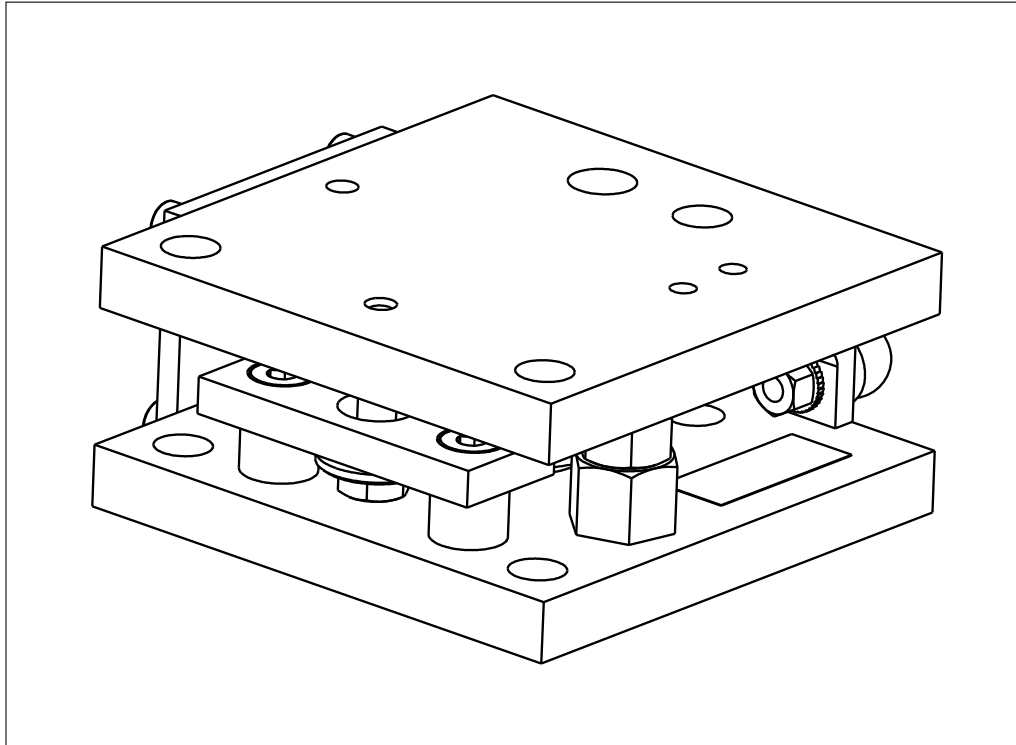


**Installation Manual**

**Maxi FLEXLOCK PR 6012/00S, ../20S**



## **Foreword**

### **Must be followed!**

Any information in this document is subject to change without notice and does not represent a commitment on the part of Minebea Intec unless legally prescribed. This product should only be operated/installed by trained and qualified personnel. In correspondence concerning this product, the type, name, and release number/serial number as well as all license numbers relating to the product have to be cited.

### **Note**

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# 1 Introduction

## 1.1 Read the manual

- Please read this manual carefully and completely before using the product.
- This manual is part of the product. Keep it in a safe and easily accessible location.

## 1.2 This is what operating instructions look like

1. - n. are placed before steps that must be done in sequence.
  - ▶ is placed before a step.
  - ▷ describes the result of a step.

## 1.3 This is what lists look like

- indicates an item in a list.

## 1.4 This is what menu items and softkeys look like

[ ] frame menu items and softkeys.

**Example:**

[Start]- [Applications]- [Excel]

## 1.5 This is what the safety instructions look like

Signal words indicate the severity of the danger involved when measures for preventing hazards are not followed.

### **DANGER**

#### **Warning of personal injury**

DANGER indicates death or severe, irreversible personal injury which will occur if the corresponding safety measures are not observed.

- ▶ Take the corresponding safety precautions.

### **WARNING**

#### **Warning of hazardous area and/or personal injury**

WARNING indicates that death or severe, irreversible injury may occur if appropriate safety measures are not observed.

