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Installation instructions for drive-through scales

KERN KFD V20 / V40

Version 1.0
10/2024
E

GB

KERN KFD V20 / V40

Version 1.0 10/2024

Installation instructions for drive-through scales

Table of contents

1 General information

These installation instructions contain all the information required for the installation and commissioning of the following weighing platforms:

KERN KFD 600V20M

KERN KFD 600V20LM

KERN KFD 1500V20M

KERN KFD 1500V20LM

KERN KFD 600V40M

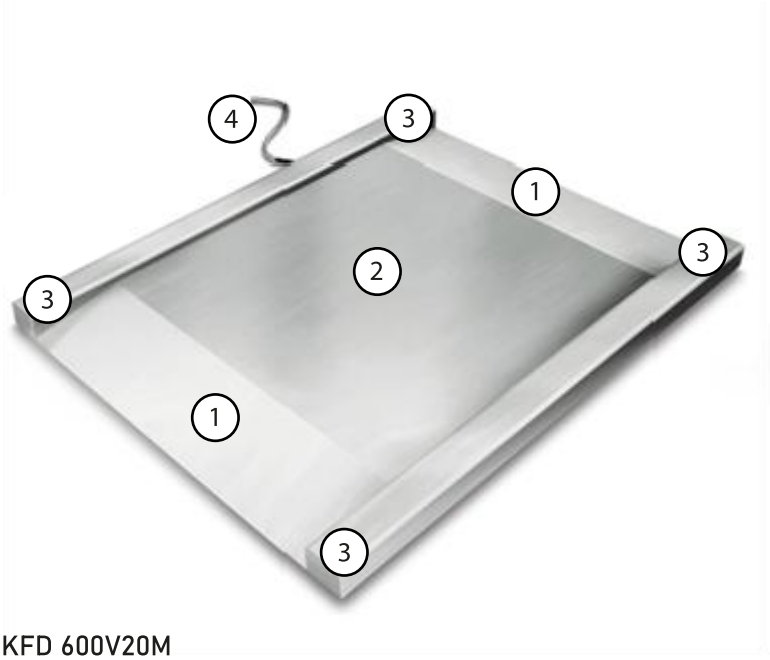
KERN KFD 1500V40M

2 Technical data

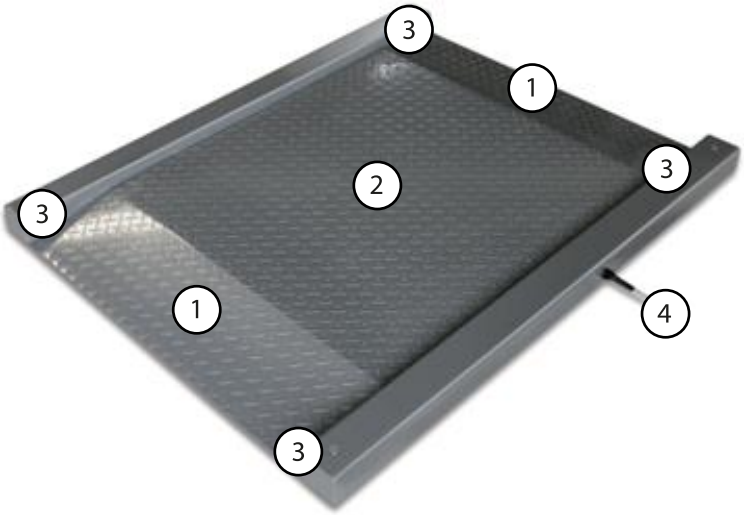
Model	Max. weighing range kg	Readability (d) kg	Calibrati-on values (e) kg	Min. load min kg	Cable length approx. m	Net weight approx. kg
Steel, powder-coated						
KFD 600V20M	600	0,2	0,2	4	5	125
KFD 600V20LM	600	0,2	0,2	4	5	155
KFD 1500V20M	1500	0,5	0,5	10	5	130
KFD 1500V20LM	1500	0,5	0,5	10	5	165
Stainless steel						
KFD 600V40M	600	0,2	0,2	4	5	130
KFD 1500V40M	1500	0,5	0,5	10	5	130

2.1 Device overview

KFD 600V40M
KFD 1500V40M



KFD 600V20M
KFD 600V20LM
KFD 1500V20M
KFD 1500V20LM



1 Access ramps

2 Weighing bridge

3 Cover screws for leveling

4 Connection cable

3 Basic information (general)

3.1 Documentation

These installation instructions contain all the information for setting up and commissioning the KERN KFD weighing platforms.
In combination with a display unit, hereinafter referred to as a weighing system, the operation and configuration can be found in the instructions for the display unit.

3.2 Intended use

The scales you have purchased are used to determine the weight of items to be weighed. It is intended for use as a "non-automatic scale", i.e. the sample is placed manually, carefully and centrally on the weighing plate. Once a stable weight value has been reached, the weight value can be read off.

3.3 Improper use

Do not leave a permanent load on the weighing platform. This can damage the measuring system
damage.
Avoid shocks and overloading the weighing system above the specified maximum load (Max), minus any existing tare load. This could damage the weighing system.
Never operate in potentially explosive atmospheres. The standard version is not explosion-proof.
The weighing system must not be modified in any way. This can lead to incorrect weighing results, safety defects and destruction of the scale.
The weighing system may only be used in accordance with the specifications described. Deviating areas of use/application must be approved in writing by KERN.

⇨ If the weighing platform is to be used in the EX area, please contact KERN.

