RoboLabs

Incredible machines for fastfood & funfood

Caramel coating machine
SugarLips 100
(CP-100SR)

400 V 50 Hz

Technical manual

Read this manual before use and keep for future reference!

PDF version of this manual is available on www.robolabs.pro

Safety requirements

This is the safety alert symbol. It is used to alert you to potential physical injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠DANGER

- **THIS MANUAL IS FOR SKILLED TECHNICIANS ONLY!**
- **DO NOT** open electric panels unless you are qualified for this.
- **Electric shock hazard!** High voltage inside electric panel. DO NOT touch bare terminals and/or wires.
- **ALWAYS** unplug the machine before servicing, unless you need it to be energized for performing setup procedures.

⚠WARNING

- **Burn hazard!** Some parts of machine are very hot. Wait until machine is cooled down before working with those parts.

⚠WARNING

- **ALWAYS** wear eye protection while servicing this equipment to avoid possible injury.

Contents

1 Components setup

1.1 Temperature regulator setup

Temperature regulator TCN4S (Fig.1) has three setting groups: 1st setting group, 2nd setting group, and SV setting group (the main indication mode). The settings must be changed in the same order as they appear in the list. Note that after changing In-t (temperature sensor type) or UnI-t (temperature unit) values, parameters H-Su, L-Su, AL1, AL2, AHYS must be set again. The regulator has more parameters than listed below; if you see a parameter not from the list, skip it and move to the next one.

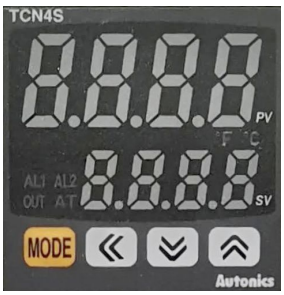


Figure 1: TCN4S panel

Parameters changing procedure

1. To access the 2nd group of parameters press and hold MODE for 4 seconds; once display reads PAr2, release MODE.
2. To access the 1st group of parameters, press and hold MODE for 2 seconds; once display reads PAr1, release MODE.
3. Press MODE to go through the parameters. Current value is represented on the lower line of the display.
4. Press ⌃ or ⌄ to change the value.
5. Press MODE to move to the next parameter.

Group	Param	Value	Description
2nd	LoC	oFF	Unlock all settings for changing
2nd	In-t	YCA.H	Temperature sensor type
2nd	L-Su	90	SV low-limit value, °C
2nd	H-Su	220	SV high-limit value, °C
2nd	C-nd	PId	Control type
2nd	oUt	SSr	Control output
2nd	AL-1	An1.A	AL1 alarm operation mode
2nd	AHYS	10	Alarm output hysteresis, °C
1st	AL1	-10	AL1 alarm temperature, °C
1st	P	200	Proportional band, °C
1st	I	0	Integral time
1st	d	0	Derivative time
2nd	LoC	LoC2	Group 1 and 2 settings locked
SV	SV	155	Default temperature, °C

1.2 Temperature limiter setup

DANGER

- **Electric shock hazard!** High voltage inside electric panel. DO NOT touch bare terminals and/or wires.

TC4SP unit (Fig.2) has three setting groups: 1st setting group, 2nd setting group, and SV setting group (the main indication mode). The settings must be changed in the same order as they appear in the list. Note that after changing In-t (temperature sensor type) or UnI-t (temperature unit) values, parameters H-Su, L-Su, AL1, AL2, AHYS must be set again. The regulator has more parameters than listed below; if you see a parameter not from the list, skip it and move to the next one.

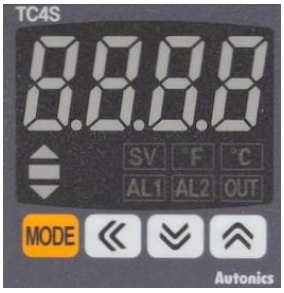


Figure 2: TC4SP panel

Parameters changing procedure

1. To access the 2nd group of parameters press and hold MODE for 4 seconds; once display reads PAr2, release MODE.
2. To access the 1st group of parameters, press and hold MODE for 2 seconds; once display reads PAr1, release MODE.
3. Press MODE to go through the parameters. Press « to see current value of the parameter.
4. Press ^ or v to change the value.
5. Press MODE to move to the next parameter.

Group	Param	Value	Description
2nd	LoC	oFF	Unlock all settings for changing
2nd	In-t	YCA	Temperature sensor type
2nd	L-Su	250	SV low-limit value, °C
2nd	H-Su	400	SV high-limit value, °C
2nd	C-nd	onoF	Control type
2nd	oUt	rLY	Control output
1nd	HYS	10	Alarm output hysteresis, °C
SV	SV	350	Default temperature, °C
2nd	LoC	LoC3	All settings locked

1.3 VFDs setup

DANGER

- **Electric shock hazard!** High voltage inside electric panel. DO NOT touch bare terminals and/or wires.

NOTE 1: VFD setup must be performed only when the drive is stopped.

