

de BETRIEBSANLEITUNG

en OPERATING INSTRUCTION

fr NOTICE D'UTILISATION



**PASTEURISATOR, KÄSE- UND JOGHURTKESSELFJ 100 PF**  
**PASTEURIZER, CHEESE- AND YOGURT-KETTLE FJ 100 PF**  
**PASTEURISATEUR, CHAUDIÈRE À FROMAGE ET YOGHOURT FJ100 PF**

380 V - 400 V - Type 13311  
Volt nach Anfrage - Type 13311-0



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**Dear customer!**

**We are sure that you will find our Midi Pasteurizer FJ 30 as a helpful device and we believe that it will serve you a long time without any problems. We hope that you will recommend our Midi Pasteurizer also to your friends!**

**Thank you for buying it**

## GENERAL SAFETY RECOMMENDATIONS



**BEFORE ANY INSTALLATION READ THIS MANUAL VERY CAREFULLY. WHEN USING THIS DEVICE FOLLOW INSTRUCTIONS IN THIS MANUAL AND INSTRUCTIONS FOR SAFE WORK.**



**WHEN WORKING ALWAYS WEAR TIGHT CLOTHES, DO NOT WEAR A TIE.**



**PROTECT LONG HAIR WITH SUITABLE HEAD PROTECTION.**



**DO NOT WEAR JEWELRY (RINGS, NECKLACE, ETC.).**



**WEAR EYE PROTECTION – PROTECTIVE GLASSES.**



**BE AT FULL PSYCHOPHYSICAL ABILITIES WHEN USING THIS DEVICE.**



**ILLUMINATE THE WORKING AREA ACCORDING TO REGULATIONS.**



**ASSURE THE CLEAN AND TIDY WORKING PLACE, SURROUNDING OF THE DEVICE SHOULD BE FREE.**



**CONNECT THE DEVICE TO A PROPER ELECTRICAL SOCKET. ONLY TRAINED PERSONNEL IS ALLOWED TO USE THIS DEVICE. BEFORE TURNING ON THE DEVICE ALWAYS CHECK:**

- THAT NO PART OF THE DEVICE IS DAMAGED.
- THAT MOVING PATHS ARE CLEAR OF OBSTRUCTIONS.
- THAT DEVICE IS FILLED WITH WATER

**THE DEVICE HAS TO BE SWITCHED ON BY MAIN SWITCH.**



**WHEN THERE IS A DEFECT ON THE DEVICE, YOU MUST TURN IT OFF AND PUT THE PLUG FROM THE POWER SOURCE. DON`T REPAIR THE DEVICE BY YOURSELF, IN CASE OF MALFUNCTION RATHER CALL AUTHORIZED SERVICE PROVIDED BY YOUR DISTRIBUTOR. ONLY AUTHORIZED SERVICE WITH FAULTLESS TOOLS CAN REPAIR THE DEVICE. ALWAYS REPORT EVERY BRAKE DOWN OR DEFECT ON DEVICE. IN CASE OF SERIOUS MALFUNCTIONS SWITCH OFF THE MAIN SWITCH AND UNPLUG THE DEVICE FROM ELECTRICAL SOCKET AND COMPRESSED AIR SOCKET, THEN CALL AUTHORIZED SERVICE. YOU ARE ALLOWED TO USE ONLY THE PROCEDURES THAT ARE DESCRIBED IN THIS MANUAL. USE OF ANY OTHER PROCEDURES OR ADJUSTMENTS COULD RESULT IN DESTRUCTION OF THE DEVICE OR INJURY. INJURIES CONNECTED WITH SUCH PROCEDURES CANNOT BE SUBJECT OF ANY PRODUCT LIABILITY CLAIMS.**

## GENERAL SAFETY RECOMMENDATIONS



**DO NOT REACH INTO DANGER AREA – MOVING PARTS!**



**DO NOT LEAVE THE WORKING AREA WHEN DEVICE IS IN OPERATION!**



**DO NOT LEAN THE DEVICE WHILE IN OPERATION!**



**DO NOT REMOVE WARNING LABELS OR SECURITY DEVICES. BLOCKING OR REMOVING THE SECURITY DEVICES IS FORBIDDEN!**



**IT IS FORBIDDEN TO CLEAN, LUBRICATE OR REPAIR THE DEVICE DURING OPERATION. DISCONNECT DEVICE FROM ELECTRICAL SOCKET BEFORE CLEANING! TAKE CARE THAT MILK, WATER OR HUMIDITY WILL NOT COME INTO THE DEVICE.**