- ▶ Take the corresponding safety precautions.

### **CAUTION**

#### **Warning of personal injury.**

CAUTION indicates that minor, reversible injury may occur if appropriate safety measures are not observed.

- ▶ Take the corresponding safety precautions.

**NOTICE****Warning of damage to property and/or the environment.**

NOTICE indicates that damage to property and/or the environment may occur if appropriate safety measures are not observed.

- ▶ Take the corresponding safety precautions.
- 

**Note:**

User tips, useful information, and notes.

---

**1.6 Hotline**

Phone: +49.40.67960.444

Fax: +49.40.67960.474

eMail: [help@minebea-intec.com](mailto:help@minebea-intec.com)

## 2 Safety instructions

### 2.1 General notes

#### NOTICE

##### **Warning of damage to property and/or the environment.**

The product was in perfect condition with regard to safety features when it left the factory.

- To maintain this condition and to ensure safe operation, the user must follow the instructions and observe the warnings in this manual.

### 2.2 Intended use

The mounting kits PR 6012/00S, ../20S are intended for weighing tasks, and must only be used as such.

The mounting kits PR 6012/00S, ../20S are designed for installing the load cells PR 6211 (30–300 kg).

The dimensions of all mounting and structural components must be calculated so that sufficient overload capacity is ensured for all loads which may occur while taking the relevant standards into account. In particular, upright weighing objects must be safeguarded against the weighing installation turning over or being shifted, thus eliminating danger to people, animals, or goods even in the case of a break in a load cell or mounting element.

Installation and repair work must only be carried out by expert/qualified personnel.

The mounting kits reflect the state of the art. The manufacturer does not accept any liability for damage caused by third-party system components or due to incorrect use of the product.

### 2.3 Initial inspection

Check the contents of the consignment for completeness. Check the contents visually to determine whether any damage has occurred during transport. If there are grounds for rejection of the goods, a claim must be filed with the carrier immediately. The Minebea Intec sales or service organization must also be notified.