NOTE 2: After setting parameter 02.00 to 9, VFD displays End, and gets back to the main indication mode. After this, continue setup process from parameter 00.03.

Figure 3: VFD control panel

Parameters changing procedure

1. Locate the VFD control panel, see Fig 3.
2. To change or view parameter value, press ENTER, the display shows 00.__
3. Press ▲ or ▼ to choose the first two digits of the parameter (for example, 02).
4. Press ENTER again, display shows 02.00.
5. Press ▲ or ▼ to choose the second two digits of the parameter, for example, 02.11.
6. Press ENTER again to see the current value of the parameter. Change value, if needed, with ▲ or ▼.
7. Press ENTER to confirm and save the new value, the display shows End.
8. Press MODE to return back to the previous level of selection or to the main mode.

Parameter	UZ1 (mixer)	UZ2 (kettle)	Description
00.02	9	9	Settings initialization
00.03	1	1	Start-up display selection
01.00	50.00	50.00	Maximum output frequency
01.09	2.0*	1.6*	Accel time
01.10	2.0*	1.6*	Decel time
01.16	0	4	Acceleration/deceleration mode
02.00	0	0	Source of first master frequency command: keypad
02.01	4	4	Source of first operation command: RS-485
02.04	0	0	Motor direction control
02.07	1	1	Up/down mode
02.11	30.0	30.0	Keypad frequency command
07.02	5.0	5.0	Torque compensation
09.00	1	2	VFD communication address
09.01	1	1	Transmission speed: 9600 bps
09.02	1	1	Transmission fault treatment (warn and ramp to stop)
09.04	1	1	Communication protocol: ASCII, 7, E, 1

* – needs to be set up individually on each machine.

1.4 Voltage control relay setup

DANGER

- **Electric shock hazard!** High voltage inside electric panel. DO NOT touch bare terminals and/or wires.

Voltage control relay (Fig.4) is intended to protect the machine from improper connection and from voltage deviations in the service grid. The relay has following controls, see Fig.4:

1 – High voltage limit adjustment knob; 2 – Low voltage limit adjustment knob; 3 – Tripping delay adjustment knob; 4 – Power supply status LED (green); 5 – Relay output status LED (yellow).

Setup procedure

1. Unplug the machine.
2. Set (1) at 260 V.
3. Set (2) at 180 V.
4. Set (3) at 2 s.

LED status

GREEN	YELLOW	Meaning
GLOWS	GLOWS	Voltage is ok.
GLOWS	BLINKS	Voltage is beyond allowed range. Check the voltage in the mains.
FLASHES	FLASHES	Voltage exceeds both high and low limit because of improper set up.

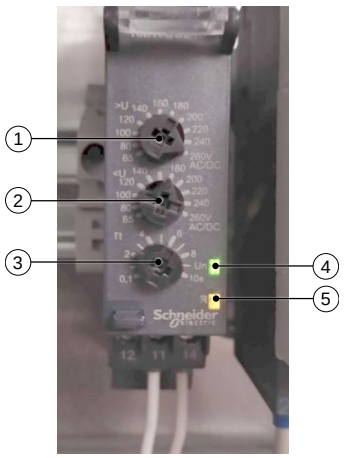


Figure 4: Voltage control relay

2 Diagnostic procedures

⚠DANGER

- **Electric shock hazard!** High voltage inside electric panel. DO NOT touch bare terminals and/or wires.
- ALWAYS unplug the machine before resistance measurement, or open circuit check, or circuit continuity check.

⚠CAUTION

- Some diagnostic procedures requires to turn the heating on. Pour enough water in the kettle so to cover the kettle bottom before performing such procedures. Running heating with empty kettle might lead to kettle overheating.

NOTE: Refer to the wiring diagram and parts list to locate the components. Following designation is used in this section:

- (5)/DC1 – terminal no.5 of the component DC1.
- [1.15] – wire labelled “1.15”.

2.1 Controls

2.1.1 Main switch (SA1)

1. Cool down the machine and unplug.
2. Ensure continuity and terminal tightening for the wires: [1.7] [1.6] [1.5] [1.4] [5.23] [5.10] [5.9] [5.8] [5.7] [5.6] [5.5] [5.4] [5.3] [5.2] [5.1] [5.0].
3. Set SA1 to OFF.
4. Ensure (1)/SA1 and (2)/SA1 are open.
5. Ensure (3)/SA1 and (4)/SA1 are open.
6. Ensure (5)/SA1 and (6)/SA1 are open.
7. Set SA1 to CARAMEL.
8. Ensure (1)/SA1 and (2)/SA1 are open.
9. Ensure (3)/SA1 and (4)/SA1 are open.
10. Ensure (5)/SA1 and (6)/SA1 are closed.
11. Set SA1 to TWEAKING.
12. Ensure (1)/SA1 and (2)/SA1 are closed.
13. Ensure (3)/SA1 and (4)/SA1 are closed.
14. Ensure (5)/SA1 and (6)/SA1 are open.

