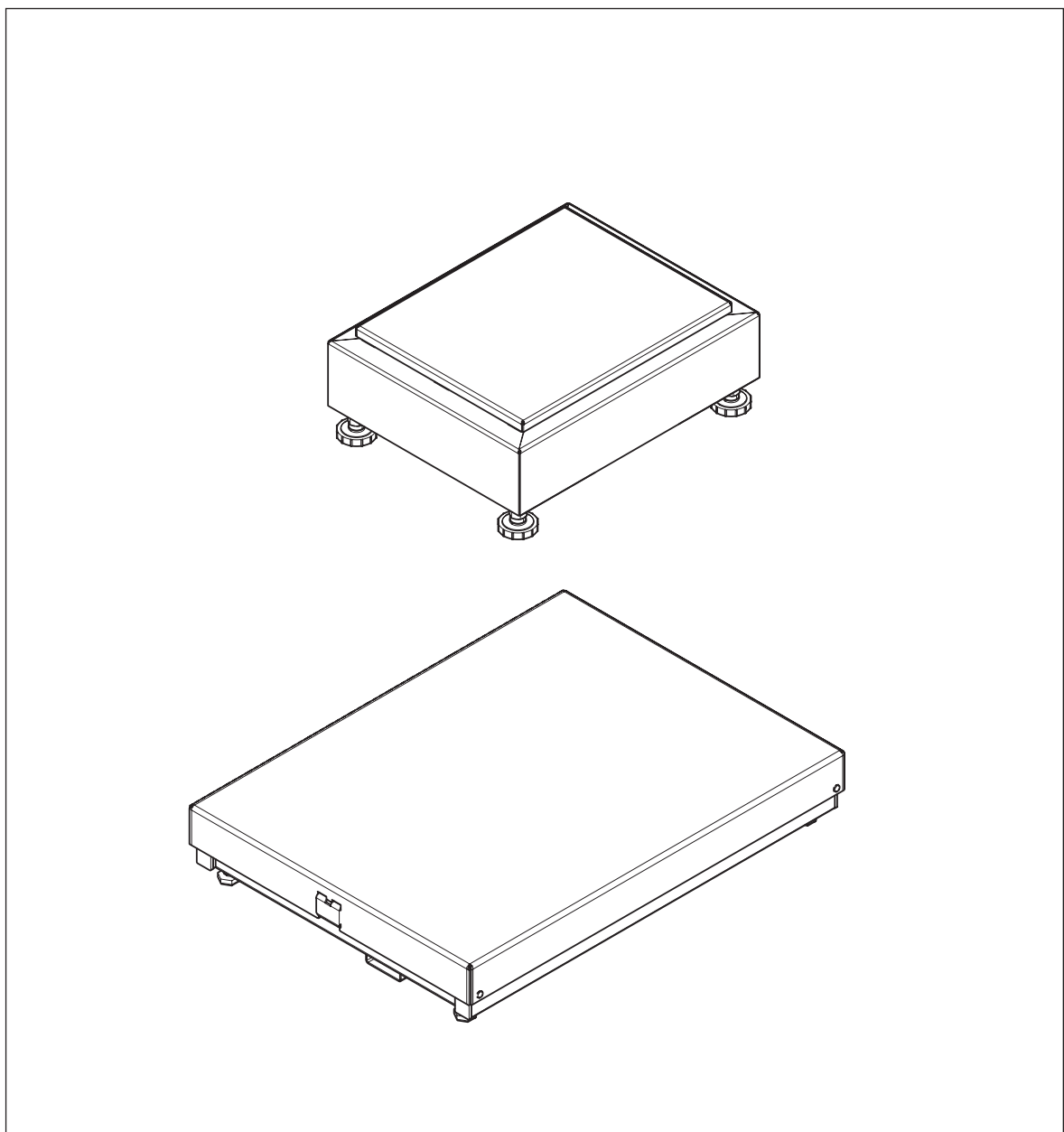


PBK9-series

High precision weighing platforms



METTLER TOLEDO

METTLER TOLEDO Service

Congratulations on choosing the quality and precision of METTLER TOLEDO. Proper use of your new equipment according to this User manual and regular calibration and maintenance by our factory-trained service team ensures dependable and accurate operation, protecting your investment. Contact us about a service agreement tailored to your needs and budget. Further information is available at www.mt.com/service.

There are several important ways to ensure you maximize the performance of your investment:

1. **Register your product:** We invite you to register your product at www.mt.com/productregistration so we can contact you about enhancements, updates and important notifications concerning your product.
2. **Contact METTLER TOLEDO for service:** The value of a measurement is proportional to its accuracy – an out of specification scale can diminish quality, reduce profits and increase liability. Timely service from METTLER TOLEDO will ensure accuracy and optimize uptime and equipment life.
 - **Installation, Configuration, Integration and Training:**
Our service representatives are factory-trained, weighing equipment experts. We make certain that your weighing equipment is ready for production in a cost effective and timely fashion and that personnel are trained for success.
 - **Initial Calibration Documentation:**
The installation environment and application requirements are unique for every industrial scale so performance must be tested and certified. Our calibration services and certificates document accuracy to ensure production quality and provide a quality system record of performance.
 - **Periodic Calibration Maintenance:**
A Calibration Service Agreement provides on-going confidence in your weighing process and documentation of compliance with requirements. We offer a variety of service plans that are scheduled to meet your needs and designed to fit your budget.

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1 Safety information for operation in the Ex area



- ▲ The PBK9-series high precision weighing platforms except PBK989-XS0.6 are approved for operation in Zone 2 (gases), Zone 22 (dusts) and DIV 2 hazardous areas. There is an increased risk in injury and damage when using the explosion-protected weighing platforms in a potentially explosive atmosphere. Special care must be taken when working in such hazardous areas.
- ▲ Any protective foils present in the hazardous area, e.g. on the load plate, must always be removed.

Competence ▲ In hazardous areas, the weighing platforms may only be installed, maintained and repaired by authorized METTLER TOLEDO service personnel.

- Ex approval**
- ▲ No modifications may be made to the weighing platform and no repair work may be performed on the system modules. Any weighing platform or system modules that are used must comply with the specifications contained in the installation instructions. Non-compliant equipment jeopardizes the intrinsic safety of the system, cancels the "Ex" approval and renders any warranty or product liability claims null and void.
 - ▲ The safety of the weighing system is only guaranteed when the weighing system is operated, installed and maintained in accordance with the respective instructions.
 - ▲ Also comply with the following:
 - the instructions for the system modules,
 - the regulations and standards in the respective country,
 - the statutory requirement for electrical equipment installed in hazardous areas in the respective country,
 - all instructions related to safety issued by the owner.
 - ▲ The explosion-protected weighing system must be checked to ensure compliance with the requirements for safety before being put into service for the first time, following any service work and every 3 years, at least.

- Operation**
- ▲ Prevent the build-up of static electricity. Always wear suitable working clothes when operating or performing service work in a hazardous area. Avoid strong mechanical rubbing of the powder-coated surfaces against any material when operating in Zone 22.
 - ▲ Do not use protective coverings for the devices.
 - ▲ Avoid damage to the system components.
 - ▲ If system damage occurs, the system must be put out of operation immediately.
 - ▲ Damaged system components must be replaced immediately.

- Installation**
- ▲ Only install or perform maintenance work on the weighing system in hazardous areas if the following conditions are fulfilled:
 - the intrinsically safe characteristic values and zone approval of the individual components are in accord with one another,
 - the owner has issued a permit ("spark permit" or "fire permit"),
 - the area has been rendered safe and the owner's safety coordinator has confirmed that there is no danger,
 - the necessary tools and any required protective clothing are provided (danger of the build-up of static electricity).
 - ▲ The certification papers (certificates, manufacturer's declarations) must be present.
 - ▲ Lay cabling fixed and securely, bending radius > 5 x cable diameter.
 - ▲ Do not cut through cables.

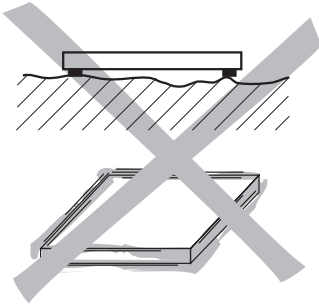
**Additional requirements for
Zones 2/22 or DIV 2**

- ▲ The explosion protected PBK9-series high precision weighing platforms may only be operated in hazardous areas of Zone 2 (gases), Zone 22 (dusts) and DIV 2 in conjunction with weighing terminals that have the appropriate approval and interface specification.
- ▲ The connection cable may not be separated from the weighing terminal while it is energized.
- ▲ Tighten the knurled nut of the M12 connection cable with a tightening torque of 10 Nm.
- ▲ Before setting up the system secure the connection between weighing terminal and weighing platform.