### 2.4 Before operational startup

#### NOTICE

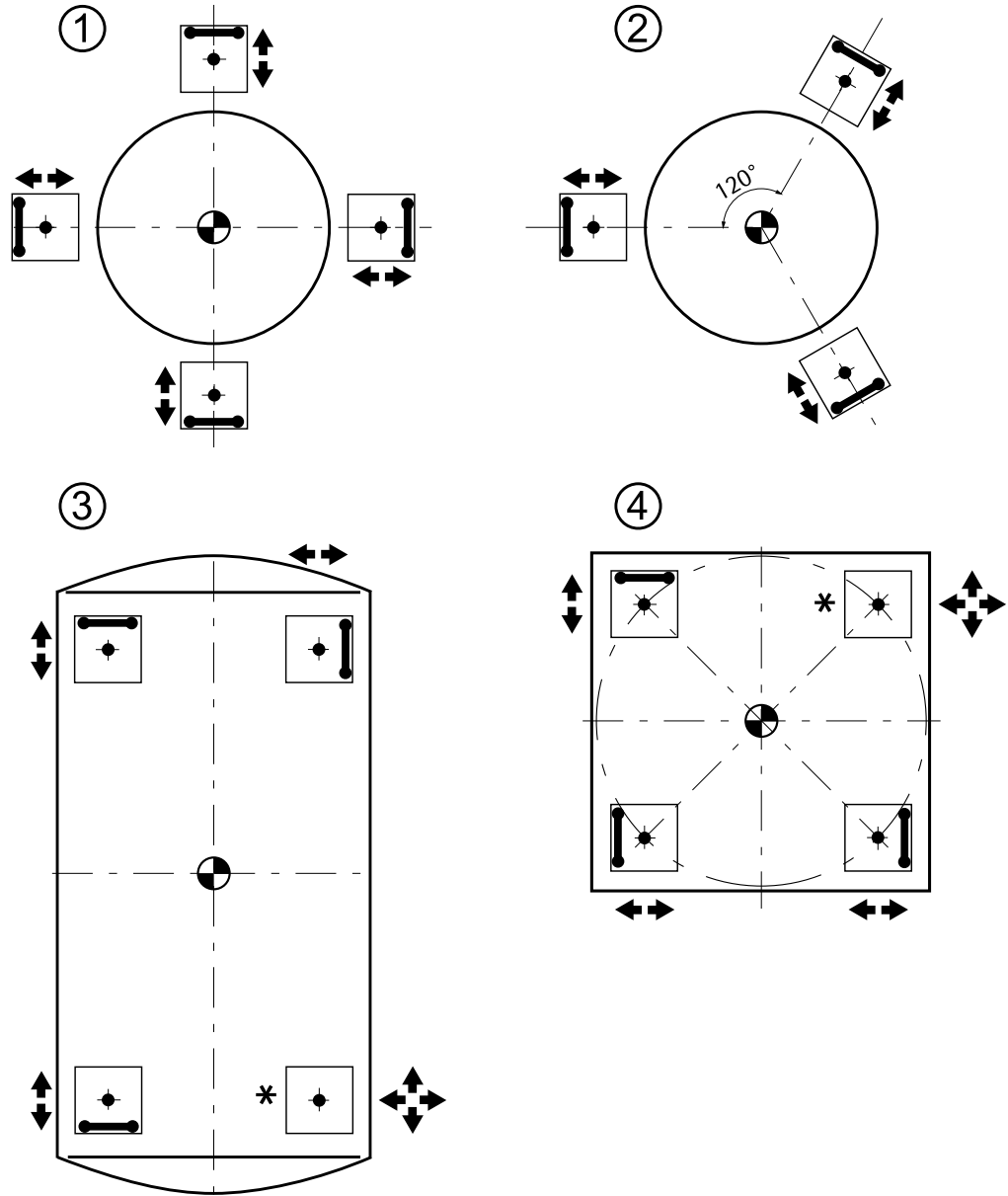
##### **Perform visual inspection.**

- Before operational startup as well as after storage or transport, inspect the mounting kit visually for signs of mechanical damage.

### 3 Recommendations for installation

#### 3.1 Load cell and constrainer arrangement

Examples:



**Key**

*	Do not constrain this position.
	Constrainer
	Load application
	Possible direction of movement



- To ensure the required free moving space of the weighing facility, a maximum of 3 mounting kits with constrainer may be used to constrain a weighing object.

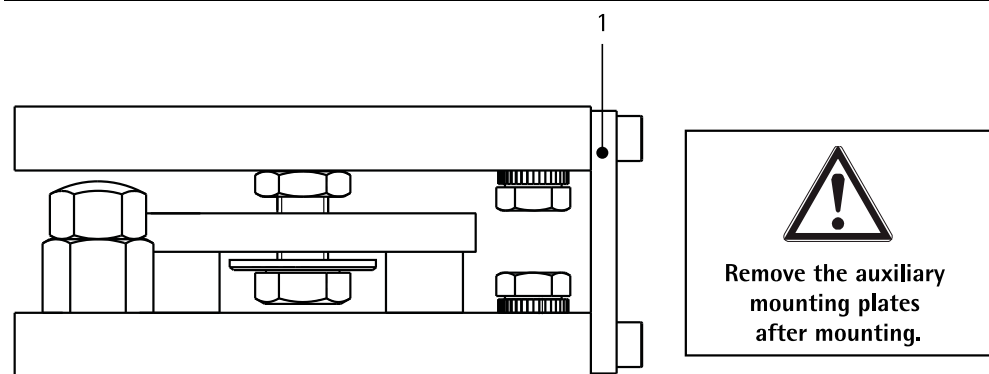
Round containers are the exception (image ① and ②). In this case, any number of constrainers can be installed, provided that they are tangentially aligned.

Special mounting kits are available for weighing points without constrainers. Alternatively, the constrainer can simply be removed.

With elastic constructions, it may be necessary to deviate from this recommendation in order to guarantee the weighing object has sufficient stability.

