Robotic Weighing System **RB 2.5Y.F**

OPERATING MANUAL

IMMU-3001-01-08-24-EN

www.radwag.com

Thank you for choosing and purchasing the RADWAG balance.
The device has been designed and manufactured to serve you for many years.
Please read this manual to assure its reliable operation.

AUGUST 2024

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1. GENERAL INFORMATION

Before you activate and operate the device, you must read the operating manual to avoid device-related hazards.

Please follow all guidelines listed in the operating manual with regard to installation, operation and maintenance for assurance of long and failure-free use of the balance.

It is forbidden to overload the balance, and it is necessary to follow permissible values specified in the rating plate of the device.

The device may only operate at the temperature specified in the rating plate.

It is forbidden to use the device in ex-zones or areas exposed to harmful acids, vapours, gases, dust and radiation.

It is strictly forbidden to activate and operate the device if it is damaged.

Incorrect use and maintenance may lead to damage to the device or bodily injuries or even death.

Any structural modifications may be carried out only upon prior approval of the device manufacturer.

Any maintenance and servicing works must be performed with special care in view of presence of moving elements and hazardous voltage in the device. A failure to follow this warning may result in serious injuries or death.

Only authorised people trained with regard to device operation and OHS regulations are allowed to work with the device.

While using the device, permanent access to the operating manual must be provided.

RADWAG is not held responsible for any damage, losses or accidents arising from misuse, failure to follow safety standards, unauthorised modifications, or ignorance of the operating manual.

It is prohibited to provide third parties or unauthorised people with technical data and drawings included in the documentation. For additional information, please contact RADWAG.

Please make sure all warning signs are kept in a proper condition, while missing or damaged signs replaced with new equivalents.

All safety tips provide important information concerning security.
Ignoring them may lead to bodily injuries, damage or malfunctioning of the device.

Signs and symbols showed in the manual:

 - Hazard warning.

 - Hazardous electric voltage warning.

 - Palm injury warning.

 - Harmful or irritant substance warning.

 - Important notes.

The hazards that may occur while using, operating and maintaining the device.

Pay attention to the following residual hazards:

Type of hazard	Activity	Hazard area	Solution
 Device weight	Transportation	Entire device	Transportation of the device with the use of suitable and authorised cranes by the trained personnel. Follow applicable safety regulations.
 Collapsing hazard	Assembly/installation, cleaning, decommissioning, disassembly.	Entire device	Fix the device permanently using dedicated fixing holes.
 Palm injury hazard	Assembly.	Entire device Ioniser	Assembly works must be performed only by trained and authorised personnel. It is forbidden to touch the source of ions, otherwise it may lead to bodily injuries (these elements – emitters – are very sharp).

 Hazardous electric voltage warning	All kinds of work	Electronic unit housing, ioniser	The electronic unit housing cover must be closed. It is forbidden to touch the source of ions, otherwise it may lead to electric shock (during operation).
 Harmful or irritating substance warning	Washing with cleansing agents	Entire device	Wear personal protective equipment and follow the cleansing agent manufacturer's guidelines.
 Optical or audible signal warning	All kinds of work	Warning device	Inform the personnel about existing warning devices.
	Before you start cleaning and repairing, unplug the device, deactivate the transporting unit and secure it against undesired activation. Pay attention to foreign voltages existing in the control outputs.		

2. GUARANTEE TERMS

Detailed guarantee terms can be accessed in the guarantee card supplied with the device.

RADWAG undertakes to repair or replace the items that prove defective in terms of manufacture or structure.
It is allowed to specify defects of unclear origin and establish methods of eliminating them only in cooperation with representatives of the manufacturer and operator.
RADWAG shall not be held responsible for damage, losses or accidents arising from unauthorised or incorrect measuring or servicing works.

The guarantee does not cover the following:

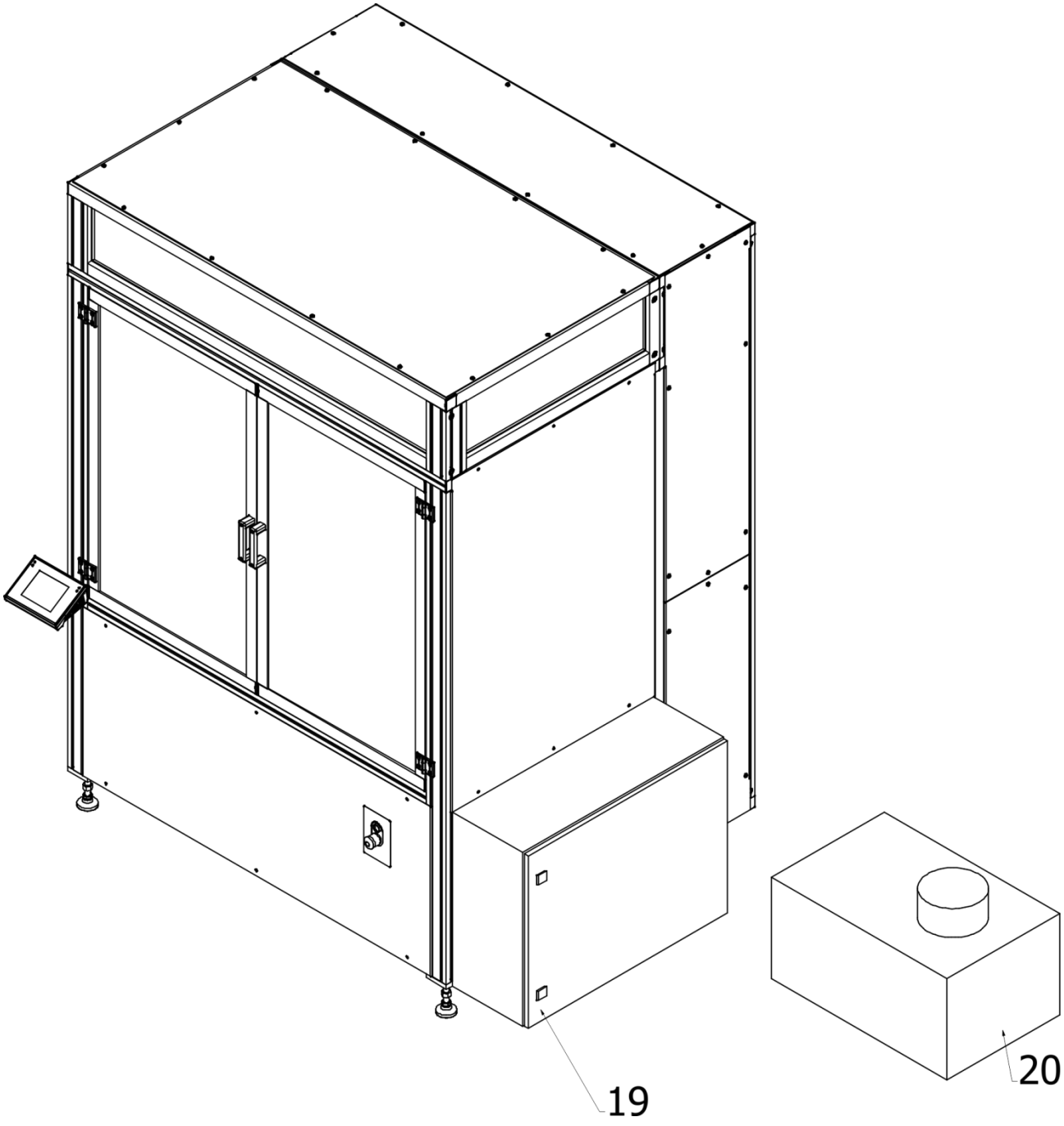
- fuses,
- connecting cables for power supply, control and communication,
- mechanical damage caused by wrong use of the device as well as thermal, chemical damage, and damage caused by atmospheric discharge, electric network overvoltage or other random event,
- maintenance works (cleaning, greasing, adjustment).

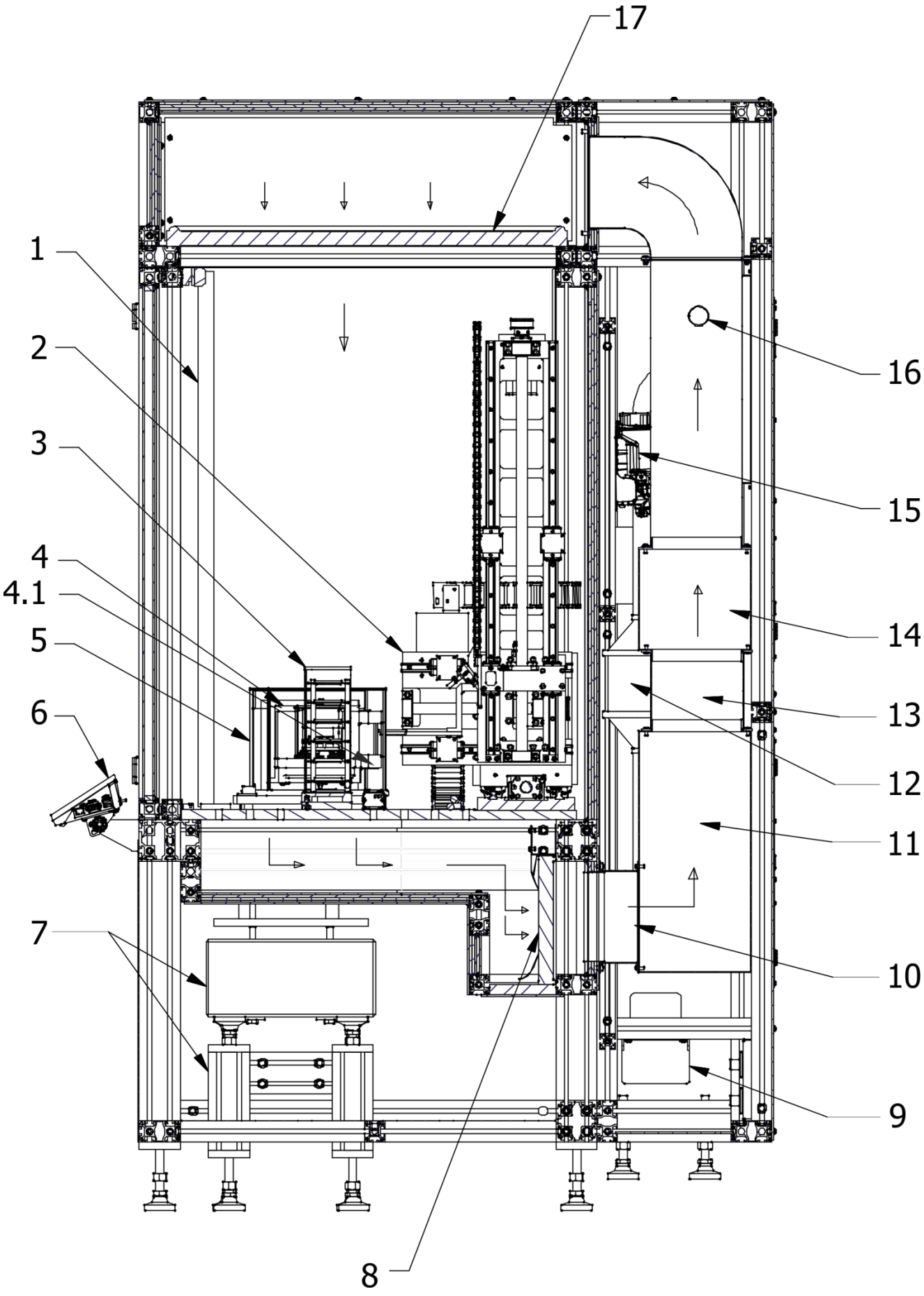
The guarantee cover is lost when:

- the repair is performed out of the authorised servicing centre,
- the service technician detects interference into the mechanical or electronic structure of the device,
- structural modifications have been made without the manufacturer's approval and awareness,
  the device is devoid of company securing marks.

3. DEVICE DESIGN

3.1. General view

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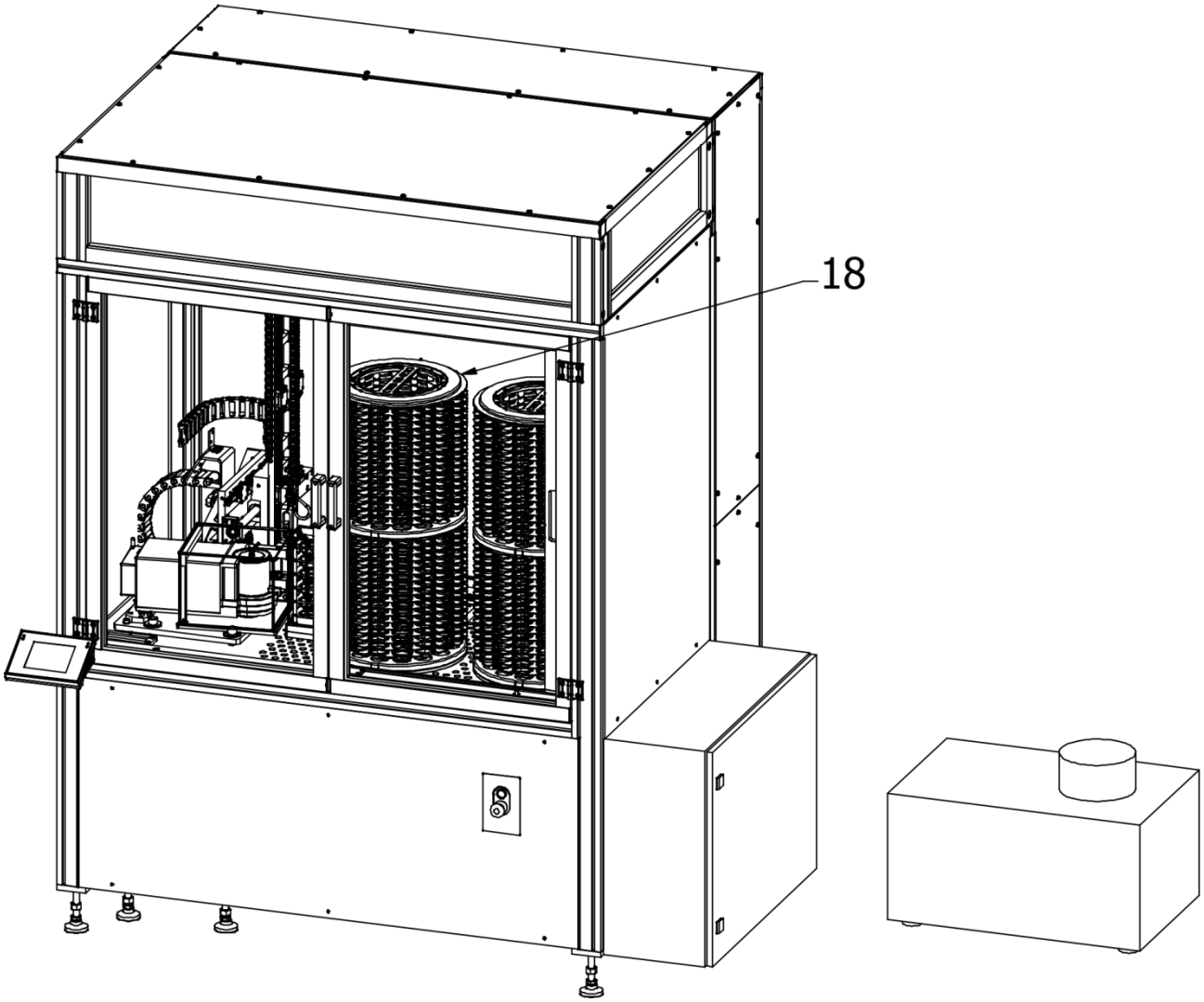
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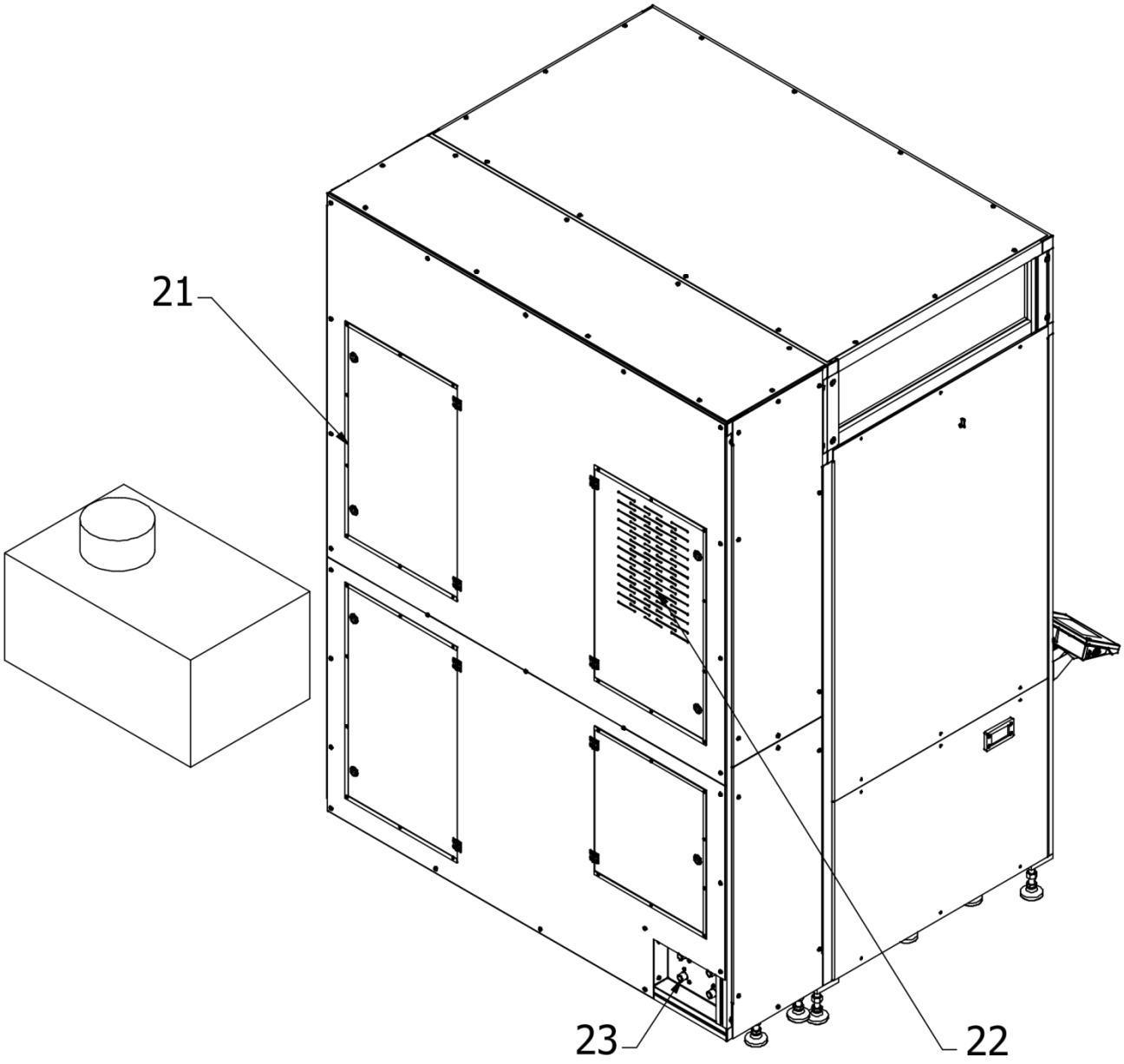
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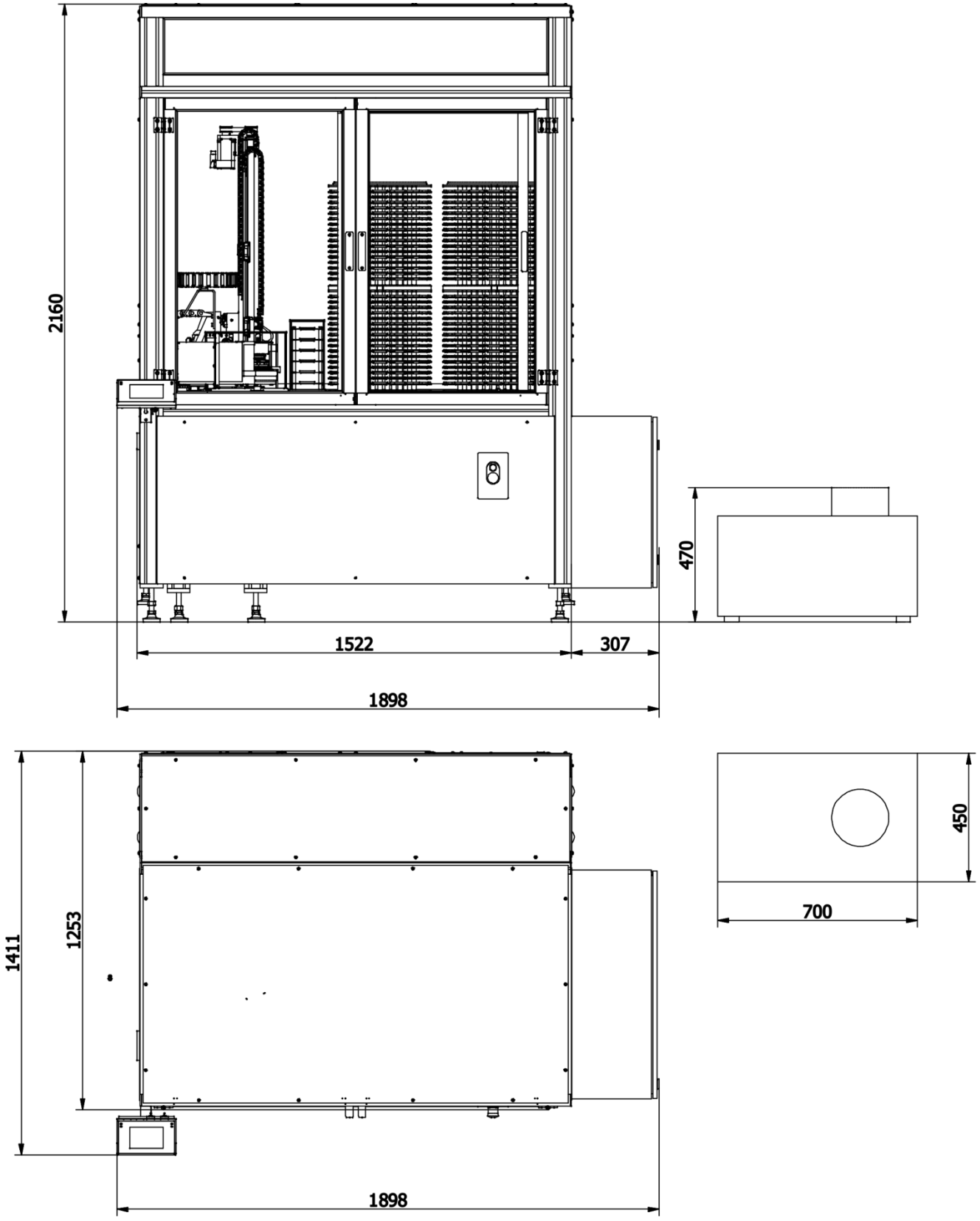
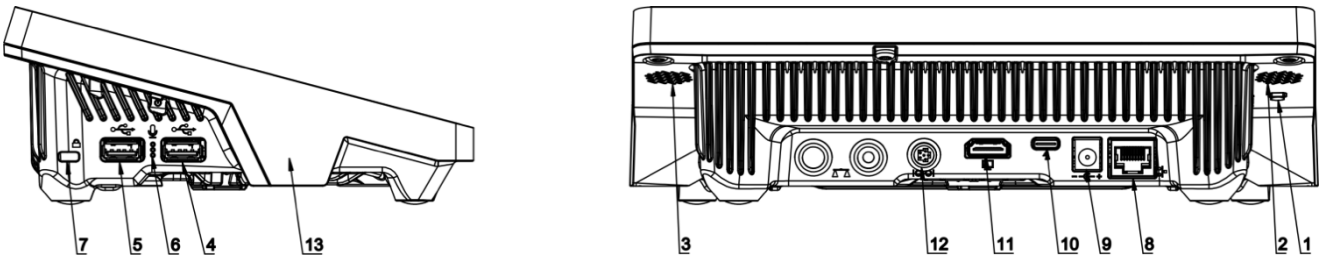
1. Sliding door
2. Robot arm mechanism
3. Calibration magazine (for mass standards)
4. Microscale
4.1 Ioniser
5. Microscale cover
6. Microscale reading head
7. Stone table
8. HEPA filter
9. Condensate pump
10. Temperature sensor
11. AC cooler with fan
12. Fan
13. Temperature sensor
14. Heater
15. Moistener
16. Moistener steam lance
17. HEPA filter
18. Filter magazine
19. Robot control cabinet
20. Industrial chiller
21. AC control cabinet
22. Inspection door
23. Water connector

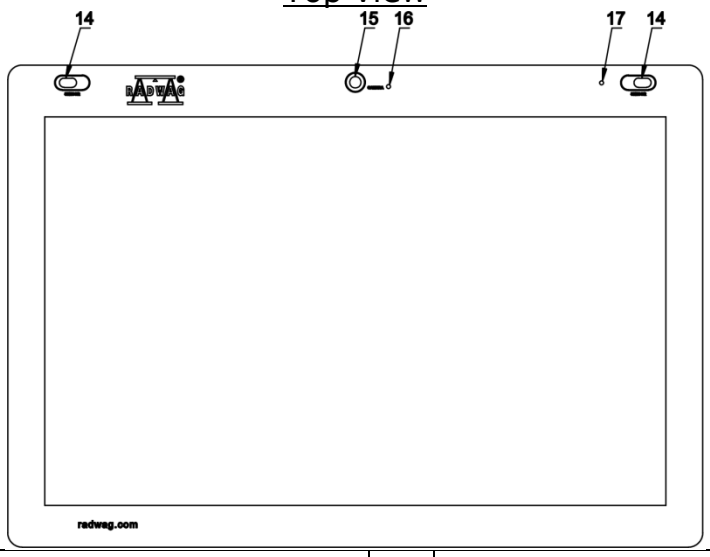
3.2. Dimensions



3.3. Description of ports



Top view



1	Hard restart or OFF/ON key	***10***	C-type USB power port
2	Left speaker	***11***	HDMI port
3	Right speaker	***12***	Media box – RS 232 (COM3) port
4	A-type USB port	***13***	RFID sensor
5	A-type USB port	***14***	Reflective detectors
6	Microphone	***15***	Camera
7	Kensington Lock	***16***	Camera LED light
8	Ethernet port	***17***	Signalling light
9	Power port		

3.4. Intended use

The RB 2.5Y.F robotic weighing system represents the professional weighing standard and assures full automation of filter mass measurement. It is based on the weighing mechanism of the UYA 5Y ultra microscale that guarantees high repeatability and top precision of readout.

3.5. Safety precautions

- Before you use the device, please read this operating manual carefully and operate the device as per intended use.
- Do not use sharp tools (e.g. knife, screwdriver, etc.) to operate the touch panel.
- Load the weighing pan with products whose gross mass is lower than the maximum lifting capacity of the device.
- Do not leave the weighing pan heavily loaded for a long time.
- In case of a failure, unplug the device immediately.

- The device that is to be decommissioned must be disposed of in accordance with currently applicable rules of law.

3.6. Metrological parameters supervision

Metrological parameters need to be checked at determined time intervals. Inspection frequency depends on ambient conditions in which the balance is operated, type of weighing processes and adopted quality management system.

4. TRANSPORT AND STORAGE

4.1. Delivery check

Upon delivery, check the package and the device, and make sure that they bear no signs of outer damage. Otherwise contact the manufacturer's representative.

4.2. Packaging

Keep all package elements in case the device must be transported in the future. Remember that only original packaging can be used for shipping purposes. Before packing, unplug any cables, remove any moving components (weighing pan, shields, inserts, etc.). The device components must be packed into an original packaging to protect them against potential damage during transportation.

5. UNPACKING AND INSTALLATION

5.1. Installation venue, place of use

- store and use the device in rooms that are free from vibrations and impacts, draughts and dust,
- the room temperature must range from: +10 °C to +40 °C,
- relative humidity must not exceed 80%,
- while using the device, make sure temperature in the room changes gradually and slowly,
- position the device on a stable surface that is not exposed to vibrations, away from sources of heat,
- the device that has been installed in the place of use by RADWAG employees must neither be moved nor relocated into other room. If necessary, any operations related to changing the place of use must be performed by authorised RADWAG employees.

5.2. Unpacking

Slash the protective tape. Take all elements of the device out of the factory box and remove shipping protection.

5.3. Device installation

While installing, it is strictly required to follow safety rules as per applicable OHS regulations.

The supply voltage may be supplied only after installing the device and connecting all wires.

The place of using the device must not be exposed to strong air blows and strong vibrations. There should not be any devices that emit strong electromagnetic waves in the immediate vicinity of the device.

The device must be positioned in the sufficiently spacious place of use for maintenance and operation purposes.

Remain highly careful while positioning the device. There is a palm injury risk.

Device-related guidelines

During the electrical assembly, adopt special safety measures and follow OHS rules in view of existence of hazardous voltages that may result in permanent disability or death.

The supply voltage may only be supplied once the device has been correctly installed, all cables have been connected and are free from damage.

The power port intended for connection of the device must be equipped with a protective earth pin.

The device must be connected to the source of power that is free from interference and retains the constant voltage amplitude value. The voltage fluctuations may cause the device to malfunction or deactivate in view of presence of sensitive measuring equipment.

The residual current device as the only protective device is insufficient and disallowed.

All internal elements of the device have their own inner protection.

It is necessary to equalise potentials of all units that cooperate with the device.

If you supply mains power directly to the terminal strip of the device, use the YLY 3x2.5mm cable.

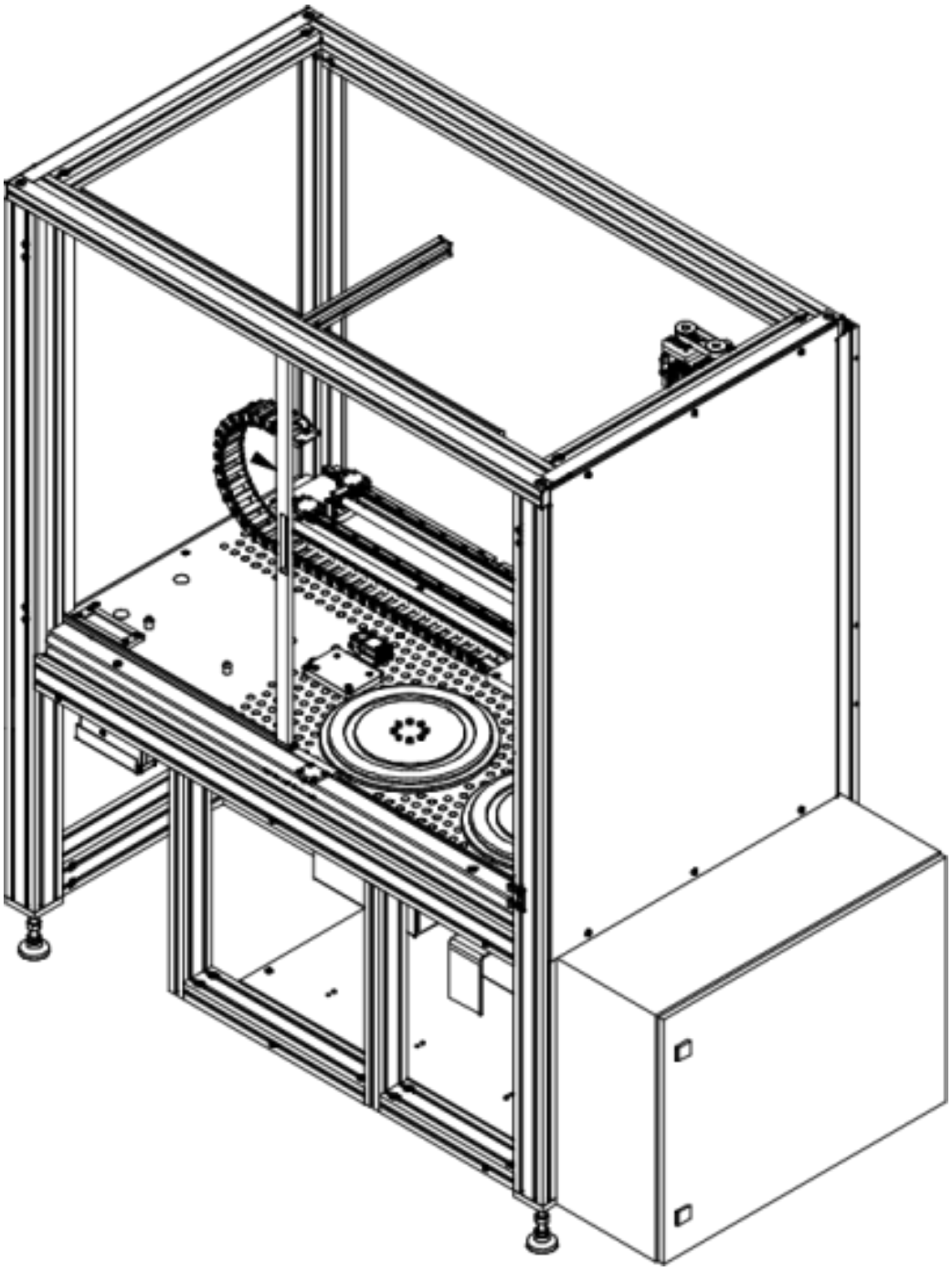
Three potentials may co-exist in the device at the same time:

- 230 VAC – supply voltage
- 24VDC – executive unit control voltage
- 12VDC – digital unit control voltage

After temporary voltage drop, the device initiates the loading procedure. After the system start-up, the weighing program is automatically activated and the device internal test is conducted. If everything is successful, the loading procedure is finished and the home screen is displayed.

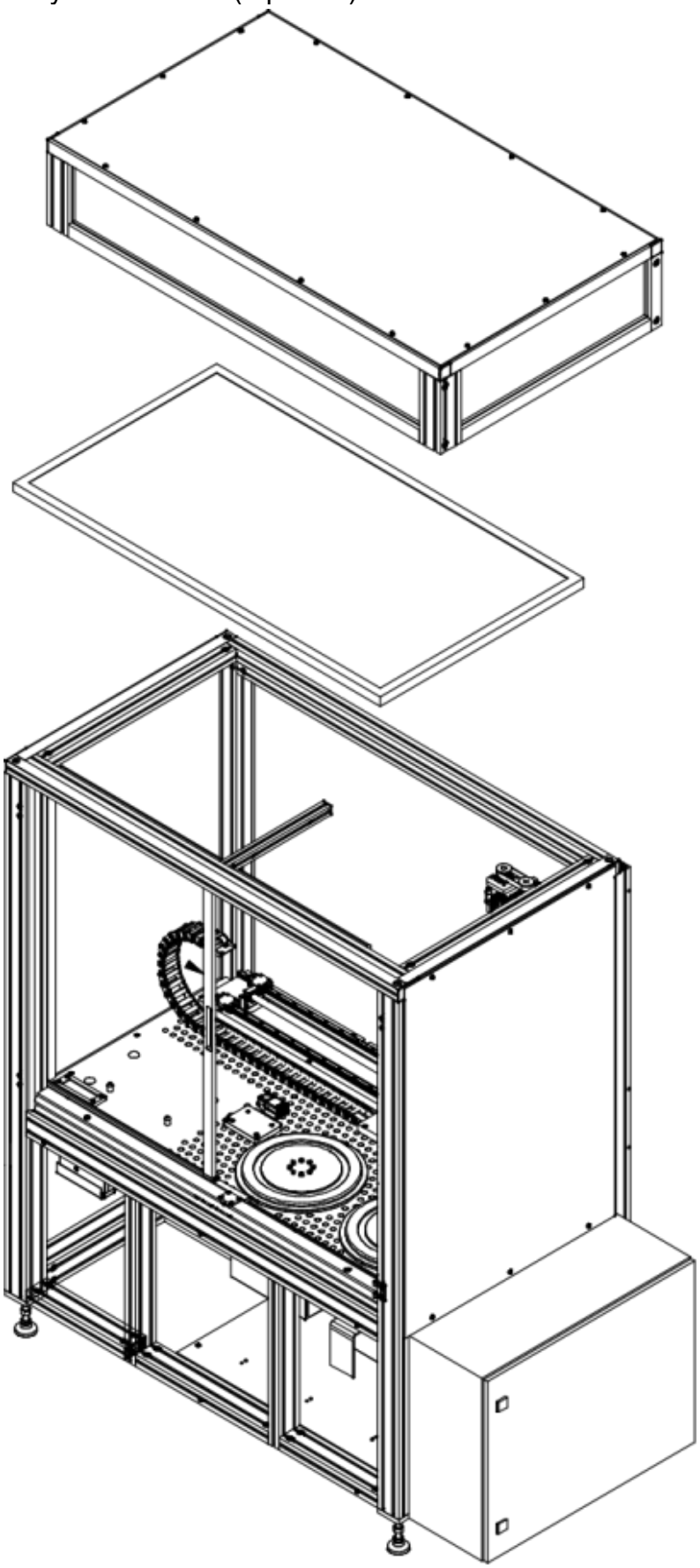
Step 1

Position the main part of the structure on a stable surface in the place of use. Using adjustment legs, position the device so that the top of the structure is levelled (use an external level in this respect), and its surface is at the height of 780mm from the floor. All legs must safely rest on the floor.



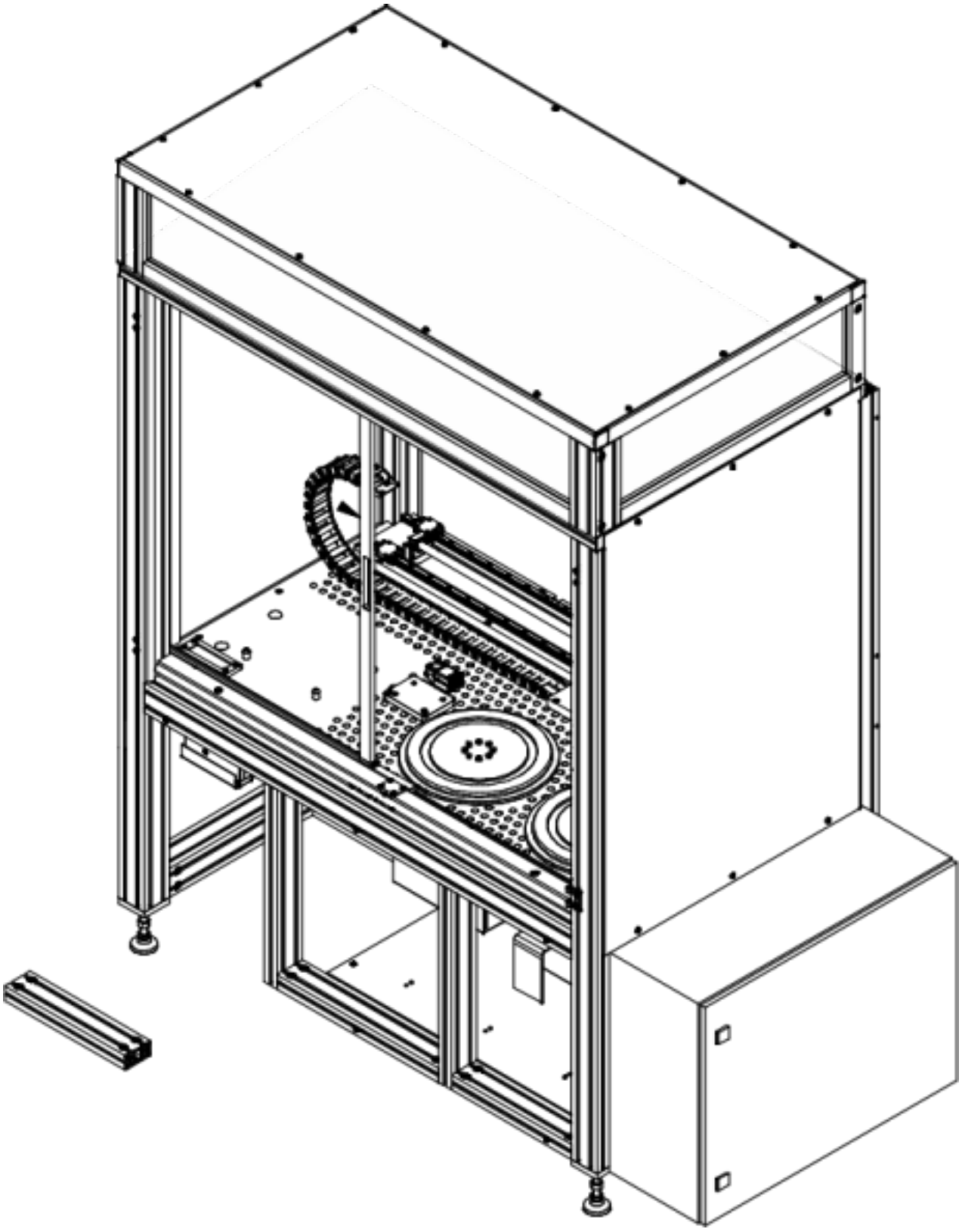
Step 2

Put the HEPA filter and upper part of the structure onto the main part of the structure, and tighten it up using Kanya connectors (4 pieces).



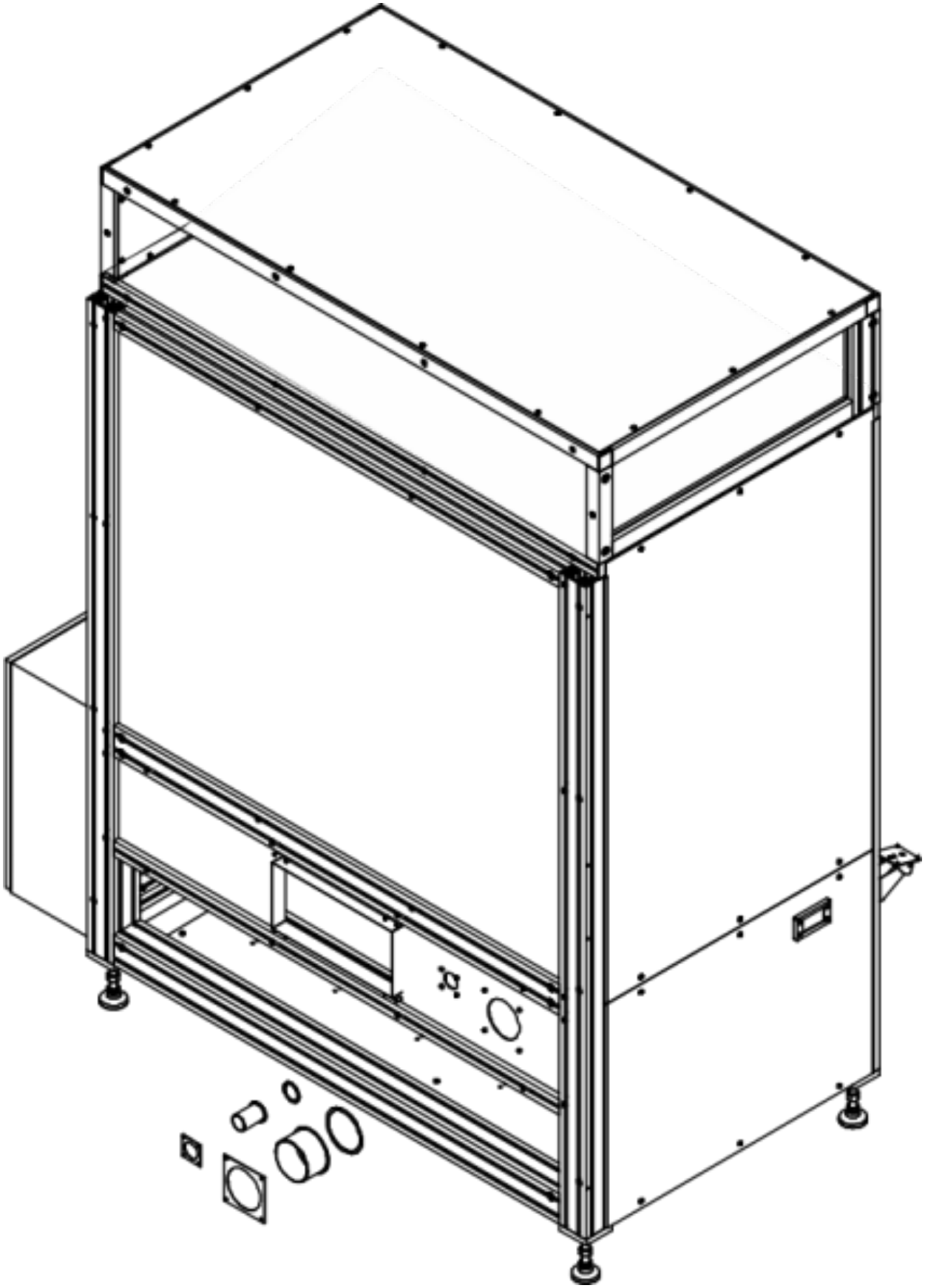
Step 3

Disassemble the lower profile of the structure.