2 Installation

2.1 Preparatory work

2.1.1 Selecting installation location



- ▲ The foundation at the installation location must be capable to safely support the weight of the weighing platform at its support points when it carries the maximum load. At the same time, it should so stable that no vibrations occur during weighing operations. These requirements also apply when the weighing platform is integrated in conveying systems and the like.
- ▲ Ensure that the ground at the installation location is even.
- ▲ Ensure that there are no vibrations from machines near the installation site.
- ▲ Ensure that there are no drafts at the installation site.



EXPLOSION HAZARD

PBK989-XS0.6 is not approved for hazardous areas.

- ▲ Do not use PBK989-XS0.6 in any kind of hazardous areas.

2.1.2 Ambient conditions

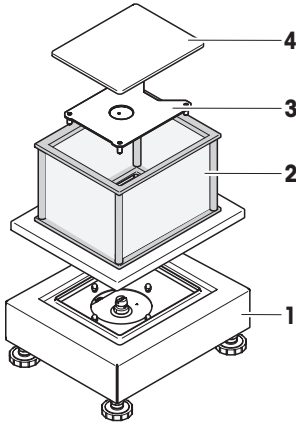
- Use powder-coated/enamelled weighing platforms only in a dry environment.
- In a damp environment, in wet operation or when working with chemicals: Use stainless-steel weighing platforms.

2.1.3 Accessories

- Completely unpack the accessories provided with the weighing platform.
 - 1 bottle of oil, suitable for foodstuffs
 - 1 set of measuring data signs for selectable configurations
 - Optional: ACC409xx-SICSpro-IDNet converter (incl. identcard kit)

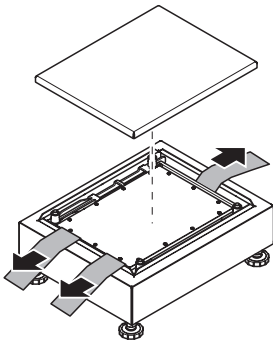
2.2 Setting up

2.2.1 PBK989-XS0.6



1. Unpack weighing platform (1), windshield (2), load plate support (3) and load plate (4).
2. Mount the load support (3) on the weighing platform.
3. Put the windshield (2) on.
4. Put the load plate (4) on the load support.

2.2.2 PBK989-A3 / PBK989-A6

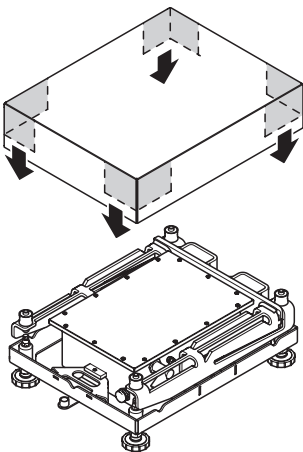


1. Remove the weighing platform from the packing.
2. Lift off the load plate.
3. Remove the transport locks (3 cardboard strips).
4. Put the load plate on.

2.2.3 PBK989-A15 / PBK989-A30 / PBK-A60

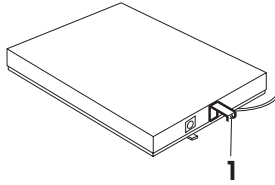
- Remove the weighing platform from the packing.

2.2.4 PBK98_-B60 / PBK98_-B120

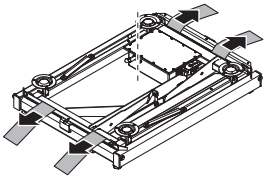


1. Remove the weighing platform from the packing.
2. Lift off the load plate.
3. Remove the transport locks from the corners (4 cardboard angles).
4. Put the load plate on.

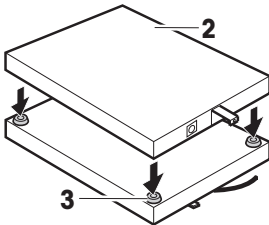
2.2.5 PBK98_-CC150 / PBK98_-CC300



1. Remove the weighing platform from the packing.
2. Remove the load plate by pivoting the two side handles (1) outward.



3. Remove the transport locks (2 x 2 cardboard strips between lever and base frame + 4 cardboard angles in the corners).

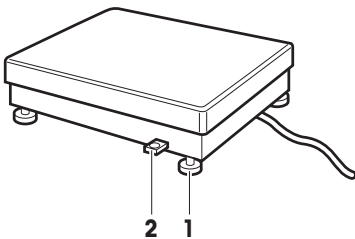


4. Replace the load plate (2) so that the symbol ● is located above the level indicator.
5. Make sure that the load supports (3) in the corners of the weighing platform are vertical.

2.3 Levelling

Notes

- Only weighing platforms that have been levelled precisely horizontally provide accurate weighing results.
- Redo levelling when the weighing platform has been moved.



1. Level the weighing platform with the 4 foot bolts (1) using the level indicator (2): The air bubble of the level indicator must come to rest within the ring marking.
2. Ensure even contact of the foot bolts. Every foot must stand safely and must have full contact with its entire surface. Check the stability of the weighing platform by pressing down on or rocking it at the corners.
3. Lock the foot bolts with the nuts.

2.4 Lengthening and installing connection cable

The connection cable may be lengthened.

Standard version up to 100 m

Ex version up to 50 m

→ Route the connection cable directly out of the weighing platform to the weighing terminal or the ConBloc (PBK98_APW weighing platforms only).

CAUTION

If the cable is laid in a pipe, ensure that the pipe is of a sufficient diameter.

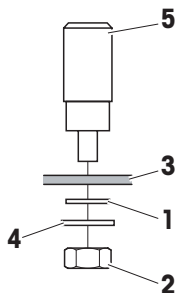
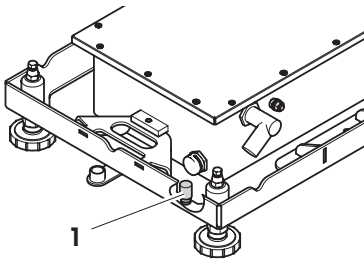
2.5 Equipotential bonding in hazardous areas

The equipotential bonding must be installed by a professional electrician when using the weighing platform in hazardous areas. METTLER TOLEDO Service only has a monitoring and consulting function here.

→ Connect equipotential bonding (PA) of all devices (weighing platform and service terminal) in accordance with the country-specific regulations and standards. In the process, make sure that all device housings are connected to the same potential via the PA terminals.

Equipotential bonding sizes A/AB

→ Mount the equipotential bonding clamp (1) on the base frame.



1 Serrated lock washer A 4.3 DIN 6798

2 Hexagonal lock nut M4 DIN 934

3 Base frame

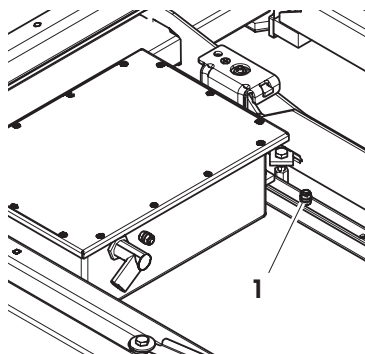
4 Washer 4.3 DIN 125

5 Equipotential bonding clamp

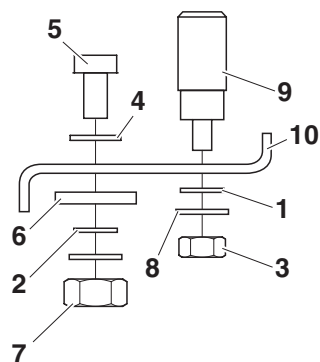
Mounting materials are enclosed with the weighing terminal for hazardous areas, e.g. IND690xx.

Equipotential bonding sizes B/CC

→ Mount the equipotential bonding clamp (1) on the base frame.



Mounting materials are enclosed with the weighing terminal for hazardous areas, e.g. IND690xx.