2.1.2 EMERGENCY STOP switch (SA2)

1. Cool down the machine and unplug.
2. Ensure continuity and terminal tightening for the wires: [1.4] [1.3] [1.2] [1.1] [2.4] [2.3].
3. Press SA2.
4. Ensure (1)/SA2 and (2)/SA2 are open.

5. Ensure (3)/SA2 and (4)/SA2 are open.
6. Release SA2.
7. Ensure (1)/SA2 and (2)/SA2 are closed.
8. Ensure (3)/SA2 and (4)/SA2 are closed.

2.1.3 HEATING push button (SB1)

1. Cool down the machine and unplug.
2. Ensure continuity and terminal tightening for the wires: 5.16 5.5 5.4 5.3 5.2 5.1 5.0.
3. Ensure (1)/SB1 and (2)/SB1 are closed if SB1 IS pressed, and open if SB1 IS NOT pressed.

2.1.4 DUMP push button (SB2)

1. Cool down the machine and unplug.
2. Ensure continuity and terminal tightening for the wires: 5.18 5.7 5.6 5.5 5.4 5.3 5.2 5.1 5.0.
3. Ensure (1)/SB2 and (2)/SB2 are closed if SB2 IS pressed, and open if SB2 IS NOT pressed.

2.1.5 MIXING push button (SB3)

1. Cool down the machine and unplug.
2. Ensure continuity and terminal tightening for the wires: 5.17 5.4 5.3 5.2 5.1 5.0.
3. Ensure (1)/SB3 and (2)/SB3 are closed if SB3 IS pressed, and open if SB3 IS NOT pressed.

2.1.6 RAISE push button (SB4)

1. Cool down the machine and unplug.
2. Ensure continuity and terminal tightening for the wires: 5.19 5.2 5.1 5.0.
3. Ensure (1)/SB4 and (2)/SB4 are closed if SB4 IS pressed, and open if SB4 IS NOT pressed.

2.1.7 HEATING lamp (HL1)

1. Cool down the machine and unplug.
2. Ensure continuity and terminal tightening for the wires: 6.6 5.6 5.5 5.4 5.3 5.2 5.1 5.0.

2.1.8 DUMP lamp (HL2)

1. Cool down the machine and unplug.
2. Ensure continuity and terminal tightening for the wires: 6.8 5.8 5.7 5.6 5.5 5.4 5.3 5.2 5.1 5.0.

2.1.9 MIXING lamp (HL3)

1. Cool down the machine and unplug.
2. Ensure continuity and terminal tightening for the wires: 6.7 5.3 5.2 5.1 5.0.

2.1.10 RAISE lamp (HL4)

1. Cool down the machine and unplug.
2. Ensure continuity and terminal tightening for the wires: 6.9 5.2 5.1 5.0.

2.2 Temperature regulator (DC3)

1. Cool down the machine and unplug.
2. Ensure continuity and terminal tightening for the wires: 1.11 1.10 1.9 1.8 2.7 2.6 2.5 2.9 5.9 5.8 5.7 5.6 5.5 5.4 5.3 5.2 5.1 5.0.
3. Plug the machine in. Set SA1 to CARAMEL.
4. Ensure voltage from (5)/DC3 to (6)/DC3 is 208 VAC. IF voltage DOES present, BUT the display doesn't lit, replace DC3.
5. Ensure DC3 proper setup.
6. Ensure voltage from (8)/DC3 to (0V)/PSU is 24 VDC.
7. Ensure voltage from (7)/DC3 to (0V)/PSU is 24 VDC whenever AL1 indicator of DC3 is lit. IF NOT, alarm output is fault, replace DC3.
8. Ensure voltage from (1)/DC3 to (2)/DC3 is 24 VDC whenever OUT indicator of DC3 is lit. IF NOT, SSR output is fault, replace DC3.

2.3 Main temperature sensor (BT2)

1. Cool down the machine and unplug.
2. Ensure sensor wires are properly connected to (10)/DC3 and (11)/DC3.
3. Ensure resistance from (10)/DC3 to (11)/DC3 is about 10 Ω. IF open or short circuit, replace BT2.

2.4 Temperature limiter (DC4)

1. Cool down the machine and unplug.
2. Ensure continuity and terminal tightening for the wires: 1.15 1.14 1.8 2.5 2.9
3. Pour water in the kettle in the amount enough to cover the kettle bottom, to avoid overheating during following steps.
4. Plug the machine in. Set SA1 to CARAMEL and press HEATING.
5. Ensure voltage from (10)/DC4 to (11)/DC4 is 208 VAC. IF voltage DOES present, BUT the display of DC4 doesn't lit, replace DC4.
6. Ensure DC4 proper setup.
7. Ensure voltage from (4)/DC4 to ground is 120 VAC whenever machine is in heating mode.
8. Ensure voltage from (5)/DC4 to ground is 120 VAC whenever machine is in heating mode and OUT indicator is lit up. IF NOT, relay output is fault, replace DC4.