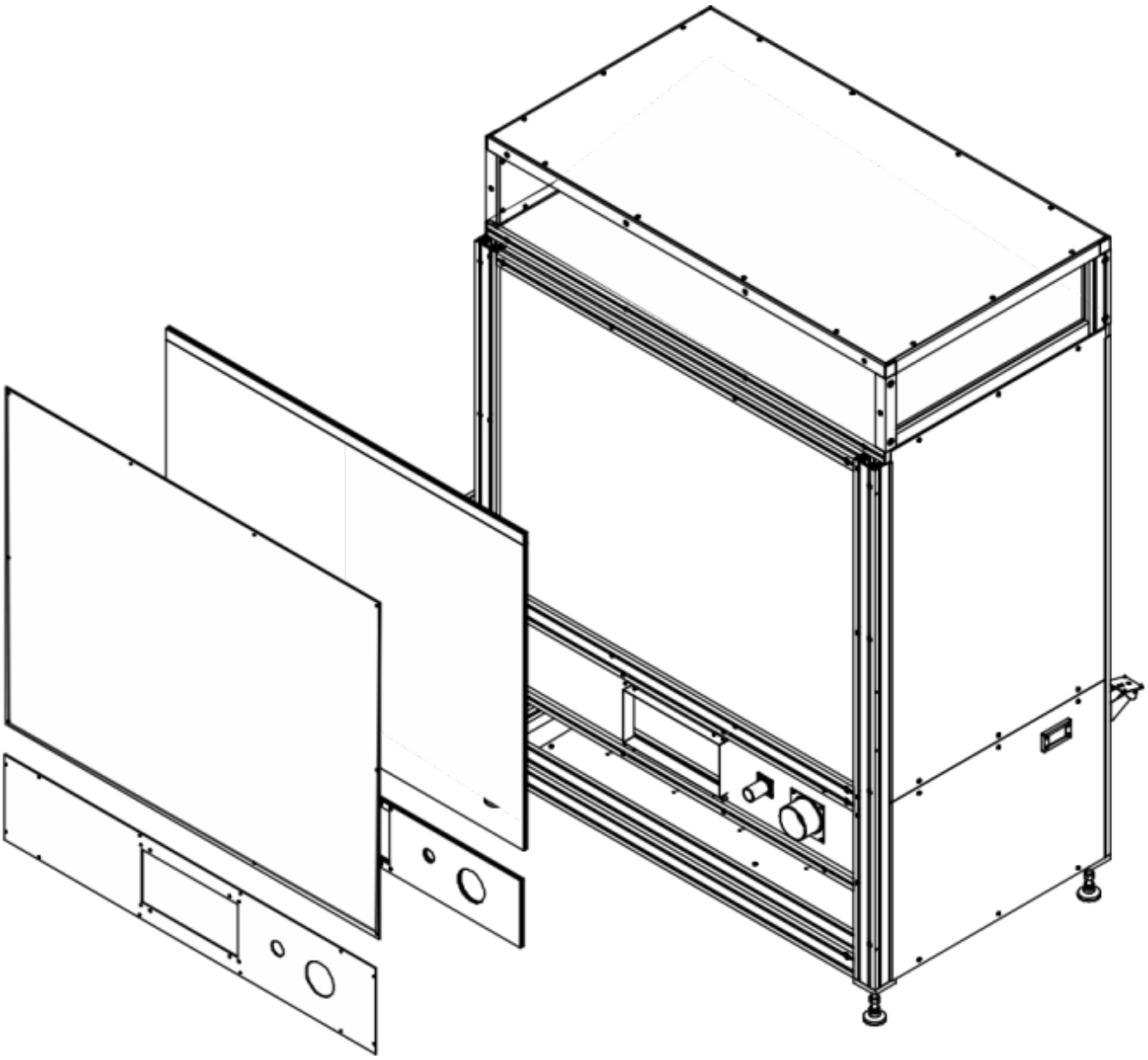
Step 4

Tighten fi 100, fi 40 nozzles up in the following order: seal, nozzle, base board, using M4x10 screws (8 pcs).



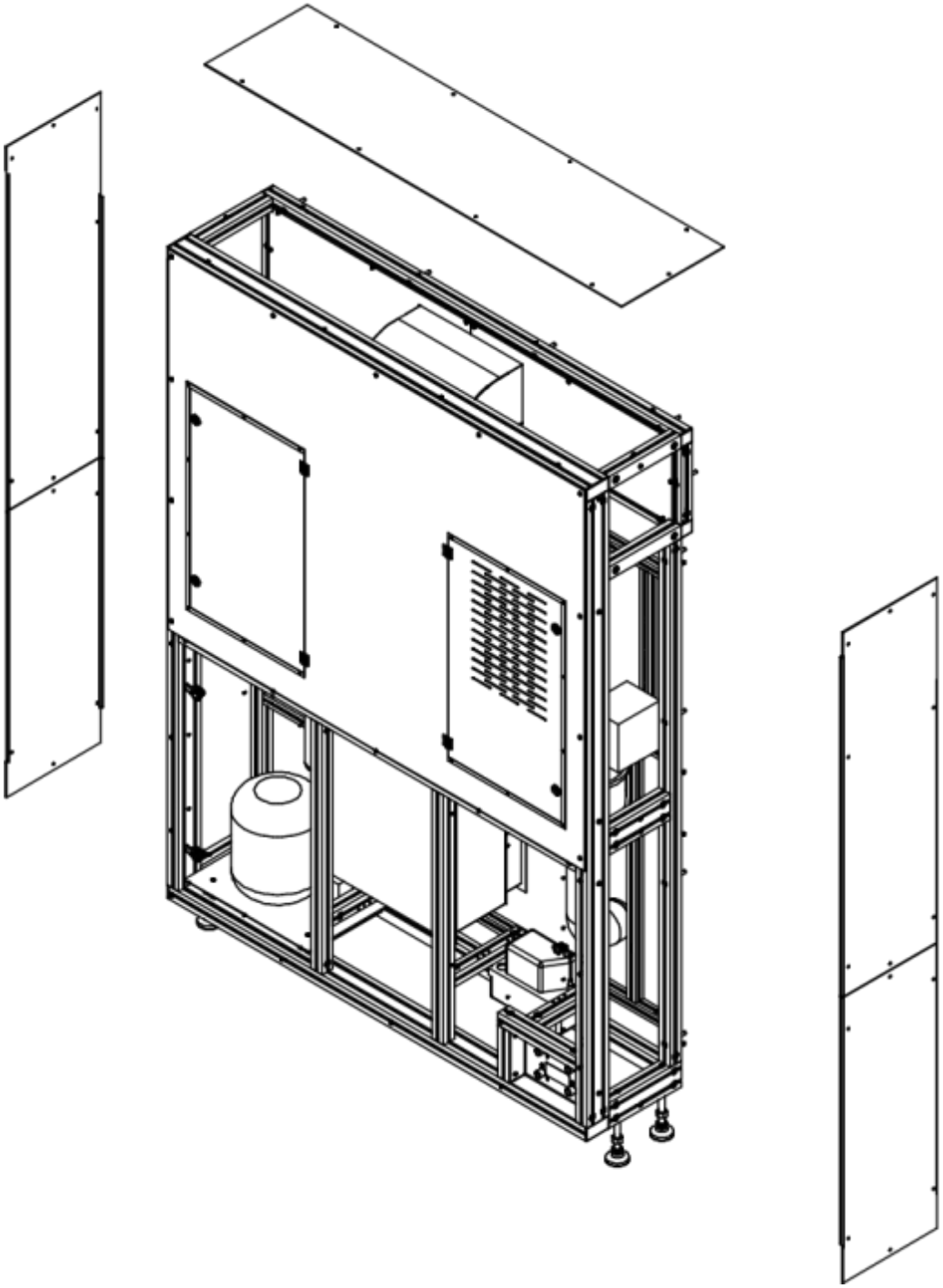
Step 5

Apply insulation and screw the covers in using M5 x 12 screws (22 pcs).



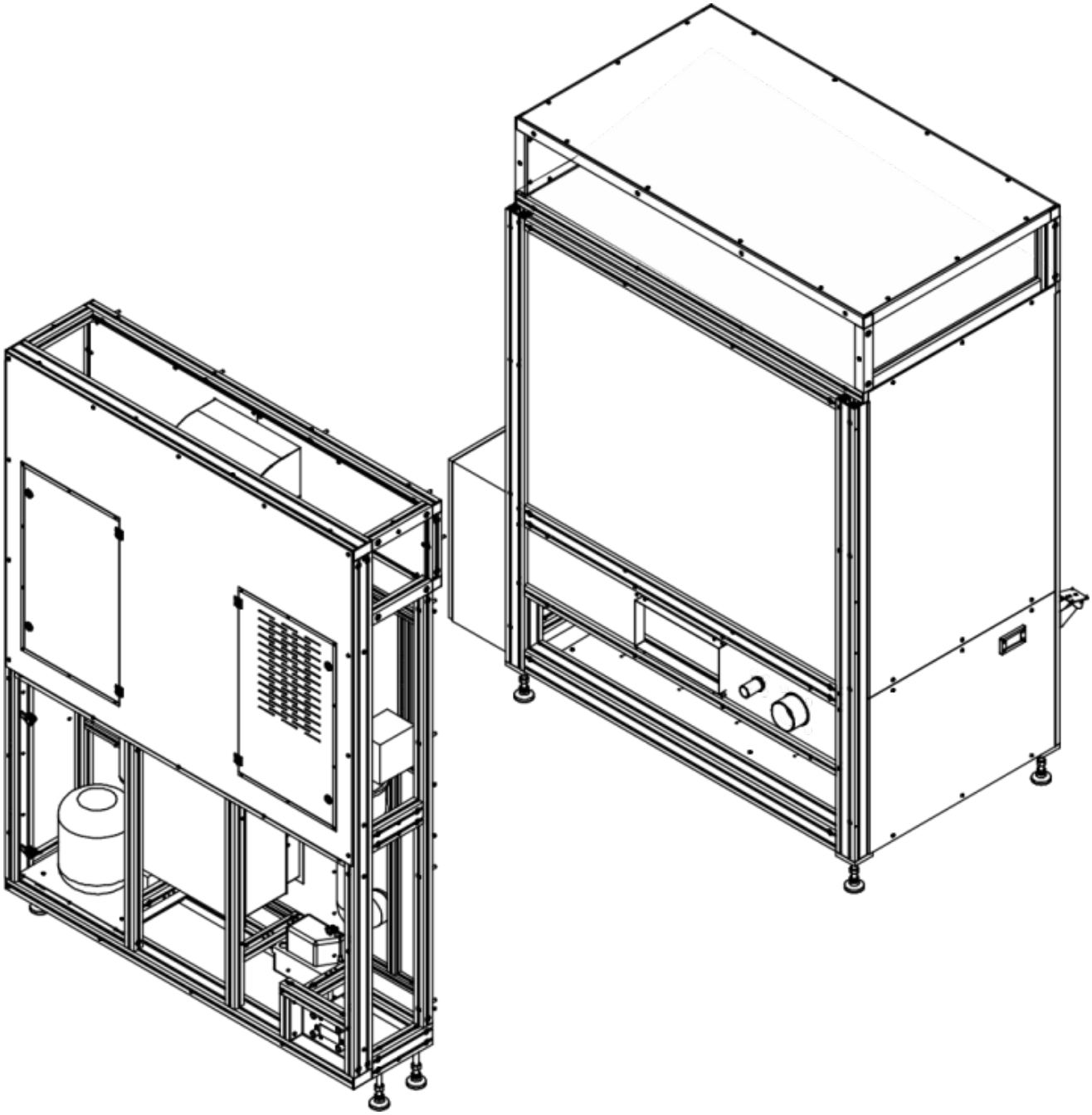
Step 6

To make the structure assembly easier, detach side covers (shields).



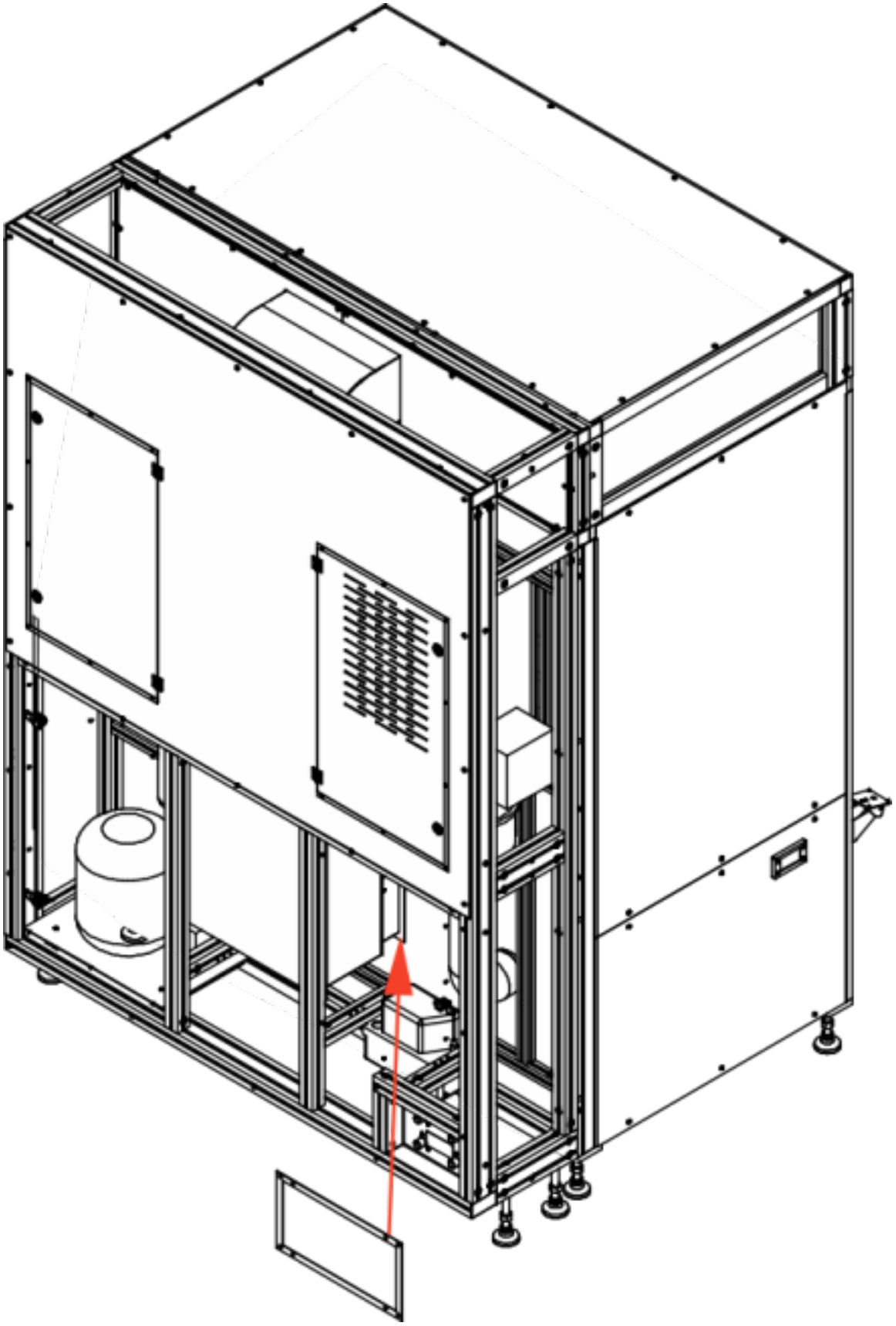
Step 7

Put the rear structure on and tighten it up using M8x65 screws (18 pcs). Adjust the legs so that they all rest safely on the floor.



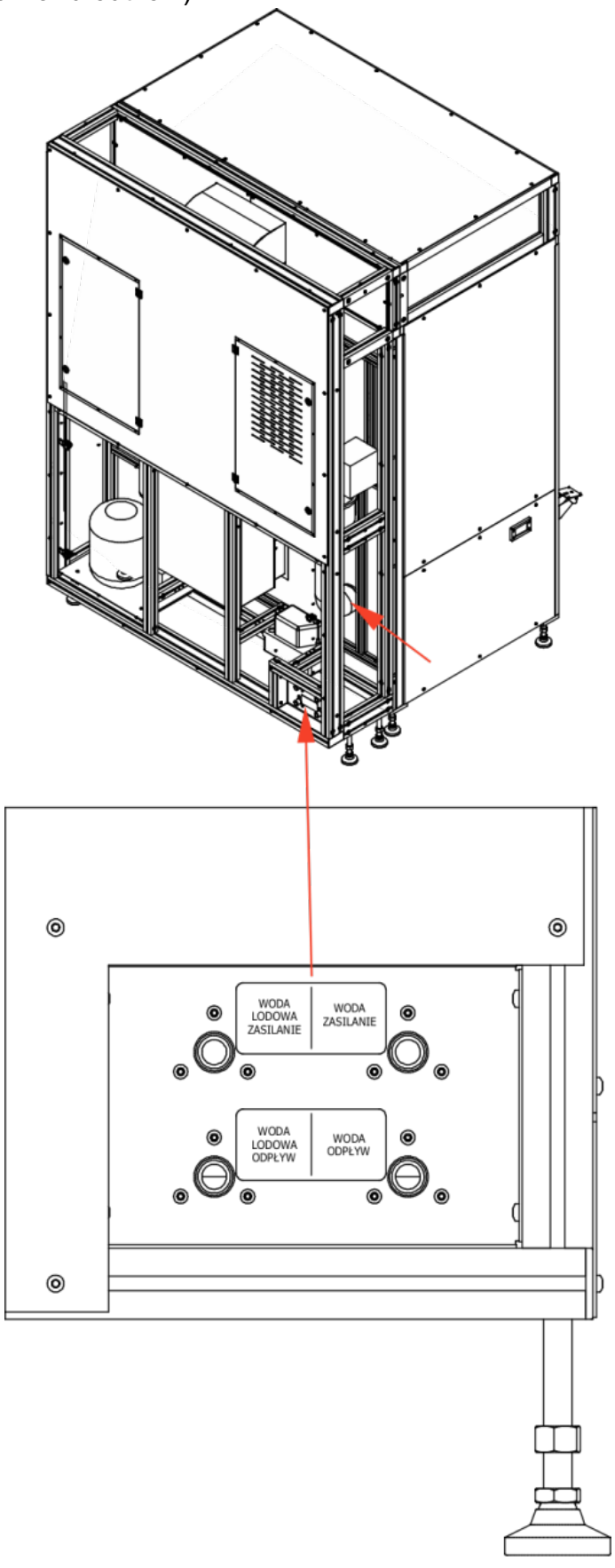
Step 8

Insert the seal between the ventilating duct and partition plate, and then screw the ventilating duct to the partition plate using M5x10 screws (4 pcs).



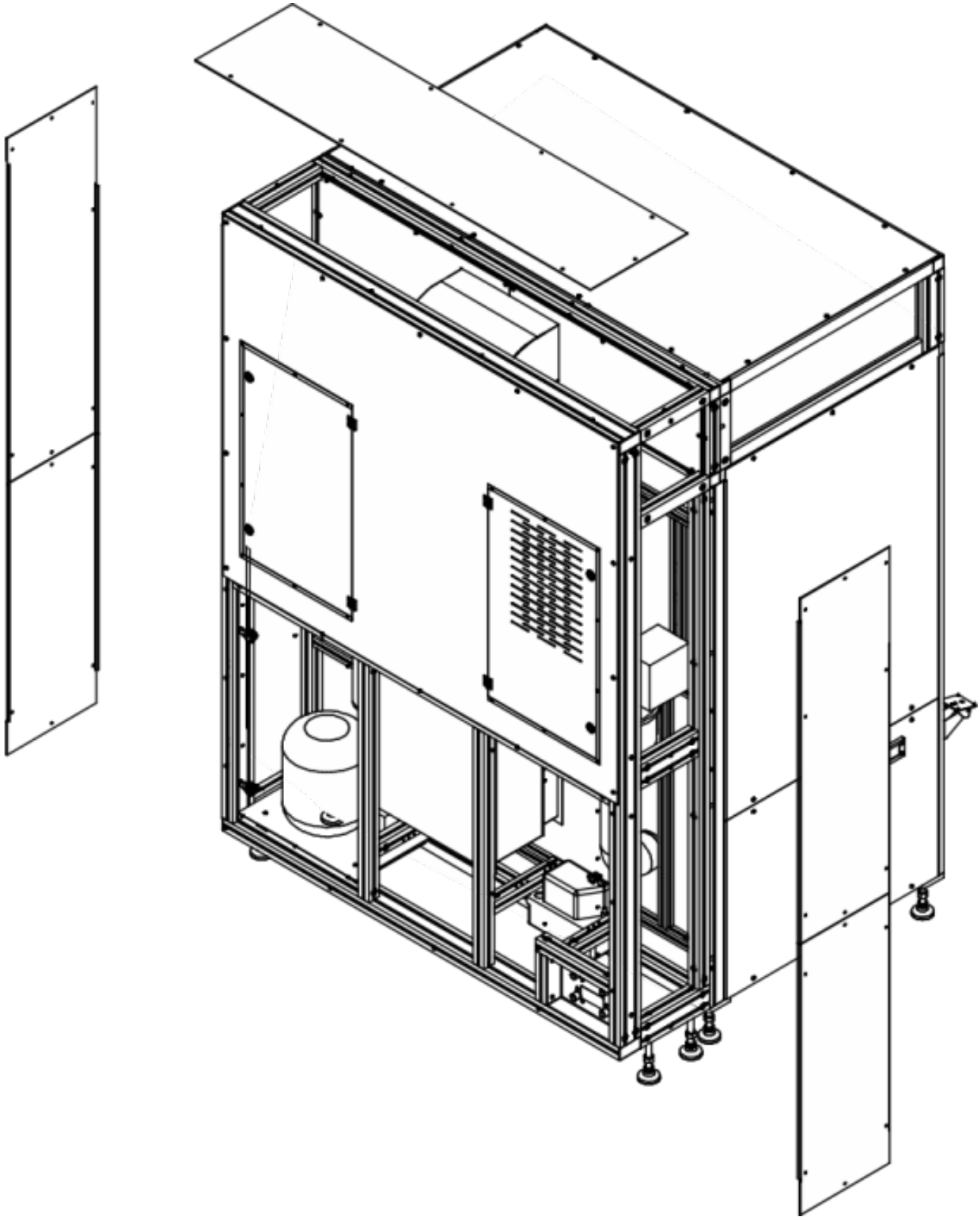
Step 9

Mount „spiro” fi 40 and fi 100 pipes on nozzles and tighten them using jubilee clips.
Next install cables between the chiller and ice water connector ports (inflow and outflow), and water cables (inflow and outflow).



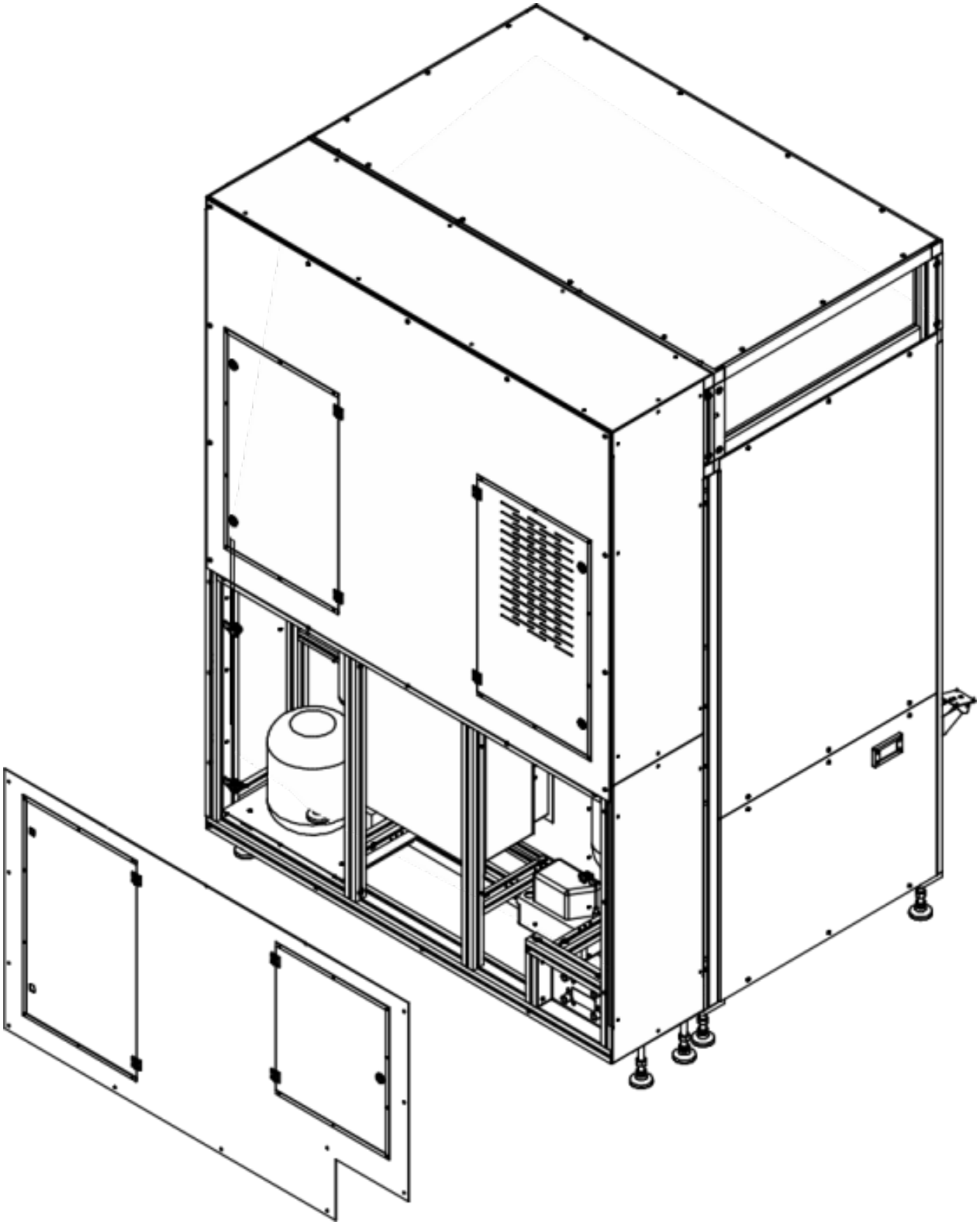
Step 10

Fix side covers using M5x12 screws (38 pcs).



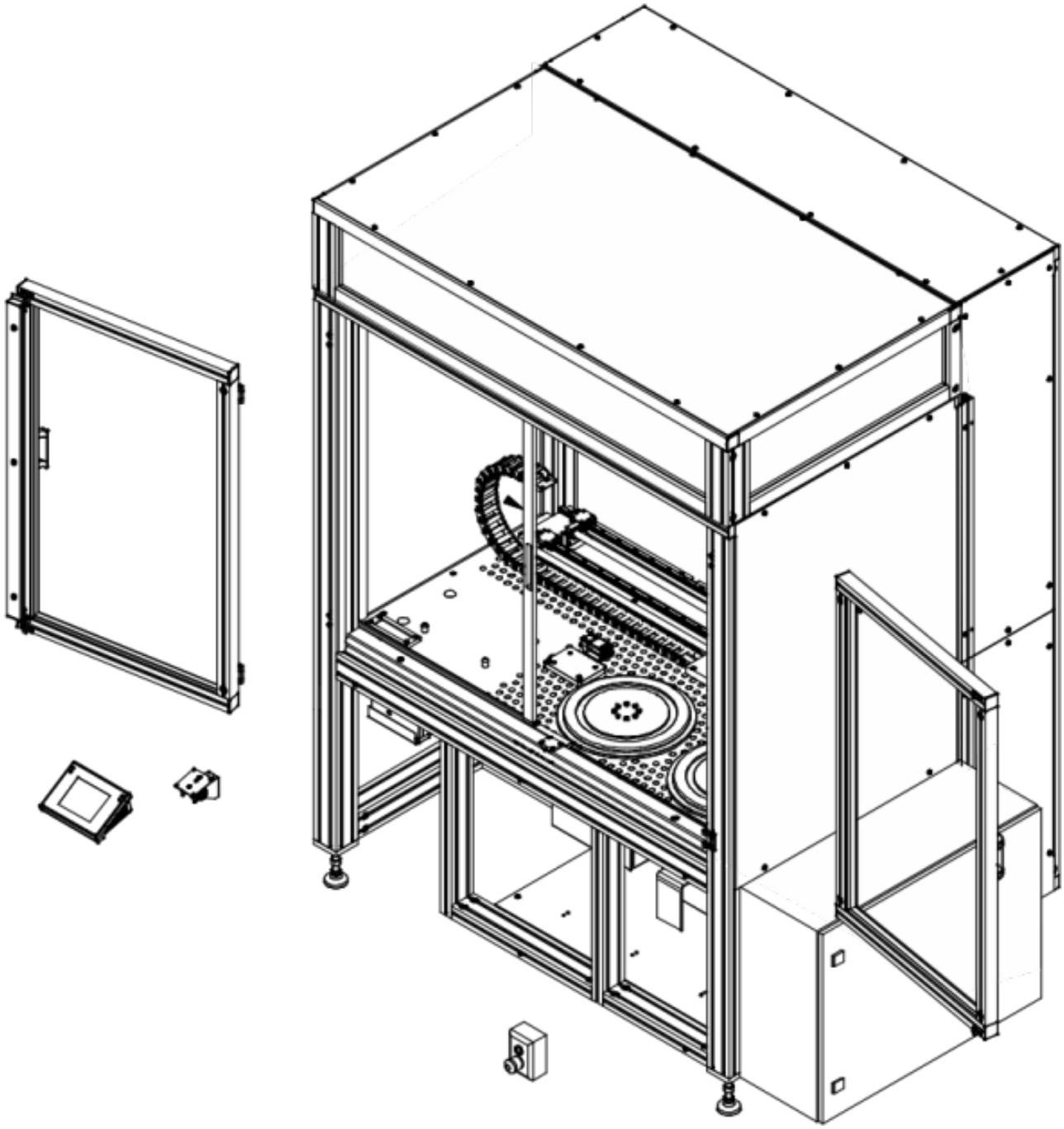
Step 11

Fix the rear cover using M5 x 12 screws (14 pcs).



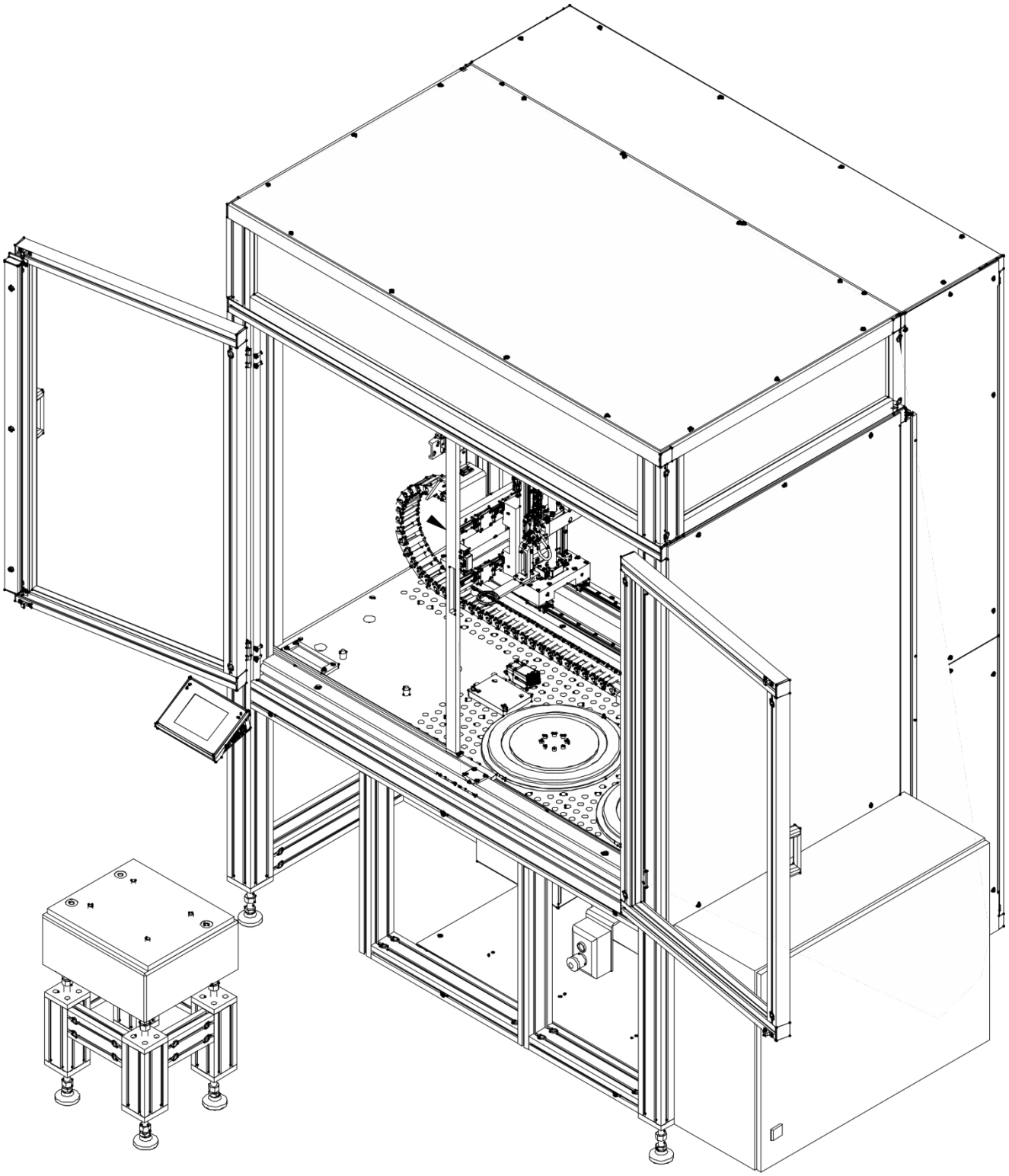
Step 12

Fix right and left doors. Screw hinges in using M6x14 countersunk head screws (8 pcs). The doors must be positioned symmetrically between the top and bottom profile, leaving 2-3 mm of space.
Next fix the head holder using M5 x 12 screws (2 pcs) and the readout head using 3,5 x 8 plastic screws (4 pcs), and the main switch.



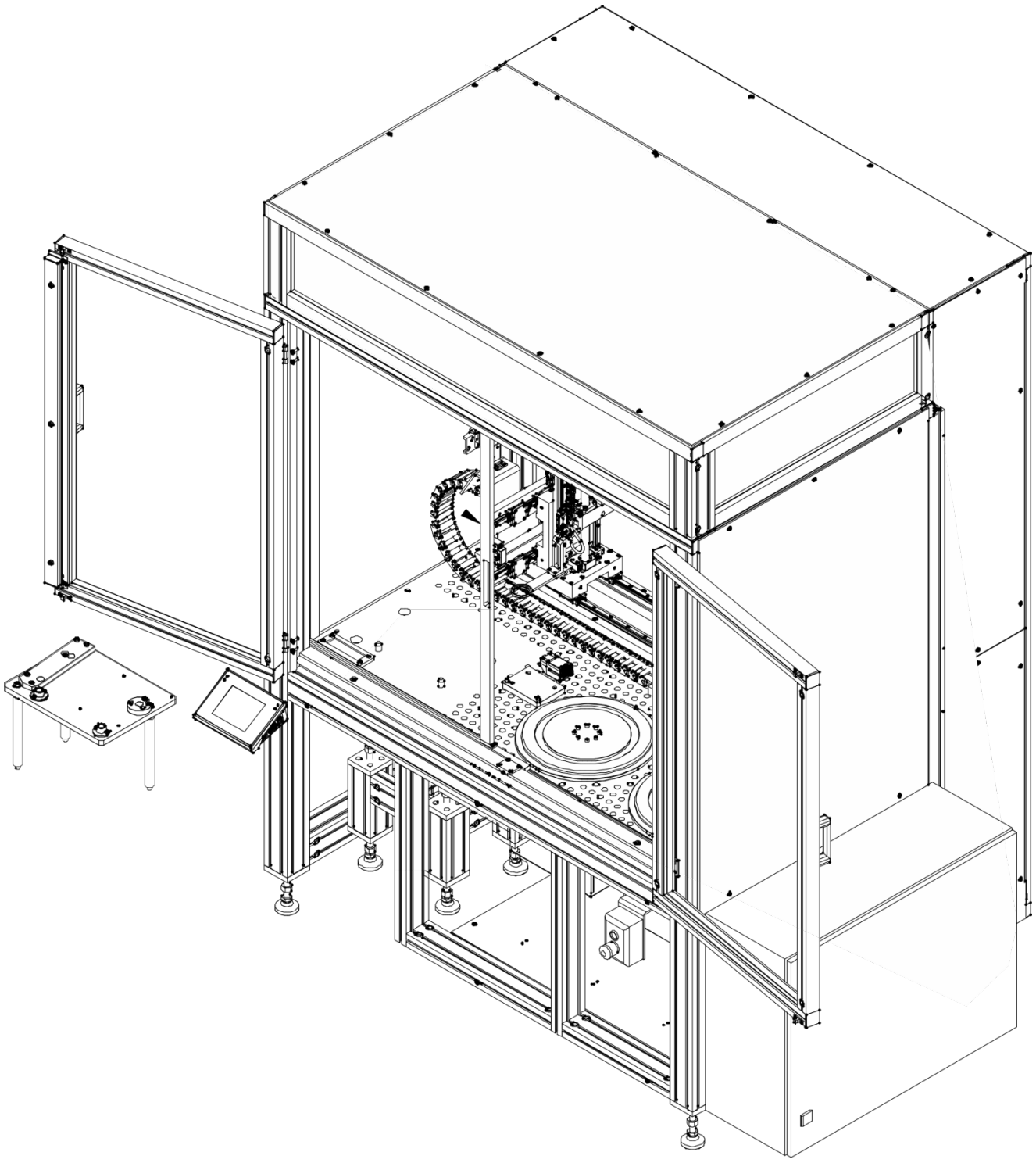
Step 13

Insert the anti-vibration table together with the stone top into the interior of the main structure.



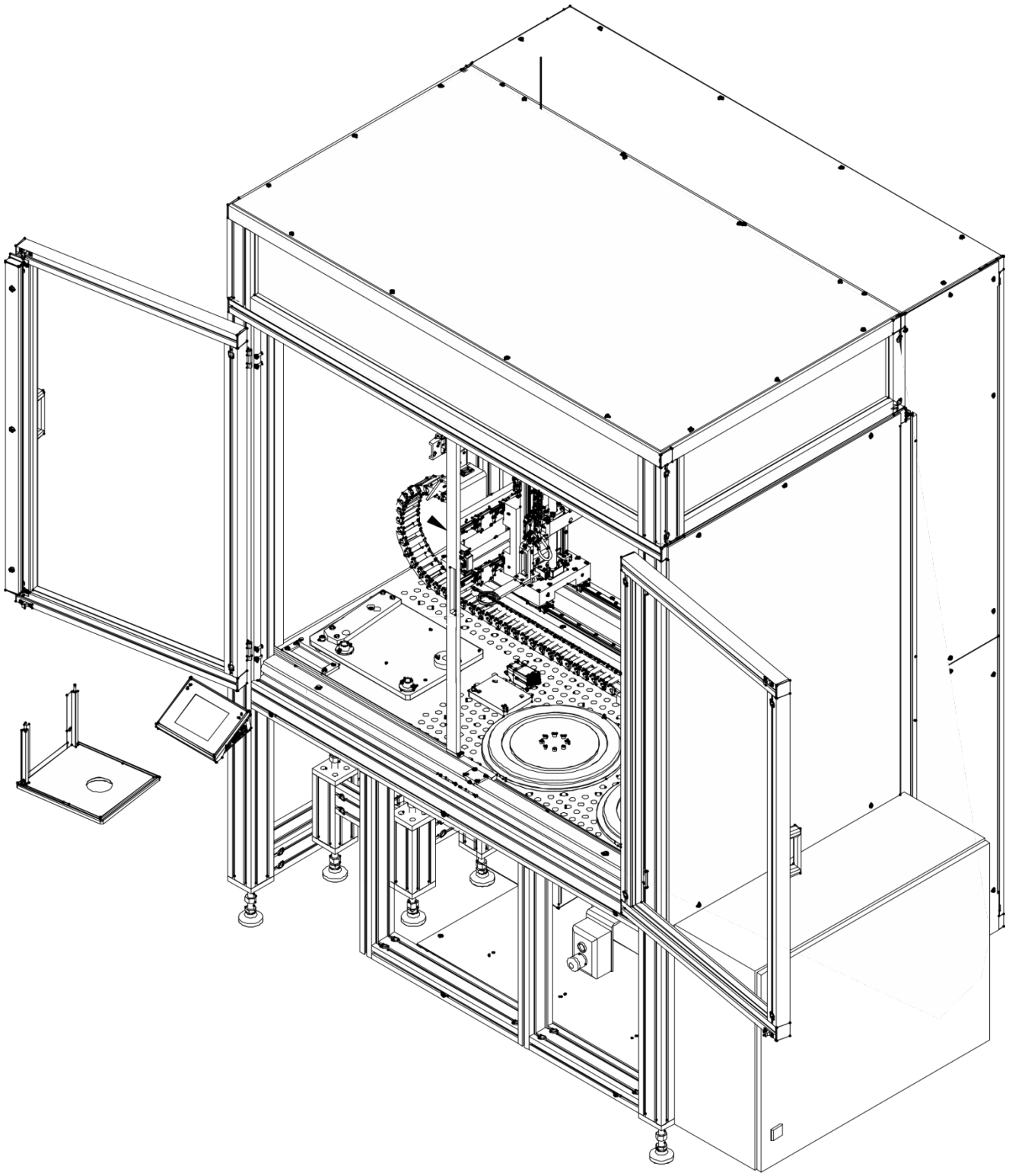
Step 14

Fix the microscale base and screw base posts into the anti-vibration table. Level the microscale base top using legs of the anti-vibration table.
Leave a space of about 12mm between the main structure top and microscale top.



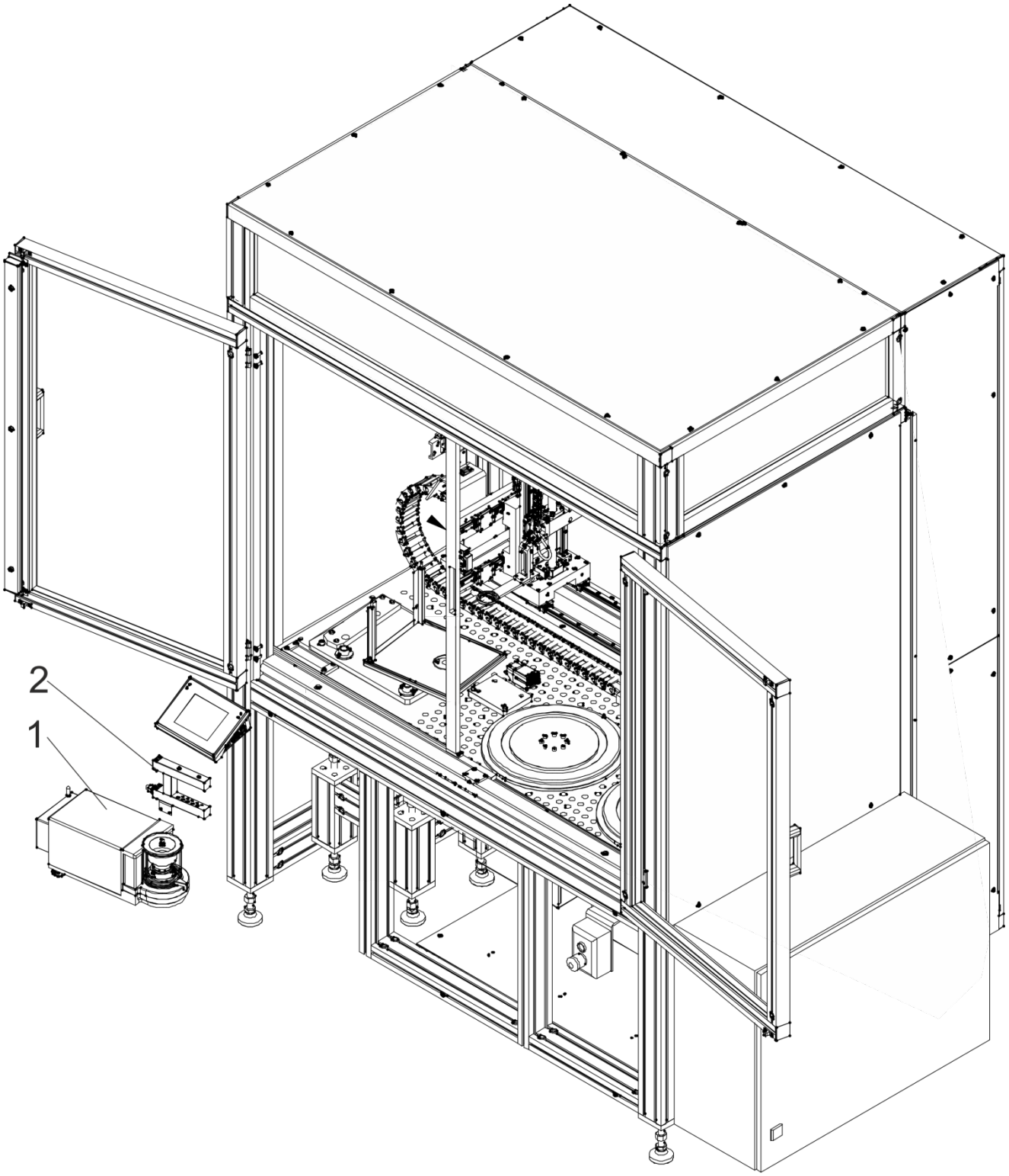
Step 15

Screw the cover base to the microscale base using M4x10 screws (4 pcs).



