain outlet

- Cold milk
- Hot milk
- Drain

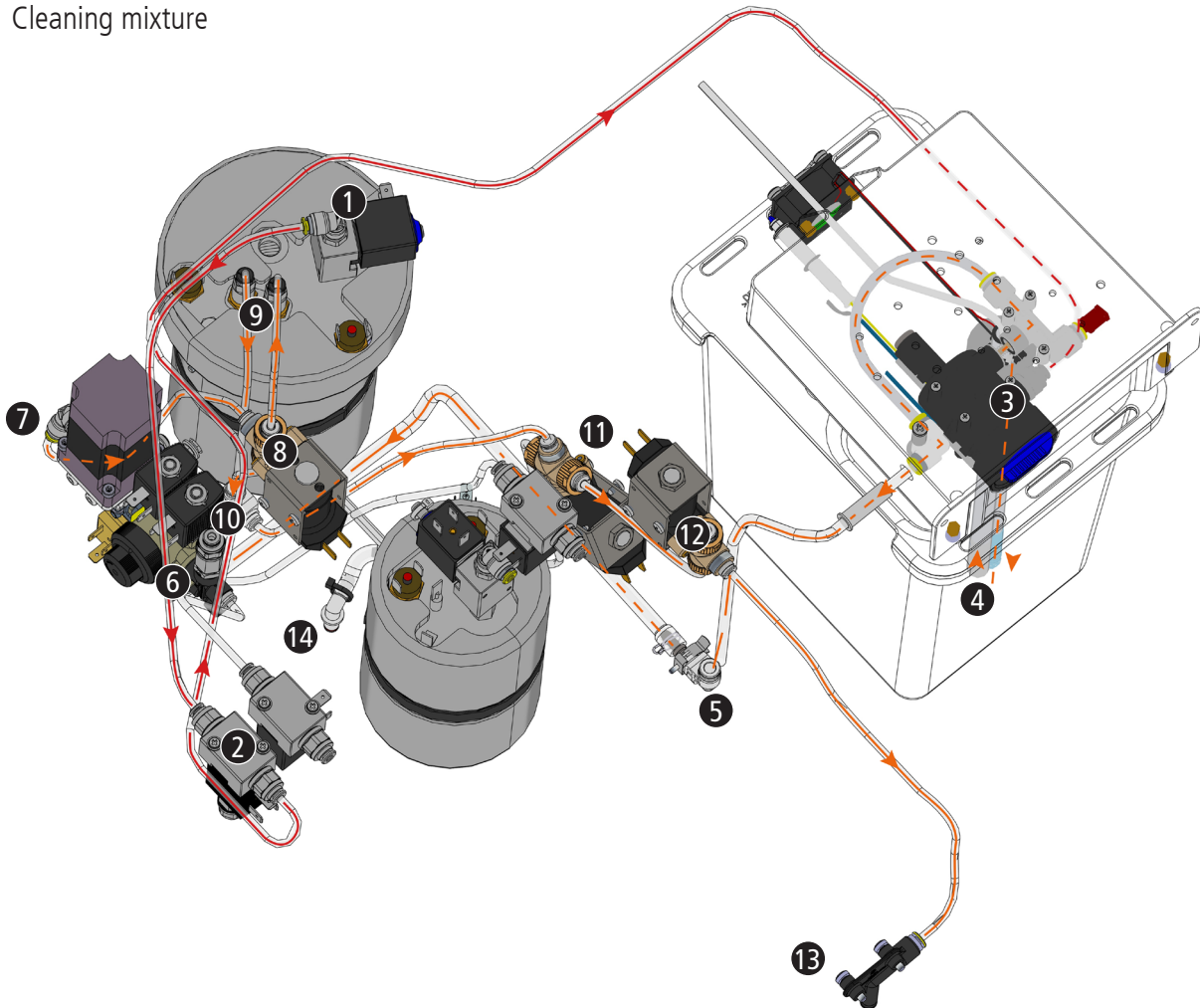


- ① Milk inlet from refrigerator
- ② Cleaning block on milk pump unit
- ③ Cold milk valve
- ④ Milk heating wendel
- ⑤ Plug connector
- ⑥ Milk outlet valve
- ⑦ Milk outlet
- ⑧ Milk drain outlet

Problem	Possible reason	Solution
Display message „Cleaning required in x:xx“	<p>Notice, that the machine will be locked in x hours / minutes, if its not cleaned.</p> <p>The machine has to be cleaned at least 24 hours after dispensing the first milk beverage.</p>	<ul style="list-style-type: none"> <li>» Start the cleaning process before the timer runs out, to prevent the machine to get locked.</li> </ul>
Display message „Cleaning required!“	<p>Cleaning was not performed when the machine asked for it (see „Cleaning required in x:xx“). The machine is locked and needs to be cleaned, before any products can be dispensed.</p>	<ul style="list-style-type: none"> <li>» Perform cleaning</li> </ul>
Display message „Cleaning active“	<ul style="list-style-type: none"> <li>» Automatic cleaning is running</li> </ul>	<ul style="list-style-type: none"> <li>» Wait until cleaning is completed</li> </ul>
Display message „Cleaning interrupted!“	<ul style="list-style-type: none"> <li>» Cleaning key was removed during cleaning</li> <li>» The milk level tube was not inside the milk container during cleaning</li> <li>» Water flow was interrupted</li> <li>» Power outage during cleaning</li> <li>» Cleaning tablet valve is defective or connected wrong</li> <li>» Filter on cleaning housing is blocked</li> </ul>	<ul style="list-style-type: none"> <li>» Do not remove the cleaning key while cleaning is running, restart cleaning</li> <li>» The milk level tube has to be inside the milk container during cleaning, restart cleaning</li> <li>» Check water cycle, restart cleaning</li> <li>» Restart cleaning</li> <li>» Check the cleaning tablet valve in the service menu „Output Test“.</li> <li>» Clean filter or replace if necessary</li> </ul>
Tablets have not been fully dissolved	<ul style="list-style-type: none"> <li>» Tablets have expired</li> <li>» Cleaning tablet valve is defective</li> <li>» Water flow to the cleaning tablet is interrupted.</li> </ul>	<ul style="list-style-type: none"> <li>» Check the expiry date of the tablets, do not use expired tablets.</li> <li>» Check the valve in the service menu „Output test“ and replace if necessary.</li> <li>» Check water way</li> </ul>



