

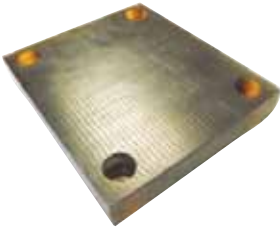
Correct installation made easy

Increasing life span and precision

METTLER TOLEDO offers an extensive range of accessories for weighing modules and weighing cells. Correct installation is thus simplified and the consequences of harmful environmental influences reduced.

Contents

2	Thermal pads
2	Mechanical pads
2	Fixed bearings
3	Dummy weighing cells
3	Distance plate
3	EK (Expansion Kit) and ball/cup load transmissions
4	EVK (Expansion Vibration Kit)
4	BPK (Base Plate Kit)



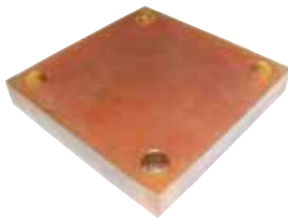
Thermal pads

Thermal pads are used in the case of hot tanks. They protect the weighing cell from temperature load caused by convection, thereby increasing accuracy and the life span of the system. They also operate effectively when the temperatures of the tank medium fluctuate on a frequent basis. The temperature amplitude in the weighing cell drops and accuracy thereby increases. The effect of the pads is significant, as the thermal guide number is lower by up to factor 130-600, depending on the steel grade. A 25 mm thick pad consisting of PEI therefore operates in a similar manner to a 14 m thick steel plate.

Thermal pads are inserted between the base of the tank and weighing module or between the base of the tank and distance plate. If a distance plate is necessary, it is included in the delivery.

METTLER TOLEDO offers two versions of thermal pads:

- Consisting of polyesterimide PEI material, can be used up to 170°C, thermal conductivity of 0.12 W/m/K
- Consisting of acetal material, can be used up to 82°C, thermal conductivity of 0.23 W/m/K



Mechanical pads

Mechanical pads are used for reducing load peaks in the case of decreasing loads or vibrations. This effect is achieved through the installation of a relatively soft material with high internal damping. The damping effect of the mechanical pad is around 7 times higher than with steel. During extreme load peaks, an unloading of the weighing cell during loading shall also be provided

Mechanical pads are inserted between the base of the tank and weighing module or between the base of the tank and distance plate. If a distance plate is necessary, it is included in the delivery.

METTLER TOLEDO offers two versions of mechanical pads:

- Consisting of FABREEKA™ material, can be used up to 95°C, damping factor of 0.14



Fixed bearings

Fixed bearings are mechanical clones of weighing modules without movable or active parts. Fixed bearings can be used when monitoring the filling level of liquids. A very economical solution is achieved through saving active weighing points. The associated target accuracy is in the range of approx. 0.5 % and is therefore always significantly more precise than most other technologies designed for monitoring the filling level of liquids. Usage with solids is not recommended, as the center of gravity in such systems moves horizontally and accuracy can fluctuate greatly. If the requirements for accuracy are greater than 0.5%, fixed bearings are generally no longer recommended.

In the case of high temperature fluctuations, e.g. outdoors, it would be better to replace fixed bearings with weighing modules with dummy weighing cells, as constraining forces would otherwise become too great.

A further application for fixed bearings is during the installation of a tank system. Fixed bearings can replace more sensitive weighing modules during this stage and can be replaced by active weighing modules at a later date. This has proven particularly successful in the case of installation by less experienced personnel.



Dummy weighing cells

Dummy weighing cells are mechanical clones of the weighing cell without metrological features, therefore also excluding cables. They are used to protect the weighing cells during the installation stage, as they are significantly more robust, meaning that there is minimal risk of untrained personnel causing damage to them. The following is common: defective weighing cells as a result of welding currents, which would not pose a risk in the case of dummy cells. The dummy weighing cells are then replaced by active cells at a later date.

Dummy weighing cells can also be used when monitoring the filling level of liquids. Although they require the weighing module hardware, making them less economical than fixed bearings, they provide a temperature fluctuation similarly to weighing modules. In the case of large tanks or high temperature fluctuations, passive points are thus better realized with dummy weighing cells rather than with fixed bearings, in order to keep constraining forces to a minimum. The associated target accuracy is in the range of approx. 0.5 % and is therefore always significantly more precise than most other technologies designed for monitoring the filling level of liquids. Usage with solids is not recommended, as the center of gravity in such systems moves horizontally and accuracy can fluctuate greatly.

If the requirements for accuracy are greater than 0.5%, dummy weighing cells and fixed bearings are generally no longer recommended.



Distance plate

Distance plates are practical for instances where tanks cannot be lifted. If a weighing cell is defective, lifting the tank is necessary for many weighing modules. This can be avoided with the distance plate. Only the weighing module is unloaded and the distance plate is pulled out. The resulting space is sufficient for replacing the weighing cells without having to lift the tank significantly.

In some cases, distance plates are also necessary when using pads in order to protect the upper plate of the weighing module from too high a level of deflection. In this case, the distance plate is included in the scope of delivery of the pads.



EK (Expansion Kit) and ball/cup load transmissions

These installation parts support the correct application of the weighing cell. The load transmission has a significant influence on both accuracy and life span of weighing cells. The EK and ball/cup accessories allow for the ideal load transmission at simultaneously minimum constraining forces, particularly through temperature strain. Consequently, the highest level of accuracy is achieved with these accessories.

All parts are hardened and made from stainless steel in order to ensure a long life span. If applicable, seals protect sensitive contact surfaces. Safety measures such as horizontal stops or lift protection, which may be necessary, are to be carried out by the customer.



EVK (Expansion Vibration Kit)

These installation parts support the correct application of the weighing cell. The load transmission has a significant influence on both accuracy and life span of weighing cells. The EVK accessories allow for ideal load transmission at simultaneously minimum constraining forces, particularly through temperature strain. In addition, the integrated rubber pad provides damping for vibrations or decreasing loads. High levels of accuracy are achieved with these accessories, however, such levels are somewhat lower than with EKs due to higher constraining forces.

All parts are hardened and made from stainless steel in order to ensure a long life span. If applicable, seals protect sensitive contact surfaces. Safety measures such as horizontal stops or lift protection, which may be necessary, are to be carried out by the customer.



BPK (Base Plate Kit)

With the BPK, the weighing cell can be safely assembled on concrete or basic steel frames. BPKs enable the fixing of weighing cells to materials with little sturdiness, such as concrete or steel with poor surface quality. While on the one hand weighing cells must be tightly screwed down to a precise level, on the other hand they also place stringent demands on the quality of the contact surface. A high level of surface roughness has a negative effect on both accuracy and life span. If the strength of the base is too low, the screws will not be secured and may come loose. Using the BPK is thus recommended, for instances when such parameters cannot be controlled.

A BPK contains the base plate with surfaces machined to a defined degree, screws consisting of the correct strength, disks and distance elements.

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