## 3.2 Mounting aid

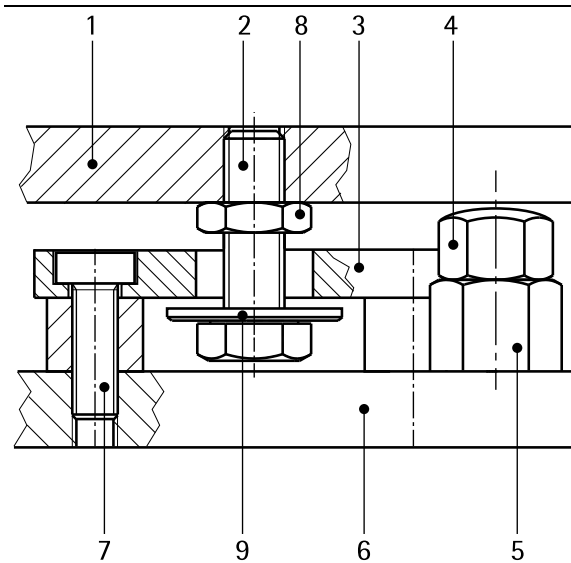
**Example: PR 6012/00S**



The auxiliary mounting plate (1) is intended to facilitate installation of the mounting kit and load cell.

### 3.3 Internal lift-off protection with integrated jack-up

#### 3.3.1 General instructions



No.	Description
1	Upper plate
2	Screw
3	Retaining plate
4	Threaded bolt
5	Threaded bush
6	Lower plate
7	Screw (2x)
8	Nut
9	Washer

The mounting kits are equipped with an internal lift-off protection, i.e. no additional borings apart from the mounting holes in the vessel foot are required.

Moreover, the vessel can be lifted by turning the threaded bolt (4) (see Chapter [3.3.2](#)), e.g., when inserting the load cell.

The two screws (7) are cemented firmly in the lower plate (6).

The screw (2) is screwed into the upper plate (1) and locked with the nut (8).

That way, the safety clearance "A" can be adjusted (see Chapter [3.3.3](#)).

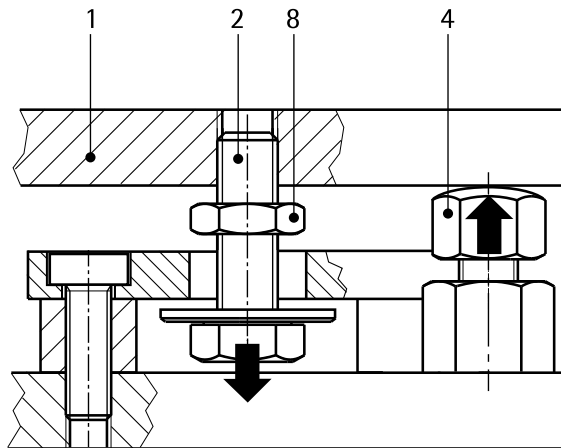
The threaded bush (5) of the jack-up is cemented firmly into the lower plate (6).

### 3.3.2 Jack-up

**⚠ WARNING**

**The vessel can tip over.**

- The threaded bolt (4) must only be turned upwards until the recess is visible.



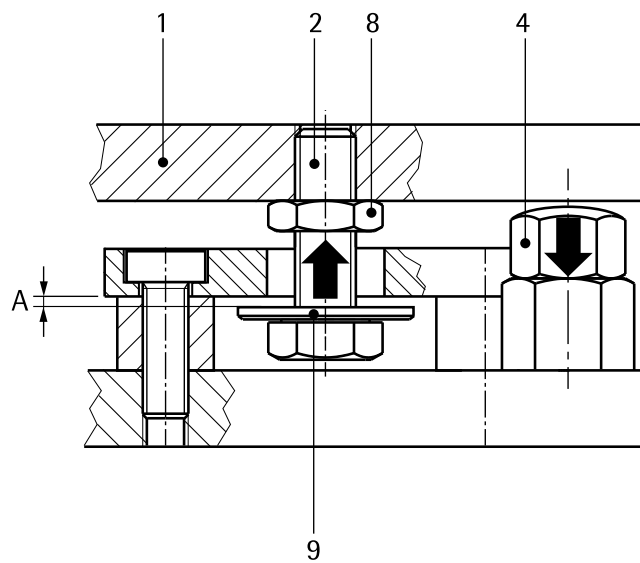
Lift the vessel as follows:

1. Loosen the nut (8).
2. Alternately turn the threaded bolt (4) upwards at the hex and turn the screw (2) downwards to avoid jamming/wedging the upper plate (1).
3. Repeat until the load cell is unloaded and can be removed together with the load disc.

Use the load cell as follows:

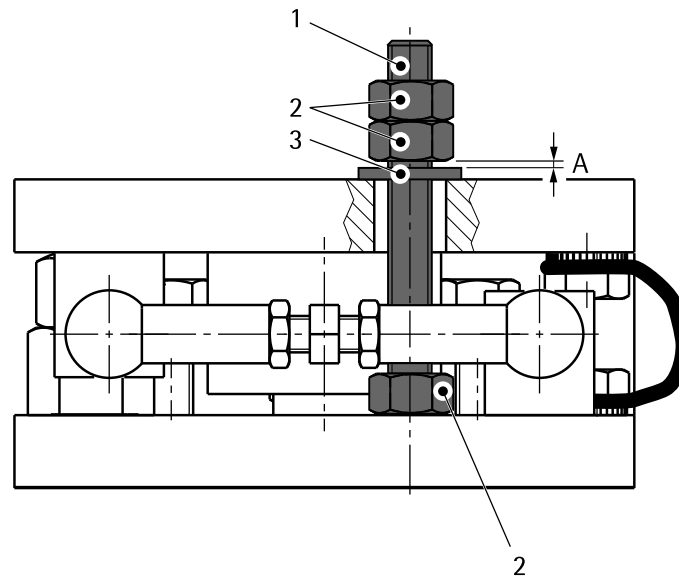
4. Insert the load disc into the load cell.
5. Insert the load cell into the mounting kit.
6. Load the load cell slowly and adjust the built-in lift-off protection as described in Chapter [3.3.3](#).

### 3.3.3 Adjusting the built-in lift-off protection



1. Alternately turn the threaded bolt (4) downwards at the hex and turn the screw (2) upwards to avoid jamming/wedging the upper plate (1).
2. Turn the threaded bolt (4) downwards until the load cell is loaded.
3. Turn the screw (2) upwards until the safety distance "A" of 1–2 mm has been established between the washer (9) and retaining plate (3).
4. Secure the screw (2) with the nut (8).

### 3.4 Additional lift-off protection



To increase the permissible lifting force for the mounting kits with conainer, an additional lift-off protection can be installed.

For this purpose, the simplest version requires the following components:

- 1x threaded bar (1)
- 3x nut (2)
- 1x washer (3)

#### Assembly:

- Mount the threaded bar (1) so that it has sufficient free moving space in the drill hole.
- Lock the nuts (2) so that there is a remaining distance A\* from the washer (3).

$$* A = 1-2 \text{ mm}$$

This distance is essential to avoid force shunts.