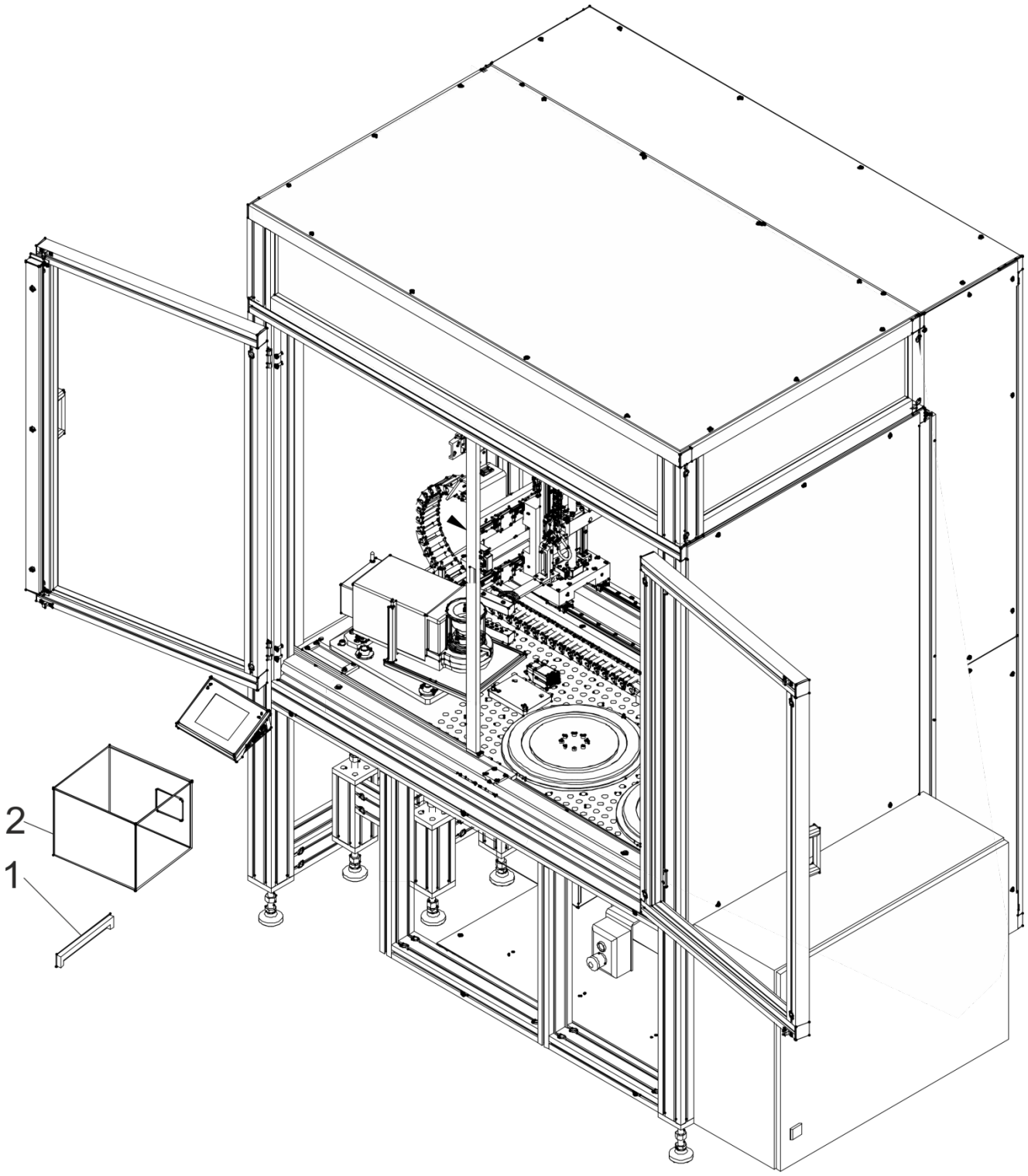
Step 16

Position the microscale (1) on the base and then use M4x8 screws (2 pcs) to screw the ioniser (2) to the microscale body.



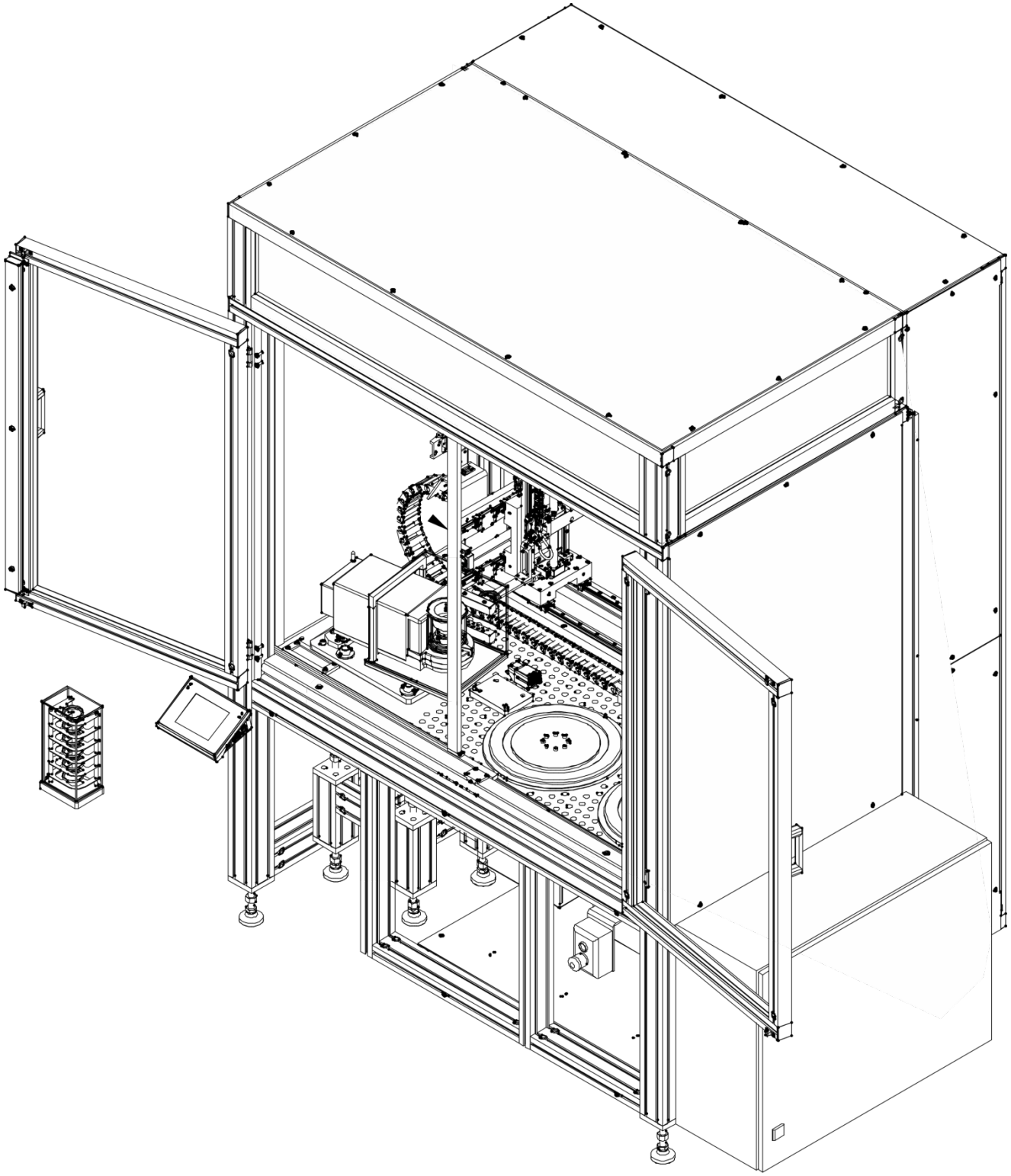
Step 17

Put the sealing profile (1) and glass cover (2) onto the cover base.



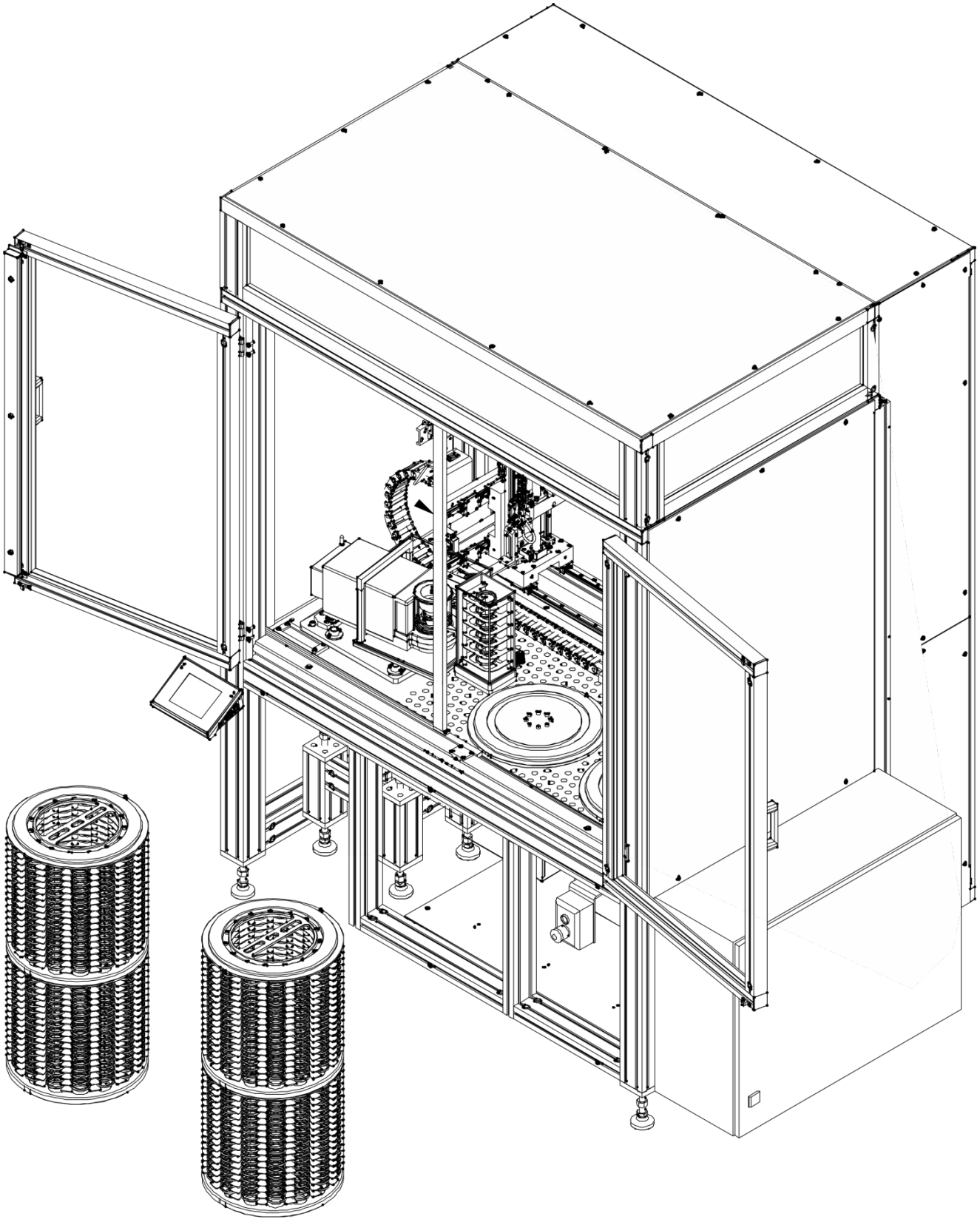
Step 18

Install the standard magazine on the base inside the device.



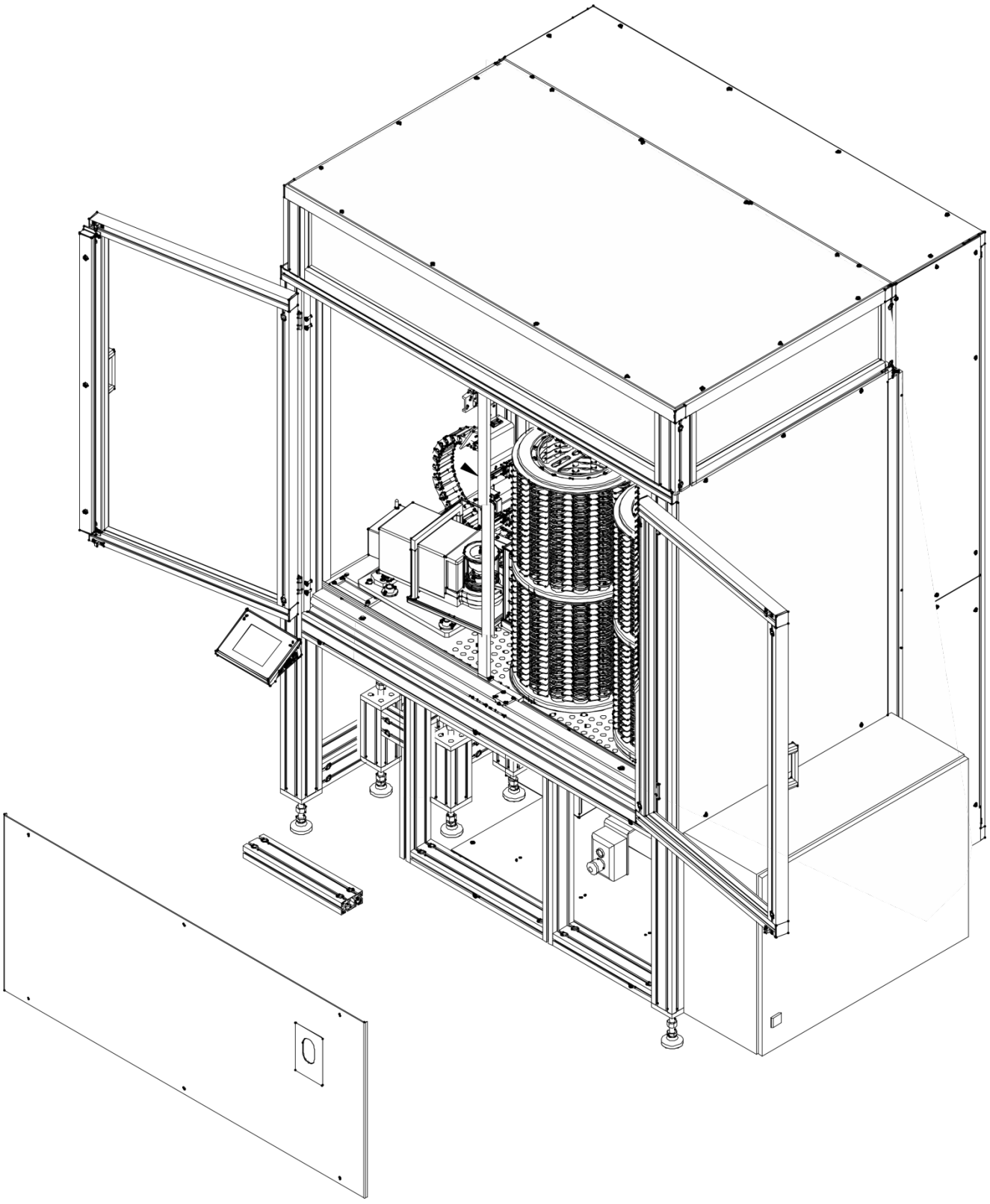
Step 19

Install filter magazines on rotating plates.



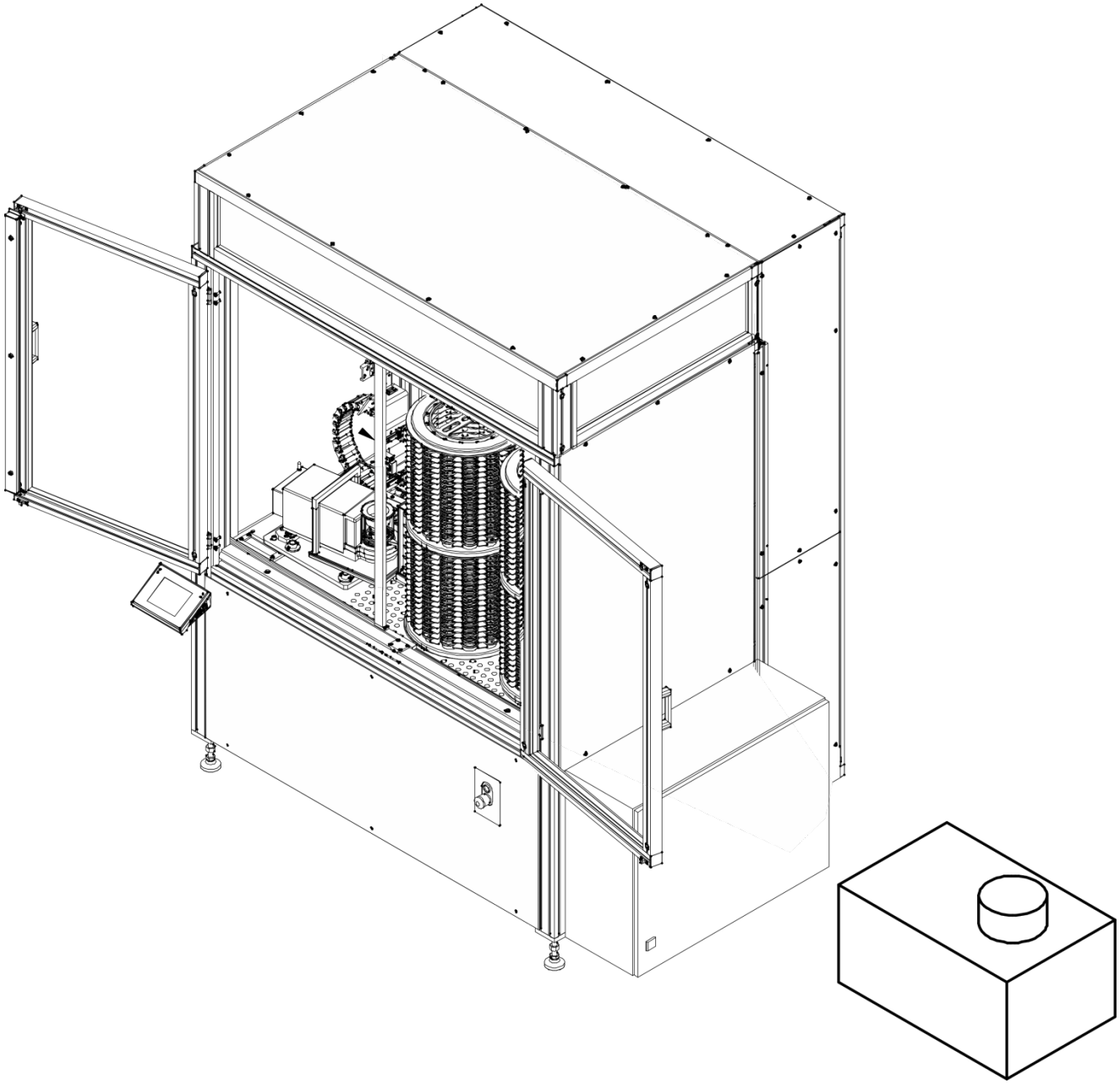
Step 20

Check and, if necessary, correct inclination of the main structure and microscale base (keep the space of 12mm between bases). Once you have adjusted the inclination, check nuts on main structure legs, securing them against potential unscrewing.
Attach the profile and frontal cover using M5x12 screws (6 pcs).



Step 21

Position in the suitable place and connect the chiller.



5.5. Connection to network

The device can be connected to the network only with the use of the original power cable. The rated voltage of the network must comply with the rated voltage of the device power supply, showed in the rating plate.
To supply power to the device, insert the cable into the mains socket.

5.4. Temperature stabilisation time

Before you start measuring, wait for the device to stabilise thermally. With regard to devices that had been stored at a way lower temperature (e.g. in winter) before they were connected to the network, the acclimatisation and heating time is about 12 hours.

While the device is stabilising thermally, the values displayed may change. It is advisable to make sure changes to the ambient temperature in the place of using the device are minor and slow.

5.5. Connection of additional equipment

Only the additional equipment that has been recommended by the manufacturer can be connected.
Before you connect or change the additional equipment (printer, PC, USB-type PC keyboard or additional display unit), unplug the device. After connecting additional devices, reconnect the device to power supply.

5.6. Cleaning and maintenance

Electric shock

The device is equipped with an ioniser. For this reason you need to adopt special safety measures while performing any maintenance works.

1. The device must be unplugged before you initiate any maintenance works.
2. Never open the housing of the device, terminal, ioniser or power adapter as they are free from any internal units that would require cleaning, repairing or replacing.
3. Do not reconnect the device if the cleaned parts are still wet.
4. If you intend to maintain or clean the ioniser or similar units, wait for at least 5 minutes after you disconnect the device from the supply voltage – in the non-voltage condition.
5. The emitter mandrels are sharp so you must not touch them, otherwise it may lead to bodily injuries.

Wipe the ioniser covers with a lint-free cloth saturated with an alcohol-based agent at least once a month.

Note:
Cleaning the weighing pan after it has been installed may lead to damage to the device.

1. Disassemble the weighing pan and other moving parts of the device. Remain very careful while performing these works in order not to damage the mechanism. It is advisable to use tweezers to remove weighing pans in microscales.
2. As far as possible, suck the dust out of the weighing chamber using a small keyboard cleaner.

CARRIAGE GUIDE LUBRICATION

It is required to lubricate guide axes every 200-600 man-hours.

The guides with a profile rail must be lubricated with a grease or oil.
The grease manufacturer's guidelines must be followed in this respect. After installing the rail guide, lubricate it for the first time. Next it is advisable to regularly lubricate it as per the table below. The amount of grease required for activation and supplementary greasing is showed in the table below. If the guides with a profile rail are vertical, mounted to the side or with a profile rail to the top, the amount of supplementary grease rises by about 50%.

Instructions of greasing for guides with HIWIN profile rail
Similar to every rolling bearing, the guides with a profile rail require sufficient amount of grease. Basically it is possible to lubricate them with a grease and oil. The grease is a structural element and must be considered at the machine design stage. Greases lower the wear, secure against dirt, prevent corrosion and prolong life of the device thanks to their properties. Dirt may accumulate on unsecured profile rails. These pollutants must be removed on a regular basis.

Grease application
For grease application, we recommend greases as per DIN 51825:
For regular loads – K2K
For higher loads (C/P < 15) – KP2K with NGLI 2 consistency class as per DIN 51818

Please follow the grease manufacturer's guidelines.

1. Short strokes. With regard to short strokes, the number of lubrication cycles as per table below. Double it. Stroke <2 x carriage length: Install greasing connectors on both sides of the carriage and grease. Stroke <0.5 x carriage length: install greasing connectors on both sides of the carriage and grease. Move the carriage two lengths. If it is not possible, contact us.
2. Basic lubrication upon start-up. The guides with a HIWIN profile rail are delivered as preserved. The first lubrication procedure is performed at three stages: Supply the amount of grease as per table below. Move the carriage a few times, three lengths. Repeat the procedure two more times.
3. Supplementary lubrication. The frequency of supplementary lubrication widely depends on loads and ambient conditions. The impact of surrounding, such as high loads, vibrations and pollutants, shorten lubrication intervals. If the surrounding is clean and loads are minor, lubrication intervals can be prolonged. For normal working conditions, see the table below for supplementary lubrication dates.

HIWIN recommends the following greases:
BEACON EP1, Fa. ESSO
Microlube GB0, (KP 0 N-20), Staburags NBU8EP, Isoflex Spezial, Fa. KLÜBER

Optimol Longtime PD0, PD1 or PD2 depending on the application temperature, Fa. OPTIMOL
Paragon EP1, (KP 1 N-30), Fa. DEA
Multifak EP1, Fa. TEXACO

Supplementary lubrication periods for grease application

Nominal value	Supplementary greasing intervals [km] for load of < 0,10 Cdyn
15	1000

Amounts of grease

Nominal value	Amount of grease upon activation (start-up) [g]	Amount of grease for supplementary lubrication [g]
15	0,8 - 1,1	0,5

Oil lubrication

Nominal value	First and supplementary lubrication [cm3]
15	0,5

Glass element cleaning:

Select solvent depending on a type of dirt. Never soak the glass in strong alkaline solutions as these solutions may damage the glass. Do not use abrasive agents.

For organic dirt, use acetone in the first place, and then water or detergent. For other than organic dirt, use diluted acid solutions (soluble salts of hydrochloric or nitric acid) or base solutions (mostly sodium, ammonium base).

To remove ACIDS, use basic solvents (sodium carbonate). To remove BASES, use acidic solvents (mineral acid of various concentration).

In case of stubborn dirt, use a brush and detergent. Avoid detergents containing large and hard molecules which could potentially scratch glass.

At the end of the cleaning process, rinse the glass using distilled water.

Always use soft brushes with wooden or plastic handle to prevent scratches. Do not use wire brushes or brushes with a wire core.

Rinsing is necessary to make sure all remaining soap, detergents and other cleansers are removed from the glass items before their reinstallation.

After preliminary cleaning, rinse the glass items under running water first, and distilled water afterwards.

It is not advisable to dry the glass either using paper towel or forced air circulation as some fibres, grains or contamination of other type could permeate into the glass items and cause weighing errors.

Electric driers are not recommended for measuring glass tools.

After washing, glass items must be usually positioned on a shelf for free drying.

Powder-coated element cleaning:

In the first place pre-clean with running water or large-pore sponge with a large amount of water to remove loose and major dirt.

Do not use abrasive agents.

Next, using a suitable cloth and water-cleaning agent solution (soap, dishwashing liquid), clean the surface by pressing the cloth regularly against the surface of elements.

Never clean with the dry detergent only as it may damage the coating – use a large amount of water, or water with a cleaning agent.

Aluminium element cleaning

To clean aluminium, use products rich in natural acids. The following products will be perfect: spirit vinegar, lemon. It is forbidden to use abrasive agents. Do not use rough brushes as they may easily scratch the aluminium surface. A soft microfibre cloth will be the best choice.

Polish surfaces by making circular movements. After removing dirt from the surface, polish the surface with a dry cloth to dry the surface and make it shine.

Stainless steel element cleaning:

When cleaning stainless steel elements, the following table should be followed. The table lists the types of contamination and ways of removing it.

Fingerprints	Clean with alcohol or dilutant. Rinse with clean water and wipe dry.
Oils, fats, greases	Wash with organic solvents and then clean with warm water with soap or mild detergent. Rinse with clean water and wipe dry.
Temperature stains and discolourations	Wash with a gentle abrasive cleaner, clean lightly according to the direction of the surface structure. Rinse with clean water and wipe dry.
Strong discolouration	Clean lightly according to the direction of the surface structure. Rinse with clean water and wipe dry.
Traces of rust	Moisten with oxalic acid solution and leave for about 15-20 minutes, then wash with warm water with soap or mild detergent. Rinse with clean water and wipe dry.
Paints	Wash with paint solvent and then rinse with warm water with soap or mild detergent. Rinse with clean water and wipe dry.
Scratches on the surface	Gently polish the surface with a non-woven fabric (iron-free) according to the direction of the surface structure. Wash with a gentle abrasive cleaner. Rinse with clean water and wipe dry.

ABS element cleaning:

To clean dry surfaces, use clean cellulose or cotton clothes that do not leave streaks and do not dye. You can also use water and cleaning agent (e.g. soap, dishwashing liquid, window cleaner). To clean the surface, regularly press the cloth against the surface, wipe the surface and dry it off. Repeat the cleaning procedure if necessary.

In case of hard-to-remove dirt, such as adhesive, rubber, tar, polyurethane foam, etc. residues, use special cleaning agents based on aliphatic hydrocarbons that do not dissolve

plastics. Before using the cleaning agent for all surfaces, it is advisable to perform suitability tests. Do not use abrasive agents.

5.9. Preventive and corrective measures

In case of irregular operation of the device, turn the device off and contact RADWAG.

While the device is operating, periodically check (at least once per 7 days) ice water level in the chiller. If the water level drops below the minimum line, add demineralised water.

Periodically vacuum the chiller condenser as the cooling performance is affected if the condenser is clogged.

Periodically check and, if necessary, clean the mesh filter at the chiller water inlet.

6. ACTIVATION:

- After supplying power, the device will be activated instantly.
- Once the start-up procedure is finished, the home screen of the program will be activated instantly.
- The device activates with the unlogged operator (no operator). To start working, log in (the login procedure is described further in the manual).

Note: *Activate the device without any load – with an empty weighing pan.*

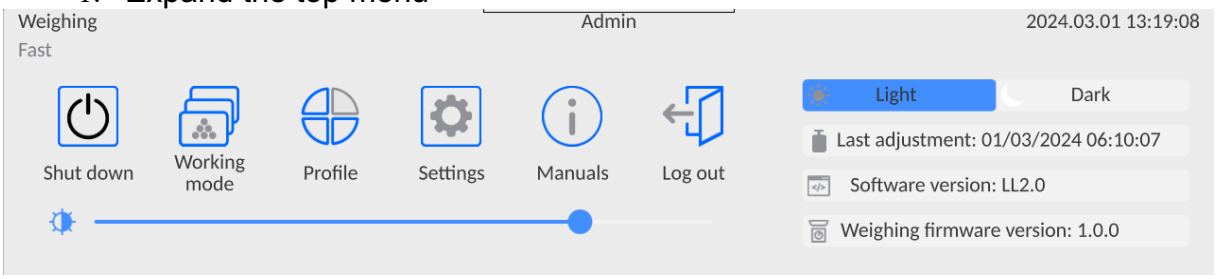
For correct operation of the device, the device must be assigned the following settings:

1. **Automatic calibration – NONE**
2. **Set the following keys in the quick-access key lower bar:**
   - Key 4 – TURN AXIS 1 LEFT
   - Key 5 – TURN AXIS 1 RIGHT
   - Key 6 – TURN AXIS 1 LEFT
   - Key 7 – TURN AXIS 1 RIGHT
   - left proximity sensor – NONE
   - right proximity sensor - NONE
   The description of key setting can be accessed in the section 15
3. **Transmission rate for COM1 port - 57600**
4. **IP address for ETHERNET – 192.168.0.6**
5. **Mask for ETHERNET – 255.255.255.0**

6.1. How to correctly unplug the balance

Follow the steps below:

1. Expand the top menu

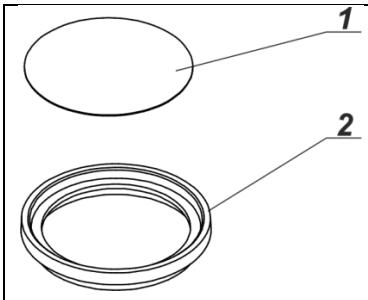


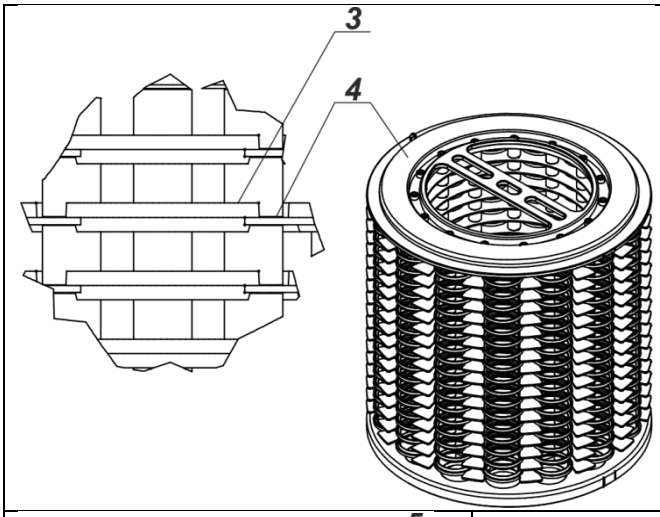
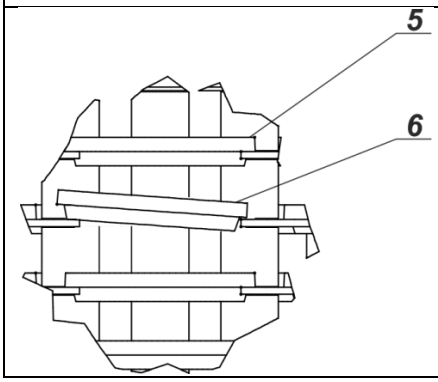
2. Press <Turn off> key

3. Select <Turn off> item. The following message will be displayed.

4. When the program is closed, the light will be permanently on in the top right corner of the screen.
5. Only then can you disconnect the power plug from the readout head port.

6.2. Placement o filter cassettes in filter magazine

	Place the filter (1) in the ring seat (2) so that it is perfectly fitted and does not stick out of the ring.

<table>
<tr>
<td> 
</td>
<td>When the ring with the filter (3) is ready, place it in the suitable magazine seat (4).</td>
</tr>
<tr>
<td> 
</td>
<td>NOTE!
When putting rings into magazine seats, remain careful and make sure rings are properly inserted.

Position 5 – correct position of the ring.

Position 6 – incorrect position of the ring – may lead to device damage.</td>
</tr>
</table>

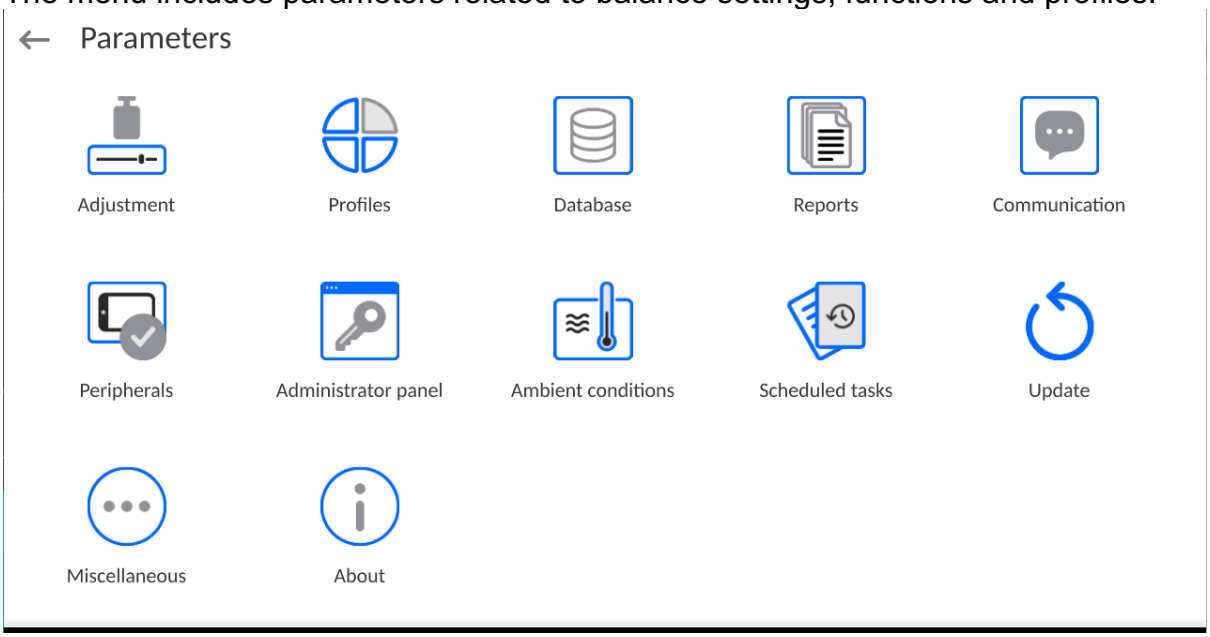
7. PROGRAM STRUCTURE

The main menu of the program is divided into functional groups. Each group contains parameters grouped by themes. For detailed description of each group, read later sections of this user manual.

List of menu groups – Parameters

To gain access to the main menu, press the following icon in the lower bar of the screen -  .

The menu includes parameters related to balance settings, functions and profiles.

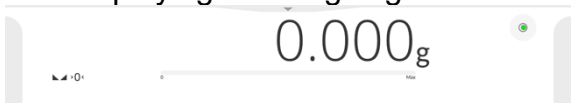


8. WEIGHING RESULT WINDOW

The main window of the application can be divided into 5 sections:

- Top section displaying data on active working mode, logged user, date, time, connection to PC.

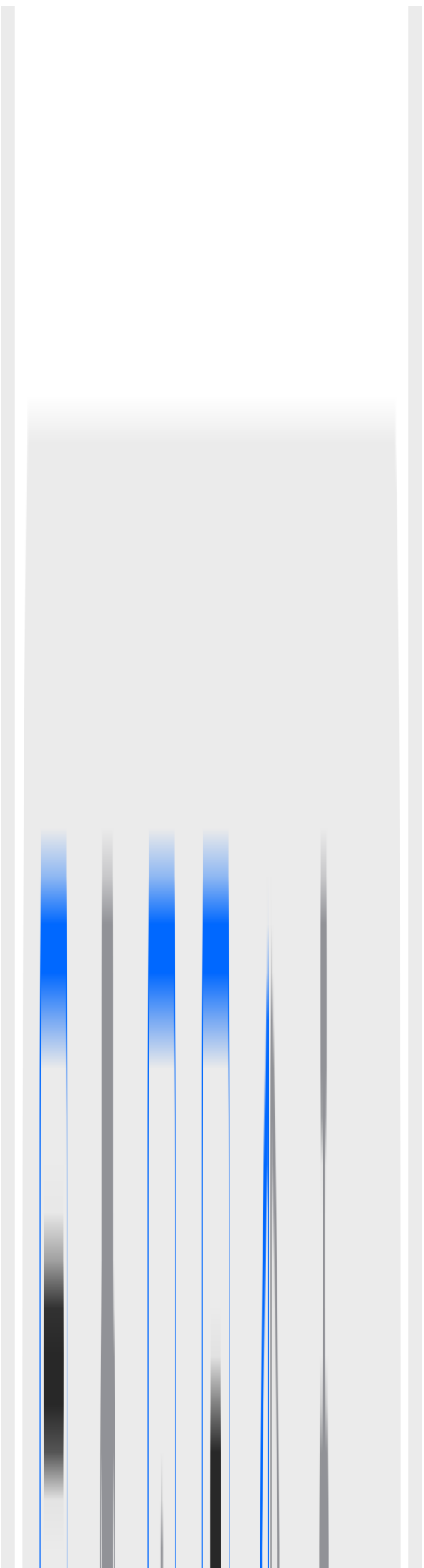
- Below is the window displaying the weighing result and balance levelling status.



- This field contains additional information related to ongoing operations.

Note:
The information in this area can be freely configured. The method of defining has been described in section 15 of the manual.

- The on-screen functional keys are showed below:



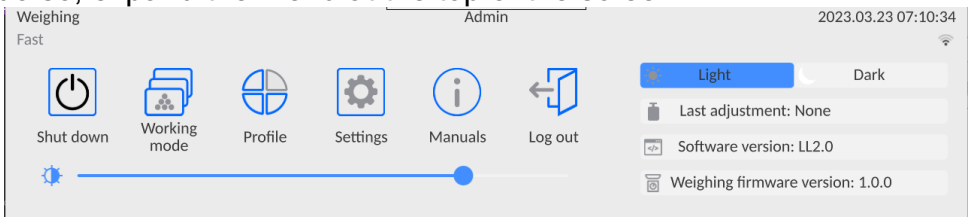
Note:
The operator can define the on-screen function buttons. For detailed information, read section 15 of this manual.

- Fixed functional keys can be accessed at the bottom of the screen:

9. LOGIN

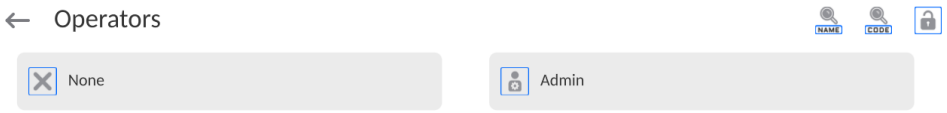
In order to obtain full access to operator-related parameters and to edit databases, you need to log in as an operator with **<Administrator>** permissions level every time you activate the balance.

To do so, expand the menu at the top of the screen.



First login:

- After expanding the top menu, press **<Log in>** field to open the operator base window with **<Admin>** item.



- By default this operator has not been assigned any access password. Select it to automatically enter the home screen of the program.

NOTE: After you log in for the first time, enter operators and assign them with relevant permission levels and unique access passwords in the first place (read further for more details, see: section 13 and 17.2). When you log in again, select the operator from the list and enter password to start working as the operator with assigned permission level.

Logout:

- Expand the menu at the top of the screen and press **<** **>** field.
- After collapsing the top menu in the top bar of the screen, the **<Not logged>** inscription will be displayed in the place of logged operator's name.

10. NAVIGATION IN THE MENU

Navigation in the menu is intuitive and user-friendly. Thanks to the display with a touch panel, it is easy to operate the program. Press the on-screen key or field in the screen to activate the assigned operation or function.

Balance keypad

Enter main menu


Add to database

Search in database by date

Search in database by name

Search item in database by code


Print out from database


Select variables for printout template from list


Return to previous menu level

10.1. Voice commands

The program allows you to perform several operations via voice commands. These are the following operations: tarring, zeroing, measurement printout/record. The commands must be expressed in English, in a suitable sequence. The structure of particular commands is showed below.

Tarring: **ellipsis [please] (tare | tar | terre) [the] device**

Zeroing: **ellipsis [please] zero [the] device**

Printout/Saving: **ellipsis [please] save [the] (mass | measurement | mass measurement)**

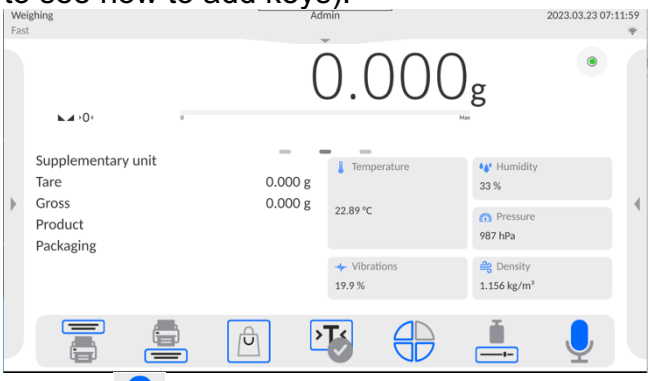
Automatic door opening: **ellipsis open door**

Automatic door closing: **ellipsis close door**

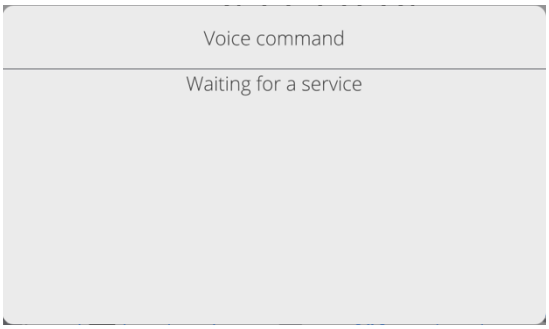
How to express the command: black text is obligatory, green is optional, red – one of them is obligatory
e.g.*: for Print command:* ***ellipsis save mass.***

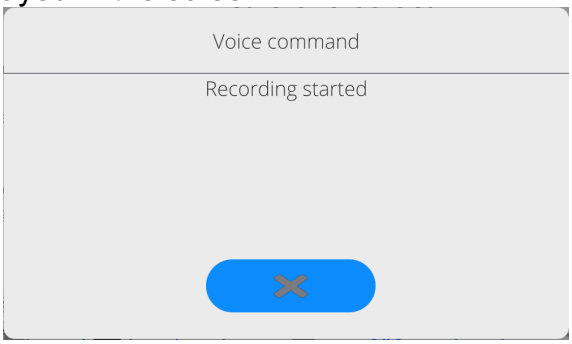
Procedure:

1. Place < > voice command key on the key bar (read further sections of the manual to see how to add keys).

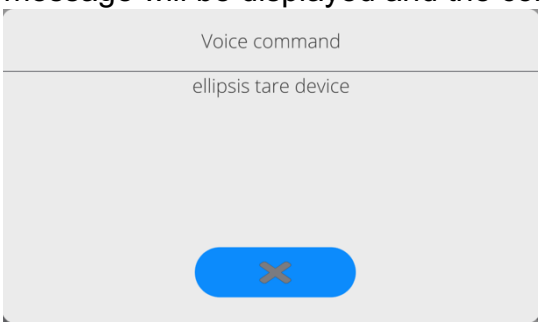


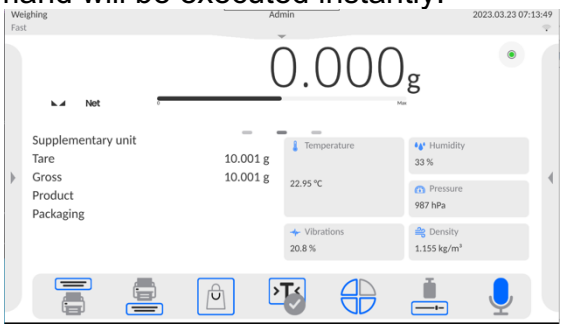
2. Press < > key.
3. The voice command recognition procedure will be initiated and it will be communicated through messages displayed in the screen.





