

KADZAMA

TECHNOLOGY FOR SUCCESS

Automatic tempering machine 60 kg

Manual



This manual is designed for study the main technical characteristics, operating principle and rules of technical operation of an automatic tempering machine.

Before use carefully read the instructions below!

Improper use of the equipment can be a source of danger. By starting work with the device you confirm that you are fully acquainted with this manual and understood the rules of operation of the device.

KADZAMA Ltd appreciates your purchase and wishes you a pleasant work experience.

1 — Purpose of the device

Automatic tempering machine is designed for tempering chocolate.

2 — Specifications

Power supply, [V] / [Hz]	380 / 50
Power intake (not more than), [kW / h]	4,2
Loading capacity, [kg]	60
Productivity, [kg / h]	200
Cooling power, [btu]	11,000
Tempering period, [min]	15

Dimensional size (L x W x H), [mm]	1549 x 1000 x 938
Weight (unpackaged / in package), [kg]	231 / 235

3 — Configuration

Automatic tempering machine — 1 pc.

Vibrating table — 1 pc.

Manual — 1 pc.

Warranty card — 1 pc.

4 — Safety measures

4.1. Automatic tempering machine (hereinafter **ATM**) is an electric appliance with a certain danger potential. When connecting the device to the electric grid, take all necessary precautions to avoid electric shock.

4.2. An ATM must be connected to the power supply and operated only by trained personnel.

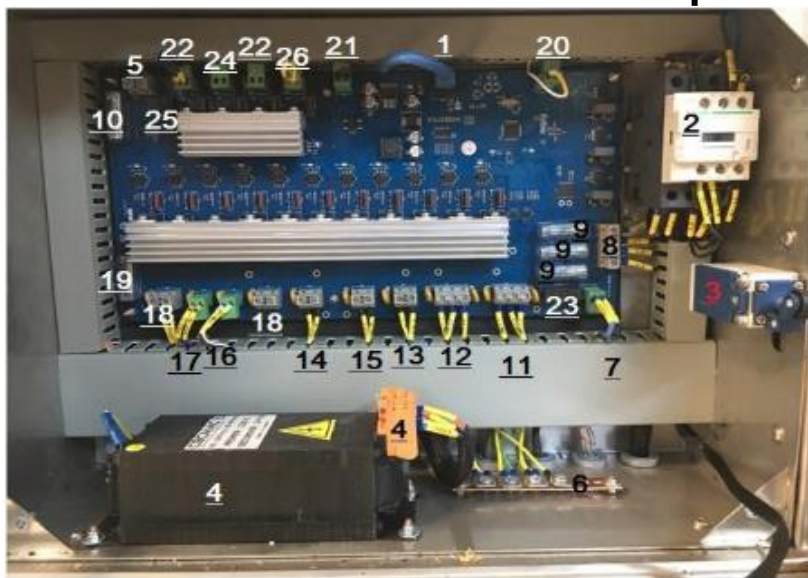
4.3. It is not allowed to operate an ATM in the absence of electrical grounding («E» wire).

4.4. An ATM should be used only for its intended purpose.

4.5. Use and store an ATM in a place out of reach of children

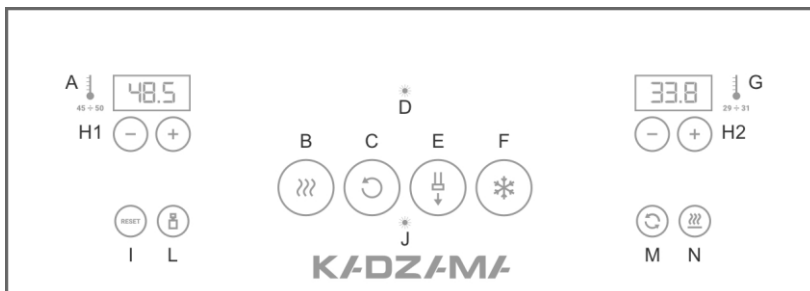
- 4.6. Do not leave an ATM switched on without supervision for a long time.
- 4.7. Do not operate an ATM with wet hands.
- 4.8. Do not allow liquids inside an ATM.
- 4.9. Do not use an ATM at ambient temperatures below 10°C and above 40°C, and relative humidity above 80%.
- 4.10. When transporting an ATM at sub zero temperatures, prior to first use it should be kept at room temperature for at least 1 hour.
- 4.11. Any maintenance should be carried out when an ATM is disconnected from the power supply!
- 4.12. Repair or disassembly of an ATM may only be provided with the assistance of qualified personnel of KADZAMA Ltd.