**ONLY TRAINED PEOPLE, WHO ARE FAMILIAR WITH RULES FOR SAFE WORK ARE ALLOWED TO WORK WITH THIS DEVICE.**



**NEVER START THE DEVICE BEFORE FILLING WATER INTO THE SECONDARY COAT. NOT DOING SO CAUSES DAMAGES AND DESTRUCTION OF THE HEATING ELEMENTS AND INJURIES MAY OCCUR.**



**AT NORMAL OPERATION HEATER PARTS COULD WARM UP. RISK OF BURNING IS POSSIBLE, AVOID CONTACT WITH HOT SURFACES.**



**HOT - RISK OF INJURY.**



**BEFORE FIRST INSTALATION, CONNECT THE HOUSING OF THE DEVICE TO A PROPER EARTH CONNECTION TO AVOID INJURIES AND DAMAGE**

## TECHNICAL SPECIFICATIONS

FJ - 100 PF 400 V		
Operating voltage	[V/Hz ]	400 / 50
Power supply		3 phase (3x230V)
Type of heating		electrical
Heater power	[kW]	6
Current	[A]	9
Safety Fuse recommended	[A]	Min. 16
Max. capacity	[l]	110
Minimum capacity	[l]	30
Volume of heating water	[l]	33
Dimension of Milk outflow	DN	50
Dimension of cold water inlet (cooling)	[mm]	DN20
Dimension of hot water outflow (cooling)	[mm]	30
Maximum temperature	[°C]	94
Mixer speed	[RPM]	0-104
Dimensions in cm (w x d x h)	[cm]	82 x 102 x 135
Net weight	[kg]	75
Protection type of electrical box		IP 56



**MAIN CORD MUST BE CONNECTED TO SAFETY OUTLET WITH GROUNDED TERMINAL!**

FJ-100 PF multipurpose kettle is designed for thermal processing of milk into dairy products (pasteurized milk, crème, cheese, yogurt, ...). Multipurpose kettle has open type construction, so heating water is never under pressure. It is made from stainless steel W. Nr. 1.4301 (AISI304), it is a triple-walled kettle. For cooling, tap water or cooling tank water is used. Cooling water flows freely through double wall of the kettle when cooling is applied. For heating electrical heater is used. Motor stirrer can be individually turned on or off, mixing speed can be regulated. It is user as well as environmental friendly and easy to use product.

## UNPACKING

Unpack the device carefully and check that nothing is left in the cardboard box. Place it on the plain and stable floor in clean, dry and dust-free place. Before use check that all parts are assembled according to instructions.

Room temperature, where pasteurizer is placed, is not allowed to fall under 10°C, also it is not recommended that room temperature exceeds 30 °C. With low room temperature, the maximum milk temperature decreases.

## Accessories

Packaging of multi-purpose kettle contains the following accessories:

- 100-liter multi-purpose kettle
- Cover with handle
- Outlet valve DN50 with outlet elbow
- Stirrer
- Flexible plastic hose ¾" with fixing element
- Option 1 (Stable support with leveling feet)
- Option 2 (Stable support with wheels)
- User Manual