4. Express the command as per the above-stated description.
5. If you express the command correctly and the program can recognise it, the message will be displayed and the command will be executed instantly.





10.2. Return to weighing mode

Modifications introduced into balance memory are automatically saved upon return to home screen.

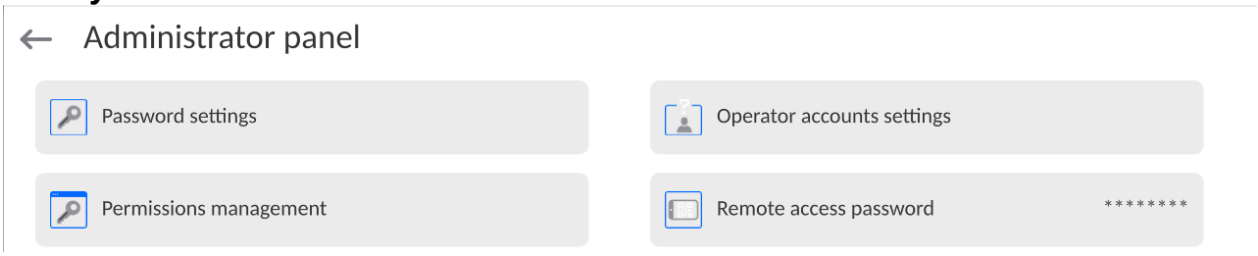
Procedure:

- Press ← key repeatedly until the home screen is displayed.
- Press field in the top bar to return to the home screen instantly.

11. ADMINISTRATOR PANEL

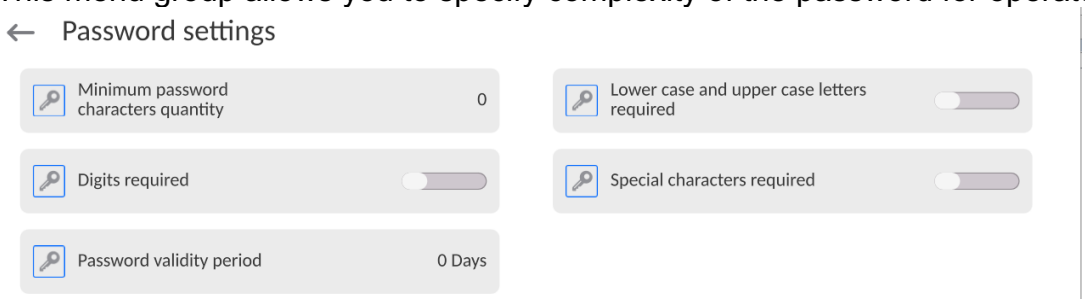
This menu group is designed to set scope of operations for particular operators assigned given permissions, password protection level, and unlogged operator permissions.

NOTE: Only the operator with <Administrator> permission level is allowed to modify this menu.



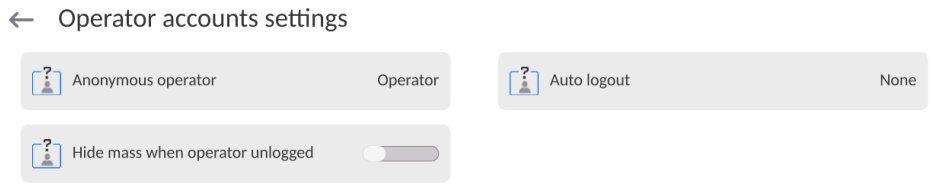
11.1. Password settings

This menu group allows you to specify complexity of the password for operators.



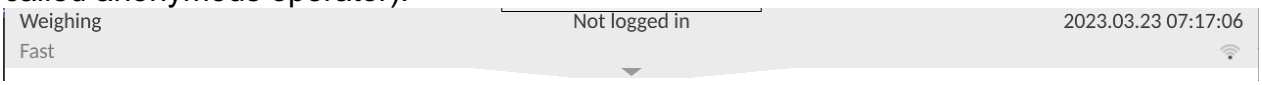
Minimum password length	Parameter for specifying minimum quantity of characters to be used in a password. „0” - set to enable password consisting of freely selected number of characters.
Lower case and upper case letters required	Requirements concerning the type of characters in operators’ passwords.
Digits required	
Special characters required	
Password validity period	Specification of the time interval, expressed in days, which when expires requires you to change the password. For „0”, there is no need to change the password.

11.2. Operator account setting



Unlogged operator permissions

The administrator can assign a permission level to an unlogged balance operator (the so-called anonymous operator).



Procedure:
Enter <Operator account settings> parameters group, select <Unlogged operator permissions>, and then select one of the following items: Guest, Operator, Advanced operator, Administrator.

Note: *Operator assigned with <Guest> permissions level is not allowed to modify program settings.*

Automatic logout

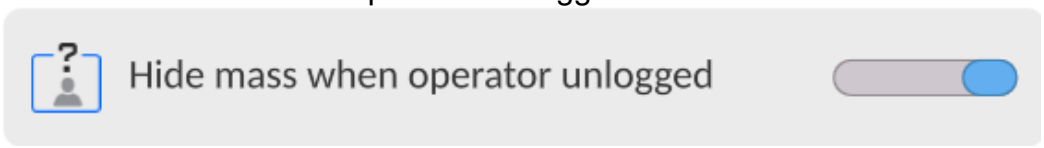
With auto logout function on, the operator is logged out automatically if the balance is not operated within a specified time interval, given in minutes.
By default the function is off (<None> value set).

Procedure:
Enter <Operator account settings> parameters group, select <Automatic logout> item and then select one of the following: none//3/5/15/30/60. Time is given in [min].

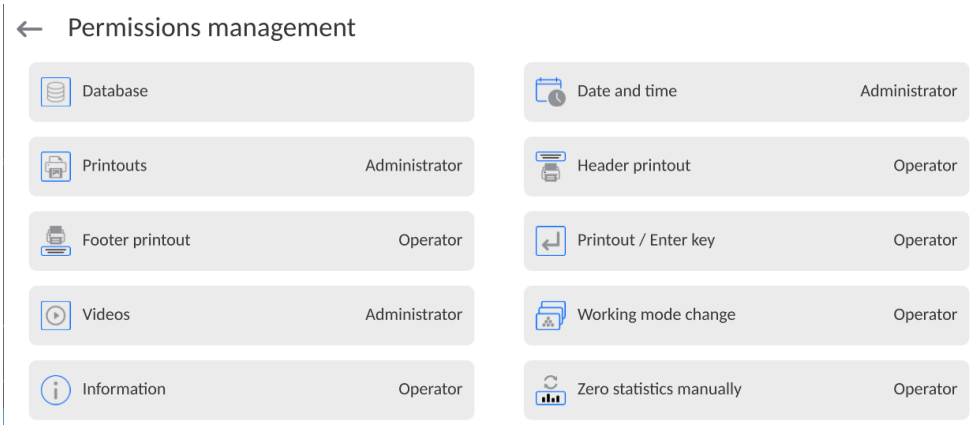
Hide mass when operator not logged in

You can disable mass display if the operator is not logged in. By default this option is disabled in the balance.

Procedure:
Enter <Hide mass when operator not logged in> item and then switch value into active.

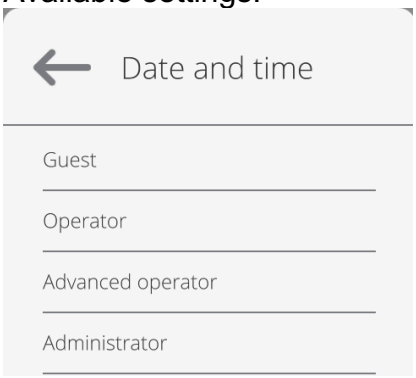


11.3. Permission management

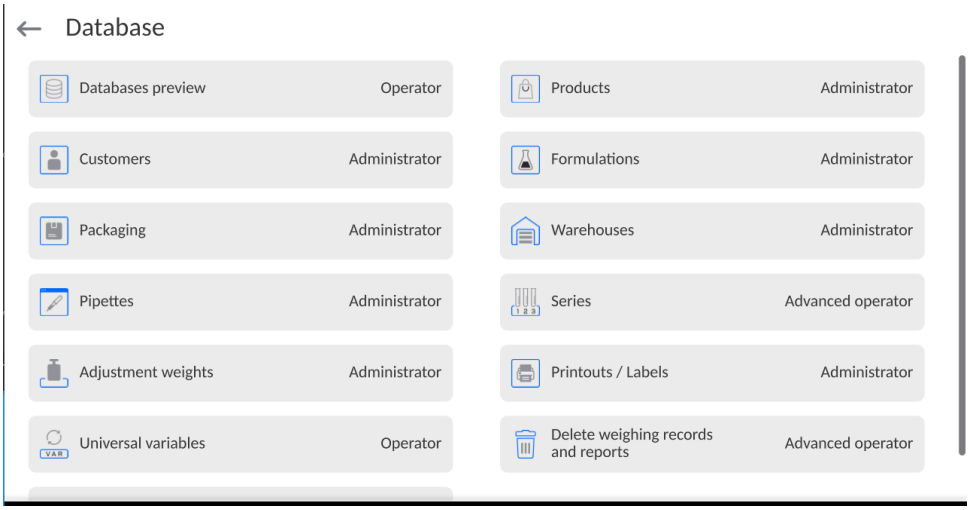


Note: *If you switch the permission level into <**Guest**> for particular parameters, you will make the access to settings open (no need to log in).*

For each variant, you can assign the permission level for edition.
Available settings:



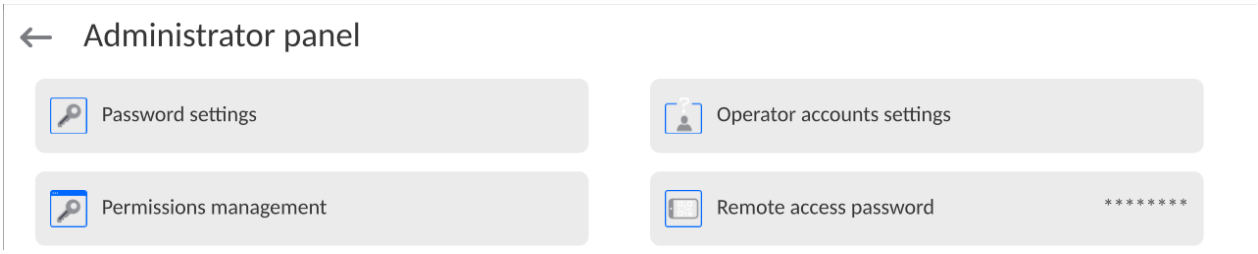
Databases



Default balance settings enable the operator logged as **Administrator** to modify settings of particular databases. Depending on requirements, these permissions can be modified.

Similarly, you can change permission for edition of other items available in this menu.

11.4. Remote access password



The balance allows remote access with the use of connection to the local online network that the computer is connected to. **VNC Viewer** can be used in this respect.
The default access password in the program is the following string of characters: ***radwag1234***. If you do not want to use the default password, you need to enter your unique password in this parameter.

Note: remember your new password in order not to lose remote access to the balance.

12. ADJUSTMENT

The balances are equipped with the automatic adjustment system which ensures correct measurement accuracy. The <ADJUSTMENT> menu contains functions controlling operation of adjustment process.

12.1. Internal adjustment

The internal adjustment adopts the internal weight.

Press the <  Internal adjustment> key to start the adjustment procedure instantly. When it is over, the screen will show the message on completed procedure and its status. In balances with automatic legs, every time the internal adjustment is to be performed, the balance levelling status is checked. If the balance is not levelled, it is levelled in the first place, and then the internal adjustment is carried out.

Note: *Balance adjustment procedure requires stable conditions (no air drafts, no vibrations), in the course of adjustment the weighing pan must be unloaded.*

12.2. External adjustment

The external adjustment is carried out using external mass standards of the right accuracy and weight value, depending on balance type and loading capacity. The external adjustment procedure is semi-automatic, and its particular stages are signalled through on-screen messages.

Note: *External adjustment is possible for balances that are not subject to the conformity assessment (verification).*

Procedure:

- Enter <Adjustment> submenu, and then press <External adjustment> field.
- A relevant message will be displayed. Now unload the weighing pan and press  key. While determining the start mass, the following message will be displayed: **Mass determination…**.
- Once the start mass procedure has ended, another message will be displayed in the screen. Following the aforesaid message, load the weighing pan with the required weight and press  key.
- Another message will pop up in some balances. Based on the message, load the weighing pan with another weight and press  key.
- When the procedure is finished, unload the weighing pan and press  key to return to the weighing mode.

Adjustment test

The <Adjustment test> function enables comparing the result of an internal automatic adjustment with the value recorded in balance factory parameters. The comparison is used for determining drift of balance sensitivity over time.

12.3. Automatic adjustment

Enter this menu to specify conditions initiating an automatic adjustment. Options:

- None – automatic adjustment inactive.
- Time – adjustment takes place in time intervals declared in <Automatic adjustment time> menu (12.5).
- Temperature – adjustment is triggered by temperature change.
  Both – adjustment is triggered by both, temperature changes and time.

Note: *This parameter settings can be modified only for balances that are not a subject to the conformity assessment (verification).*

12.4. Automatic adjustment time

< Automatic adjustment time> parameter determines time interval between successive automatic internal adjustments. The time interval is given in hours and ranges from 1 to 12 hours.

To set time interval for automatic adjustment:

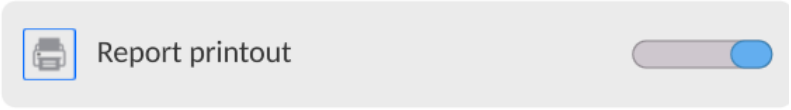
- Press <Automatic adjustment time> key.
- Using the displayed menu, select appropriate time interval (given in hours) which is to elapse between the most recent adjustment and activation of the following automatic internal adjustment.

Note: *This parameter settings can be modified only for balances that are not a subject to the conformity assessment (verification).*

12.5. Report printout

<Report printout> parameter determines whether an adjustment report is to be automatically printed upon adjustment process completion.

To print the report out automatically, switch the parameter into active printout.



12.6. GLP project

GLP is one of the methods of documenting work in accordance with adopted quality system. The information selected for printout is printed together with every balance adjustment report. The operator can use the following data and marks:

adjustment (adjustment type)	working mode (working mode name)
date	time
balance type	balance ID
operator	full name
levelling status	nominal mass
current mass	difference
nominal mass 2	current mass 2
difference 2	temperature
dashes	empty line
signature	non-standard printout

Adjustment history
It contains 50 latest adjustment records. The record is carried out automatically. Each adjustment record comprises basic data on completed process. This menu enables displaying the list of completed adjustment processes. Each report is printable.
In order to print an adjustment report out, enter <Adjustment> submenu, next enter <Adjustment history> parameter, select adjustment to be printed. When record details are displayed, press <  > printer icon in the top bar.

Note: *if you record 50 adjustments, the 51st record will cause the oldest record to be deleted from the list.*

If internal procedures require maintaining complete documentation concerning all carried out adjustment processes, then the list with adjustment records has to be printed out and archived periodically.

Searching for adjustment

It is possible to search for information on specific adjustment: press 

key and enter execution date.

Exporting information on adjustments

To export information on completed adjustments, enter the USB mass carrier into the balance port. Next press <  > key located in the top right corner of the screen. This procedure is automatic. When the procedure is finished, the file with **.tdb** extension is saved. You can edit the file for example in Excel or a text editor.

13. PROFILES

A Profile is a data pack that determines:

- particular function operation, e.g. 'Parts counting', 'Percent weighing', etc.,
- data to be displayed during operation,
- function keys that are to be active,
- measuring units that are to be accessible,
- criteria determining speed of operation and measurement stability.

Balance software allows you to create numerous profiles, this enables:

- designing an individual working environment by each operator,
- customized balance operation, i.e. activating selected function keys and information (improved operation performance).

For ease of operation, 4 default balance profiles have been designed. The profiles settings provide optimal weighing process for particular requirements and conditions.

Profile names:

- **Fast** – profile set to enable fast measurement of mass of any size regardless of the selected working mode. Fast profile gets activated automatically at the first balance start-up. For Fast profile, the parameters settings enable obtaining the final result as fast as possible.
- **Fast dosing** – profile intended for dosing, it is set to enable fast dispensing of product. For this profile selected, the DOSING mode gets activated automatically,
- **Precision** – profile set to enable precise measurement of mass of any size regardless of the selected working mode. For this profile the weighing process takes a lot of time, but this guarantees the most precise weighing result.
- **User** – basic profile, filters settings provide quite fast and precise measurement. For this profile selected, the WEIGHING mode gets activated automatically.

Caution! *You can modify all settings of User profile. Settings of other profiles (Fast, Fast dosing and Precision) can be modified only to a limited extend. It is possible to create additional profiles. Additional profiles settings can be fully modified.*

Creating a profile

- The Administrator can create new profiles by:copying an already existing profile and modifying it,
- creating a new profile.

Copying an existing profile

Procedure:

- Enter the main menu by pressing  key.
- Next enter <  > submenu.
- Press and hold the profile name that is to be copied.
- You will see the menu in which you have to press <Copy> item.
- A profile called <*Copy name*> will be created and all settings will be identical to base profile.
- After you have copied it, change data that must be modified (name, etc.).

Adding a new profile

Procedure:

- Enter the main menu by pressing  item.
- Next enter  > submenu.
- Press  key.
- The new profile will be automatically added and ready for edition.

Deleting a profile

Procedure:

- Enter the main menu by pressing  key.
- Next enter  > submenu.
- Press and hold the profile name that is to be deleted.
- You will see a menu, select <Delete> item from the list.
- Next you will see the following message: <Are you sure you want to delete?>.
- Press  key to delete, the profile will be deleted.

Note: *Operations in profiles are allowed after you have logged in as the Administrator.*

13.1. Profile structure

Profile parameters list:

Settings Enter this menu to set an individual profile name (alphanumeric characters string), and to declare a default working mode (the selected mode is run as default upon profile activation).

Working modes Here you can set specific options for particular working modes. The following submenus are available:

- Mode-related additional settings
- Buttons
- Information
- Printouts

Readout The following submenus are available:

- Filter
- Result approval
- Autozero
- Autozero: Dosing
- Last digit
- Number of last digits
- Environment

Units Enter this menu to declare start unit, supplementary unit, 2 custom units and to enter the value of gravitational acceleration force of the place of use, and declare availability of particular units.

13.1.1. Settings

Name
Upon entering this parameter, a message box with an on-screen keyboard is displayed.

Enter the name of a profile and press  button to confirm. The name is assigned to the profile.

Default working mode
Upon entering this parameter you can select a specific working mode that is to be set as default. For <None> value set, upon selecting the profile, the balance activates the most recently used working mode.

13.1.2. Working modes

Upon entering working modes parameter, a window containing all accessible working modes is displayed. You can assign each of them with your own settings that will be called upon selecting a profile.

The following parameters are available to each of the working modes:

- Settings:
  specific parameters relating to a working mode, and universal settings such as: result control, tare mode, automatic footer printout, printout mode, printout.
- Quick-access button functions:
  declaring quick access buttons to be displayed at the bottom of the screen.
- Information:
  selection of information to be displayed in the gray information field.
- Printouts:
  declaring type of a printout or defining a non-standard printout.

13.1.3. Readout

You can adjust the balance to ambient conditions (filter level) or to your own needs.
List of <Readout> menu parameters:

FILTER (unavailable to Fast, Fast dosing, Precision profiles)
Each measurement signal before being displayed is electronically processed in order to provide correct parameters specific for stable measurement result (ready to be read).
You can influence the scope of processing, to a certain extent, by selecting a suitable FILTER.
Range of options:
very fast, fast, average, slow, very slow. While setting the filter consider the actual operating conditions. In case of very good operating conditions select average or fast filter, in case of unfavourable conditions select slow or very slow filter.

Note:

- *for precision balances it is advisable to select very fast ÷ average filters,*
- *for analytical balances and microscales - average ÷ very slow filters are recommended.*

Result approval (unavailable to Fast, Fast dosing, Precision profiles)
It is used to determine when the stability marker is to be displayed for the result.

There are three different settings to choose from:

- fast, fast + precise, precise.

Note: *How quickly the stable result is obtained depends on the type of filter and selected result approval.*

Autozero function
The function has been designed to enable automatic control and correction of zero indication.
If the function is enabled, the subsequent measurement results are compared to each other in constant time intervals. If the results differ less than declared Autozero range, e.g. 1 division, the balance is automatically zeroed, and the pictograms of stable indication, ▂▄, and precise zero, →0←, are displayed. Active Autozero function means, that each measurement starts with the precise zero. There are, however, some cases when this function can be a disturbing factor for the measuring process, e.g. very slow placing of a load on the weighing pan (load adding, e.g. pouring, filling). In such case, the system correcting zero indication may also correct the actual indication of a load placed on the weighing pan.
Available values: **NO** - autozero function disabled.
YES - autozero function enabled.

Autozero function: Dosing (unavailable to Fast, Fast dosing, Precision profiles)
The purpose of this function is to enable or disable autozero in the dosing function.
Available values:
NO - autozero function disabled automatically when Dosing mode is run.
YES - autozero function enabled automatically when Dosing mode is run.

Last digit
The function has been designed to enable/disable visibility of the last decimal place of measurement result. There are three settings in this function:

- **Always:** all digits are displayed.
- **Never:** last digit disabled.
- **When stable:** last digit displayed only when the result is stable.

Number of last digits
Using this function, you can declare the number of hidden last result digits. There are three settings in this function and it is related to <Last digit> item:

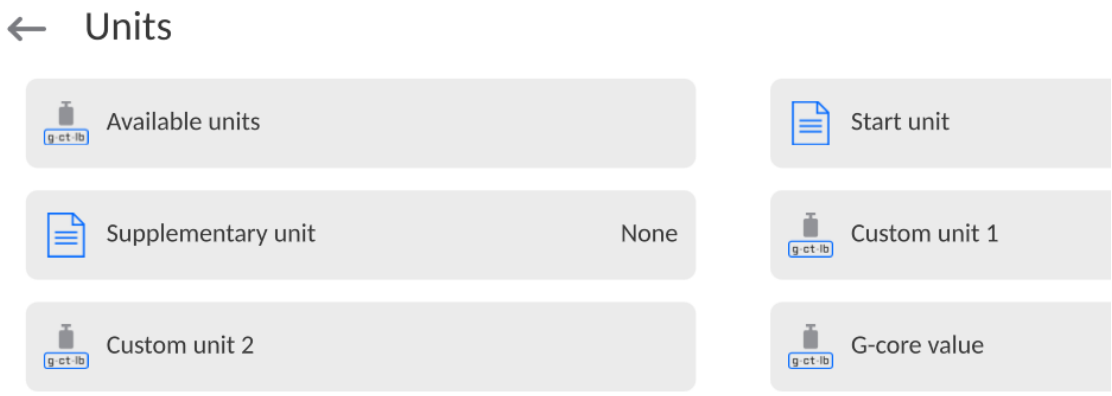
- 1: last result digit.
- 2: last two result digits.
- 3: last three result digits.

Ambient conditions
The parameter related to ambient and environmental conditions of the workstation.
For unstable ambient conditions it is advisable to set the parameter to 'Unstable' value. By default the parameter is set to 'Stable' value. 'Stable' value results with faster operation, i.e. weighing takes much less time than in case of 'Unstable' value set.

- **Unstable; Stable.**

13.1.4. Units

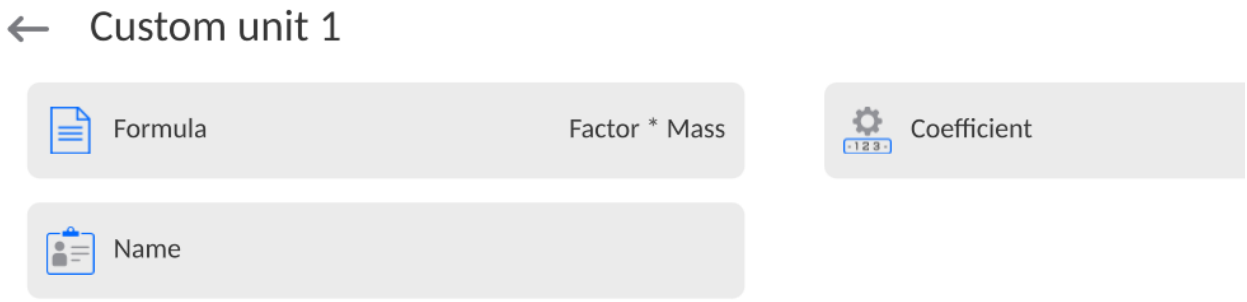
For a selected profile you can declare start unit, supplementary unit and two custom units.



Units menu enables you to enter the value of gravitational acceleration force characteristic for a particular place of use. It is obligatory should the balance be used to determine mass in [N].

Custom unit has:

- Formula (*custom unit recalculation formula*): Coefficient * Mass or Coefficient / Mass.
- Coefficient (*coefficient for custom unit recalculation*)
- *Name (unique unit name – max. 3 characters – to be displayed by the result)*



If you have designed such a unit, its name will be displayed in the list of available units; the option is available only to non-verified balances.

14. WORKING MODES – general information

5Y-series balances in a standard design offer the following working modes:

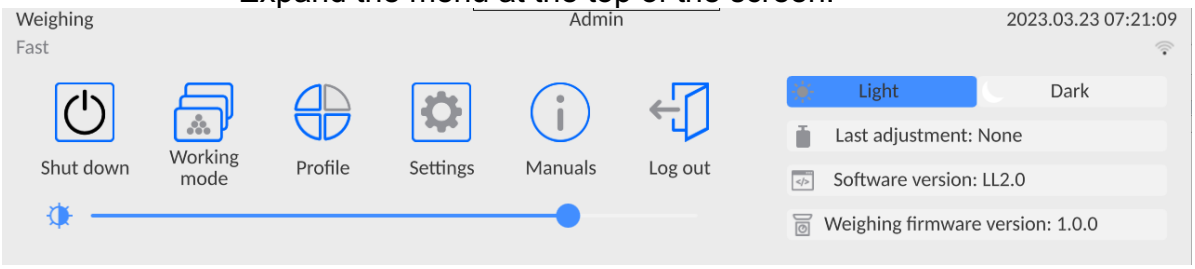
Weighing	Statistics
Operating principle: weight of a load is determined through an indirect measurement. The balance measures gravitational force which attracts the load. The obtained result is processed and displayed on the balance screen in a digital format.	Operating principle: based on measurements, statistical values, such as Min, Max, deviation, etc., are determined.

Particular working modes feature special functions. The settings enable adapting mode operation to your individual needs. The specific settings are activated upon selecting a respective profile. For detailed description of specific working mode settings, refer to the given working mode section.

14.1. Working mode selection

To change the working mode, do as follows:

- Expand the menu at the top of the screen.

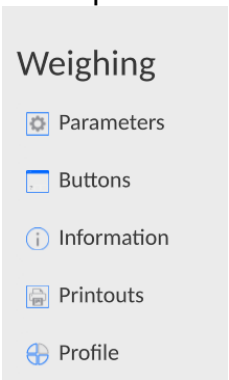


- Press <Working mode> item.
- A list of modes will be displayed.
- Select the name of mode that is to be used and the specific mode will be activated.

14.2. Working mode parameters

Each working mode has programmable parameters determining its functioning.
To access these parameters, follow the steps below:

1. Expand the left side menu.



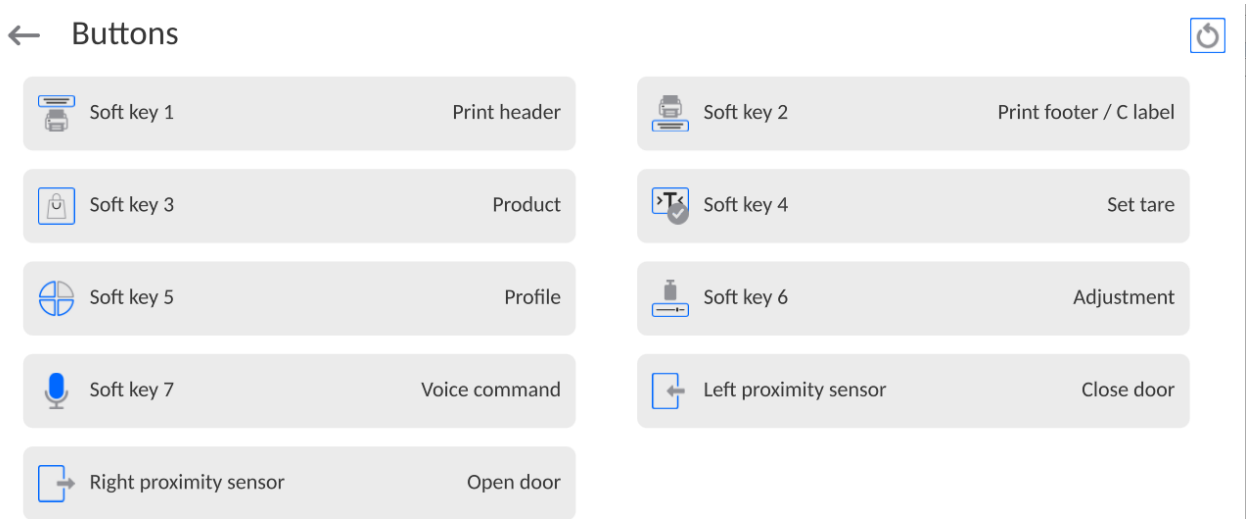
2. The following menu will be displayed:
   - <Settings> - additional mode-related options.
   - <Keys> - quick-access keys can be defined.

- <Information> - select information to be displayed in the Info field.
- <Printouts> - select type and content of printout.
- <Profile> - profile settings

3. Press relevant menu and select the item to be modified.

The description of basic parameters of <Settings> menu is to be found in 13.7, *Additional parameters of the weighing mode*. Other parameters related to particular modes have been described in particular mode sections.

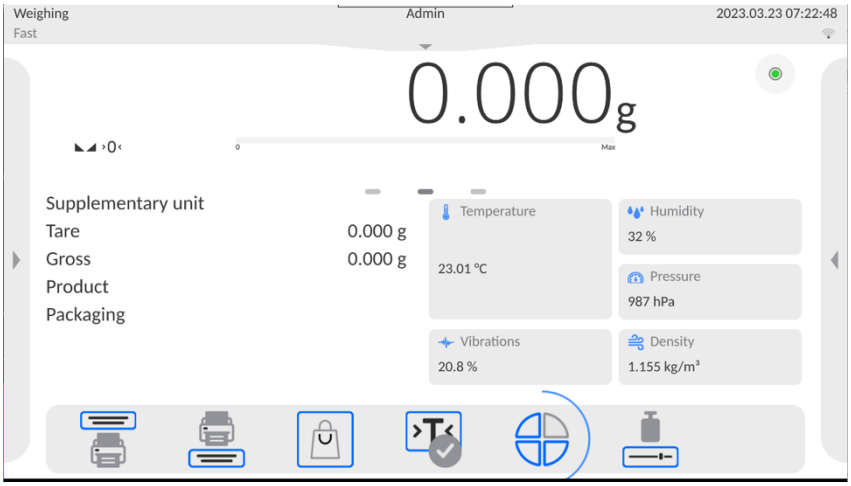
14.3. Quick-access keys, proximity sensors



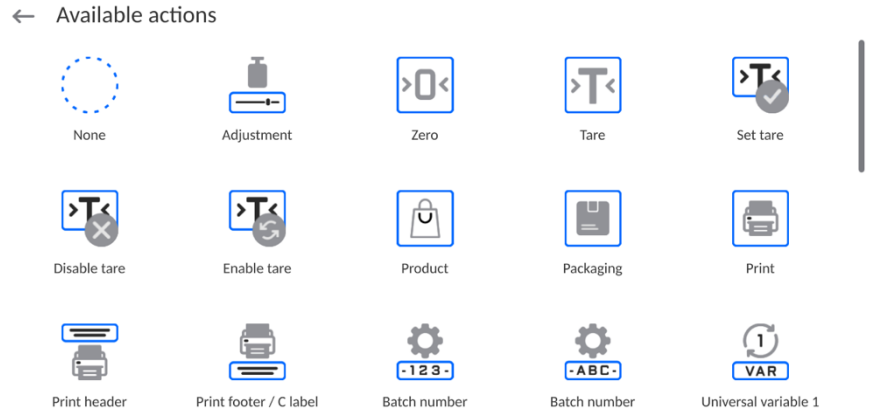
You can quickly return to the default list of keys in the lower bar of the screen. To do so, press key in the top right corner of the screen.

You can define up to 7 quick-access keys which are to be displayed in the bottom bar.

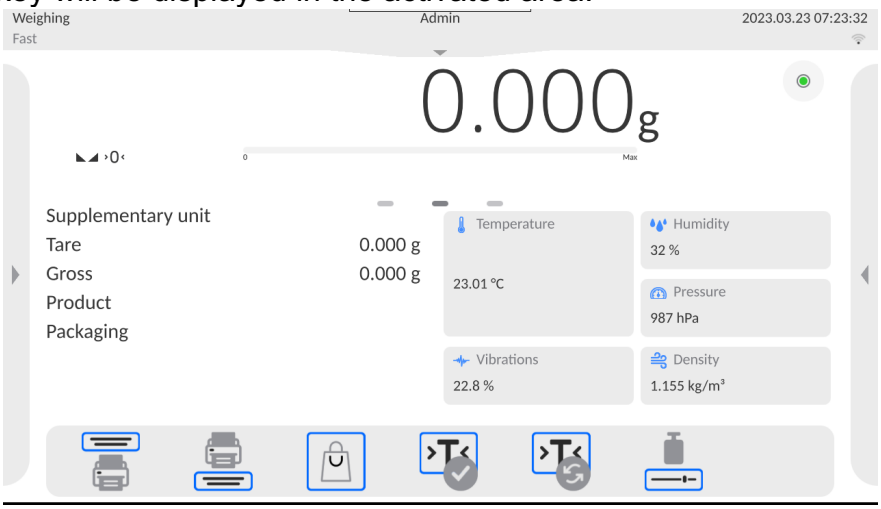
Upon assigning a key with a function, respective pictogram is displayed in a bottom bar of the home screen. Availability of keys depends on the working mode. The list of keys can be accessed in the ATTACHMENT B to the manual. It is the so-called quick-access key for the most common operations.
Each working mode features customised set of keys. To restore a default set of keys quickly, press <Default key system> function.
Another way of adding or changing the key is to press and hold the field for about 3 seconds in the buttons bar.



The window with available keys will be displayed instantly.



Press the key that is to be added and the program will return to the home screen. The specific key will be displayed in the activated area.



Note: *You can have an access to the operating manual saved in the balance memory. To use this function, set*  *help key in the buttons bar.*

14.3.1. Proximity sensors

The balance is equipped with two proximity sensors that allow controlling its operation with no need to press keys on the facade or touch screen.
The program can recognise four motions near sensors:

1. Put hand close to the left sensor <**Left proximity sensor**>.
2. Put hand close to the right sensor <**Right proximity sensor**>.

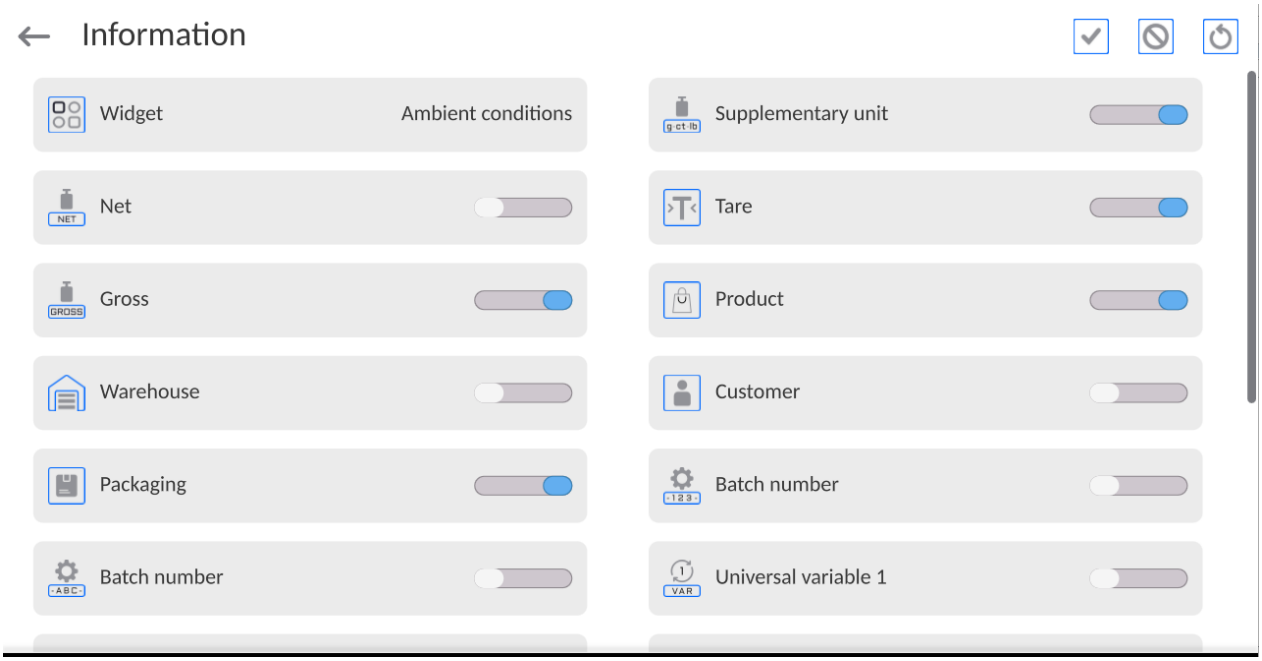
14.3.2. Automatic door opening

Here you can find settings related to automatic door opening and closing, providing balances are equipped with such a mechanism. The settings may be related to both quick-access keys and infrared sensors located in the readout head.

Settings for MYA 5Y balances:

- **Open/close door** – parameter for changing door state; e.g. door closing when the weighing chamber is opened, and door opening when the weighing chamber is closed.
- **Left door** – changing position (open/close) of door on the left side of the weighing chamber.
- **Right door** – changing position (open/close state) of door on the right side of the weighing chamber.

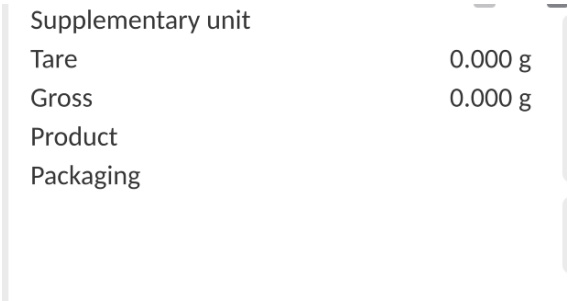
14.4. Information



You can quickly change information to be displayed by using keys in the top right corner of the screen.

	Unselect all information.
	Select all information.
	Restore default selection.

The weighing-related data is showed in the centre of the screen.

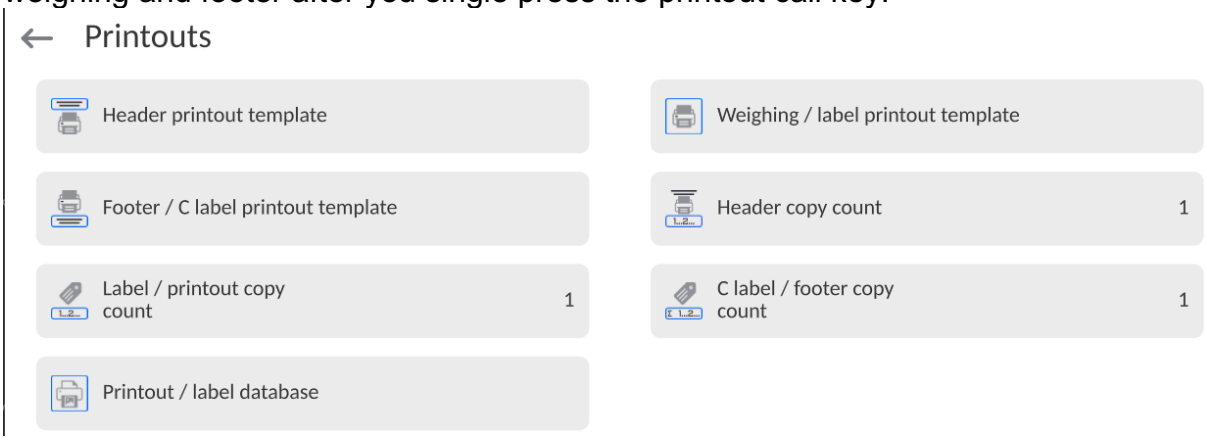


Here you can put 6 pieces of information at the most. If you have selected more, the first 6 will be displayed.

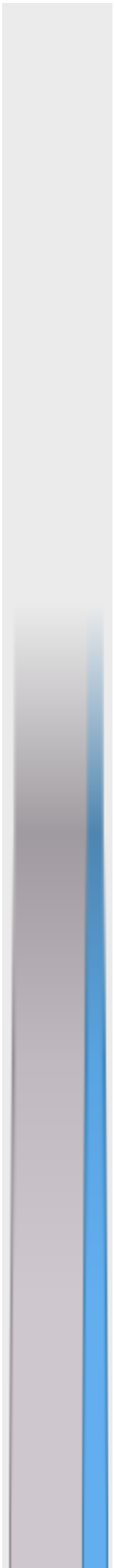
There are two variants for each piece of information:
-  – information is visible.
-  – information is invisible.

14.5. Printouts

The <Printouts> menu consists of three settings sections. The first section is standard printouts: <Header printout template>, <Weighing/label printout template>, <footer/C label printout template>; the second refers to non-standard printouts: <Printout/label base>; while the third is concerned with parameters allowing you to set printing quantities: header, weighing and footer after you single press the printout call key.



Standard printouts are composed of three sections that feature different variable. For each



You can quickly change selection of variables for printout using keys in the top right corner of the screen.

	Unselect all variables.
	Select all variables.
	Restore default selection.

Procedure:

1. Press the name of template to be edited (Header – Weighing – Footer) and select variables to be printed out.
2. **If you have chosen the non-standard printout, create it.**

HEADER TEMPLATE	WEIGHING/LABEL TEMPLATE	FOOTER/C LABEL TEMPLATE
– Non-standard printout – Dashes – Working mode – Date – Time – Balance type – Balance ID – Operator – Full name – Levelling – Client – Warehouse – Product – Packaging – Universal variable 1…5 – Empty line – GLP report – Non-standard printout	– Non-standard printout – N (measurement number) – Date – Time – Levelling – Client – Warehouse – Product – Packaging – Series number – Batch number – Universal variable 1…5 – Net – Tare – Gross – Current result – Additional unit – Mass – MN-Method – Reference tare – Minimum sample weight – Minimum sample weight status – Mass for titrator – ID – Non-standard printout	– Non-standard printout – Working mode – Date – Time – Balance type – Balance ID – Operator – Full name – Levelling – Client – Warehouse – Product – Packaging – Universal variable 1…5 – Dashes – Empty line – GLP report – Signature – Non-standard printout

BASIC PRINCIPLES OF USING PRINTOUTS

1. Press  key on the facade of the balance to print variables that are showed in the WEIGHING field in the standard printout, if they have an attribute =  (see: list of variables above).

2. The variables with attribute, showed in the HEADER or FOOTER will be printed out **ONLY** after pressing **Print Header** or **Print Footer** icon. These icons must be placed in the lower bar of the screen as quick-access keys.
(The procedure of placing icons has been described further in the manual, see 15.3)

Print header data	Print footer data

Note:
Units for mass indication printout:
- *Net – Net – the main measuring unit (adjustment unit)*
- Tare – the main measuring unit (adjustment unit)
- Gross – the main measuring unit (adjustment unit)
- Current result – currently displayed measuring unit
- Supplementary unit – supplementary measuring unit
- *Mass – the main measuring unit (adjustment unit)*

Non-standard printout
The non-standard printout may contain TEXTS and VARIABLES (acquired from the software during printout). Each non-standard printout is a separate project, featuring specific name by which it is identified, and saved to the database of printouts.

Procedure:
1. Press <Non-standard printout> field.
2. Press <Add> key, another data box will be displayed: Name/Code/Project.
3. Assign name and code to the printout.
4. Press <Project> code.
5. A field with keypad will be displayed and you will be allowed to edit printout.
6. Using the keypad, design the printout; the printout may include texts and variables.