3.4 Warranty

Warranty expires with

- Non-compliance with our specifications in the operating instructions
- Use outside the described applications
- Structural changes to the device
- Mechanical damage and damage caused by media, liquids
- Natural wear and tear
- Improper set-up or electrical installation
- Overload of the measuring system

3.5 Test equipment monitoring

As part of quality assurance, the metrological properties of the weighing system and any test weight must be checked at regular intervals. The responsible user must define a suitable interval as well as the type and scope of this check. Information regarding the test equipment monitoring of weighing systems and the test weights required for this is available on the KERN homepage (www.kern-sohn.com). In its accredited DKD calibration laboratory, KERN can calibrate test weights and weighing systems quickly and cost-effectively (traceability to the national standard).

4 Basic safety instructions

4.1 Observe the notes in the operating instructions

Read the operating instructions carefully before installation and commissioning, even if you already have experience with KERN scales.

All language versions include a non-binding translation.

The original German document is binding.

4.2 Staff training

The appliance may only be operated and maintained by trained personnel.
An indicator may only be installed by a specialist with in-depth knowledge of scales.

5 Transportation and storage

5.1 Control on takeover

Please check the packaging immediately upon receipt and the appliance for any visible external damage when unpacking.

5.2 Packaging/return transportation

- ⇨ Keep all parts in the original packaging for any necessary return transportation.
- ⇨ Only the original packaging is to be used for return transportation.
- ⇨ Disconnect all connected cables and loose/movable parts before shipping.
- ⇨ Refit any transportation locks provided.
- ⇨ Secure all parts against slipping and damage.

6 Unpacking, installation and commissioning

6.1 Installation site, place of use

The weighing platforms are designed to achieve reliable weighing results under normal operating conditions.
You can work accurately and quickly if you choose the right location for your weighing system.

Observe the following at the installation site:

- Place the weighing platform on a stable, level surface.
  The surface at the installation site must be able to safely bear the weight of the maximum load of the weighing platform at the support points. At the same time, it should be stable enough to prevent vibrations during weighing operations.
- If possible, there should be no vibrations at the installation site, e.g. from neighboring machines.
- Do not use the weighing platform in potentially explosive atmospheres.
- Avoid extreme heat and temperature fluctuations, e.g. by placing next to the heating or in direct sunlight.
- Protect the weighing platform from direct draughts, e.g. from open windows and doors.
- Only use the weighing platform in a dry environment, protect it from high humidity, vapors and dust.
- Do not expose the appliance to high humidity for long periods of time. Unauthorized condensation (condensation of humidity on the appliance) can occur if a cold appliance is brought into a much warmer environment. In this case, acclimatize the appliance disconnected from the mains for approx. 2 hours at room temperature.
- Avoid vibrations during weighing.
- Avoid static charging of items to be weighed and weighing containers.
- Chemicals (e.g. liquids or gases) that could attack and damage the inside or outside of the scales must be kept away.
- Comply with the IP protection of the device
- Large display deviations (incorrect weighing results) are possible if electromagnetic fields (e.g. from cell phones or radios), static charges or an unstable power supply occur. The location must then be changed or the source of interference removed.

6.2 Unpacking, scope of delivery

CAUTION
Danger for your back!

The weighing system is relatively heavy. Always use an appropriate lifting device to lift it out of the packaging or to transport it to the required installation location

Scope of delivery:

- Weighing bridge
- Load cell feet
- Installation management
- 2 eyebolts

1. Remove outer packaging and packaging material.
2. Remove the covers.
3. Installing eyebolts
4. Lift the weighing platform evenly from the packaging material, see caution note. Secure the weighing platform so that it cannot fall when it is lifted.
5. Ensure that the package contents are complete.

6.3 Setting up, leveling

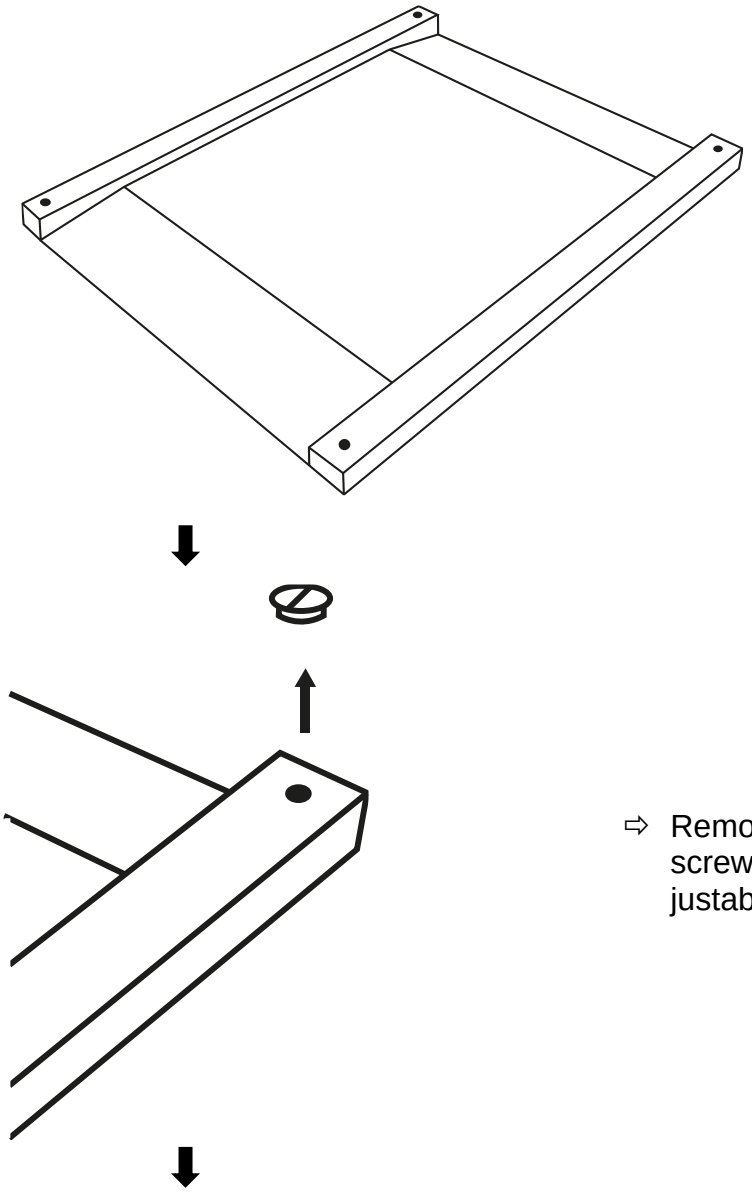
Only an exactly horizontally aligned weighing platform provides accurate weighing results. The weighing platform must be leveled during initial installation and every time it is moved.