2.5 Heaters high temp sensor (BT1)

1. Cool down the machine and unplug.
2. Ensure sensor wires are properly connected to (2)/DC4 and (3)/DC4.
3. Ensure resistance from (2)/DC4 and (3)/DC4 is about 10 Ω. IF open or short circuit, replace BT1.

2.6 Mixer drive (UZ1,M1)

DANGER

- Capacitors in the output circuit of the VFD might maintain high voltage at output terminals U, V, W for up to 10 minutes after power cut off.

2.6.1 VFD unit (UZ1)

1. Cool down the machine and unplug. Wait 15 minutes.
2. Ensure continuity and terminal tightening for the wires: 10.0 11.0 1.13 2.11 2.10 GND5.
3. Plug the machine in. Set SA1 to TWEAKING.
4. Ensure voltage from (R)/UZ1 to ground is 120 VAC.
5. Ensure voltage from (S)/UZ1 to ground is 120 VAC.
6. Ensure UZ1 display is lit up. IF NOT, replace UZ1.
7. IF display reads OL (Overload), or OC (Overcurrent), or GFF (Ground fault), check M2.

2.6.2 AC motor (M1)

1. Cool down the machine and unplug. Wait 15 minutes.
2. Ensure continuity and terminal tightening for the wires: U2.0 V2.0 W2.0.
3. Ensure resistance between any two of U2.0 V2.0 W2.0 is about 78 Ω.
4. If previous step indicated OL, then open the kettle, ensure continuity and terminal tightening for the wires: U2.1 V2.1 W2.1.
5. Ensure continuity of J2.
6. Repeat resistance measurement from the terminal box of the motor. IF confirmed, replace M2.
7. Ensure the motor wired in star.
8. Ensure open circuit from any of U2.1 V2.1 W2.1 to the ground.
9. Remove the grilled cap from the motor that covers the cooling impeller. Ensure the impeller can rotate as driven by hand. IF impeller cannot rotate, or can rotate only with significant effort, then take off the motor with gearbox and inspect for mechanical damage.

2.7 Kettle tilt drive (UZ2,M2)

DANGER

- Capacitors in the output circuit of the VFD might maintain high voltage at output terminals U, V, W for up to 10 minutes after power cut off.

2.7.1 VFD unit (UZ2)

1. Cool down the machine and unplug. Wait 15 minutes.
2. Ensure continuity and terminal tightening for the wires: 10.1 11.1 2.10 3.3 GND6.
3. Plug the machine in. Set SA1 to TWEAKING.
4. Ensure voltage from (R)/UZ2 to ground is 120 VAC.
5. Ensure voltage from (S)/UZ2 to ground is 120 VAC.
6. Ensure UZ2 display is lit up. IF NOT, replace UZ2.
7. IF display reads OL (Overload), or OC (Overcurrent), or GFF (Ground fault), check M1.

2.7.2 AC motor (M2)

1. Cool down the machine and unplug. Wait 15 minutes.
2. Ensure continuity and terminal tightening for the wires: U1.0 V1.0 W1.0 GND7.
3. Ensure resistance between any two of U1.0 V1.0 W1.0 is about 30 Ω.
4. IF open or short circuit, repeat resistance measurement from the terminal box of the motor. IF confirmed, replace M1.
5. Ensure the motor wired in star.
6. Ensure open circuit from any of U1.0 V1.0 W1.0 to the ground.
7. Remove the grilled cap from the motor that covers the cooling impeller. Ensure the impeller can rotate as driven by hand. IF impeller cannot rotate, or can rotate only with significant effort, then take off the motor with gearbox and inspect for mechanical damage.

2.8 Solid-state relays (VS1-VS4)

1. Cool down the machine and unplug.
2. Ensure (L1)/VS1 and (T1)/VS1 are open.
3. Ensure (L1)/VS2 and (T1)/VS2 are open.
4. Ensure (L1)/VS3 and (T1)/VS3 are open.
5. Ensure continuity and terminal tightening for the wires: 1.16 | 1.17 | 2.12 | 2.13 | 6.12 | 6.13 | 6.14 | 6.15 | 5.24 | 5.25 | 5.26 | 5.27.
6. Pour water in the kettle in the amount enough to cover the kettle bottom, to avoid overheating during following steps.
7. Plug the machine in. Set SA1 to CARAMEL and press HEATING.
8. Ensure voltage from (T1)/VS1 to ground is 120 VAC.
9. Ensure voltage from (T1)/VS2 to ground is 120 VAC.
10. Ensure voltage from (T1)/VS3 to ground is 120 VAC.
11. Ensure voltage from (T1)/VS4 to ground is 120 VAC.
12. Ensure voltage from (L1)/VS1 to ground is 120 VAC whenever pilot light on VS1 is lit.
13. Ensure voltage from (L1)/VS2 to ground is 120 VAC whenever pilot light on VS2 is lit.
14. Ensure voltage from (L1)/VS3 to ground is 120 VAC whenever pilot light on VS3 is lit.
15. Ensure voltage from (L1)/VS4 to ground is 120 VAC whenever pilot light on VS4 is lit.