Note:
- *It is possible to add a printout by importing configured texts from flash drives connected to balance USB port.*
- *Printout name is ONLY a NAME, and does not represent its content.*
- *For information on how to design a non-standard printout template, read 17.8 <Printouts>.*

14.6. Profiles

Profiles function is described in section 14, *Profiles*.

15. WEIGHING

Load the weighing pan. When you can see ⏦ marker on the left side of the screen, read the result.

Press <↵ PRINT> key to save/print the result:

- for verified balances – only the stable result (⏦ marker),
- for non-verified balances – stable or unstable result (no ⏦ marker is displayed**)**, if the result is unstable, <?> mark is printed before the mass value.

15.1. Weighing unit selection

To change the weighing unit, press the unit displayed in the box, just by the result. After you have clicked the unit, a list of available units will be displayed. Select one of them to make the program automatically recalculate the indication to the selected unit value.

Options:

unit	*designation*	*verified balance*	*unit*	*designation*	*verified balance*
gram	[g]	yes	Taele Singapore	[tls]	no
milligram	[mg]	yes*	Taele Taiwan	[tlt]	no
carat	[ct]	yes*	Taele China	[tlc]	no
pound	[lb]	no	Momme	[mom]	no
ounce	[oz]	no	Grain	[gr]	no
ounce troy	[ozt]	no	Newton	[N]	no
pennyweight	[dwt]	no	Tical	[ti]	no
Taele Hongkong	[tlh]	no	Mesghal	[msg]	no

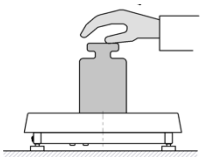
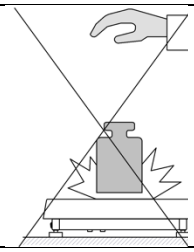
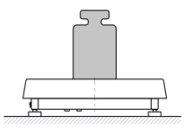
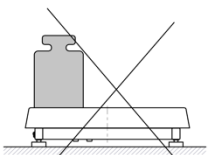
** - The availability of units depends on the balance type.*

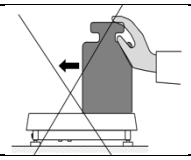
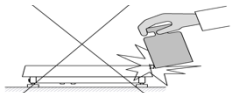
With regard to non-verified balances, all non-SI units are available.

15.2. Correct weighing principles

To assure a long-term operation and correct mass measurements, do as follows:

- Activate the balance with unloaded weighing pan (permissible load upon activation is ±5% of the maximum load).

YES	NO	YES	NO
			
Load the weighing pan steadily avoiding shocks: Go to Setup/Misc./Vibrations detection parameter and enable control of weighing pan loading (for detailed information, read section 21.8).		Place weighed loads centrally on the weighing pan.	

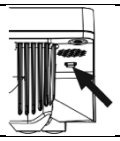
NO	NO	
		
Avoid side loading, in particular side shocks.		

Before you initiate measuring or in case of significant fluctuations of external conditions, calibrate the balance.

- Before you start measuring, load the weighing pan with a weight whose mass is similar to the maximum loading capacity, do it a couple of times.
- After unloading the weighing pan, make sure the unloaded balance shows zero value - I →0← symbol and the result is stable - ◣◢ symbol; if not, press  key.
- Select weighing unit: press the unit by the mass display 0.0000 g or  key in the lower bar of the screen.

Note: *For verified valances, as per provisions of the EN 45501 standard, the mass value below -20e must not be displayed; therefore, if the indication is lower,* ***<Lo mass>*** *message will be displayed in the main screen.*

This being the case, reset the balance by pressing  ***.***

During breaks between series of measurements, do not unplug the balance. It is advisable to deactivate the screen by pressing the key in the top expandable menu.	
To activate the balance, press the key in the readout head. When the start-up procedure is finished, the balance will be ready for further weighing cycles.	

15.3. Levelling

The balance is supplied with AutoLEVEL System that allows you to monitor the level. Thanks to this solution, you can continuously keep track of the balance level while it is operating, which is signalled in the top right corner of the screen. The system supervises the levelling. In case the level changes, the system informs you about it in the screen by changing the level indicator and/or sounding the alarm and entering the balance level setting window.

Levelling procedure:

- Press the  level status icon in the top right corner of the screen.
- You will see the level control panel. There are level view and balance view displayed next to each other.

- Level the balance by turning its legs as showed in the screen through pulsating pictograms <> – the level point will move towards the centre of the circle.
- When the point reaches the inner circle of the „level view", its colour will turn from red into green, showing the balance has been properly levelled.

Note: *The balance is equipped with the Automatic Level Control mechanism. To see how it works, read 22.9 of the manual.*

Zeroing

To zero the mass indication, press  key. The zero value and the following symbols: -0- and ◣◢ will be displayed. Zeroing entails determination of a new zero point, treated by the balance as precise zero. Zeroing is possible only in case of stable indications.

Note: *Zeroing the value is possible only up to* ***±2%*** *of the maximum loading capacity of the balance. If the zeroed value is higher than* ***±2%*** *of the maximum loading capacity, the error message will be showed in the screen.*

Tarring

To determine the net mass, put the load packaging on and press  only when the indication is stable. The screen will show the zero value of the mass and the following symbols: ***Net*** and ◣◢. After unloading the balance, the screen will show the total of tarred weights with a minus sign. You can also assign the tare value to the product in the database. If you do so, the balance will automatically collect the tare data from the base after you have chosen the product.

Note: *It is disallowed to tare negative values. An attempt to tare a negative value will trigger the error message. This being the case, zero the balance and re-tare.*

Manual tare provision

Procedure:

- Regardless of the working mode, press  quick-access key.
- A numerical keypad will be displayed.
- Enter tare and press  key.
- You will return to the weighing mode and the tare value you have entered together with „-" sign will be displayed in the screen.

Tare deletion

You can delete the tare showed in the screen by pressing ZERO key on the facade of the balance or by pressing the <Disable tare> programmable key.
Procedure 1 – after removing the tarred load from the weighing pan:

- press  key,
- NET marker will be deleted, a new zero point has been determined.

Procedure 2 – when the tarred load is on the weighing pan:

- press  key,
- NET marker will be deleted, a new zero point has been determined.
- when tare exceeds 2% of the maximum load, the -Err- message will be displayed (unfeasible operation).

Procedure 3 – when the tarred load is on the weighing pan or after removing the tarred load from the weighing pan:

- press <Disable tare>  programmable key,
- NET marker will be deleted,
- tare value will be displayed,

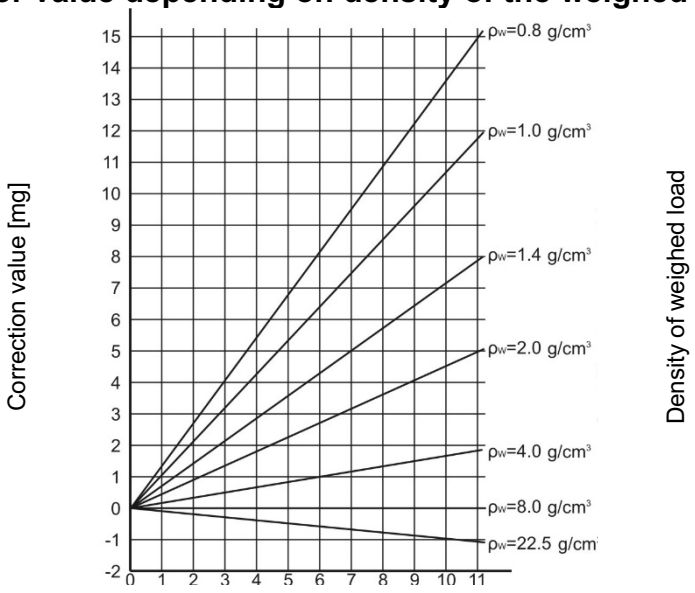
press <Restore tare>  key to restore the last used tare value.

15.4. Air buoyancy compensation factor

The application allows you to correct mass measurement errors while:

1. Weighing materials whose density essentially differs from the density of the weight used to adjust the balance. By default the balance is adjusted with the steel weight whose density is ~8.0g/cm^3 or brass weight with a density of ~8.7g/cm^3. If different materials are weighed, consider the dependency showed in the diagram.

Error value depending on density of the weighed sample:



The diagram shows the size of corrections for masses, depending on density of the weighed material, assuming air density as the fixed value of 1.2 kg/m^3.

2. Testing sample mass changes within several hours when the sample mass is relatively constant (minor changes). It is assumed that the significant impact on the final result is attributable to changes of the air density which is essentially affected by pressure, temperature and humidity.

To make measurements credible, specify the laboratory air density and weighed material density (depending on ambient conditions, measuring method and properties of the material in question).

OPERATION

The program allows you to use the buoyancy compensation procedure in two ways:

1. By entering the known value of the air density and known density of the sample in question into the balance memory.
   After entering these values, the program starts calculating the correction factor for the mass in question and displays the corrected sample mass.
   For avoidance of mistakes, the corrected mass value is marked with a special symbol, exposed in the screen and printout: <**!**>.
2. Through semi-automatic determination of the air density value by the program and entering the known density of the sample in question.
   To determine the air density, a special set of two mass standards can be adopted. One of them is made of stainless steel and the other of aluminium. Based on mass indications for both standards, the program calculates the air density automatically. Now you need to accept the value to save it in the memory. Then you need to enter the density of the sample in question into the memory. After entering these values, the program starts calculating the correction factor for the mass in question and displays the corrected sample mass. As previously, the value of the corrected mass is marked with a special symbol, highlighted in the screen and printout: <**!**>.

The buoyancy compensation procedure is disabled and enabled in the operator's menu. The procedure remains active only in the weighing mode.

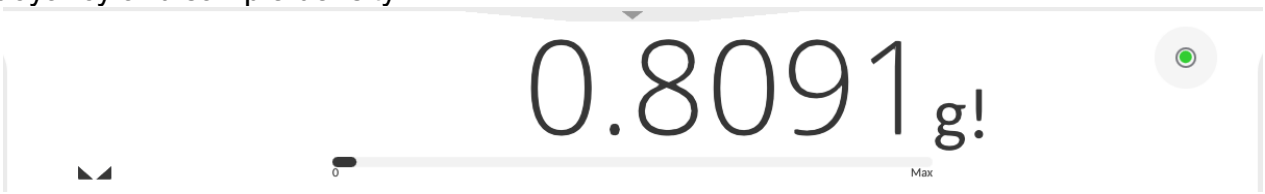
ACTIVATION OF THE AIR BUOYANCY CORRECTION

Procedure:

- Press the grey information field in the home screen.
- Select <Settings> item.
- Next select < Air buoyancy compensation> parameter.
  Available settings:
  - Air buoyancy compensation - YES/NO.
  - Sample density (here you can enter the density of the sample in question). If you use products from the database, select the product in the weighing mode to collect its density from the product database and enter it in the window automatically.
  - Air density – here you can choose the way of entering the air density to the buoyancy compensation.

Settings:
VALUE – after selection, you will see a window in which you need to enter the known air density value (e.g. calculated through other methods). After entering the value, it will be used during compensation. This value is automatically assigned after completing the air density determination procedure (when you finish it with <  > key).
ONLINE – after selection, the balance collects the air density value from the THB sensor if it is connected to the balance, or from external sensors installed in the balance.
If the balance is equipped with both sensors (THB and internal), the superior value is the value from THB sensors while **Setup/Ambient conditions/Ambient conditions module** parameters must be set as **SAVE or SAVE and ALERTS.**
If the balance is supplied with one set of temperature, humidity and pressure sensors, the following settings of the balance must be entered for correct ONLINE operation:
- only internal sensors – **Setup/Ambient conditions/Ambient conditions module** into NONE,
- only external THB module – **Setup/Ambient conditions/Ambient conditions module** into SAVE or SAVE and ALERTS.
Additionally, for correct cooperation between THB module and the balance, set parameters of the port transmission which the module is connected to; enter values that comply with

ambient conditions module parameters that are specified in the rating plate of the THB module.
When you return to weighing, the screen will show <!> additional symbol, as showed below. From now on, the mass that is displayed will be corrected with special regard to the air buoyancy and sample density.



To make sure the result is corrected properly, enter correct air density values and sample density values into the balance memory.

Note: *If you have switched <AIR BUOYANCY COMPENSATION> item into <ONLINE> value, and <!> symbol is not showed in the screen, it means that you have set SAVE or SAVE and ALERTS value in* ***Setup/Ambient conditions/Ambient conditions module*** *parameters, but no THB ambient conditions module has been connected to the balance in reality or cooperation parameters for this module have been set incorrectly. Connect the module to the USB port and set correct parameters showed in the module rating plate.*

15.5. Additional weighing-related parameters

By changing weighing-related function settings, you can program operation of the balance.

Procedure:

- Expand the side menu.
- The following menus will be displayed: Parameters, Keys, Information, Printouts, Profile.
- Press a relevant menu and select the item to be modified.

<Parameters> menu – additional options related to weighing,
<Keys> menu – define quick-access keys,
<Information> menu – select information to be showed in the Info field,
<Printouts> menu – select the type of printout,
<Profile> menu – settings for active profile.

The <PARAMETERS> menu contains additional options related to weighing, such as:

- **Tare mode**

  Available options:
  - SINGLE:
    press TARE key once to remember the value. Press again to set a new tare value. If you select the product or packaging which the tare value is assigned to, the previous tare will be deleted.
  - TOTAL OF CURRENT:
    sum currently entered tare values for the product and packaging (based on selection of product and packaging from the database), and possibly add the manually entered tare value to this sum. When you reset the tare value for the product or packaging, the manually entered tare value will be disabled.
  - TOTAL OF ALL:
    sum all entered tare values.
  - AUTOTARE:
    Principle of operation:

Every first measurement is tarred when the stable value is reached. The screen will show NET and then you can specify the net mass. After you have unloaded the balance and the balance has returned to the autozero zone, the program will automatically delete the tare value.

- EVERY MEASUREMENT:
  you can tare before every measurement in the series.

– **Automatic footer/C label printout**

Available options:

MODE – None – manual footer printout.
Total of measurements – the footer will be printed out on condition that mass value entered in <Threshold> parameter has been exceeded.
Number of measurements – the footer will be printed out on condition that a specific number of measurements (series) in the <Threshold> parameter has been performed.

THRESHOLD – specify the threshold value that determines the footer printout.
For <Measurement total> item, the value will be defined in the mass unit [g], and for <Number of measurements> item, the value will be dimensionless, specifying the number of measurements.

– **Printout/approval mode**

- PRINTOUT/APPROVAL KEY (manual control)
  - Never – inactive printout.
  - First stable – the first stable measurement is recorded.
  - Every stable – all stable measurements are approved.
  - Every – printing all measurements (both stable and unstable), for verified balances only stable results (as in <Every stable> setting).
- AUTOMATIC MODE
  - Never – inactive printout.
  - First stable – the first stable measurement after loading the weighing pan is recorded. Another stable measurement is recorded after the weighing pan is unloaded, the value drops below the threshold and after you have reloaded the weighing pan.
  - Last stable – the last stable measurement before unloading the balance is recorded. It is recorded after unloading the weighing pan and after the value has dropped below the threshold.
  - With interval – if you select this item, you activate automatic printout and record in the WEIGHING database, cyclically with the specific interval. The interval can be set in [min] in <INTERVAL> parameter. The interval settings range from 1 s to 9h 59min 59s.

NOTE: *Every result is printed out and remembered (stable and unstable when the balance is non-verified, and only stable when it is verified).*
The automatic operation with interval starts upon activation of this option. The first stable result that is higher than THRESHOLD value is printed and remembered in the first place. Further measurements are printed at the frequency corresponding to the INTERVAL. To finish the automatic operation with interval, disable this option.

- THRESHOLD:
  mass value for automatic printout, set in grams.

- INTERVAL
  indication record frequency for automatic operation with interval

– **Statistics**
  It contains settings for statistical calculations during operation.
  Available options:
  - Global: statistical calculations are performed for all further measurements, regardless of the specific product
  - Product: statistical calculations are performed for particular products

– **Air buoyancy compensation**
  It contains parameters thanks to which you can enable compensation and enter data on sample density and air density.

  Note: *This function is active in the weighing mode only. The description of operation and settings can be accessed in the previous section of the manual.*

– **Minimum weight.**
  The weighing mode settings include the <Minimum weight> function. To use this function, enter data on methods of determining minimum weight and minimum weight values for a specific method into the <Databases/Minimum weights>. In the standard variant of the device, this database is not completed.
  Any actions related to determination of minimum weights and introduction of data to <Databases/Minimum weights> can be taken only by the authorised RADWAG employee.
  If you are going to use this function, but no data on minimum weights have been entered into the menu, contact the RADWAG's local representative for help.
  Following the requirements arising from the quality assurance system, the authorised employee uses mass standards to determine, in the installation place, minimum loads for specific packaging masses. The obtained values are entered into the <Databases/Minimum weights> software.
  For a specific method of determining the minimum weight, it is possible to define several tare values together with respective minimum weight values and validity date for measurements and data that have been entered. These set values cannot be changed by the operator.
  Using the <Minimum weight> function is a guarantee that weighing results fall within preset tolerance, as per requirements of the quality assurance system adopted in the company.

Note: *This function is available in the weighing mode only.*

Available options:

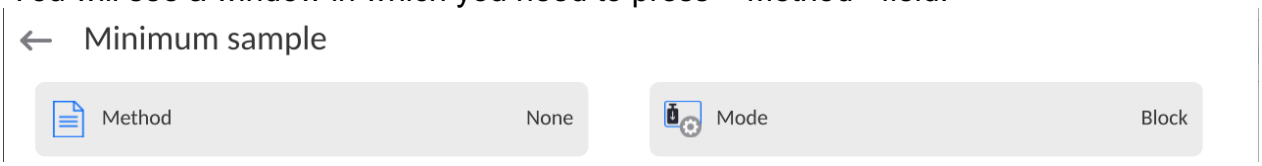
- METHOD
  It is a sign of the quality assurance standard in use. Press the field to display a window with a list of methods that have been entered into the memory and according to which the minimum weights have been determined. Entering a new method is only possible in the <Databases/Minimum weights> menu.
- MODE
  Block – when you select this variant, relevant icons will be displayed in the screen during a weighing cycle to inform you whether the mass is below or above the minimum weight. The program will prevent approving the measurement that is below the minimum limit.
  Warn – if you select this option, relevant icons will be displayed in the screen during a weighing cycle to inform you whether the mass is below or above the minimum weight.

You can approve the measurement that is below the minimum weight value but it will be preceded by an asterisk (*) in the printout.

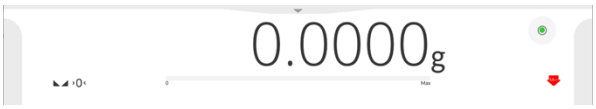
Note: *The way of entering minimum weights has been described in 28.7 of the manual: <Databases/Minimum weight>. Only the RADWAG's authorised employee is allowed to enter new minimum weights.*

Weighing with <MINIMUM WEIGHT> function.
If you weigh and wish to learn whether the specific measurement is above the minimum weight limit for the specific weighing range, the <Minimum weight> function must be enabled in the weighing mode settings.
Procedure:

1. Activate the side menu of the left.
2. The following menus will be displayed: Settings, Keys, Information, Printouts, Profile.
3. Select <Settings> menu – additional weighing-related options.
4. Press <Minimum weight> item.
5. You will see a window in which you need to press <Method> field:



You will see a window with a list of methods saved in the database.
6. Select one of them.
7. The previous menu box will be restored.
8. Press <Mode> field.
9. A settings window will be displayed. Select one of the following items:
Block – when you select this variant, relevant icons will be displayed in the screen during a weighing cycle to inform you whether the mass is below or above the minimum weight. The program will prevent approving the measurement that is below the minimum limit
Warn – if you select this option, relevant icons will be displayed in the screen during a weighing cycle to inform you whether the mass is below or above the minimum weight. You can approve the measurement that is below the minimum weight value but it will be preceded by an asterisk (*) in the printout.
10. Once you have chosen settings, leave the menu.
11. An additional information icon will be displayed in the mass field in the home screen. The icon changes during a weighing cycle, showing the location of mass of the sample in question in relation to the value of the declared minimum weight.



The description of icons for minimum weight function:

	Mass below the minimum weight value.
	Mass above or equal to minimum weight value.
	Mass below selected minimum weight. The clock pictogram informs you about incoming expiration of the validity of the minimum weight (2 weeks before deadline).

	Mass above selected minimum weight. The clock pictogram informs you about incoming expiration of the validity of the minimum weight (2 weeks before deadline).
	Validity for the specific minimum weight method has expired. Make changes to set values for this minimum weight. Only RADWAG's authorised employees are allowed to make changes in this respect.

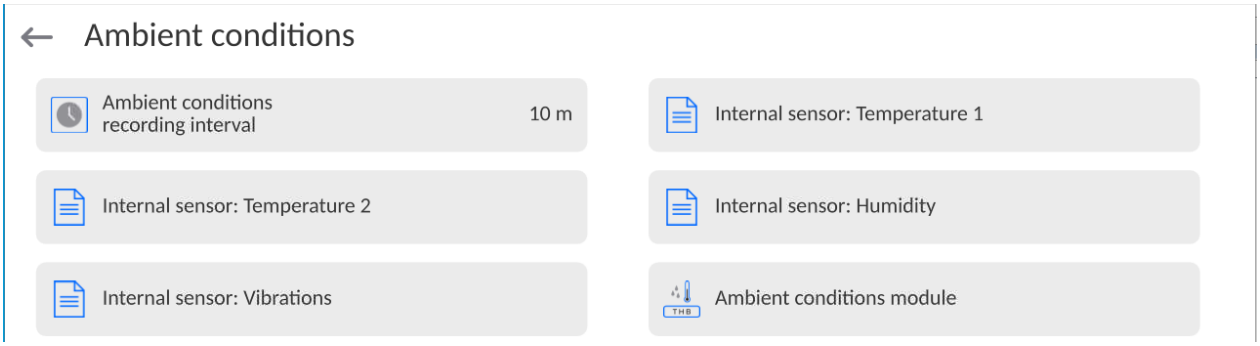
Note: *If more than one reference tare value has been programmed (and corresponding minimum loads), the value automatically turns to the range that applies to the weight of the tarred container. At the same time the required minimum load changes.*

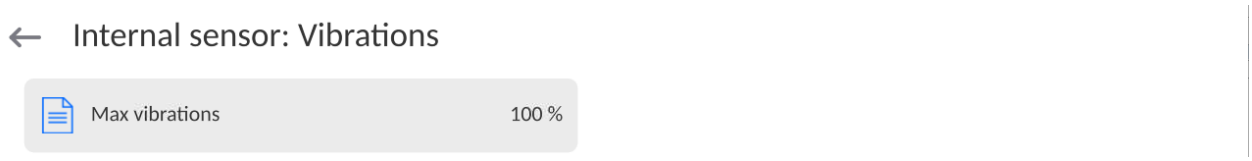
15.6. Ambient conditions – vibrations

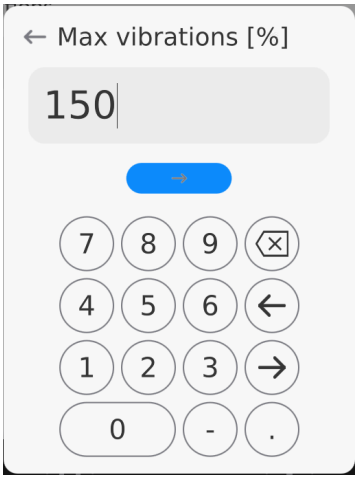
Vibrations is one of the main sources of errors. They spread in all directions. For this reason vibration analysers and meters must be able to perform measurements in three axes at a time. The same applies to the ambient conditions module that has been implemented in 5Y-series balances by RADWAG.
Analytical balances are very precise at measuring, so even minor vibrations affect their operation. These vibrations usually cannot be perceived by a human. To identify them, you need to use specialist equipment. A vibration detector with a module responsible for analysing their impact on the measurement keeps on informing the operator about erroneous measurements caused by excessive vibrations.
The vibrations are most often deadened through anti-vibration tables. Another tool is signalling in the form of the ambient conditions module with a vibration detector that is obligatorily installed in 5Y-series balances. Thanks to the use of the aforesaid adaptation signalling of vibrations, it is possible to evaluate the current place of use, or find the most optimal place. It often turns out that it is not possible to find the place but it is possible to specify the time at which vibrations are the least bothersome.
In view of specific own vibrations and reading units as well as permissible errors, it is important that the analysis is concerned with weighed effective value and relevant frequency bandwidth. Such an analysis is continuously performed in all 5Y balances.
With regard to the module adopted in RADWAG balances, filters pass the frequencies that balances are sensitive to. In balances, you enter the effective value, weighed from three axes, over a specific period of time, as it contains information both on amplitude and history of interferences.
RADWAG has developed a method for analysis and set permissible vibration thresholds so that the signalling is minimally intrusive while still effective for each type of balance. The display on the balance shows a percentage value of the vibration level recorded by the balance.

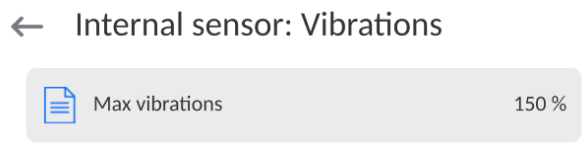
The operator cannot change the vibration threshold but may modify settings so that alerts (warnings) are displayed, depending on the operator's personal needs. By default the value is set to 100%

The example of settings change:









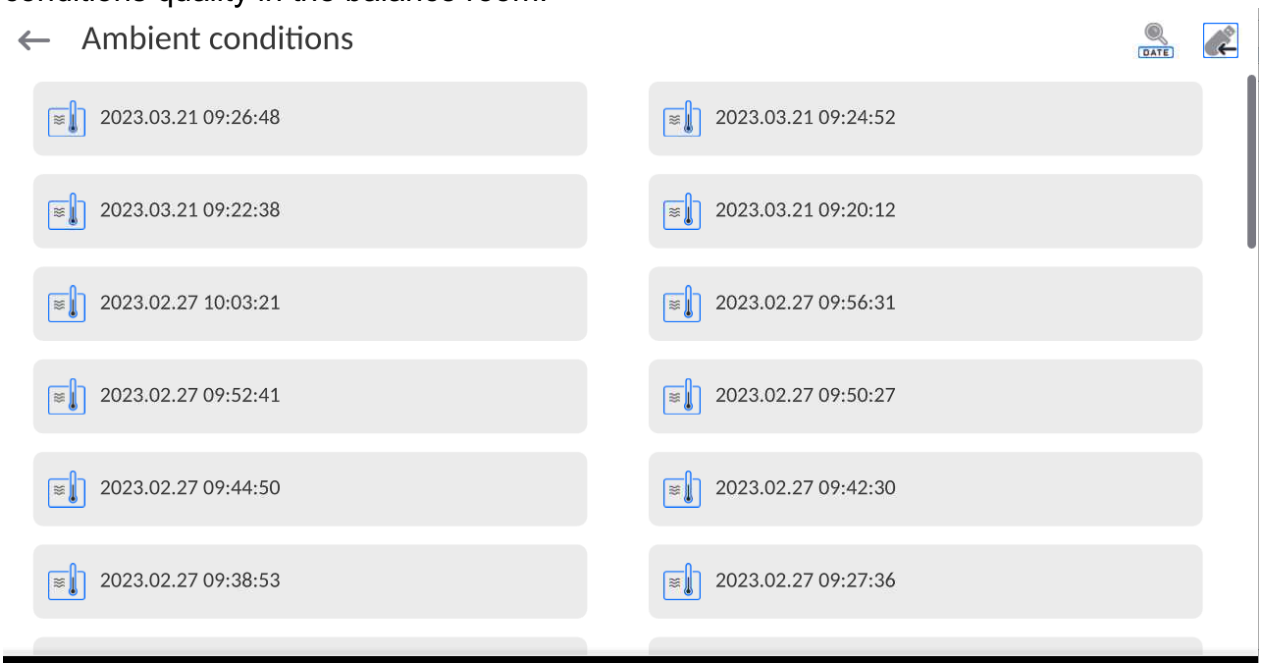
For the sake of clarity, we have showed the example below (it is only the example and values below do not apply in balances).

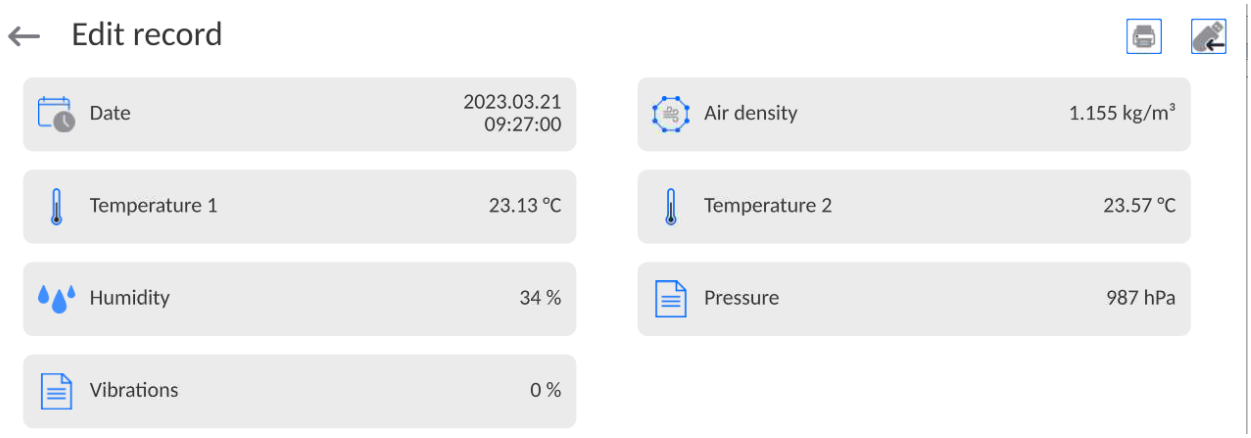
1. Let's assume that the factory vibration threshold that has been set in the 5Y-series balance takes the value of 100mm/s^2.
2. Max. vibrations are 100% (alert threshold – change of icon colour in the screen from green to red). The icon colour is green when the range of vibrations is 0-100mm/s^2, yet turns red when the value reaches 101mm/s^2.
3. Max. vibrations are set to 150%. The icon colour is green when the vibration ranges from 0 to 150mm/s^2, yet turns red when the value reaches 151mm/s^2.

The icon in the weighing box in the screen signals the vibrations.

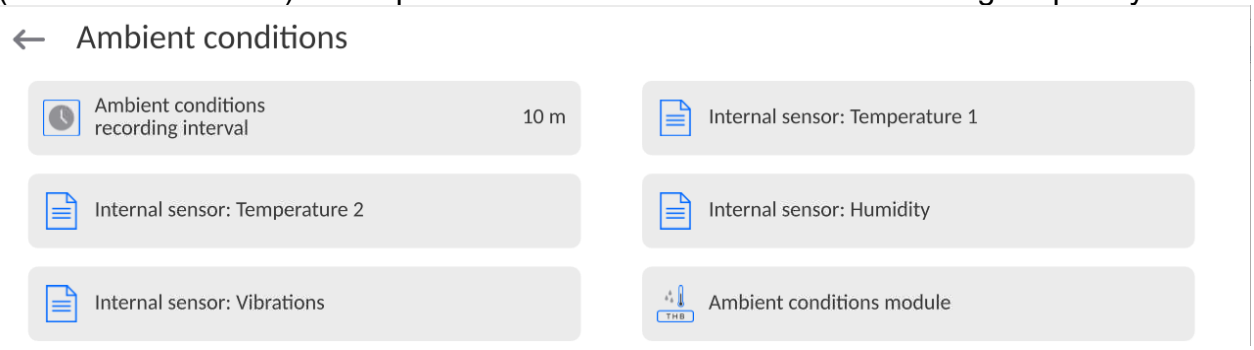
The window with current values taken from sensors is located in the central part of the screen, on the right. The vibrations value is the effective value, recorded in the last 2 seconds. This value is refreshed every 2 seconds. If 100% is displayed in the screen, it means that vibrations have reached the threshold set by RADWAG.

Vibrations are also recorded in the database so that you can analyse the history of ambient conditions quality in the balance room.

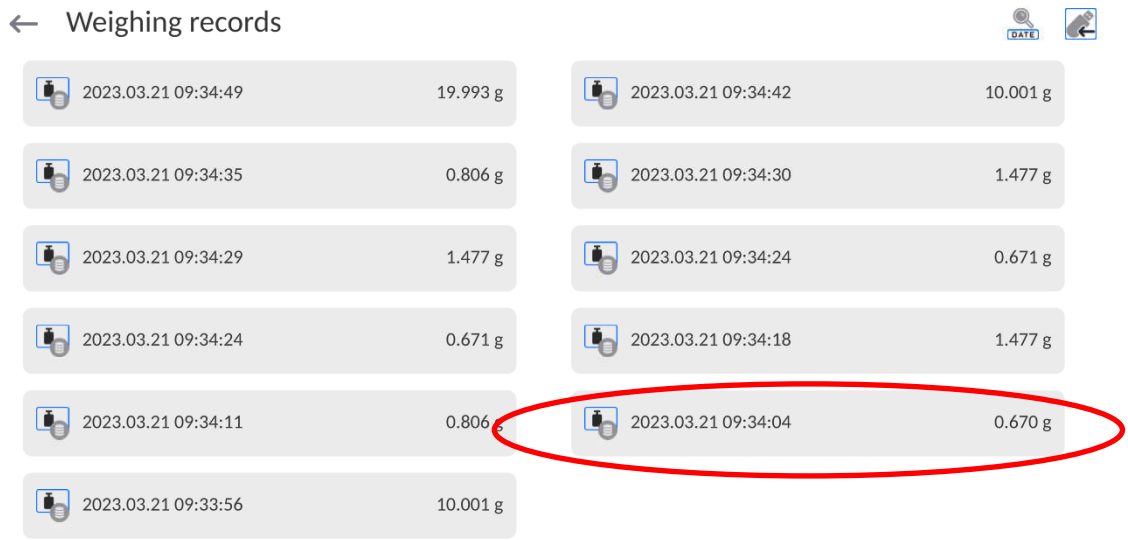


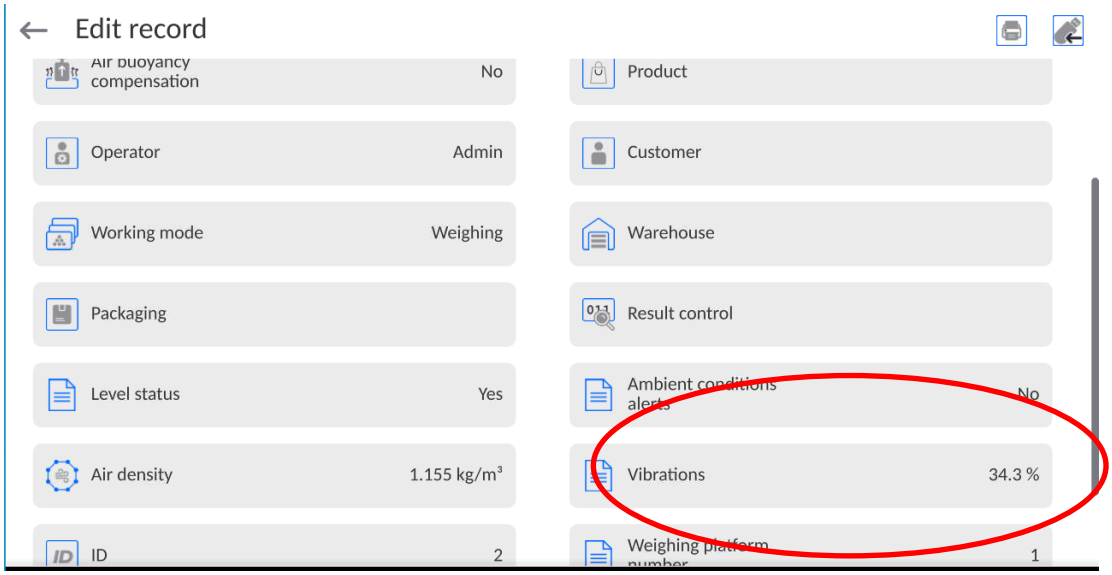


The vibrations effective value recorded by the balance is saved in the declared time interval (from the last record) – Setup/Ambient conditions/Conditions recording frequency.



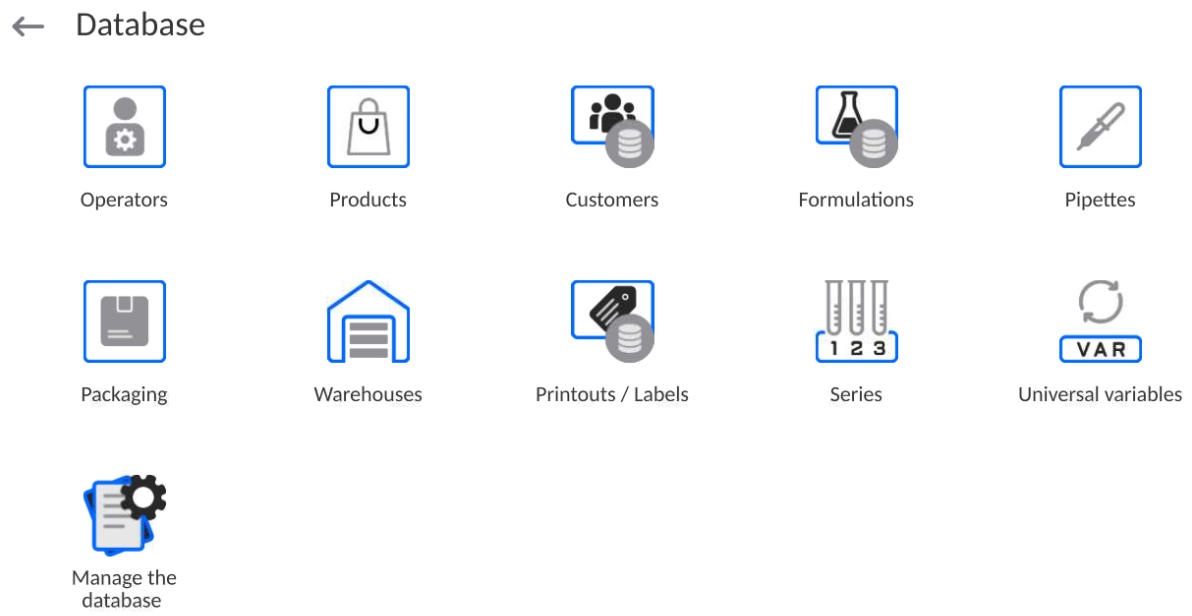
By default the interval is set to 10 min, this value can be changed from 1 to 60 min by the operator, depending on his needs. By analysing records, the operator can choose the optimal time of the day at which measurements, ambient conditions (vibrations) have the smallest impact. It must be noted that there are places in which conditions are favourable only out of the working hours. Additionally, every measurement entails recording data on ambient conditions alerts as well as gravity of vibrations that occurred during the measurement.




Edit record
Air buoyancy compensation
No
Product
Operator
Admin
Customer
Working mode
Weighing
Warehouse
Packaging
Result control
Level status
Yes
Ambient conditions alerts
No
Air density
1.155 kg/m³
Vibrations
34.3 %
ID
2
Weighing platform number
1

16. DATABASES

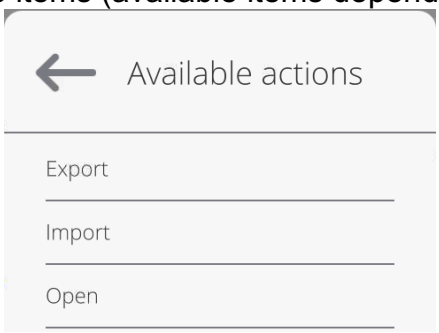
The balance features the following databases:



16.1. Operations in databases

The operations in databases are available only to the authorised operator.
To edit the these bases, follow the steps below:

- Press and hold the field with database icon.
- The menu related to this item will be displayed.
- Select one of the items (available items depend on the type of the database).



Selection of items:

- EXPORT – select to export data from a selected database to a USB flash drive. Plug the USB flash drive to a USB port; upon its detection the software automatically starts a copying process. Upon completion of the copying process, a window with both a file name to which data has been saved and message: <Completed> is displayed. Confirm completion.
- IMPORT – select to import data from a USB flash drive. Plug the USB flash drive to a USB port; upon its detection, a window with a list of saved files is displayed. Select file with data to be imported. The copying starts automatically. Upon completion of the process, a message: <Completed> is displayed. Confirm completion.
- OPEN – select to enter a database (alternative method for database entering: single click on given database field).

After entering the specific base, the following operations are feasible (depending on the type of database):

1. Adding entry to database.
2. Searching for item in database by name.
3. Searching for item in database by code.
4. Searching for item in database by date.
5. Exporting data from database to USB flash drive.
6. Printing data on record in database.

The above-stated operations are initiated by dedicated buttons located at the top right corner of the screen. Follow the commands in the screen.

16.2. Operators

The menu contains a list of operators allowed to operate the balance.
The following data can be defined for each balance operator:

Name	Code
Password	First and last name
Permission	Active account
Language	Default profile
Card number	Fingerprint *(visible only after connecting the fingerprint scanner)*
Face profile	Motif

NOTE: Only the Administrator-operator is allowed to add new operators and delete operators from the base.

To add a new operator:

- In <Operators> menu, press <Add> key.
- Define required fields for a newly created operator.

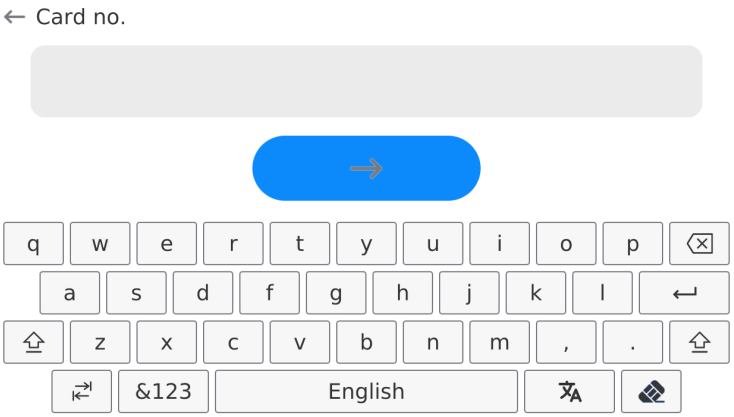
Note: *It is possible to search for an operator in the operators database by code or name.*

Logging with Transponder Card

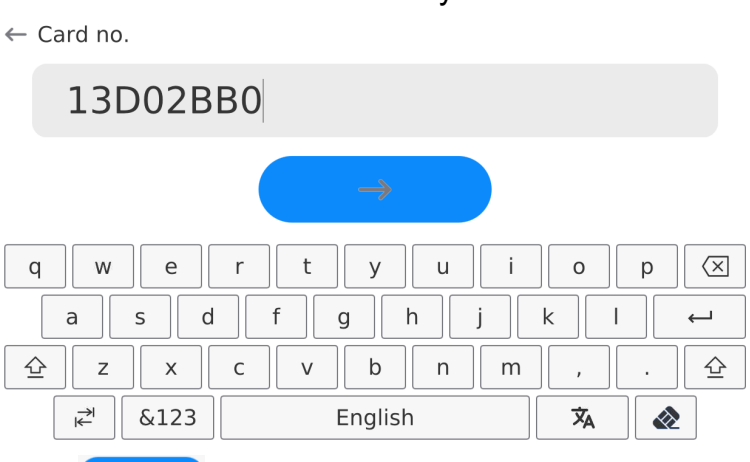
Note: *The RFID scanner fixed in the head operates at the frequency of 13,56MHz and complies with ISO/IEC 14443 Type A. Only the cards of this standard are recognised by the scanner.*

- Enter operator settings

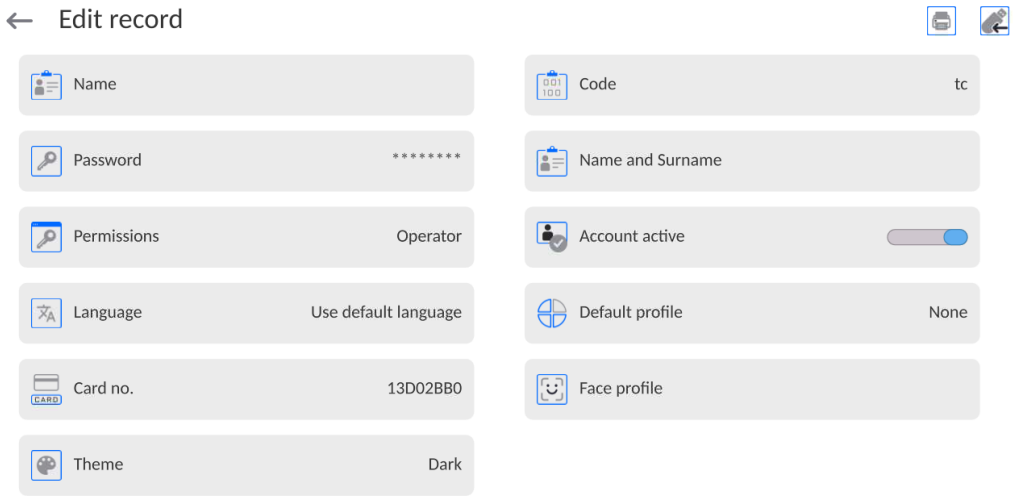
- Select <Card number> item



- Place the card in front of the RFID scanner
- The card number will be instantly entered into the edition box



- Press → key to enter the card number to the operator's settings

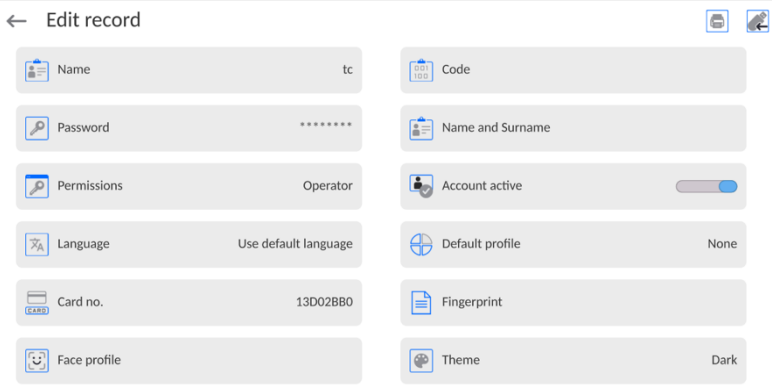


- Return to main menu. From that moment on, you can automatically log in after placing this card in front of the RFID scanner.

