



radwag.com

Scan the QR code to view additional scientific material that may be of interest to you.
There you will find more useful information in an accessible format!

User manual

IKOU-001-01-01-25-EN

5Y Manual Mass Comparators



JANUARY 2025

SAFETY PRECAUTIONS

Before you start installing, using or maintaining the device, please read this operating manual and follow its guidelines.

	Before you start using the device, please read this operating manual carefully and use the device as designed.
	Put loads in the central part of the weighing pan for weighing.
	Do not exceed the maximum lifting capacity of the mass comparator.
	Secure the device against excessive temperature fluctuations, sunlight, UV radiation, and substances that cause chemical reactions.
	The device must not be used in the atmosphere exposed to gas or dust explosion.
	Do not use sharp tools (e.g. knife, screwdriver, etc.) to operate the touch panel.
	In case of failure, unplug the device immediately.
	Dispose of the device scheduled for decommissioning in accordance with currently applicable law.
	Wi-Fi [®] is a registered trademark, owned by the Wi-Fi Alliance. This trademark appearing in this document has been used only for reference purposes and its task is not to mark compliance of any products with items certified by Wi-Fi Alliance.

Contents

1. INTENDED USE	5
2. TERMS OF GUARANTEE	5
3. METROLOGICAL PARAMETER SUPERVISION	6
4. INFORMATION IN THE OPERATING MANUAL	6
5. PERSONNEL TRAINING	6
6. TRANSPORTATION AND STORAGE	6
6.1. Delivery inspection	6
6.2. Packaging	6
7. CLEANING	7
7.1. Glass cleaning	8
7.2. Powder-coated element cleaning	8
7.3. Aluminium cleaning	8
7.4. Stainless steel cleaning	9
7.5. ABS cleaning	9
7.6. Disassembly of the anti-draft chamber	10
7.6.1. UYA-series balances	10
7.6.2. XA 5Y.A-series balances	10
7.6.3. XA 5Y-series balances	12
8. INSTALLATION OF BALANCES	12
8.1. Temperature stabilisation time	12
8.2. Place of installation and use	13
8.3. Unpacking	13
8.3.1. HRP 150.1, HRP 200, HRP 500 comparators	13
8.3.2. HRP 1000, HRP 1000.1 comparators	14
8.3.3. HRP 2000, HRP 2000.1 comparators	14
8.4. List of standard delivery items	15
8.5. Installation	16
8.5.1. UYA.KO-series balances	16
8.5.2. XA.KO-series balances	16
8.5.3. PM.KB-series balances	17
8.5.4. WAY.KO-series balances	18
8.5.5. APP 10.KO-series balances	23
8.5.6. APP 30.KO, APP 64.KO-series balances	28
8.5.7. HRP 150.1, HRP 200, HRP 500-series balances	30
8.5.8. HRP 1000, HRP 1000.1-series balances	33
8.5.9. HRP 2000, HRP 2000.1-series balances	35
8.6. Power supply	38
8.7. Activation of balance	38
8.8. Deactivation of balance	40
8.9. Connection of additional equipment	40
8.10. Balances with a built-in ioniser	40
9. BALANCE DESIGN	42
9.1. Dimensions	42
9.2. Description of ports	42
10. HOME SCREEN	43
11. NAVIGATION IN THE MENU	44
11.1. Main menu key functions	45
11.2. Return to weighing function	45
12. WEIGHING	46
13. SERVICING AND REPAIRS	46
14. DISPOSAL	47
15. TECHNICAL PARAMETERS	47
16. ERROR MESSAGES	47

1. INTENDED USE

The 5Y mass comparators are intended to determine mass differences between a reference weight (A) and test weight (B). Mass comparators are usually used in weight-calibrating laboratories and national metrological institutes.

2. TERMS OF GUARANTEE

- A. RADWAG undertakes to repair or replace the elements that prove defective in terms of manufacture or structure.
- B. It is allowed to determine defects of unclear origin and establish methods of eliminating these defects only in cooperation with representatives of the manufacturer and operator.
- C. RADWAG shall not be held responsible for any damage or losses arising from unauthorised or incorrect manufacturing or servicing works.
- D. The guarantee does not cover the following:
 - mechanical damage arising from misuse of the mass comparator as well as thermal, chemical damage, damage caused by atmospheric discharge, power overvoltage, and other random events.
 - mass comparator damage when it is used at variance with intended use,
 - mass comparator damage when the service technician detects any violation or damage to the seal securing the mass comparator against opening,
 - damage caused by liquids and natural wear,
 - mass comparator damage arising from unsuitable adaptation or power system defect,
 - damage arising from measuring system overloading,
 - maintenance works (mass comparator cleaning).
- E. The guarantee cover is lost when:
 - the device is repaired out of the authorised service station,
 - the service technician can detect signs of unauthorised interference with the mechanical or electronic structure of the mass comparator,
 - other version of the operating system has been installed,
 - the mass comparator is devoid of company securing marks.
- F. For detailed terms of guarantee, see the service sheet.

3. METROLOGICAL PARAMETER SUPERVISION

Metrological properties of the mass comparator must be checked by the operator at preset time intervals. The checking frequency is determined by the environment in which the mass comparator is working, types of comparison procedures as well as quality supervision system.

4. INFORMATION IN THE OPERATING MANUAL

Please read the operating manual carefully before you power and activate the mass comparator, even if you are experienced in working with such devices. The manual contains information required for proper use of the device; adherence to the guidelines guarantees correct and reliable operation of the mass comparator.

5. PERSONNEL TRAINING

The mass comparator must be operated and supervised only by people who have been properly trained and are experienced in using such devices.

6. TRANSPORTATION AND STORAGE

6.1. Delivery inspection

Inspect the packaging and device upon delivery and check them for signs of outer damage. If any damage has been found, contact the manufacturer's representative.

6.2. Packaging

Keep the entire packaging for potential further shipping of the mass comparator. Only original packaging of the mass comparator may be used for shipping. Before it is packed, unplug all cables and remove moving parts (weighing pan, covers, inserts). Put all pieces of the mass comparator into the original box and secure them against shipping damage.

7. CLEANING

	<i>Electric shock.</i>
	<i>The device may get damaged if you clean the weighing pan while it is being installed.</i>

To make sure the cleaning procedure is safe, disconnect the device from the source of power and then take the following steps:

- Disassemble the weighing pan and other moving parts of the mass comparator. Be careful while taking these actions in order not to damage the mass comparator mechanism.
- If possible, remove the dust from the weighing chamber (recommended particularly for microscales) using a small keyboard vacuum cleaner.
- It is possible to disassemble some pieces of the device for careful cleaning – see below for disassembly description.

Some models of the device are equipped with an ioniser. This is why you need to remain highly careful while performing maintenance works:

- Unplug the balance before you start any maintenance works.
- Make sure no liquid can contact the power cord.
- Never open the housing of the balance, terminal, ioniser or power cord as they do not contain any internal elements that should be cleaned, repaired or replaced.
- Make sure all parts are dry before you plug the device in again.
- All ioniser-related actions, such as maintenance and cleaning works, may be taken 5 minutes after you have disconnected the power supply at the earliest (in a de-energised condition).
- The emitter pins are sharp, you must not touch them as they may cause bodily injuries.

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

7.1. Glass cleaning

Depending on the type of dirt, choose a suitable solvent. Never immerse glass in strong alkaline solutions as it may be damaged. It is forbidden to use abrasive agents.

In case of any organic residues, at first use acetone and then water and detergent. In case of any non-organic residues, use diluted acid solutions (soluble hydrochloric or nitric acid salts) or bases (mostly sodium or ammonium).

ACIDS must be removed with basic solvents (sodium carbonate), while BASES with acidic solvents (mineral acids of various concentration). In case of stubborn dirt, use a brush and detergent. Avoid detergents whose particles are large and hard and may therefore scratch glass.

At the end of the washing procedure, carefully rinse glass with distilled water. Always use soft brushes with a wooden or plastic grip to avoid scratches. Do not use wire brushes or brushes with a wire core. Rinsing is required to make sure all soap, detergent and other cleaning agent residues are removed from glass components before they are reinstalled in the device. After initial cleaning, rinse glass elements under running water and then distilled water.

It is not advisable to dry glass with paper towel or under a stream of forced air as it may contaminate glass elements with fibres or other pollutants, and eventually lead to erroneous weighing. Do not use electric dryers for measuring glassware.

It is a common practice to put washed glass elements on the shelf for free drying.

7.2. Powder-coated element cleaning

At first initially clean the elements under running water or using a large-pore sponge and large amount of water to remove loose and major dirt. It is forbidden to use abrasive agents. Next, using a suitable cloth and water and cleaning agent (soap, dishwashing liquid), clean the surface by regularly pressing the cloth against the surface of elements. Never use a dry detergent only as it may damage the coating. Instead, use a large amount of water or water-cleaning agent solution.

7.3. Aluminium cleaning

To clean aluminium, use products rich in natural acids. The following will be ideal: distilled vinegar, lemon.

It is forbidden to use abrasive agents. Do not use rough brushes that may easily scratch the surface of aluminium. A soft microfibre cloth will be the best choice.

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

7.4. Stainless steel cleaning

While cleaning stainless steel elements, follow the table below as it shows types of pollution and methods of removal.

Fingerprints	Clean with alcohol or solvent. Rinse with pure water and wipe it dry.
Oils, fats, grease	Wash with organic solvents and then warm water with soap or soft detergent. Rinse with pure water and wipe it dry.
Stains and thermal deposits	Wash with a soft scouring detergent, clean gently, follow the direction of the surface structure. Rinse with pure water and wipe it dry.
Strong discolouration	Clean gently, follow the direction of surface structure. Rinse with pure water and wipe it dry.
Traces of rust	Moisten with a oxalic acid and leave for about 15-20 minutes and then wash with warm water and soap or soft detergent. Rinse with pure water and wipe it dry.
Paints	Wash with paint solvent and then warm water and soap or soft detergent. Rinse with pure water and wipe it dry.
Surface scratches	Gently polish with (iron-free) non-woven fabric, follow the direction of surface structure, and then wash with a soft scouring detergent. Rinse with pure water and wipe it dry.

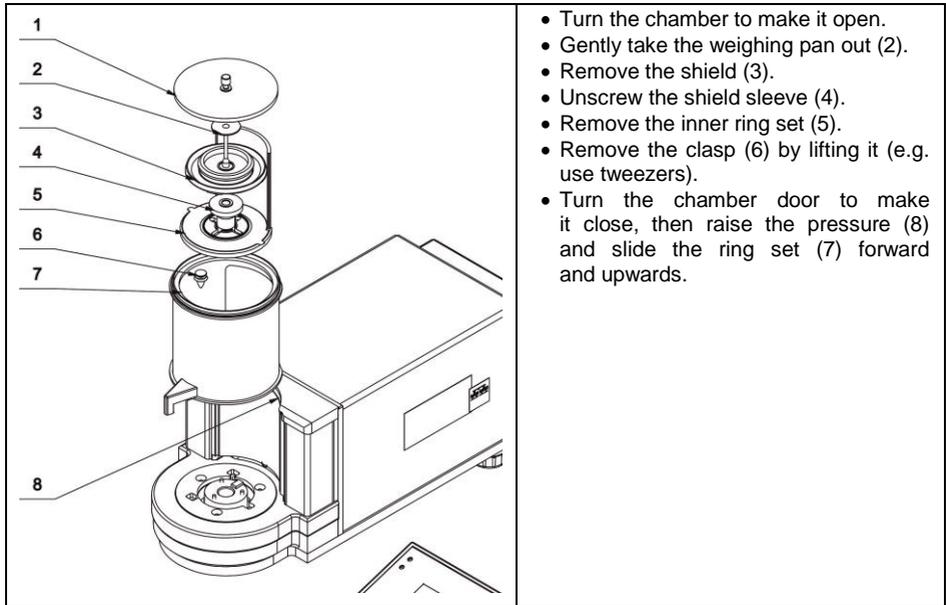
7.5. ABS cleaning

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 (soap, dishwashing liquid, glass cleaner). Clean the surface by regularly pressing the cloth against the surface, wipe the surface in question and then dry it off. Repeat the cleaning procedure, if necessary.

