KERN & Sohn GmbH
Ziegelei 1
D-72336 Balingen
E-Mail: info@kern-sohn.com
Phone: +49-[0]7433- 9933-0
Fax: +49-[0]7433-9933-149
Internet: www.kern-sohn.com

Installation Instructions Platform

KERN KBP V20

Type TKBP-V20-A
Version 1.0
2023-09
GB

GB

KERN KBP V20

Platform

Version 1.0 2023-09

Installation Instructions

Contents

1 General hints ... 3

2 Technical data ... 3

2.1 Technical data of the weighing cell ... 4

3 Basic Information (General) ... 5

3.1 Documentation ... 5

3.2 Proper use ... 5

3.3 Improper Use ... 5

3.4 Warranty ... 5

3.5 Monitoring of Test Resources ... 5

4 Basic Safety Precautions ... 6

4.1 Pay attention to the instructions in the Operation Manual ... 6

4.2 Personnel training ... 6

5 Transport and storage ... 6

5.1 Testing upon acceptance ... 6

5.2 Packaging / return transport ... 6

6 Unpacking, Installation and Commissioning ... 7

6.1 Installation Site, Location of Use ... 7

6.2 Unpacking, Scope of delivery ... 8

6.3 Placing ... 8

6.3.1 Transport Securing ... 9

6.4 Levelling ... 10

6.5 Connecting a display unit ... 10

7 Operation ... 10

8 Operation limits ... 11

9 Servicing, maintenance, disposal ... 12

9.1 Cleaning ... 12

9.2 Servicing, maintenance ... 12

9.3 Disposal ... 12

10 Instant help for troubleshooting ... 13

11 Preload, Deadload and Overload settings ... 14

12 Enclosure ... 16

1 General hints

These installation instructions contain all data necessary for placing and commissioning the following platforms:

KERN TKBP 6V20LM-A

KERN TKBP 15V20M-A, TKBP 15V20LM-A

KERN TKBP 30V20M-A

KERN TKBP 60V20M-A, TKBP 60V20LM-A

KERN TKBP 150V20M-A, TKBP 150V20LM-A

KERN TKBP 300V20M-A

KERN TKBP 600V20M-A

2 Technical data

Item no./ Type	Weighing range Max kg	Readability d g	Verification value e g	Minimum load Min g	Cable length approx. m	Transport Securing
TKBP 6V20LM-A	3 / 6	0,1 / 0,2	1 / 2	20 / 40	3	yes
TKBP 15V20M-A	6 / 15	0,2 / 0,5	2 / 5	40 / 100	3	yes
TKBP 15V20LM-A	6 / 15	0,2 / 0,5	2 / 5	40 / 100	3	yes
TKBP 30V20M-A	15 / 30	0,5 / 1	5 / 10	100 / 200	3	yes
TKBP 60V20M-A	30 / 60	1 / 2	10 / 20	200 / 400	3	yes
TKBP 60V20LM-A	30 / 60	1 / 2	10 / 20	200 / 1000	3	yes
TKBP 150V20M-A	60 / 150	2 / 5	20 / 50	400 / 1000	3	no
TKBP 150V20LM-A	60 / 150	2 / 5	20 / 50	400 / 1000	3	no
TKBP 300V20M-A	150 / 300	5 / 10	50 / 100	1000 / 2000	3	no
TKBP 600V20M-A	300 / 600	10 / 20	100 / 200	2000 / 4000	3	no

2.1 Technical data of the weighing cell

Sensitivity		2 mV/V
Input resistance (all TKBP models*)		406 Ω ± 6 Ω
*excepted	TKBP 6V20LM-A TKBP 15V20M-A TKBP 15V20LM-A	409 Ω ± 6 Ω
Output resistance		350 Ω ± 3 Ω
Power supply		5 – 12 V AC/DC
Accuracy class		C3

3 Basic Information (General)

3.1 Documentation

These installation instructions contain all data necessary for placing and commissioning the platform KERN TKBP V20-A.
In combination with a display unit, described below as weighing system, for operation configuration, please refer to the operating instructions of the display unit.

3.2 Proper use

The platform purchased by you is intended to define the weighing value of weighed goods. It is intended to be used as a “non-automatic balance”, i.e. the material to be weighed is manually and carefully placed in the centre of the weighing pan. As soon as a stable weighing value is reached, the weighing value can be read.

3.3 Improper Use

- Our balances are non-automatic balances, not provided for the use in dynamic weighing processes. However, the balances can also be used for dynamic weighing processes after verifying their individual operative range, and here especially the accuracy requirements of the application.
- Do not leave permanent load on the weighing pan. This can damage the measuring mechanism.
- Impacts and overloading exceeding the stated maximum load (max) of the weighing system, minus a possibly existing tare load, must be strictly avoided. The weighing system could be damaged.
- Never operate the weighing system in explosive environment. The serial version is not explosion protected.
- Changes to the weighing system's design are not permitted. This may lead to incorrect weighing results, safety-related faults and destruction of the balance.
- The weighing system unit may only be operated in accordance with the described default settings. Other areas of use must be released by KERN in writing.

3.4 Warranty

Warranty claims shall be voided in case:

- Our conditions in the operation manual are ignored
- The appliance is used beyond the described intended use
- Structural changes of the device
- Mechanical damage and damage caused by media, liquids
- Natural wear and tear
- The appliance is improperly set up or incorrectly electrically connected
- Overload of the measuring system

3.5 Monitoring of Test Resources

In the framework of quality assurance the measuring-related properties of the weighing system and, if applicable, the testing weight, must be checked regularly. The responsible user must define a suitable interval as well as type and scope of this test.

Information is available on KERN's home page (www.kern-sohn.com with regard to the monitoring of weighing system test substances and the test weights required for this. In KERN's accredited DKD calibration laboratory test weights and weighing systems may be calibrated (return to the national standard) fast and at moderate cost.

4 Basic Safety Precautions

4.1 Pay attention to the instructions in the Operation Manual



Carefully read this operation manual before setup and commissioning, even if you are already familiar with KERN balances.

4.2 Personnel training

The appliance may only be operated and maintained by trained staff.
The installation and maintenance must only be carried out by a well acquainted specialist with the workings of weighing balances.

5 Transport and storage

5.1 Testing upon acceptance

When receiving the appliance, please check packaging immediately, and the appliance itself when unpacking for possible visible damage.

5.2 Packaging / return transport



- ⇨ Keep all parts of the original packaging for a possibly required return.
- ⇨ Only use original packaging for returning.
- ⇨ Prior to dispatch disconnect all cables and remove loose/mobile parts.
- ⇨ Reattach possibly supplied transport securing devices.
- ⇨ Secure all parts against shifting and damage.

6 Unpacking, Installation and Commissioning

6.1 Installation Site, Location of Use

The platforms are designed in a way that reliable weighing results are achieved in common conditions of use.
You will work accurately and fast if you select the right location for your weighing system.
On the installation site observe the following:

- Place the weighing system on a firm, level surface. The floor must be able to carry safely the weight of the maximally loaded platform at the resting points. At the same time it should be sufficiently stable, that no vibrations may occur during weighing work. This is to be considered too when the platform is installed in conveyor systems and similar.
- In the installation site possibly no vibrations, e.g. by neighbouring machines should occur.
- Do not use the weighing system in an explosive environment.
- Avoid extreme heat as well as temperature fluctuation e.g. caused by installing next to a radiator or in the direct sunlight.
- Protect the weighing system against direct draughts e.g. due to open windows and doors.
- Use weighing system only in dry environment, protect it against high humidity, vapours and dust.
- The platform must have been stabilized to room temperature, before power supply is switched on.
- Do not expose the appliance to heavy moisture over a longer time period. Non-permitted condensation (condensation of air humidity on the appliance) may occur if a cold appliance is taken to a considerably warmer environment. In this case, acclimatize the disconnected appliance for ca. 2 hours at room temperature.
- Avoid jarring during weighing.
- Avoid static charge of weighed goods and weighing container.
- Keep away chemicals (such as liquids or gasses), which could attack and damage the balance inside or from outside.
- Keep IP protection of the device.
- If electromagnetic fields (e.g. by mobile phones or radio equipment), static charges (e.g. when weighing or countings plastic parts), as well as instable current supply occur, the displayed indications may differ considerably (wrong weighing results, damage to the balance). Change location or remove source of interference.

6.2 Unpacking, Scope of delivery

Remove the underconstruction and the weighing plate from the package, remove packaging material and place the devices at the planned workplace. Check if all parts of the scope of delivery are present and free of damage.

Scope of delivery:

- Underconstruction (lacquered steel)
- Weighing pan (stainless steel)
- Transport securing (depending on model, see chap. 2)
- Installation Instructions

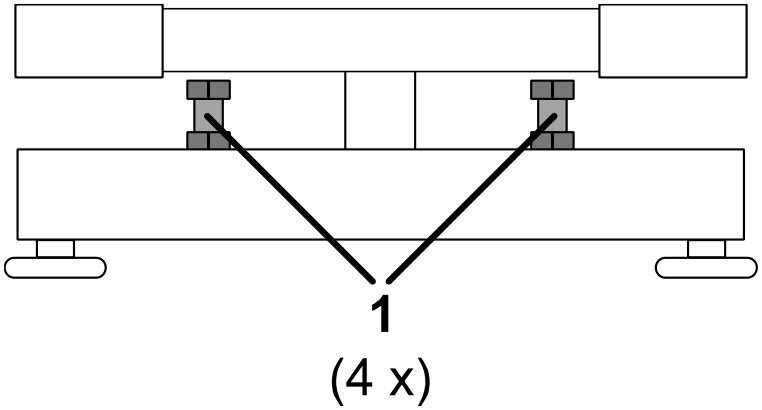
6.3 Placing

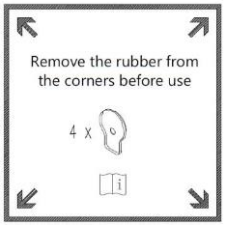
1. Remove transport securing (see chap. 6.3.1).
2. Put the weighing plate on the underconstruction.

6.3.1 Transport Securing

General hints for transport securing

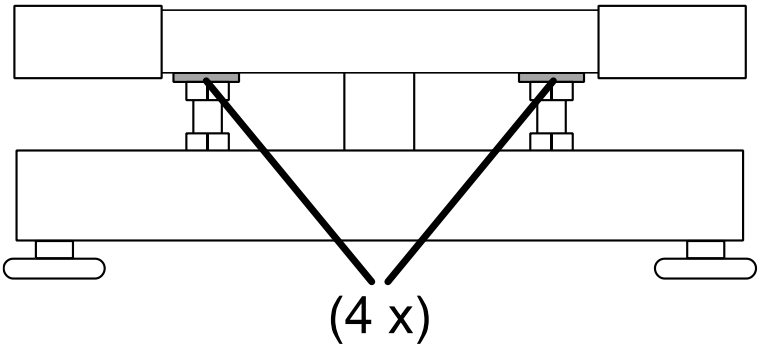
- Please consult the Technical Data whether your balance is equipped with a transport securing, chap. 2.
- Do not remove the off-centre load attachments **(1)** as otherwise the balance could be damaged. The off-centre load attachments are located between the upper and the lower part of the platform. They consist of a screw and a nut.