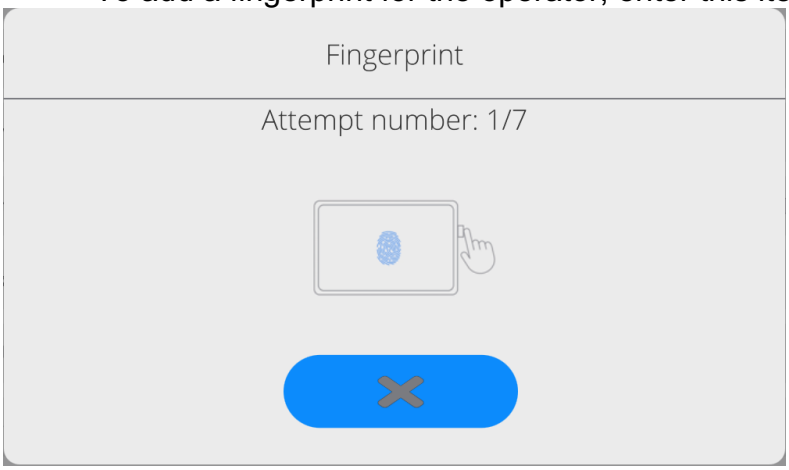
Logging with fingerprint authentication:

Note: *Only fingerprint scanners that are dedicated to the specific balances can be connected. For a list of accessories, visit the RADWAG's website.*

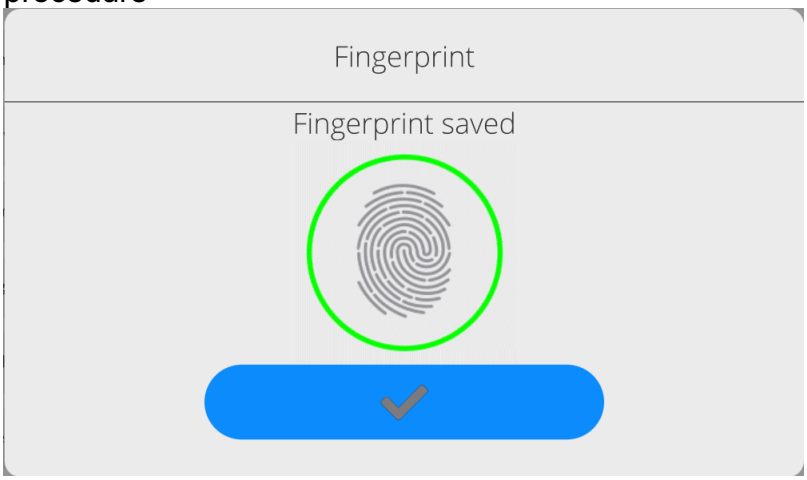
- After connecting the fingerprint scanner to the A-type USB port, the <Fingerprint> item will be displayed in the operator's settings menu



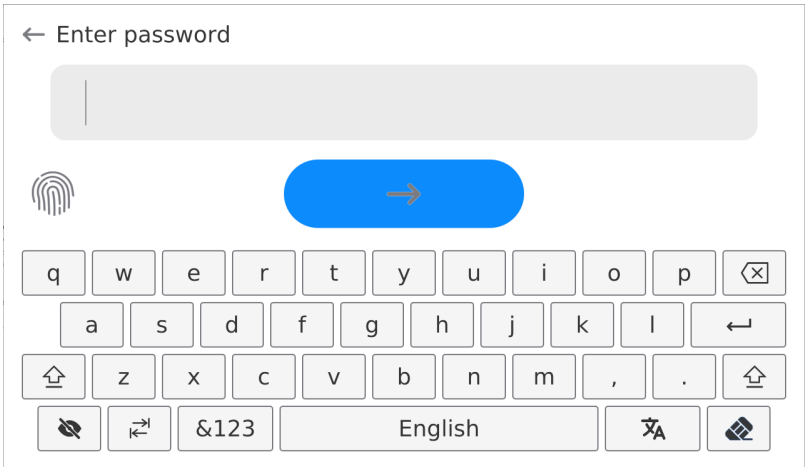
- To add a fingerprint for the operator, enter this item



- Scan the fingerprint and repeat the procedure 7 times (as per description in the box).
- A summary window will be displayed upon successful completion of the procedure



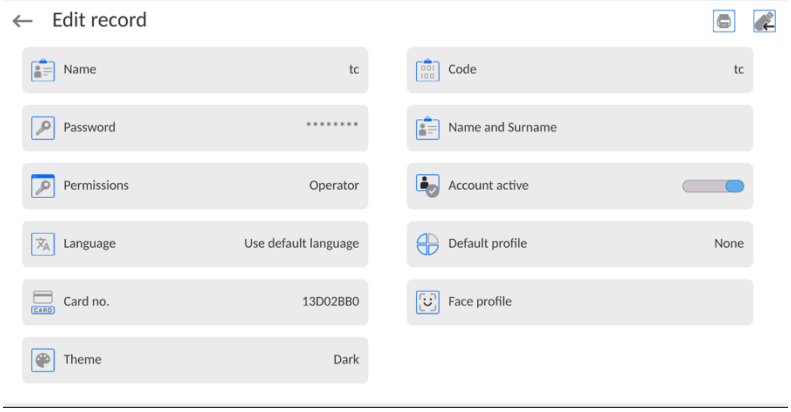
- Confirm the fingerprint assignment procedure by pressing  key.
- From now on, if the fingerprint scanner is connected to the USB port, the active fingerprint login pictogram will be displayed in the login box.



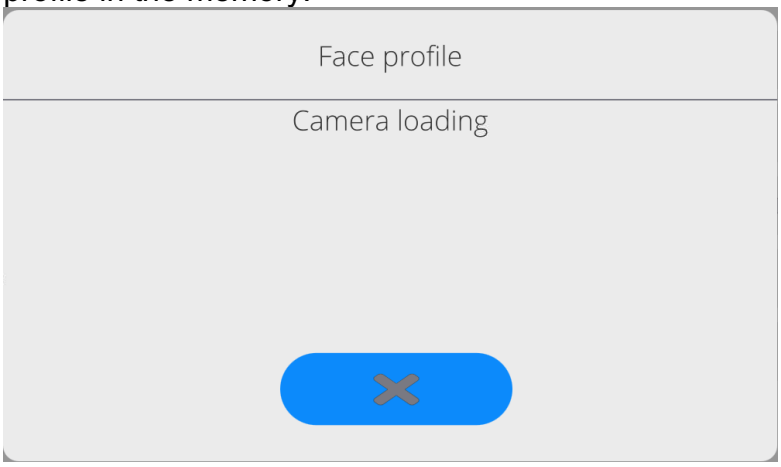
- After you have put the finger against the scanner and after the fingerprint has been confirmed, the pictogram will turn green for a while, the operator will be logged in and the software will go to the home screen. The name of the logged operator will be displayed in the top bar.
- If the fingerprint does not match, the pictogram will turn red for a while, and the operator will not be logged in and a login window will be displayed.

Logging with face profile:

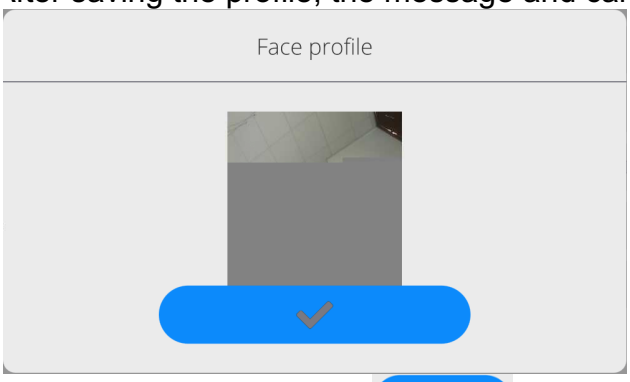
- To add a face profile for the operator, enter this item



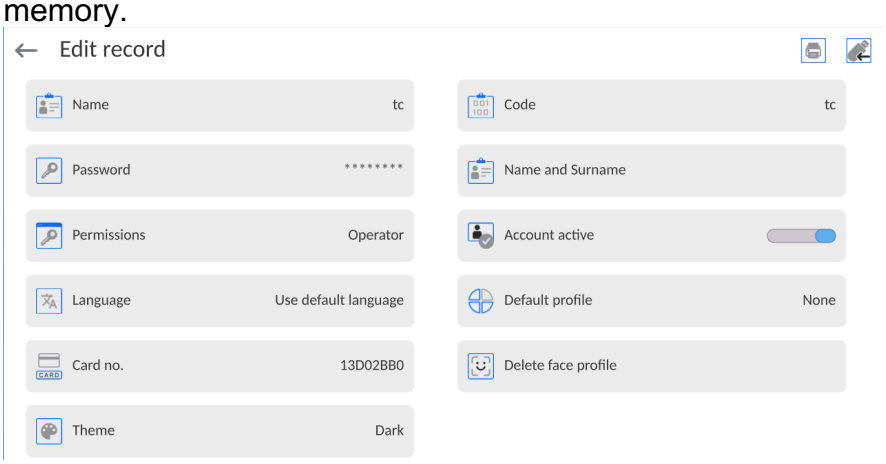
- After activating the item, the message will be displayed and the face profile will be scanned. Position yourself in front of the camera properly to save the profile in the memory.



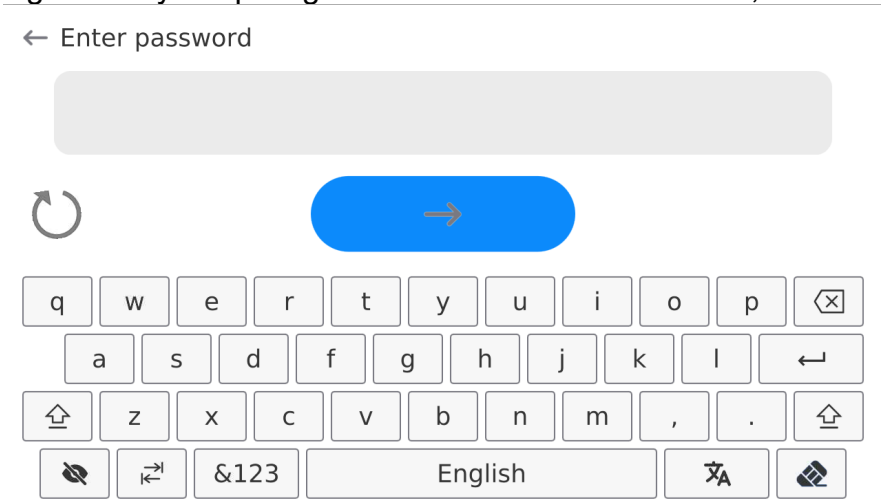
- After saving the profile, the message and camera photo will be displayed.



- Close the box by pressing  key.
- In the operator's settings window, the description of items will change into <Delete face profile>, which means that the profile has been saved in the memory.



- From that moment on, if you have added your face before and try to log in, software will automatically scan your face in the login box, which will be signalled by the pictogram on the left side of the box:,



- The software automatically scans the operator's face photo and loads it. The camera activates afterwards (a glowing LED light next to the camera confirms it). The saved photo is simultaneously compared with the face scanned by the camera. If these images match, the home screen will be displayed and the name of the logged user showed in the top bar.

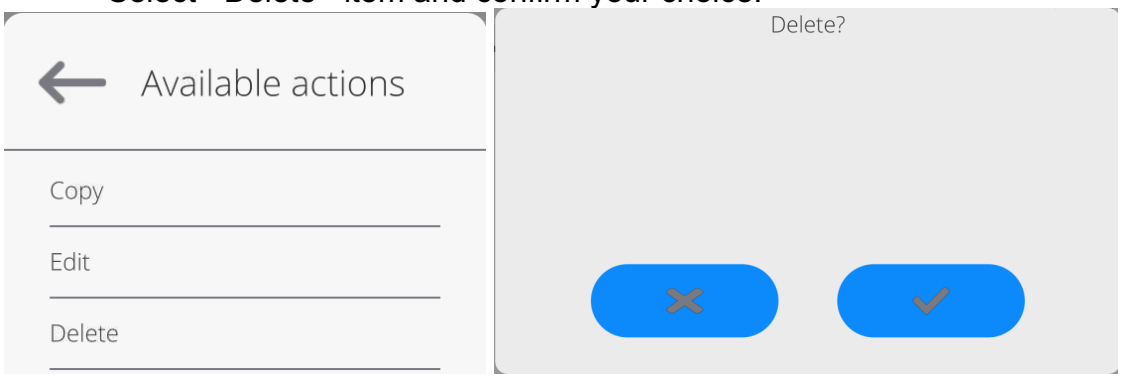
To edit information related to the operator:

- Press the operator's name field.
- The operator-related properties will be displayed in the screen.

- Select and modify required data.

To delete the operator, do as follows:

- Press and hold the operator's name.
- The menu related to this item will be displayed.
- Select <Delete> item and confirm your choice.



16.3. Products

The product database contains names of all items that can be weighed, counted, controlled.

Procedure:

- Enter <Database> submenu and press <Products> field.
- Press <Add> key if you want to add a new product.
- If the product already exists, press the product name field.

The list of information defined for product:

1. ID [unique product number]
2. Name [product name]
3. Description [product description]
4. Code [product code]
5. EAN code [product EAN code]
6. Mass [product nominal/unit mass]
7. Dosing power [option only for <Mass control> mode, specifies the power of the tablet feeder in percent [%] in the range from 0% to 100%. The value must be selected experimentally, depending on the size, shape and mass of the item in question]
8. Min [minimum mass while weighing a product at -LO result control intervals. The <T1> error value for <Mass control> mode defined in nominal mass percent]
9. Max [maximum mass for product weighing at HI control result intervals. The <T1+> error value for <Mass control> mode defined in nominal mass percent]
10. Tolerance [% value counted in relation to mass (5) shows the field in which the measurement is considered correct]
11. Tare [product tare value, set automatically upon selection of product from the base]

12. Price [product unit price]
13. GLP mode [only for GLP mode. Control type (range of options: Non-destr. Average Tare, Non-destr. Empyty-Full, Destr. Full-Empty, Dest. Empty-Full]
14. Batch [measuring series for control: Non-destr. Empty-Full, Destr. Full-Empty, Destr. Empty-Full]
15. GLP unit [only for GLP mode, a unit of a specific product for GLP control]
16. Batch quantity [only for <GLP> mode, specifies the batch quantity for controlled product]
17. SQC [for <SQC> mode and <Mass control> mode, allows defining control criteria as per company's standards for a specific product
18. Average tare determination interval [only for GLP mode. It specifies the minimum time interval to be kept upon determination of the average packaging tare. It is expressed in [h]. If the program assumes that the time (set in this parameter) from the last average tare determination has expired, the <**Determine average tare>** message will be displayed after selecting this product for control. It is just a notice and it is the operator who decides if to perform this procedure or not.]
19. Packaging quantity [only for <GLP> mode, specifies the number of packaging upon determination of average tare]
20. Internal control [only for <GLP> mode, allows modifying control criteria as per company's standards for a specific product]
21. Density [product density, used upon air buoyancy compensation as a sample density] - [g/cm^3]
22. Validity days [number of validity days]
23. Date [fixed product date]
24. VAT [Product-related VAT tax]
25. Ingredients [edition box for entering name of ingredients that a product is made of, e.g. when it is a mixture or, additional description on properties or intended use]
26. Printout/Label [printout template assigned to product]

Note:
Please make sure the products have been assigned relevant functions. It is important because some data have values adapted to these models, e.g. thresholds for <Checkweighing> function are set in [g], while thresholds for <Piece counting> function are set in pieces [pcs]. The values will be automatically adjusted to the function used by the operator to enter the database.

16.4. Customers

The customer database contains name of recipients which weighing is performed for.

Procedure:

- Enter >Databases> submenu and press <Customers> field.

- Press <Add> key.
- If the Customer field already exists, press its name field.

The list of data defined for customers:

1. Customer name
2. Customer code [customer's internal ID code]
3. NIP [taxpayer's ID]
4. Address
5. Postal code
6. City/town
7. Discount
8. Printout [type of printout, customer-related label]

16.5. Minimum sample weights

The Minimum sample weights database contains data on declared methods and minimum sample weights for a specific balance.
Note: *Only RADWAG's authorised employees are allowed to enter new values for minimum sample weights and modify existing values.*

Procedure:

- Enter <Databases> submenu and press <Minimum sample weights> field.
- Press <Add> key if a new minimum sample weight is to be added.
- If the minimum sample weight is already in the database, press its name field to access data that can be freely edited.

The list of data defined for minimum sample weights:

1. Name – the name of method used to determine minimum sample weights for this balance.
2. Code – method code.
3. Description – description of the method.
4. Next inspection – the field for validity of the minimum sample weight. A clock pictogram shows up by the status icon 2 weeks before the date. It communicates that the deadline is about to expire. Please contact the RADWAG's representative to make relevant changes to set values.
5. Thresholds – this item allows you to enter data on minimum sample weight masses and packaging mass ranges (tare) which the specific value applies to;
   Tare – the maximum tare value that the minimum sample weight applies to.
   You can enter 3 distinctive values: 0.000g, any mass accepted by the balance and maximum balance range (see description in examples below).
   Minimum mass – the minimum mass value that has been determined for the specific balance in the place of use, as per relevant methods.

Example no. 1 for XA 220.5Y balance with d=0.0001 g.
For this balance, the following minimum sample weight values have been determined for the following packaging mass values:

Item	*Tare*	*Minimum sample weight*	*Description of actions*
1	0.0000 g	0.1000 g	The minimum sample weight applies to all net weights that are weighed without packaging (<TARE> key is not used).

2	10.0000 g	1.0000 g	The minimum sample weight applies to all net weights that are weighed in the packaging whose weight ranges from 0.0001 g to 10.0000 g, inclusive (<TARE> key is used).
3	50.0000 g	2.5000 g	The minimum sample weight applies to all net weights that are weighed in the packaging whose weight ranges from 10.0001 g to 50.0000 g, inclusive (<TARE> key is used).
4	200.0000 g	4.0000 g	The minimum sample weight applies to all net weights that are weighed in the packaging whose weight ranges from 50.0001 g to 200.0000 g, inclusive (<TARE> key is used).

Example no. 2 for XA 220.5Y balance:

Item	*Tare*	*Minimum sample weight*	*Description of actions*
1	220.0000 g	0.5000 g	The minimum sample weight applies to all net weights that are weighed in the packaging of any weight from the full range of the balance (<TARE> key is used), as well as with sample weighing without packaging (<TARE> key is not used).

Example no. 3 for XA 220.5Y balance:

Item	*Tare*	*Minimum sample weight*	*Description of actions*
1	0.0000 g	0.2500 g	The minimum sample weight applies to all net weights that are weighed without packaging (<TARE> key is not used). The program identifies such settings in the way that the minimum sample weight applies only to weighing samples without packaging. If taring is used, the program will disable the minimum sample weight function icon, interpreting this provision as weighing with tare (no defined minimum sample weight).

The operator can preview entered data but cannot edit them.

16.6. Packaging

It is a list of packaging that you need to enter name, code and mass value for. While weighing, enter the name to automatically call the tare value. It will be displayed with a minus sign.

Procedure:

- Enter <Databases> submenu and press <Packaging> field.
- Press <Add> key if you want to add a new package.
- If the packaging already exists, press its name field, enter packaging-related data.

Note: *You can also search by name or code.*

16.7. Warehouses

Depending on the organisation of work, the warehouses database contains list of places used for picking up a sample for weighing or list of places to which a weighed sample was delivered. Each warehouse has to have its name, code and description specified. During weighing process, and on selecting name of a warehouse, it is automatically assigned to the measurement result.

Procedure:

- Enter <Databases> submenu and press <Warehouses> field.
- Press <Add> key if you want to add a new warehouse.
- If the warehouse already exists, press its name field and enter identification data.

Note: *You can also search by name or code.*

16.8. Printouts/Labels

The printouts database contains all NON-STANDARD printouts. Each printout features a name, code and the so-called template.

Procedure:

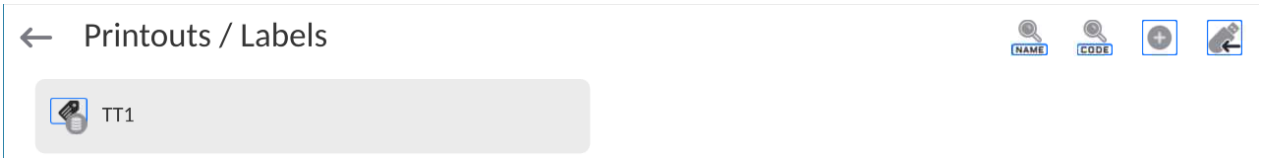
- Enter <Databases> submenu and press <Printouts> field.
- Press <Add> key if you want to add a new printout.
- If the non-standard printout already exists, press its name field and enter identification data.

Note: *You can also search by name or code.*

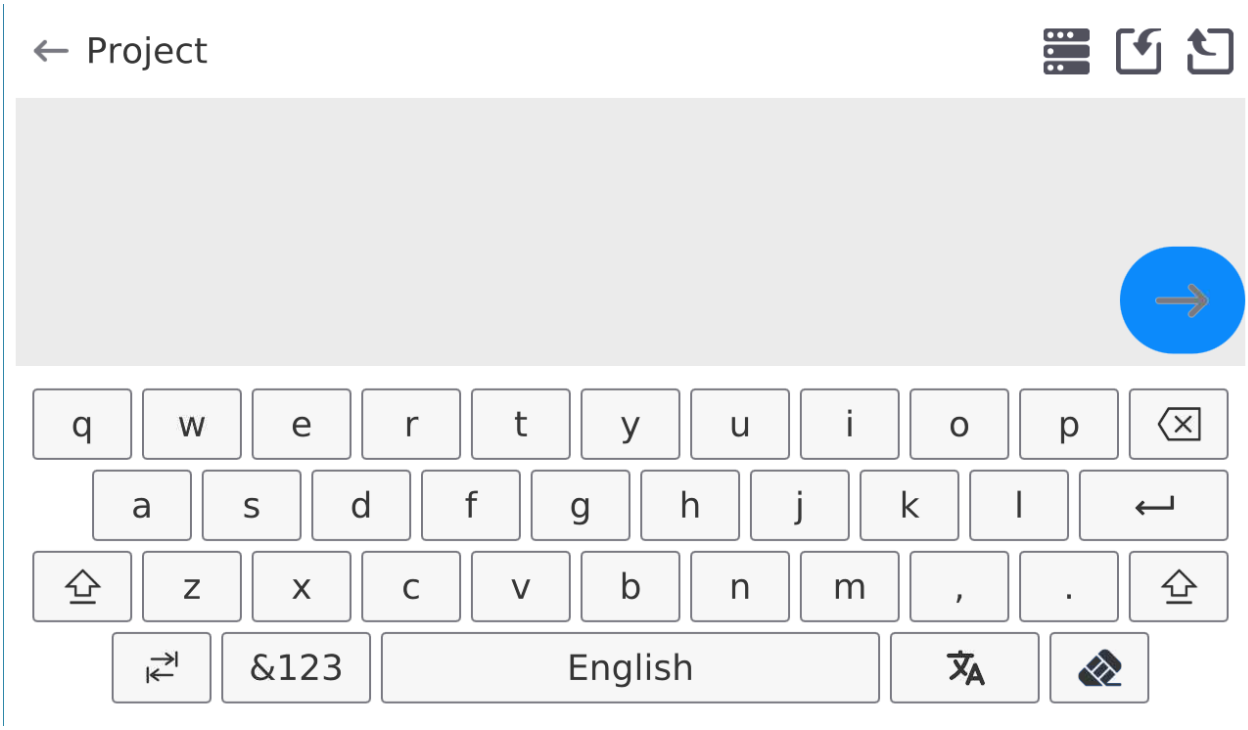
Designing new printouts

Procedure:

- Enter <Databases> submenu and press <Printouts> field.
- Press <Add> key and create a new printout or edit the existing one.



- In <Record edition> field, press <Design> key.
- You will see a window for creation of any printout.
- While creating a printout, you can use an external USB keyboard connected to the head, or touch keypad that is identical in terms of functions as a typical PC keyboard.



The keypad that is displayed lacks some of the characters, such as colon or diacritical marks typical of the specific menu language (*menu language is signalled with the description on the „SPACE" key).* To use such marks in the designed printout, **press and hold** a specific letter on the keypad for a while. This is how you can display additional keys with assigned marks which allow you to enter a text, when clicked. After entering the mark, disable marks by pressing the „X" key.

The example of available characters for Polish keyboard.

Letter on the keyboard	Additional characters	Letter on the keyboard	Additional characters	Letter on the keyboard	Additional characters
„t"		**„u"**		**„a"**	
„x"		**„c"**		**„v"**	
„b"		**„,"**		**„."**	

- Save the designed printout.

Example of printout 1 – large edition field

Template

Balance no. 400015
Balance parameters:
Max = 220 g
d= 0.001 g

Product name:
Date: 2011.10.24
Time: 11:48:06

Working mode: Weighing

Net weight: 94.147

Measured by: Admin

Template printout

Example of printout 2 – printout from file

All printout templates can be designed in a form of external files, that are imported to a balance; file extension: *.txt or *.lb. External file shall contain all constant and variable data. Upon importing, the content of a printout template can be modified.

Procedure:

- create *.txt or *.lb file in any editor,
- copy the file into external USB flash drive,
- insert the USB drive into the balance port,
- press [4] <  download printout from file> key,
- the content of the USB flash drive will be displayed,
- search a file with printout and press its name,
- the printout will be automatically copied into the edition field.

	***You can add printouts from the external memory carrier by importing already configured texts, using USB port.***
	***The printout name does not represent its content.***
	***The list of variables for printouts can be accessed in „ATTACHMENTS 03" manual.***
	***The example of creating and sending the label template into the balance memory can be found in the „ATTACHMENTS 03" manual.***

16.9. Universal variables

Universal variables are alphanumeric data which can be combined with printouts, products or other comparison-related information. Each variable has to have its name, code and value specified.

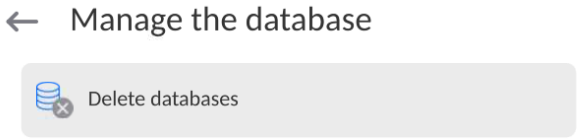
Procedure:

- Enter <Databases> submenu and press <Universal variables> field.
- Press <Add> key if a new variable is to be added.
- If the variable already exists, press the name field and make relevant modifications to the following fields: code, name, value.

Note: *You can also search by name or code.*

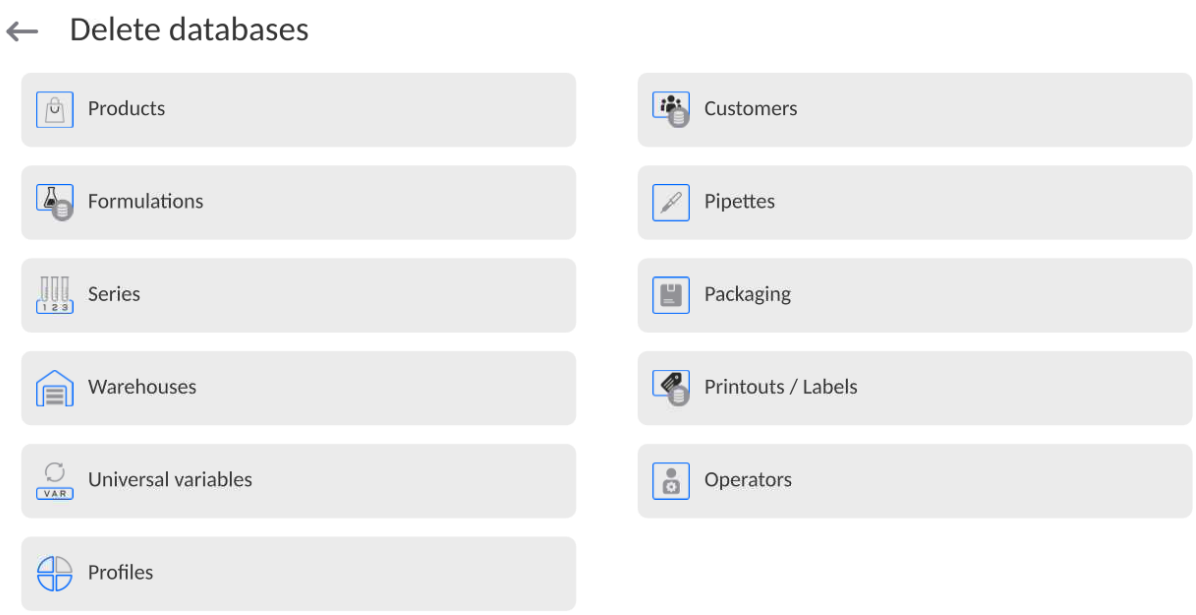
16.10. Databases management

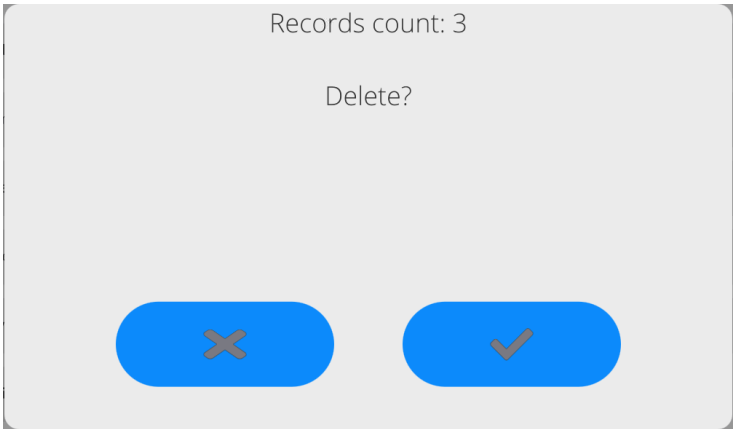
The function allows managing databases data.



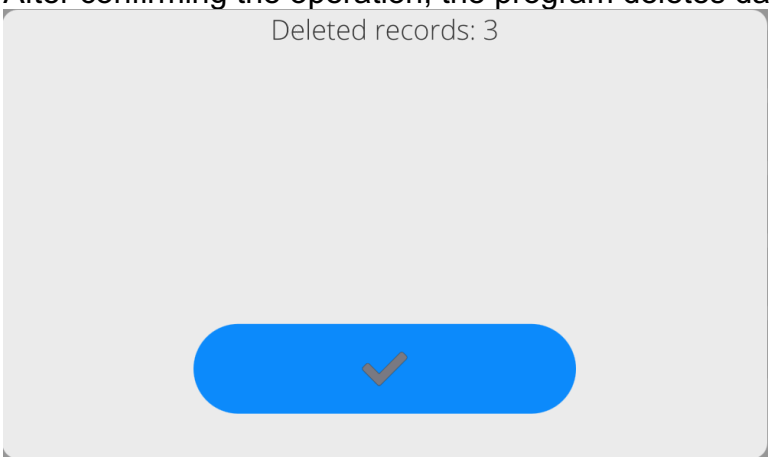
16.10.1. Delete databases

This function allows deleting data from specific databases. After activating this function, you will see a window in which you need to select the database which data are to be deleted from.





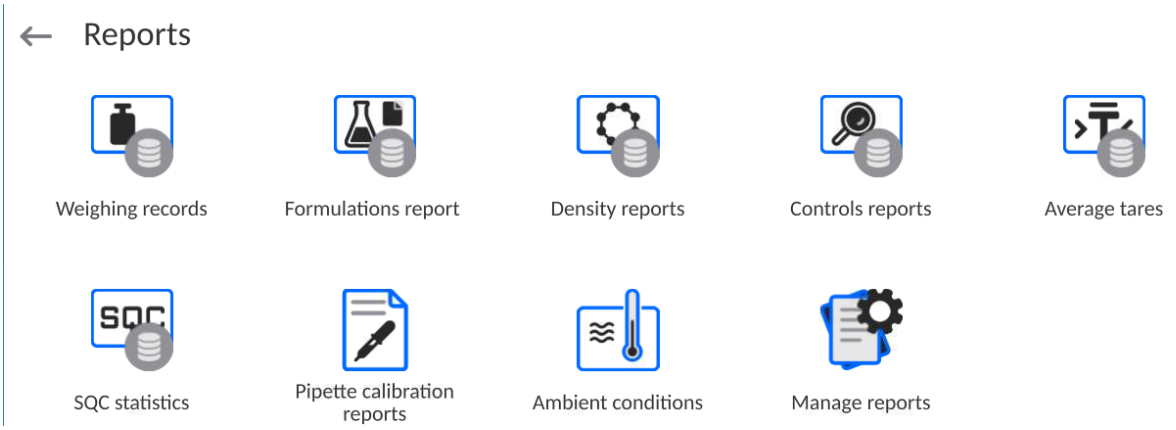
After confirming the operation, the program deletes data and shows a summary box:



After confirming information, a previous window is restored. You can perform further operations or return to the weighing mode.

17. REPORTS

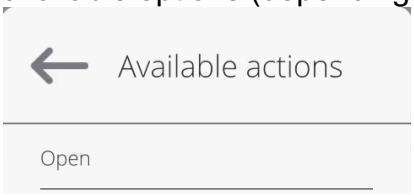
The reports menu includes all result bases in which measurements and reports on measuring are recorded.



17.1. Operations in databases

The operations in the reports database are available only to the authorised operator. To edit the bases, follow the steps below:

- Press and hold the database icon field.
- A menu related to this item will be displayed.
- Select one of the available options (depending on the type of database).



Selection:

- OPEN – this option allows you to enter the specific database (its operation is identical to single click of the specific base field).

Once you have entered a specific database, you can perform the following operations (depending on the type of the base):

1. Searching for item in the database by name.
2. Searching for item in the database by code.
3. Searching for item in the database by date.
4. Exporting data from the database into USB flash drive.
5. Printing data on record in the database.

The above-stated operations are initiated through keys located in the top right corner of the screen. Follow the messages showed in the screen.

17.2. Weighing records

Every weighing result that is sent from the balance to printer or PC is recorded in the weighing record database (see exception, *Result control* section).
You can preview data for particular weighing records.

Procedure:

- Enter **<Reports>** submenu.
- Enter **<Weighing record/Alibii>** database and press the desired item.

The list of database information for the specific weighing record:

1. Weighing record date.
2. Weighing result.
3. Tare value.
4. Stable measurement indication.
5. Air buoyancy control function activity indication
6. Product name.
7. Operator.
8. Customer, business partner's name.
9. Working mode name.
10. Warehouse, source warehouse name.
11. Packaging, tare name used while weighing a product.
12. Result control. Information in which field the result is:
    MIN – below threshold (possible only when <Result control –NO>),
    OK – between thresholds,
    MAX – above threshold (possible only when <Result control - NO>).
13. Platform number, the field shows the platform number (of the balance) used to perform the weighing cycle,
14. Levelling shows if the balance was level during measurement.
15. Ambient conditions alerts show if the temperature and humidity are stable during measurement.

17.3. Ambient conditions

This section provides information related to environmental parameters. Depending on configuration of the balance, this list may include temperature, humidity, atmospheric pressure. When a THB ambient conditions module is connected to the balance, the values recorded by the module will be registered too.

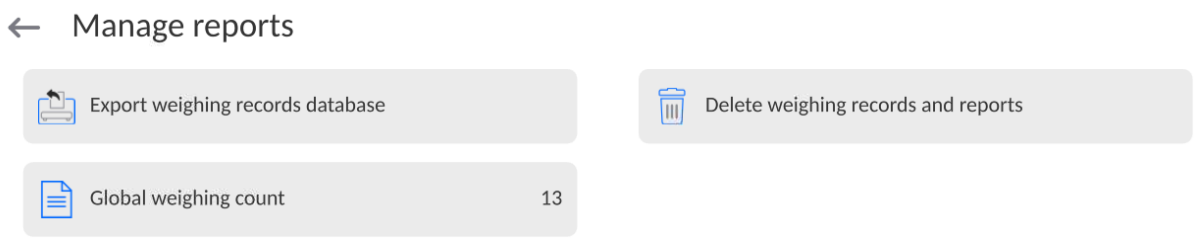
Procedure:

- Enter <Reports> submenu and press <Ambient conditions> field.
- Press a specific report field, if it is not visible, scroll the list of reports using navigation keys.
- The report name consists of a date and time.

Note: *You can also search for a report.*

17.4. Manage reports

This function allows managing data in the reports database. The following options are available: Export weighing record base to file and Delete weighing records and reports.

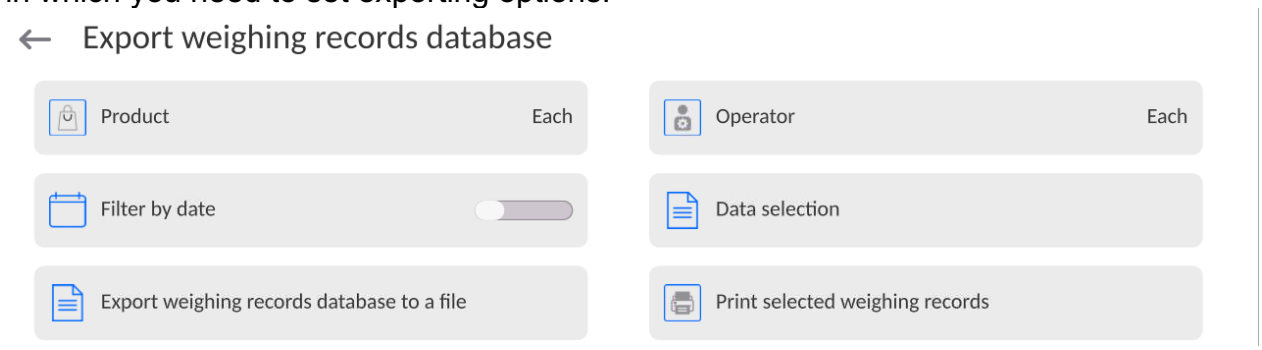


17.4.1. Export weighing record base to file

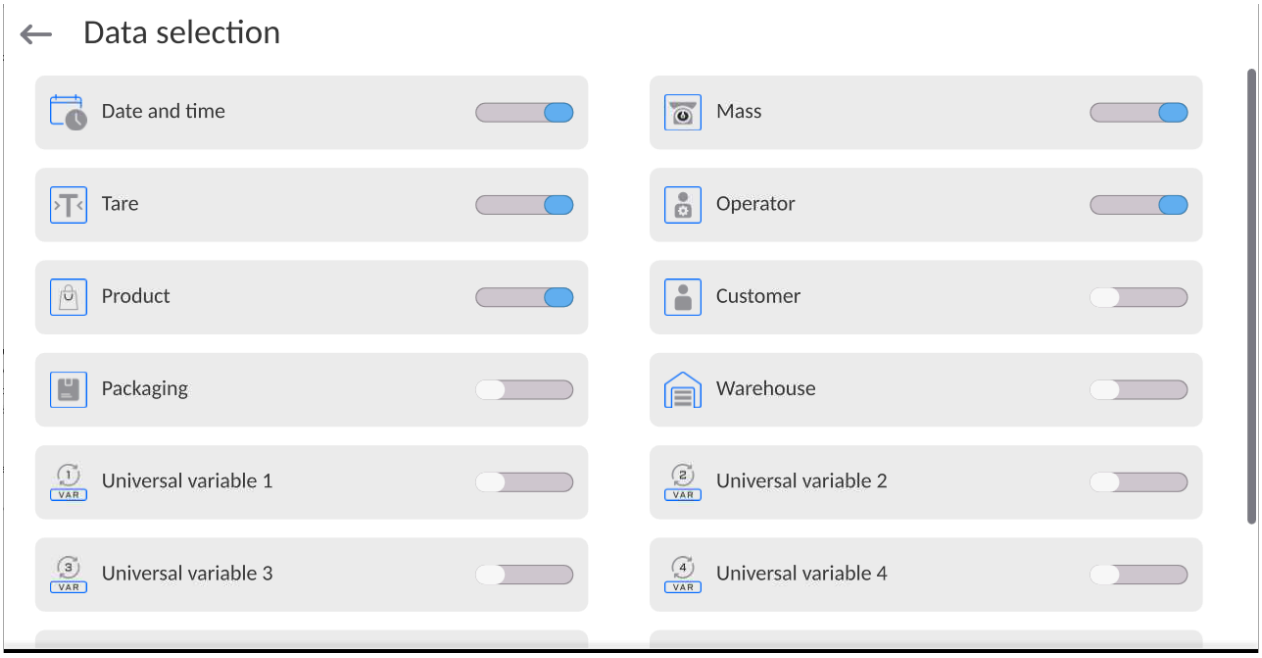
All weighing records are saved in the weighing record database. This information can be exported to the file using the pendrive carrier.

Procedure:

- Connect the pendrive carrier to the USB port of the balance.
- Press <Export weighing record base to file> field and you will see another window in which you need to set exporting options.

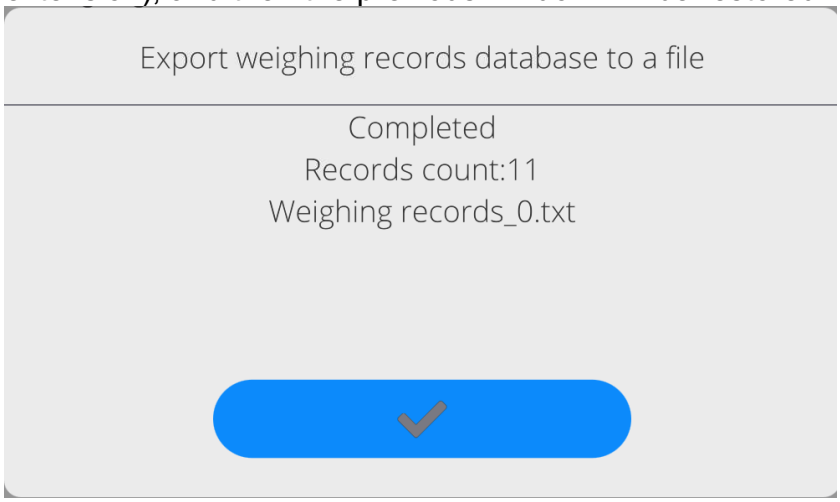


In <Data selection> option, you can define the measurement data that must be exported.



- After all settings have been made, click „Export weighing record base to file> field and the program will start exporting the weighing record database instantly.
- Once the exporting procedure has ended, you will see **<Finished>** message, together with the data on the number of exported data and file name (with *.txt

extension), and then the previous window will be restored.



- Now you can return to the weighing mode or move to further menu settings.