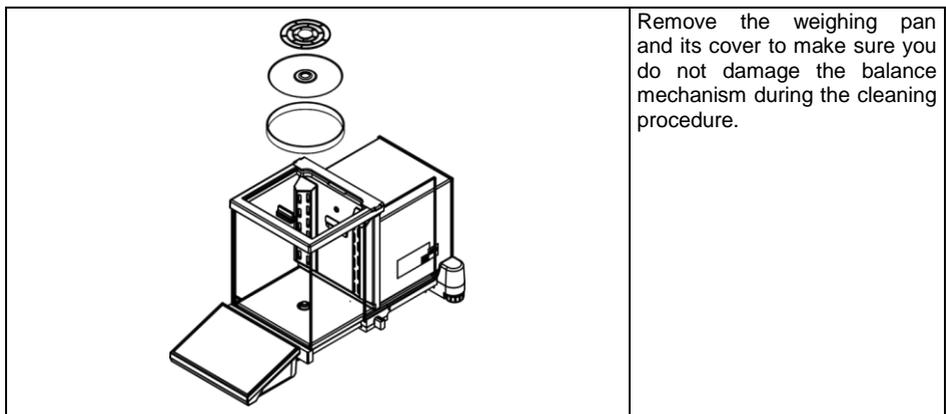
In case of hard-to-remove dirt, such as adhesive, rubber, tar, polyurethane foam residues, etc., use special cleaning agents based on mixture of aliphatic hydrocarbons that do not dissolve the fabric. Before using the cleaning agent, be advised to conduct suitability tests. Do not use abrasive agents.

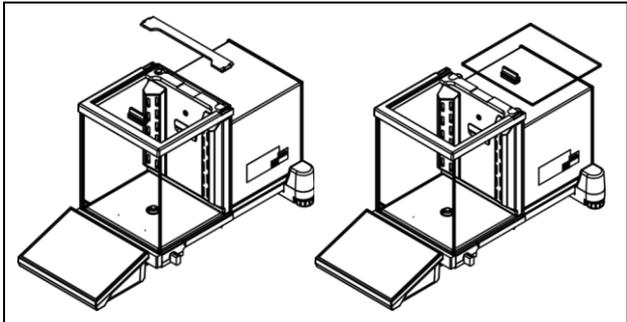
7.6. Disassembly of the anti-draft chamber

7.6.1. UYA-series balances

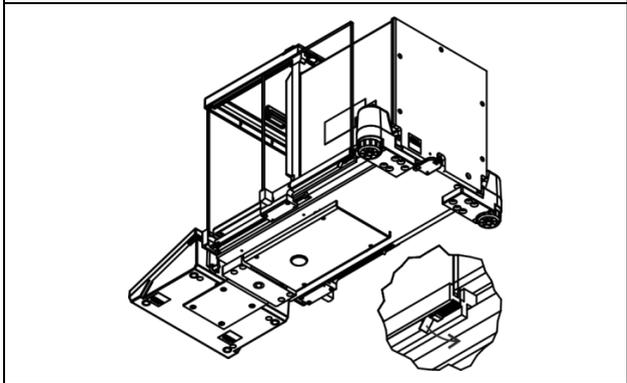


7.6.2. XA 5Y.A-series balances

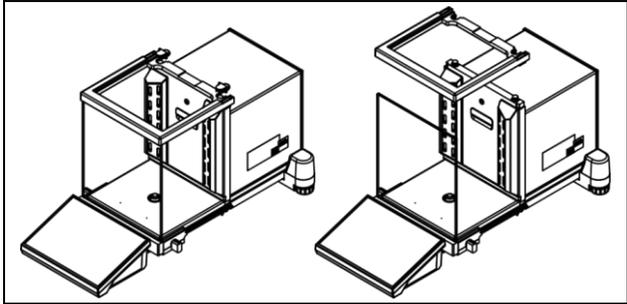




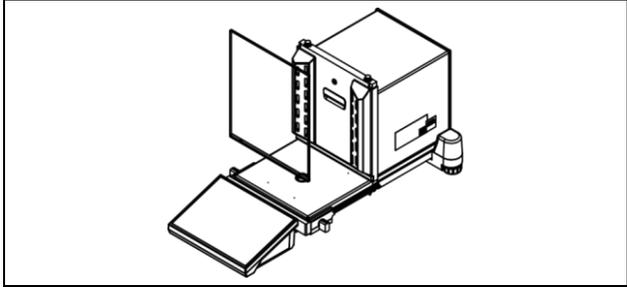
Unclip and take out the upper pane protection. Then pull out the upper pane from guides.



Pull out side panes. Before you remove the pane completely, disengage the protection; as showed in the figure. Side panes are not replaceable so remember which pane is left and right to reinstall them in the cabinet once the cleaning procedure has ended.

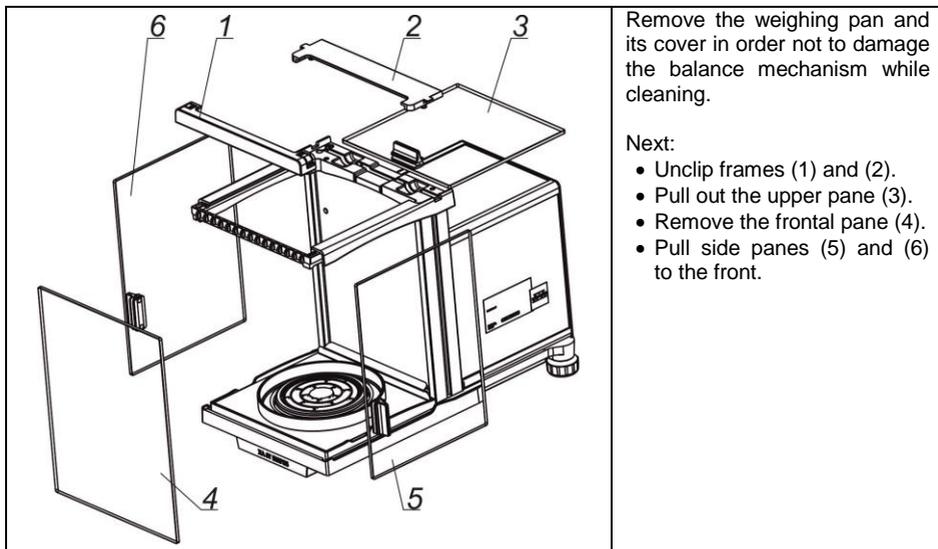


Unclip upper frame protection and disassemble the cabinet upper frame.



Remove the frontal pane.

7.6.3. XA 5Y-series balances



When the cabinet and panes have been disassembled in such a way, you can clean them carefully. All actions must be taken with care, preventing any pollutants and other minor elements from entering the interior of the balance through the hole in which the weighing pan has been installed. It may lead to malfunctioning of the balance. Once cleaning is finished, assemble the cabinet by taking actions in a reversed order. Make sure side panes are installed on the right side and the protecting clip is disengaged when they are inserted (as in pulling out), and then slide the pane in.

8. INSTALLATION OF BALANCES

8.1. Temperature stabilisation time

Before measuring is initiated, wait for the mass comparator to thermally stabilise.

With regard to mass comparators that have been stored at a way lower temperature before being supplied with power (e.g. in winter), the acclimatisation and warming time is about 12 hours. While the mass comparator is stabilising thermally, the display may show various values. It is advisable to make sure that ambient temperature fluctuations are minor and slow in the place of using the mass comparator.



Thermal stabilisation also applies to surveillance system and automatic balance levelling.

8.2. Place of installation and use

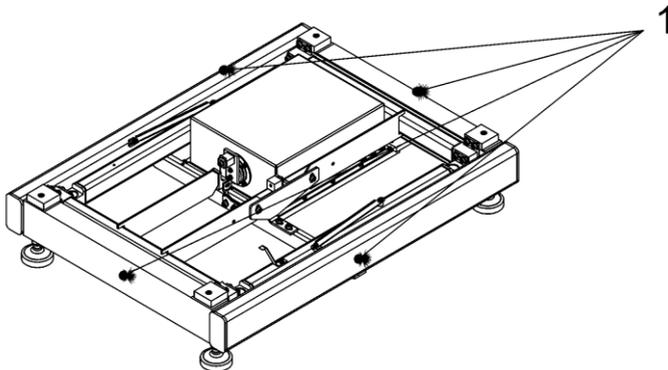
- Store and use the mass comparator in rooms that are free from vibrations and shocks, draughts and dust.
- The room temperature must be $+15^{\circ}\text{C} \div +30^{\circ}\text{C}$ and its fluctuations must not exceed $0,5^{\circ}\text{C}/12\text{h}$.
- Relative humidity must be $40\% \div 60\%$ and its fluctuations must not exceed $2\%/4\text{h}$.
- Position the mass comparator on the wall bracket or stable table that is not exposed to vibrations, away from sources of heat.
- Pay special attention to magnetism of test weights as a strong magnet is an integral part of the mass comparator. Magnetism must be zero.
- It is forbidden to relocate (move to other place or room) the devices that have been installed in the place of use by RADWAG employees. If it is necessary, all operations related to change of place of use must be supervised by RADWAG's authorised employees.

8.3. Unpacking

Slash a protective tape. Take the balance out of the factory box. Take out all elements from the accessory box. All actions must be taken with care and gently in order not to damage the mass comparator mechanism.

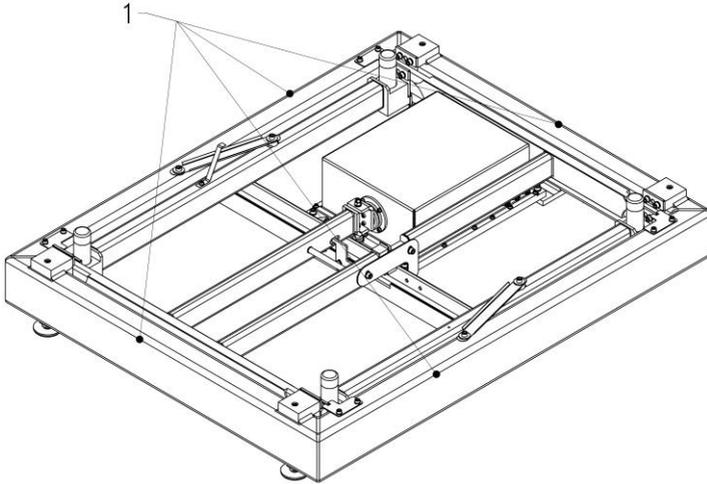
8.3.1. HRP 150.1, HRP 200, HRP 500 comparators

Remove the platform from the shipping box by holding the „EXTERNAL FRAME” only.



8.3.2. HRP 1000, HRP 1000.1 comparators

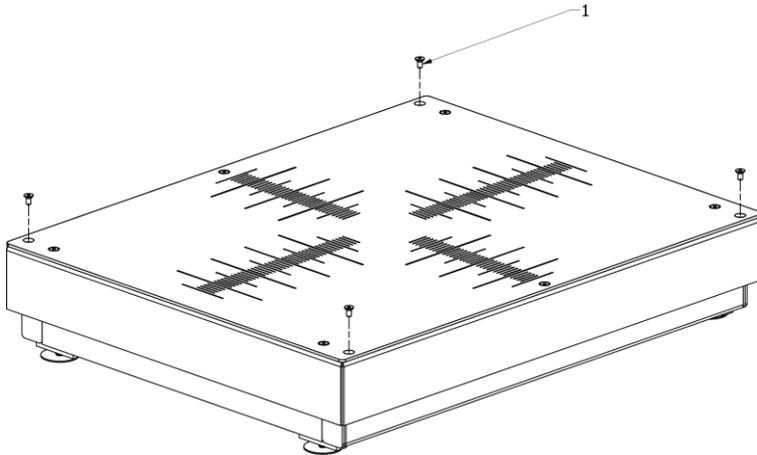
Remove the platform from the shipping box by holding the „EXTERNAL FRAME” only.