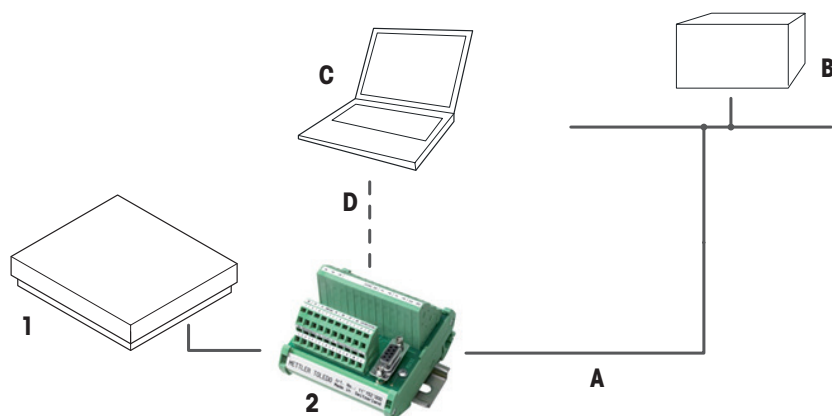
- 1 Serrated lock washer A 4.3 DIN 6798
- 2 Serrated lock washer A 5.3 DIN 6798
- 3 Hexagonal lock nut M4 DIN 934
- 4 Washer 5.3 DIN 125, 2 pcs
- 5 Cheese head screw M5x16 DIN 912
- 6 Base frame
- 7 Hexagonal lock nut M5 DIN 934
- 8 Washer 4.3 DIN 125
- 9 Equipotential bonding clamp
- 10 Equipotential bonding plate

2.6 Connecting PBK98_APW weighing platforms

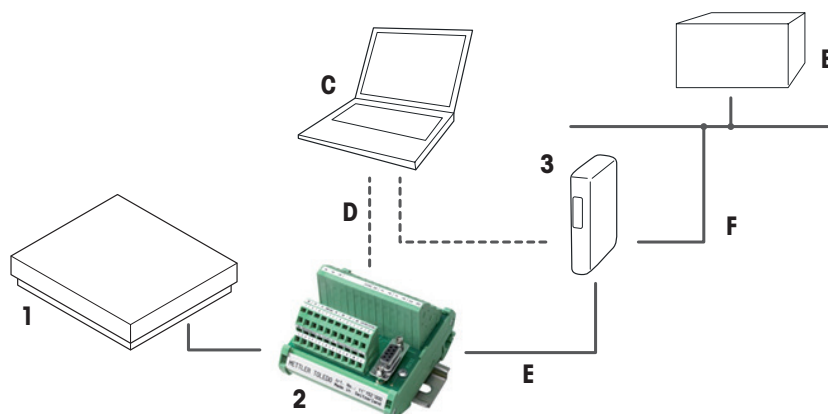
2.6.1 Typical configurations

To connect the PBK98-APW weighing platform to its environment, the ConBlock / ConBlock IP66 is recommended.

Direct connection to the PLC



Connection to the PLC via Fieldbus module



METTLER TOLEDO components

- 1 PBK98_APW weighing platform
- 2 ConModule connection module / ConBlock IP66 connection module with IP66 housing
- 3 Fieldbus module (Profibus, Profinet, DeviceNet, Ethernet/IP, CC-Link)

Customer components

- A Connection cable to PLC, RS232 or RS422/RS485
- B PLC
- C PC or laptop (for configuration and service purpose)
- D Standard RS232 cable (DB9 male/female)
- E Cable, 1 m, D-Sub 9 male <-> open ends
- F Fieldbus cable

2.6.2 Installation with weighing platforms used in hazardous areas

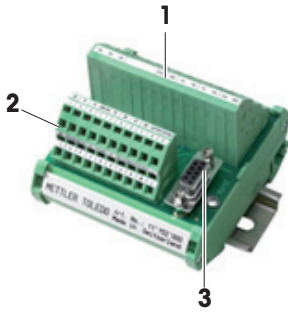


EXPLOSION HAZARD

ConBlock / ConBlock IP66 is not approved for hazardous areas.

- ▲ Only install the ConBlock / ConBlock IP66 in the safe area.
- ▲ Always use a suitable safety barrier to separate equipment located in the hazardous area from the safe area.

2.6.3 ConBlock / ConBlock IP66 connection



- 1 System connection side: 10 terminals
- 2 Weighing platform connection side: 2 x 10 terminals
- 3 RS232 interface (D-Sub 9), for configuration and servicing

ConBlock connections – weighing platform side

The PBK98_APW weighing platform is delivered with a 12 wire open end cable. The corresponding terminals of the ConBlock are identified by the wire color and the respective pin designation.

Pin	J	D	H	T	F	K	G	E	A	O
Color	–	–	–	–	–	–	–	–	white	brown and green
Signal	–	–	–	–	–	–	–	–	V DC	GND

Pin	L	U	P	C	R	B	S	N	M	Shield
Color	orange	black	purple	violet	blue	red	grey	pink	yellow	braid
Signal	Tx+	Rx+	Tx–	Rx–	CTS	GND INT	RTS	RXD	TXD	Shield

ConBlock connections – system side

The connection terminal strip is grouped according to the following functions: RS232 and RS422/RS485 interface, input voltages and digital inputs and outputs.

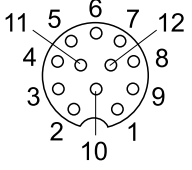
RS232		RS422 (in)		RS422 (through)		Power	–	–	–
RXD	RTS	Rx+	Tx+	Rx+	Tx+	V DC	–	–	–
TXD	CTS	Rx–	Tx–	Rx–	Tx–	GND	–	–	–
GND INT	Shield	Shield		Shield		PE	–	–	–

RS422 / RS485 configuration

The RS422 interface is directly available via the connection terminals. For the RS485 configuration, the following signals must be connected:

- A–: Tx– and Rx–
- B+: Tx+ and Rx+

Load cell connector

Connector M12	Pin	Load cell signal		Color
	1	V DC in		White
	2	GND in		Brown
	3	GND in		Green
	4	TXD (RS232)		Yellow
	5	RTS (RS232)		Grey
	6	RXD (RS232)		Pink
	7	CTS (RS232)		Blue
	8	GND (RS232)		Red
	9	TX+ (RS422)	B+ (RS485)	Orange
	10	TX- (RS422)	A- (RS485)	Purple
	11	RX+ (RS422)	B+ (RS485)	Black
	12	RX- (RS422)	A- (RS485)	Violet
	Shield			Braid

2.7 Commissioning

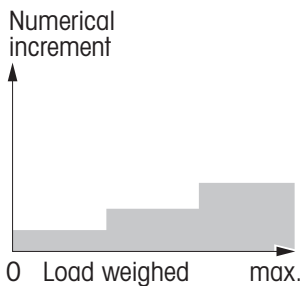
- Switch on the weighing system at the final location only.
When switching on the weighing system for the first time, it will perform an automatic geo code adjustment using the calibration weight which is integrated in the load cell.

3 Configuration possibilities

3.1 General information

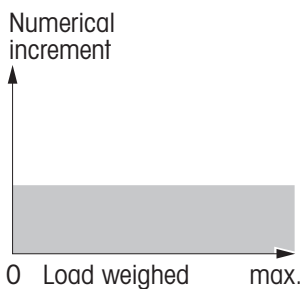
3.1.1 MultiInterval

MultiInterval precision means automatic switchover of the numerical increment (readability) in dependence on the applied load.



3.1.2 Single Range and High Resolution

Single Range and High Resolution mean that the numerical increments (readability) remain the same across the entire weighing range.



3.1.3 Additional setting options

- All other adjustment variables (adjustment to the weighing process and vibrations, as well as adjustment of stability monitoring and the zero point correction) are adjusted to the usual user conditions, however, they can be changed in the Scale menu of the weighing terminal if necessary.
- When ordering the IDNet option, the ACC409xx-SICSpro-IDNet converter including the identcard kit and a set of measuring data signs for the selectable configurations is delivered.
- If the standard configuration does not meet your needs, it is possible to reconfigure the weighing platform with the terminal. To do this, see the terminal operating instructions.
- Apply the selected configuration corresponding to the factory-mounted measuring data sign to the Identcard, and the Max-Min sign near the IDNet terminal display.
- When the configuration is changed, it is also possible to change the preload range in addition to the weighing range and the readability.

3.2 Configuration data in the factory setting

PBK989-	XS0.6	A3	A6	AB15	AB30
Maximum capacity	0.61 kg	3 kg	6 kg	15 kg	30 kg
Max1 / e1	0.61 kg / 0.01 g	1 kg / 0.1 g	2 kg / 0.2 g	5 kg / 0.5 g	10 kg / 1 g
Max2 / e2	–	2 kg / 0.2 g	5 kg / 0.5 g	10 kg / 1 g	20 kg / 2 g
Max3 / e3	–	3 kg / 0.5 g	6 kg / 1 g	15 kg / 2 g	30 kg / 5 g
Zero-setting range	± 0.012 kg	± 0.06 kg	± 0.12 kg	± 0.3 kg	± 0.6 kg
Preload range (typical)	0.11 kg	0.54 kg	1.08 kg	2.7 kg	5.4 kg

PBK98_ -	AB60	B60	B120	CC150	CC300
Maximum capacity	60 kg	60 kg	120 kg	150 kg	300 kg
Max1 / e1	20 kg / 2 g	20 kg / 2 g	50 kg / 5 g	50 kg / 5 g	100 kg / 10 g
Max2 / e2	50 kg / 5 g	50 kg / 5 g	100 kg / 10 g	100 kg / 10 g	200 kg / 20 g
Max3 / e3	60 kg / 10 g	60 kg / 10 g	120 kg / 20 g	150 kg / 20 g	300 kg / 50 g
Zero-setting range	± 1.2 kg	± 1.2 kg	± 2.4 kg	± 3 kg	± 6 kg
Preload range (typical)	10.8 kg	10.8 kg	21.6 kg	27 kg	54 kg

4 Planning assemblies

4.1 Notes on planning

Due to their design characteristics, the weighing platforms are suitable for installation in conveying systems. The following specifications and dimensional drawings form the basis for the design of the required assemblies.