2.9 Heating elements (EK1-EK6)

1. Cool down the machine and unplug.
2. Ensure the resistance from (L1)/VS3 to (L1)/VS1 is about 24 Ω.
3. Ensure the resistance from (L1)/VS1 to (1)/KM1 is about 24 Ω.
4. Ensure the resistance from (L1)/VS4 to (L1)/VS2 is about 24 Ω.
5. Ensure the resistance from (L1)/VS2 to (1)/KM1 is about 24 Ω.
6. If previous steps indicated OL or significantly other values, then open the kettle, inspect heating elements and connection wires for any signs of burn out, corrosion and so on. If found, replace heating elements and wires.
7. Ensure continuity and terminal tightening for the wires: 1.21 | 1.20 | 1.19 | 1.18 | 2.17 | 2.16 | 2.15 | 2.14 | 3.7 | 3.6 | 3.5 | 3.4.
8. Ensure the resistance of each EK1-EK6 is about 12 Ω each. IF short or open circuit, replace fault heating element.
9. Ensure each heating element DOES NOT HAVE ground fault, there should be no contact between each terminal stud and the ground. Replace fault heating element.
10. When rewiring elements, use conductive anti-seize paste on bolted joints between terminal studs of the heaters and the wires.

2.10 Power supply unit (PSU)

1. Cool down the machine and unplug.
2. Ensure continuity and terminal tightening for the wires: 1.10 | 1.9 | 1.8 | 2.6 | 2.5 | 2.9 | GND4.
3. Plug the machine in. Set SA1 to CARAMEL.
4. Ensure voltage from (L)/PSU to (N)/PSU is 208 VAC.
5. Ensure voltage from (24V)/PSU to (0V)/PSU is 24 VDC.

2.11 Slim relay (K)

1. Cool down the machine and unplug.
2. Take out the relay's central module by pressing latching lever. Ensure the module pins and the socket are clean and free of dust and scrap. Insert the module back.
3. Ensure terminals (11)/K and (14)/K are open. IF NOT, replace the relay.
4. Ensure continuity and terminal tightening for the wires: 1.9 | 1.8 | 6.11 | 5.11 | 5.10 | 5.9 | 5.8 | 5.7 | 5.6 | 5.5 | 5.4 | 5.3 | 5.2 | 5.1 | 5.0.
5. Plug the machine in. Set SA1 to CARAMEL and press HEATING.
6. Ensure voltage from (A1+)/K to (A2-)/K is 24 VDC whenever LED indicator on (Y1)/DC2 is lit.
7. Ensure voltage from (11)/K to ground is 120 VAC.
8. Ensure voltage from (14)/K to ground is 120 VAC.

2.12 Proximity sensors (BL1,BL2)

NOTE: Each sensor trips whenever a steel pin is placed in front of the sensor (BL1 when kettle is in upright position, BL2 when the kettle is in dumped position). A suitable ferrous metal item (screwdriver for example) might be used for testing the sensors.

1. Cool down the machine and unplug.
2. Ensure both sensors are properly fixed in their places.
3. Ensure continuity and terminal tightening for the wires: 5.21 | 5.20 | 5.14 | 5.13 | 6.1 | 6.0.
4. Plug the machine in. Set SA1 to CARAMEL.
5. Ensure LED indicator on (X4)/DC1 is lit whenever the pin or screwdriver is placed in front of BL1.
6. Ensure LED indicator on (X5)/DC1 is lit whenever the pin or screwdriver is placed in front of BL2.

2.13 Contactor (KM1)

1. Cool down the machine and unplug.
2. Ensure continuity and terminal tightening for the wires: 1.1 | 1.15 | 2.1 | 3.1 | 2.9.
3. Ensure the plunger of the contactor can be smoothly pushed down with a suitable tool (e.g. screwdriver).
4. Ensure (1)/KM1 closes to (2)/KM1, (3)/KM1 closes to (4)/KM1, (5)/KM1 closes to (6)/KM1, whenever the plunger IS pushed down.
5. Ensure (1)/KM1 DOESN'T close to (2)/KM1, (3)/KM1 DOESN'T close to (4)/KM1, (5)/KM1 DOESN'T close to (6)/KM1, whenever the plunger IS NOT pushed down.
6. Ensure resistance between (A1)/KM1 and (A2)/KM1 is about 500 Ω. IF open or short circuit, replace KM1.
7. Plug the machine in. Set SA1 to CARAMEL and press HEATING. Wait 15 seconds.
8. Ensure voltage from (A1)/KM1 to (A2)/KM1 is 208 VAC.
9. Ensure voltage from (1)/KM1 to ground is 120 VAC.
10. Ensure voltage from (3)/KM1 to ground is 120 VAC.
11. Ensure voltage from (5)/KM1 to ground is 120 VAC.