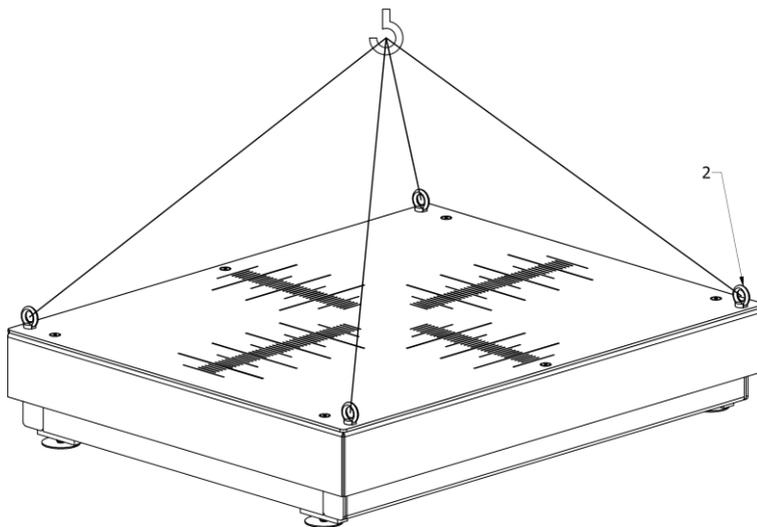
8.3.3. HRP 2000, HRP 2000.1 comparators

Remove the platform from the shipping box using a hoist. In so doing:

- Unscrew 4 screws shown in the figure below



- Screw 4 eyebolts (2) in and using cables and hoist remove the platform and position it in the place of use on an even and hard surface, away from sources of heat.



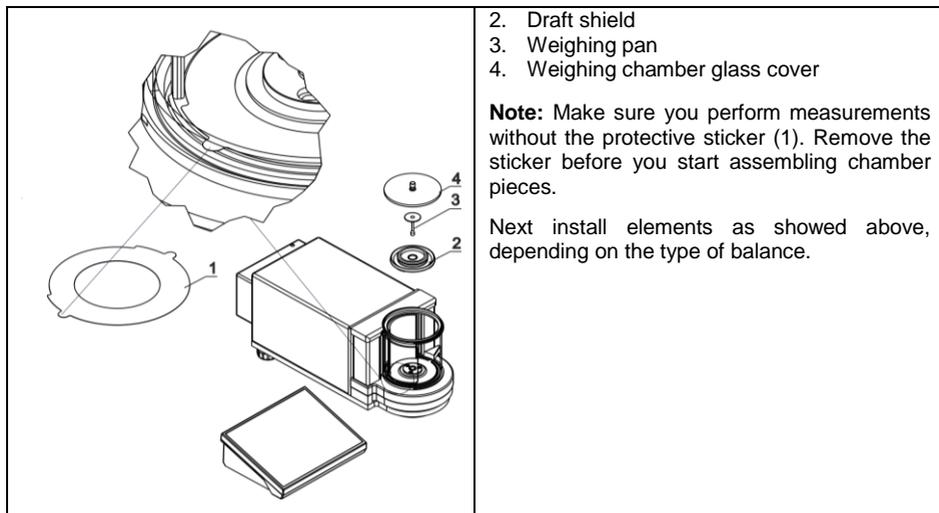
- Unscrew eyebolts once the unit has been positioned in the place of use.

8.4. List of standard delivery items

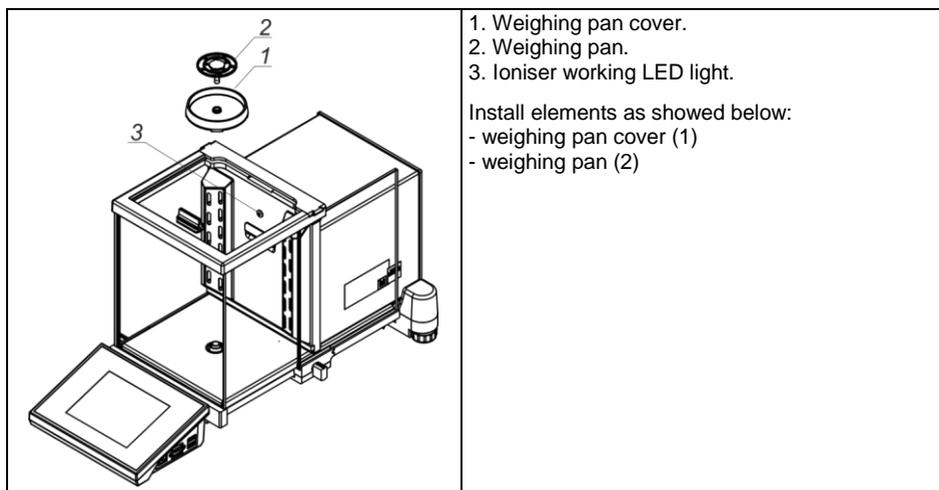
Element	Type of balance				
	XA.KO UYA.KO	PM.KB	HRP.KO HRP.KB	WAY.KO	APP.KO
Mass comparator	✓	✓	✓	✓	✓
Weighing meter	✓	✓	✓	✓	✓
Weighing pan	✓	✓	✓	✓	✓
Power adapter	✓	✓	✓	✓	✓
Weighing pan cover	✓				
Anti-draft chamber				✓	✓
Weighing chamber cover (UYA)	✓				
Centring ring (XA)	✓				
Masking plate				✓	
Extra weights for weighing pan				✓	
Draft shield	✓			✓	

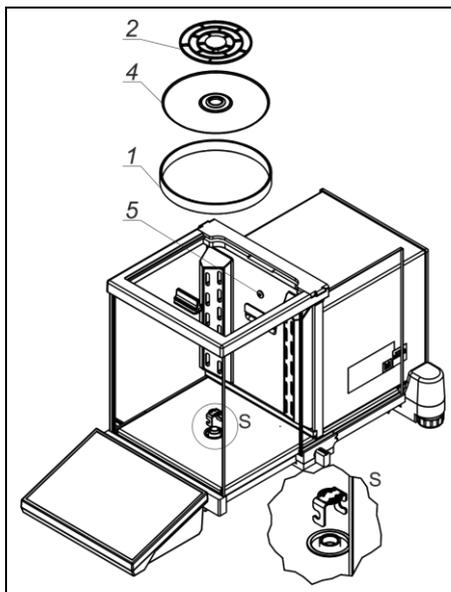
8.5. Installation

8.5.1. UYA.KO-series balances



8.5.2. XA.KO-series balances





1. Weighing pan cover.
2. Weighing pan.
3. Centring ring.
4. Centring ring.
5. Ioniser working LED light.

Remove the shipping protection – gently press the protection and rotate it as showed by the <OPEN> arrow. Then remove the protective element. Keep the protection to make sure you can secure the balance in case of potential shipping.

Next install the elements as follows:

- centring ring (4) – embossing facing upwards
- weighing pan cover (3) or (1)
- weighing pan (2)

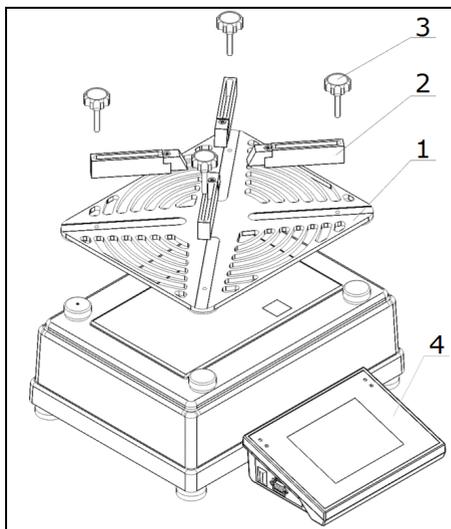
In the pipette calibration balance, remove the weighing pan cover and weighing pan and install the following:

- pipette calibration chamber
- weighing pan and other components inside the chamber (see description further in the manual).



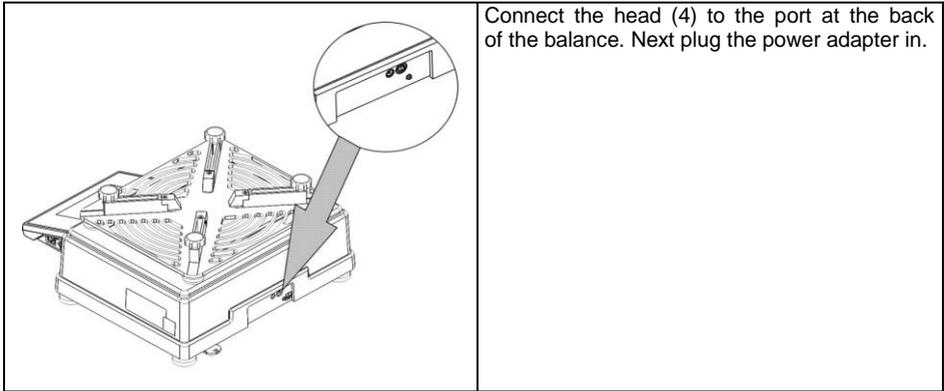
While connecting the measuring head to the balance, pay special attention to proper placement of the plug in the socket and firm positioning in the socket by carefully rotating the nut.

8.5.3. PM.KB-series balances



1. Weighing pan.
2. Handles.
3. Handle screws.
4. Weighing meter.

After positioning the comparator in the place of use, install the weighing pan (1). Next attach 4 handles (2) and screw them (3) to the weighing pan.



Connect the head (4) to the port at the back of the balance. Next plug the power adapter in.

8.5.4. WAY.KO-series balances

Step 1

1. Unscrew 4 M4 screws and gently remove the housing (2).
2. Unscrew 4 M4 screws (3) and carefully remove the weighing pan cover (4).
3. Unscrew 6 M3 screws (5) and carefully remove the mechanism cover (6).
4. Unscrew 4 M3 screws (7).
5. Pull out the ballast lifting mechanism cover (9).
6. Remove sponges (12) located between ballasts.