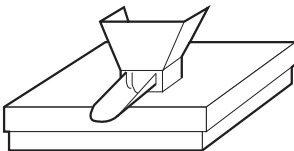
- The weighing platform may only be supported by the support feet, and never by the frame or lever parts.
- The weighing platform may only be permanently installed on the support feet.
- Moving or rotating parts on the weighing platform must be designed so that they do not affect the weighing result. Balance rotating parts.
- The load plate must be free on all sides so that there is no connection between the load plate and permanently mounted parts, even by falling parts or dirt deposits.
- Lay cables or hoses between the weighing platform and other machine parts so that they do not exert any force on the weighing platform.

CAUTION

When mounting assemblies, make sure that no metal chips get into the weighing platform.

→ Remove the load plate from the weighing platform before working on the load plate.

4.2 Preload range



The weight of the structural parts permanently mounted on the weighing platform is referred to as "preload". The preload is electrically compensated in the weighing platform so that the full weighing range is available. The maximum preload (or the zero-setting range) that can be compensated depends on the configured weighing range.

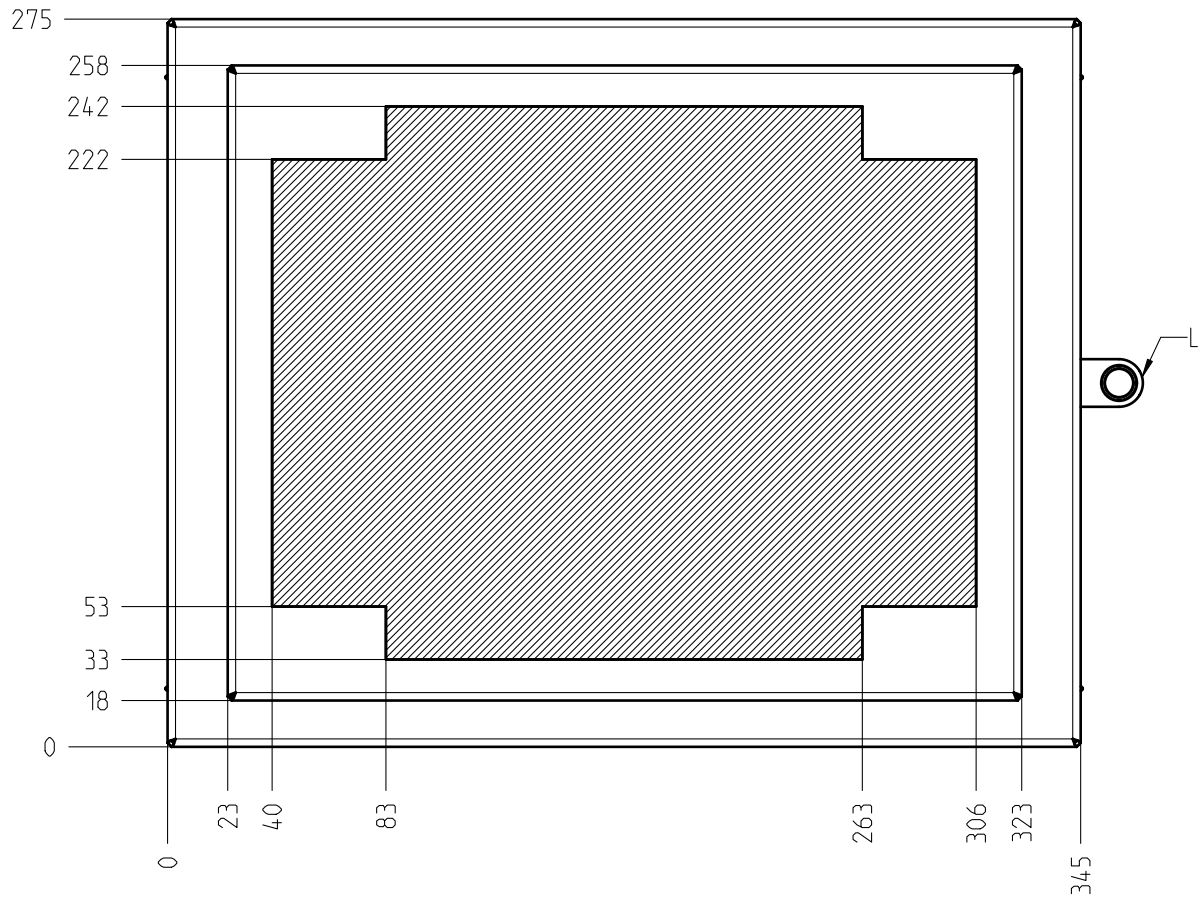
For the preload range of the individual weighing platform refer to section "3.2 Configuration data in the factory setting" on page 15.

CAUTION

The assemblies must already be mounted when connecting the weighing platform.

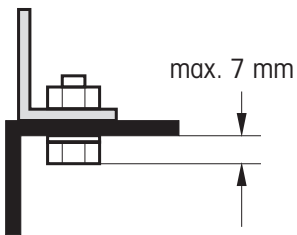
4.3 Mounting possibilities

Mounting possibilities PBK989-A3 / PBK989-A6



L Level bubble

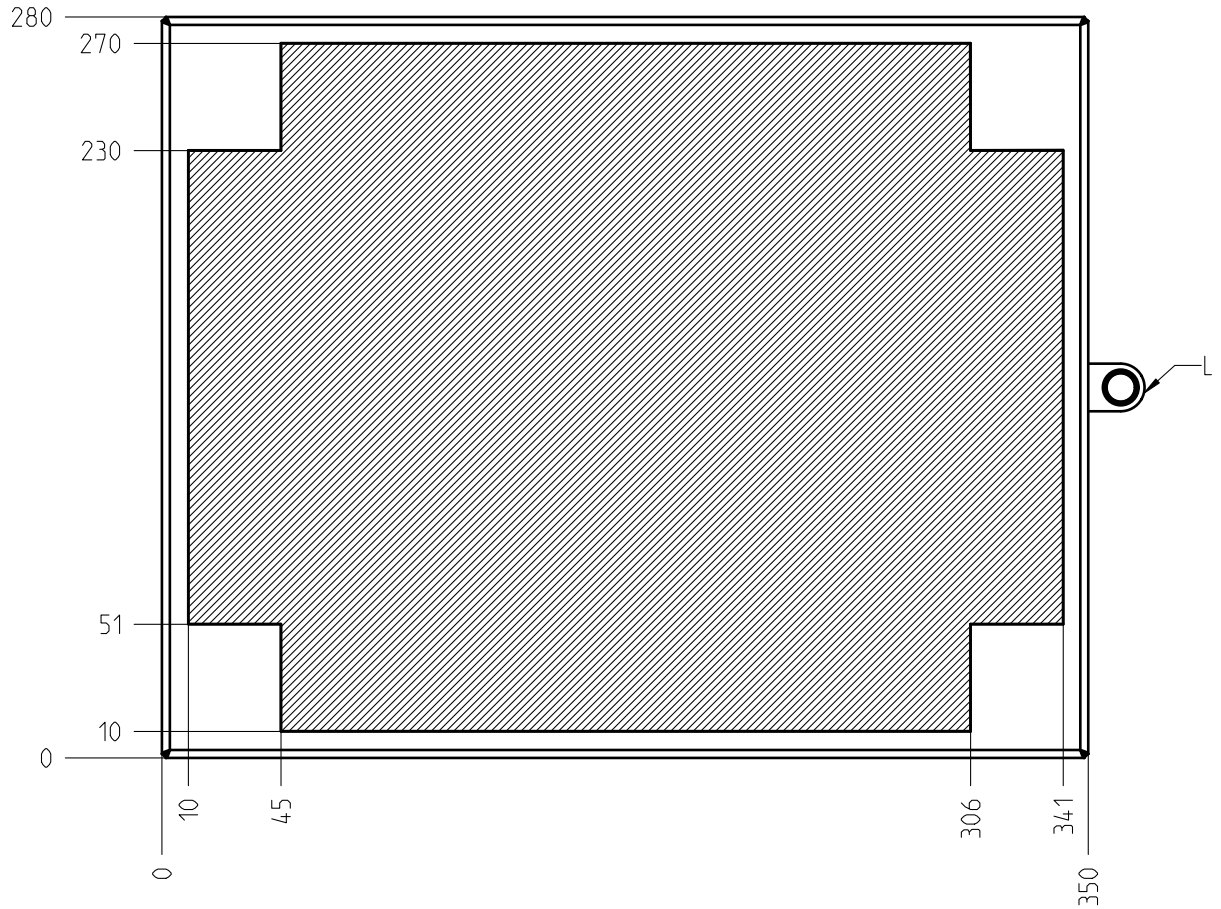
Dimensions in mm



- Bridge assemblies can be mounted in the shaded areas.
Recommended mounting type: Bolting on, welding on.
- Remove the load plate and drill through for this purpose.
- Mounting parts (e.g. bolts and nuts) may extend to a maximum of 7 mm beyond the underside of the load plate.