All adjustable feet must rest evenly.

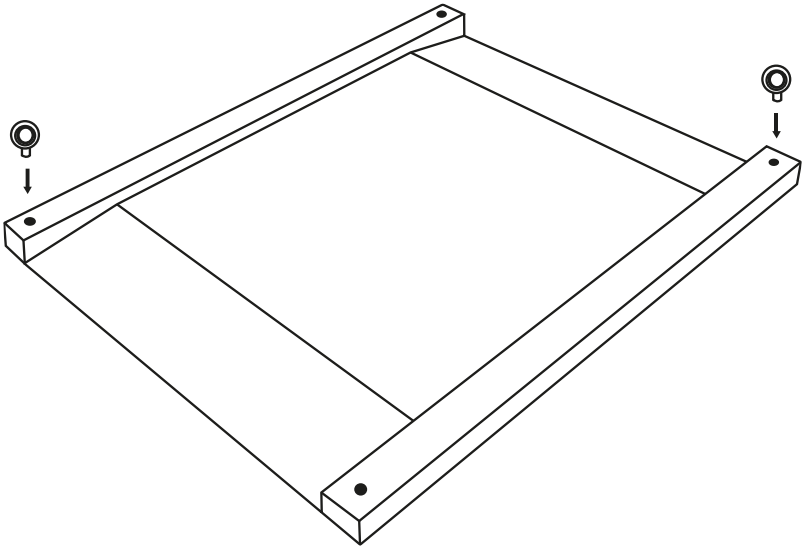
Calibrated weighing systems:

With calibrated weighing systems, the weighing platform must be firmly fixed to the floor. This is essential for the reproducibility of the measurement results and can be implemented with the aid of pairs of base plates.

Implementation:



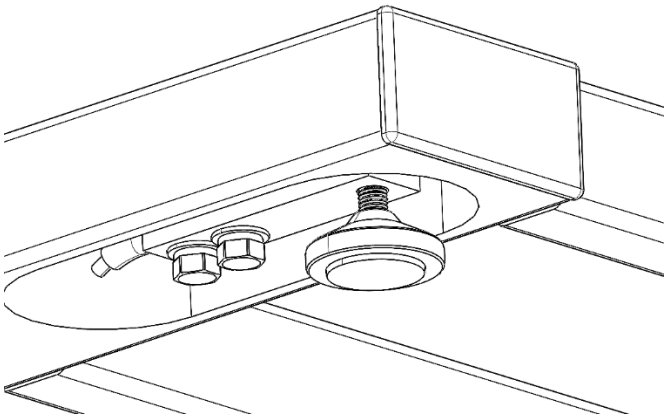
⇨ Remove the cover screws from the adjustable feet (4x)



⇨ Insert 2x eyebolt (diagonally to each other)

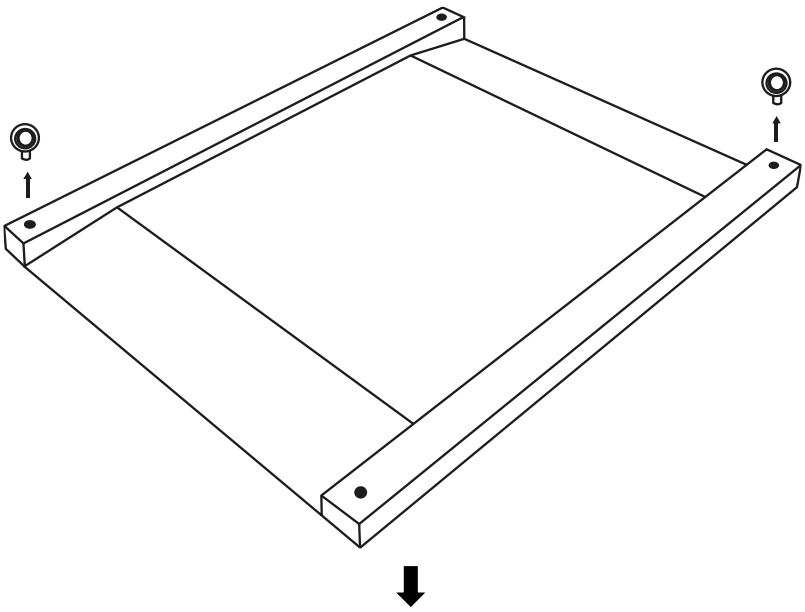
⇨ Have the weighing platform lifted by qualified personnel using a lifting aid (crane or similar)

Ensure that the connection cable is not crushed or damaged.