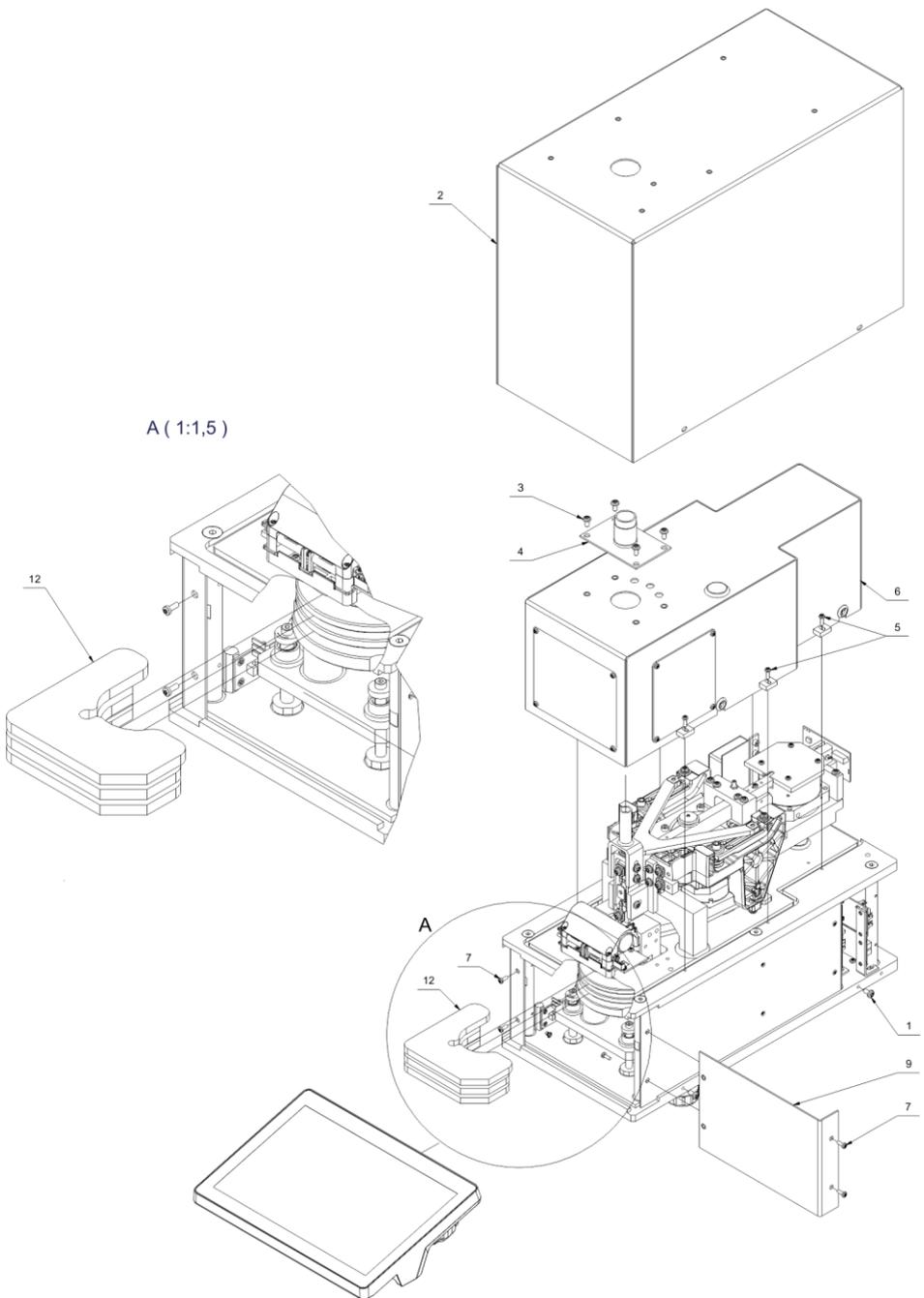


Fig. Step 1

Step 2

1. Unscrew 2 M3 screws (16) and detach them together with washers (17).
2. Unscrew 4 M4 screws (18) and detach them together with washers (19) and locks (20).
3. Check the ballast application mechanism (21).
4. Position the ballast lifting mechanism at the maximum value. The platform (22) in the highest position.
5. Using a M4x10 screw or M3x10 screw (24), screw the weighing pan (25) to the shank (26).
6. Attach and screw the mechanism cover (6) in.
7. Attach and screw the weighing pan cover (4) in.
8. Attach and screw the housing (2) in.

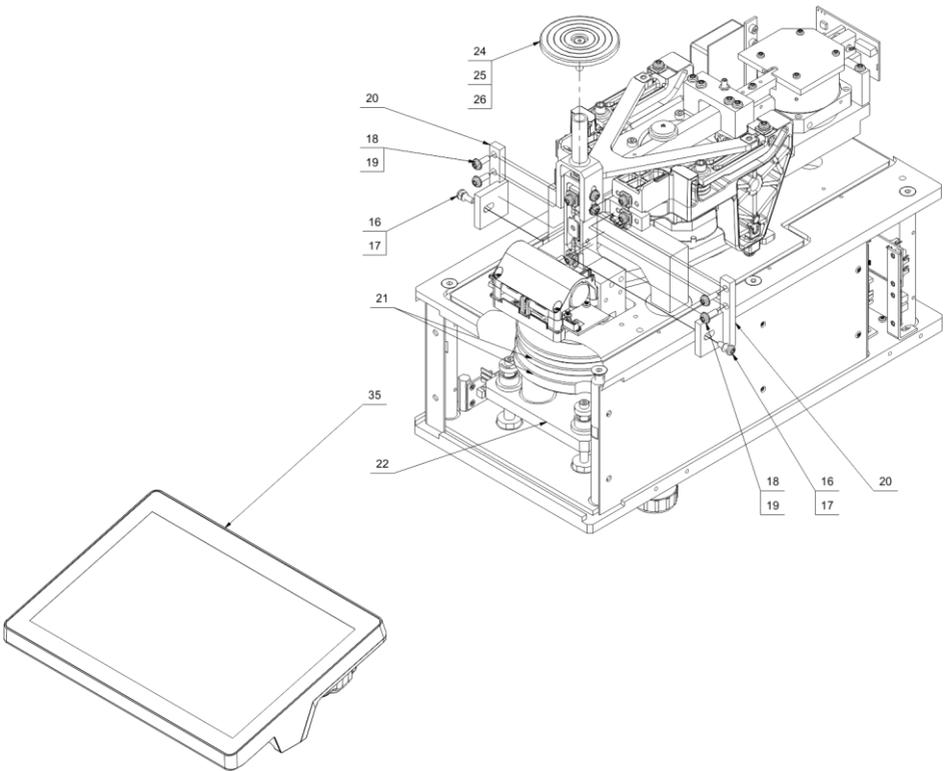


Fig. Step 2

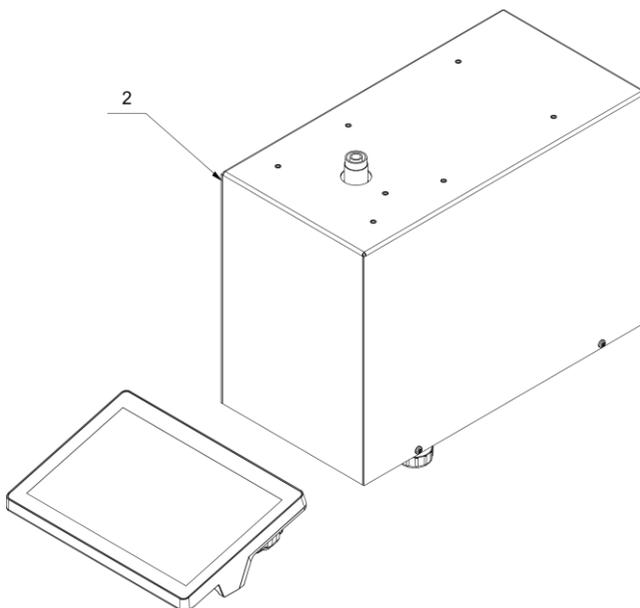


Fig. Step 2

Step 3

1. Using 6 M3x16 bolts (26), screw the weighing chamber (27) to the housing (2) ¹⁾.
2. Put the masking plate (28) inside the weighing chamber (27).
3. Using M3x6 bolts (29), screw the masking plate (28) to the housing (2) ²⁾.
4. Attach the draft shield (30) to the weighing pan cover (4).
5. Attach the weighing pan shield (31) to the draft shield (30).
6. Install the weighing pan unit with a mandrel (24) (25) (26).
7. If necessary, load the weighing pan (32).
8. Insert the thermo-hygro-barometer (THB) (33) into the handle (34) and connect to the weighing meter (37) ^{1,3)}.
9. Insert the thermo-hygro-barometer (THB)(33) into the handle (34) and position on the housing (2), connect to the weighing meter (35) ^{2,3)}.
10. Connect the weighing meter (35) and 12-V power adapter to the comparator.
11. Put the anti-draft cabinet onto the comparator (36).

1) – Not applicable to WAY 5.5Y.KO.

2) – Applicably only to WAY 5.5Y.KO.

3) – To be done if the thermo-hygro-barometer has been purchased.