Note on transport securing	
Type of transport securing	• 4 x rubber plate in the corners

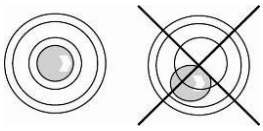
1. Remove the weighing plate.

2. Remove the transport securings.



6.4 Levelling

Accurate weighing results require a platform with perfect horizontal alignment. During initial installation and after each change of work area it is necessary to level the platform.



⇨ As the air bubble is located under the weighing plate, remove it.

⇨ Align the platform with the adjustment feet until the air bubble of the water balance is in the prescribed circle.

6.5 Connecting a display unit



Before any installation work, disconnect the appliance from the operating voltage.

Put the connecting cable to the display unit in a manner that it is protected against damage.

Connect the platform to the display unit according to the following table.

Output load cell	**Connection of platform KERN KBP**
EXC+ (5V)	see labelling of load cell
EXC- (0)	
SIG-	
SIG+	
SEN+	
SEN-	

7 Operation

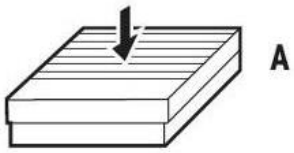
Information about

- **Mains connection**
  (power is supplied via the connecting cable of the display unit)
- **Initial Commissioning**
- **Connection of peripheral appliances**
- **Adjustment, linearization and verification**
  (only the complete balance is verifiable, i.e. platform in conjunction with a suitable display unit)

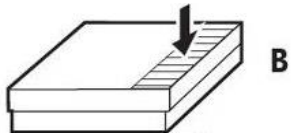
and the correct operation you will find in the operating instructions included in the scope of delivery of the display unit.

8 Operation limits

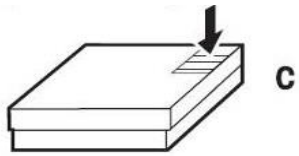
The platform is designed so robust that a casual excess of the maximum weighing load will not cause any damage.
The static carrying capacity, i.e. the maximum admitted load depends on the type of load carrier (Position A – C). The maximum static carrying capacity must not be exceeded.



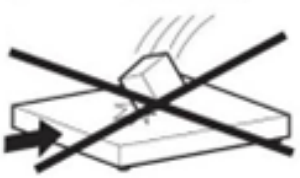
A = with centrical load



B = with side load



C = with one-side load



Avoid falling load, shock loads and impacts from the side!

Observe the following operation limits:

Item no./ Type	A	B	C
TKBP 6V20LM-A	9 kg	6 kg	3 kg
TKBP 15V20M-A	22 kg	15 kg	7 kg
TKBP 15V20LM-A	22 kg	15 kg	7 kg
TKBP 30V20M-A	45 kg	30 kg	15 kg
TKBP 60V20M-A	90 kg	60 kg	30 kg
TKBP 60V20LM-A	90 kg	60 kg	30 kg
TKBP 150V20M-A	225 kg	150 kg	75 kg
TKBP 150V20LM-A	225 kg	150 kg	75 kg
TKBP 300V20M-A	450 kg	300 kg	150 kg
TKBP 600V20M-A	900 kg	600 kg	300 kg

9 Servicing, maintenance, disposal



Before any maintenance, cleaning and repair work disconnect the appliance from the operating voltage.

9.1 Cleaning

⇨ Clean the platform with a soft cloth soaked with a mild cleaning agent.

⇨ Remove the weighing plate and wipe-off the dirt and the foreign bodies under it. Do not use hard or sharp objects for this.

⇨ Remove regularly corrosive substances.

⇨ Keep IP protection.

9.2 Servicing, maintenance

⇨ The appliance may only be opened by trained service technicians who are authorized by KERN.

⇨ Ensure that the weighing system is regularly calibrated, see chap. 3.5 Testing instruments monitoring.

9.3 Disposal

⇨ Disposal of packaging and appliance must be carried out by operator according to valid national or regional law of the location where the appliance is used.

10 Instant help for troubleshooting

In case of an error in the program process, briefly turn off the balance and disconnect from power supply. The weighing process must then be restarted from the beginning.

Help:

Fault	Possible cause
The displayed weight is permanently changing	• Draught/air movement • Floor vibrations • The platform has contact with foreign objects. • Electromagnetic fields / static charging (choose different location/switch off interfering device if possible)
The weighing result is obviously wrong	• No zero display with unloaded balance • Adjustment is no longer correct. • Great fluctuations in temperature. • Platform on an uneven surface. • Electromagnetic fields / static charging (choose different location/switch off interfering device if possible)

Should other error messages occur, switch balance off and then on again. If the error message remains inform manufacturer.

11 Preload, Deadload and Overload settings

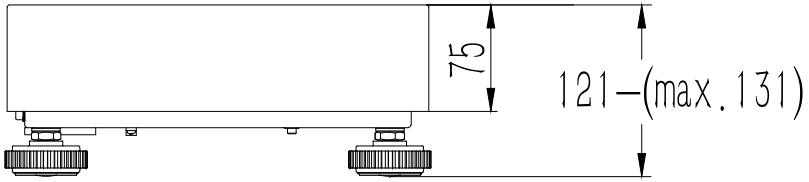
Item no./ Type	**Deadload** (kg)** **= already applied preload	**Centric overload protection (kg)**	**Off-centre overload protection (kg)**	**Minimum capactiy of the load cell E_{min} (kg)**	**Maximum capacity of the load cell E_{max} (kg)**
TKBP 6V20LM-A	3,06	7,5	4,8	0	10
TKBP 15V20M-A	2,36	18,75	12	0	20
TKBP 15V20LM-A	3,68	18,75	12	0	20
TKBP 30V20M-A	3,85	37,5	24	0	50
TKBP 60V20M-A	3,85	75	48	0	100
TKBP 60V20LM-A	6,5	75	48	0	100
TKBP 150V20M-A	6,5	187,5	120	0	200
TKBP 150V20LM-A	15,84	187,5	120	0	200
TKBP 300V20M-A	15,84	375	240	0	350
TKBP 600V20M-A	21,5	750	480	0	750

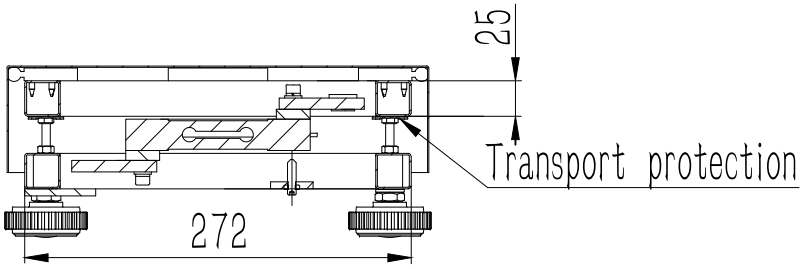
Item no./ Type	Dimensions of the platform (mm)	Load cell type	Test certificte no.	Accuracy class	Ratio of min. load cell verification interval	Maximum admitted number of interval sizes	Allowable temperature range		Ratio of min. dead load output return	Error percentage
					Y	n_{LC}/n_{max}	T_{min}	T_{max}	Z	PLC
							(°C)	(°C)		
TKBP 6V20LM-A	300 x 300 x 121	L6D-10KG	TC7868 rev. 1	C3	10000	3000	-10	40	3000	0,7
TKBP 15V20M-A	300 x 240 x 121	L6D-20KG		C3	10000	3000	-10	40	3000	0,7
TKBP 15V20LM-A	400 x 300 x 112	L6D-20KG		C3	10000	3000	-10	40	3000	0,7
TKBP 30V20M-A	400 x 300 x 120	L6E-50KG	TC7838 rev. 1	C3	10000	3000	-10	40	4200	0,7
TKBP 60V20M-A	400 x 300 x 120	L6E-100KG		C3	10000	3000	-10	40	4200	0,7
TKBP 60V20LM-A	500 x 400 x 125	L6E-100KG		C3	10000	3000	-10	40	4200	0,7
TKBP 150V20M-A	500 x 400 x 125	L6E-200KG		C3	10000	3000	-10	40	3300	0,7
TKBP 150V20LM-A	650 x 500 x 149	L6E3-200KG	TC7836 rev. 1	C3	10000	3000	-10	40	6000	0,7
TKBP 300V20M-A	650 x 500 x 149	L6E3-350KG		C3	10000	3000	-10	40	6000	0,7
TKBP 600V20M-A	800 x 600 x 155	L6G-750KG	TC11191 rev. 1	C3	11000	4000	-10	40	10000	0,7

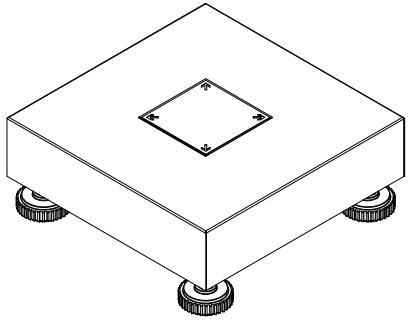
12 Enclosure

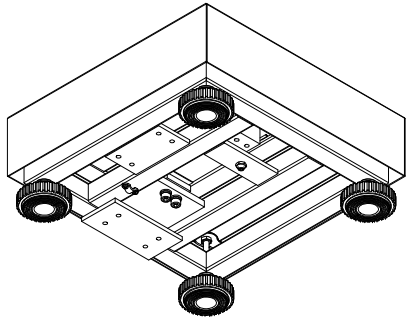
A3

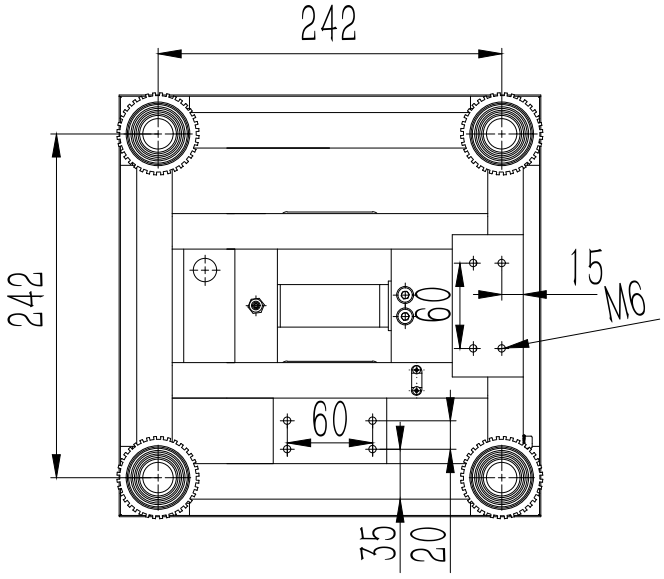
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
1	B	REDRAWN FROM 021450321_REVA	9/19/2023	ZHUANG