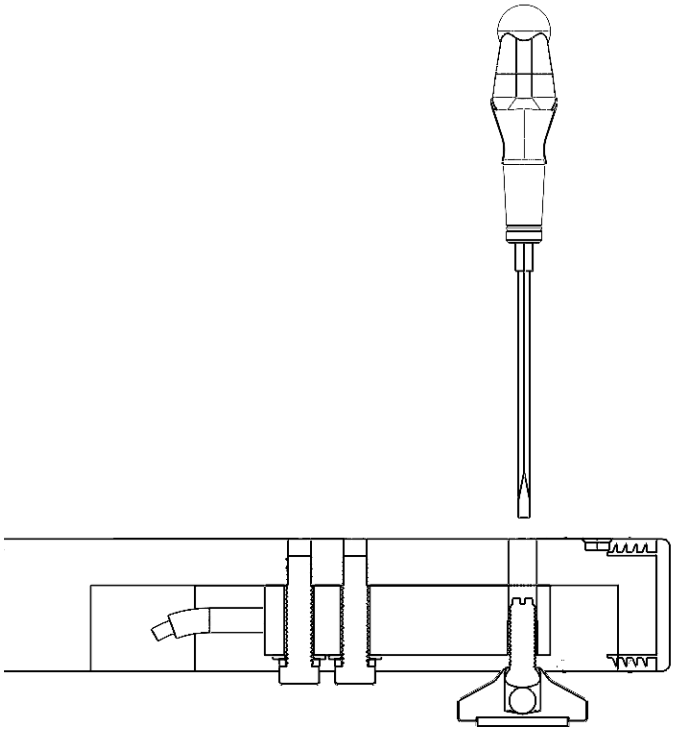


⇨ Before parking: Insert the foot bolts (4x)

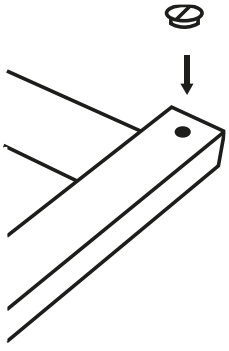
⇨ If optional accessories are to be installed (e.g. pair of foot plates, access ramp, pit frame), these parts must now be installed (installation described in the respective IAs)



- ⇨ Set down the weighing platform and check that the weighing platform is positioned level and that all 4 feet are touching the floor
- ⇨ Ensure that the connection cable is not crushed or damaged.
- ⇨ Remove eyebolts



- ⇨ Level with a Phillips screwdriver.
- ⇨ There is a leveling bubble on the edge of the weighing platform for leveling.



- ⇨ Replace the cover screws

6.4 Connecting a display device

Attention
Route the connection cable to the display unit so that it is protected from possible damage.

Description of the connection cable s:

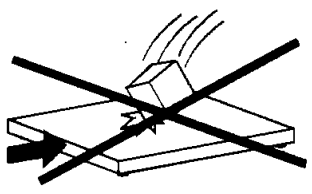
Clamp	Color	Condition
+EXE	Red	Voltage +
+SEN	Brown	Sense +
+SIG	Blue	Signal +
-SIG	Green	Signal -
-SEN	White	Sense -
-EXE	Black	Voltage -

7 Operation

Information about

- **Mains connection** (power is supplied via the connection cable of the display unit)
- **Initial commissioning**
- **Connection of peripheral devices**
- **Adjustment, linearization and calibration (**only the complete scale can be calibrated, i.e. weighing platform in conjunction with a suitable indicator)

For correct operation, please refer to the operating instructions supplied with the display unit.

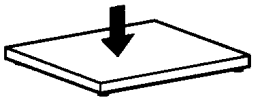
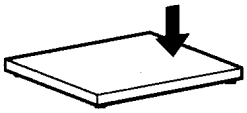
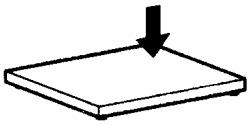


This ensures continuous optimum performance:

- Avoid falling loads, shock loads and lateral impacts!
- When weighing, all items must be placed in the center of the weighing platform and must not hang over the sides or ramps.
- Check the adjustment at regular intervals.

7.1 Operating limits

- The weighbridges have an extremely robust design. However, the load limits in the following table should not be exceeded!
- The static load-bearing capacity, i.e. the maximum permissible load, depends on the type of load suspension:

	Weighing ranges	**600kg**	**1500kg**
	With centric load	2250 kg	2250kg
	With lateral load	1400 kg	2250kg
	With one-sided corner load	700 kg	1400kg

7.2 Weighbridge loading/unloading

- Place the load on the scale using a pallet truck, crane or forklift. Ensure that the load does not swing when it is placed on the scale.
- First lift the load at least 10 cm above the scales before removing or repositioning it.

8 Maintenance, servicing, disposal

Disconnect the appliance from the power supply before carrying out any maintenance, cleaning or repair work.

8.1 Daily checks

- ⇨ Make sure that all 4 feet are touching the floor.
- ⇨ Ensure that the connection cable to the display unit and the mains connection cable of the display unit are not damaged.
- ⇨ Ensure that the scales are free of dirt, especially under the edges of the scales.

8.2 Cleaning

- ⇨ Clean stainless steel parts with a soft cloth soaked in a cleaning agent suitable for stainless steel.
- ⇨ Do not use cleaning agents containing caustic soda, acetic, hydrochloric, sulphuric or citric acid on stainless steel parts.
- ⇨ Do not use metal brushes or cleaning sponges made of steel wool, as this causes surface corrosion.
- ⇨ Wipe surfaces with a damp cloth.
- ⇨ Only use common household cleaners.
- ⇨ Do not use a water jet or high-pressure cleaner
- ⇨ Remove the weighing plate and remove any dirt and foreign objects that have accumulated underneath. Do not use any hard objects to do this.
- ⇨ Protect load cells from splashing water.
- ⇨ Remove corrosion-causing substances regularly.
- ⇨ Comply with IP protection.