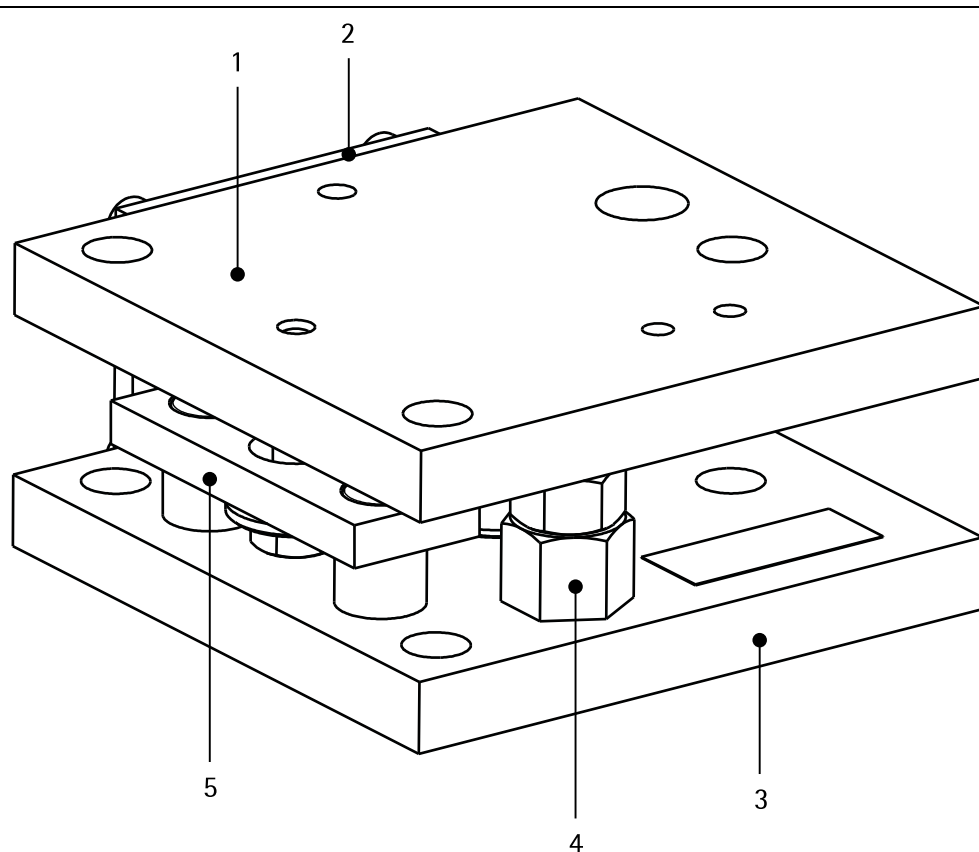
The required tightening torques are given in the following table.

Mounting kit	Threaded bar/ nuts	Property class	Tightening tor- que	Perm. overall lift-off force
PR 6012/20S	M6	A2-70	6 Nm	6 kN