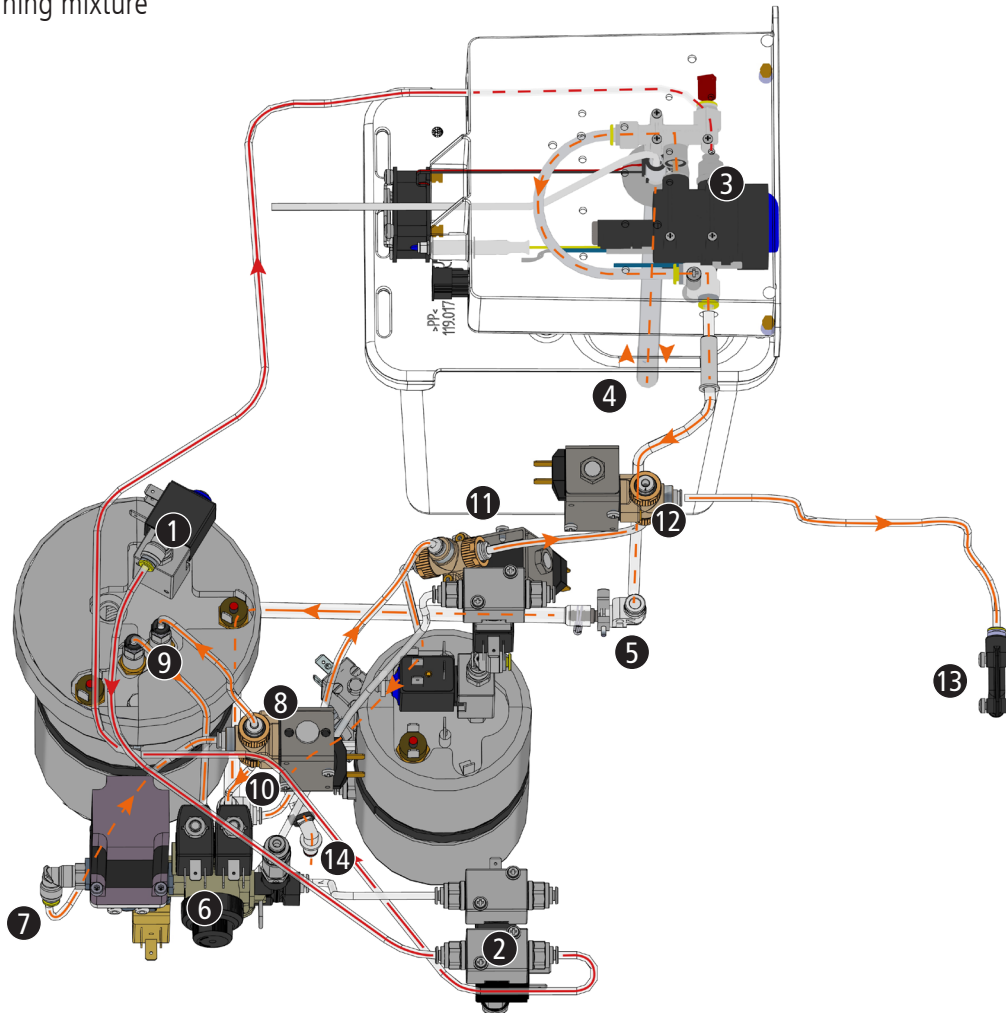
- ➔ Hot water
- ➔ Cleaning mixture



- |   |                                  |   |                   |
|---|----------------------------------|---|-------------------|
| ① | Tea valve                        | ⑪ | Milk outlet valve |
| ② | Cleaning tablet valve            | ⑫ | Exhaust valve     |
| ③ | Milk cleaning key                | ⑬ | Milk outlet       |
| ④ | Water / tablet mixture           | ⑭ | Drain             |
| ⑤ | Plug connector                   |   |                   |
| ⑥ | Cleaning block on milk pump unit |   |                   |
| ⑦ | Milk pump                        |   |                   |
| ⑧ | Cold milk valve                  |   |                   |
| ⑨ | Milk heating wendel              |   |                   |
| ⑩ | Plug connector                   |   |                   |

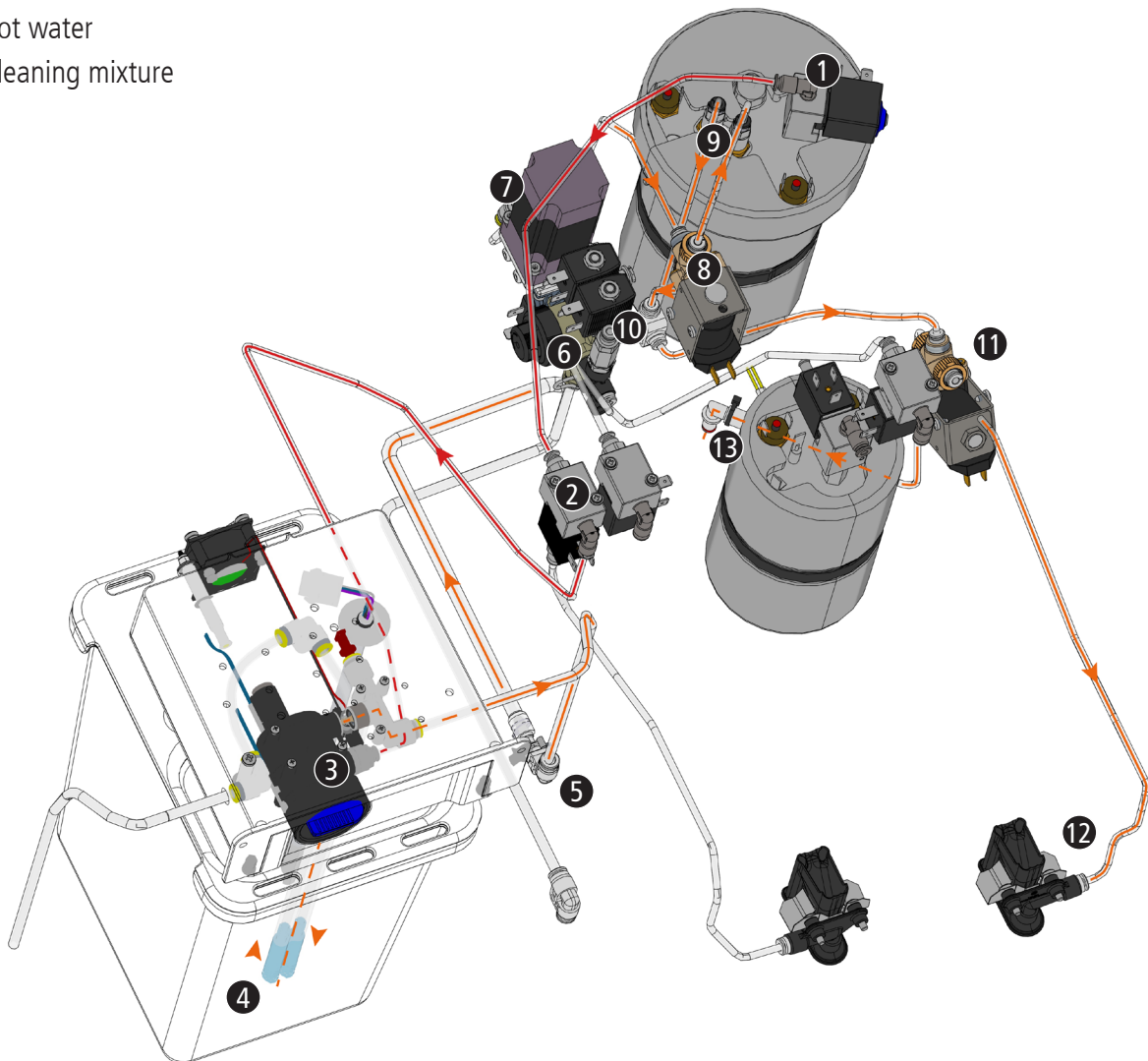
## AG220 Cleaning way view II

- Hot water
- Cleaning mixture



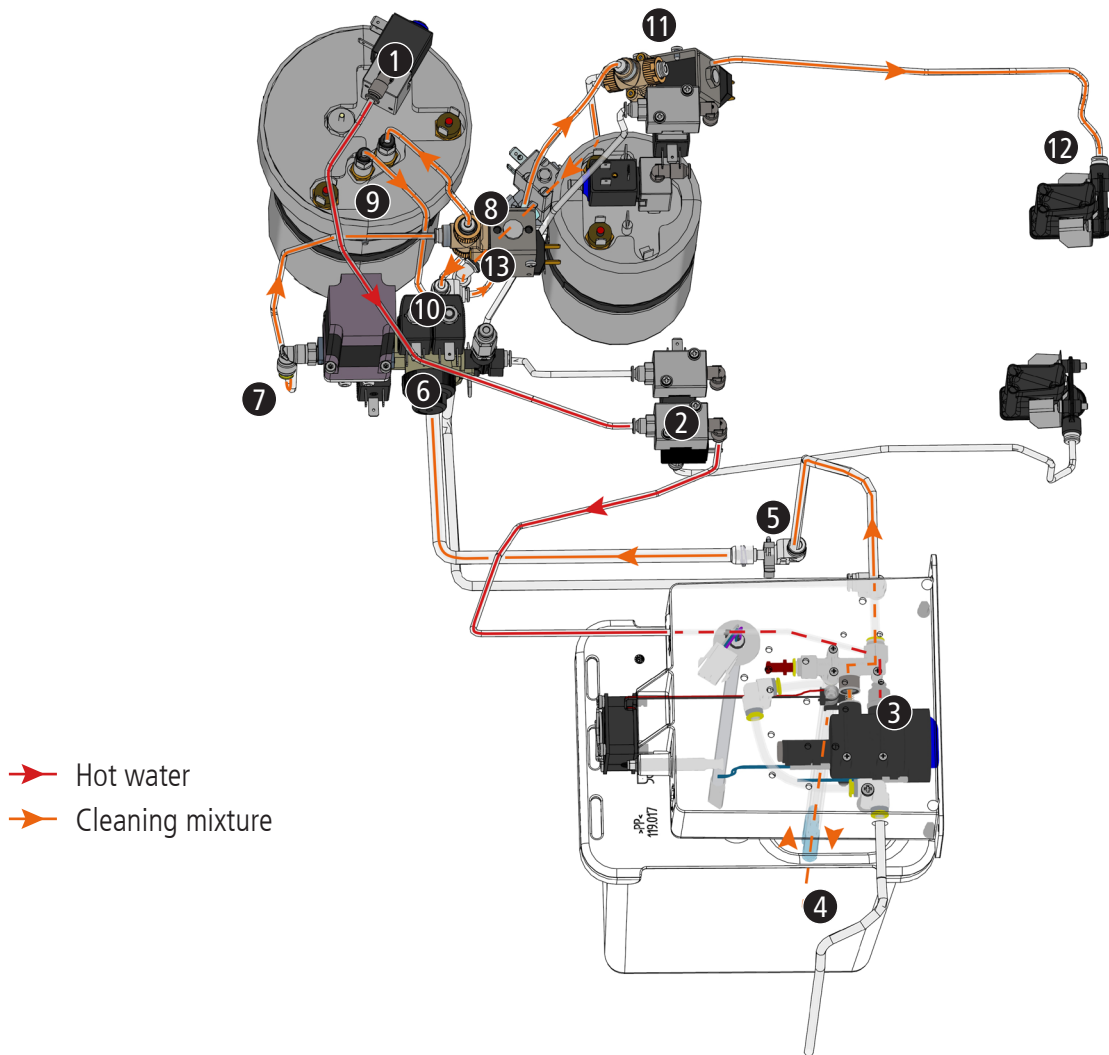
- |                                    |                     |
|------------------------------------|---------------------|
| ① Tea valve                        | ⑪ Milk outlet valve |
| ② Cleaning tablet valve            | ⑫ Exhaust valve     |
| ③ Milk cleaning key                | ⑬ Milk outlet       |
| ④ Water / tablet mixture           | ⑭ Drain             |
| ⑤ Plug connector                   |                     |
| ⑥ Cleaning block on milk pump unit |                     |
| ⑦ Milk pump                        |                     |
| ⑧ Cold milk valve                  |                     |
| ⑨ Milk heating wendel              |                     |
| ⑩ Plug connector                   |                     |