8.3 Maintenance, servicing

- ⇨ The device may only be opened by trained service technicians authorized by KERN.
- ⇨ Ensure that the weighing system is calibrated regularly, see section 3.5 Test equipment monitoring.

8.4 Waste disposal

- ⇨ The operator must dispose of the packaging and appliance in accordance with the applicable national or regional legislation at the place of use.

8.5 Small breakdown service

In the event of a fault in the program sequence, the scale should be switched off briefly and disconnected from the mains. The weighing process must then be restarted from the beginning.

Malfunction	Possible cause
The weight display changes continuously	• Draught/air movement • Vibrations of the floor • The weighbridge is in contact with foreign objects. • Electromagnetic fields/static charge (choose a different installation location / switch off the interfering device if possible) • Load cell damaged/defective
The weighing result is obviously incorrect	• No zero display when the scales are unloaded • The adjustment is no longer correct. • There are strong temperature fluctuations. • Weighing bridge is not level. • Electromagnetic fields / static charge (choose a different installation location / if possible, switch off the interfering device)

If other error messages occur, switch the scales off and on again. If the error message remains, contact the manufacturer.

9 Service documents

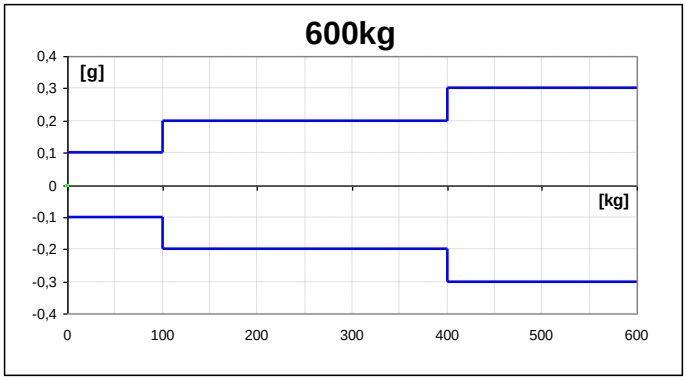
- This chapter is only intended for a scale specialist!
- There is a strain gauge load cell at each corner of the weighing bridge.
- The analog-to-digital conversion takes place in the display unit. All scale and country-specific data is also stored there.

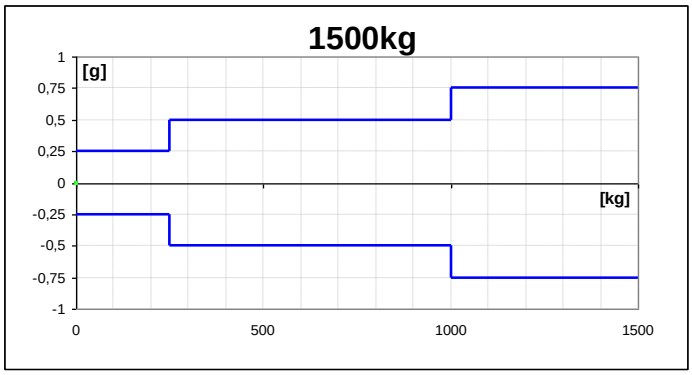
9.1 Overview, setting instructions, tolerances

Test and adjustment instructions:

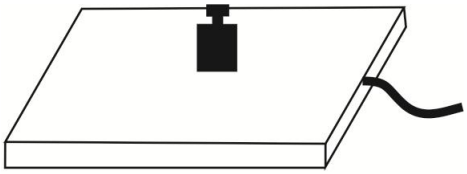
Capacity	**600 kg**	**1500 kg**
Readability	0.2 kg	0.5 kg
Min	4 kg	10 kg
Max	600 kg	1500 kg
1/3 corner load	200 kg	500 kg
Tolerance	0.2 kg	0.5 kg

Calibration data and tolerances according to OIML



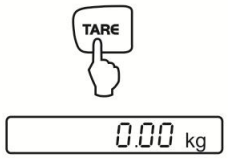


9.2 Checking and adjusting the corner load

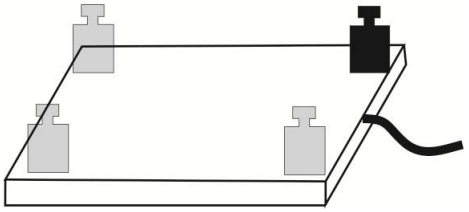


Checking the corner load :

- Place the test weights in the center of the load plate and tare.

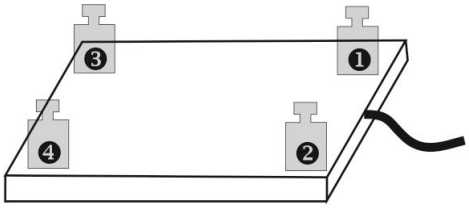


- Scale displays -0-.



- Place the test weights on all 4 corners one after the other.
- Deviations are now displayed with a sign, note the values. If there are deviations that are outside the tolerances (see section 9.1), an adjustment is required.