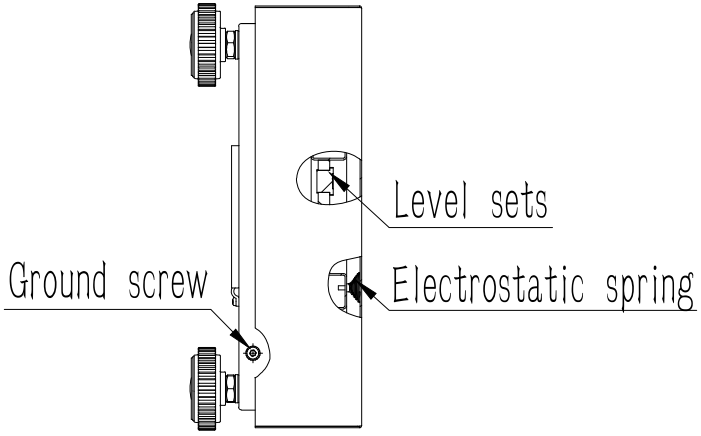


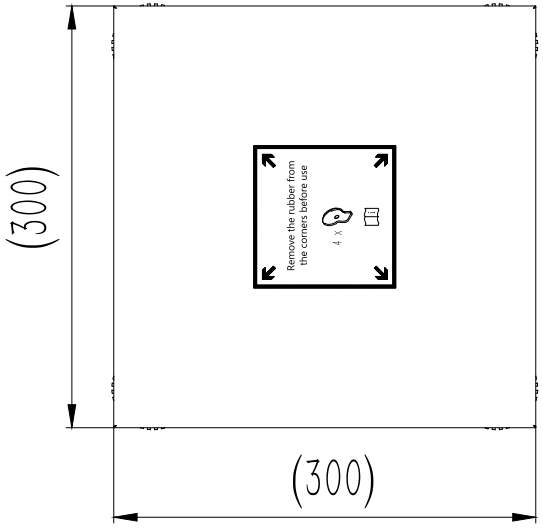


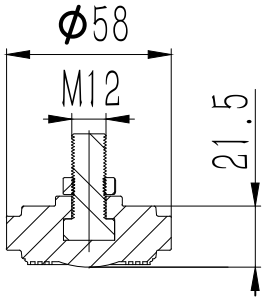


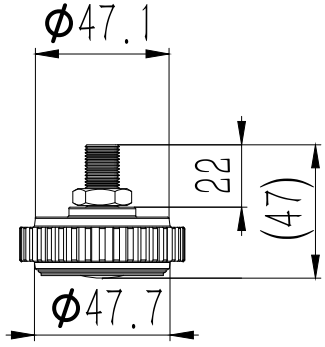








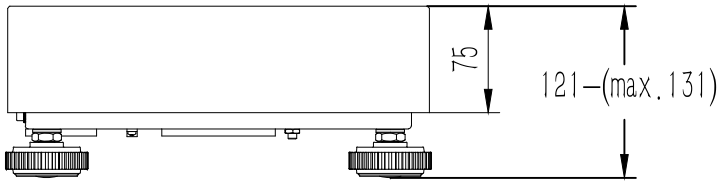


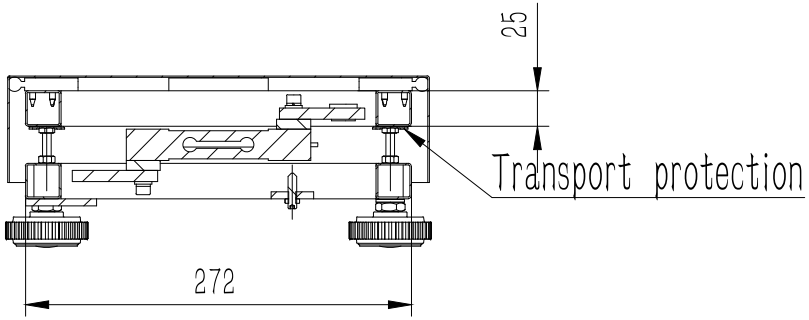


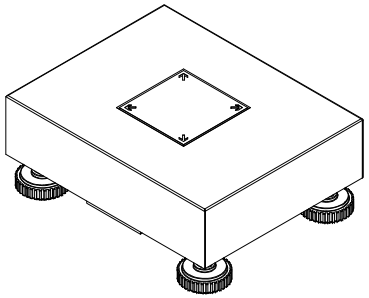
TOLERANCE UNLESS OTHERVISE SPECIFIED DEC ANGLES ±0.1 FOR .X ±0.5 ±0.05 FOR .XX		KERN® KERN & Sohn GmbH			
3RD ANGLE PROJECTION		TITLE:	TKBP 6V20LM–A		
DRAWN	ZHUANG				
CHECKED	LIAN	MODEL NO.	B	PART NO.	021450321
APPROVED	LIN	MATERIAL	Weighing plate: stainless steel, Platform:steel,coated,	FINISH	Powder coat "pantone 445"
UNIT	mm	SCALE		DO NOT SCALE DRAWING	SHEET OF

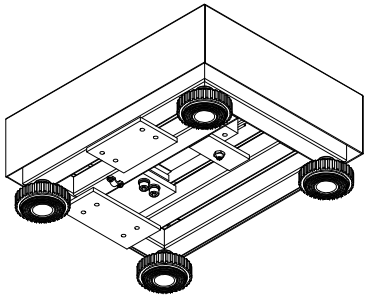
A3

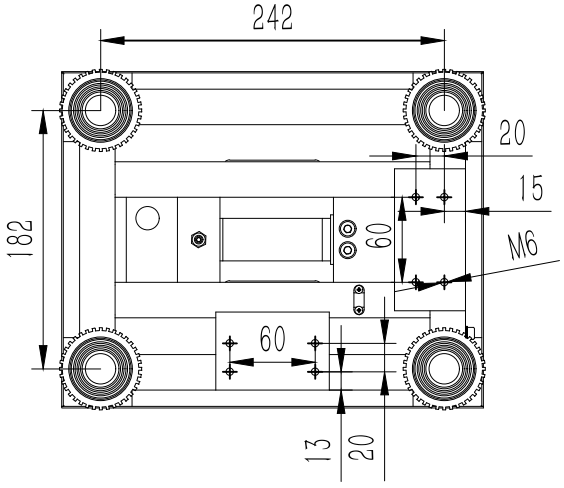
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
1	B	REDRAWN FROM 021450322_REVA	9/19/2023	ZHUANG

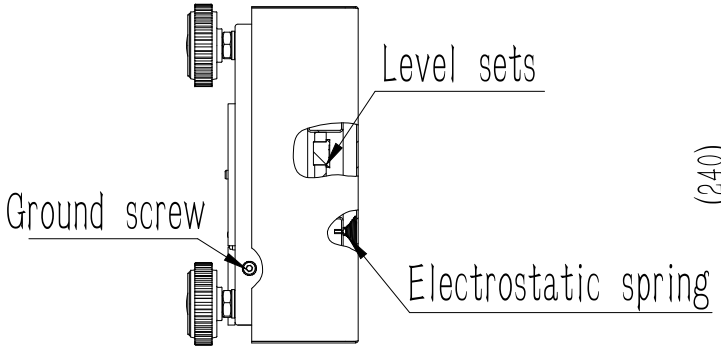


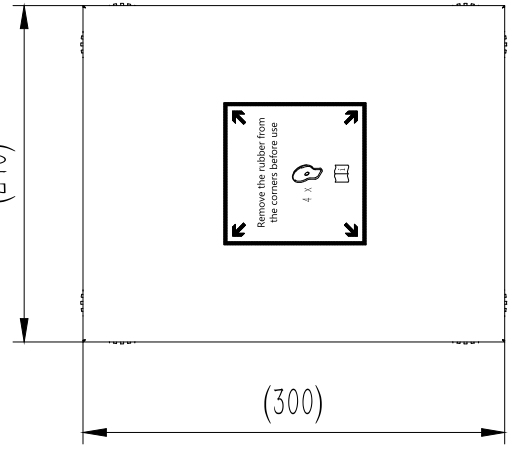


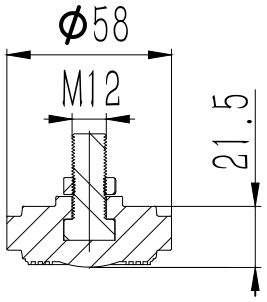


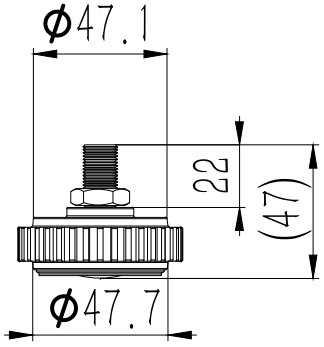








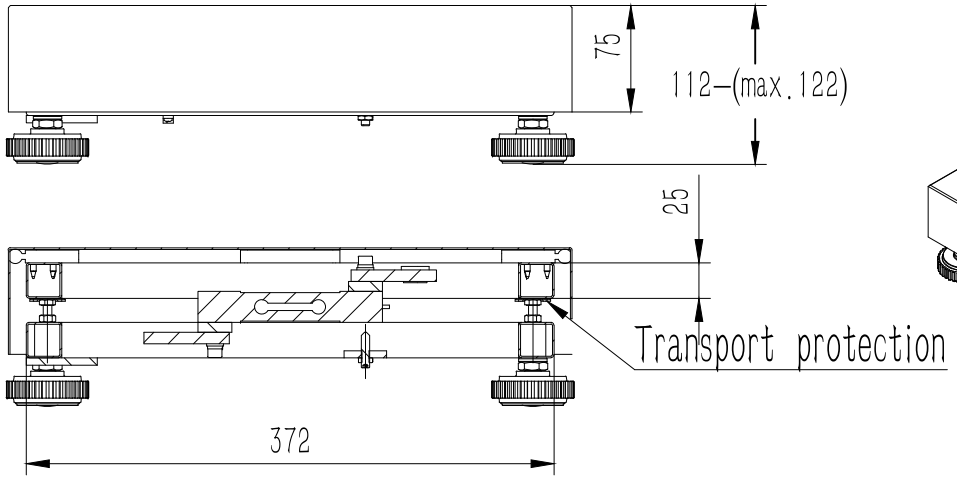


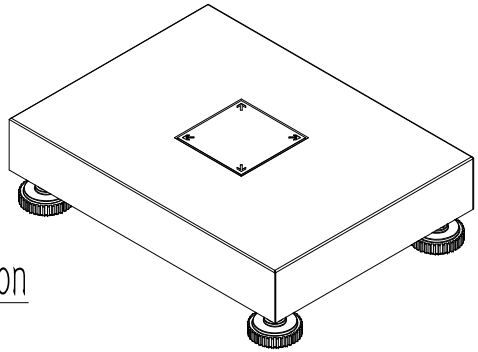


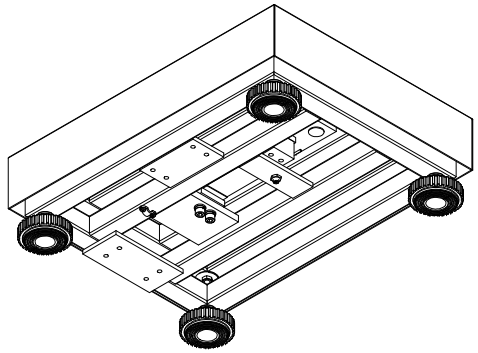
TOLERANCE UNLESS OTHERVISE SPECIFIED DEC ANGLES ±0.1 FOR .X ±0.5 ±0.05 FOR .XX		KERN® KERN & Sohn GmbH			
3RD ANGLE PROJECTION		TITLE:	TKBP 15V20M–A		
DRAWN	ZHUANG				
CHECKED	LIAN	MODEL NO.	B	PART NO.	021450322
APPROVED	LIN	MATERIAL	Weighing plate: stainless steel; Platform:steel,coated;	FINISH	Powder coat "pantone 445"
UNIT	mm	SCALE		DO NOT SCALE DRAWING	SHEET OF