- Hot water  
 → Cleaning mixture



- |   |                                  |   |                   |
|---|----------------------------------|---|-------------------|
| ① | Tea valve                        | ⑪ | Milk outlet valve |
| ② | Cleaning tablet valve            | ⑫ | Drain             |
| ③ | Milk cleaning key                | ⑬ | Milk outlet       |
| ④ | Water / tablet mixture           |   |                   |
| ⑤ | Plug connector                   |   |                   |
| ⑥ | Cleaning block on milk pump unit |   |                   |
| ⑦ | Milk pump                        |   |                   |
| ⑧ | Cold milk valve                  |   |                   |
| ⑨ | Milk heating wendel              |   |                   |
| ⑩ | Plug connector                   |   |                   |

AG420 Cleaning way view II



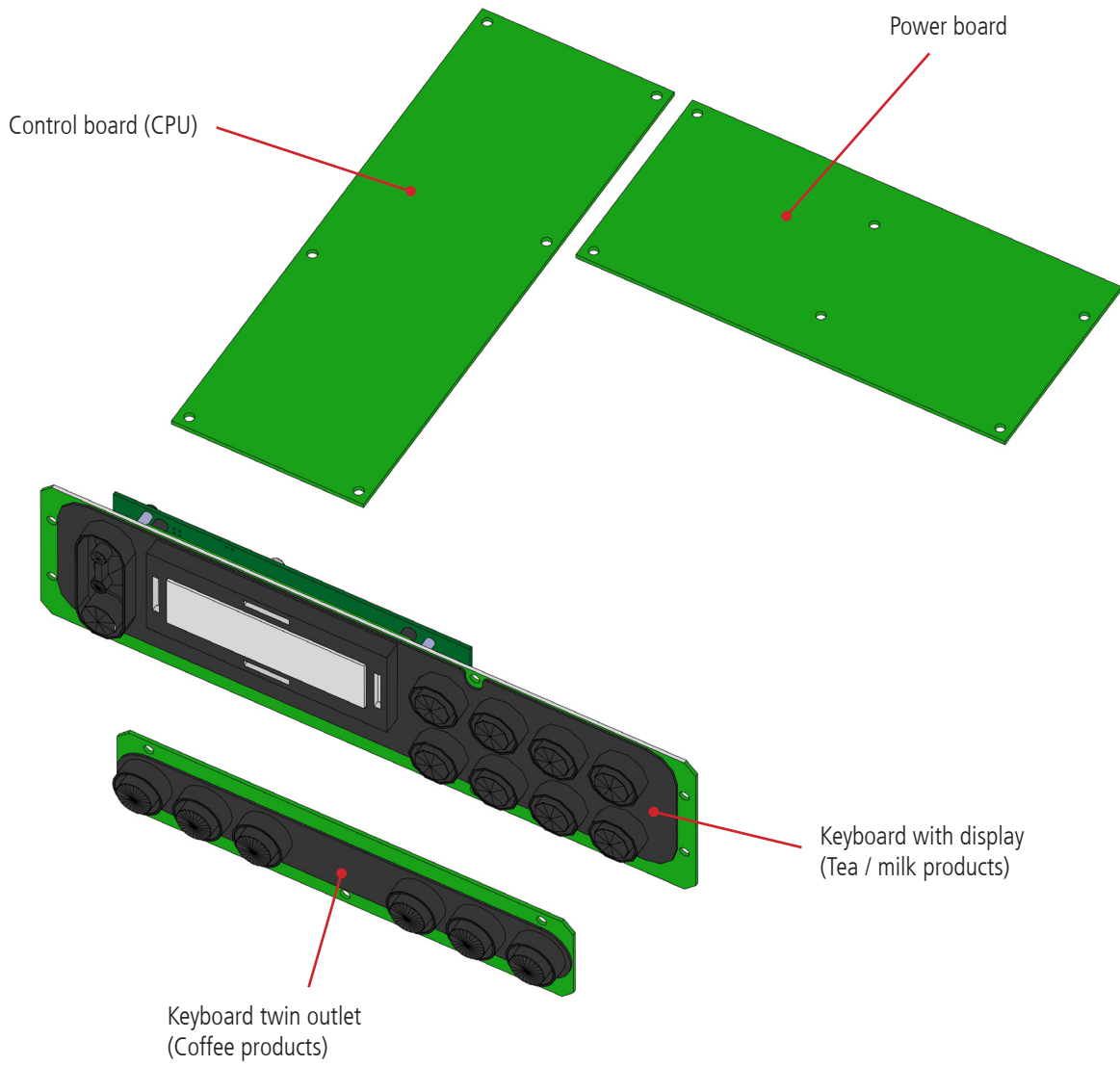
→ Hot water  
→ Cleaning mixture

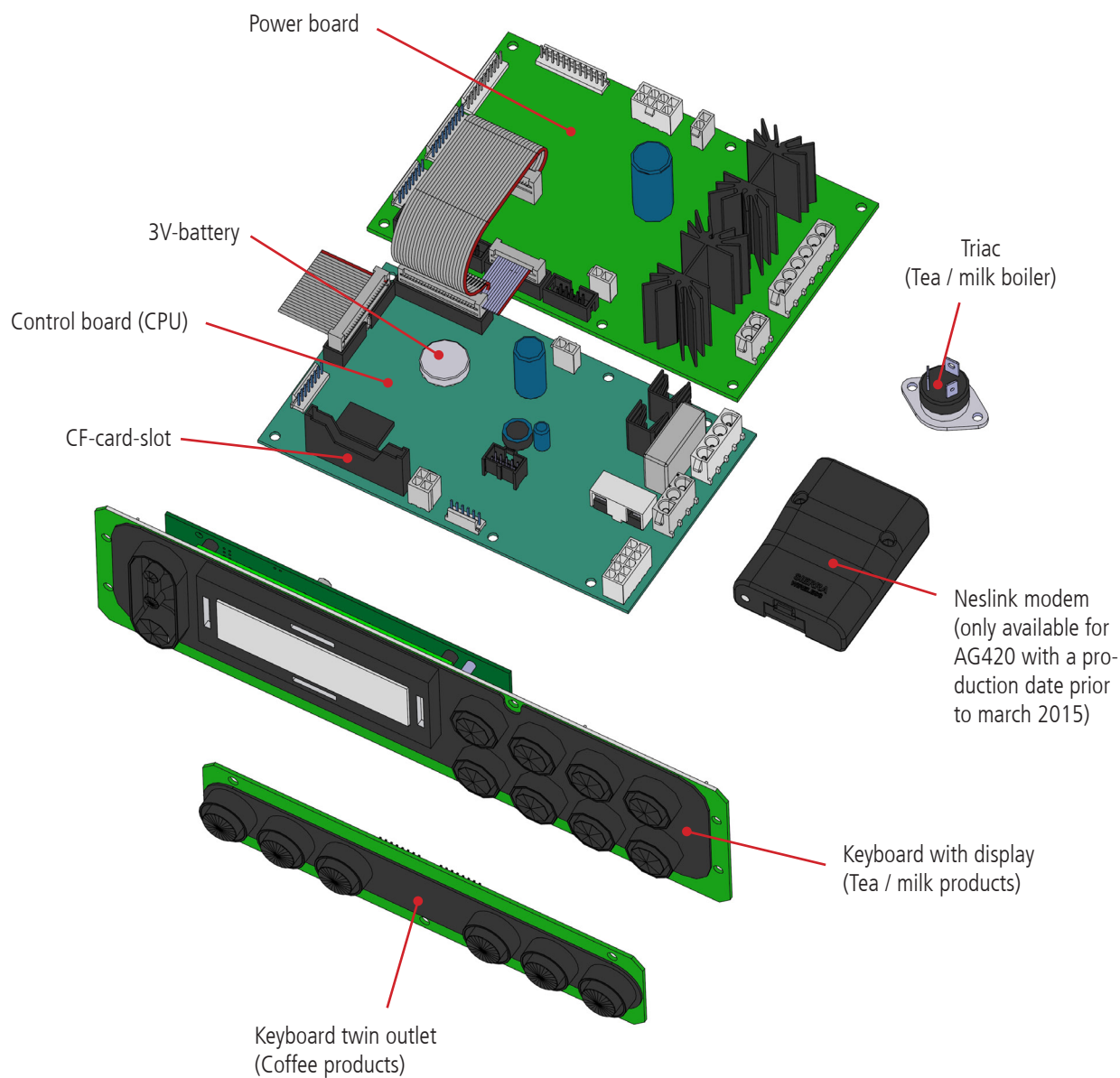
- |    |                                  |    |                   |
|----|----------------------------------|----|-------------------|
| 1  | Tea valve                        | 11 | Milk outlet valve |
| 2  | Cleaning tablet valve            | 12 | Drain             |
| 3  | Milk cleaning key                | 13 | Milk outlet       |
| 4  | Water / tablet mixture           |    |                   |
| 5  | Plug connector                   |    |                   |
| 6  | Cleaning block on milk pump unit |    |                   |
| 7  | Milk pump                        |    |                   |
| 8  | Cold milk valve                  |    |                   |
| 9  | Milk heating wendel              |    |                   |
| 10 | Plug connector                   |    |                   |