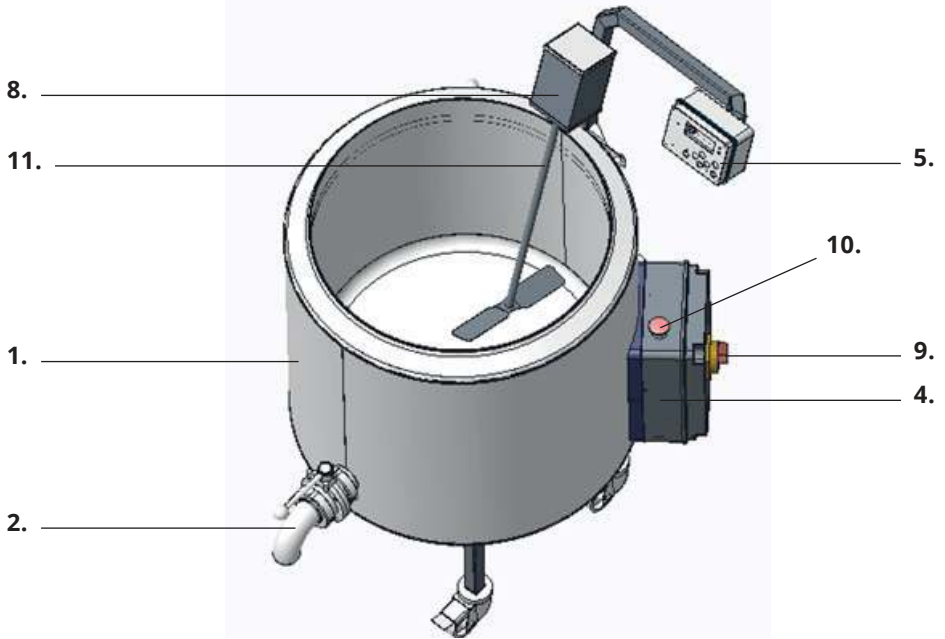
## DEVICE SETUP

### Main Components

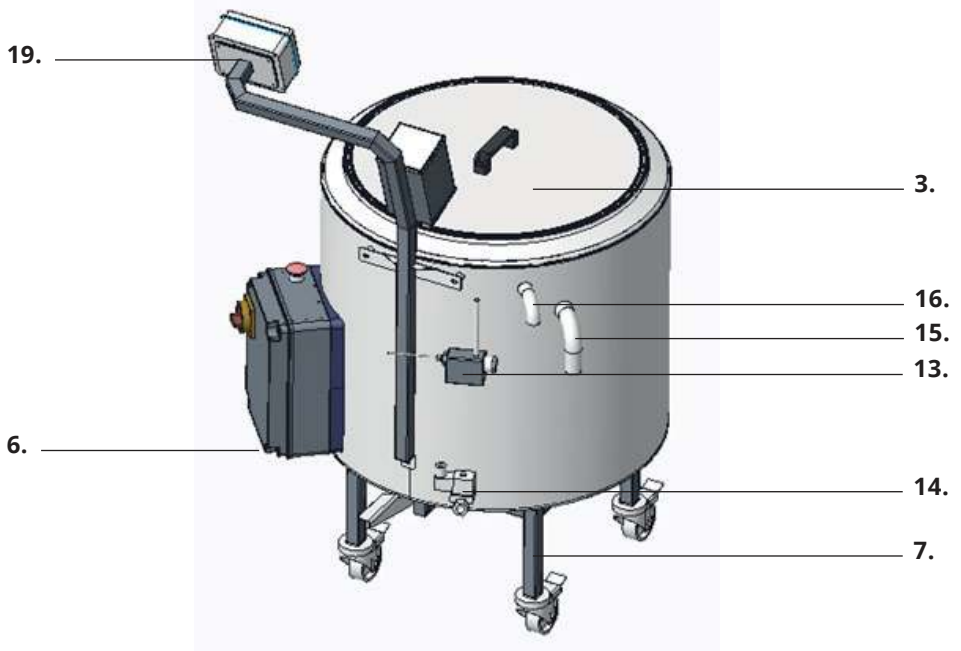
All important parts of device are named and described below:

1. The kettle
2. Milk outlet valve with knee outlet
3. Cover with handle
4. Electric case
5. Microprocessor unit
6. Power cord and socket (non-European editions come without a socket)
7. Stable support with wheels / leveling feet
8. Stirrer Motor
9. ON/OFF switch
10. Emergency stop switch
11. Stirrer
12. Milk temperature sensor
13. Water level sensor
14. Cold water inlet
15. Hot water outlet
16. Safety vent
17. Electro heater
18. Service outlet
19. Mixer speed regulating knob
20. Wheel 80
21. Leveling foot 50