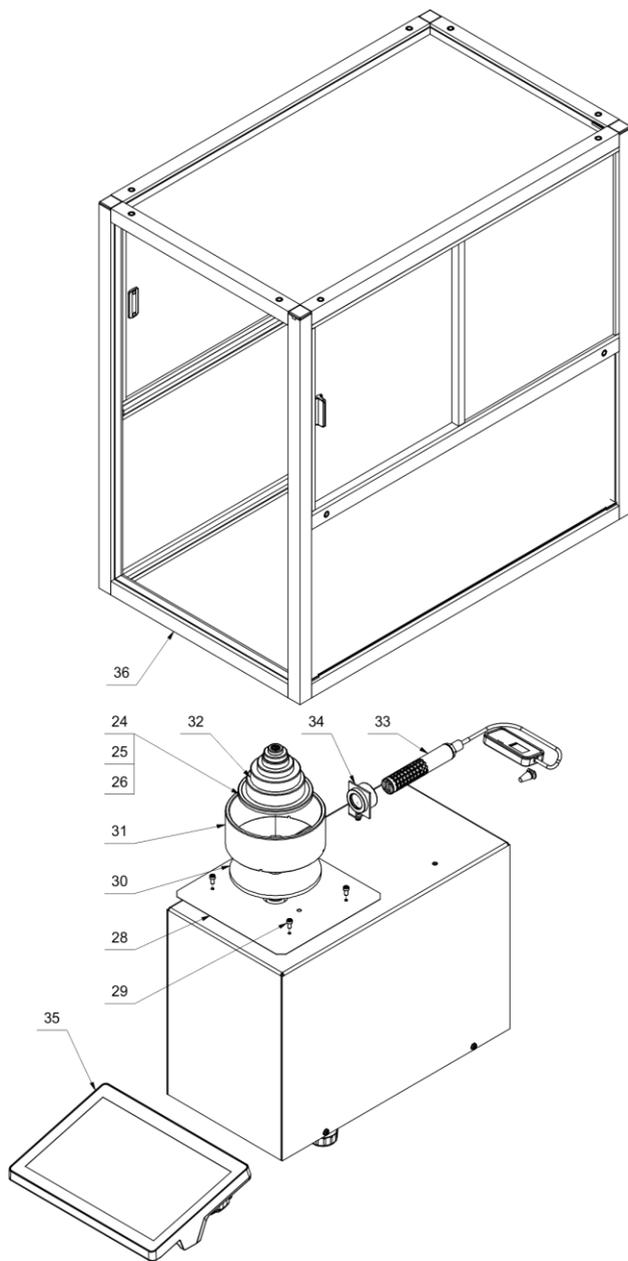


Fig. Step 3
WAY 5.5Y.KO

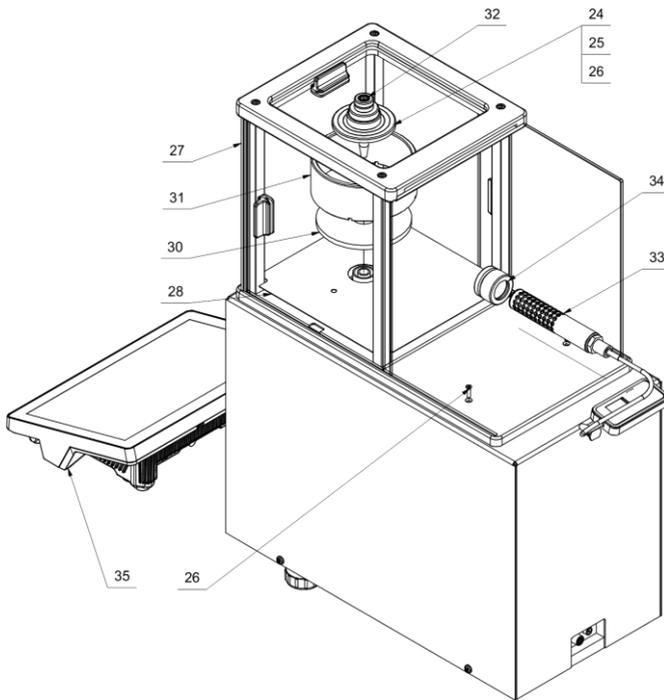


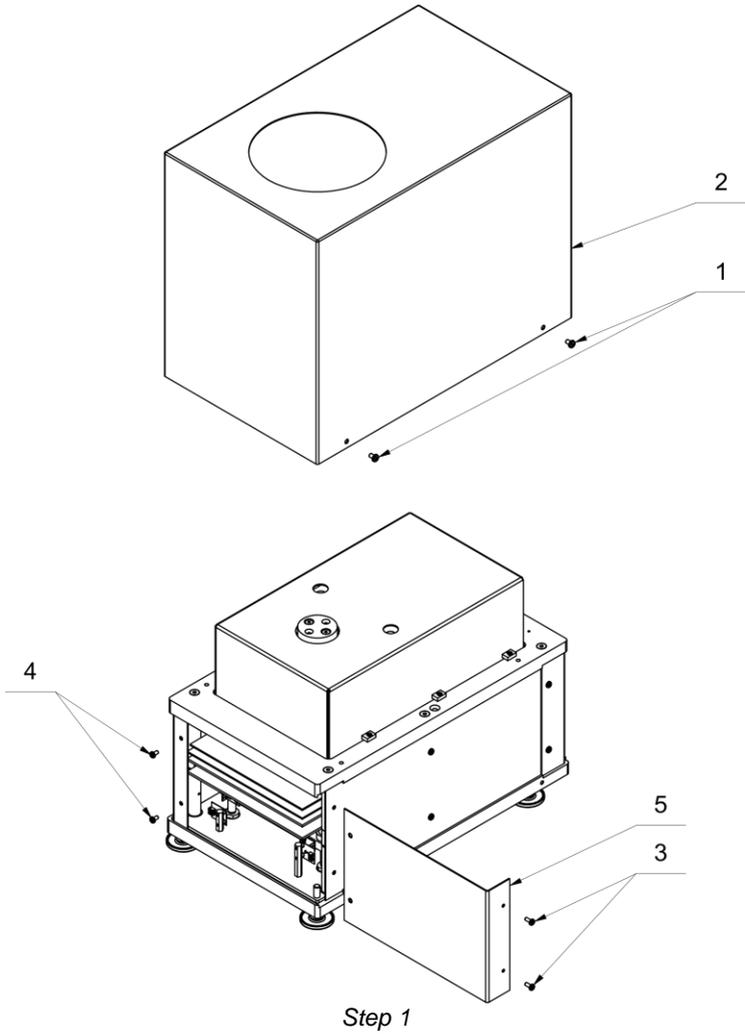
Fig. Step 3

WAY 100.5Y.KO, WAY 200.5Y.KO, WAY 500.5Y.KO, WAY 1.5Y.KO, WAY 2.5Y.KO

8.5.5. APP 10.KO-series balances

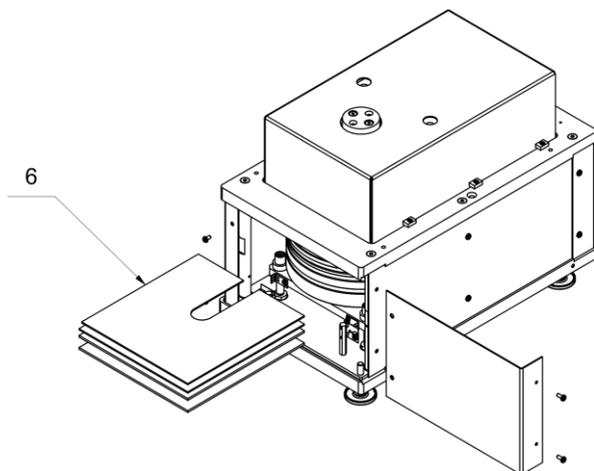
Step 1

1. Unscrew 4 M5 bolts (1) and carefully remove the housing (2).
2. Unscrew 2 M4 bolts (3) and 2 M4 bolts (4) and pull the cover (5) out.

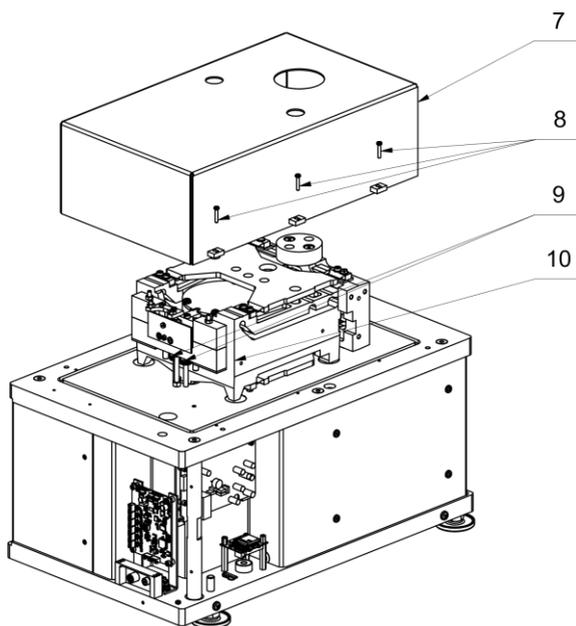


Step 2

1. Remove the ballast load spacers.

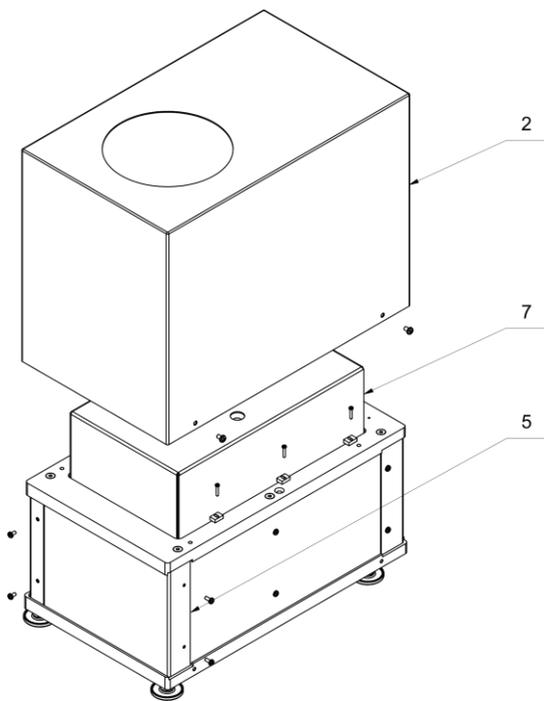


2. Unscrew 6 M3 bolts (8) and remove the mechanism cover (7).
3. Unscrew 2 knobs (9) in order to unlock the comparator mechanism (18).

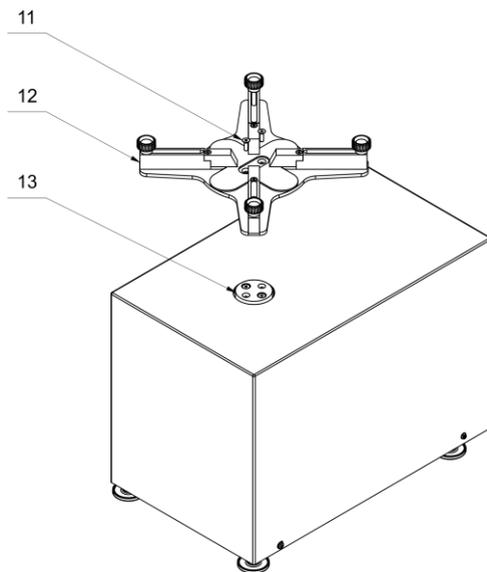


Step 3

1. Insert and screw the cover (5) in.
2. Screw the mechanism cover (7) in.
3. Screw the housing (2) in.

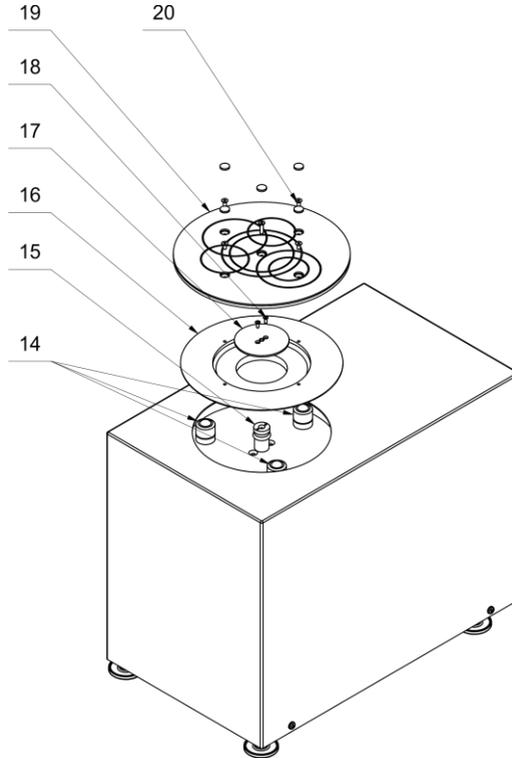


4. Screw the weighing pan unit (12) to the ring (13) using M5 screws (11) ¹⁾.



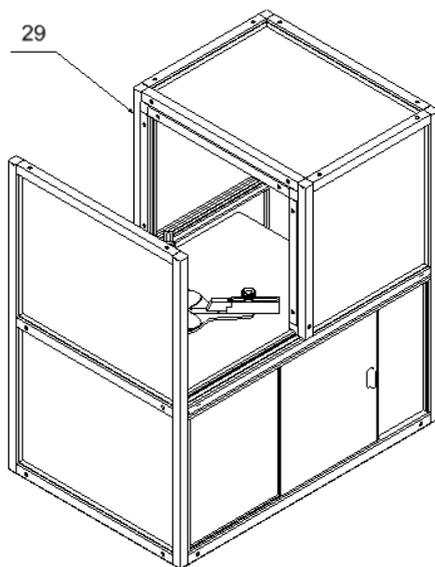
1) – Not applicable to APP 10.5Y.KO

5. Put the track (15) onto rolling pins (14). Next screw the lock (17) to the bumper (15) using M3 screws (18) and screw the weighing pan (19) to the track (15) using M4 screws (20) (20) ²⁾.



2) – Applicable only to APP 10.5Y.KO* in a special design with a self-centring weighing pan.

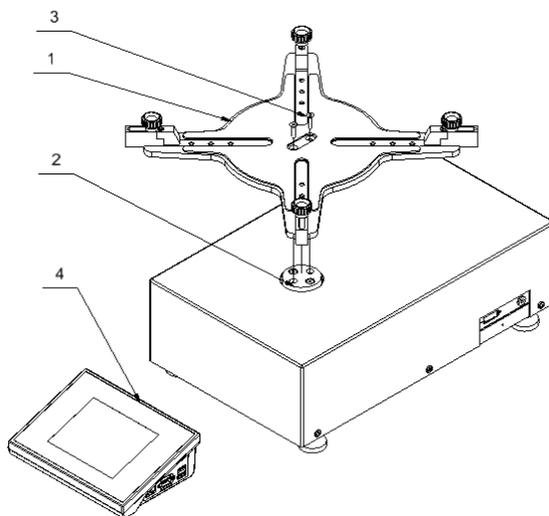
6. Connect the terminal and power adapter.
7. Attach the anti-draft cabinet (29).



8.5.6. APP 30.KO, APP 64.KO-series balances

Step 1 ¹⁾

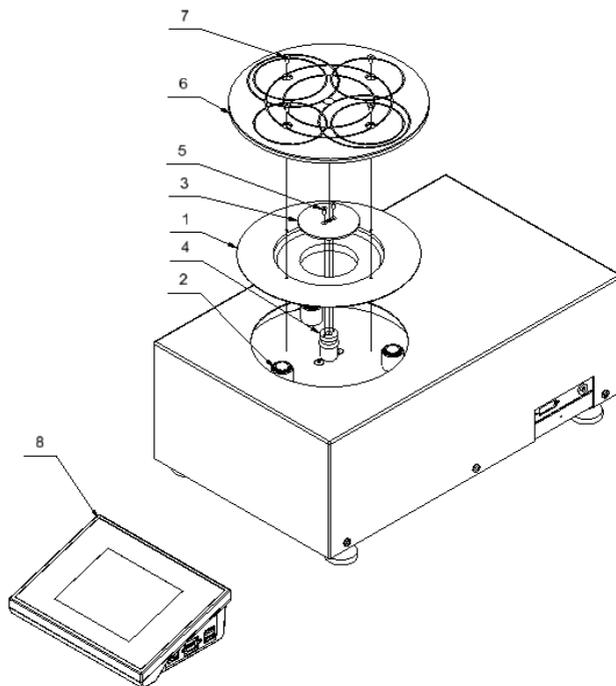
1. Screw the weighing pan unit (1) to the ring (2) using 2 M5 screws (3).
2. Connect the terminal (4) to the comparator.
3. Supply power.



1) – Not applicable to balances in a special design with a self-centring weighing pan.