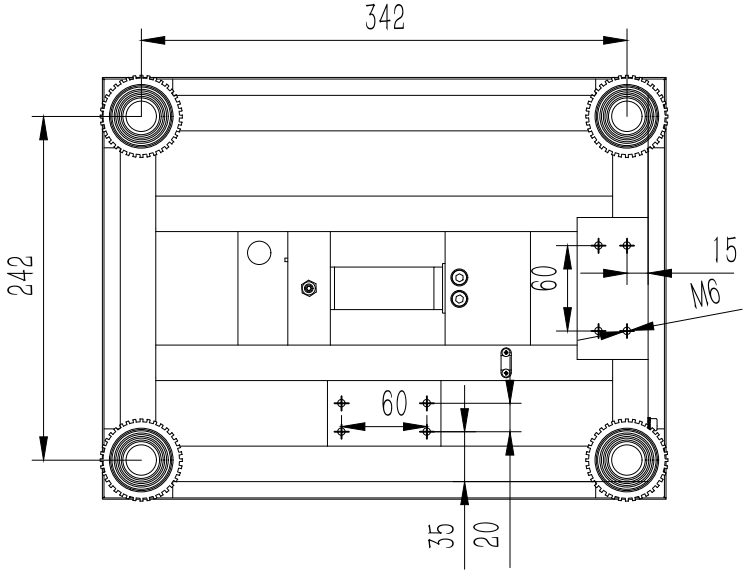
A3

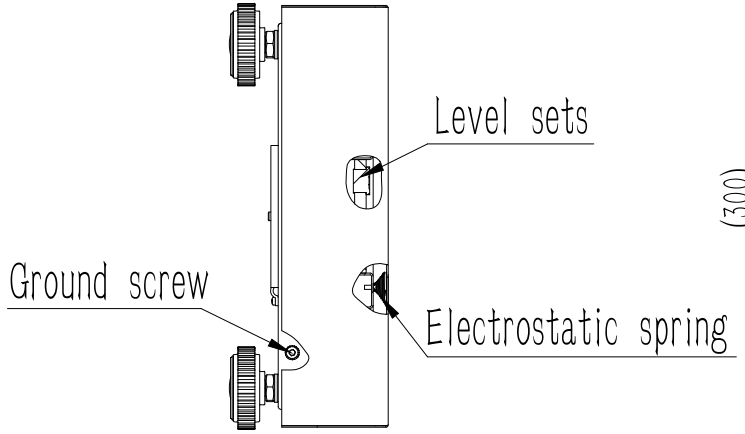
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
1	B	REDRAWN FROM 021450323_REVA	9/19/2023	ZHUANG

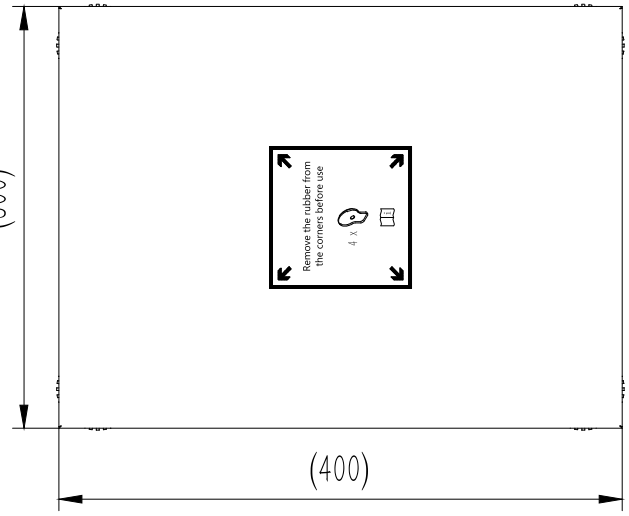


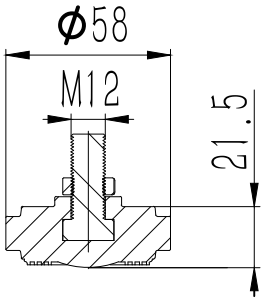


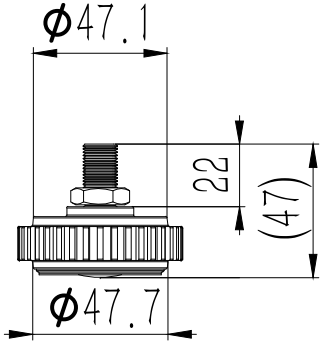








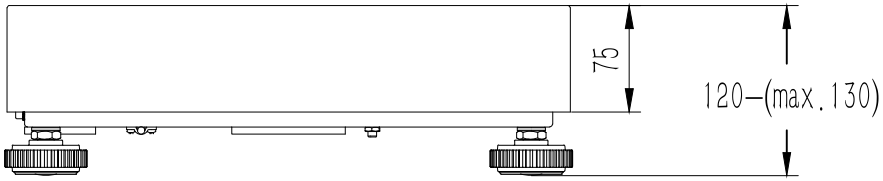


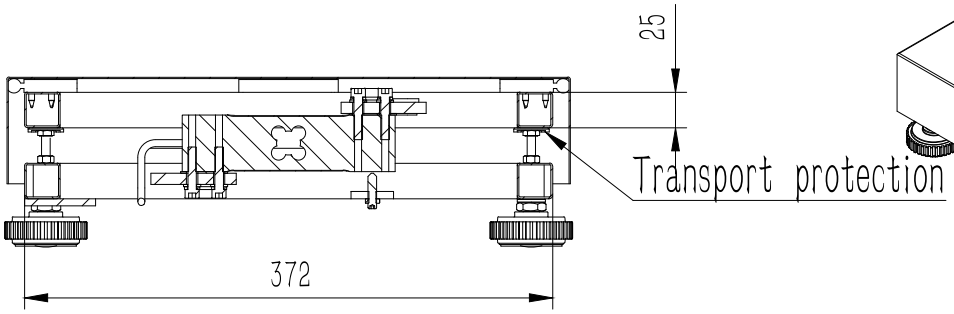


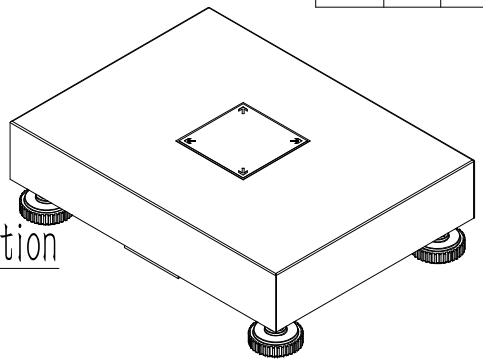
TOLERANCE UNLESS OTHERVISE SPECIFIED DEC ANGLES ±0.1 FOR .X ±0.5 ±0.05 FOR .XX		KERN® KERN & Sohn GmbH			
3RD ANGLE PROJECTION		TITLE:	TKBP 15V20LM–A		
DRAWN	ZHUANG				
CHECKED	LIAN	MODEL NO.	B	PART NO.	021450323
APPROVED	LIN	MATERIAL	Weighing plate: stainless steel; Platform:steel,coated;	FINISH	Powder coat "pantone 445"
UNIT	mm	SCALE		DO NOT SCALE DRAWING	SHEET OF

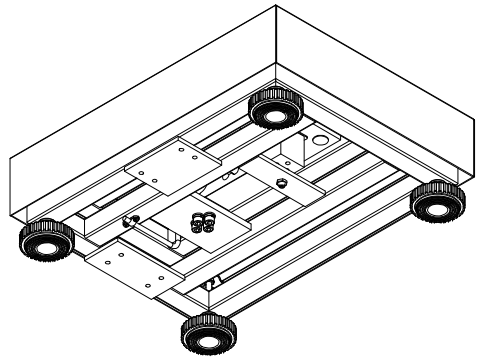
A3

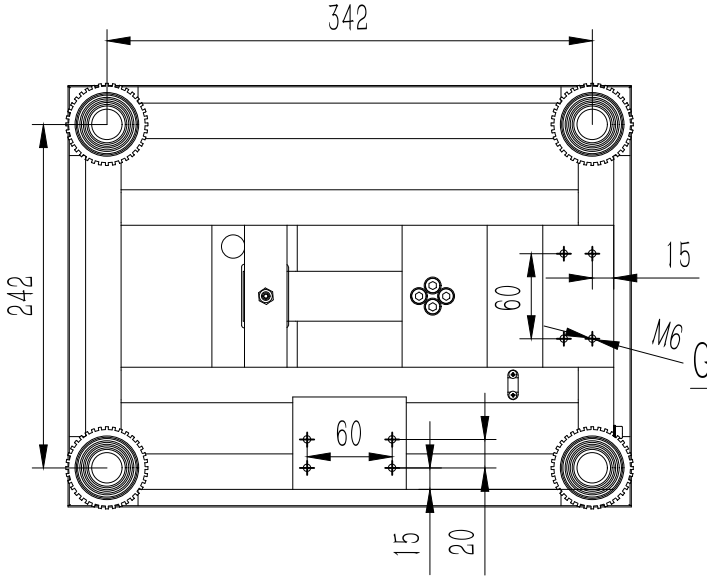
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
1	B	REDRAWN FROM 021450324_REVA	9/20/2023	ZHUANG