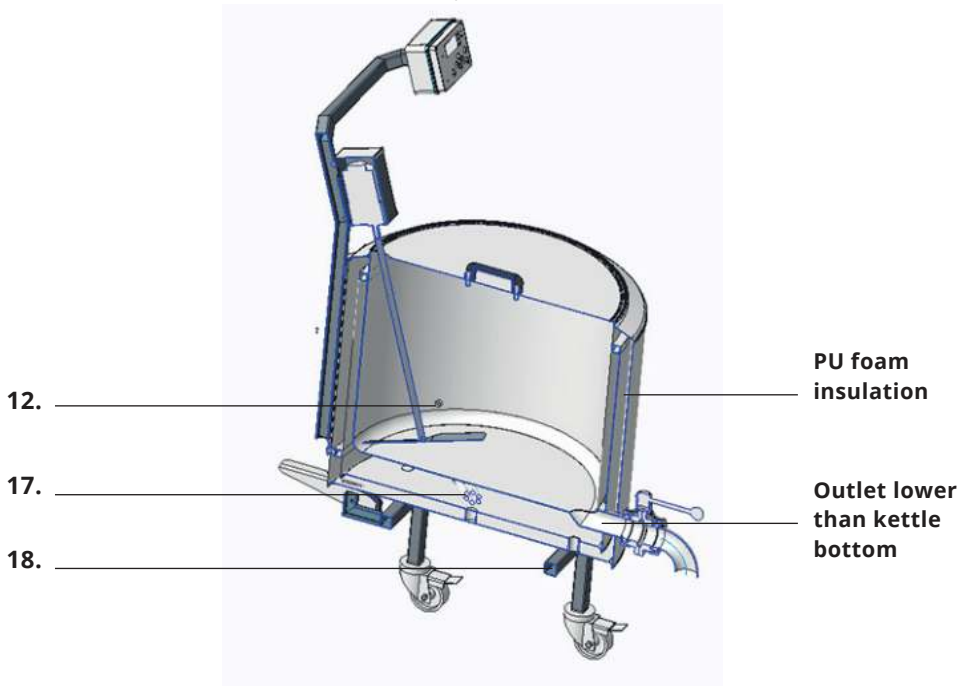
pic. 1



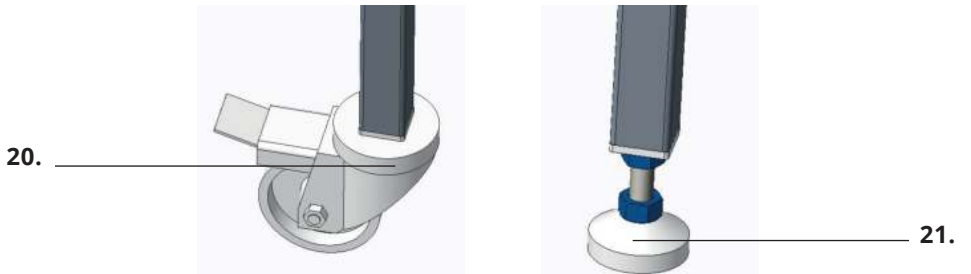
pic. 2



pic. 3



pic. 4





### Electrical connection

Before connection of pasteurizer on electrical network, make sure that data on name label matches with voltage of power supply. Also connect the kettle housing to the ground – earthing connection.



**VERSION FOR NON-EUROPEAN MARKET IS SUPPLIED WITHOUT ELECTRICAL SOCKET! ONLY TRAINED PERSONNEL MAY CONNECT PROPER LOCALLY APPROVED MULTI-PHASE SOCKET TO SUPPLIED DEVICE (SEE ELECTRICAL SCHEME).**

### Water connection

Stellen Sie vor jedem Start sicher, dass der Pasteurisateur mit Wasser gefüllt ist! Sie können Wasser aus dem Wasserhahn verwenden, wenn die mikrobiologischen und chemischen Anforderungen erfüllt werden. Wasser muss langsam einfließen- nicht mehr als 3 Liter / Minute.

**Inlet hose for filling the pasteurizer with water**



pic. 5

### Water filling into secondary coat

Use inlet hose to fill water into the double layer of device. The device needs to be properly filled with secondary water before start. Lack of secondary water or use of inappropriate water can damage the device. At startup program first checks for the presence of secondary water and demands the filling if no or inappropriate pressure of secondary water is detected.

### Filling procedure:

- Connect the tap water connection to inlet hose
- Connect hot water outlet connection to nearest siphon with flexible plastic hose  $\frac{3}{4}$ "
- Choose to fill water at microcontroller

When electronics is energized it first checks if heating water is present.



It offers to fill the water by pressing up key



or skip the choice by pressing down key.



**IF NO WATER IS PRESENT IT WILL NOT ALLOW TO PROCEED.**

Menu with water filling choice will disappear in 5 seconds after start if device is already filled with water. Water will flow through the device and exit at connection "hot water outlet". Then stop the filling by pressing down key.



## Water quality

The quality of the water used for washing, rinsing, heating, cooling is very important. The water used must be appropriate for drinking. These requirements must be fulfilled to prevent accumulation of bacteria on equipment surfaces. It is also important to prevent accumulation of lime scale and to prevent corrosion on surfaces inside the device. Water must be clean both microbiologically and chemically.

### *Microbiological requirements for water*

All coliform bacteria	Absent in 100ml
Faecal coliform bacteria	
Faecal streptococci	
Spores of sulfide reducing clostridium	
Microflora standard (PCA) at 22°C	Less than 100 CFU in 1ml
Microflora standard (PCA) at 37°C	Less than 100 CFU in 1ml
Pathogenic microorganisms	Absent
Iron oxidizing bacteria	Absent

In the case of chlorination of non-potable water residues that could affect the quality of the product or corrosion on the installations are not allowed.