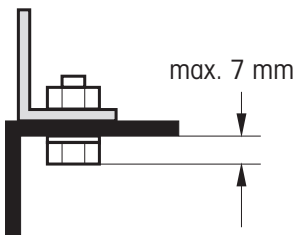
Technical version: 11/2014

Mounting possibilities PBK989-AB15 / PBK989-AB30



L Level bubble

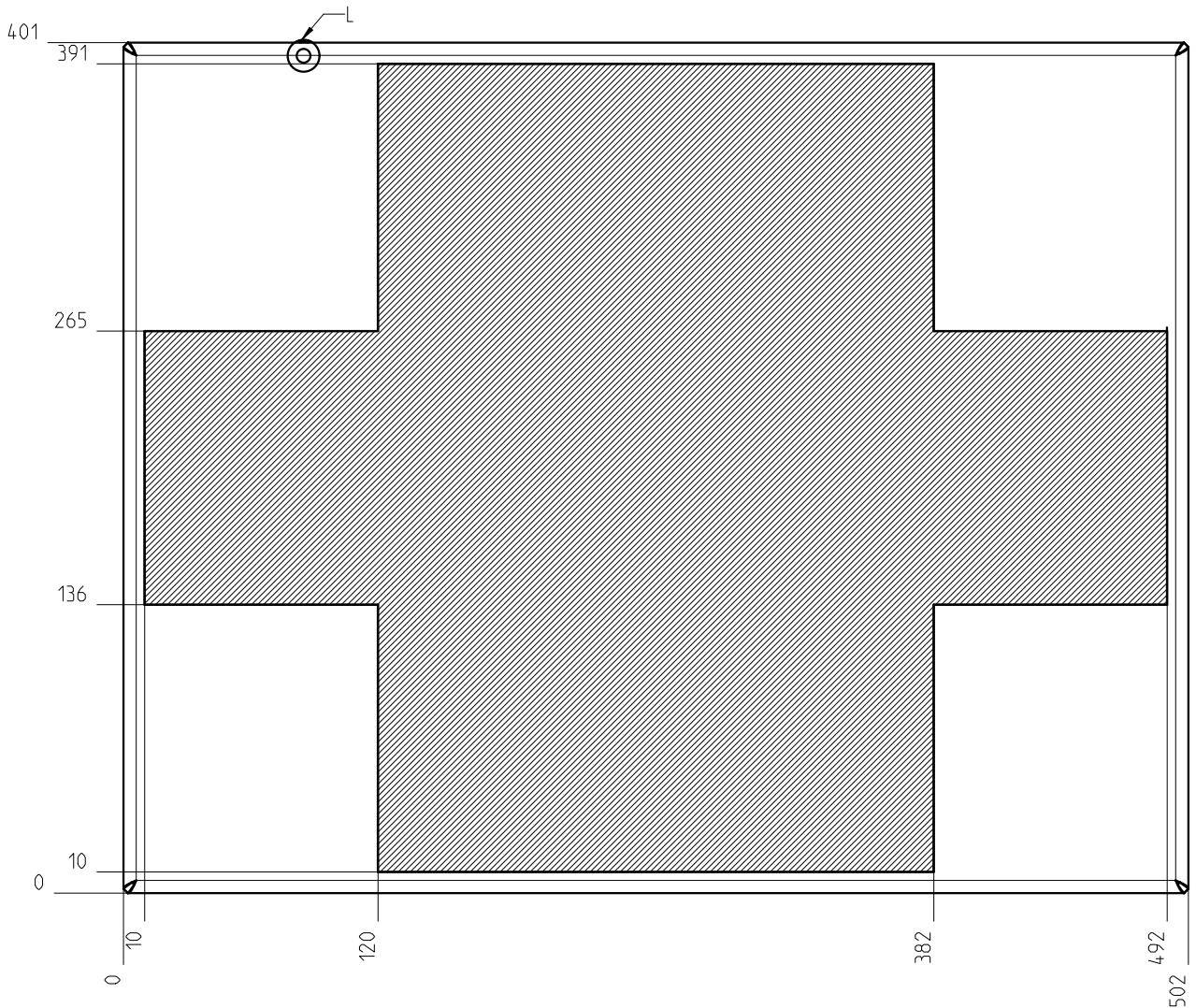
Dimensions in mm



- Bridge assemblies can be mounted in the shaded areas.
Recommended mounting type: Bolting on, welding on.
- Remove the load plate and drill through for this purpose.
- Mounting parts (e.g. bolts and nuts) may extend to a maximum of 7 mm beyond the underside of the load plate.

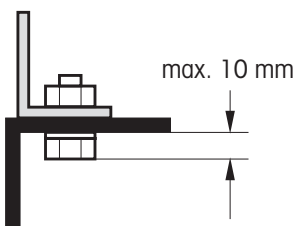
Technical version: 11/2014

Mounting possibilities PBK98_-B60 / PBK98_-B120



L Level bubble

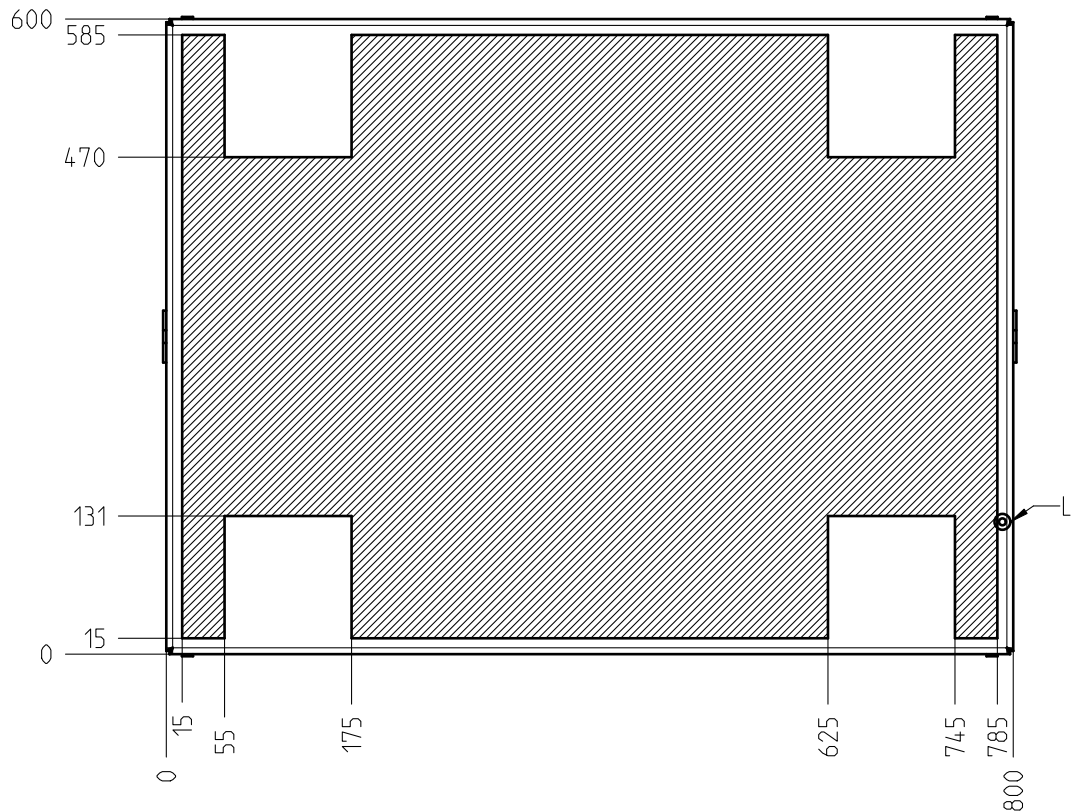
Dimensions in mm



- Bridge assemblies can be mounted in the shaded areas.
Recommended mounting type: Bolting on, welding on.
- Remove the load plate and drill through for this purpose.
- Mounting parts (e.g. bolts and nuts) may extend to a maximum of 10 mm beyond the underside of the load plate.