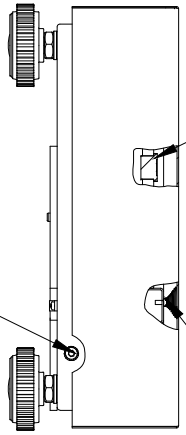


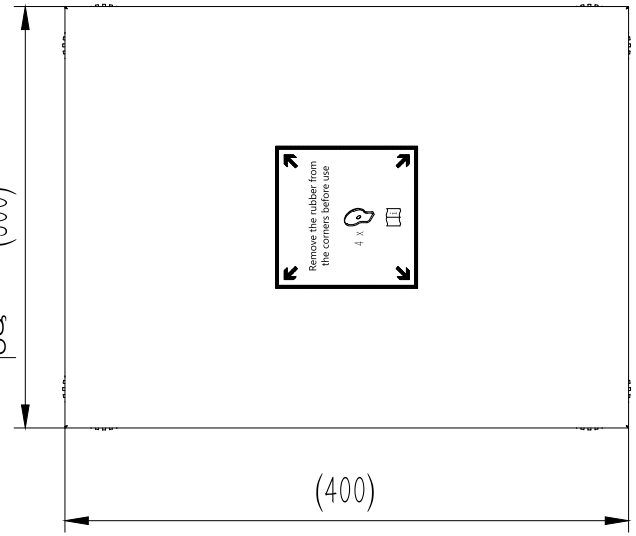


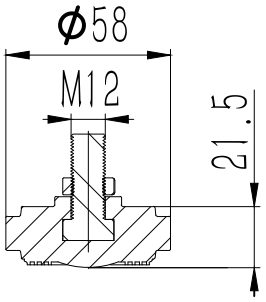


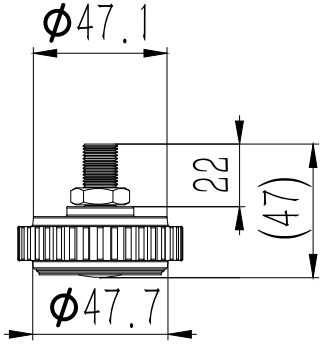








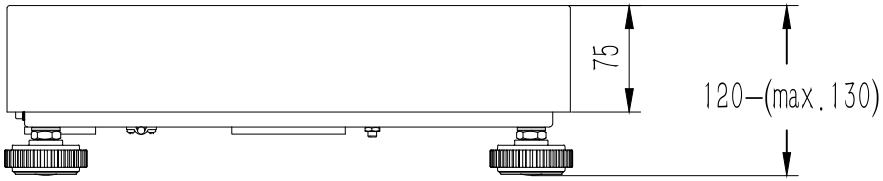


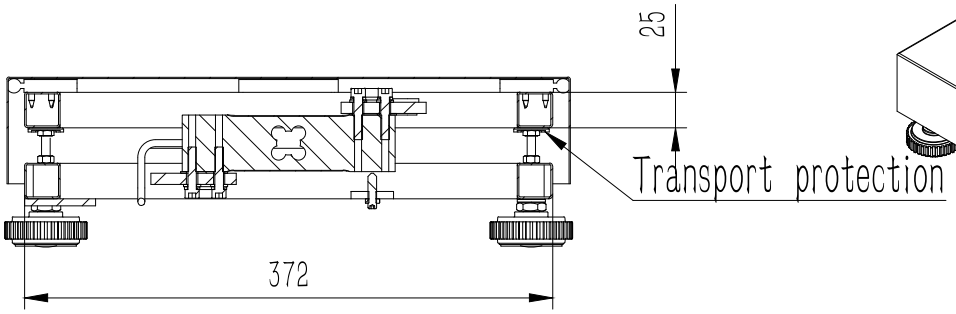


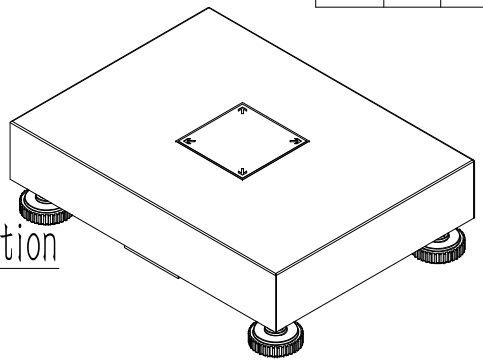
TOLERANCE UNLESS OTHERVISE SPECIFIED DEC ANGLES ±0.1 FOR .X ±0.5 ±0.05 FOR .XX		KERN® KERN & Sohn GmbH			
3RD ANGLE PROJECTION		TITLE:	TKBP 30V20M–A		
DRAWN	ZHUANG				
CHECKED	LIAN	MODEL NO.	B	PART NO.	021450324
APPROVED	LIN	MATERIAL	Weighing plate: stainless steel; Platform:steel,coated;	FINISH	Powder coat "pantone 445"
UNIT	mm	SCALE		DO NOT SCALE DRAWING	SHEET OF

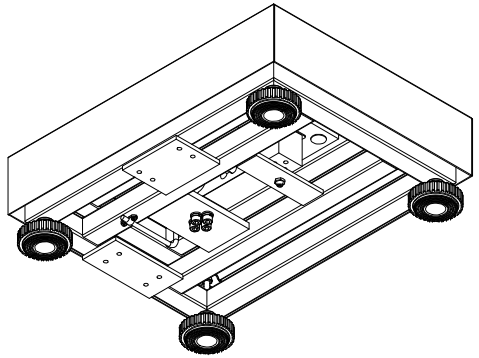
A3

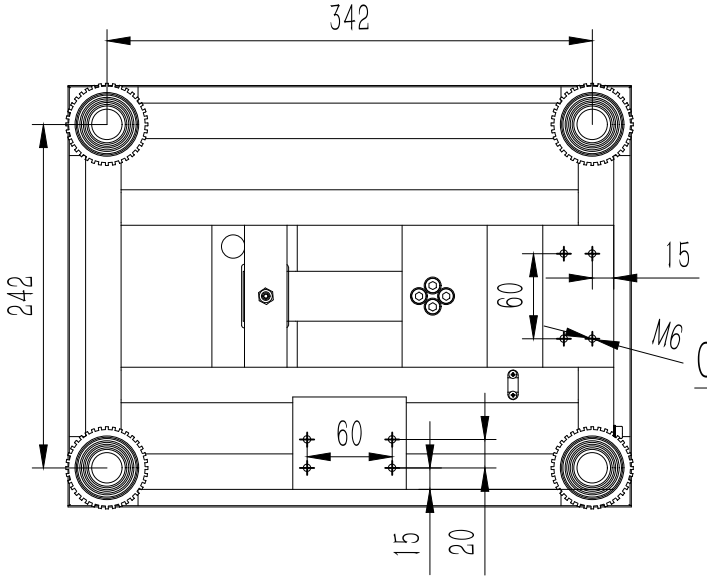
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
1	B	REDRAWN FROM 021450325_REVA	9/20/2023	ZHUANG

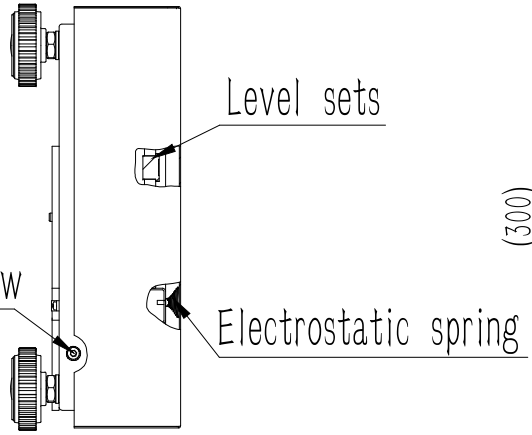


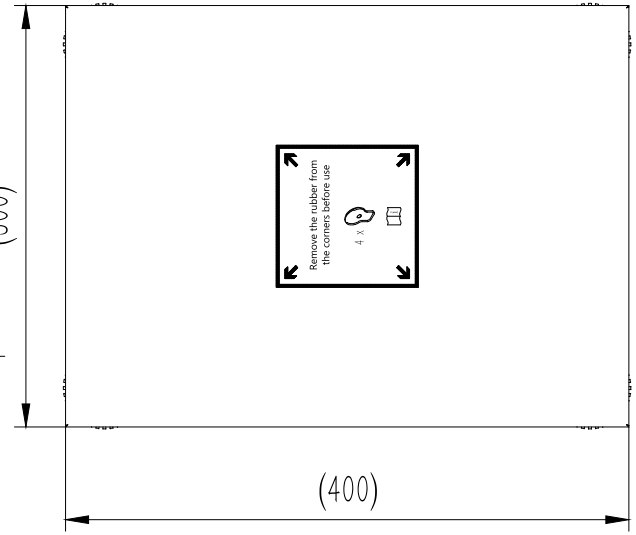


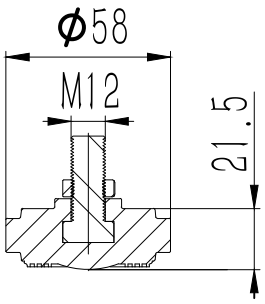


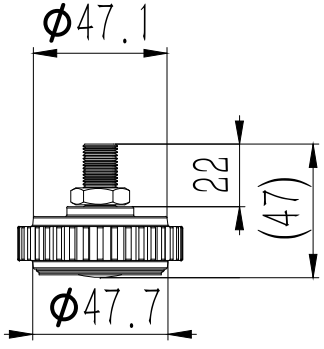








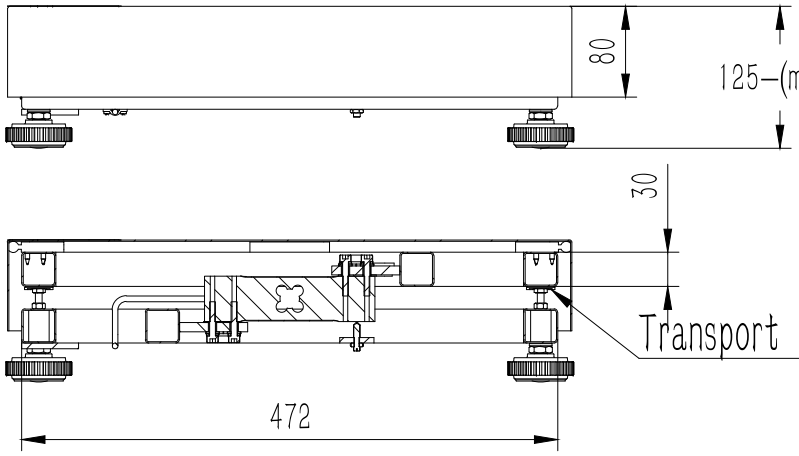


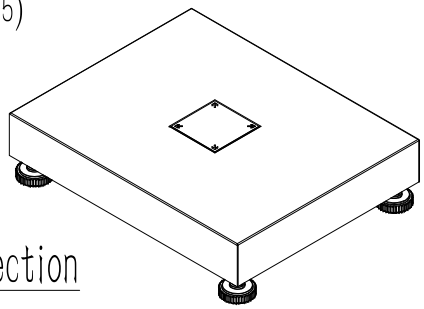


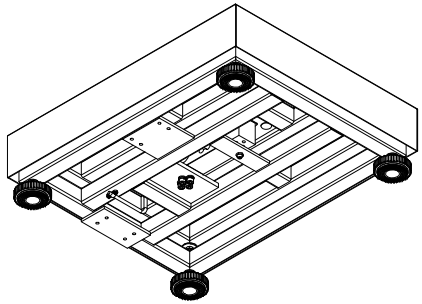
TOLERANCE UNLESS OTHERVISE SPECIFIED DEC ANGLES ±0.1 FOR .X ±0.5 ±0.05 FOR .XX		KERN® KERN & Sohn GmbH			
3RD ANGLE PROJECTION		TITLE:	TKBP 60V20M–A		
DRAWN	ZHUANG				
CHECKED	LIAN	MODEL NO.	B	PART NO.	021450325
APPROVED	LIN	MATERIAL	Weighing plate: stainless steel; Platform:steel,coated;	FINISH	Powder coat "pantone 445"
UNIT	mm	SCALE		DO NOT SCALE DRAWING	SHEET OF