Note: *If the balance cannot recognise the pendrive carrier when you enter <Export weighing record base to file>, you will see <Operation error> message in the screen.*

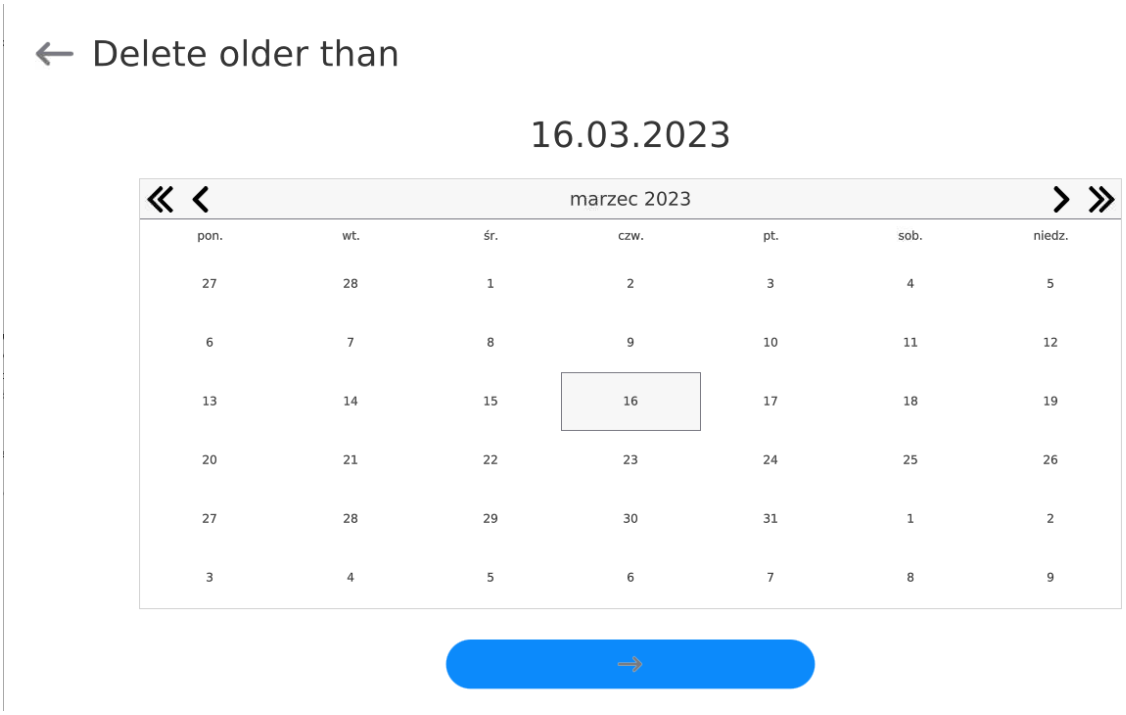
- The name of the created file consists of the database name and balance serial number, e.g <Weighing records_364080.txt>.
- Disconnect the pendrive carrier from the USB port of the balance.

Created file template:

The created file template takes a form of a table in which columns are separated with <Tab> mark in order to possibly export the file directly to the <Excel> calculation sheet. The table contains all information on weighing, such as date and time, mass and mass unit, tare and tare unit, series number, operator's name, business partner's name, packaging name, source warehouse name, target warehouse name, result control name.

17.4.2. Delete weighing records and reports

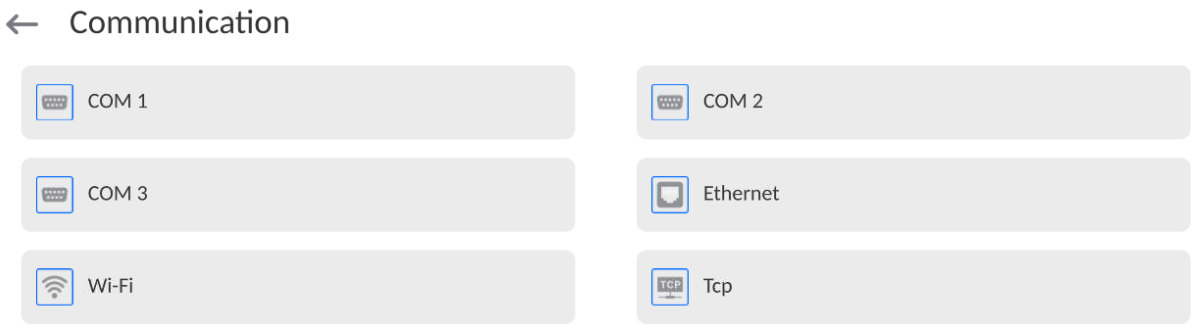
This field is used to delete weighing records and reports from the database. After activating the function, you will see a window with a numerical keypad, and you need to enter the cut-off date there. The aforesaid data specifies the time limit for deletion of data that are older than entered date. Please enter year, month, day.



After confirming the date you have entered, all weighing records and reports that have been collected in the specific period of time will be deleted. The amount of deleted data will be displayed.

18. COMMUNICATION

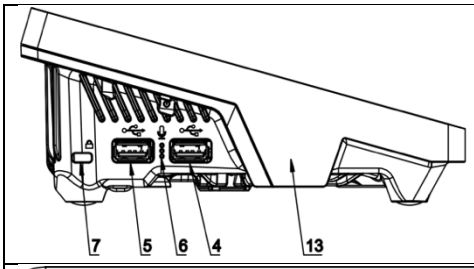
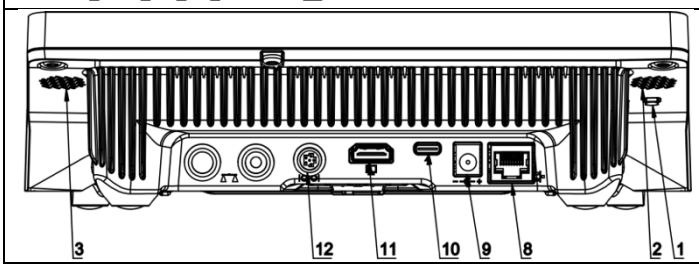
The communication menu can be accessed in the parameters menu. To gain access to the menu, press <Setup> key or icon.
The balance can communicate with peripherals through the following ports:



Parameters of each port are freely configurable, as per one's needs.
The weighing meter allows connecting the IM02 communication module. The IM02 communication module, in its standard design, expands the range of interfaces to include RS 232 IM02, Virtual COM, 4WE/4WY.

18.1. RS 232 port settings

NOTE: to assure correction cooperation with peripherals via RS 232 ports, please use a USB-to-RS232 converter.

	**4** – USB type A port, upon connection to the converter recognised by the program as RS 232 port - COM1. **5** – USB type A port, upon connection to the converter recognised by the program as RS 232 port - COM2.
	12 – RS 232 – COM3 port

Procedure:

– Select <COM1>, <COM2> or <COM3> communication port.
– Set relevant values.

For RS 232 port settings, the program offers the following transmission parameters:

- Baud rate: 4800, 9600, 19200, 38400, 57600, 115200 bit/s, *921600 bit/s**
- Data bits: 5, 6, 7, 8
- Stop bits: None, 1, 1.5, 2
- Parity: None, Odd, Even, Marker, Space

**) - Rate of 921600 bit/s applies only to COm3 port and cooperation with MediaBox IM02 communication module.*

18.2. ETHERNET port settings

Procedure:

– Select <Ethernet> communication port and then set relevant values:

- DHCP: Yes – No
- IP address: 192.168.0.2
- Subnet mask: 255.255.255.0
- Default gateway: 192.168.0.1

Note: *The above-stated settings are for reference only. The transmission parameters must be selected as per local network settings.*

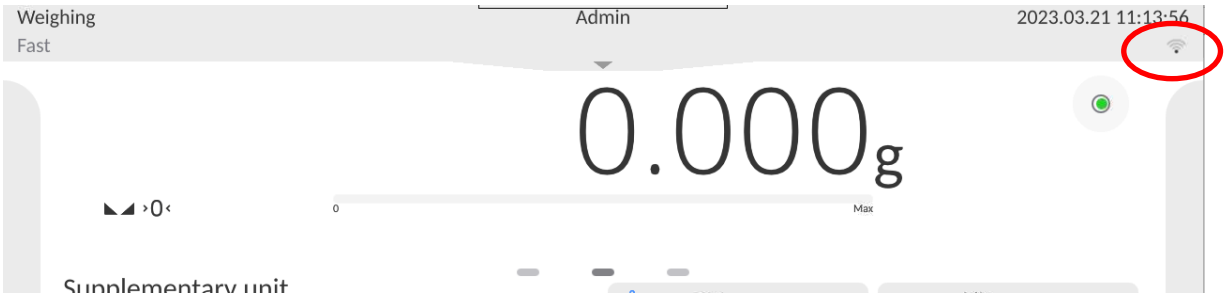
Once changes have been made, press → key to display the message:

<To make changes effective, restart the balance>.

Return to the weighing mode and restart the device.

18.3. Wi-Fi port settings

If the balance is equipped with a Wi-Fi module, the special icon will be visible in the top bar of the home screen:



Procedure:

– Select <Wifi> communication port and then set relevant values:

- DHCP: Yes – No
- IP address: 10.10.9.155
- Subnet mask: 255.255.255.0
- Default gateway: 10.10.8.244

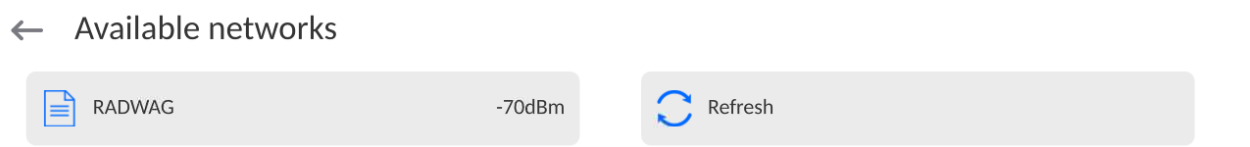
Note: *The above-stated settings are for reference only. The transmission parameters must be selected as per local network settings.*

Once changes have been made, press → key to display the message:

<To make changes effective, restart the balance>.

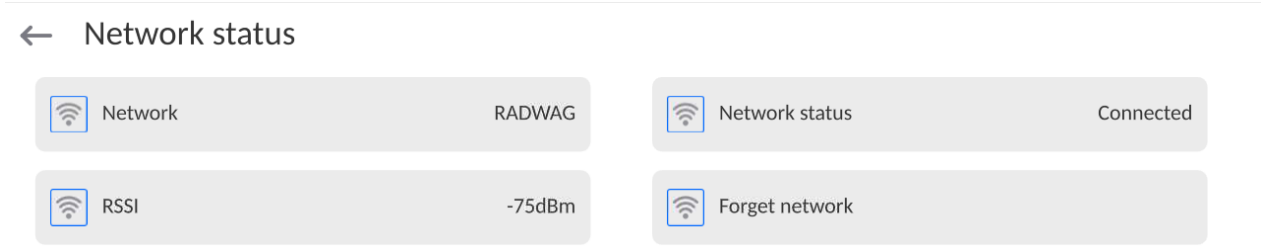
Return to the weighing mode and restart the device.

Additionally you can check <Available networks> that have been detected by the balance:



The icon showed by the network name shows if the network requires password (lock icon). To find available networks, select <Refresh> item.

To check parameters of the specific network, click <Network status> field, and the network parameters will be given in the box:



The specific network and connection parameters are remembered by the program. Every time you turn the balance on, the program connects to the network as per the parameters you have set. To disable this feature, select <Forget network> item. This will cause the connection to the specific network to be cancelled.

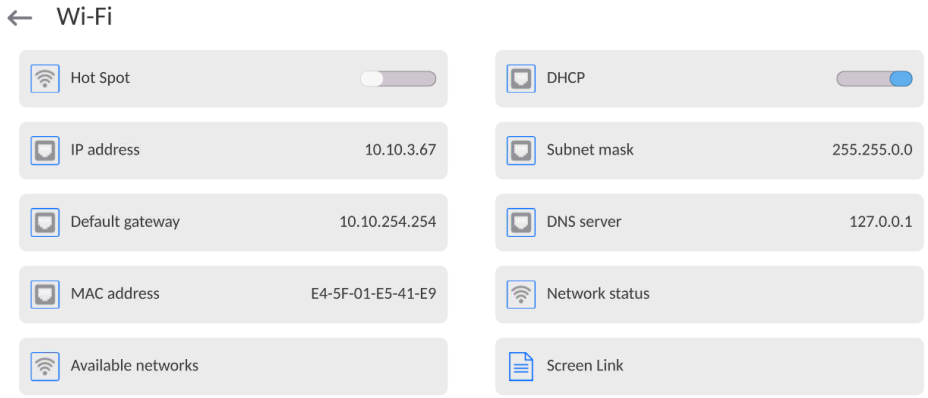
18.3.1. Hot Spot

Hot Spot is an open access point that allows wireless connection to a balance using another device: laptop, tablet, telephone, via wireless network based on Wi-Fi standard.

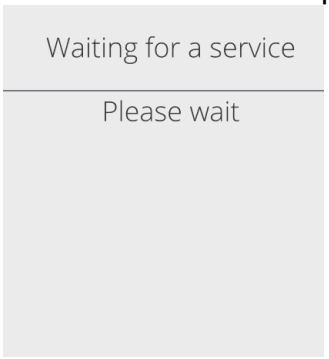
The hot spot owner himself decides with whom and how he intends to share his link by logging in, which requires individual operator name and password (data assigned during the hotspot service start-up and stored in the balance memory).

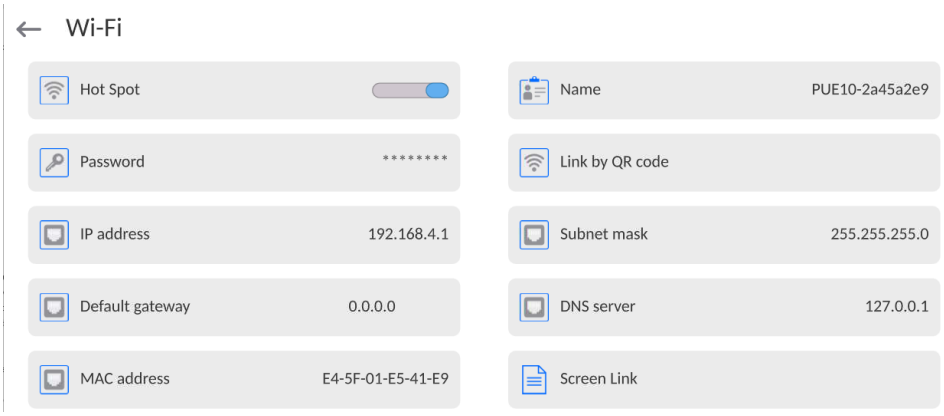
18.3.2. Hot Spot activation

1. Enter Wi-Fi options

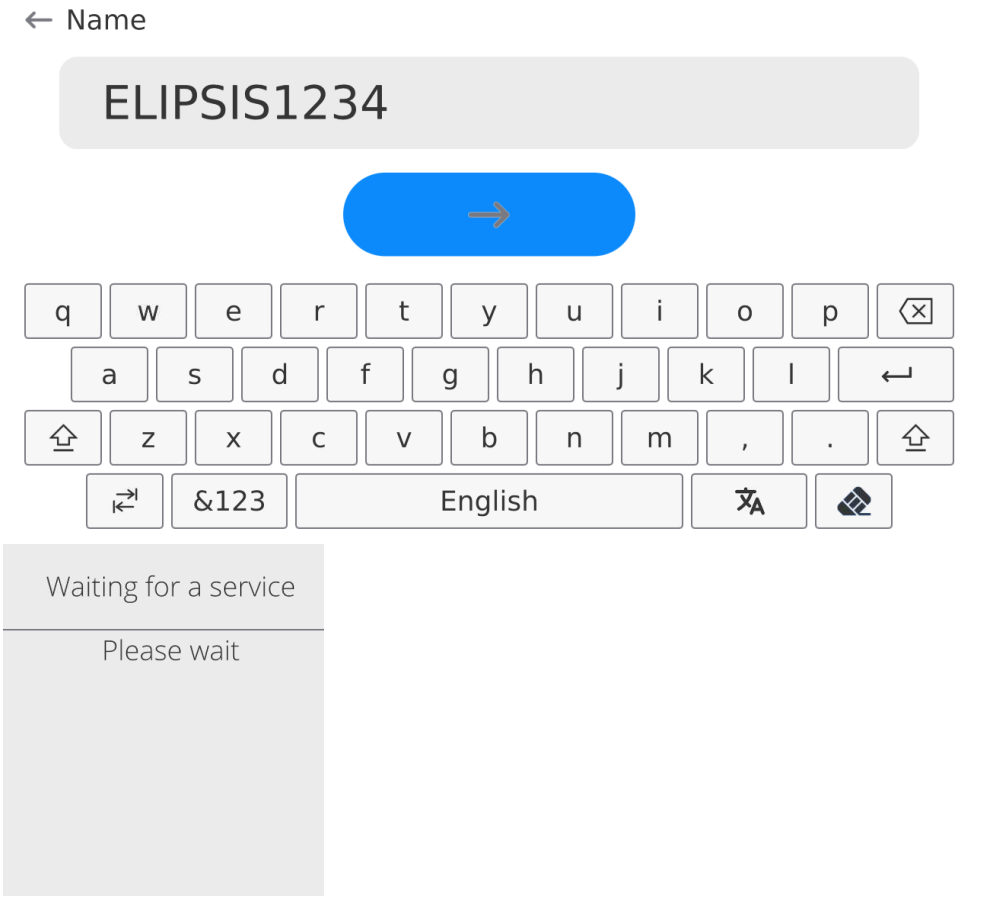


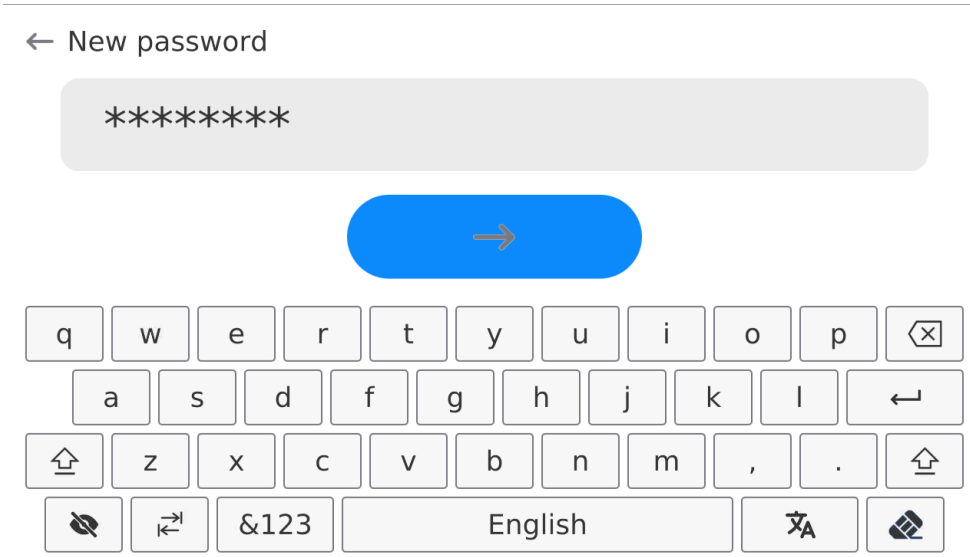
2. Enable the Hot Spot service, and the balance will switch into service settings.

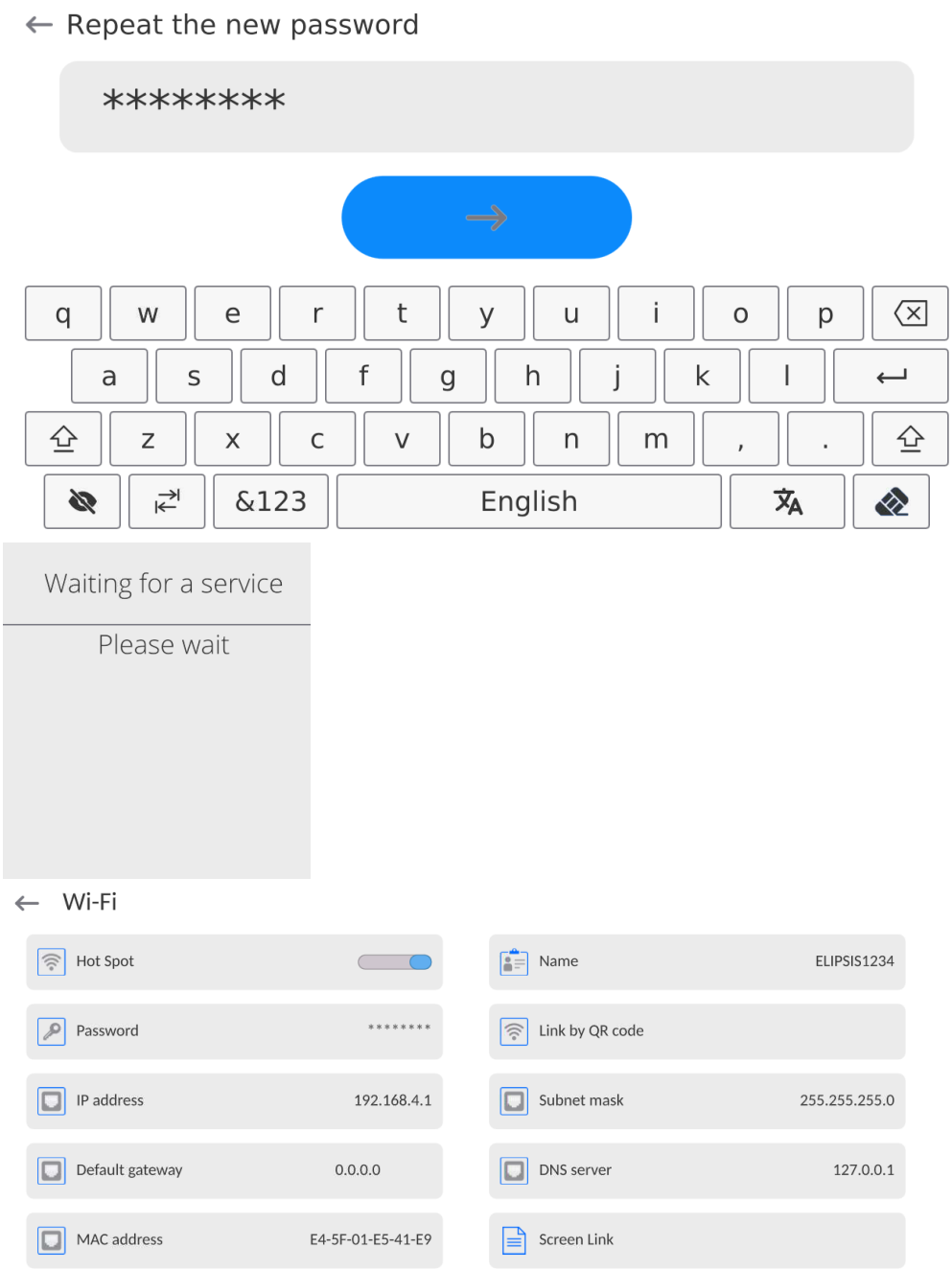




3. Enter a unique name and password (the password must be at least 8 characters long).







4. From now on, the Hot Spot service is on, the subnetwork will be detected by other devices such as a smartphone under the set name, the operator will be able to connect to it with the set password.

18.4. TCP settings

TCP (*Transmission Control Protocol)* is a stream protocol of communication between two computers. TCP operates in the client-server mode. Server is waiting for a connection request from a specified port, whereas client initiates connection to a server.

The procedure for setting port number for TCP:

- Enter <Communication> parameters group.
- Select <Tcp / Port>, and the <Port> window with on-screen keypad will be displayed.
- Enter the desired port number and press → to confirm.

18.5. Virtual COM port settings

Applies to the active IM02 communication module

Virtual COM port is used to connect the balance to the computer.

The order of actions:

1. In **<Peripherals / Computer / Port>** submenu, set **Virtual COM** value.
2. Run the PC program in which measurements made through the balance will be read.
3. Set communication parameters in the PC program, i.e. COM port, transmission parameters.
4. Start cooperation.

19. PERIPHERALS

The PERIPHERALS menu can be accessed in the parameters menu. To gain access, press <Setup> icon. In this menu, you can find a list of peripherals that can cooperate with the balance.

19.1. Computer

Active **balance – computer** connection is signalled via  pictogram in the top bar of the home screen.

19.1.1. Computer port

The scale can communicate with the computer through the following ports: COM 1, COM 2, COM 3, Tcp, USB Free Link*, RS 232 IM02**, Virtual COM**.

Procedure:

- Enter **<Peripherals / Computer / Port>** submenu and select respective port from the list.

*) – For description of port, go to COMMUNICATION section of the manual.
**) - The port of IM02 communication module connected to the balance.

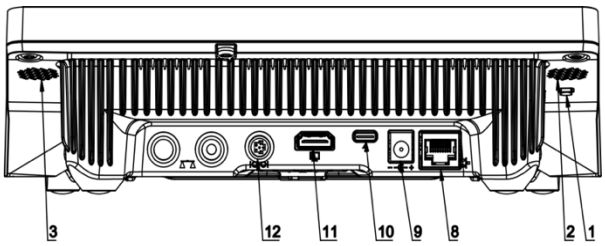
19.1.2. USB Free Link

The tool enabling data entering, intended for peripheral devices, operating as a keyboard. With this, upon respective modification of standard or non-standard printout, and upon either sending of a respective command from a computer, or pressing ENTER key on a balance keyboard, data contained in non-standard printout are entered directly from the balance to programs such as Excel, Word, Notepad and many other.

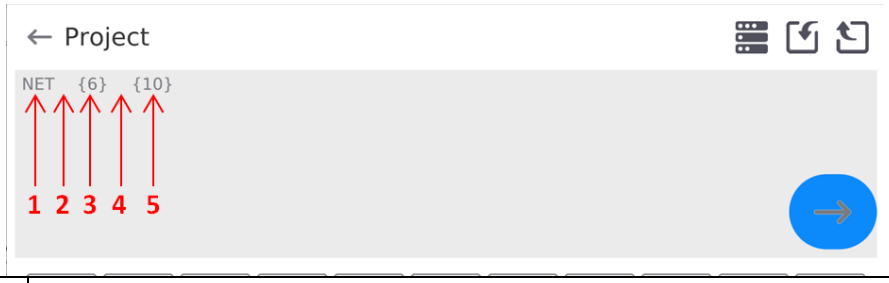
In order to ensure correct communication with program such as Excel, it is necessary to configure non-standard printout, which must be done by entering format characters, like Tab, Enter or diacritical signs, specific for a particular language, into the designed printout.

It must be also remembered to set the correct decimal point (either dot or coma), accepted by our program of Excel type. In order to set the decimal point go to: **<🏠 / Miscellaneous / Decimal Point>**.

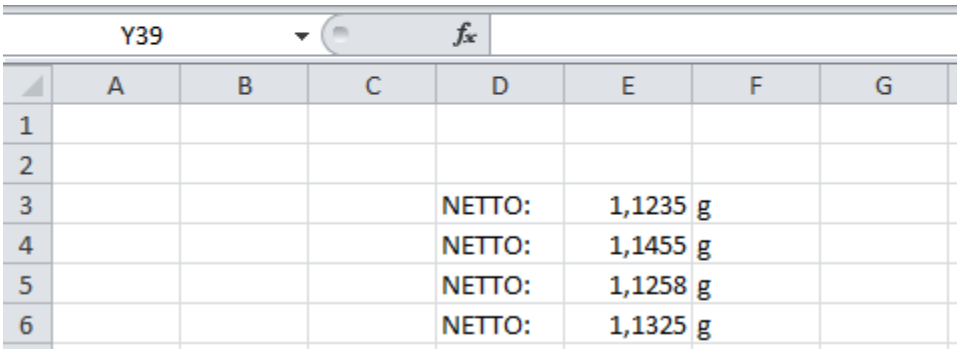
USB Free Link is a USB type-C port (port no. 10 at the back of readout head), to which the computer is connected via USB type-A/type-C cable.



The example of printout template, and printout printed in Excel:



1	fixed text.
2	tabulator (cursor movement to the next cell).
3	variable {6}, net mass in adjustment unit.
4	tabulator (cursor movement to the next cell).
5	variable {10}, mass unit.



19.1.3. Computer address

The parameter that allows setting the address of the balance which the computer is connected to.

Procedure:

- Enter **<Peripherals / Computer / Address>** submenu, **<Address>** edit box and keyboard are displayed.
- Enter the address and press → key to confirm changes.

19.1.4. Continuous transmission

The parameter allowing you to activate balance - computer continuous transmission. In order to send the content of **<Weighing Printout Template>** to a computer continuously, you must activate **<Continuous Transmission>** parameter.

Procedure:

- Enter **<Peripherals / Computer / Continuous Transmission>** submenu and set respective value (- Continuous transmission disabled; - Continuous transmission enabled).

19.1.5. Interval

This parameter allows you to set frequency of print of **<Weighing Printout Template>** for continuous transmission. Interval for printouts is set in seconds with 0.1 [s] accuracy within 0.1 - 1 000 [s] range.

Procedure:

- Enter **<Peripherals / Computer / Interval>** submenu, **<Interval>** edit box is displayed.
- Enter respective value and press → key to confirm changes.

19.1.6. Weighing printout template

Template of an individual printout sent from the balance to the computer.

Procedure:

- Enter **<Peripherals / Computer / Weighing Printout Template>** submenu, **<Weighing Printout Template>** edit box with the on-screen keyboard is displayed.
- Modify the template and press → key to confirm changes.

19.1.7. Communication with E2R System

The parameter allowing you to establish connection between the balance and **E2R System** PC software. **E2R System** is a modular solution designed to comprehensively manage production processes, some stages of which consist in weighing.

⚠	***<E2R> can be activated exclusively by the <Administrator> operator. In the case of integration of the balance with <E2R System> software, editing of databases on balances is disabled.***

Access path: **< / Peripherals / Computer / E2R System>**.

The list of <E2R System> submenu options:

System active	Enter to activate connection with **E2R System** PC software: - connection not established, - connection established. Successfully established connection is signalled via display of

	pictogram in a top bar of the home screen.
Lock product change	Enter to prevent product change: - lock disabled, - lock enabled.
Databases	Enter to configure databases communicating with the E2R System
Info	Enter to view list of database events occurring during active connection with E2R System.

19.2. Printer

Entering the <Printer> submenu, the balance operator can:

- set the printer communication port: COM 1, COM 2, COM 3, USB, Tcp Client, USB Free Link*, RS 232 IM02**,
- define the printout code page (by default: 1250),
- define control codes for PCL6-supporting printer or receipt printer.
- Define printout templates.

***)** – The port description is analogical to computer port description.
****)** - The port of the IM02 communication module connected to the balance.

In order to provide correct communication of the balance with the printer (correct printout of diacritical signs of a given language), it is necessary to select the suitable transmission rate, the one that corresponds to the printer (see: Printer settings) and make sure that the code page of a sent printout complies with a code page of a printer.

The code page compliance can be obtained in two ways:

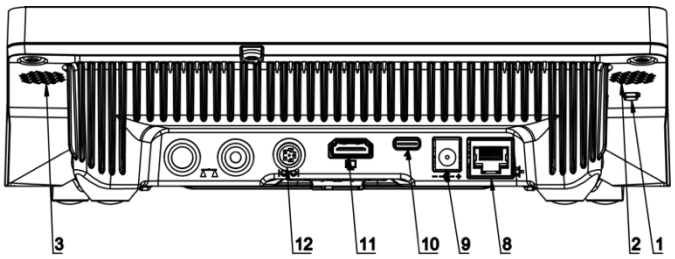
- by setting the right code page in the settings of a printer (read the user manual of the printer) – it must be compliant with the printout code page of the balance:

Code page	Language
1250	Polish, Czech, Hungarian.
1252	English, German, French, Spanish, Italian.
1254	Turkish.

- by sending the control code from the balance, which automatically sets the right code page of the printer (i.e. code page accordant with the one of a balance) before data are printed from the balance (only if the printer has such a feature).

	***Default code page value of the printer is 1250 – Central European code page.***
	***To see a detailed description of communication between the balance and receipt printer, read „ATTACHMENTS 03" manual.***

USB FREE LINK – C-type USB port (port no. 10 at the back of the readout head) which the computer is connected to via the A/C-type USB cable..



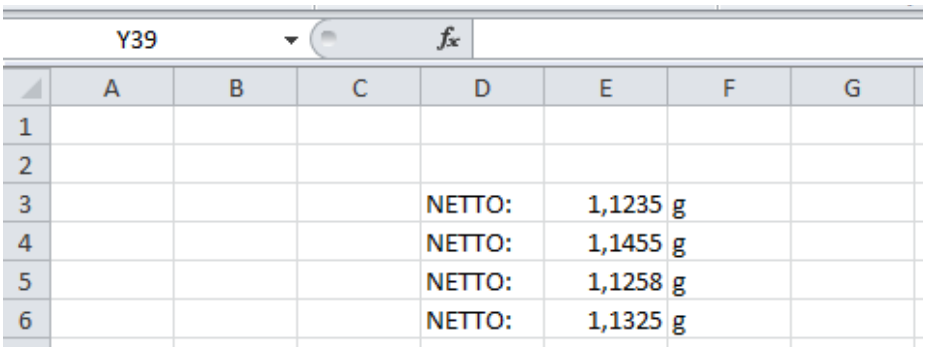
The tool enabling data entering, intended for peripheral devices, operating as a keyboard. With this, upon respective modification of standard or non-standard printout, and upon either sending of a respective command from a computer, or pressing ENTER key on a scale keyboard, data contained in non-standard printout are entered directly from the balance to programs such as Excel, Word, Notepad and many other.

In order to ensure correct communication with program such as Excel, it is necessary to configure non-standard printout, which must be done by entering format characters, like Tab, Enter or diacritical signs, specific for a particular language, into the designed printout.

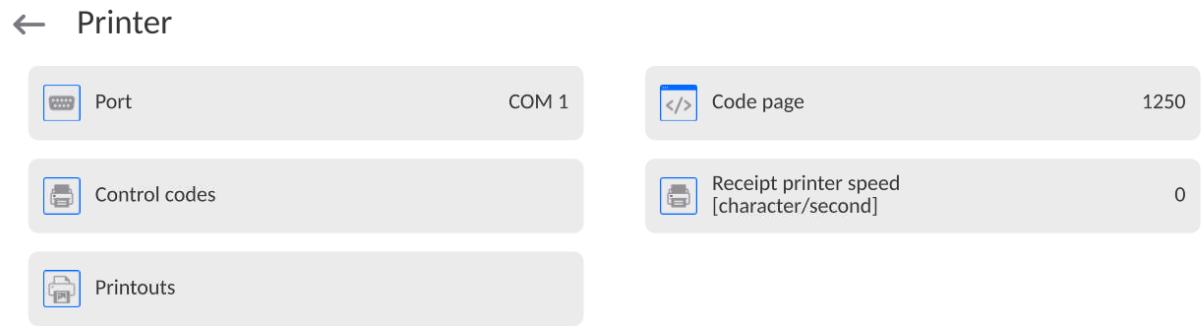
It must be also remembered to set the correct decimal point (either dot or coma), accepted by our program of Excel type. In order to set the decimal point go to: <Setup/ Miscellaneous / Decimal Point>.

The example of printout template, and printout printed in Excel:

1	fixed text.
2	tabulator (cursor movement to the next cell).
3	variable {6}, net mass in adjustment unit.
4	tabulator (cursor movement to the next cell).
5	variable {10}, mass unit.



	If Free Link is used, large data are to be printed out, set 15 in the <Receipt printer speed> parameter [marks per seconds].



The printout template describes how the information from the database is to be printed out. If it is insufficient, it must be modified. You can check correct designing of the template by printing product-related parameters, for example. This operation can be performed after entering <Products/Product edition> database – press the printer icon.

Default values for particular templates:

Product Printout Template:
{50}
{51}

Operator Printout Template:
{75}
{76}

Client Printout Template:
{85}
{86}

Warehouse Printout Template:
{130}
{131}

Packaging Printout Template:
{80}
{81}
{82}

Ambient conditions Printout Template:
{275}
IS T1: {278} °C
IS T2: {279} °C
THB T: {276} °C
THB H: {277} %

19.3. Barcode scanner

The balance can communicate with the barcode scanner. The scanner can be used to quickly search for the following:

- Products,
- Operators,
- Customers
- Packaging,
- Warehouses,

- Formulas,
- Pipettes,
- Series in differential weighing,
- Universal variables,

	***Enter <Communication> submenu and set baud rate for a barcode scanner (by default 9600b/s). For detailed description of 'balance' - 'barcode scanner' communication, read ATTACHMENTS 03.***

To configure the barcode scanner, enter **„Setup / Peripherals / Barcode scanner”** submenu.

19.3.1. Barcode scanner port

Procedure:
- Enter **<Peripherals>** parameters group and select **„Barcode Scanner** / **Port”,** and then set a relevant option.

The balance can communicate with the scanner via the port:
- USB

19.3.2. Prefix / Suffix

*The parameter allowing you to edit **<Prefix>** and **<Suffix>** in order to provide synchronisation of the balance program with a barcode scanner.*

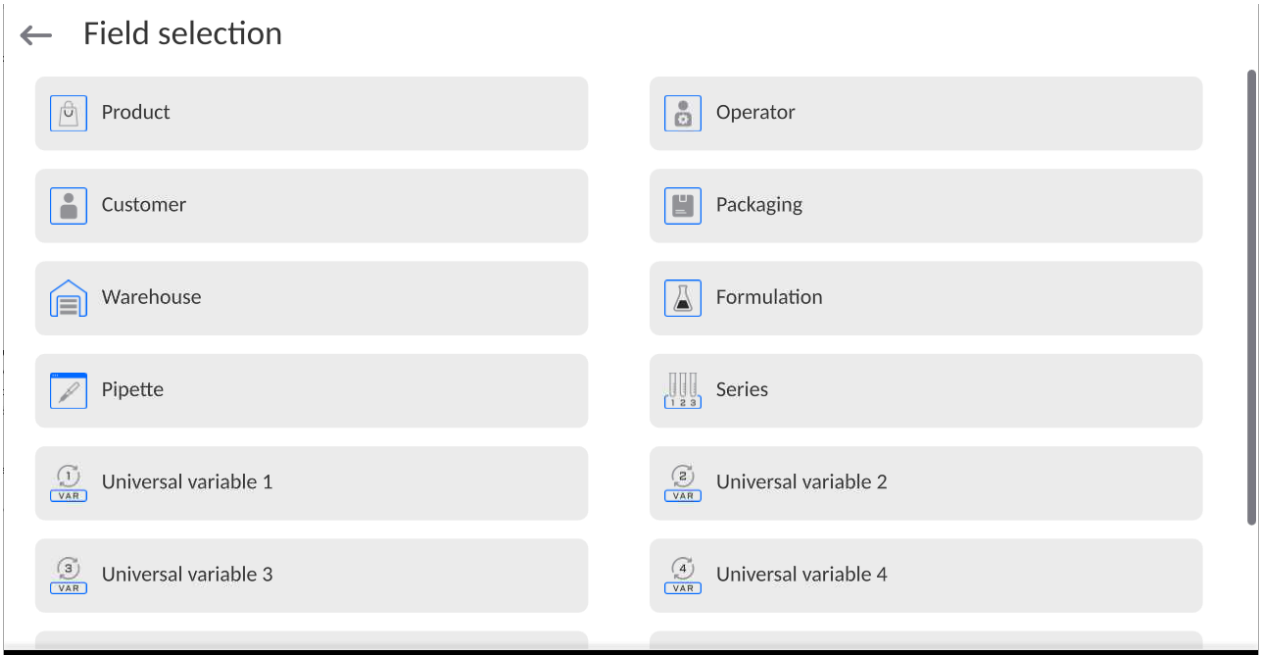
***Note:** In RADWAG-adopted standard, the prefix is 01 sign (byte) hexadecimal format, the suffix is 0D sign (byte) hexadecimal format. A detailed description of communication between the balance and barcode scanners can be accessed in the ATTACHMENT E of the manual.*

Procedure:
- Enter **<Barcode Scanner>** submenu,
- Enter **<Prefix>** parameter and using the on-screen keypad, enter the desired value (hexadecimally), and then press → to confirm changes.
- Enter **<Suffix>** parameter and use the on-screen keypad to enter the desired value (hexadecimally), and then press → to confirm changes.

19.3.3. Field selection

This parameter allows you to specify for which field the search is to be carried out in particular databases.

Procedure:
- Enter **<Peripherals>** parameters group,
- Select <**Barcode Scanner** / **Field selection>,** the following list will be displayed:



- After entering the desired item, you can edit the following parameters:

Filtering	Parameter allowing you to declare search criteria (see table below).
Offset	Parameter allowing you to set the first significant code's character, characters preceding the first significant character are skipped during comparison search.
Code Length	Parameter allowing you to set the number of code's characters to be taken into account during search procedure.
Start marker	Parameter allowing you to declare scanned code start to be taken into account during search procedure
End marker	Parameter allowing you to declare scanned code end to be taken into account during search procedure
Ignore markers	Parameter allowing you to include or ignore code start and end markers upon comparison of the read and balance codes.

The list of filtering positions by field selection:

Field Selection	**Filtering**
Product	None, Name, Code, EAN code
Operator	None, Name, Code,
Customer	None, Name, Code,
Packaging	None, Name, Code,
Warehouse	None, Name, Code,
Formula	None, Name, Code,
Pipette	None, Name, Code,
Series	None, Name, Code,
Universal variables	None, Active

19.3.4. Test

Using the <**Test**> function, it is possible to verify if the barcode scanner connected to the balance works properly.

Procedure:

- Enter **<Barcode Scanner>** submenu,
- After entering **<Test>** parameter, you will see **<Test>** box with ASCII field and HEX field,
- After scanning, the code will be entered into the ASCII and HEX fields, and the test result will be displayed at the bottom of the screen.

When:

- **<Prefix>** and **<Suffix>** declared in balance settings comply with **<Prefix>** and **<Suffix>** of the scanned code, the test result is **<Positive>**.
- **<Prefix>** and **<Suffix>** declared in balance settings do not comply with **<Prefix>** and **<Suffix>** of the scanned code, the test result is **<Negative>**.

19.4. Ambient Conditions Module

It is possible to connect the THB ambient conditions module to the balance using UDP or USB ports. To assure correction cooperation, select a suitable port for ambient conditions module connection.

19.5. Tablet dispenser

(unavailable in a standard design)

RS 232 (COM3) port is a dedicated port for cooperation between the balance and tablet dispenser.

To assure correction cooperation with the dispenser (feeder), set a suitable device address (the address and transmission rate can be accessed in the rating plate of the feeder).

19.6. IM02 communication module

Using the IM02 communication module, the balance can communicate with such accessories as printers, control keys, light columns, buzzers, PLC controllers and other controlling and signalling peripherals, as well as PCs.

	***The procedure of connecting the IM02 communication module to the power network and balance has been described in greater detail in the „IM02 communication module" manual.***

19.6.1. Activation of IM02-balance connection

- Connect **IOIOI** port of the IM02 communication module to **COM 3 (IOIOI)** port of the balance using a dedicated **PT0454** cable.
- Enter **<Peripherals / IM02 communications module / Active>** submenu and enable IM02 communication module ( - module enabled,  - module disabled).
- After establishing connection between the IM02 communication module and balance, the following data will be displayed instantly:

Status	Active connection status: **Connected, Not Connected.**
Software version	Software version of the IM02 communication module.
Manufacture version	Manufacture version of the communication module: **IM02.1*** – standard design (RS232, 4WE/4WY, Virtual COM); **IM02.2**** – standard design + current loop 4-20mA.

***)** - At the same time the balance menu is expanded to include **<Inputs/Outputs>** submenu and a list of available communication ports in **<Communication>** submenu.
****)** - At the same time the balance menu is expanded to include **<Inputs/Outputs>** submenu and a list of available communication ports in **<Communication>** submenu, and **<Current loop>** submenu in <**Peripherals/IM02 communication module>** menu.

19.6.2. Current loop

Applies to the active IM02.2 communication module

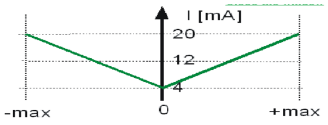
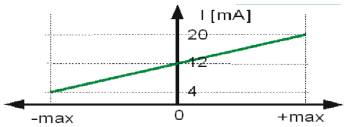
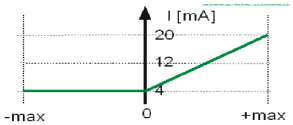
To configure the current loop module, go to **<Peripherals / IM02 communication module / Current loop>** submenu.

<Current loop> submenu structure:

Mode	Select the working mode that determines the way of controlling the current loop (see 31.6.2.1 of the manual).
Calibration	Current loop module calibration (see 31.6.2.2 of the manual).
Lower threshold	Determined adjustment coefficient corresponding to **4mA** indicated by the milliamperometer connected to the measuring unit..
Upper threshold	Determined adjustment coefficient corresponding to **20mA** indicated by the milliamperometer connected to the measuring unit..

1. Working mode

The selection of the working mode determines the way of controlling the current loop:

Mass absolute value (default mode)	Nature of operation:  **4mA** corresponds to the mass value of **[0]**. **20mA** corresponds to both mass values: **[-max]** and **[+max]**.
With negative range	Nature of operation:  **4mA** corresponds to the mass value of **[-max]**. **12mA** corresponds to the mass value of **[0]**. **20mA** corresponds to the mass value of **[+max]**.
Only positive values	Nature of operation:  **4mA** corresponds to the mass value of **[-max] ÷ [0]**.

	20mA corresponds to the mass value of **[+max]**.

2. Current loop calibration

The program allows determining the linear transient behaviour for the current loop module installed in the IM02 communication module.