Problem	Possible reason	Solution
Date not correct anymore	» 3V-Battery is empty	» Change battery
Values are always reset to default	» CF-card has been left inside the machine	» Switch off machine, remove CF-card and switch on the machine
Hieroglyphics on the display	» Interconnection print (only machines of 1. production series) defective » Cable connections between modules not good » Display broken	» Replace interconnection print » Check connection, plug in again » If still not working: replace
No voltage but main switch is glowing	» Connection cable not connected or insulated contact » Relay does not switch: got blocked or broken	» Control plug » Control relay or replace
No 24V but main switch is glowing	» 24V short circuit » Switching power supply / fuse on switching power supply is broken	» Eliminate the short circuit » Check switching power supply / fuse and replace if necessary
LEDs do not glow sometimes	» Cable connection or LED broken	» Check cable (flat), replace cable or print
Keyboard non-working	» Problems with the software » Cable on keyboard not plugged  » Capsule not leakproof, spraying on print ► short-circuit » Air humidity too high	» Perform software update » Check connection cable to keyboard and cable to print. Perform keyboard test: Press any key for 3s to start, press various keys to see if they are working correctly. Wait for 3s to end the test.  » Replace print  » Demount keyboard, clean / dry it and remount. Check if the keyboard is now working, otherwise change it.
Display and buttons are dark, main switch is glowing	» Machine is in standby mode » Relays 4+1 broken » Switching power supply / fuse on switching power supply is broken	» Press energy-standby button » Check relays and replace if necessary » Check switching power supply / fuse and replace if necessary.

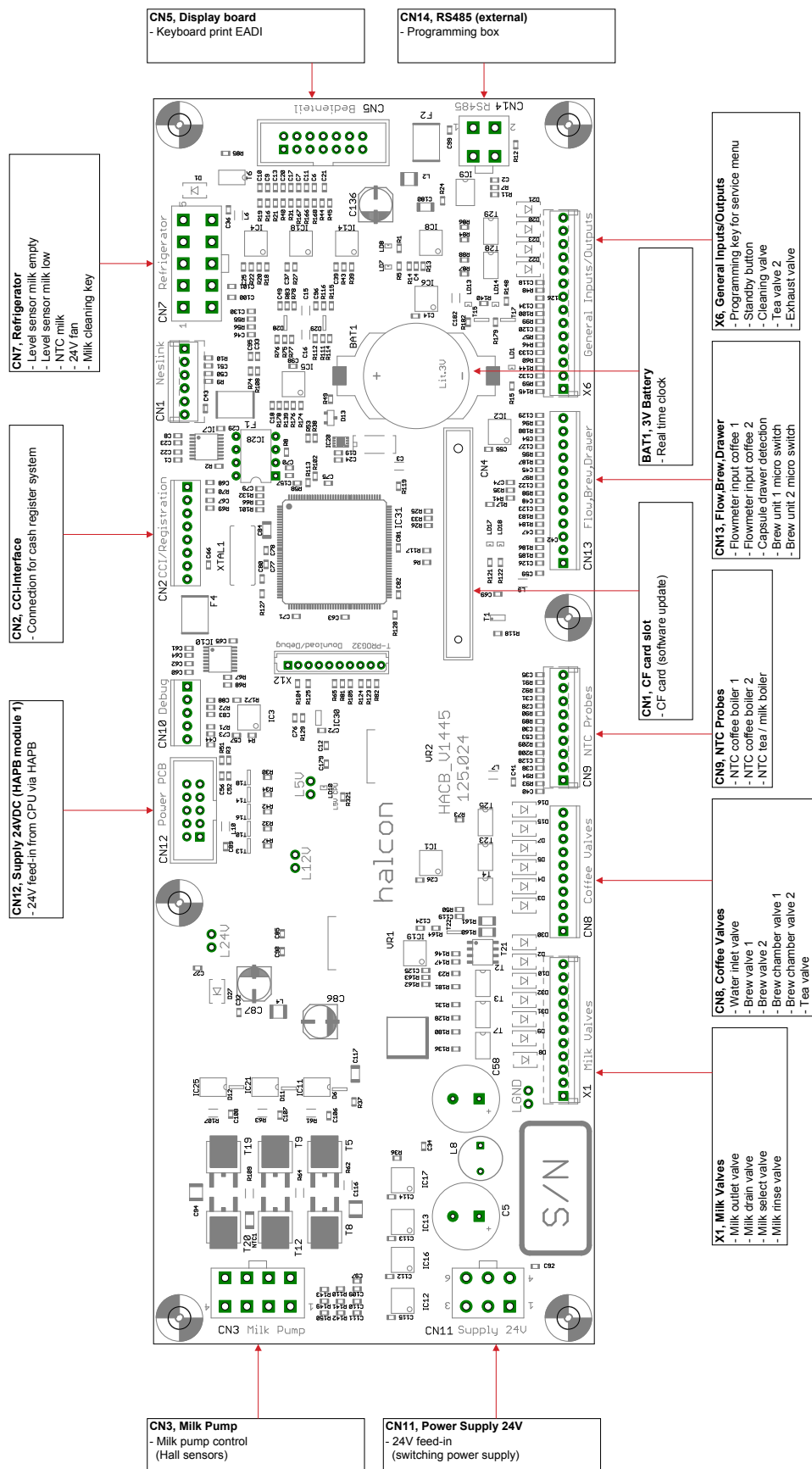
**Possible problems**

<b>Problem</b>	<b>Possible reason</b>	<b>Solution</b>
Display message „Powerboard error!“	» ...	» ...
Display message „No CompactFlash!“	<ul style="list-style-type: none"> <li>» No CF-card in the card slot while trying to „Save configuration“ in the service menu.</li> <li>» CF-card was not detected (defective?)</li> </ul>	<ul style="list-style-type: none"> <li>» Put a CF-card into the card slot</li> <li>» Try another CF-card</li> </ul>
Display message „CONFIG.BIN not found“  Display message „EACBMAIN.BIN not found“	<ul style="list-style-type: none"> <li>» No machine software was found on the CF-card</li> <li>» Machine software was not loaded correctly onto the CF-card</li> <li>» CF-card is defective</li> </ul>	<ul style="list-style-type: none"> <li>» Load machine software on CF-card</li> <li>» Correctly load machine software on CF-card (see software update instructions)</li> <li>» Try another CF-card</li> </ul>
Display message „Read error“	<ul style="list-style-type: none"> <li>» No data on CF-card to save onto machine</li> <li>» File with backup data is missing</li> <li>» Data on CF-card is either defective or corrupt</li> <li>» No communication with CF-card</li> </ul>	<ul style="list-style-type: none"> <li>» Load machine software on CF-card</li> <li>» Save data again on CF-card</li> <li>» Correctly load machine software on CF-card (see software update instructions).</li> <li>» Check the plug's socket, use CF-card from Thermoplan.</li> </ul>
Display message „Write error“	<ul style="list-style-type: none"> <li>» CF-card is formatted in wrong format</li> <li>» No communication with CF-card</li> </ul>	<ul style="list-style-type: none"> <li>» Format the CF-card in FAT format</li> <li>» Check the plug's socket, use CF-card from Thermoplan.</li> </ul>
Display message „Machine is resetting“	<ul style="list-style-type: none"> <li>» Machine is in reset-mode (will be reset to its factory default settings).</li> </ul>	<ul style="list-style-type: none"> <li>» Wait until the machine reset is complete and „Heating up“ or „Ready“ is shown on the display.</li> <li>» Turn off machine for 10 sec.</li> <li>» Attention: user-specific data will be lost!</li> </ul>
Display message „Invalid file version!“	» ...	» ...
Display message „CCI not connected!“	<ul style="list-style-type: none"> <li>» CCI interface is activated, but not connected correct or not connected at all.</li> </ul>	<ul style="list-style-type: none"> <li>» Make sure to correctly connect the interface with the machine.</li> </ul>
Display message „No Credit!“	<ul style="list-style-type: none"> <li>» There is no product enabled for dispense.</li> <li>» Tried to dispense a product, which was not enabled.</li> </ul>	<ul style="list-style-type: none"> <li>» Use the cash register system to enable a product for dispense.</li> <li>» Choose the enabled product to dispense.</li> </ul>