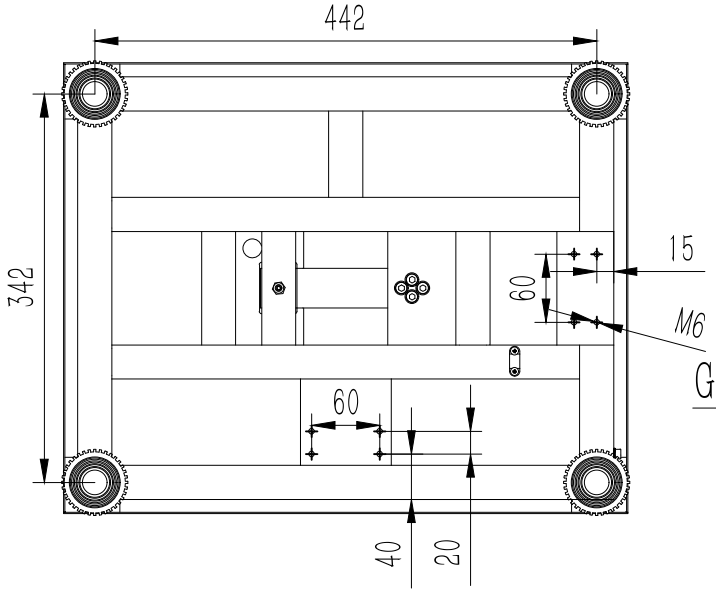
A3

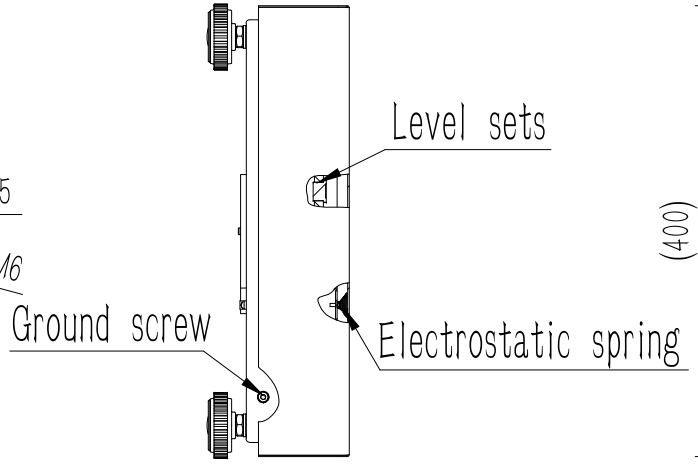
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
1	B	REDRAWN FROM 021450326_REVA	9/20/2023	ZHUANG

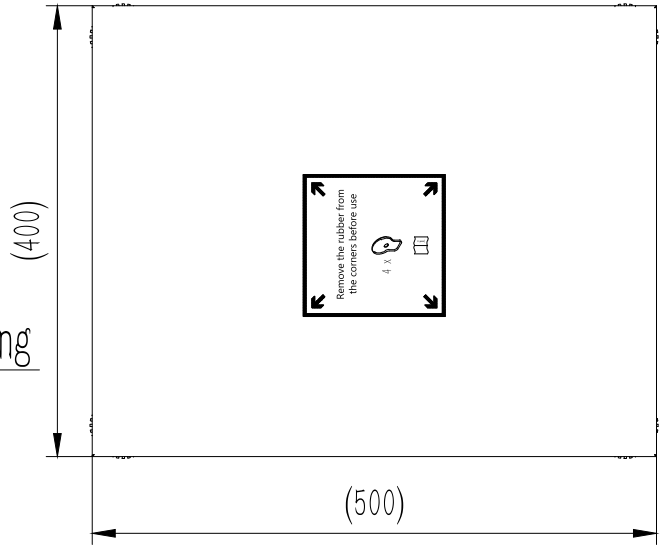


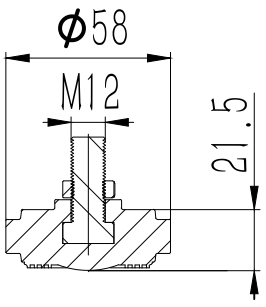


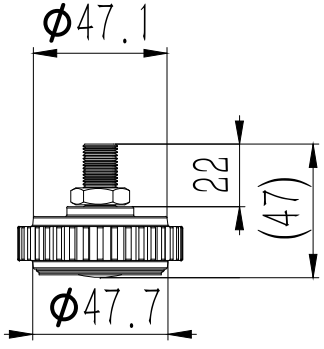








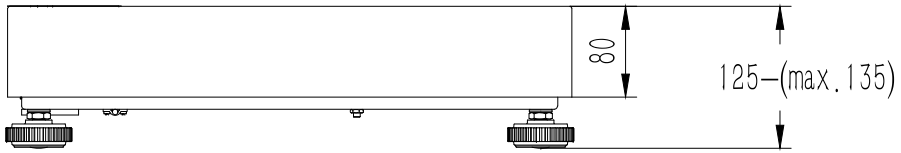


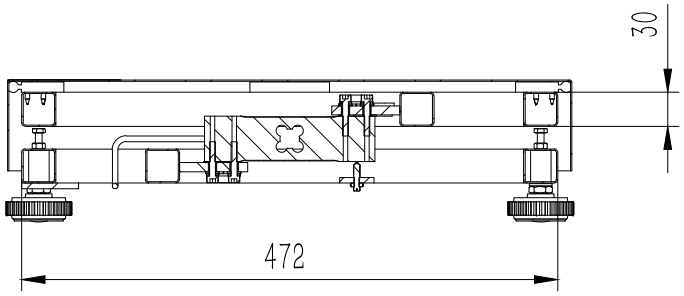


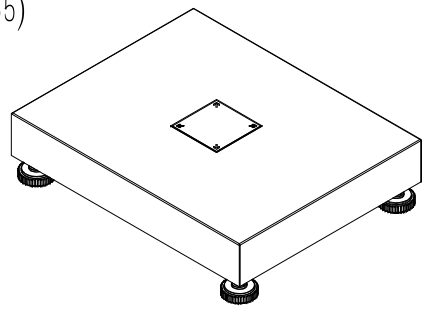
TOLERANCE UNLESS OTHERVISE SPECIFIED DEC ANGLES ±0.1 FOR .X ±0.5 ±0.05 FOR .XX		KERN® KERN & Sohn GmbH			
3RD ANGLE PROJECTION		TITLE:	TKBP 60V20LM–A		
DRAWN	ZHUANG				
CHECKED	LIAN	MODEL NO.	B	PART NO.	021450326
APPROVED	LIN	MATERIAL	Weighing plate: stainless steel; Platform:steel,coated;	FINISH	Powder coat "pantone 445"
UNIT	mm	SCALE		DO NOT SCALE DRAWING	SHEET OF

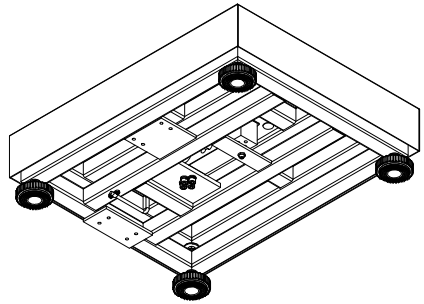
A3

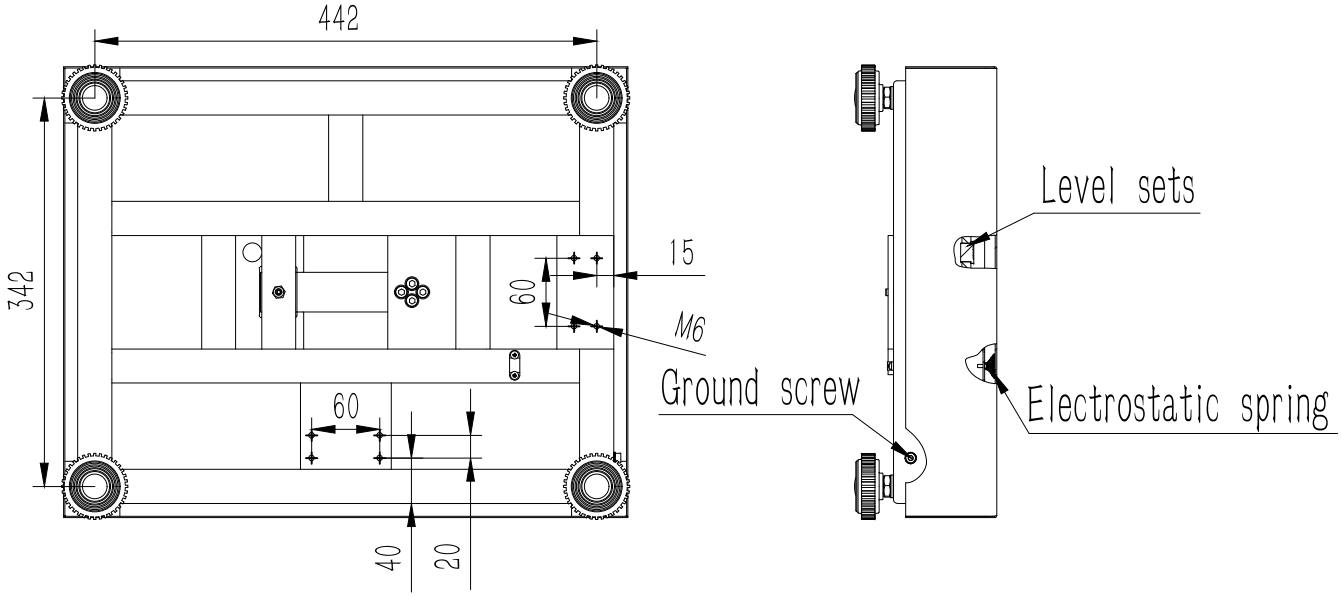
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
1	B	REDRAWN FROM 021450327_REVA	9/20/2023	ZHUANG