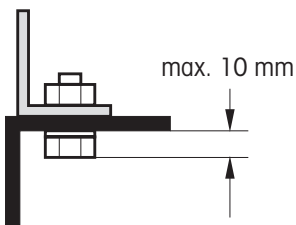
Technical version: 11/2014

Mounting possibilities PBK98_-CC150 / PBK98_-CC300



L Level bubble

Dimensions in mm

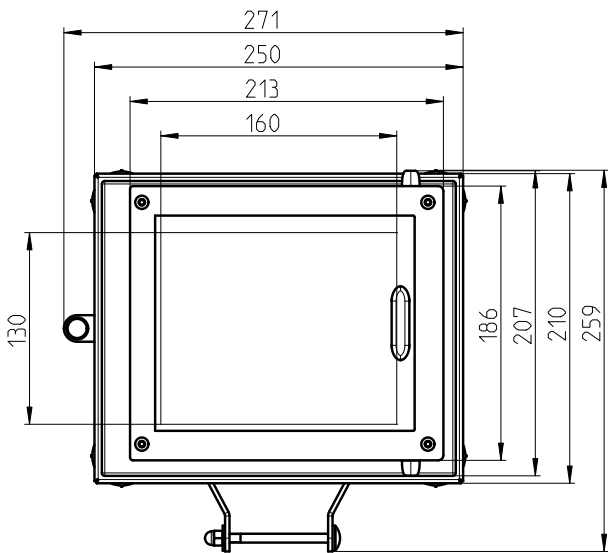
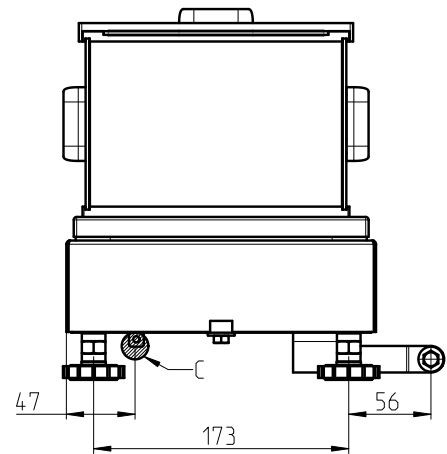
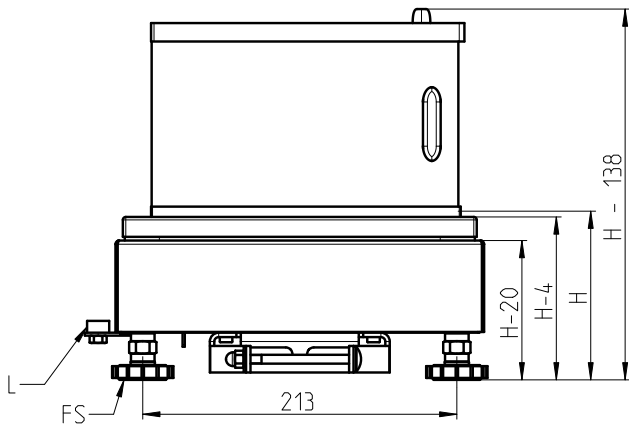


- Bridge assemblies can be mounted in the shaded areas.
Recommended mounting type: Bolting on, welding on.
- Remove the load plate and drill through for this purpose.
- Mounting parts (e.g. bolts and nuts) may extend to a maximum of 10 mm beyond the underside of the load plate.

Technical version: 11/2014

5 Dimensions

Dimensions PBK989-XS0.6

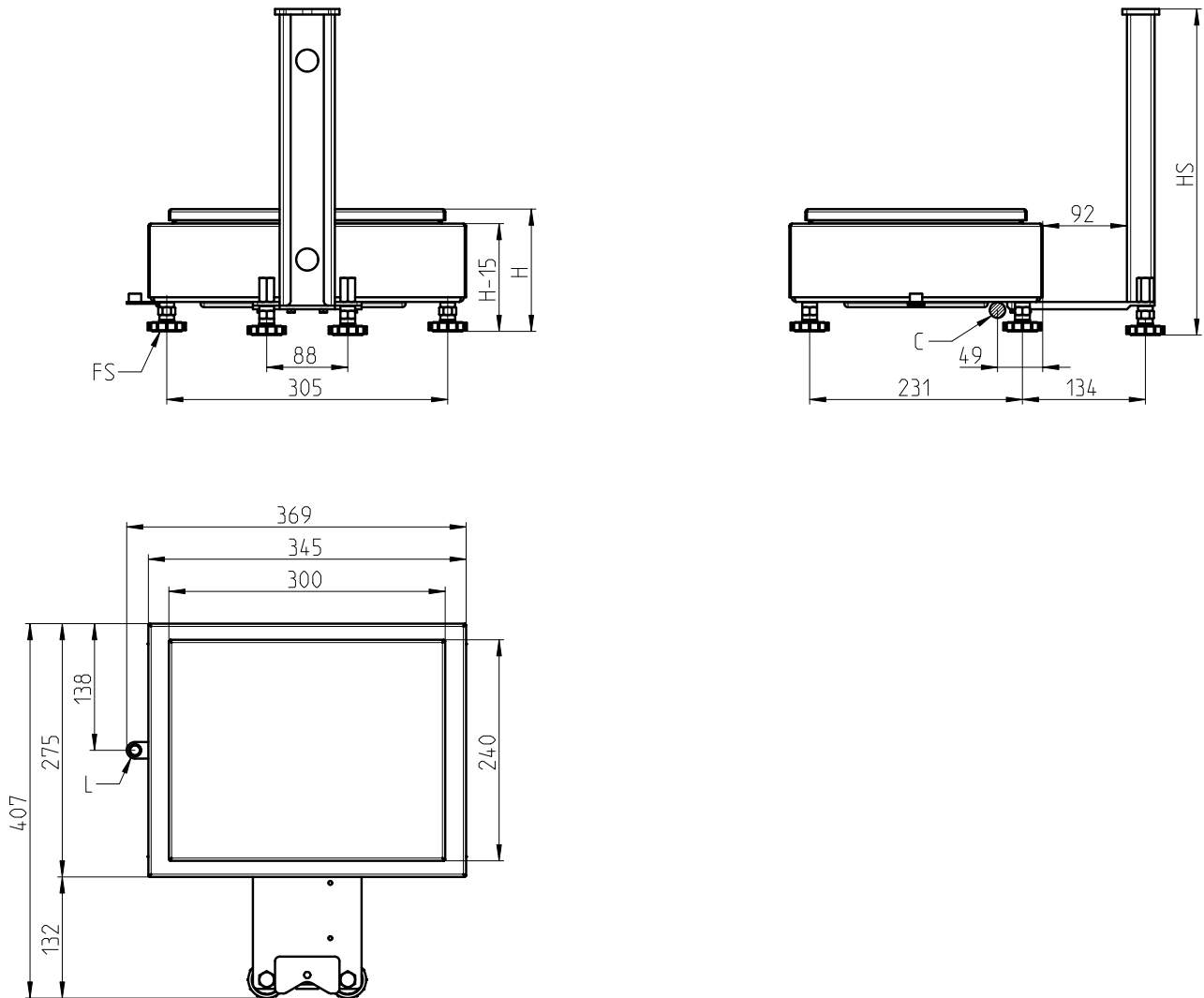


Dimensions in mm

- H Adjustable with 4 foot bolts
Min. H = 115 mm
Max. H = 127 mm
- FS Foot bolt
Required area D = 40 mm dia.
Spanner size = 17 mm
Thread = M10
- C Cable connection
- L Level bubble