Adjusting the corner load :

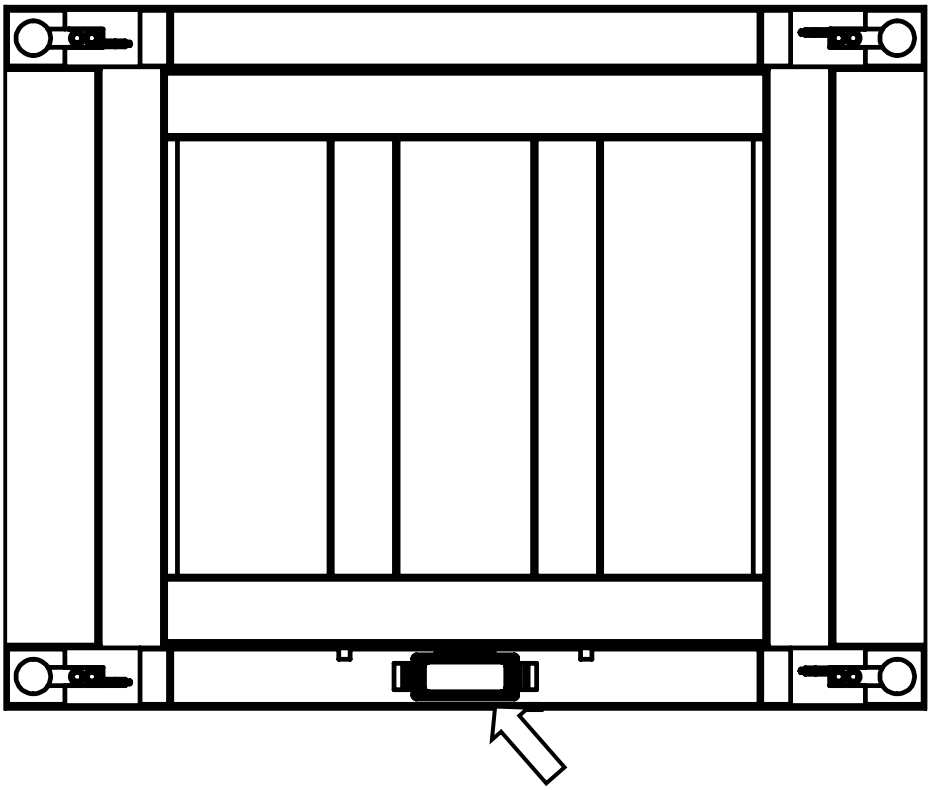


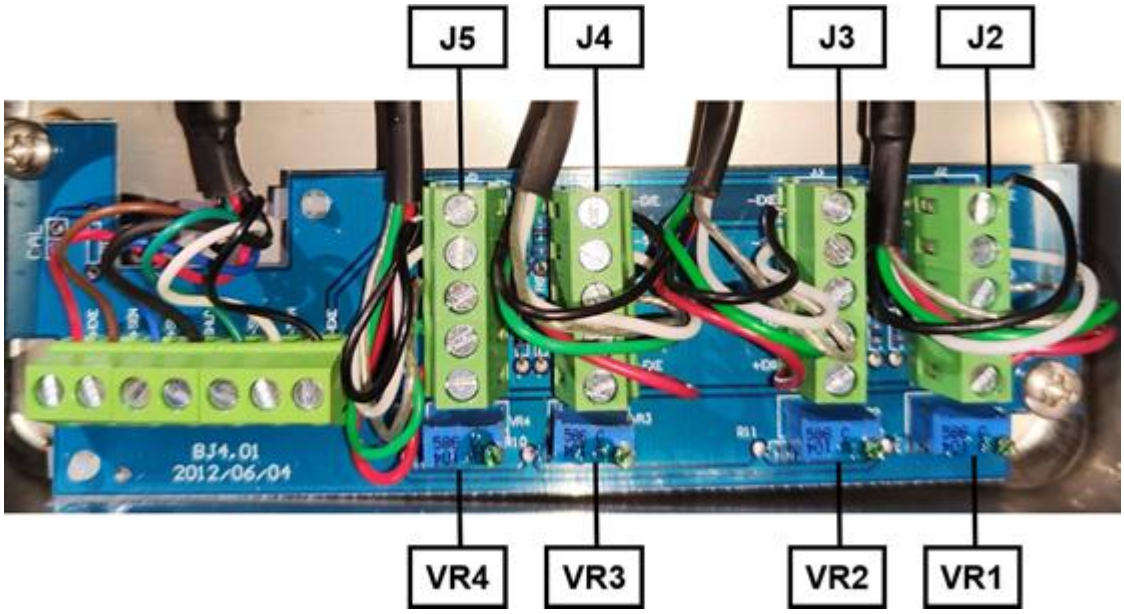
Preparation:

- For better control of the changes that occur during adjustment, select maximum readability for control purposes in the configuration menu.
- Open the terminal box

Adjustment rule:
The corner (load cell) with the largest negative deviation must be set to zero. Do not adjust this corner even after several adjustment runs.

Adjusting the individual corners





The load cell J2 is adjusted using potentiometer VR1.
The load cell J3 is adjusted using potentiometer VR2.
The load cell J4 is adjusted using potentiometer VR3.
The load cell J5 is adjusted using potentiometer VR4.
Turn value increase to the right, turn value decrease to the left.