Step 2 ²⁾

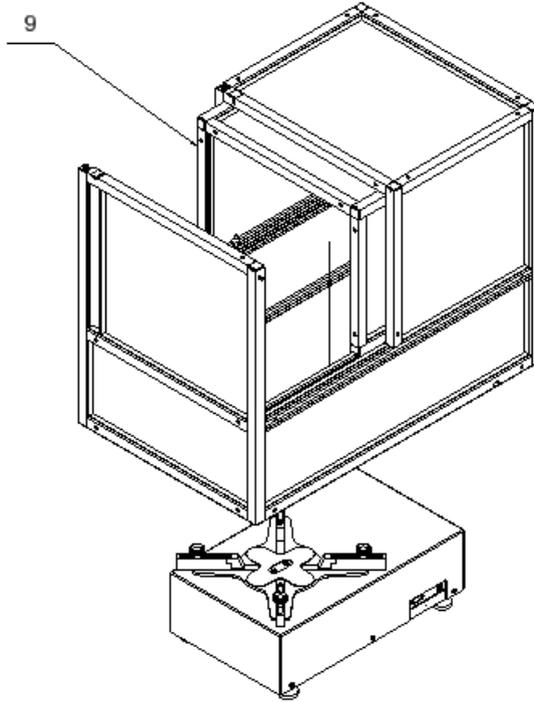
1. Put the track (1) onto rolling pins (2). Next screw the lock (3) to the bumper (4) using M3 screws (5) and screw the weighing pan (6) to the track (1) using M4 screws (7).
2. Connect the terminal (8) to the comparator.
3. Supply power.



2) – Applicable only to balances in a special design with a self-centring weighing pan.

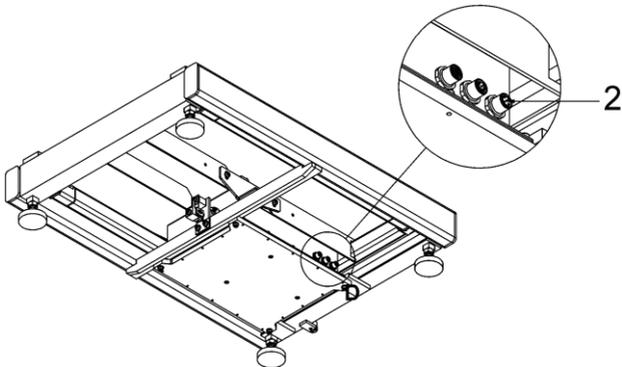
Step 3

Attach the draft shield (9).

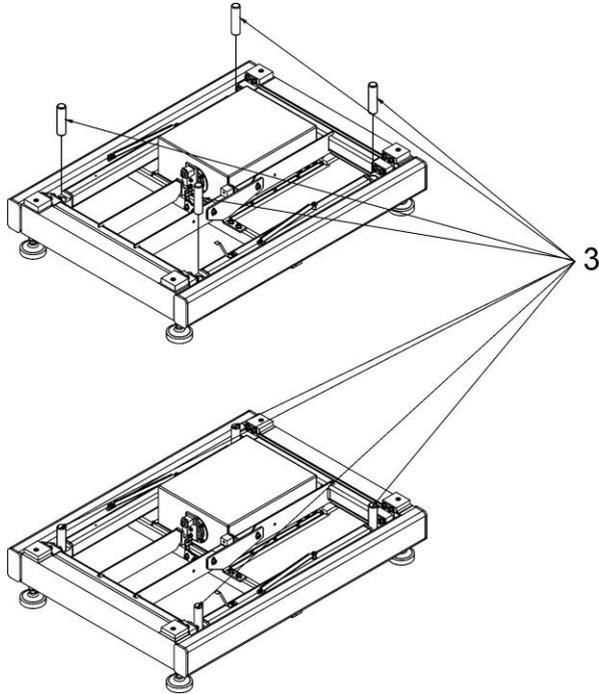


8.5.7. HRP 150.1, HRP 200, HRP 500-series balances

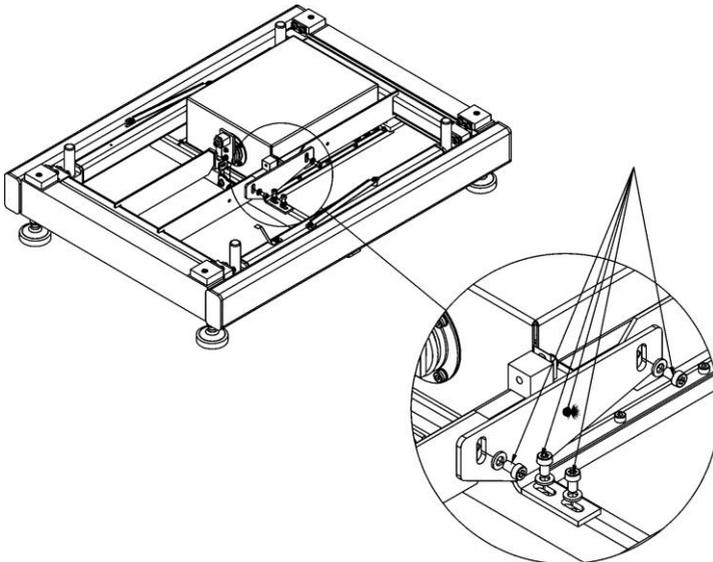
1. Connect the terminal or computer to the weighing module.



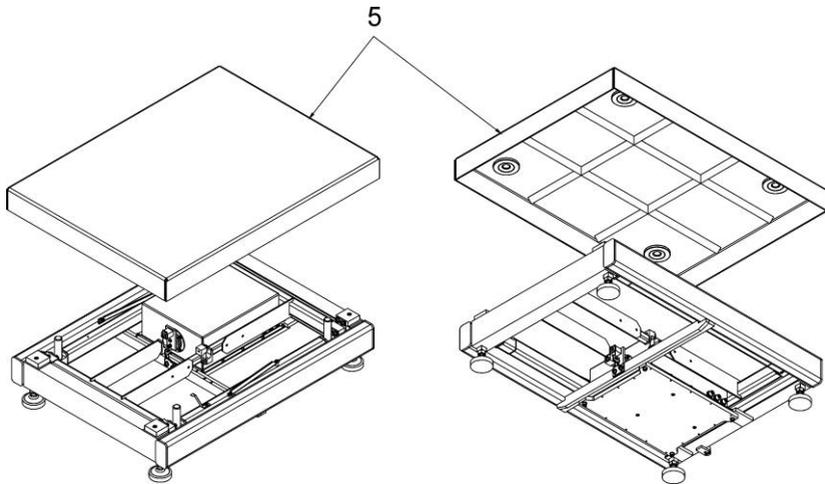
2. Insert weighing pan pins into lever seats.



3. Disassemble the shipping lock and screws and washers that fix the lock.



4. Attach the weighing pan to the pins.



5. Position the platform in the place of use on an even and hard surface, away from sources of heat.
6. Level the platform by rotating the adjustment legs. Levelling is correct when the air bubble is in the central position in the level.



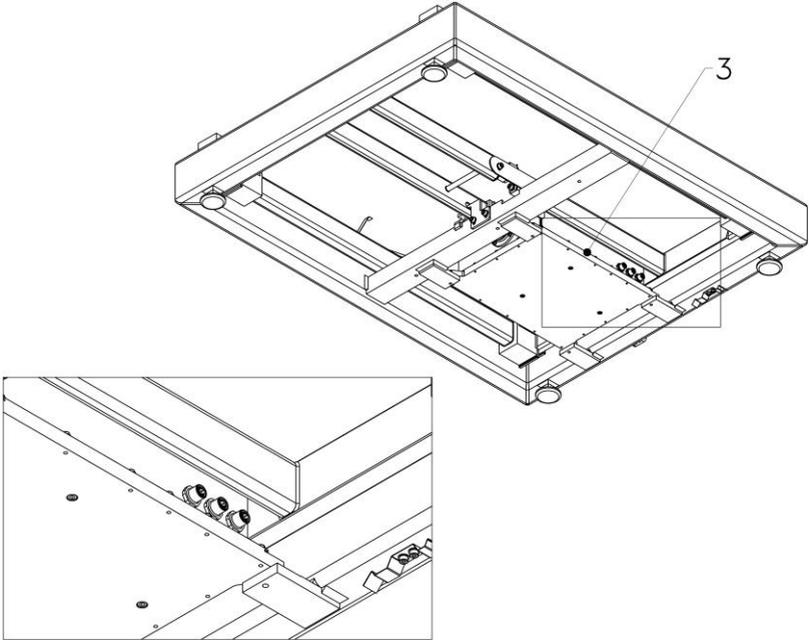
level - OK



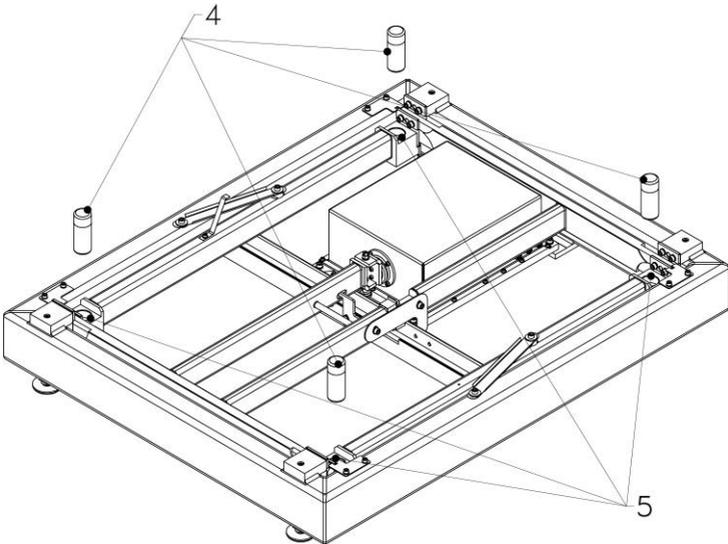
level incorrect

8.5.8. HRP 1000, HRP 1000.1-series balances

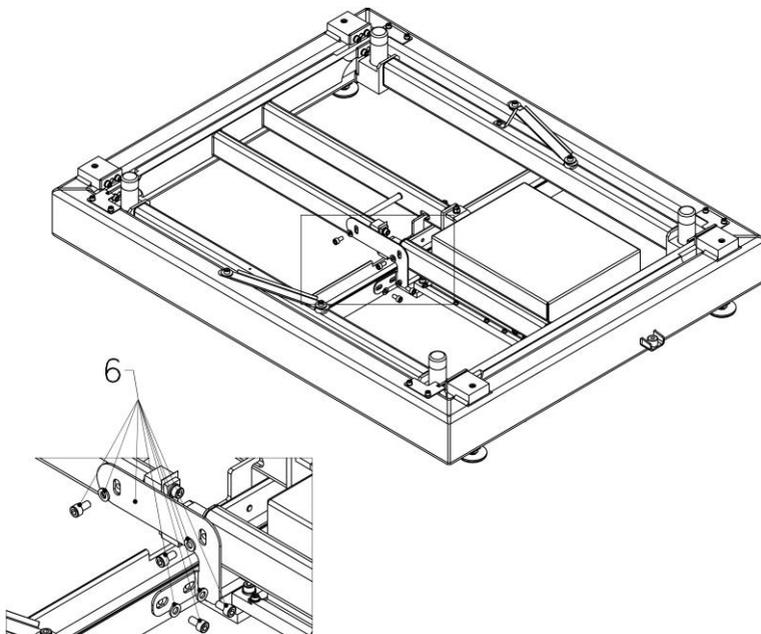
1. Connect the terminal or computer to the weighing module.