### **Chemical characteristics of water**

- Ammonia, hydrochloric acid, sulfuric acid, hydrogen sulfide and hydrofluoric acid must be absent from the water.
- The amount of iron can be 0.2 to 0.3 mg / l. The water must not taste of iron.
- Lead must be absent.
- Water should be free of alkaline earth metal salt. This will facilitate the cleaning and disinfection and improve the transmission of energy and reduce plaque on surfaces.
- The content of chloride ions must be less than 50 ppm.



**HARDNESS OF WATER, WATER SHOULD BE SOFT (4-8 °DH) BASE, ACID SCALE OF WATER, PH VALUE SHOULD BE NEUTRAL PH 7 (+/- 1) WATER MUST COMPLY WITH STANDARDS DIN 2000 AND DIN 1988.**

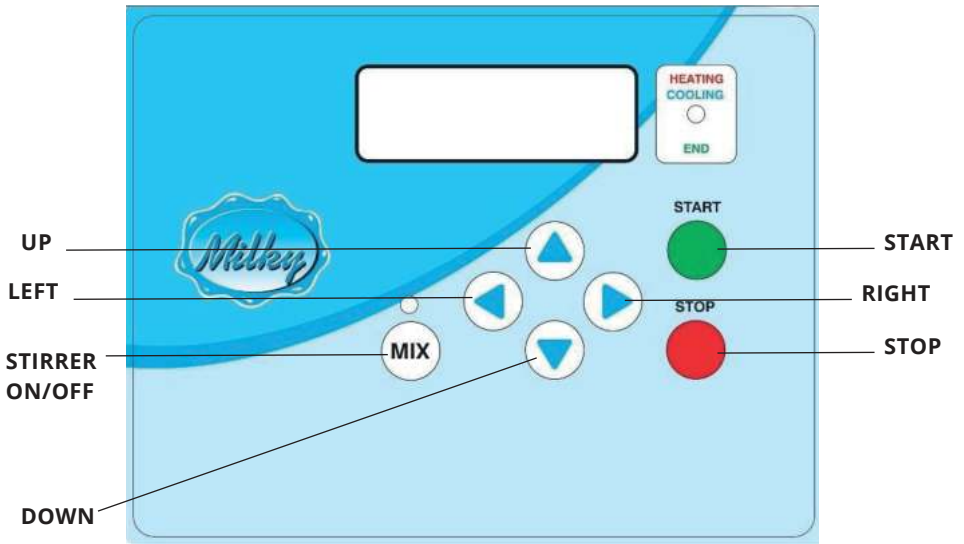
**INAPPROPRIATE WATER (INSIDE THE DEVICE) DIRECTLY AFFECTS THE LIFE EXPECTANCY OF THE DEVICE WHICH COULD BE SHORTENED BY HALF. WATER SHOULD BE NEUTRALIZED (WITH USE OF FILTER, SOFTENING DEVICES, ETC.) FOR LONGER LIFE OF THE DEVICE.**

## PROGRAM SETUP

### Control panel

Control panel of micro controller unit has four buttons (see picture below).

- With pressing on a green button, you start a process.
- With pressing on a red button, you stop a process.
- With pressing MIX button, you start rotating a stirrer or you stop rotating a stirrer if it is already rotating.
- With four buttons (up, down, left, right) you manipulate process data and **settings**.  
With keys up and down you can change entered values.



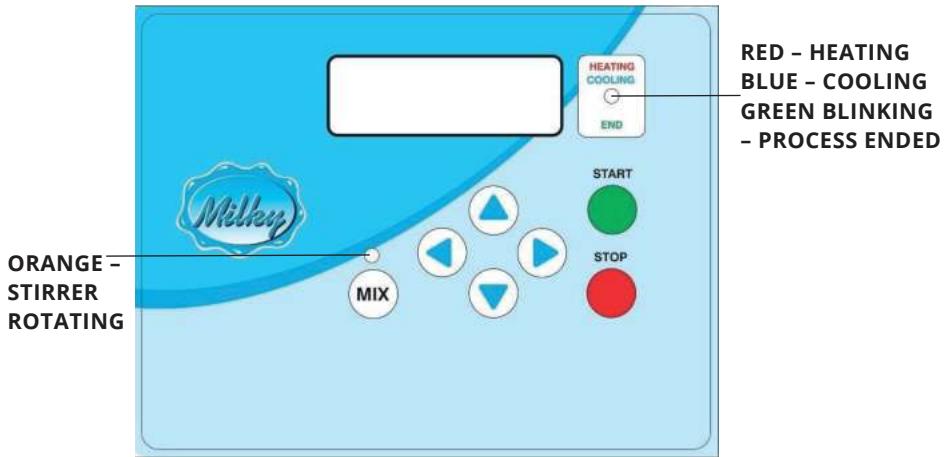
When device is energized you can read milk temperature on the screen.