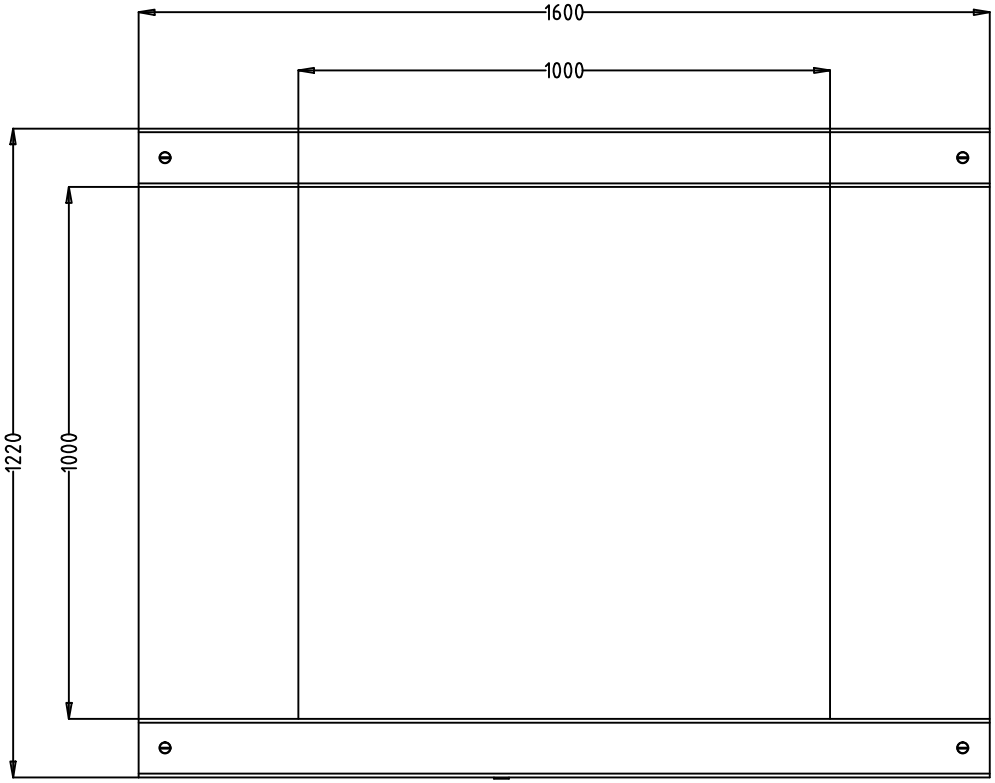
10 Dead load and Overload protection

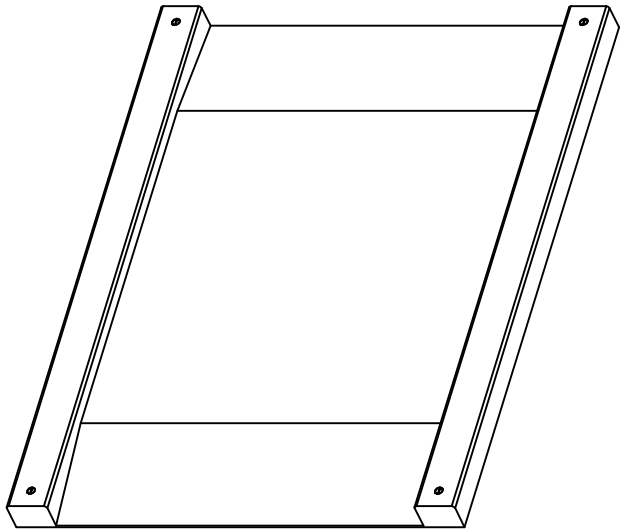
Platform type	Weighing platform dimensions mm	Weighing surface dimensions mm	Dead load kg	Overload security	Load cell type	Test certificate of the load cell	Nominal load kg	Accuracy
Steel, powder-coated								
KFD 600V20M	1600x1220x95	1000x1000	130	-	Zemic H8C	TC8012	500	C3
					Keli SQB*	TC6911		
KFD 600V20LM	1800x1420x95	1200x1200	165	-	Zemic H8C	TC8012	500	C3
					Keli SQB*	TC6911		
KFD 1500V20M	1600x1220x95	1000x1000	130	-	Zemic H8C	TC8012	1000	C3
					Keli SQB*	TC6911		
KFD 1500V20LM	1800x1420x95	1200x1200	165	-	Zemic H8C	TC8012	1000	C3
					Keli SQB*	TC6911		
Stainless steel								
KFD 600V40M	1600x1220x95	1000x1000	130	-	Zemic H8C	TC8012	500	C3
KFD 1500V40M	1600x1220x95	1000x1000	130	-	Zemic H8C	TC8012	1000	C3

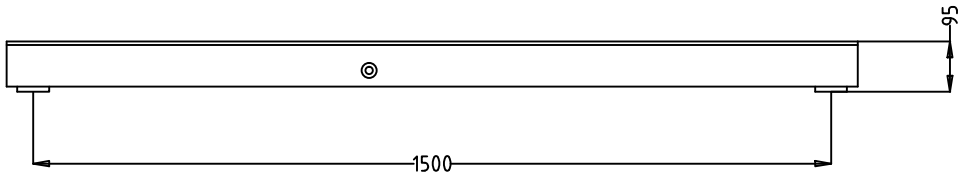
*Replacement option

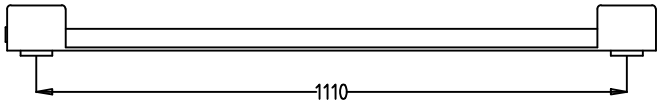
A4

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A0	Released	2024.04.09	Tim.Zhao