Technical version: 11/2014

Dimensions PBK989-A3 / PBK989-A6

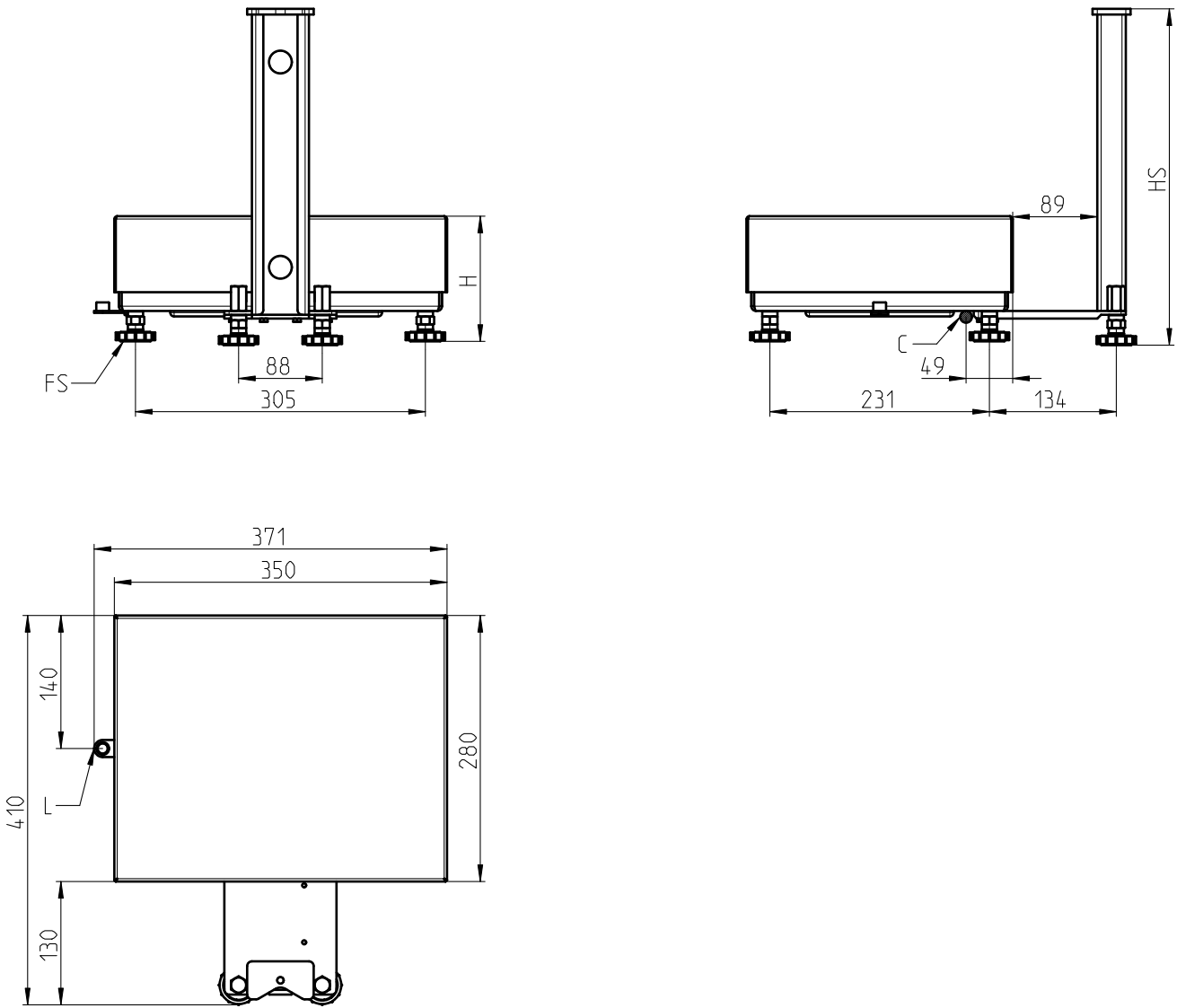


Dimensions in mm

- H Adjustable with 4 foot bolts
Min. H = 135 mm
Max. H = 147 mm
- FS Foot bolt
Required area D = 40 mm dia.
Spanner size = 17 mm
Thread = M10
- C Cable connection
- L Level bubble

Technical version: 11/2014

Dimensions PBK989-AB15 / PBK989-AB30

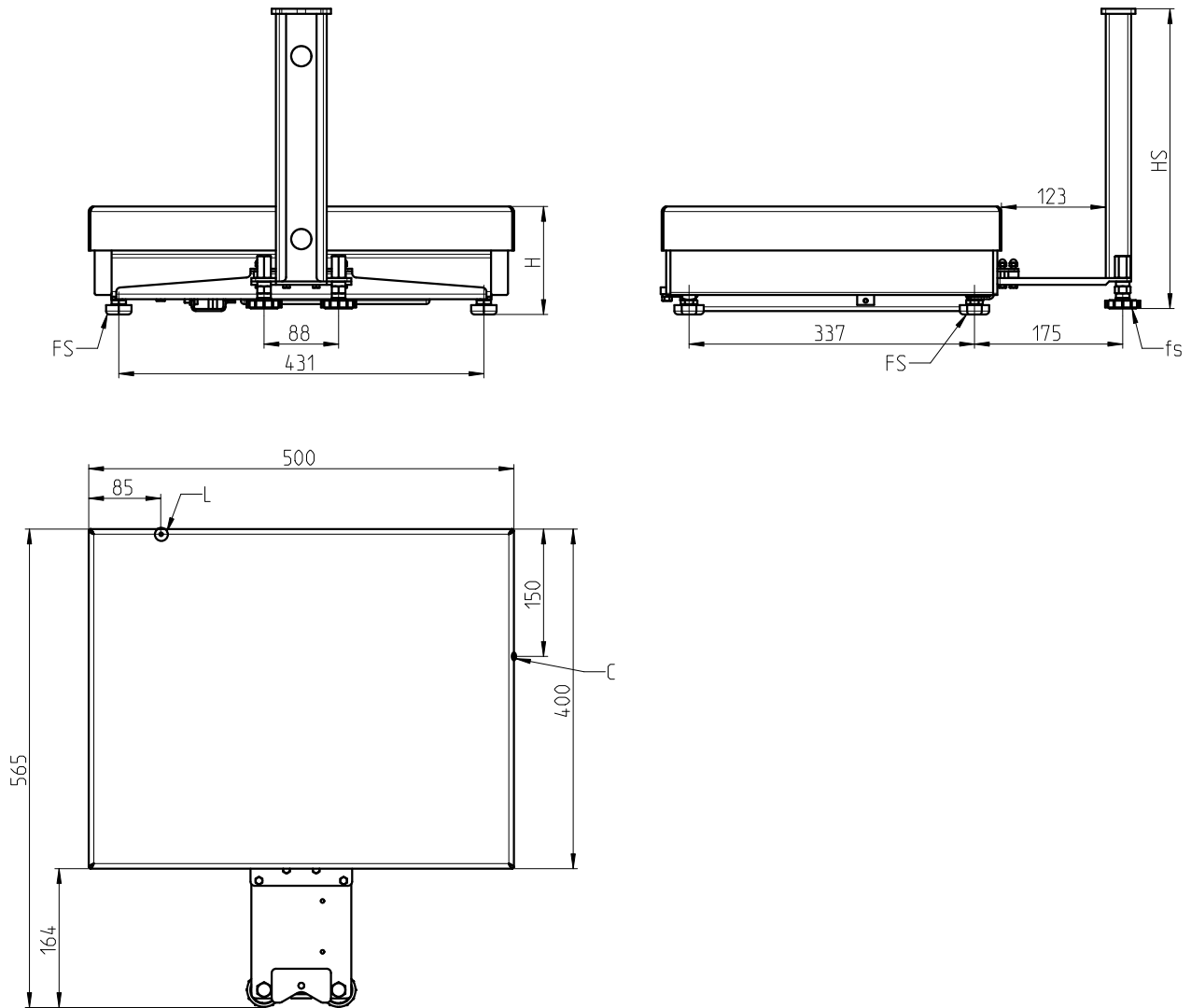


Dimensions in mm

- H Adjustable with 4 foot bolts
Min. H = 132 mm
Max. H = 144 mm
- FS Foot bolt
Required area D = 40 mm dia.
Spanner size = 17 mm
Thread = M10
- C Cable connection
- L Level bubble

Technical version: 11/2014

Dimensions PBK98_-B60 / PBK98_-B120

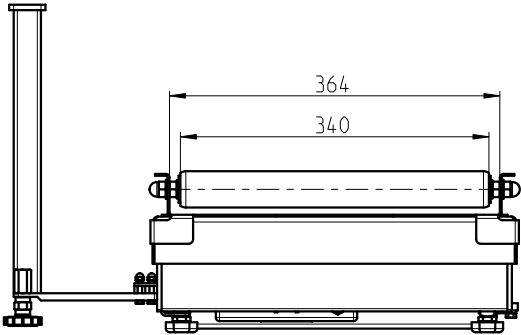
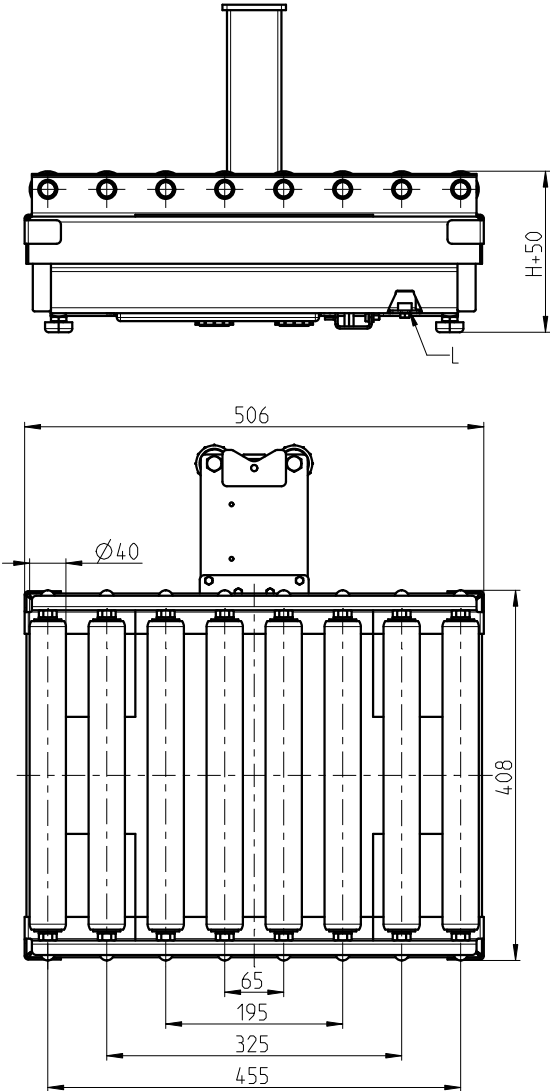