Before start of the heating process make sure the device is properly filled with water and that settings are properly adjusted.

Control panel of micro controller unit has also indicating led lights.

- ORANGE light above "MIX" button indicates that stirring is activated, and mixer or harp system rotates.
- GREEN BLINKING light on the upper left corner indicates that process is done.
- RED light on the upper left corner indicates that process of heating is currently active.
- BLUE light on the upper left corner indicates that process of cooling is currently active.



### Main Menu

The control panel of microprocessor unit is clear and easy to use. If no button is pressed it will show main menu with milk temperature.

When no process is running, the control panel shows milk temperature [°C].




During processing:

- On the left side of control panel current milk temperature [°C] and set milk temperature [°C] is displayed.
- On the right side of control panel current phase number is displayed above, below is displayed elapsed holding time and set holding time in minutes.



## Settings Menu

The settings menu is entered when right key  is pressed in main menu configuration.

Settings menu represent a setpoint table of temperatures [°C] and times [min].

With pressing up key, value is increased by 1 unit.



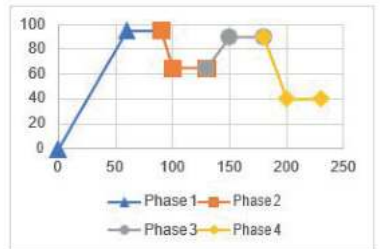
With pressing down key, value is decreased by 1 unit.



With pressing right key, you switch to another item.



Maximum set temperature is 94°C, minimum set temperature is 7°C. Minimum set time is 1 min, maximum set time is 999 minutes.



## Detailed Menu

The detailed menu is entered when up key  is pressed in main menu configuration.

Detailed menu shows:

- Secondary heating water temperature [°C]
- Milk temperature [°C]



## Heating procedure

Before heating procedure device must be properly connected.

- Place the device on the firm, plain and stable floor. It is recommended that the source of cooling water and the drain is not more than 2 m away from the device.
- Connect water supply to inlet hose and start filling heating water into secondary coat.
- Connect power supply to electric case.
- Pour desired amount of milk into the device.
- Turn on the device – Turn the main switch on (located on the side of the electric case).
- Heating can begin when device is properly setup – adjust heating temperatures and holding times.
- Press green button to start the heating process. The red light on the upper left part of control box is lit, indicating the heating is in progress. The display shows the present temperature and begins to heat till setpoint temperature is reached.
- After set temperature is reached heating transforms to holding, control unit beeps and the holding time is displayed on screen.
- Pasteurizer switches to next phase automatically when holding time is passed and stops the process automatically when fourth phase holding time is passed.
- **You can switch the phases if you want, by pressing the start key during operation.**

***Cover the kettle with lid. If kettle is not covered with lid, the time of heating will be longer and it will not reach maximal stated temperature!***

***If you want to move on second process, even if first process is not finished yet, just press key start.***

## Cooling procedure

Before cooling procedure device must be properly connected.

- Connect cooling water to cooling water inlet connection
- Connect drain hose to hot water outlet connection.

Slowly open the valve on your water network or cooling tank, that you connected inlet hose to. Cooling water supply must always be connected to the device, device will open the flow automatically, when needed. When setpoint temperature of milk will be lower than current temperature of milk, the device will automatically start the cooling procedure. The blue light on the upper right part of control box is lit, indicating the cooling is in progress. Cold water will slowly come into the device and out through hot water outlet connection to the drain. Cooling speed depends on cooling water temperature and flow. When desired temperature is reached, cold water flow will be automatically stopped by solenoid valve.



**COOLING WATER COMING OUT OF DEVICE IS HOT!  
BE CAREFUL THAT HOSE FOR HOT WATER OUTLET IS FREE (IS NOT PRESSED)**



## **CLEANING**

Before cleaning make sure that the device is switched off and disconnected from main power supply. Some of device parts could be hot, let them cool down before cleaning.

- The milk kettle and the cover should be cleaned with hot water adding fat soluble detergents. Afterwards these parts should be rinsed with pure water.
- Other equipment shall be cleaned only with wet cloth and afterwards dried with dry cloth.
- Do not use abrasive materials to avoid scratches.
- After use always clean the kettle. Do not use aggressive detergent.
- If milk or cream rests get dry do not remove them with sharp objects or sharp duster.