5 — Constructive elements description



1	Display cable
2	Line contactor
3	End switcher
4	Transformer 230V-24V
5	24V input from transformer
6	Ground wire
7	230V input
8	Contactor power supply

9	Fuses 400V (3 phase)
10	Fuse 230V (1 phase)
11	Mixer engine
12	Pump engine
13	Cooling compressor
14	First tank heater
15	Second tank heater
16	Coolant pump
17	Resistors group
18	Additional output 230V
19	Additional fuse 230V
20	Pedal
21	Lid's magnetic sensor
22	Additional output 24V
23	Additional fuse 24V
24	Additional output for stream 24V
25	Fuse 24V
26	Fuse 230V

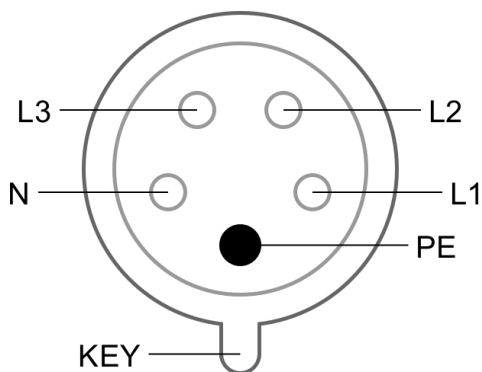


A	Tank temperature display
B	Heat button
C	Mixer button
D	Standby indicator
E	Pump button
F	Temper button
G	Outlet temperature display
H1	Tank temperature control buttons
H2	Outlet temperature control buttons
I	Reset button
L	Dispenser settings
M	Vibrating table button
N	Vibrating table heat button

J	Connection signal
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6 — Before start

- 6.1. Remove the packaging.
- 6.2. Set an ATM on a flat hard surface, providing easy access to controls.
- 6.3. Make sure that the distance between the body and the nearest objects is at least 10 cm.
- 6.4. Connect the power cable to the device and plug it in.



IMPORTANT:

— when connecting, make sure that the phases in the socket are not reversed with zero (with a direct test screwdriver or multimeter). In case of error (**Err**) on the display, it is necessary

to reverse the phases «L1» and «L2» without touching «N» according to the labels on the socket.

7 — Exploitation

IMPORTANT! For correct equipment operation it is necessary to maintain a room temperature from 18°C to 25°C. Otherwise, the heating system will show a result higher, than the permissible one (we also draw your attention to the fact that deviation from temperature standards in the room can affect the quality of the product, since in most cases its properties also depend on the environment).

7.1. Remove the protective grid from the tank and put the chocolate in it. Cover the tank.

7.2. Check the state of the emergency stop button (it must not be pushed). The power button on the left side of the machine should light up to indicate that it is ready to start. Press it.

7.3. The Standby indicator (**D**) will light up to indicate that the machine is ready for work. Press the Heat button (**B**). The displays (**A**) and (**G**) will show the current temperatures of the tank and nozzle, and the heating of the machine units will begin.

7.4. When the temperature on the display (**A**) reaches the set level, you will hear a signal indicating the ability of starting the mixer. Press the Mixer button (**C**) to begin mixing the chocolate in the tank. Rotation will not start if the current tank temperature is lower than the set one (the recommended temperature is 45°C). The temperature of the product in the tank can be changed with the Tank temperature control buttons (**H1**).

7.5. Press the Pump button (**E**) to start product circulation. The product will flow from the nozzle.

7.6. After starting the mixing and circulation, you can start the tempering process by pressing the Temper button (**F**). When the temperature on the display (**G**) reaches the set level, you will hear a signal indicating the product is ready for use. The outlet temperature can be changed using the Outlet temperature control buttons (**H2**). Recommended temperatures:

— dark chocolate: 30-31°C

— milk chocolate: 29-30°C

— white chocolate: 28-29°C

These values are for guidance only and should be changed according to the cocoa butter rate in the product. During tempering, no solid product can be added to the tank (only in liquid condition at 45°C).