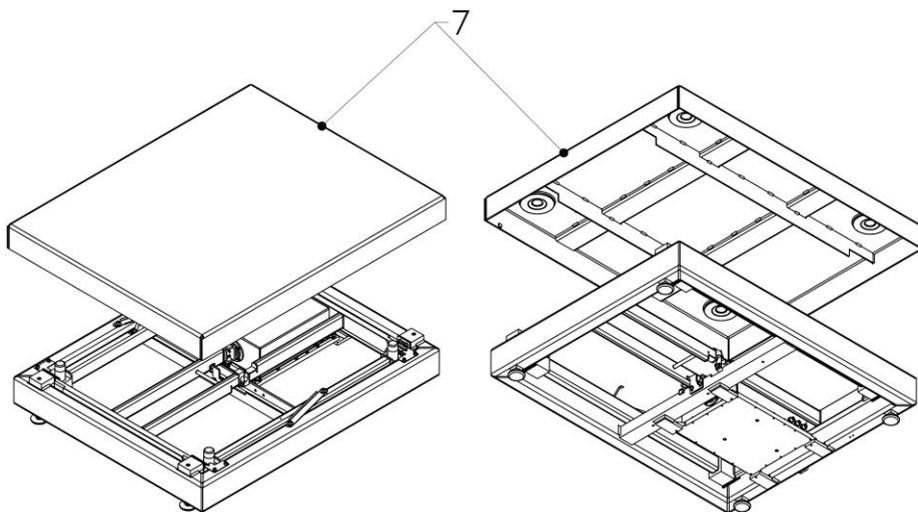
2. Insert weighing pan pins (4) into the lever seats (5).



3. Disassemble the shipping lock and screws and lock washers (6).

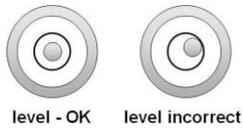


4. Attach the weighing pan (7) to pins.



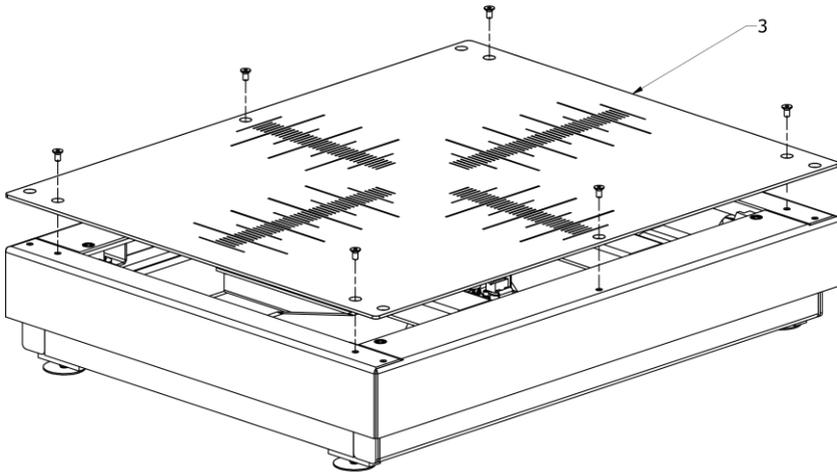
5. Position the platform in the place of use on an even and hard surface, away from sources of heat.

- Level the platform by turning the adjustment legs. Levelling is correct if the air bubble is in the central part of the level.

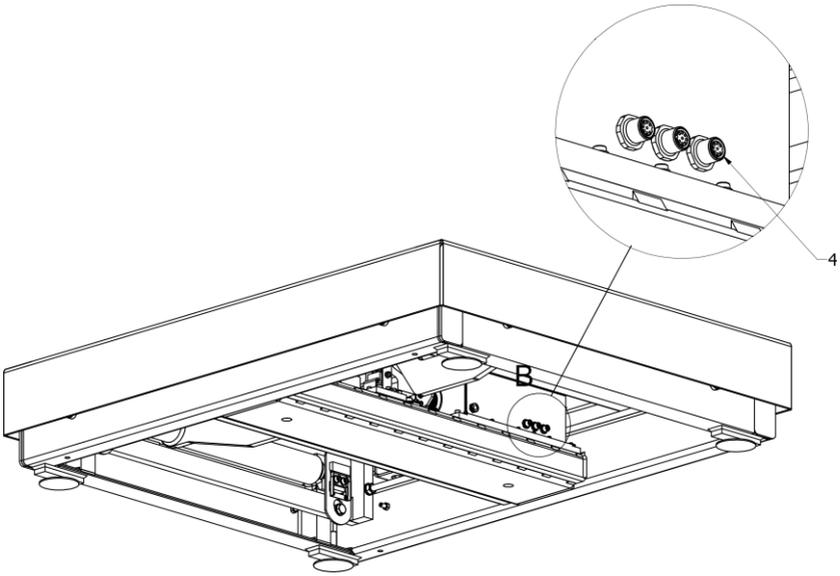


8.5.9. HRP 2000, HRP 2000.1-series balances

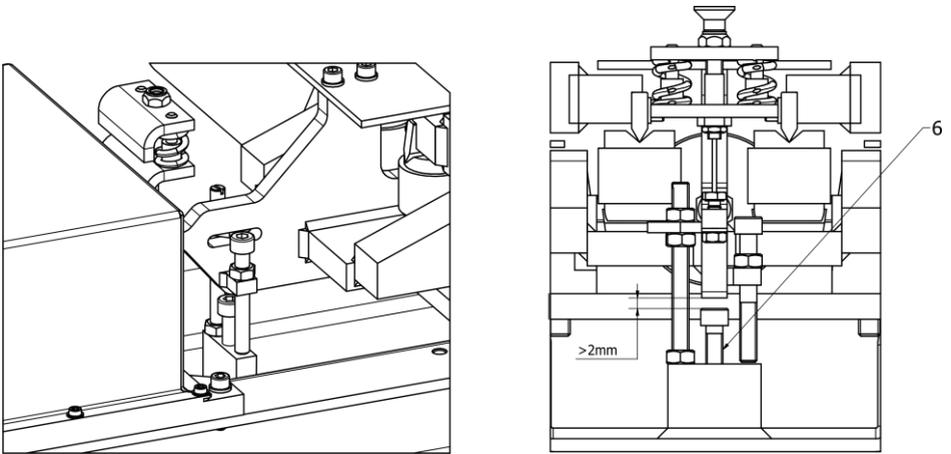
- Disassemble the weighing pan plate (3).



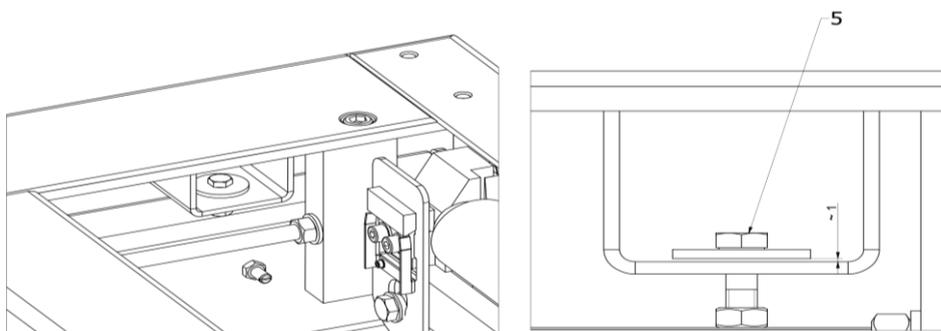
- Connect the terminal or computer to the weighing module.



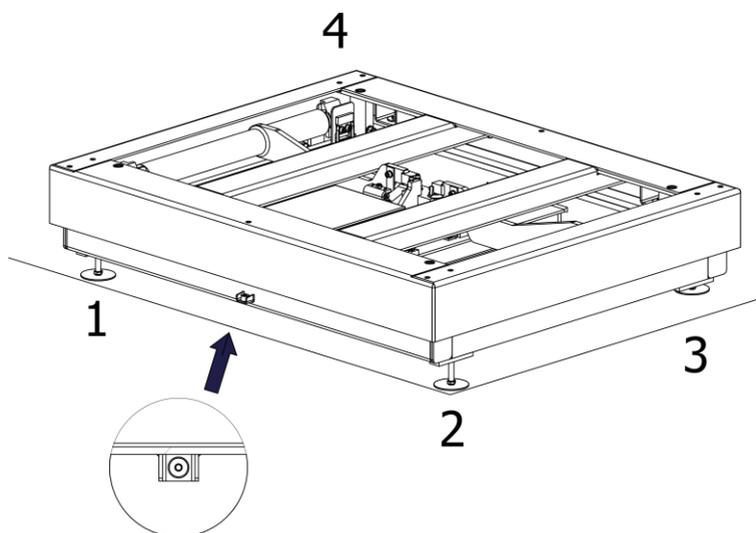
3. Screw the screw (6) in so that you form a clearance of at least 2 mm between the screw and lever.



4. Position bumpers. Loosen nuts in all four corners, unscrew screws by leaving a slit of around 1 mm and tighten the nuts up.



5. Position the platform in the place of use on an even and hard surface, away from sources of heat (do not install the weighing pan).



6. Screw the leg no. 3 in so that leg no. 1, 2 and 4 form a plane that the balance frame can rest on.
7. Level the platform by turning the adjustment legs no. 1, 2 and 4 so that the air bubble comes to the centre of the level.



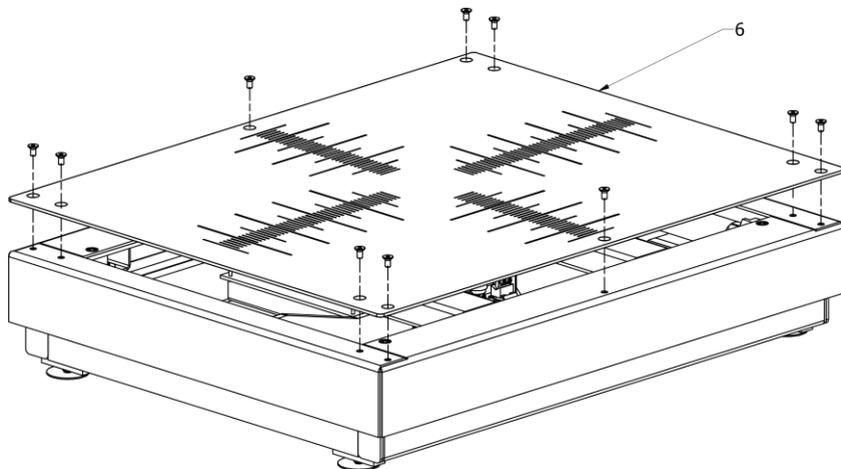
level - OK



level incorrect

8. Unscrew the leg no. 3 so that it rests on the floor and does not tighten the platform frame and so that you do not change the platform level (air bubble in the level remains in the same position).

9. Install the weighing pan (3).



8.6. Power supply

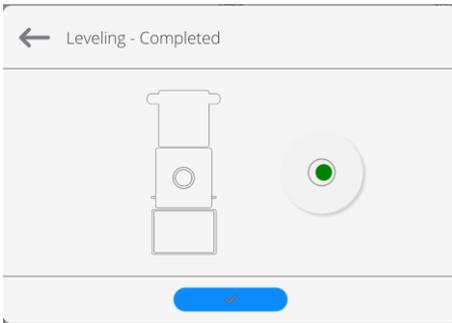
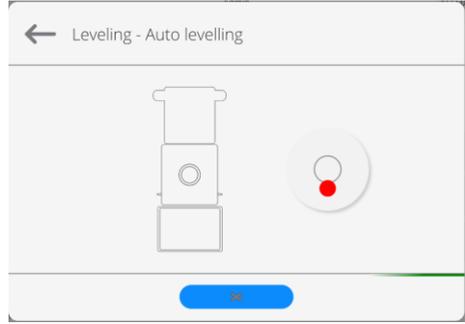
You can supply power to the device only with the use of the original power adapter supplied. The rated voltage of the power adapter (showed in the dedicated rating plate) must comply with the mains rated voltage.



The balance is supplied with two ports intended for the mains power adapter. One port is located in the readout head and the other at the back of the weighing mechanism housing. The balance may be powered both from the head and mechanism but you must not do it from both sides at the same time, using two power adapters. Otherwise you may damage the balance and power adapters.