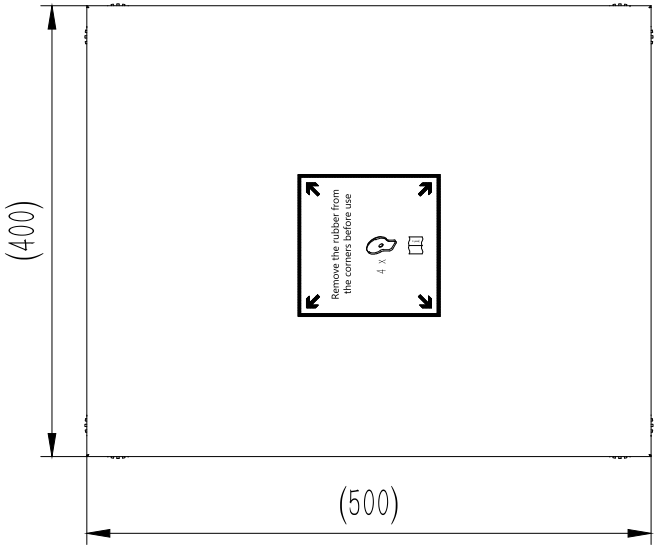


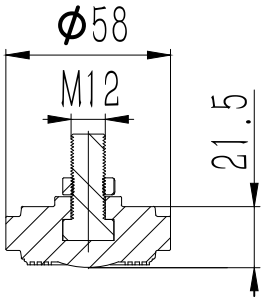


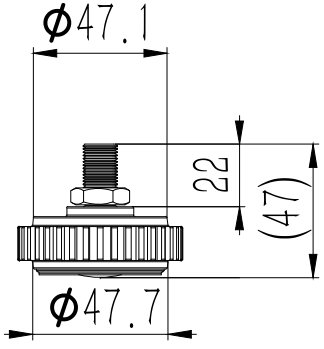








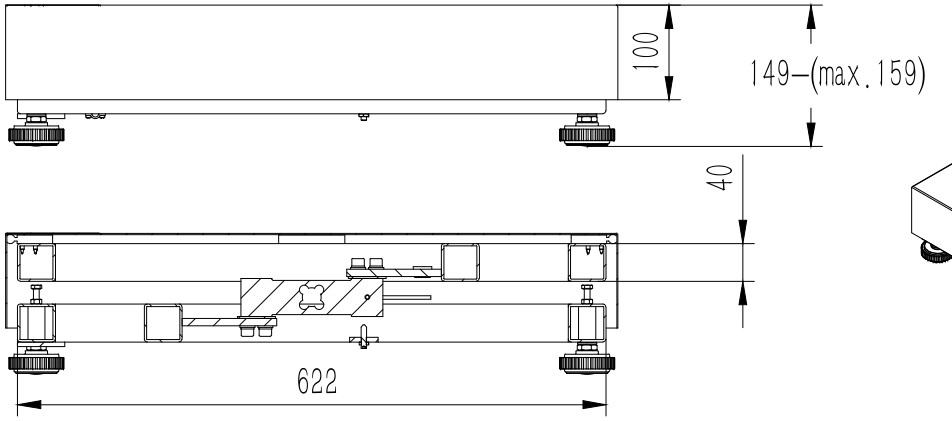


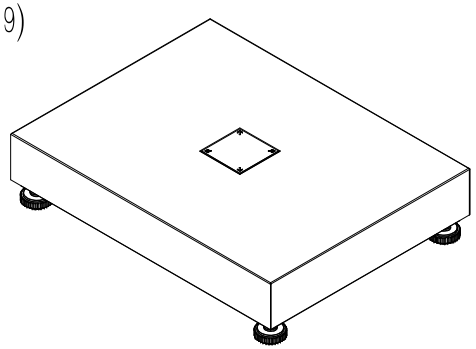


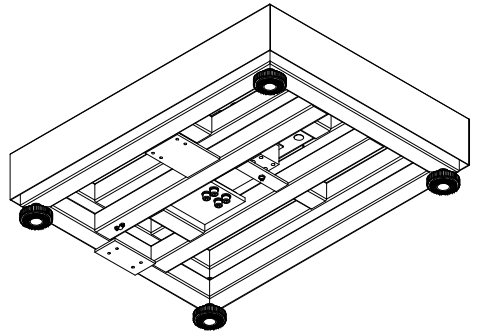
TOLERANCE UNLESS OTHERVISE SPECIFIED DEC ANGLES ±0.1 FOR .X ±0.5 ±0.05 FOR .XX		KERN® KERN & Sohn GmbH			
3RD ANGLE PROJECTION		TITLE:	TKBP 150V20M–A		
DRAWN	ZHUANG				
CHECKED	LIAN	MODEL NO.	B	PART NO.	021450327
APPROVED	LIN	MATERIAL	Weighing plate: stainless steel; Platform:steel,coated;	FINISH	Powder coat "pantone 445"
UNIT	mm	SCALE	DO NOT SCALE DRAWING		SHEET OF

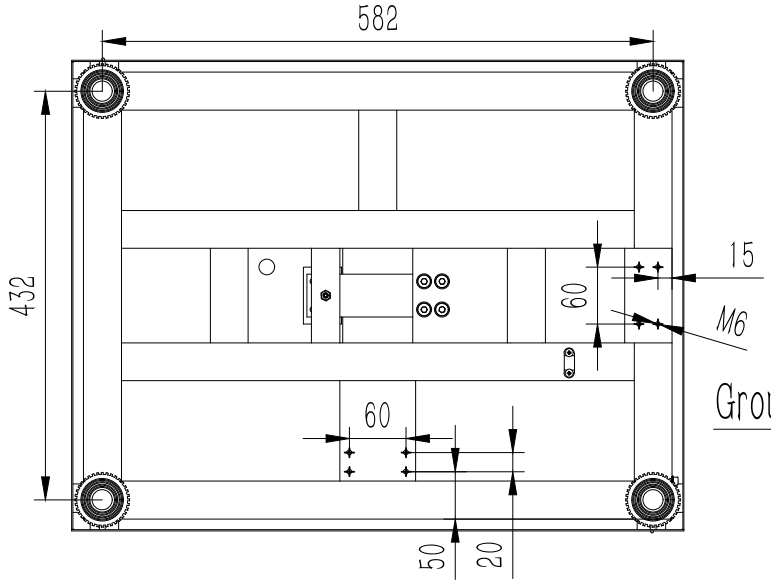
A3

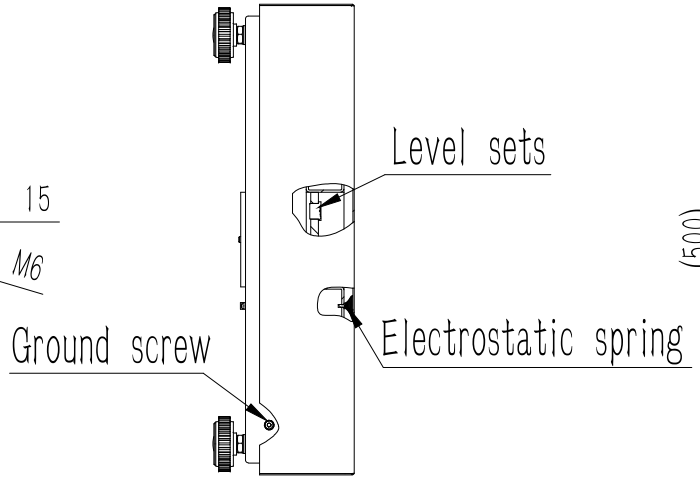
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
1	B	REDRAWN FROM 021450328_REVA	9/20/2023	ZHUANG

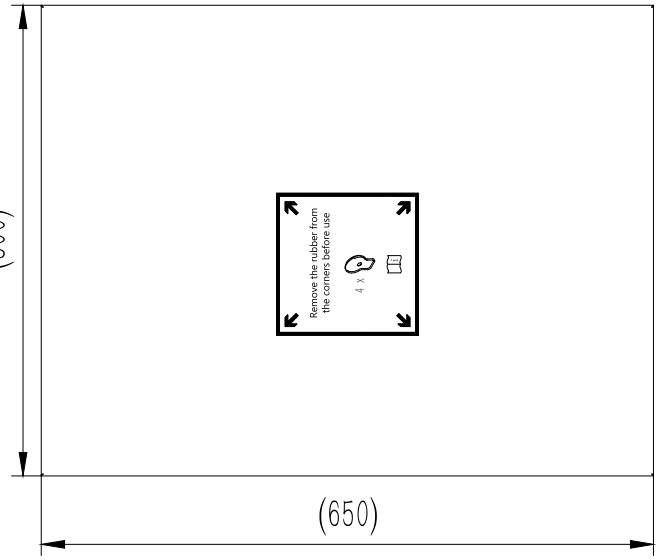


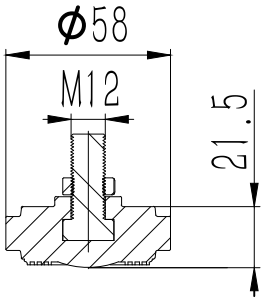


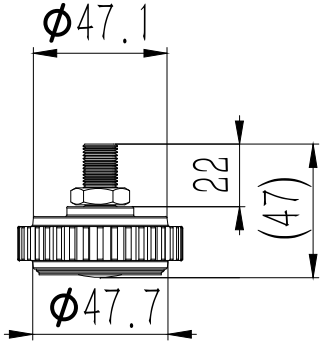








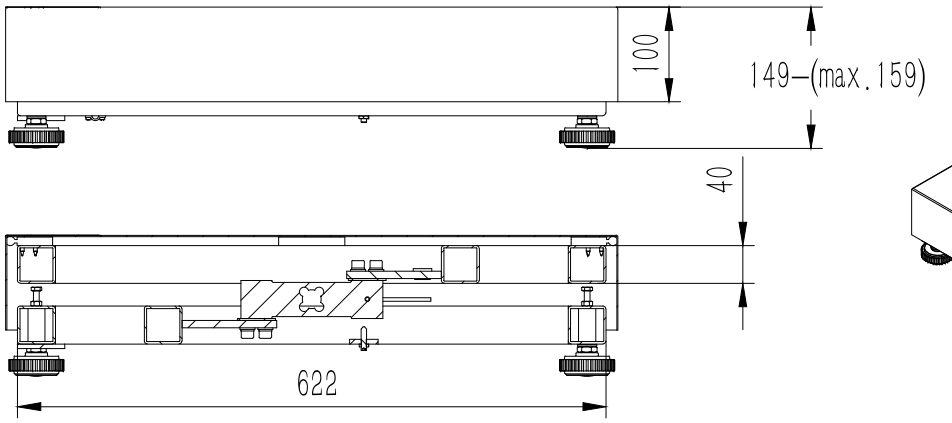


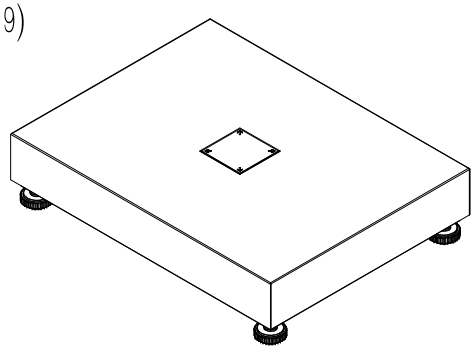


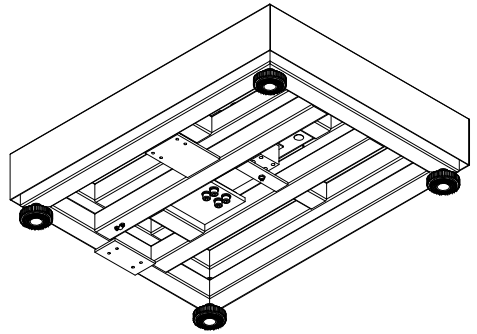
TOLERANCE UNLESS OTHERVISE SPECIFIED DEC ANGLES ±0.1 FOR .X ±0.5 ±0.05 FOR .XX		KERN® KERN & Sohn GmbH			
3RD ANGLE PROJECTION		TITLE:	TKBP 150V20LM–A		
DRAWN	ZHUANG				
CHECKED	LIAN	MODEL NO.	B	PART NO.	021450328
APPROVED	LIN	MATERIAL	Weighing plate: stainless steel; Platform:steel,coated;	FINISH	Powder coat "pantone 445"
UNIT	mm	SCALE		DO NOT SCALE DRAWING	SHEET OF