## **Detergents**

The base and acid for cleaning must meet the specifications of the manufacturer and should not contain foreign content, which would change the effect of the cleaning solution and affect the equipment. The same applies to disinfectants

- The base detergent which is usually used is sodium hydroxide (NaOH, caustic soda) with concentration 30/36%. Dilute it to a final concentration of 0.2 / 2% at 70 ° C.
- Maximum content of chloride ions in the solution of sodium hydroxide is 50 ppm. The solution should not contain impurities.
- The acid detergent which is normally used is a solution of nitric acid (NOH3) 33/36% concentration. Dilute it to a final concentration of 0.5 / 2% at 65°C.
- Maximum content of chloride ions in the solution of nitric acid is 50 ppm. The solution should not contain impurities.

**Ensure that no water comes into contact with electronics and electronic parts.**



**BEFORE CLEANING YOU MUST ALWAYS DISCONNECT DEVICE FROM ELECTRICITY.**

## MAINTENANCE AND SERVICE

### Troubleshooting

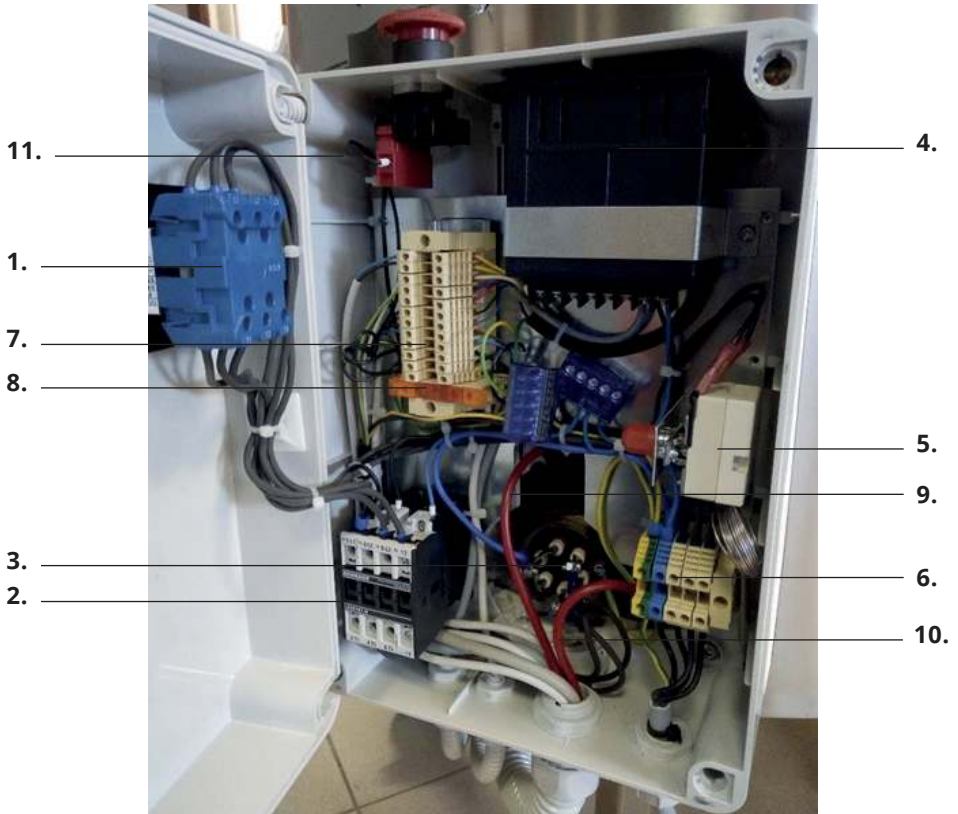
When a fault occurs, the information will be written on display and device will stop, if not stop it yourself by main switch and disconnect it from main power supply. When device malfunctions, disconnect the device from mains and call the authorized service - do not repair it yourself!