8.7. Activation of balance

- Supply power to the balance.
- The operating system and RADWAG software loading procedure will be initiated shortly. Upon startup, a signal light and LED lights located at the lower frontal part of the weighing meter will be flashing.
- Once the startup procedure has ended, the program home screen will be displayed and the levelling procedure will be initiated in the balances with automatic legs. During levelling, you will hear leg motors working and see messages displayed.



- The levelling range is limited. In case of excessive inclination of the top surface on which the balance has been positioned and therefore the end of levelling range, the procedure is instantly aborted and the display shows the following message: **<Balance out of levelling range>**. If this is the case, at first level the top surface and then repeat the levelling procedure.
- After the end of the startup procedure, the home screen will instantly show up in other balances.

	<p><i>When the balance activates, the operator is unlogged. The logging procedure has been described in „5Y-series mass comparator software manual“.</i></p>
	<p><i>Activate the balance without any loads – with an empty weighing pan.</i></p>
	<p><i>If the program crashes during operation, execute the so-called hard reset. To do so, press the head key and hold it for about 5 seconds. The program will restart and the device will reactivate.</i></p>

8.8. Deactivation of balance

- Expand the top menu of the balance.
- Press <Off> key.
- Select <Off> key and the following message will be displayed:



- Once the program has been shut down, a light will glow constantly in the top right corner of the screen.
- Only then can you disconnect the power adapter plug from the readout head socket.

8.9. Connection of additional equipment

Only the additional equipment that has been recommended by the mass comparator manufacturer may be connected to the device. Before you connect or change the additional equipment (printer, personal computer, USB keyboard or additional display unit), unplug the comparator. Once you have reconnected the devices, supply power to the comparator.

8.10. Balances with a built-in ioniser

The safety tips provide important information on security. Ignoring them may lead to bodily injuries, damage or malfunctioning of the device. Safety tips are marked with the following slogans and warning symbols.

	It is forbidden to touch the source of ions as it may result in electric shock (during operation) or bodily injuries (these elements are very sharp).
	In case you detect any irregular operation of the ioniser (smoke, burning smell or excessively hot ioniser), disconnect the device from the source of voltage immediately. Follow the same procedure in case water or other foreign bodies enter the interior of the ioniser.

	<p>In view of high voltage in the device, remain careful while using the device.</p>
	<p>It is forbidden to disassemble, modify or misuse the device.</p>

The antistatic ioniser that the **XA 5Y.M.A** microscale and **XA 5Y.A** balance are equipped with restores the electrical charge balance in the weighing chamber after a sample to be weighed has been placed inside. The influence of static electricity gets stronger together with decreased relative humidity in the room and the smaller the readout unit of the balance.

The role of the ioniser is to neutralise uncompensated electrical charge collected on the weighed item. This impact manifests as an amplified repeatability error, and often as an amplified indication error.

The measuring errors arising from harmful influence of electrostatics often reach the value of thousands of readout units and in special cases much more. The issue applies to non-conductive samples. These are most commonly glass flasks, paper filters, plastics, etc.

The antistatic ioniser that is implemented in the balance thanks to the modern technology compensates both the surplus of positive and negative ions. It activates automatically when the door opens, and deactivates when it closes.

Besides you can control the operation of the ioniser from the balance display unit, using quick-access keys:

	<p>Ioniser operation status shift key.</p>
	<p>Ioniser operation start key.</p>
	<p>Ioniser operation end key.</p>

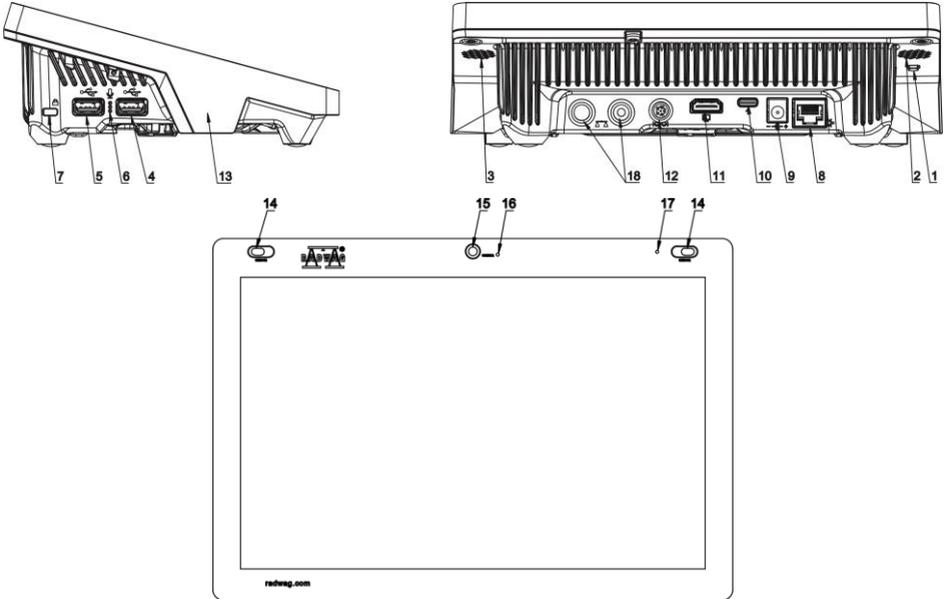
When the ioniser is operating, a blue LED light is on. The light is situated at the rear wall of the weighing chamber.

9. BALANCE DESIGN

9.1. Dimensions

For dimensions of specific balances, please visit the following website:
www.radwag.com.

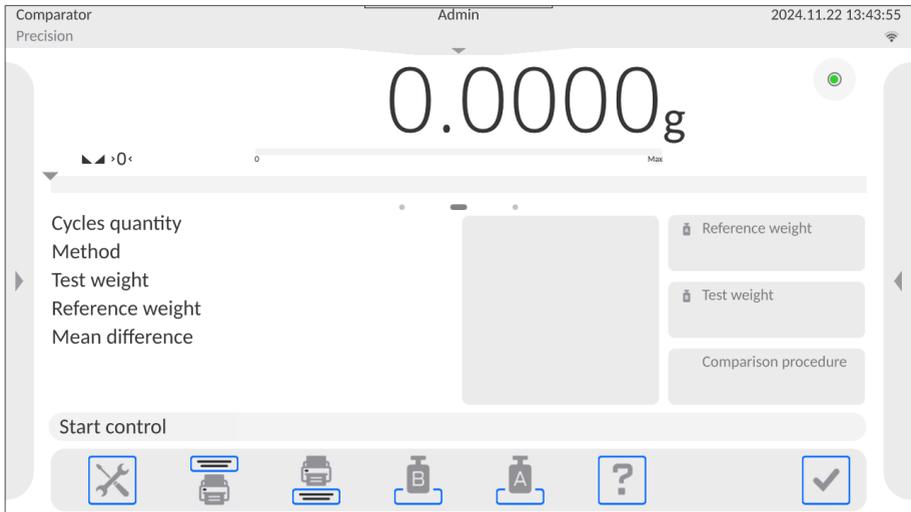
9.2. Description of ports



1	Hard restart or meter ON/OFF key.
2	Left loudspeaker.
3	Right loudspeaker.
4	USB-A port.
5	USB-A port.
6	Microphone.
7	Kensington Lock.
8	Ethernet port.
9	Power port.
10	Port port – USB-C.
11	HDMI port.
12	Media box port.
13	RFID detector.

14	Reflective sensors.
15	Camera.
16	Camera light.
17	Signal light.
18	Weighing platform cable glands.

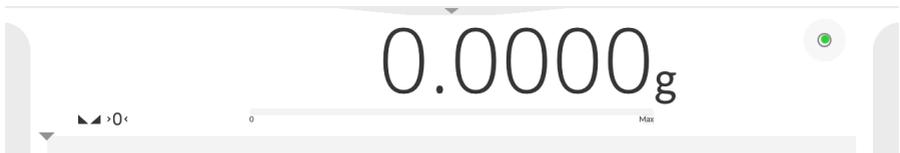
10. HOME SCREEN



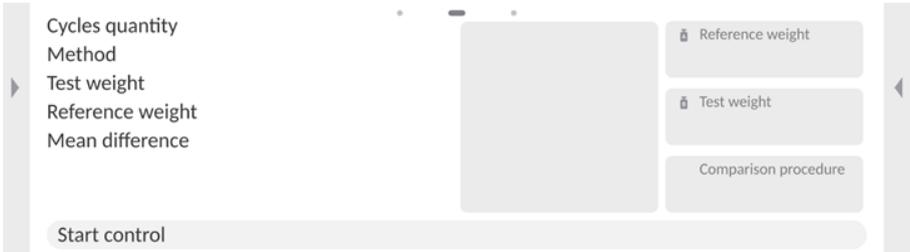
Some screen views used in the manual are for reference and do not reflect the real design of the comparator display.

The home screen of the application can be divided into 5 fields:

- The top section of the screen is dedicated to information on currently used working mode, logged operator, date, time, active connection to PC.
- Below is a weighing result and levelling status box.



- This field contains extra information on currently performed operations.



The information in this field is freely programmable. The method of defining it can be accessed in the „5Y-series mass comparator software manual“.

- Below are on-screen functional keys:



The operator is allowed to define on-screen functional keys. The method of defining them can be accessed in the „5Y-series mass comparator software manual“.

- Fixed functional keys are available at the bottom of the screen:



11. NAVIGATION IN THE MENU

It is very intuitive and easy to navigate in the weighing program menu. Thanks to the display with a touch panel, the operation of the program is user-friendly. Press the on-screen key or field in the screen to activate the assigned operation or function.

11.1. Main menu key functions

	Enter the menu of the balance. Go to home screen instantly.
	Zero the balance.
	Tare the balance.
	Send the result to printer or computer.
	Confirm the change.
	Return to the previous window and do not change the parameter.
	Return to the previous menu level.
	Select variables for the printout template from the list.
	Import the printout template from the pendrive memory stick.
	Export the printout template into the pendrive memory stick.
	Unselect all.
	Select all.
	Restore default settings.

11.2. Return to weighing function

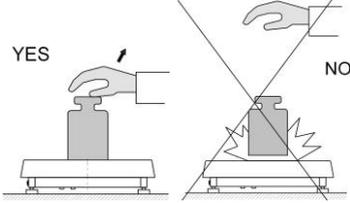
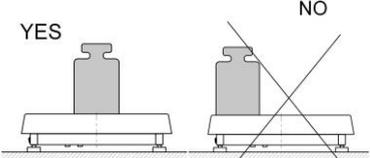
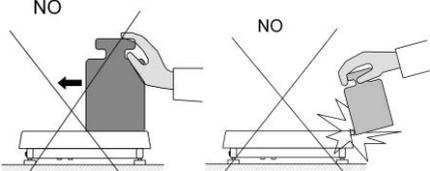
Any changes that have been introduced into the memory are automatically saved in the menu after returning to the home screen.

Procedure:

- Press  key a few times to return to the home screen.
- Press  field in the top bar to return to the home screen instantly.

12. WEIGHING

Put the load to be weighed on the weighing pan. When you can see  marker, read the result. To assure long life and correct measurements, please do as follows:

<p>Load the weighing pan in a calm way and avoid impacts.</p>	
<p>Put loads in the centre of the weighing pan.</p>	
<p>Avoid side loading of the device, particularly side impacts.</p>	

13. SERVICING AND REPAIRS

	<p><i>If you can notice any damage, please unplug the device immediately. The damaged element must be replaced or repaired by RADWAG service technicians without undue delay.</i></p>
---	--

In case of any irregular operation of the balance, please contact the manufacturer's service centre in your area.

In case of a defect, you must deliver the defective device to the manufacturer's service centre or, if impossible, report the defect to the service technician to arrange the scope and method of repair.

	<p><i>The operator is not allowed to perform any repairs. Any unauthorised interference (modification, repairs, etc.) will invalidate manufacturer's certificates, declarations and guarantees.</i></p>
---	--

14. DISPOSAL

The balances must be recycled and must not be considered as household waste. The product must be disposed of when it is no longer used and in accordance with applicable rules of law.



15. TECHNICAL PARAMETERS

To access technical parameters for particular balances, please visit the following website: www.radwag.com.

16. 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	