Dimensions in mm

- H Adjustable with 4 foot bolts
Min. H = 127 mm
Max. H = 152 mm
- FS Foot bolt
Required area D = 35 mm dia.
Spanner size = 17 mm
Thread = M10
- C Cable connection
- L Level bubble

Technical version: 11/2014

Dimensions PBK98_-B60 / PBK98_-B120 with roller conveyer

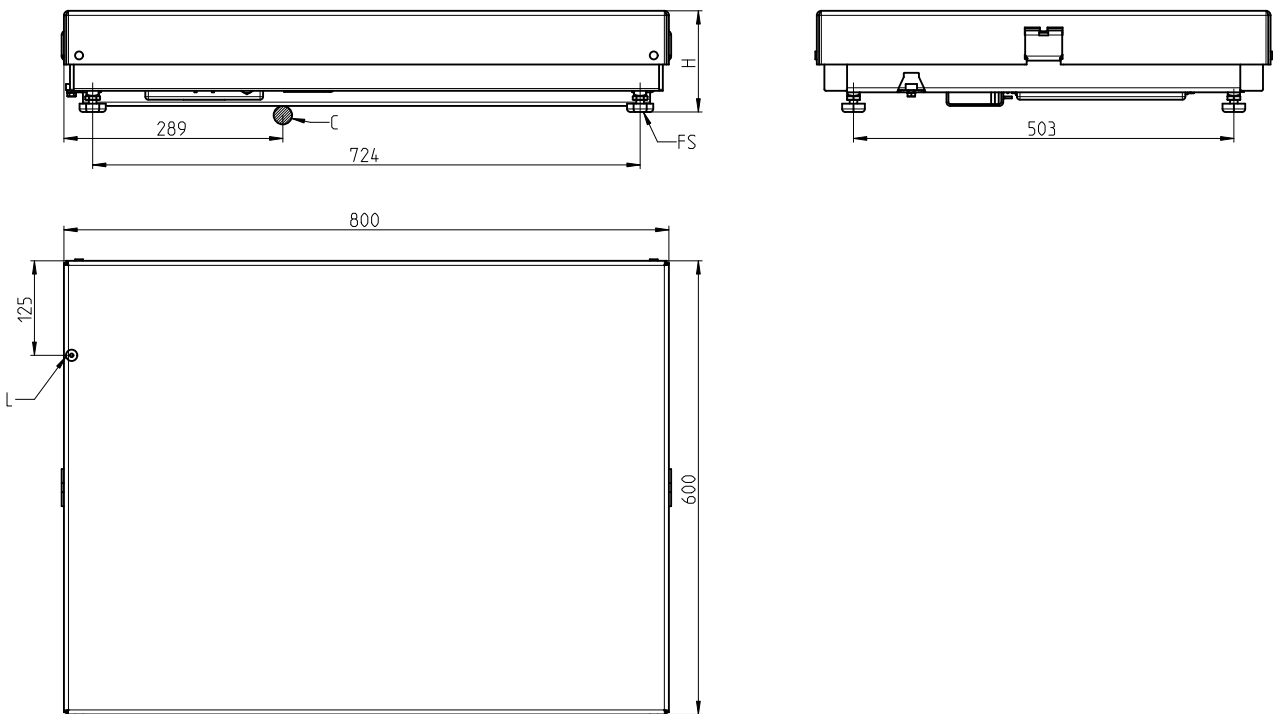


Dimensions in mm

H Adjustable with 4 foot bolts
 Min. H = 127 mm
 Max. H = 152 mm

Technical version: 11/2014

Dimensions PBK98 _CC150 / PBK98 _CC300

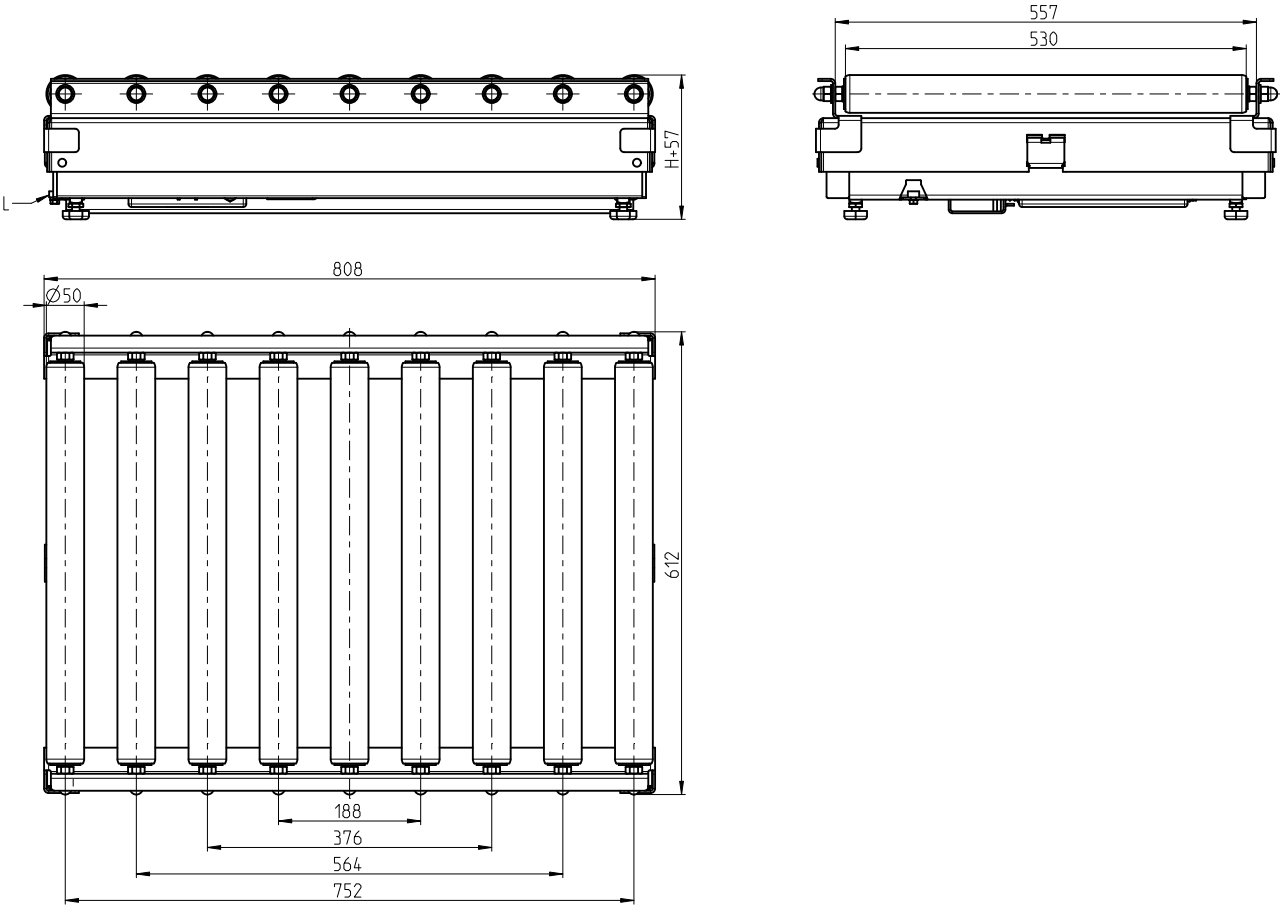


Dimensions in mm

- H Adjustable with 4 foot bolts
Min. H = 115 mm
Max. H = 140 mm
- FS Foot bolt
Required area D = 35 mm dia.
Spanner size = 17 mm
Thread = M10
- C Cable connection
- L Level bubble

Technical version: 11/2014

Dimensions PBK98_-CC150 / PBK98_-CC300 with roller conveyor



Dimensions in mm

H Adjustable with 4 foot bolts
 Min. H = 115 mm
 Max. H = 140 mm

Technical version: 11/2014

www.mt.com/support

For more information

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Subject to technical changes

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