In the chart below are most common errors and resolutions

Error code	Description	Resolution
1	Device will not start, the information on display is: "Water low level"	There is not enough heating water inside the device, add water – see chapter water filling into secondary coat. Water level sensor may be malfunction – authorized personnel may check for loosened contacts, for inappropriate position or may replace the sensor.
2	Device will not start; the display is blank	Check the main power supply Check the main switch position Check the safety stop button position
3	Device worked, then it suddenly stopped heating.	Authorized personnel may open electro case and check the fuse state – see chapter with electric case contents.  If the fuse is activated call authorized service to check for electrical malfunctions.
4	Device worked, then it suddenly stopped heating.	Authorized personnel may open electro case and check the thermostat state – see chapter with electric case contents. If the thermostat is activated the device has overheated - call authorized service. The security switch switched off all functions on the device. (overheating protection).
5	"Error tmp. MILK" is shown	Milk sensor is malfunction – authorized personnel may check for loosened contacts or replace the sensor.
6	"Error tmp. WATER" is shown	Heating water sensor is malfunction – authorized personnel may check for loosened contacts or replace the sensor.

## Electric case contents

Bild 6






Alle wichtigen Teile des Elektrogehäuses sind nachfolgend aufgeführt und beschrieben:

1. Main switch
2. Contactor for activating the heater
3. Electrical heater
4. Motor speed regulator (Frequency inverter)
5. Thermostat
6. Clips for main electricity
7. Clips for electrical elements
8. Fuse for electric elements
9. Milk temperature sensor
10. Secondary water temperature sensor
11. Emergency stop switch

## Advanced settings menu

The advanced settings are entered only with a service code. This menu is locked due to safety reasons and can be adjusted only by a credited service partner.

With pressing mix key  start key  and down key  at startup, you enter advanced settings menu.

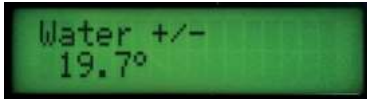
First you can adjust temperature sensors:

With pressing up key  value is increased by 1 unit.

With pressing down key  value is decreased by 1 unit.

With pressing right key  you switch to another setting.

**Water sensor** offset adjustments can be made by increasing or decreasing the current temperature value. Pay attention on analog value when changing (seen if key start is pressed).



Water +/-  
19.7°

**Milk sensor** offset adjustments can be made by increasing or decreasing the current temperature value. Pay attention on analog value when changing (seen if key start is pressed).



Milk +/-  
19.4°

**Type of device** can be chosen:

- P100
- P50




Type +/-  
P100

**Max DIF milk -water** is a temperature difference between milk and secondary water when device is in heating phase.



Max DIF milk-wat  
\_25°C

**Heater ON add** is a temperature difference of cooling water and setpoint temperature. When cooling, secondary water will cool down only for entered temperature value lower than setpoint temperature of milk.



Heater ON add  
8°C

## DEVICE SPARE PARTS

### Device spare parts list

Pos.	Art. No.	Part name	Kg
1.2	100797	Milk outlet valve	2,9
2.3	100960	Cover with handle	2,9
1.5	100706	Microprocessor unit	0,4
1.12	100691	Milk temperature sensor	0,1
6.9	100691	Water temperature sensor	0,1
2.13	100958	Water level sensor	0,1
6.5	100673	Thermostat 125°C 16A	0,1
6.8	100955	Tubular fuse 2A	0,05
6.2	100689	Contactactor 7,5 kW	0,3
6.3	100684	Electrical heater 6 kW	1,2
1.8	100679	Stirrer motor	2,5
6.4	100703	Speed controller	0,3
2.14	100956	Solenoid valve for cooling water	0,6
4.20	100902	Wheel 80	0,3
4.21	100959	Stable foot	0,2

### Spare parts ordering procedure

Fast and reliable shipment of spare parts is possible only if their description is clear enough. At the time of ordering please state clearly:

- Type of device
- Serial number printed on label plate at the rear side of device.
- Spare part name and number

## **GARANTIE**

In case of troubles consult with your salesman or call authorized service.

Equipment is warranted to be free from defects in material and workmanship for a period of 12 months against faulty components and assembly. Our obligation under this warranty is limited to the repair or replacement of the instrument or part thereof, which shall within 12 months after date of shipment prove to be defective after our examination.

Defects or damages of the device, which are result or improper assembly, use, connection or maintenance are not covered by this warranty.

The warranty also doesn't cover:

- Device malfunction due to water or milk inflow,
- Mains cord
- Heating elements and it's actuators (contactors)
- Repairs done by yourself or by other not authorized people,
- Transport cost

Other rights, that are not mentioned in upper obligations of the manufacturer, especially responsibility for personal injury, are excluded.

The given technical specifications are valid only when all conditions in this user`s manuals are fulfilled.

**Dear Customer!**

**We hope, that you will find, that our pasteurizer is a helpful tool and we believe, that it will serve you for a long time without any problems. We hope you will recommend it also to your friends!**

**Thank you very much for buying it.**



**Janschitz GmbH**

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