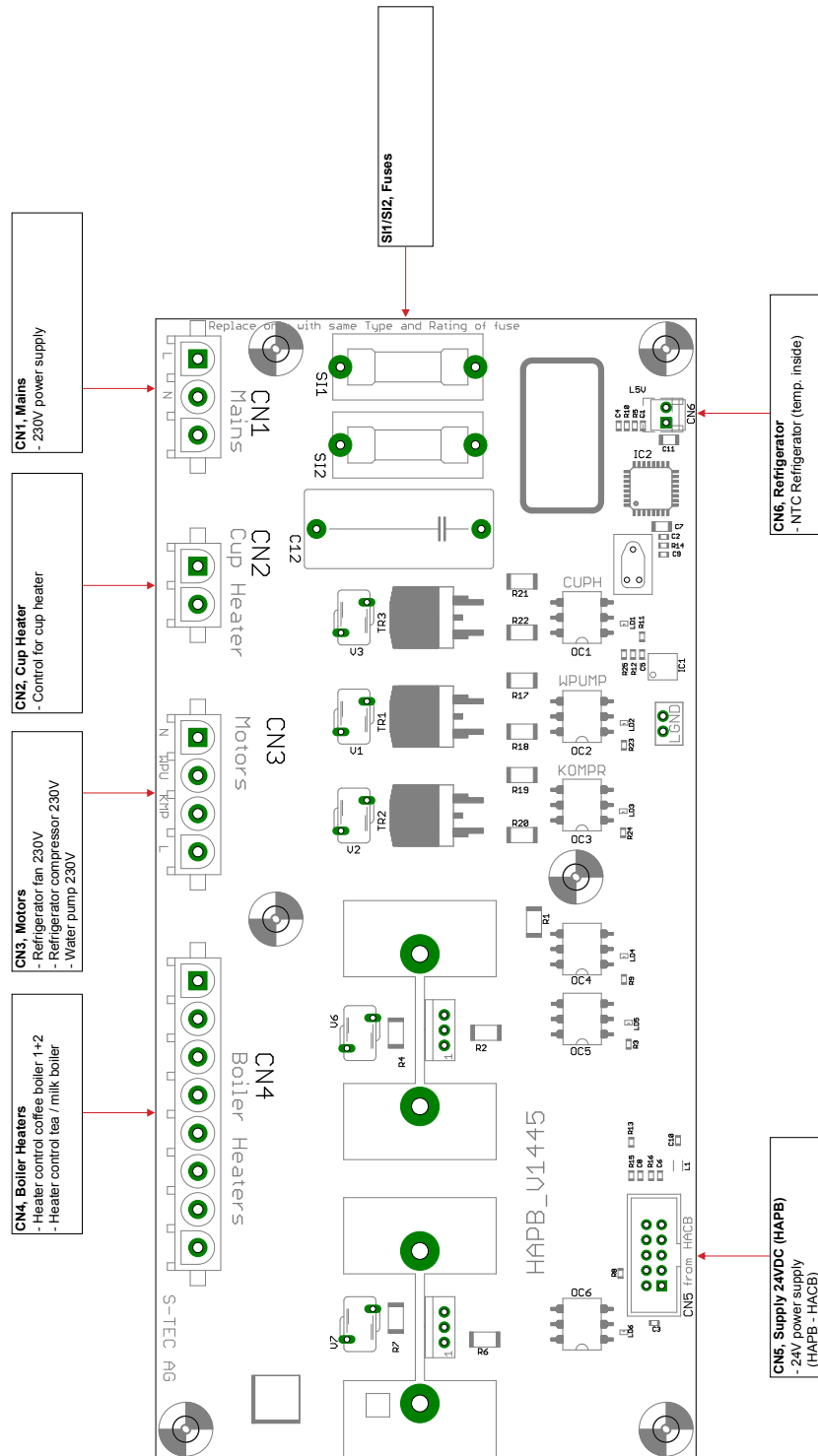


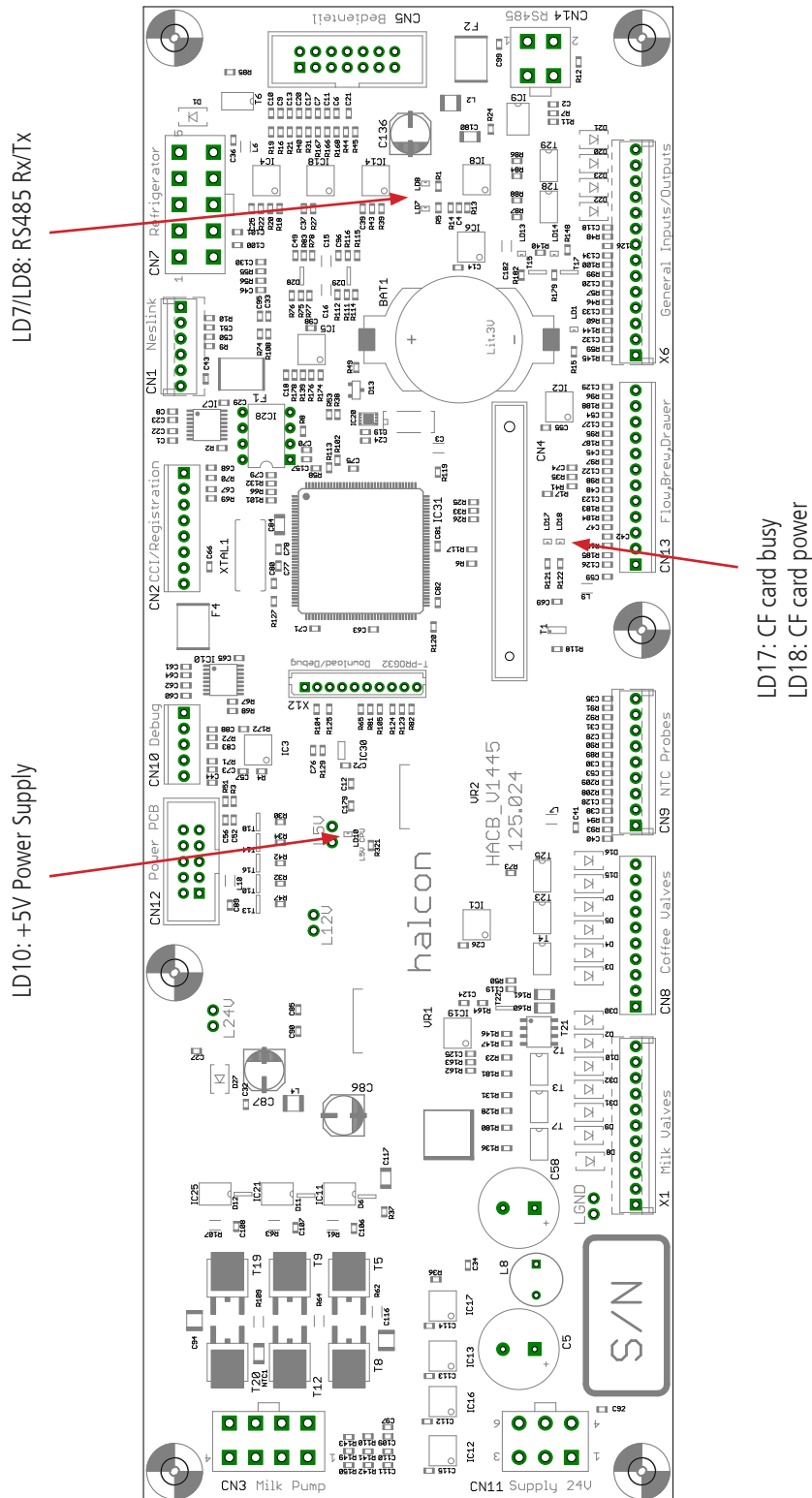


Note: Machines of the 1st production series have an additional interconnection print (EAZP) per powerboard for signal processing.