	***To determine the transient behaviour, the current loop module must be connected in accordance with diagrams showed in the „IM02 communication module" manual.***
	***To read a current, it is advisable to use a milliamperometer with a measuring accuracy of at least 20mA and reading unit of 0.01mA (20mA – full range of the current output module).***

Procedure:

- Enter **<Peripherals / IM02 communication module / Current loop / Calibration>** submenu to open **<[mA] meter indication>** box with an on-screen keypad.
- Enter the value read by the milliamperometer connected to the measuring unit.
- Press → key to confirm changes and you will see **<[mA] meter indication>** box with an on-screen keypad.
- Retake the aforesaid actions until **<Finished>** message is displayed.
- Press ✓ key to confirm changes.
- Two values: **<Lower threshold>** and **<Upper threshold>** will be determined, and they correspond to **4mA** and **20mA** of the milliamperometer connected to the measuring unit.
- Return to the home screen.

19.7. TCP modbus

	***A detailed description of the TCP Modbus protocol can be accessed in the „TCP MODBUS – PUE CY10 communication protocol" manual.***

The **TCP Modbus** protocol can be used via the Ethernet interface. To configure the TCP Modbus protocol settings, enter **<Peripherals / TCP Modbus>** submenu.

<TCP Modbus> submenu structure:

Active	Enable/disable **TCP Modbus** transmission protocol.
Port	Port number for transmission protocol (by default – 502).

20. INPUTS/OUTPUTS

Applicable to the active IM02 communication module

The weighing meter can support **4 inputs / 4 outputs** through connection to the IM02 communication module.

Access path: **< / Inputs/Outputs>**.

20.1. Input configuration

- Enter **<Inputs / Outputs>** submenu.
- Select **<Inputs>** item to display a list of available inputs.
- Enter the desired input edition to open the list of functions to be assigned. The list of functions is analogical to the list of key functions for the specific mode.
- Select the desired function from the list and return to the home screen.

	***For factory settings, there is <None> option for functions of all inputs.***

20.2. Output configuration

Assigning a specific function to a specific output, you activate it. If the output has not been assigned any function, it remains inactive.

Procedure:

- Enter **<Inputs / Outputs>** submenu.
- Select **<Outputs>** item to display a list of available outputs.
- Enter the output edition to see a list of functions to be assigned:

None	Output inactive.
Stable	Stable weighing result above LO mass.
MIN stable	Stable weighing result below MIN threshold.
MIN unstable	Unstable weighing result below MIN threshold.
OK stable	Stable weighing result between MIN and MAX thresholds.
OK unstable	Unstable weighing result between MIN and MAX thresholds.
MAX stable	Stable weighing result above MAX threshold.
MAX unstable	Unstable weighing result above MAX threshold.
! OK stable	Stable weighing result out of OK threshold.
! OK unstable	Unstable weighing result out of OK threshold.
MIN	MIN threshold signalling.
OK	OK threshold signalling.
MAX	MAX threshold signalling.
! OK	Weighing result signalling out of OK threshold.
Zero	Zero weighing result („zero” indicator).

- Select the desired function from the list and return to the home screen.

	***For factory settings, <None> option is available to all output functions.***

21. MISCELLANEOUS

This menu contains global data on operation of the balance, such as language, date – time, sound signal, screen calibration, level control. To enter <Miscellaneous> submenu, press Setup key and then <Miscellaneous> key.

21.1. Interface language selection

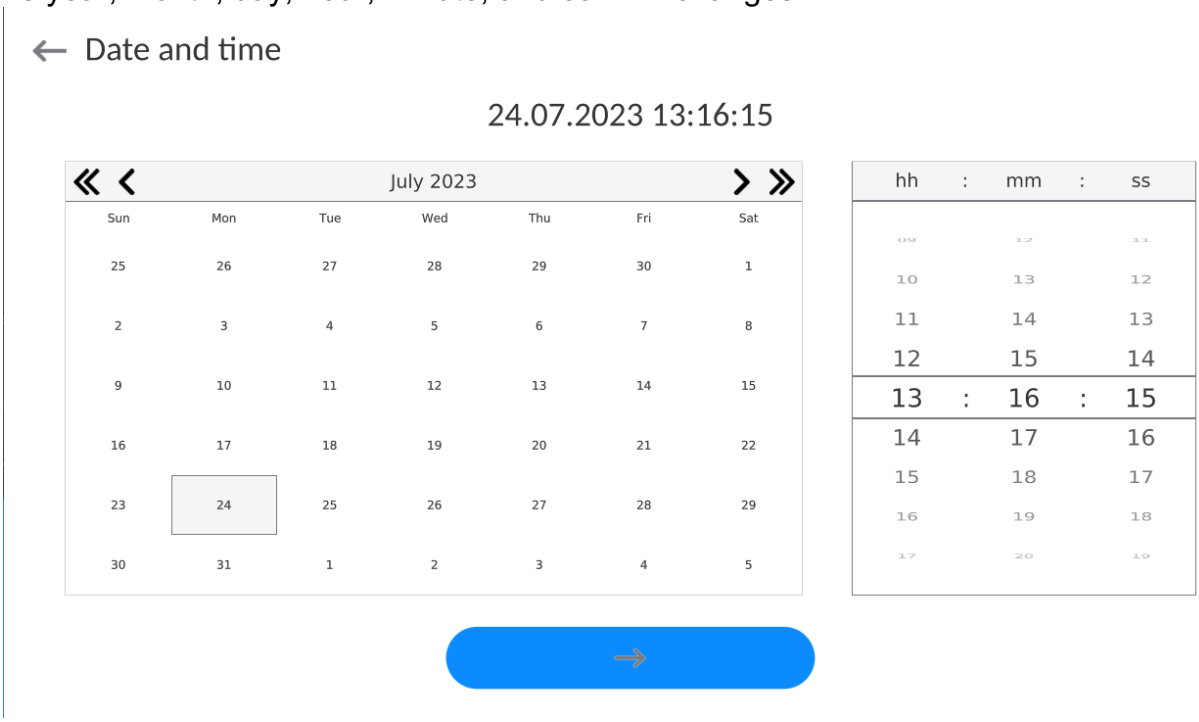
Procedure:
Enter <Miscellaneous> submenu and select <Language> item, and then select the interface language.
Available languages: Polish, English, German, French, Spanish, Korean, Turkish, Chinese, Italian, Czech, Romanian, Hungarian, Russian, Serbian, Portuguese, Japanese.

21.2. Date and time settings

The parameter allowing you to set the current date and time as well as display and printout format. You can edit the date and time settings in two ways:

- Press **<Date and time>** field in the top bar of the home screen.
- Go to: **<Setup / Miscellaneous / Date and Time>** submenu.

Enter the date and time settings edition to display an on-screen keypad. Set relevant values, i.e year, month, day, hour, minute, and confirm changes.

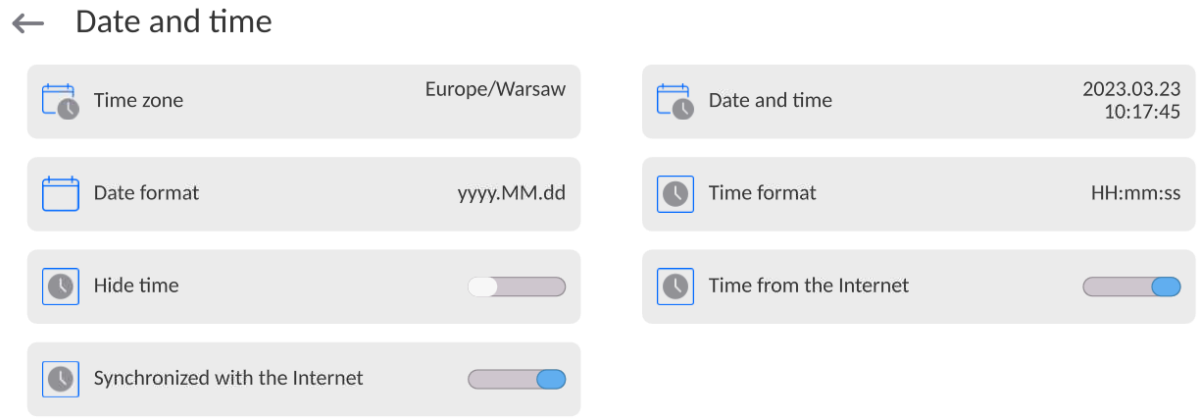


<Setup / Miscellaneous/ Date and Time> submenu contains additional functions used to define the date and time format:

Name	Value	Description
Time zone	Europe, Warsaw	Parameter with the value: zone name/country. The zone name/country is related to the information if the time switches from winter into summer (and the other way round) and specific day of the year.
Date and time	2016.04.04 08:00:00	Parameter for setting date and time of the internal clock of the balance.

Date format	yyyy.MM.dd *	Date format selection. Available values: d.M.yy, d/M/yy, d.M.yyyy, dd.MM.yy, dd/MM/yy, dd-MM-yy, dd.MM.yyyy, dd/MM/yyyy, dd-MMM-yy, dd.MMM.yyyy, M/d/yy, M/d/yyyy, MM/dd/yy, MM/dd/yyyy, yy-M-dd, yy/MM/dd, yy-MM-dd, yyyy-M-dd, yyyy.MM.dd, yyyy-MM-dd.
Time format	HH:mm:ss **	Time format selection. Available values: H.mm.ss, H:mm:ss, H-mm-ss, HH.mm.ss, HH:mm:ss, HH-mm-ss, H.mm.ss tt, H:mm:ss tt, H-mm-ss tt, HH.mm.ss tt, HH:mm:ss tt, HH-mm-ss tt, h.mm.ss tt, h:mm:ss tt, h-mm-ss tt, hh.mm.ss tt, hh:mm:ss tt, hh-mm-ss tt
Hide time	No	Enable/disable date and time in home screen.
Internet time	Yes	If the balance is connected to the Internet, this option allows you to update the time and date from the Internet.
Synchronised with Internet	Yes	Parameter that informs the operator if the time and date in the balance have been synchronised with Internet data.

***)** - For date format: y – year, M – month, d – day
****)** - For time format: H – hour, m – minute, s – second
Date and time formats can be previewed in **<Date and Time>** field and **<Date and Time>** submenu.



Note: *Only properly permitted operator is allowed to access <Date and Time> parameters. Permission level can be changed by the administrator in <Permission> menu.*

21.3. Extension module

This option allows you to activate compliance of the device for FDA 21 CFR procedures, extend the communication protocol in the balance and disable the standard balance license (the so-called demo balance).
To activate it, you need to know the license number for particular options. To obtain the number, contact the device manufacturer.

Procedure:
Enter <Miscellaneous> submenu, select <Extension module> parameter and follow the messages displayed.

21.4. Sound

Procedure:
Enter <Miscellaneous> submenu, select <Sound> parameter and set a relevant option:

Result approval sound	– Yes/No
Touch screen sound	– Yes/No
Sensors	– Yes/No
Volume	– volume up to 100%

21.5. Visual result approval

This option allows you to visually confirm that the measurement has been saved in the weighing database. After setting <  > value, every saved measurement will be communicated to the operator through temporary blue illumination in the mass display.

21.6. Screen-saving

You can enable the screen-saving procedure.
To do so, follow the steps below:
Press Setup key and then: <Miscellaneous/Screensaving>.
After entering edition box, select one of the following values: [None; 1; 2; 3; 5; 10; 15]. Digital values are set in minutes. Select one of the values to automatically select it and return to the previous menu.

Note:
The screen-saving procedure is performed only when the balance is not used (no changes to mass in the screen). The weighing mode is restored instantly after the screen-saving procedure when the program can detect any changes to mass or when the operator touches the screen or presses key on the facade.

21.7. Screen brightness

The screen brightness determines how long the balance is going to work on a battery. If the operator wishes to prolong the life between subsequent battery charging procedures, the brightness must be lowered.
To do so:
Press Setup key and then <Miscellaneous/Screen brightness>.
Go to the edition box and enter the value: [0% - 100%]. Enter the relevant value to automatically change the screen brightness and return to the previous menu.

21.8. Vibration detection

The program allows detecting incorrect placement of the sample on the weighing pan, which may lead to erroneous results. If you enable the function, a relevant icon in the mass display will show up.

If the program can detect incorrect placement of the sample on the weighing pan, the icon will turn red . It means that the result may be subject to a bigger error.

Procedure:

- Enter <Miscellaneous> submenu.
- Select <Vibration detection> parameter,
- Select either of the following:
    - Yes – function enabled
    - No – function disabled

21.9. Level control

The balance is equipped with the Automatic Level Control mechanism.
For non-verified balances, you can define the method of its operation.
For verified balances, settings are not visible and operate in accordance with factory set values, that is <Active with lock>, weighing is possible only when the balance has been levelled.

Procedure:

- Enter <Miscellaneous> submenu.
- Select <Level control> parameter and you will see an edition box.
- Select one of the following items:
    - None – the level indicator is not displayed and the balance cannot control the level,
    - Active – the level indicator is displayed; the balance shows the level change through variable colours (green → level OK, red → level is lost),
    - Active with lock – the level indicator is displayed and the balance shows the level change through variable colours (green → level OK, red → level is lost; when the indicator is red, the – no Level – message is showed in the screen, weighing is not possible).

Note: *The method of levelling is described in 13.3 of the manual.*

21.10. Decimal separator

This parameter allows selecting the decimal separator for the mass printout.

Procedure:

- Enter <Miscellaneous> submenu.
- Select <Decimal separator> parameter and you will see an edition box.
- Select either of the following:
    - Dot
    - Comma

Select the value to return to the submenu box.

21.11. Sensor sensitivity

This parameter offers the range of 0-9 and determines the distance at which sensors are to react.
By default this value ranges from 5 to 7.

Procedure:

- Enter <Miscellaneous> submenu.
- Select <Sensors sensitivity> parameter to see an edition box.
- Select one of the values. Select the value to return to the menu box.

21.12. Door opening degree

Here you can set the door opening range for automatic operation. By default this value is set to <100%>, which means that the door is fully open.

Procedure:

- Enter <Miscellaneous> submenu.
- Select <Door opening degree> parameter and you will see a settings box.
- Select the desired value: <75%>.
- Next confirm your choice to return to the menu.

21.13. Automatic ionisation

This parameter allows you to disable ionisation or select its level. Available values: None/Low/High/Continuous operation.

Procedure:

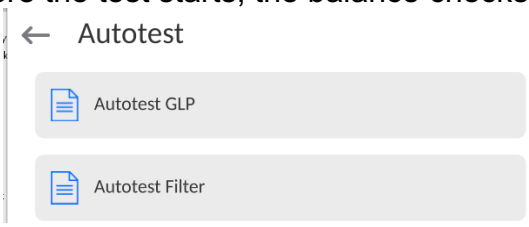
- Enter <Miscellaneous> submenu.
- Select <Automatic ionisation> parameter and you will see a settings box.
- Enter the desired value: <Low>.
- Next confirm your choice to return to the menu.

21.14. Autotest

The <AUTOTEST> function is used to assist the operator in both assessing the work and diagnosing causes of weighing errors, exceeding permissible values for the specific balance.

The AUTOTEST allows the operator to regularly optimise balance settings in order to obtain the best repeatability and weighing time in the specific working environment. Thanks to this function, you can also check the aforesaid parameters at any time, as well as archive the tests you have conducted.

The function is divided into two modules:
AUTOTEST FILTER; AUTOTEST GLP.
Before the test starts, the balance checks levelling, temperature and humidity.



AUTOTEST FILTER
In this procedure, the internal weight is positioned and removed 10 times for all possible filter set values and the result is approved. 2 parameters are checked: Repeatability and Weighing result stabilisation time.

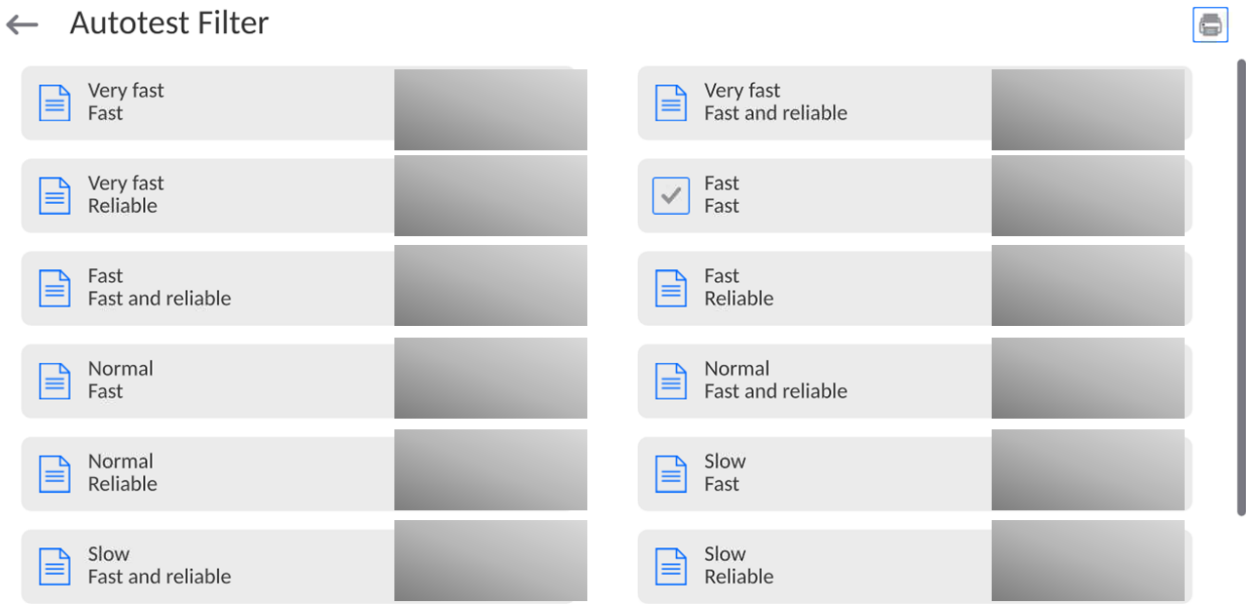
The entire test takes about 1 hour. After the test has been conducted, the result box is displayed for all possible set values.
The operator is provided with information for which settings in the specific conditions the balance parameters are optimal.
This function proves very useful and allows obtaining the highest possible weighing accuracy and the shortest weighing time with the repeatability value that is acceptable to the customer.
The results are remembered by the balance until it is switched off.
The function allows printing with the use of printers available in the system and quick selection of the most optimal settings, straight from the options level.

Once the autotest has been completed, a summary and results are displayed.
The program automatically selects filter settings through relevant icon by the results:
- setting for which the fastest measurement has been obtained (shortest measuring time).
- setting for which the most precise measurement has been obtained (the smallest deviation for 10 measurements).
- setting for which the optimal measurement has been obtained (the smallest product of time and deviation).

- current filter settings.

Measurement results:
*Filter type.
*<Result approval> value.
*Indication repeatability value expressed as standard deviation.
*Average result stabilisation time.

The example of result box is showed below:



Example of report:

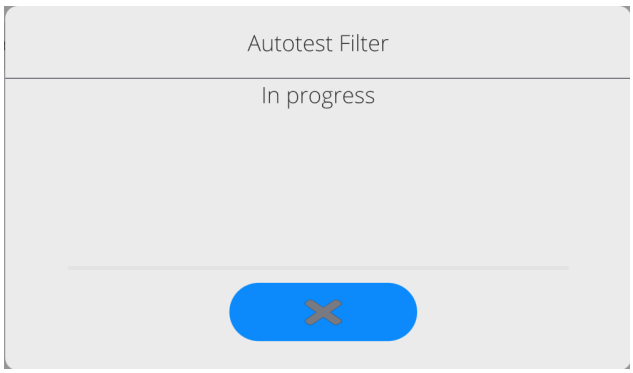
-------- Autotest Filter: Report --------
Balance type XA 5Y
Balance ID 442566
Operator Hubert
Application version NL1.6.5 S
Date 2015.05.07
Time 09:34:48

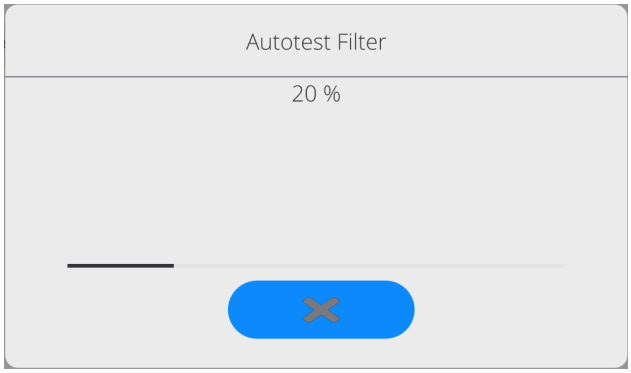
Reading unit 0.0001/0.0001 g
Internal weight mass 148.9390 g
Temperature: Start 25.26 °C
Temperature: Stop 25.66 °C

Filter Very fast
Result approval Fast
Repeatability 0.0042 g
Stabilisation time 4.505 s
.
Filter Very slow
Result approval Precise
Repeatability 0.0207 g
Stabilisation time 5.015 s

Signature
.....

Procedure:
If the function has been enabled, the program instantly initiates the procedure and the progress window is displayed. Once the autotest has finished, the program shows the summary with current filter settings highlighted. The operator can print it out.





The operator can abort the procedure at any time by pressing the <X> key in the window.

GLP AUTOTEST
Here the internal weighing positioning repeatability and balance indication error determination with reference to the maximum loading capacity are tested.

Under this procedure, the following happens:

- the internal weight is positioned twice, and then this weight is positioned 10 times,
- the balance is calibrated/adjusted,
- the standard deviation is calculated and remembered,
- the door is also tested for balances with automatically openable doors.

This function also allows displaying and printing the report using the printers available in the system and archiving the report that contains basic data of the balance, ambient conditions information data and test results.
Test results:
*Deviation for maximum load.
*Indication repeatability value expressed as standard deviation.
*Door functioning evaluation (positive/negative) – of the balance is supplied with the door opening mechanism.

The example of report:

.....
--------- GLP Autotest: Report ---------
Balance type XA 5Y
Balance ID 400010
Operator Admin
Application version LLx.x S
Date 2021.01.16
Time 09:17:16

Number of measurements 10
Reading unit 0.0001 g
Internal weight mass 140.094 g
Filter Average
Result approval Fast and precise

Deviation for Max. -0.0118 g
Repeatability 0.00088 g
Signature
.....

Procedure:

A dialogue box will be displayed when you press the name field.
From here, you can do the following:

- Initiate another GLP AUTOTEST.
- Preview autotest results, and possibly export all saved results as *.csv file,
- Delete all saved results.

The operator may feel free to abort the procedure by pressing <X> key in the box at any time.
The autotest results are displayed in the form of the table (every row includes date and time as well as results)
To display autotest data, press the specific result table row.
To print results of a single autotest, enter the results with a list of all autotest data and generate the content printout by pressing <Printout> key in the top bar of the screen.
The results can be exported by pressing the export field in the window with all saved autotests. The data will be sent to the (pendrive) external memory carrier as a *.csv file.

21.15. Start-up logo

(Available only to the authorised operator).

This parameter allows you to change the image that is displayed in the screen while launching the device system.

21.16. System event exporting

(Available only to the authorised operator).

Here you can generate a special file that is instantly saved, after enabling the option, in the (pendrive) external memory carrier, plugged into the USB port. This file is used to diagnose potential problems related to operation of the device by RADWAG service technicians.

Procedure:

- Insert the pendrive stick into the USB port.
- Next enter <Miscellaneous> submenu.
- Select <Export system events> parameter.
- A special file will be generated and instantly saved on the pendrive carrier.
- Send such a file to RADWAG.

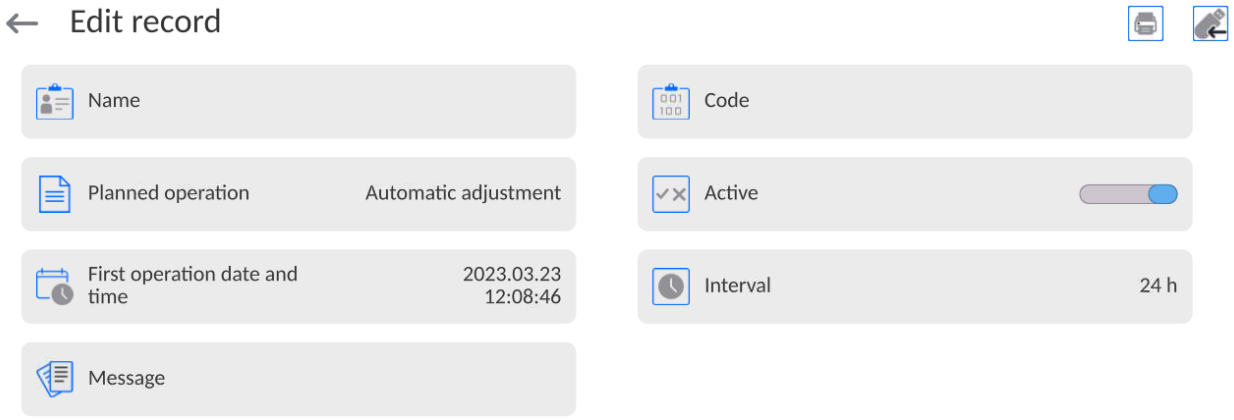
21.17. Text-to-speech switch

This parameter allows you to switch names of particular groups and menu parameters into speech emitted from the loud speakers of the measuring head.
The voice is emitted in English only.

22. SCHEDULED TASKS

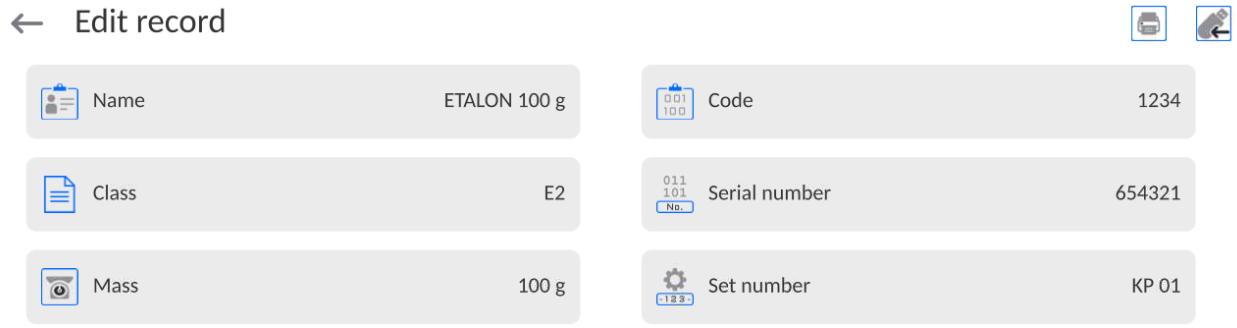
This menu contains settings that allow scheduling cyclically recurring tasks, such as balance adjustment or display of a special message.

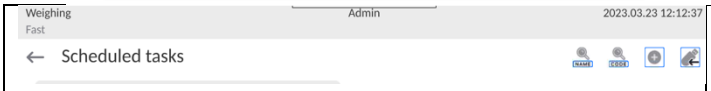
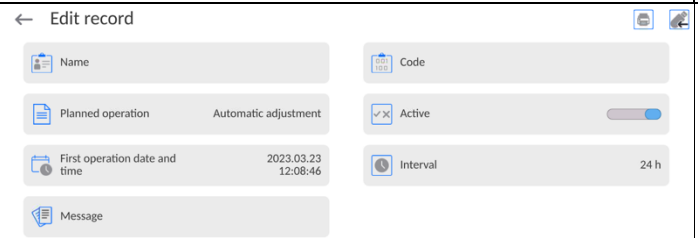
22.1. Balance adjustment

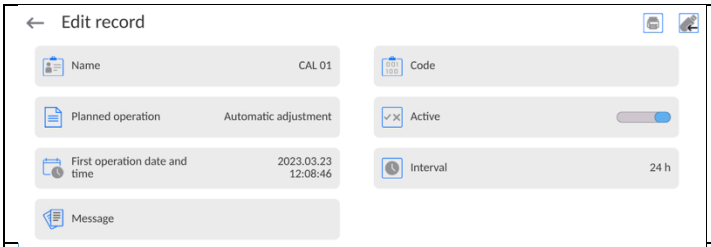
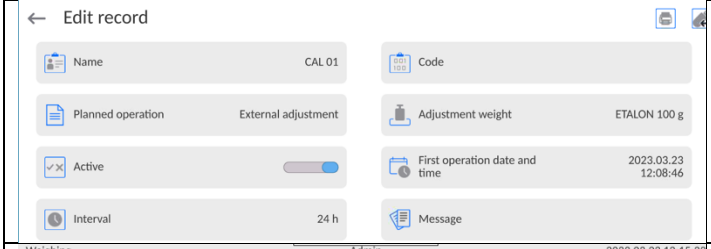
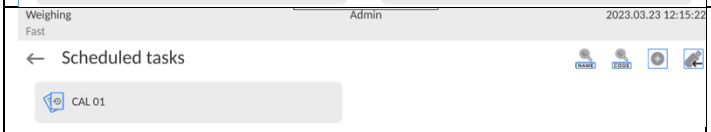


<Scheduled adjustments> parameter allows you to declare the exact time and interval for balance adjustment. This option is independent of automatic adjustment and activation criteria (time, temperature). The operator may schedule either internal or external adjustment. To schedule the external adjustments, enter the templates used to perform the adjustments into the balance memory.

Settings:
Before the adjustment plan is set, enter templates and their data for external adjustments. To do so, enter the operator's menu, <Adjustment> parameters group and find <Adjustment templates> parameters, and then enter the template by giving its data:



	Enter the operator's menu, then <Scheduled tasks> parameters group. You will see a window in which the authorised operator (Administrator) may add items with scheduled adjustments.
	To do so, click  key, a scheduled adjustment data box will be displayed.
	Select the scheduled task: automatic (internal) adjustment or external adjustment.

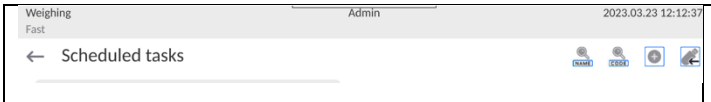
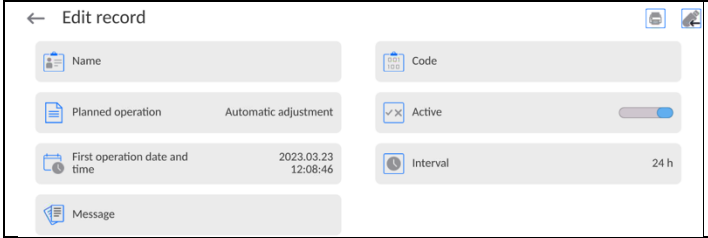
	If you have chosen the automatic adjustment, enter data on adjustment and operation schedule.
	If you have chosen the external adjustment, enter data on adjustment, template used to perform the adjustment and operation schedule.
	Once you have entered all data, return to the previous box. The item with scheduled balance adjustment will be added.

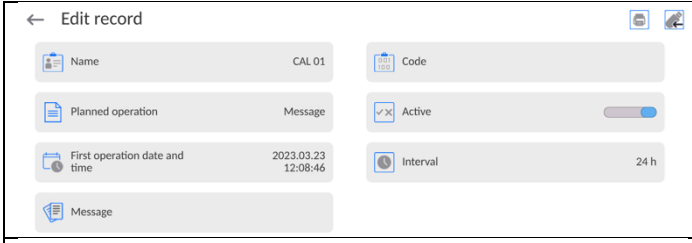
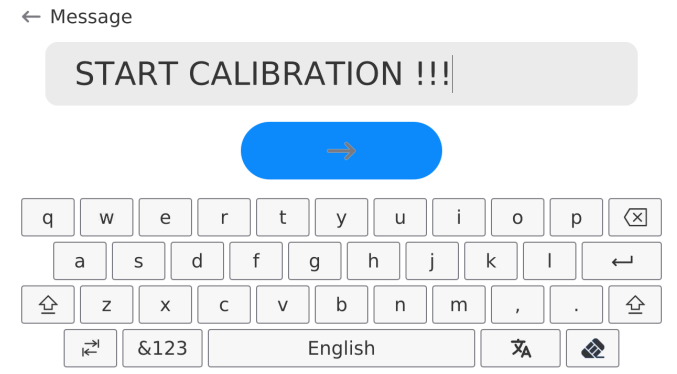
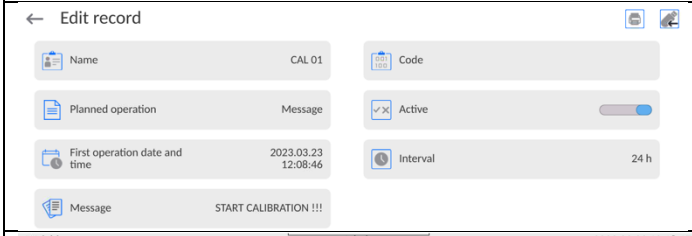
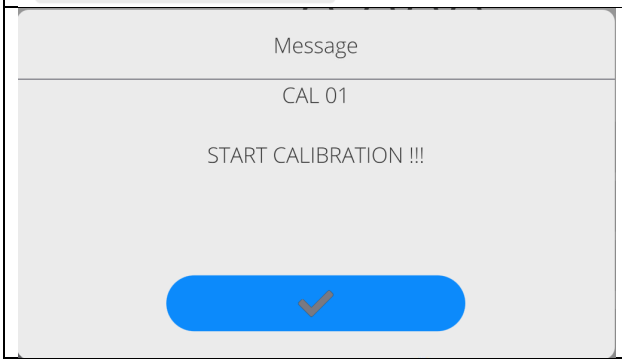
If all data have been entered, leave the menu.

From now on, adjustments will be performed automatically: at the schedule time and at scheduled intervals.

22.2. Message

This parameter allows you to declare the exact time and interval for displaying the special message informing the operator about a need to take some actions at a specific moment.

	Enter the operator's menu and <Scheduled tasks> submenu. To add a task, click  key in the top information bar.
	You will see a window in which you need to select <Scheduled tasks> field. An option selection box will show up.
	Select <Message> item.

	You will return to the message settings box. After setting the message display frequency (first occurrence, interval), enter the content of the message after selecting <Message> parameter lb <Message with alert>.
	Once you have entered the content, press <→> key to confirm the entry.
	When it is done, you will return to the previous box.
	In the submenu box you will see a scheduled task field. Leave the menu and go to the home screen.
	If the message (time) display criteria have been met, the message box will appear instantly. Press <✓> key to turn the window off and perform the scheduled task.

23. UPDATE

It contains the modules used to update the following:

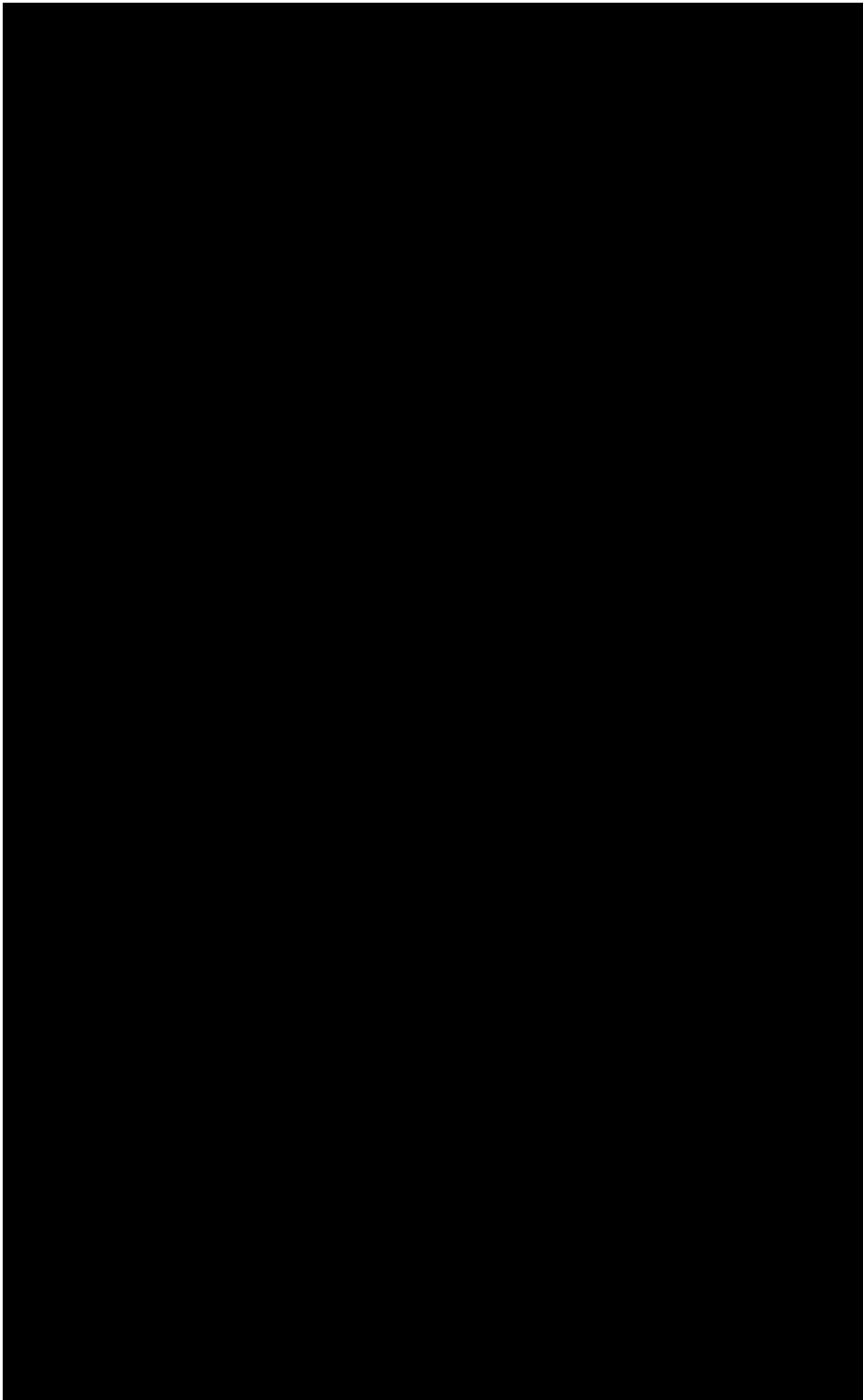
- Operator-related field: APPLICATION.
- Motherboard (administrator only).

The update procedure is automatic and based on collection of data from the external USB memory carrier.

Procedure:

- Prepare the Pendrive external memory with an update file; the file must come with *.lab4 extension.
- Insert the pendrive stick into the USB port of the readout head.
- Log in as Administrator.

- Press



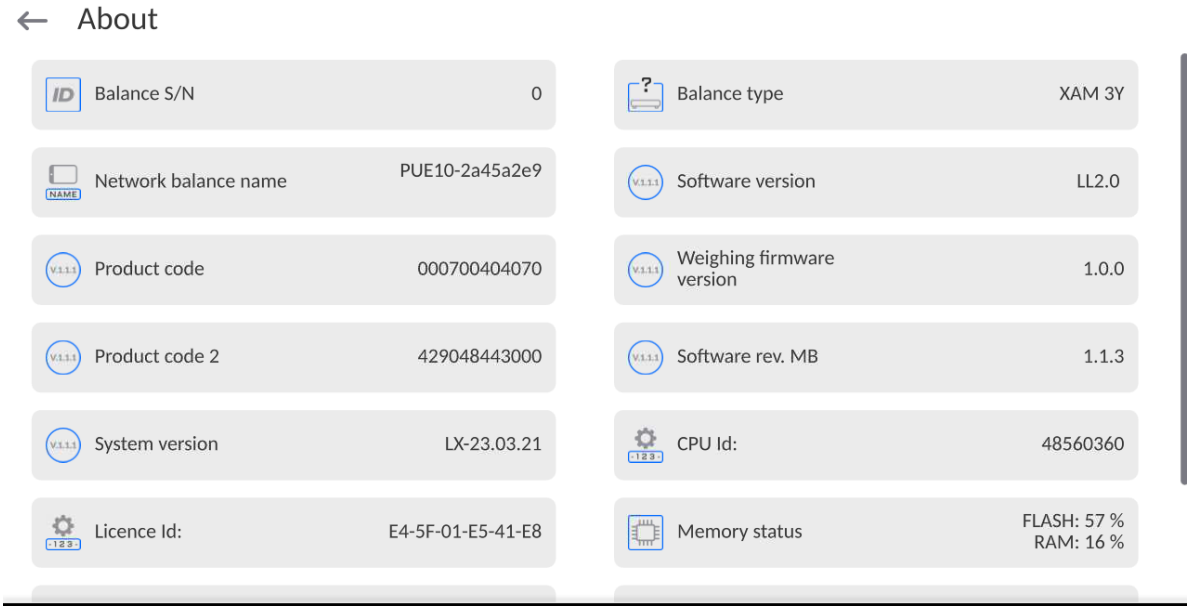
key to enter the menu of the balance.

- Select <Update item.
- Select <Application> field.
- The content of the USB memory will be displayed in the screen; find the update file and click its name field.
- The balance will restart instantly and its application will be updated.
- If the balance fails to restart, you need to reboot it by unplugging and plugging the balance in.

The motherboard file update is similar to the Application update. The only difference is that the files must have relevant extensions (*.cm4mbu).

24. SYSTEM INFO

This menu contains information on balance and installed programs. The majority of parameters are for reference only.



In the <Ambient conditions> parameter, you can see the exact ambient conditions, that is temperature, humidity, pressure (when the balance is equipped with suitable sensors).
After selecting <Settings printout> parameter, you will send balance settings to the printer (all parameters).

25. COMMUNICATION PROTOCOL

⚠	***To see a detailed description of the protocol related to communication between balance and computer, access the „CBCP-07" manual.***

25.1. Manual / automatic printout

You can generate printouts manually or automatically:

- Manual printout: press ↵ key when the value has stabilised.
- Automatic printout is generated automatically as per the settings, as in automatic printout (see 12.5).

The printout content depends on settings for <Standard printout> - <Weighing printout template> (see 12.5).

Mass printout format:

1	2	3	4 -12	13	14	15	16	17	18
stability mark	space	mark	mass	space	unit			CR	LF

Stability mark [space] if stable
[?] if unstable
[!] if air buoyancy compensation function is enabled
[^] if + exceeded range error occurs
[v] if – exceeded range error occurs
Mark [space] for positive values or
[-] for negative values
Mass 9 characters with dot with right alignment
Unit 3 characters with left alignment

Example:

_ _ _ _ _ _ 1 8 3 2 . 0 _ g _ _ CR LF – printout generated from balance

after pressing  key with respect to settings for <Weighing printout template>:

N (no. of measurements)	**NO**	Universal variable 1 … 5	**NO**
Date	**NO**	Net	**NO**
Time	**NO**	Tare	**NO**
Levelling	**NO**	Gross	**NO**
Customer	**NO**	Current result	**NO**
Warehouse	**NO**	Additional unit	**NO**
Product	**NO**	Mass	**YES**
Packaging	**NO**	Non-standard printout	**NO**

26. CONNECTION OF PERIPHERALS

The 5Y-series balance can communicate with the following devices:

- computer,
- receipt printer,
- PCL6 printer,
- barcode scanner,
- fingerprint scanner,
- any peripheral device that supports ASCII protocol.

Note: *Only accessories listed on the RADWAG's website may be connected to the balance,*

27. ERROR MESSAGES

Max weighing threshold exceeded Unload the weighing pan
Min weighing threshold exceeded Install weighing pan
Zeroing out of range Press tarring button or restart the balance
Display capacity out of range Unload the weighing pan
Tarring out of range Press zeroing button or restart the balance
Start mass out of range Install weighing pan
Zeroing/tarring time out of range Weighing indication unstable

-no level- Balance not levelled
-Err 100- Weighing module restart
In process An ongoing process in the course of which the indication may be unstable (automatic feeder – the process of feeding a pill, or mass comparator – the process of load change)

28. ADDITIONAL EQUIPMENT

Type	Name
RTP-UEW80 lub RTP-RU80	Receipt printer
	PCL-6 printers – connected via USB port
LS2208	Barcode scanner
SAL	Anti-vibration table for XA-series balances
	PC keyboard.

Computer programs:

- **„EDYTOR ETYKIET" [LABEL EDITOR] software**

29. ATTACHMENT B – List of programmable keys

Symbol	Function
	None

	Local parameters
	Product
	Packaging
	Customer
	Operator
	Warehouse
	Zero
	Tare
	Set tare
	Disable tare
	Restore tare
	Print
	Print header
	Print footer/ C label
	Print ZZ label
	Series number
	Batch number
	Universal variable 1
	Universal variable 2
	Universal variable 3
	Universal variable 4
	Universal variable 5
	Statistics
	Add to statistics
	Zero statistics
	Zero ZZ statistics
	Zero all statistics
	Print and zero statistics

	Print and zero ZZ statistics
	Number of labels
	Number of Z labels
	Number of ZZ labels
	Logout
	Parameters
	Working modes
	Unit
	Help
	Create screenshot
	Voice command
	E-signature
	Left door
	Right door

[redacted]	Hide 1 digit

[redacted]	Confirm
[redacted]	Abort

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