2.14 Circuit breaker (QF)

1. Cool down the machine and unplug.
2. Ensure continuity and terminal tightening for the wires: 1.0 2.0 3.0.
3. Cock up the black lever of QF.
4. Ensure (1)/QF closes to (2)/QF, (3)/QF closes to (4)/QF, (5)/QF closes to (6)/QF.
5. Plug the machine in.
6. Ensure voltage from (1)/QF to ground is 120 VAC.
7. Ensure voltage from (3)/QF to ground is 120 VAC.
8. Ensure voltage from (5)/QF to ground is 120 VAC.

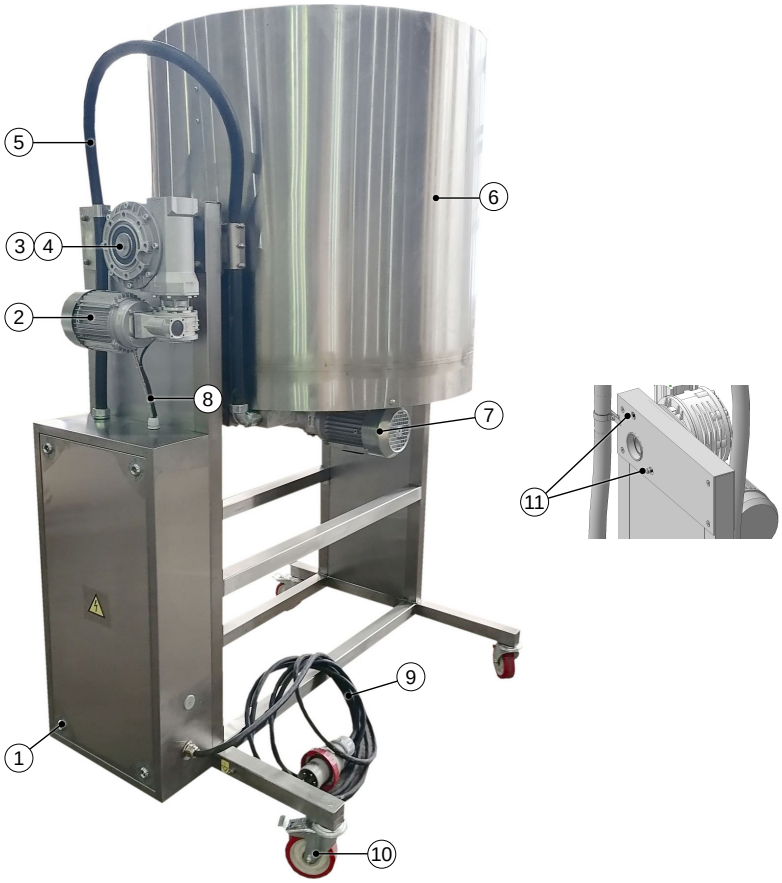
2.15 Buzzer (BZ)

1. Cool down the machine and unplug.
2. Ensure continuity and terminal tightening for the wires: 5.12 5.11 5.10 5.9 5.8 5.7 5.6 5.5 5.4 5.3 5.2 5.1 5.0 6.10.