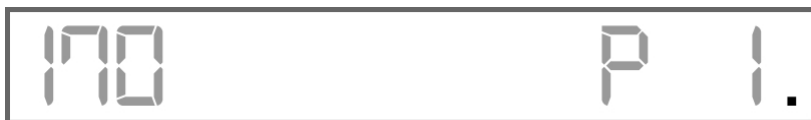
7.7. This machine is equipped with a Dispenser function (dispensing a specified amount of product when you press the pedal). To activate this function, press the Dispenser Setup button (**L**). On the left display (**A**), the temperature value will be replaced by the current dose value. You can store up to 15 values in memory (to scroll through them, press **H1(+)**). To change the value of the deposited dose, hold the «Dispenser setting» button (**L**) pressed for approximately 7 seconds until a sound signal (the dose value will begin to flash) and press the **H1(+/-)** buttons to change the value to the desired value

(change step is 1). When the dosing function is activated and the pedal is pressed, the machine will interrupt the feeding, after which the product will be deposited in accordance with the set dose. Constantly pressing and holding the pedal activates fixed pause and release cycles. Setting the pause time between depositing cycles is described in paragraph **7.9.** of this manual (parameter **dJ**) and must be carried out on a machine with an untempered product (approx. 45°C).

7.8. Since the specific gravity may vary for each specific product, it is advisable to calibrate the dosage for each new product loaded into the machine. Dosing calibration should be carried out on tempered chocolate at a temperature of 28-32°C, at which later depositing into molds will be carried out. This is important because at a higher temperature, for example 45°C, the product will be less thick and the dosage settings for it will be different. Also, for proper calibration, the tank must be at least 75% full.

So the first thing to do is to load at least 75% of the tank with the product and then temper this volume (until the sound signal).

When the chocolate is tempered, press the button (**F**) to exit the tempering mode, then enter the dispensing mode by pressing the «Dispenser Settings» button (**L**). Next, press buttons (**I**) and (**L**) simultaneously and hold them for about 5 seconds until the display (**G**) shows:



(light weight, instead of «170» may be another number)

Keeping the pedal pressed, collect the chocolate poured out by the machine in 1 cycle using a container of known weight (place the previously empty container on the scale and press «Container» or a similar button). Weigh the chocolate unloaded by the machine in 1 cycle and enter the net weight (in grams) of the collected sample on the display (**A**) by pressing the **H1(+/-)** buttons.

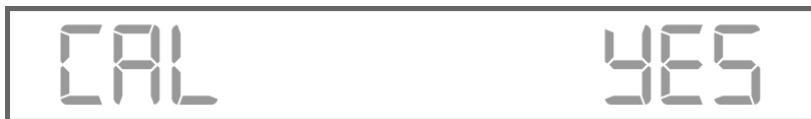
Press the **H2(+)** button, it should display:



(greater weight, instead of «310» may be another number)

Keep the pedal pressed and collect the chocolate poured out by the machine in 1 cycle. Weigh the chocolate unloaded by the machine in 1 cycle and enter the net weight (in grams) of the collected sample on the display (**A**) by pressing the **H1(+/-)** buttons.

Press the **H2(+)** button, it should display:



To complete the calibration, press the **H2(+)** button again.

After calibration, it is recommended to turn on the tempering mode again by pressing the «Start tempering» button (**F**), wait until the chocolate reaches the set temperature (if it has warmed up significantly during calibration) and check/more precisely adjust the specific dose:

- Press the button «Dispenser settings» (**L**);
- Select the dose value of interest from the saved ones (by pressing the **H1** buttons), or change any unnecessary value (as described above in paragraph **7.7.** of this manual)
- Press and hold the pedal, collect the sample to be weighed.

If the net weight of the collected sample differs from the selected dose value by $\pm 10\%$, make a more precise adjustment to the specific dose. To do this, hold the «Dispenser setting» button (**L**) pressed for about 7 seconds until a sound signal (the dose value will begin to flash) and press the **H1(+/-)** buttons to change the value in the desired direction: for example, if «100» was set, and if you get 110 g, you need to reduce «100» to approximately «91» and repeat the check / adjustment (if necessary).

If the net weight of the first collected sample after calibration differs from the selected dose value by much more than 10% (for example, «100» was specified, but the result was 150 grams), it is necessary to repeat the calibration procedure — probably an error was made in the process.