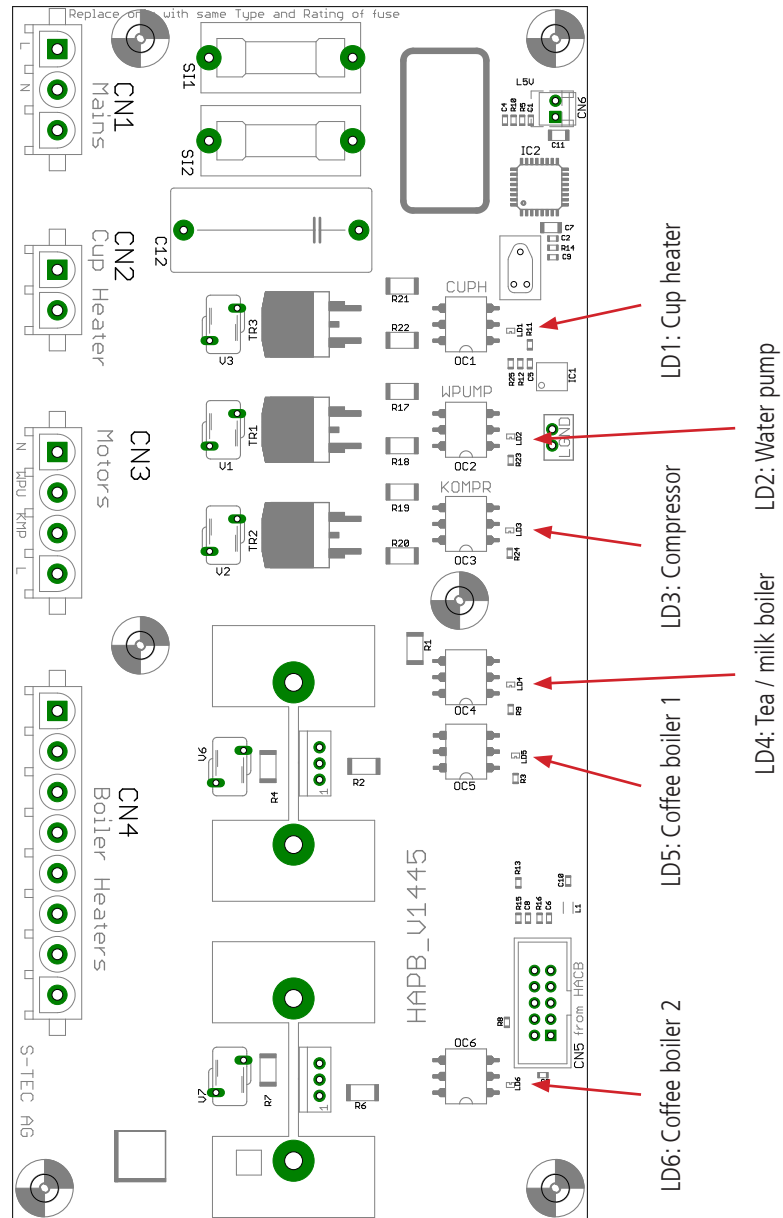


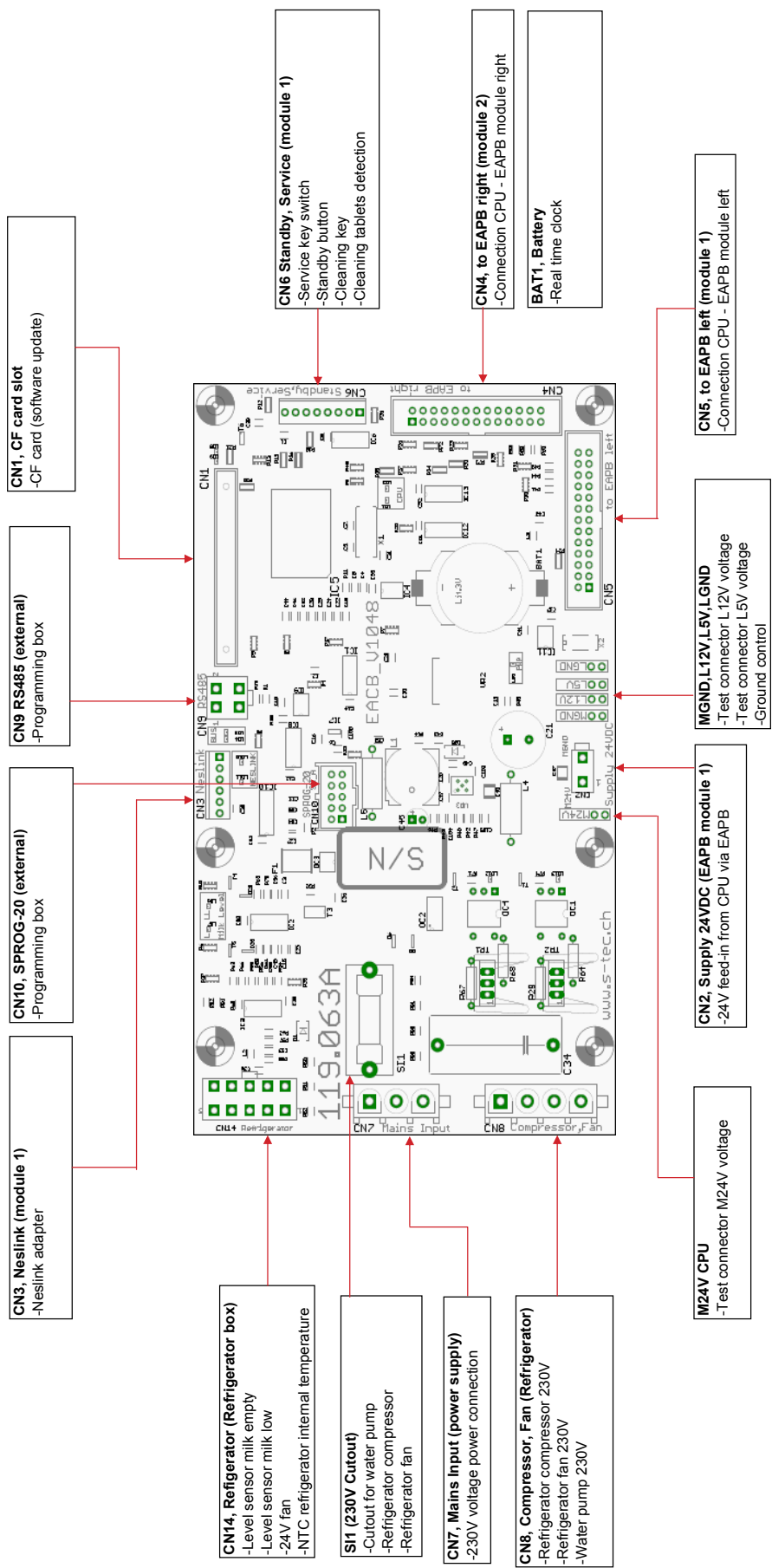
## AG220 Overview plugs power board



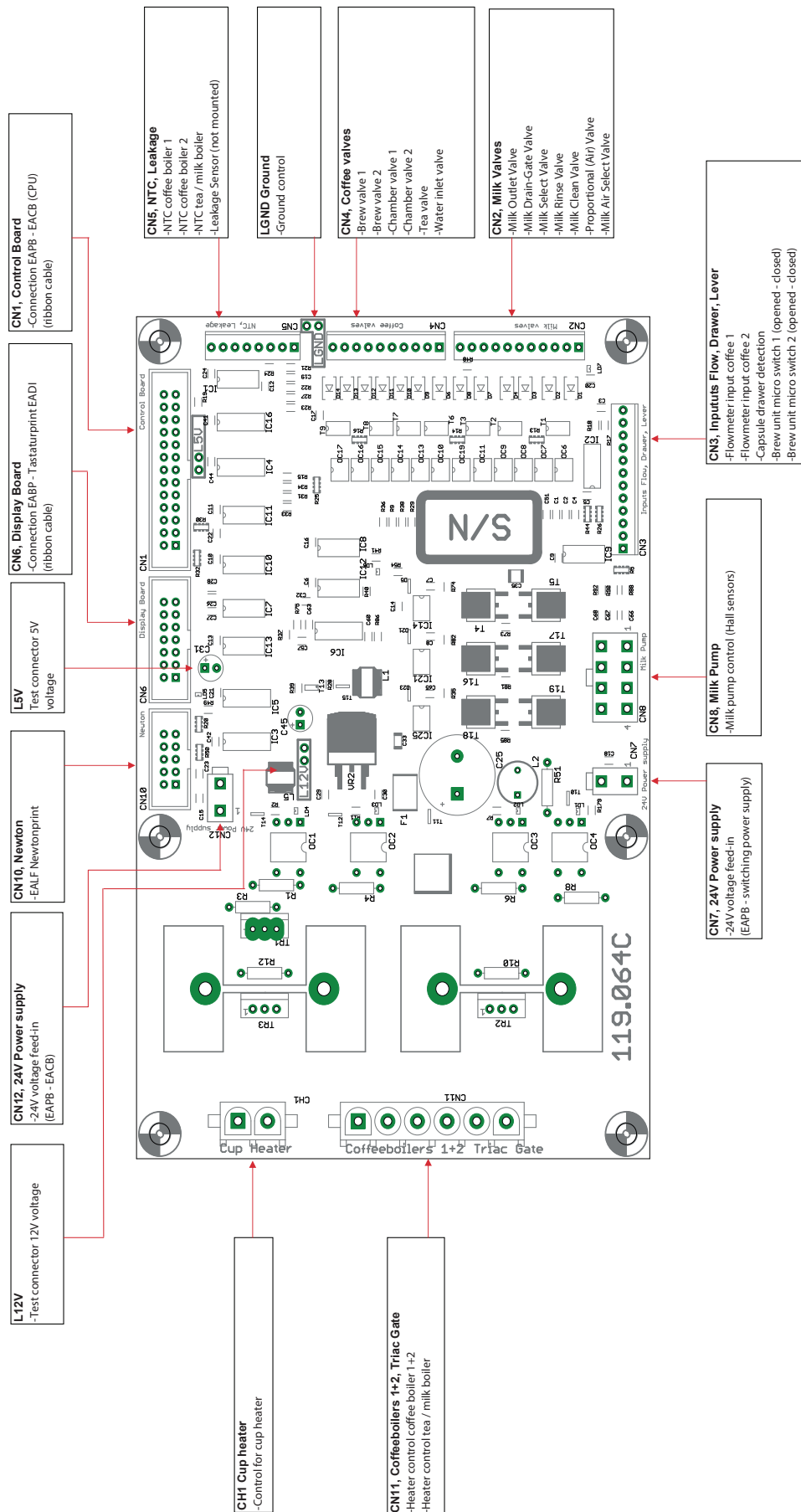


AG220 Overview LEDs power board



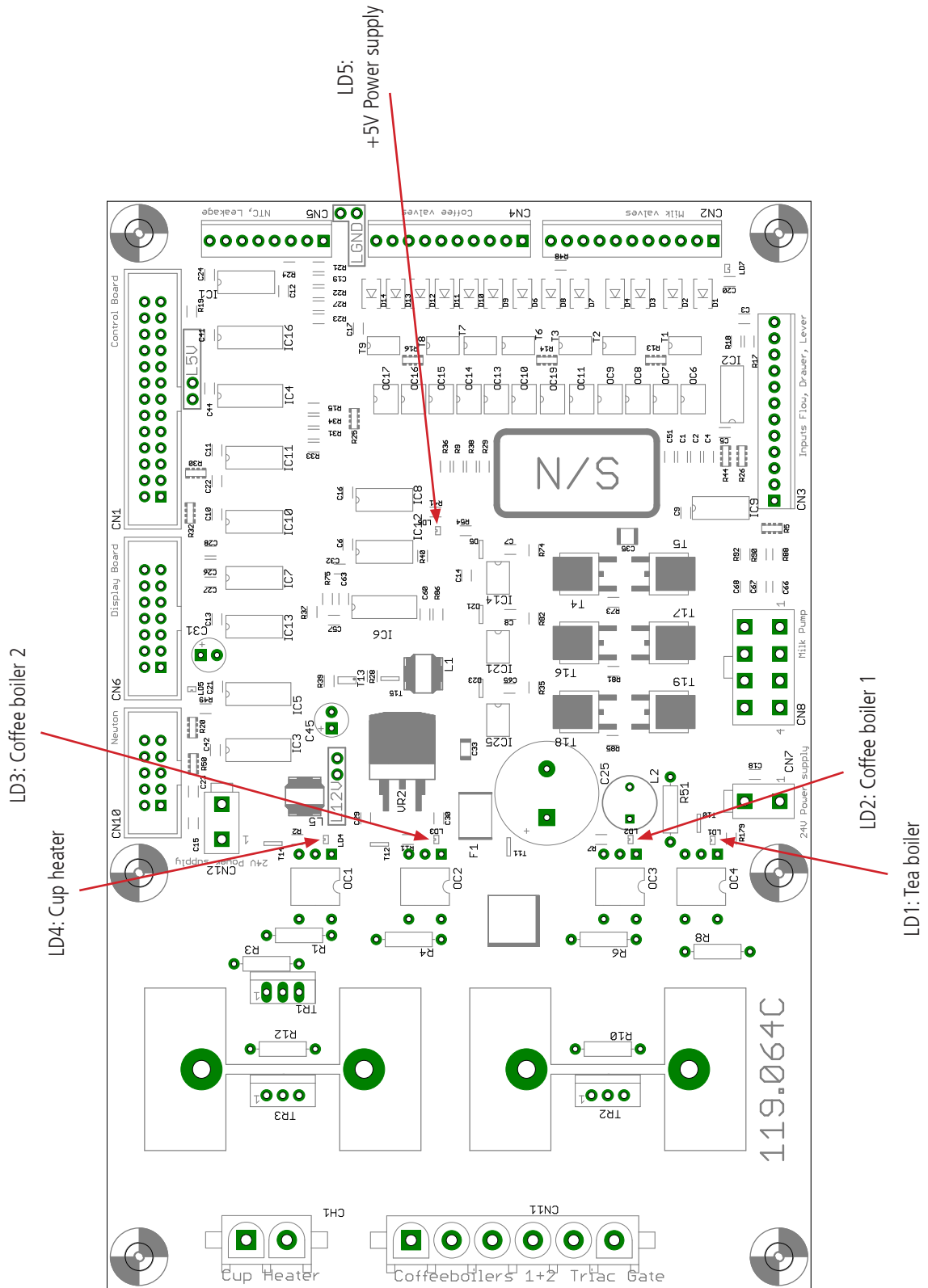


## AG420 Overview plugs power board





## AG420 Overview LEDs power board



Display message	Possible reason	Solution
Insert capsule drawer!	<ul style="list-style-type: none"> <li>» Capsule drawer not inserted or not inserted correctly</li> <li>» Reed contact defective</li> <li>» Magnet on drawer missing</li> </ul>	<ul style="list-style-type: none"> <li>» Insert capsule drawer correctly</li> <li>» Check reed in input test</li> <li>» Replace magnet</li> </ul>
Empty capsule drawer!	Maximal amount of capsules in used capsules drawer reached.	Empty used capsule drawer and reinsert
Energy saving mode Press any key	Machine is in energy saving mode	Press any key to restart machine and wait until „Ready“ is shown
	<ul style="list-style-type: none"> <li>» Standby mode 2 active</li> <li>» Main switch in OFF position</li> </ul>	<ul style="list-style-type: none"> <li>» Press energy save button</li> <li>» Set main switch to ON</li> </ul>
Change water filter	Filter cartridge is at it's limit	Replace filter cartridge and reset water counter (service menu „Statistics“ ► „Water counter reset“)
Service required	Machine reached max. brew cycles; 12 months since the installation / the last PM have passed.	Perform the PM and reset the service counter.
Call technician	<p>The user sees this message if there is an NTC, milk pump or flowmeter error.</p> <p>Repeated technical error.</p>	<ul style="list-style-type: none"> <li>» Turn machine off and back on.</li> <li>» Check error history and eliminate any recent errors.</li> <li>» Perform an irregular PM, do <u>not</u> reset the service counter!</li> </ul>
Voltage too high	<p>Operation is stopped because voltage is out of the set tolerance range.</p> <p>If the voltage gets too high during a product dispensing, the product will be finished, then the operation stops.</p>	<ul style="list-style-type: none"> <li>» Wait until voltage stabilises.</li> <li>» Let an expert check and adjust the voltage of the power socket.</li> </ul>