2.16 Fans (MF1,MF2)

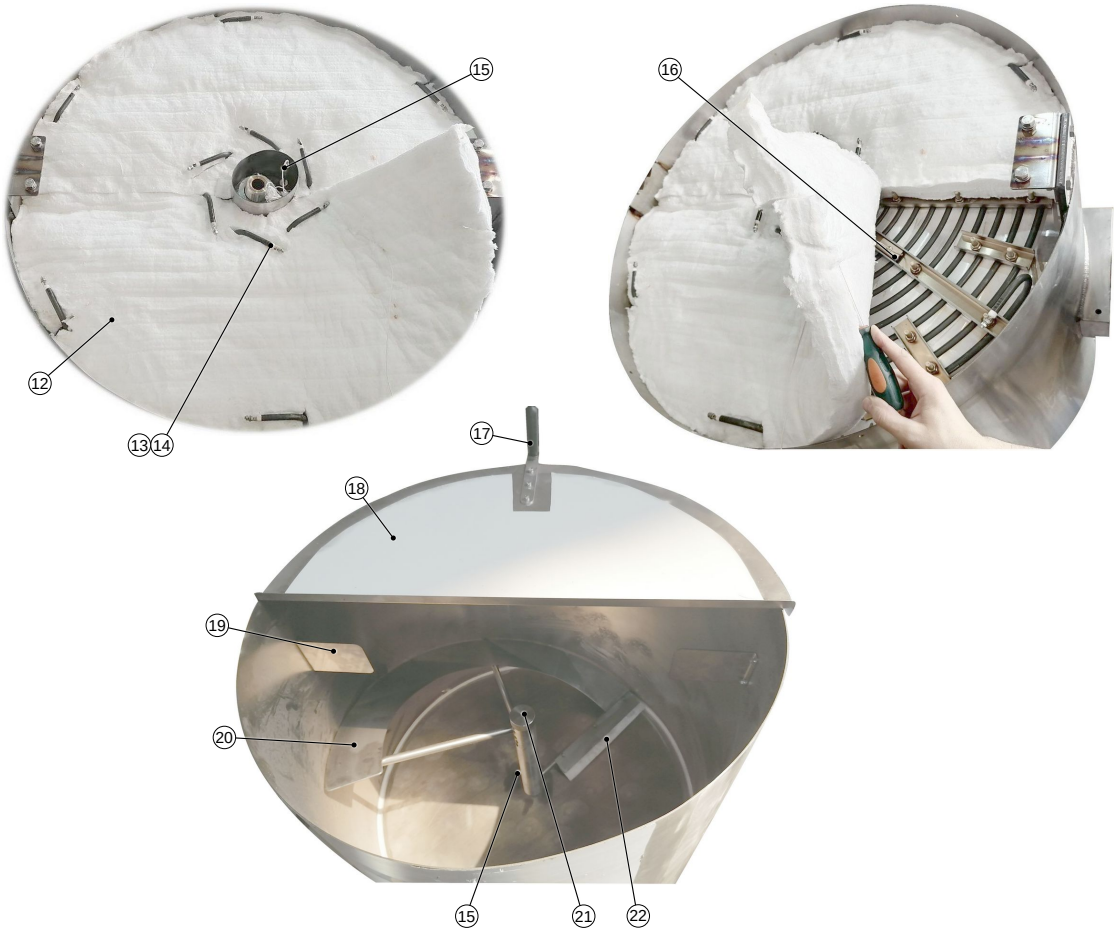
1. Cool down the machine and unplug.
2. Ensure continuity and terminal tightening for the wires: 2.8 2.7 1.12 1.11.
3. Disconnect XP1 and XS1.
4. Disconnect XP2 and XS2.
5. Ensure resistance from XP1 to XP2 is 450 Ω.

3 Parts list



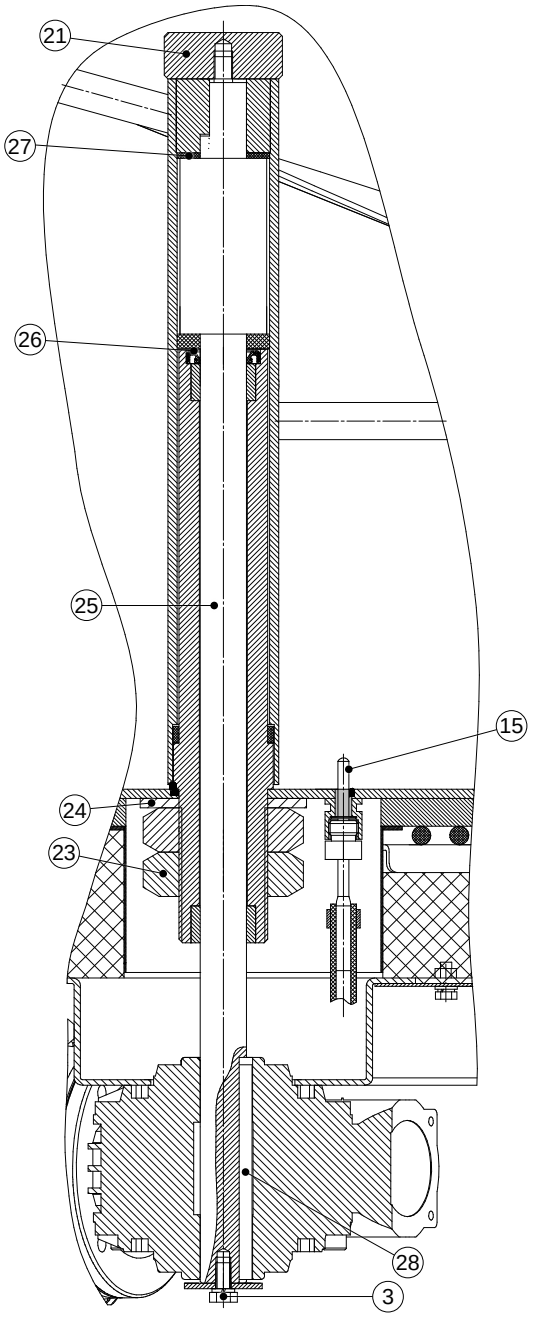
Pos.	WD sign	Item	QTY	Order no.
1	-	Lock	4	25786
2	M2	AC motor with gearbox (kettle tilt)	1	25629
3	-	Shaft fasteners set	1	26300
4	-	Shaft key	1	30705
5	-	Conduit assembled w/wires	1	26304
6	-	Kettle assembled	1	25844
7	M1	AC motor with gearbox (mixer)	1	25628
8	-	Shielded cable	2	17728
9	-	Power cord	5	30819
10	-	Swivel caster w/brake	4	24731
11	BL1,BL2	Proximity sensor	2	30674