## 4 Specifications

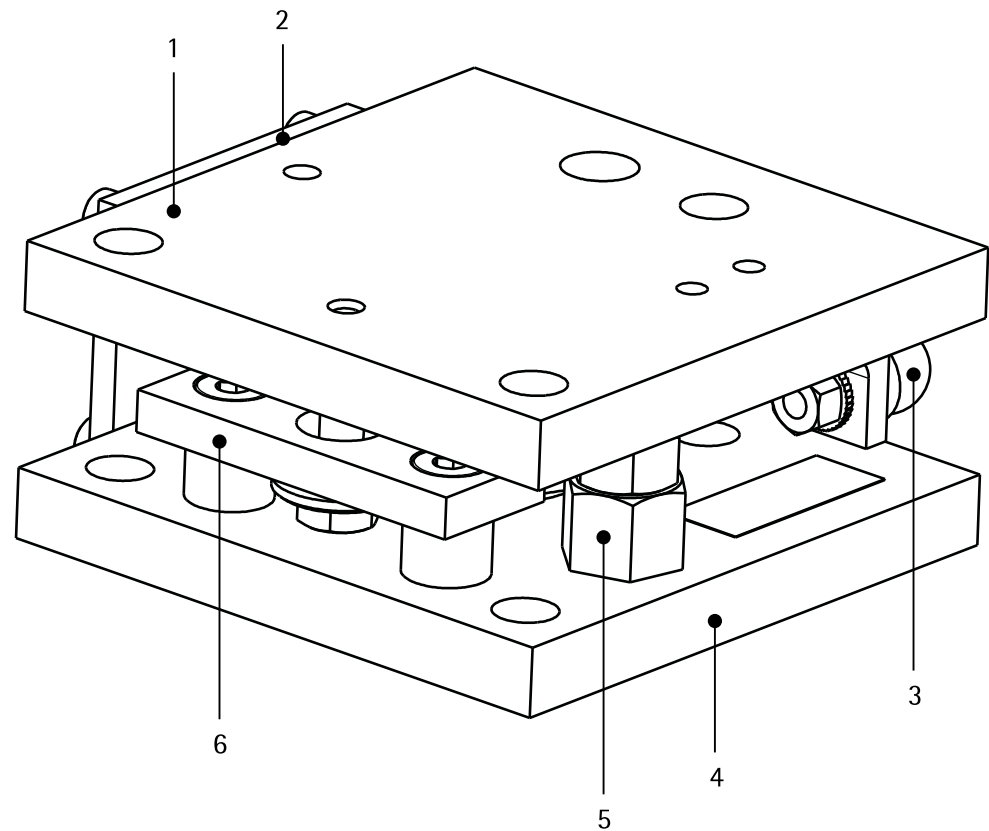
### 4.1 Equipment supplied

#### 4.1.1 Mounting kit PR 6012/00S



No.	Description
1	Upper plate
2	Auxiliary mounting plate
3	Lower plate
4	Jack-up
5	Internal lift-off protection
The following positions are not shown:	
6	Screw (2x), spring washer (2x), and washer (2x) for the equipotential bonding cable (supplied with the load cell)
7	Quick guide

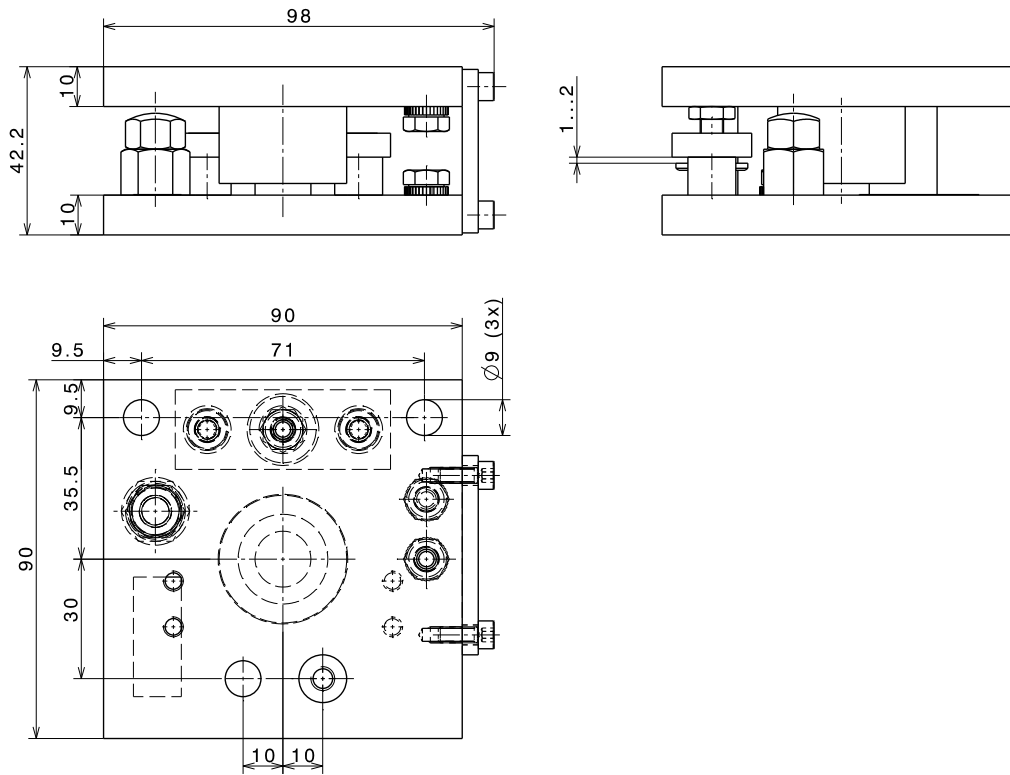
## 4.1.2 Maxi FLEXLOCK PR 6012/20S



No.	Description
1	Upper plate
2	Auxiliary mounting plate
3	Horizontal constringer
4	Lower plate
5	Jack-up
6	Internal lift-off protection
The following positions are not shown:	
7	Screw (2x), spring washer (2x), and washer (2x) for the equipotential bonding cable (supplied with the load cell)
8	Quick guide