Voltage too low	<p>Operation is stopped because voltage is out of the set tolerance range.</p> <p>If the voltage gets too low during a product dispensing, the product will be finished, then the operation stops.</p>	<ul style="list-style-type: none"> <li>» Wait until voltage stabilises.</li> <li>» Let an expert check and adjust the voltage of the power socket.</li> </ul>

On the Nespresso Hotline first a so-called Phone-Fix-List is gone through to help the customer on the phone if possible. Here you can see the points which must have been discussed and tried out already:

## Capsules

### Capsule falls straight into the bin

Verify if a new capsule is not already introduced in the extraction head. If yes, extract it or remove it before introducing a new one. Verify that edge of capsule is not bended.

### Capsule not perforated

Verify if a new capsule is not already introduced in the extraction head. If yes, extract it or remove it before introducing a new one.

### Capsule can not be inserted

Check if brew unit is open (lever at upper position).

Check if brew unit can be closed without a capsule.

Check if a product without inserted capsule can be produced. The error message „preparation too short“ will appear.

Check, if brewing unit is clogged: visual inspection into slot. Compare with other brewing unit / slot.

Verify that edge of capsule is not bended.

## Temperature

### Coffee too hot

Check, if all outlets are too hot.

Call Thermoplan CSP to change temperature setting in the machine's menu.

### Coffee warm/not hot enough

The client knows that the temperature of an espresso should not be too high in order not to burn the coffee (ideally between 83 °C and 89 °C).

Check, if all outlets are not hot enough.

Advice: preheat cups before use by placing them on the cup heater, draw off a cup of hot water before making first coffee.

Call Thermoplan CSP to change temperature setting in the machine's menu.

## Electrical / electronic problems

### Machine fails to switch on

Check that the provided electrical power of the facility is correct (no broken fuse).

If the machine is a 3-phase version, check that all 3 phases have electrical power.

Check that the appliance is correctly plugged into the mains socket / or correctly direct connected to electrical power.

Check that the electrical cord is not damaged.

Check that the Main Switch (underneath the machine) is ON. If the Main Switch is on correctly, it is shining red.