Parts list (continued)



Pos.	WD sign	Item	QTY	Order no.
12	-	Heat insulation	6	25965
13	-	Heating coils hook-up wires set	1	30818
14	EK1-EK6	Heating coil	6	25231
15	BT2	Kettle temperature sensor	1	23226
16	BT1	Heaters temperature sensor	1	24922
17	-	Kettle lid handle	2	22870
18	-	Kettle lid (semi-round)	2	21692
19	-	Deflector w/fasteners	2	23365
20	-	Mixer assembled	1	25070
21	-	Mixer fixing nut (left-thread)	1	23386
22	-	PTFE pad	1	23360
-	-	Mixer motor terminal block (not shown)	1	23310

Parts list (continued)

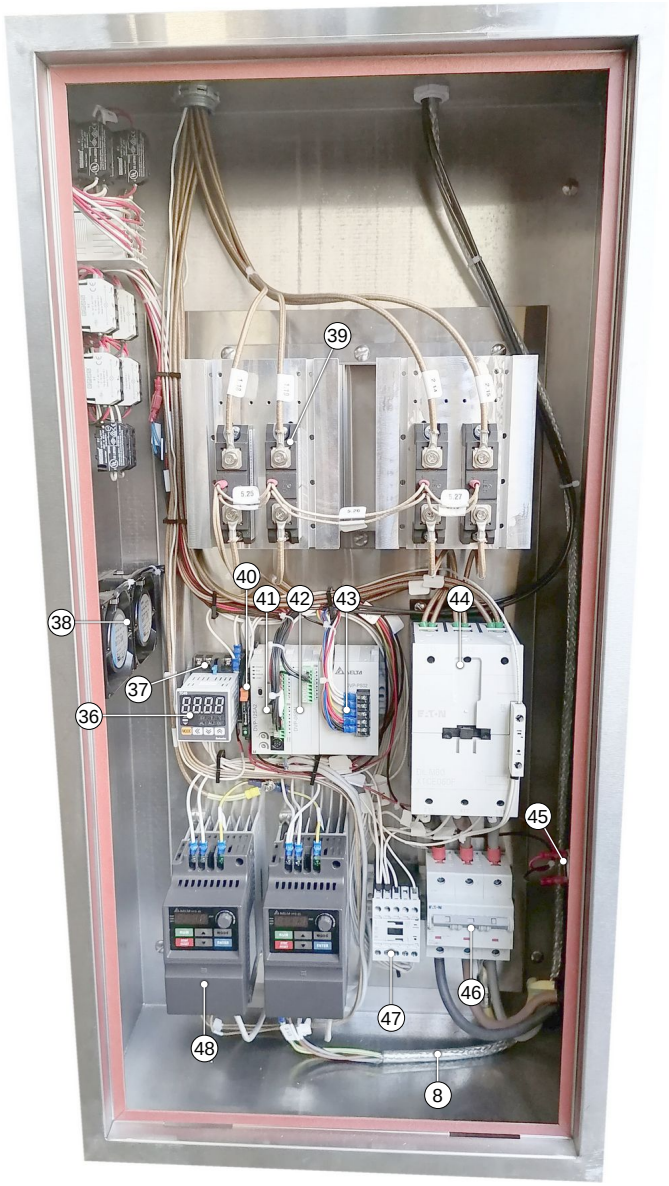


Pos.	WD sign	Item	QTY	Order no.
3	-	Shaft fasteners set	1	26300
15	BT2	Kettle temperature sensor	1	23226
21	-	Mixer fixing nut (left-thread)	1	23386
23	-	Nut M48	2	26302
24	-	Washer	1	26303
25	-	Mixer shaft repair set	1	26305
26	-	Mixer shaft sealing	1	26299
27	-	Silicone liner	1	23380
28	-	Shaft key	1	26301

Parts list (continued)

Pos.	WD sign	Item	QTY	Order no.
29	SA2	Switch 2NO	1	12978
30	-	Contact block 1NO	1	22451
31	DC3	Temperature regulator	1	25111
32	SB1-SB4	Push button	4	25121
33	-	Contact-block with LED	4	25113
34	-	Yellow protective cover	1	25473
35	SA1	Emergency stop switch	1	25138

Parts list (continued)



Pos.	WD sign	Item	QTY	Order no.
8	-	Shielded cable	2	17728
36	DC4	Temperature limiter	1	16848
37	-	Temperature limiter socket	1	22599
38	MF1,MF2	Fan	2	25143
39	VS1-VS4	Solid-state relay	4	26252
40	K1	Slim relay	1	25147
41	DC1	PLC	1	25145
42	DC2	I/O extension unit	1	16324
43	TV	Power supply unit	1	15355
44	KM1	Contactor 80 A	1	26249
45	BZ	Buzzer	1	22951
46	QF	Circuit breaker 80 A	1	26251
47	KM1	Contactor 12 A	1	26250
48	UZ1,UZ2	Inverter (VFD)	2	25425