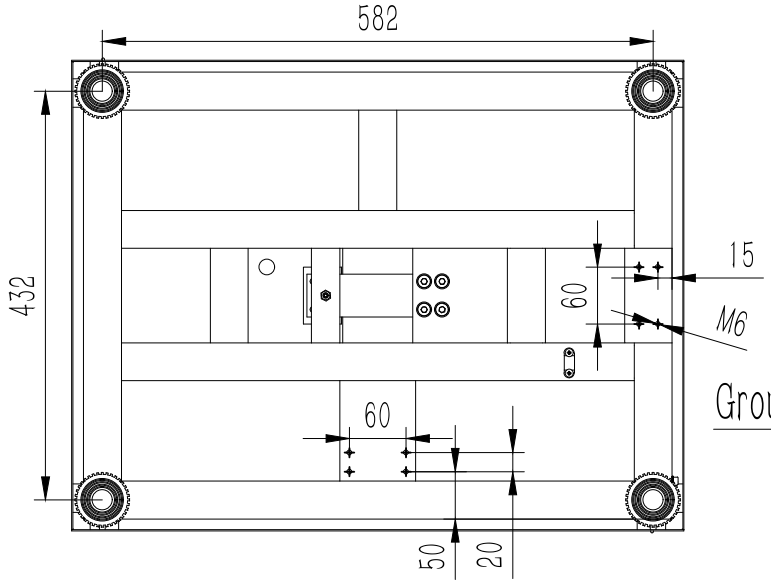
A3

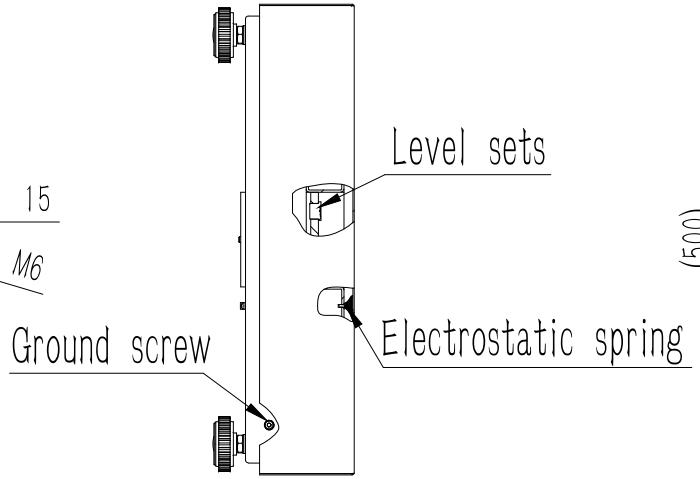
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
1	B	REDRAWN FROM 021450329_REVA	9/20/2023	ZHUANG

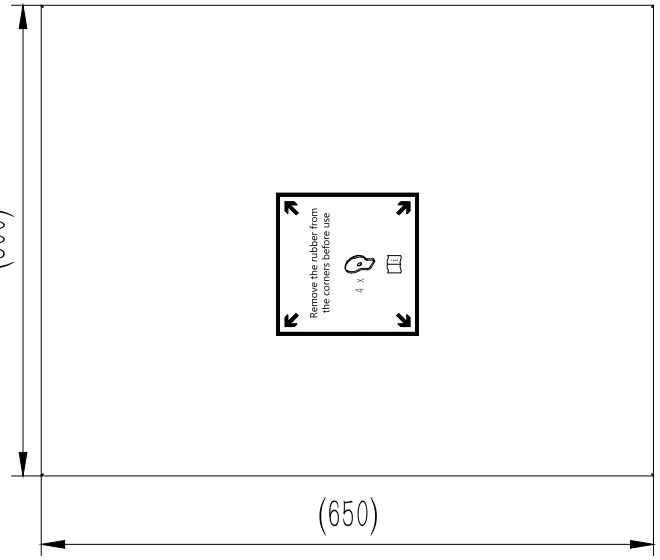


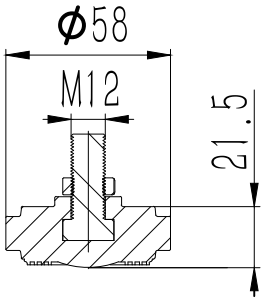


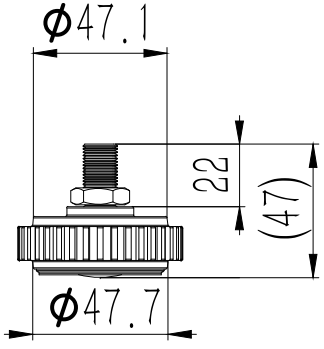








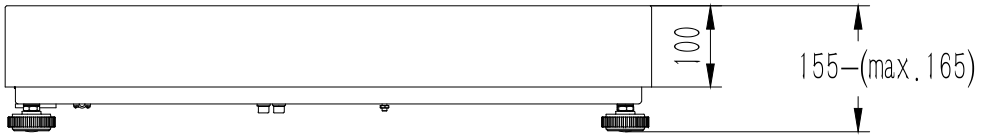


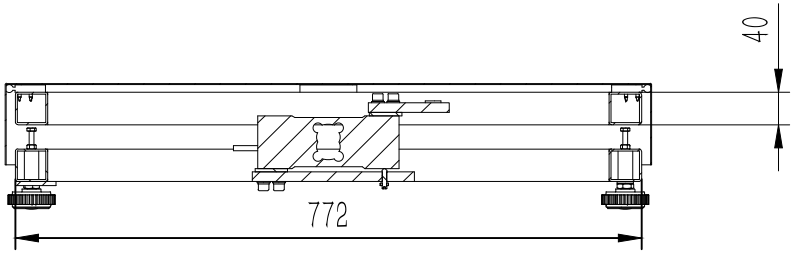


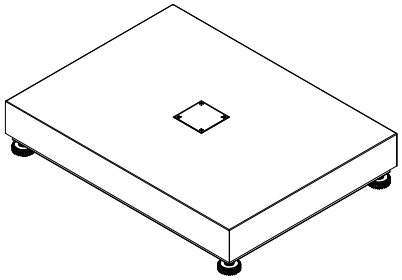
TOLERANCE UNLESS OTHERVISE SPECIFIED DEC ANGLES ±0.1 FOR .X ±0.5 ±0.05 FOR .XX		KERN® KERN & Sohn GmbH			
3RD ANGLE PROJECTION		TITLE:	TKBP 300V20M–A		
DRAWN	ZHUANG				
CHECKED	LIAN	MODEL NO.	B	PART NO.	021450329
APPROVED	LIN	MATERIAL	Weighing plate: stainless steel, Platform:steel,coated,	FINISH	Powder coat "pantone 445"
UNIT	mm	SCALE		DO NOT SCALE DRAWING	SHEET OF

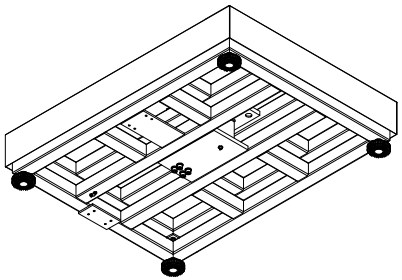
A3

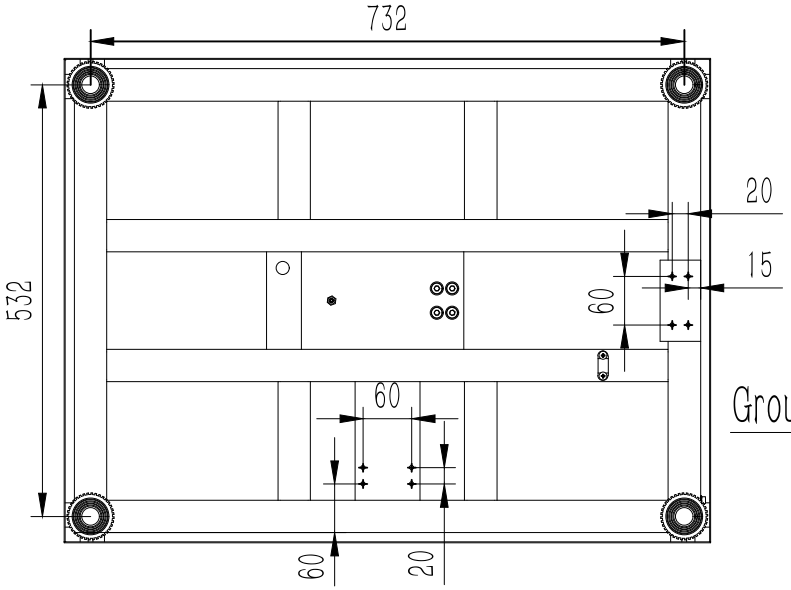
REVISIONS				
ZONE	REV.	DESCRIPTION	DATE	APPROVED
1	B	REDRAWN FROM 021450330_REVA	9/20/2023	ZHUANG

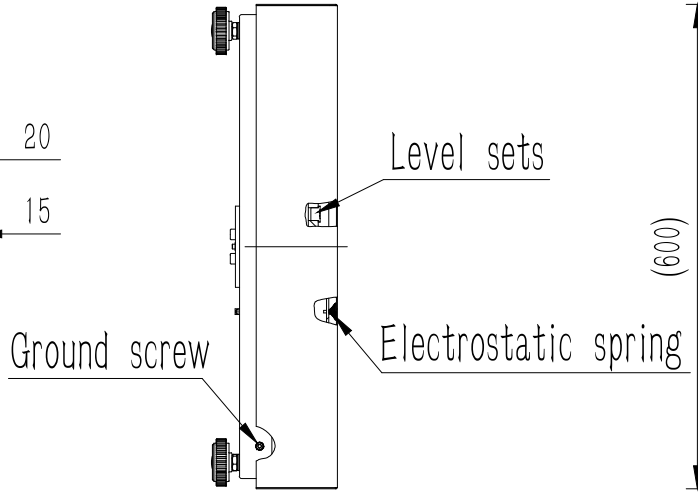


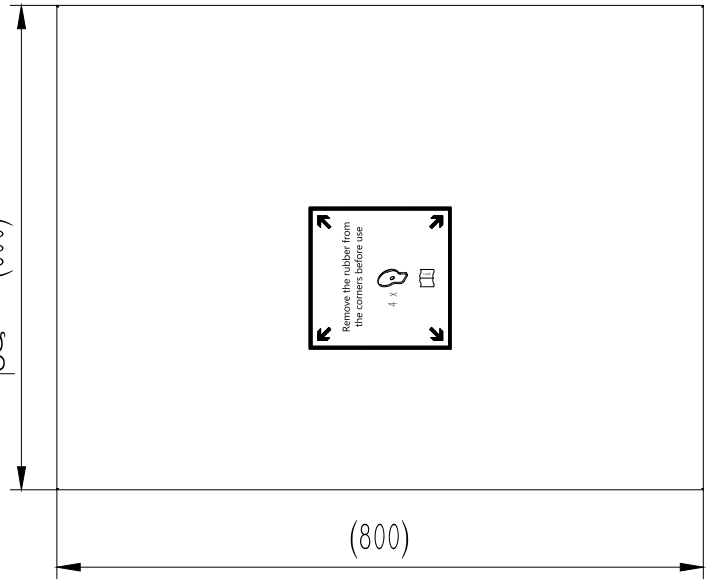


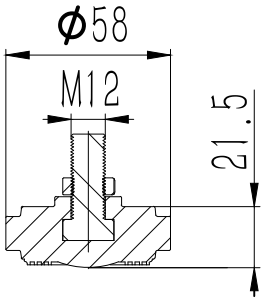


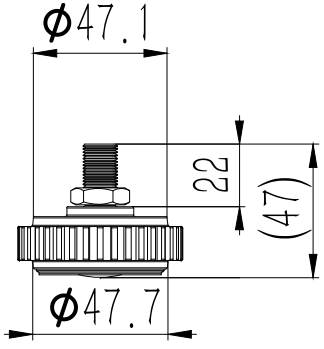












TOLERANCE UNLESS OTHERVISE SPECIFIED DEC ANGLES ±0.1 FOR .X ±0.5 ±0.05 FOR .XX		KERN® KERN & Sohn GmbH			
3RD ANGLE PROJECTION		TITLE:	TKBP 600V20M–A		
DRAWN	ZHUANG				
CHECKED	LIAN	MODEL NO.	B	PART NO.	021450330
APPROVED	LIN	MATERIAL	Weighing plate: stainless steel, Platform:steel,coated,	FINISH	Powder coat "pantone 445"
UNIT	mm	SCALE		DO NOT SCALE DRAWING	SHEET OF