Check that there is electrical current in the wall socket and, if not, check that there are not too many appliances connected to the same socket or on the same fuse.

Check that machine is not in maximum energy save mode (push energy save button behind left capsule drawer).

Otherwise, call Thermoplan CSP.

### Defective display

Check that the Main Switch (underneath the machine) is ON. If the Main Switch is on correctly, it is shining red.

Check that machine is not in maximum energy save mode (push energy save button behind left capsule drawer).

Machine to repair / Call Thermoplan CSP

### Sustained blinking; Display message „heating up“

If the machine is a 3-phase version, check that all 3 phases have electrical power.

The heating unit might be defective. Call Thermoplan CSP.

## Flow problem

### Cups fill to different levels

The blend (variety) of coffee used can change the amount of coffee in the cup.

The flowmeter (part measuring the water quantity) tolerance can vary the coffee quantity by 6ml max.

If necessary, call Thermoplan CSP.

### No flow

#### *Coffee outlet clogged*

1 or more capsules are stucked to the upper part of the extraction chamber. 1) Turn off the machine 2) Try to remove the capsule using a spoon through the capsule insertion opening. If it is impossible to remove the capsule, machine to repair: call Thermoplan CSP.

#### *Hot water outlet clogged*

Clean hot water outlet

If necessary, call Thermoplan CSP.

#### *Milk outlet clogged*

Clean milk outlet by using a small brush

Perform a cleaning as described in the user manual

If necessary, call Thermoplan CSP.

### Low coffee flow

Does the client know that the flow speed and the amount of liquid vary according to the blend of coffee?

Check if other outlets also have low flow.

See points in „No flow“.

If necessary, call Thermoplan CSP.

### Water comes out instead of coffee

1 or more capsules are stucked to the upper part of the extraction chamber. 1) Turn the machine off 2) Try to remove the capsule using a spoon through the capsule insertion opening. If it's impossible to remove the capsule, machine to repair: Call Thermoplan CSP.

If the capsule is deformed or badly placed, the closure of the extraction chamber is not tight and water will flow directly through the coffee outlet and into the drip tray.

### Coffee powder in the cup

If the capsule is damaged (before or during extraction), coffee powder might get into the cup. The capsule can be damaged during extraction if the ejector at the pyramid plate side is defect or missing.

To check if the capsule is damaged during product preparation, it can be examined when it is ejected into the capsule drawer (empty the capsule drawer to be sure to examine the correct capsule).

If the capsule is damaged every time, call Thermoplan CSP.

## Maintenance / Odour

The milk system has to be cleaned latest after 24h of making the first milk- or coffee-based milk-product after the previous cleaning. Otherwise, the milk system will be blocked.

Rinse the milk tank and milk suction tube according the cleaning instructions showed at the display (the milk tank can be placed in the dishwasher).

Refill the milk tank according the display messages.

Empty and clean the used capsule containers at the end of the day or according the display message.

Clean the drip tray at least 1x a day (remove the grid and clean the drip tray with a cloth).

## Mechanical problem

### Problem ejecting capsule

1 or more capsules are blocked in the lower or upper part of the extraction chamber. 1) Turn off the machine using the main switch underneath the machine 2) Remove the capsule container 3) Insert the hand through the opening (palm facing up) 4) Try manually to let the capsule(s) fall down. 5) Insert the capsule container 6) If it's impossible to remove the capsule, try to remove it using a spoon through the capsule insertion opening. Otherwise, call Thermoplan CSP.

## Messages on display

### „Cleaning required in xy min“ message

When timer ends, machine will be blocked until cleaned.

### „Add milk.“ message

Milk tank empty. Milk products locked. Fill up milk container.

### „Milk temperature high“ message

Milk products locked. Replace milk with cold milk (below 8 °C).

### „Cleaning required“ message

Milk products not available. Perform cleaning according instruction in the user manual.

### „Heating up“ message

Heating up boiler. Slow blinking during heating up. Wait until heated.

Heating up time is depending on available electrical power (230V - 400V).

If message does not disappear, call Thermoplan CSP.

### „Milk level low“ message

Preliminary information that milk will soon be finished. Fill up milk container.

### „Change water filter“ message

Call Thermoplan CSP

### „Preparation too long“ message

Open lever and try new capsule.

Control main water connection.

### „Preparation too short“ message

Open lever and try new capsule.

Message appears if no capsule is inserted.

### „Service required“ message

Call Thermoplan CSP

### „Rinsing in progress“ message

Manually launched rinsing of milk system (pressing lower button of double-button).

Automatic rinsing of milk system 5min after last milk based preparation. Display message and red LED; then start rinsing after 10 sec.

### „Cleaning in progress XX.YY“ message

Milk system cleaning mode. Display shows remaining time.

If machine is switched off during cleaning, the machine requires to start the cleaning again!

After the cleaning procedure is finished, the machines switches into maximum energy saving mode.

### „Energy saving mode“ message

Boiler temperature reduced. Ready within 1min after pressing any button.

### „(empty)“ message

„Maximum energy saving mode“.

Reactivation after pushing standby button (at left side behind left capsule drawer).

Activation of maximum energy saving mode: Side with priority 1 after 2h; Side with priority 2 after 4h. The priorities will be changed after each reactivation.

Activation of maximum energy saving mode: After cleaning or by pushing the standby button for 3 seconds.

### „To start cleaning cycle push button for 3 sec.“ message

Confirmation to launch milk cleaning. (Message will disappear after 10 sec if no button is being pressed)

**„Empty capsule drawer“ message**

Remove & empty capsule drawer.

The capsule drawer has to be out of the machine for at least 5sec until the message will be reset.

**„Insert capsule drawer“ message**

Insert capsule drawer.

If message still appears, magnetic contact at right side of capsule drawer not correct. Check presence of magnet; try to move the position of the magnet (bending of sheet metal).

If necessary, call Thermoplan CSP.

**„NTC open/short Boiler #“ message**

Temperature sensor of coffee boiler # defect; call Thermoplan CSP

**„NTC Milk open/short“ message**

Temperature sensor of milk boiler defect; call Thermoplan CSP

**„Flowmeter # error“ message**

Flow sensor # defect. Switch off machine at main switch (underneath machine). Wait 10 sec. If message appears again, call Thermoplan CSP.

**„Milkpump error“ message**

Call Thermoplan CSP

**Milk foam**

The temperature of the milk inside the fridge must not be above 5 °C.

To check fridge temperature, press any production key for more than 3sec and the temperature is indicated on the display. This message (mode) will be changed to normal after 10sec of pressing no button.

When putting milk into the fridge, the milk should be max. 5 °C.

The fridge is not meant to cool down the milk but to keep it at max. 5 °C.

The kind of milk used has an effect on the foam quality (high-protein = richer foam, low-protein = lighter foam).

Always set the quality for hot milk foam first, before changing settings for cold milk foam.

**Low hot foam quality**

Verify if there's enough milk in the milktank inside the fridge.

Verify if the milk temperature is max. 5 °C.

Verify that the foam controller is connected correctly (not fallen off).

Check hot foam controller (right controller):

If no foam or low foam: increase controller

If big boubbles or steaming noise: decrease controller

Attention: The system response is quite slow. Verify setting with a couple of products!

If necessary, call Thermoplan CSP.

**Low cold foam quality**

Verify if there's enough milk in the milktank inside the fridge.

Verify if the milk temperature is max. 5 °C.

Make sure hot foam quality is set correctly.

Verify that the foam controller is connected correctly (not fallen off).

Check cold foam controller (left controller):

If no foam or low foam: increase controller

If big boubbles or steaming noise: decrease controller

Attention: The system response is quite slow. Verify setting with a couple of products!

If necessary, call Thermoplan CSP.

## Noise

The noise generated during the cold start rinsing is normal.

It is normal for the pump to make a different sound depending on the coffee variety or mode used (coffee, hot water, rinsing).

Check that the machine is stable and that none of its rubber feet are missing.

The surface on which the machine rests may enhance or dampen noise. Ideally, the machine should rest on a sufficiently thick flat working surface.

After a milk-based product is finished, the noise of a working pump can still be heard. This is normal as the milk fluid line will be rinsed with water after every preparation of a milk-based product.

In case of abnormal or extreme noise, call Thermoplan CSP.

## Scale

There is no need to descale the machine.

Make sure that the direct water connection is fulfilling the indicated minimum required water quality (shown in the user manual).

Make sure that the water filter system is installed correctly at the direct water entrance of the machine.

Call Thermoplan CSP if display message „Change water filter“ appears.

## Water leak

### At the drip tray

Check that the drip tray is correctly inserted and that any spillage runs into the drain.

Check that the drain tube is installed correctly (no kinking).

Check whether the drip tray is regularly cleaned by the customer.

### Under the machine

Dry the machine and neighbouring surfaces to determine the exact location of the leak.

Check that the drain tubes behind the capsule drawer and underneath machine are connected tight and are not leaking.

Check that the direct water connection is connected tight and is not leaking.

Otherwise, switch off the machine, unplug and call Thermoplan CSP.