IMPORTANT! The dose value is indicated not in grams, but in the so-called «cycles» (conditional internal value of the

machine, used by the firmware to control the amount of feed during dispensing). This convention is necessary because it is impossible to specify the specific gravity of all possible products that can be used in the machine. Thus, the situation in which the dose value is set, for example, «91», and the machine dispenses 100 grams, is the norm, and not an error or breakdown.

7.9. The automatic tempering machine has a «deep settings mode», the default values of which are suitable for 90% of the machine's operation and do not require modification or control. It is recommended to perform the actions described below only in cases where you know exactly for what purpose and what changes need to be made (for example, adjust the **dJ** parameter to change the pause time between depositing cycles, as described in paragraph **7.7.** of this manual).

To enter the «deep settings mode», follow the procedure:

- Stop the ATM (press buttons **(F)**, **(E)**, **(C)**, **(B)** in sequence if they were pressed previously);
- Start the ATM (press button **(B)**);
- Press buttons **(F)**, **(M)**, **(N)** at the same time.

The left display **(A)** should show the **SFr** parameter, and the right display **(G)** should show the value of this parameter (**OFF** or **ON**). To switch between parameters, use the **H1(+/-)** buttons, and to change the value of a parameter, use the **H2(+/-)** buttons.

Parameters that can be changed in the «deep settings mode»:

Setting	Value	Info
SFr (reset rotation prohibition)	ON	The «Function Reset» button (I), when pressed, will allow the auger/mixer to start rotating when the machine is not warmed up to the set temperatures set in (A) and (G).
	OFF	The «Function Reset» button (I) does not reset the rotation prohibition. This ensures that the motors do not fail when attempting to spin with frozen product inside.
PT1 (temperature calibration at the outlet of the nozzle)	From -9,9 to +9,9	If the readings on the display (G) diverge critically from the actually measured chocolate temperature at the outlet, this value can be adjusted.
NGn (remaining operating time)	OFF	If the machine was rented, instead of the OFF value, the number of remaining shifts (8 hours each) until the end of the rental will be displayed.
F-C (temperature units)	ON	Fahrenheit
	OFF	Celsius
dJ (pause time between dispensing cycles)	From 0,1 to 3,0	Used to adjust the standard delay (in seconds) between depositing cycles when the dispensing function is activated.
tUP (product heating limit)	From 35 to 65	The machine will not heat the product above the set degree value. The default is 55°C.

Fdn (cooling system temperature)	From 25 to 30	Used to calibrate the temperature of the cooling system (in extremely rare cases). Changing without a reason is highly undesirable.
H-C (automatic tempering)	ON	Heating and cooling work simultaneously.
	OFF	Heating and cooling work alternately.

8 — Maintenance and care

8.1. During the operation keep an ATM clean.

8.2. It is allowed to wipe the body with a damp cloth, after disconnecting an ATM from the power supply.

8.3. If the power supply is lost during the operating cycle, restart the ATM.

8.4. If user wants to leave chocolate in the tank at the end of the working cycle , it is recommended to do the following:

— if tempering is started: press the **(F)** button to stop it;

— wait a few minutes until the temperature of the product in the nozzle rises to about 36°C;

— press the following buttons in sequence: **(E)**→**(C)**→**(B)** to switch an ATM to the «Standby» mode (indicator **(D)** is on);

— An ATM can be turned off by pressing the red button.

8.5. Cover the container with a lid at the end of the working cycle.

9 — Warning message

ERR	PHS	Change the connection of phases L1 and L2.
Pt1	Err	The nozzle sensor has detected a temperature below 12°C or above 60°C. It's probably damaged and needs to be replaced.
Pt2	Err	Same as above, but with an auger tube sensor.
Pt3	Err	Same as above, but with a tank sensor.
Pt4	Err	Same as above, but with a cooling circuit sensor.
Pt5	Err	Same as above, but with a duct sensor.
Pt6	Err	Same as above, but with a second tank sensor.
CUC	MA	Abnormal agitator motor's power consumption..
GUC	PA	Abnormal product pump motor's power consumption..
GUC	220	Abnormal PS 230V power consumption.
GUC	24	Abnormal PS 24V power consumption.
GUC	FRG	Abnormal refrigeration compressor's power consumption.

10 — Warranty

Гарантия изготовителя

The warranty period (as well as the terms of warranty service) are specified in the warranty card.

11 — Certificate of acceptance

Automatic tempering machine 60 kg complies with stated specifications and is recognized as serviceable.

kadzama.com

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Meets certification requirements