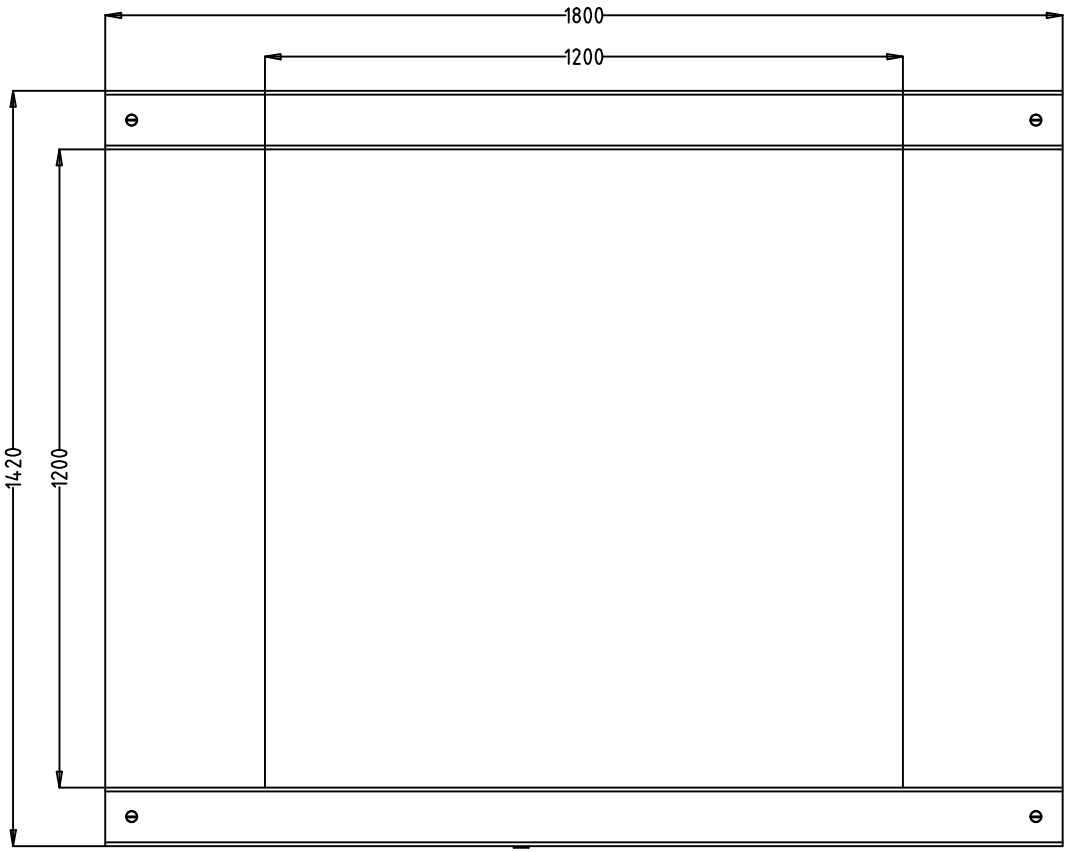


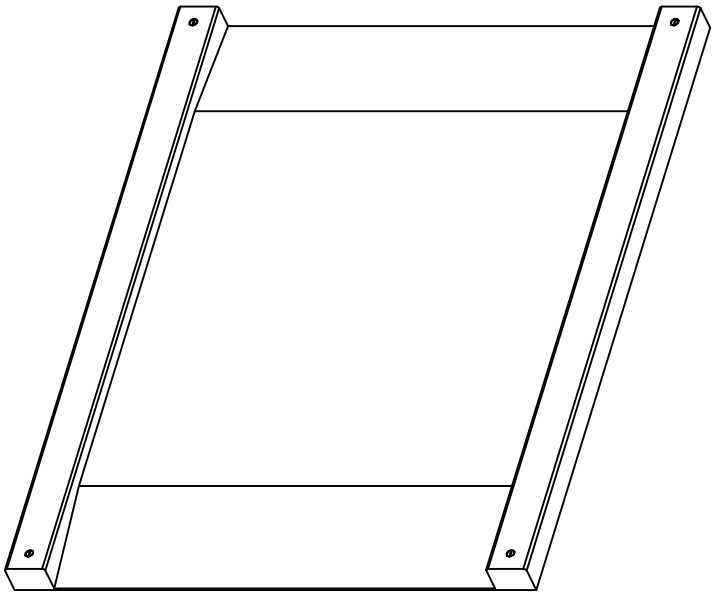


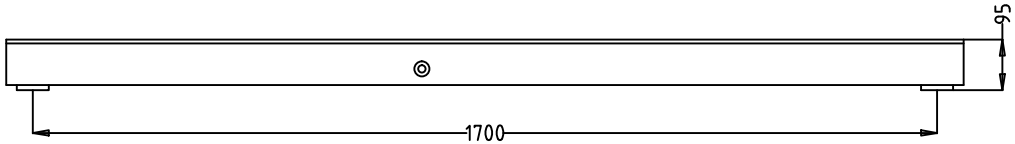
TOLERANCE UNLESS OTHERVISE SPECIFIED DEC ANGLES ±0.1 FOR 0.X ±0.5 ±0.05 FOR 0.XX		KERN® KERN & SOHN GmbH				
3RD ANGLE PROJECTION		TITLE:	KFD 600V20M KFD 1500V20M KFD 1500V40M KFD 600V40M			
DRAWN	YJ.Zhao					
CHECKED	Tim.Zhao	MODEL NO.	TFL-1010-600kg TFL-1010-1.5t TFLS-1010-1.5t TFLS-1010-600kg	PART NO.	130900500046 130900500048 130901900022 130901900023	
APPROVED	Tim.Zhao	MATERIAL		FINISH		
UNIT	mm	SCALE		DO NOT SCALE DRAWING		SHEET OF

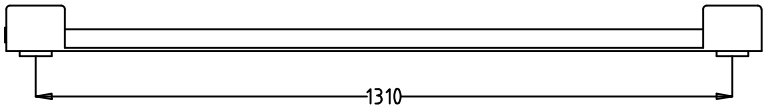
A4

REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A0	Released	2024.04.10	Tim.Zhao









TOLERANCE UNLESS OTHERVISE SPECIFIED DEC ANGLES ±0.1 FOR 0.X ±0.5 ±0.05 FOR 0.XX		KERN KERN & SOHN GmbH			
3RD ANGLE PROJECTION		TITLE:	KFD 600V20LM KFD 1500V20LM		
DRAWN	YJ.Zhao				
CHECKED	Tim.Zhao	MODEL NO.	TFL-1212-600kg TFL-1212-1.5t	PART NO.	130900500047 130900500049
APPROVED	Tim.Zhao	MATERIAL		FINISH	
UNIT	mm	SCALE		DO NOT SCALE DRAWING	SHEET OF