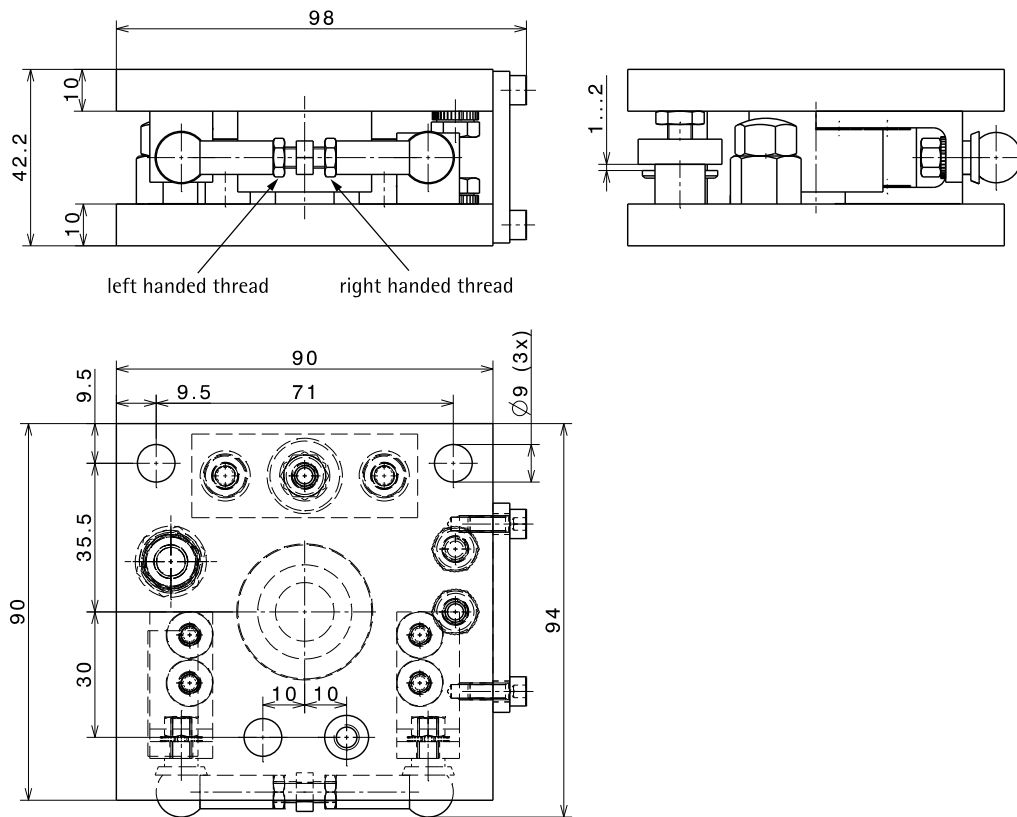
## 4.2 Dimensions

### PR 6012/00S



all dimensions in mm



**PR 6012/20S**

all dimensions in mm

**4.3 Technical data**

	<b>PR 6012/00S</b>	<b>PR 6012/20S</b>
Max. capacity of load cell	30...300 kg	30...300 kg
Permissible horizontal force	...	max. 450 N
Permissible lifting force	max. 4 kN	max. 4 kN
Permissible vertical load without LC*	max. 300 kg	max. 300 kg
Permissible jack-up load	max. 300 kg	max. 300 kg
Permissible horizontal displacement	max. $\pm 3$ mm	max. $\pm 3$ mm
Permissible temperature range	-30 °C...+110 °C	-30 °C...+110 °C
Material	Stainless steel 1.4301 as per DIN EN 10088-3	Stainless steel 1.4301 as per DIN EN 10088-3
Weight net/gross	1.24 kg/1.65 kg	1.32 kg/1.72 kg

\* LC = load cell

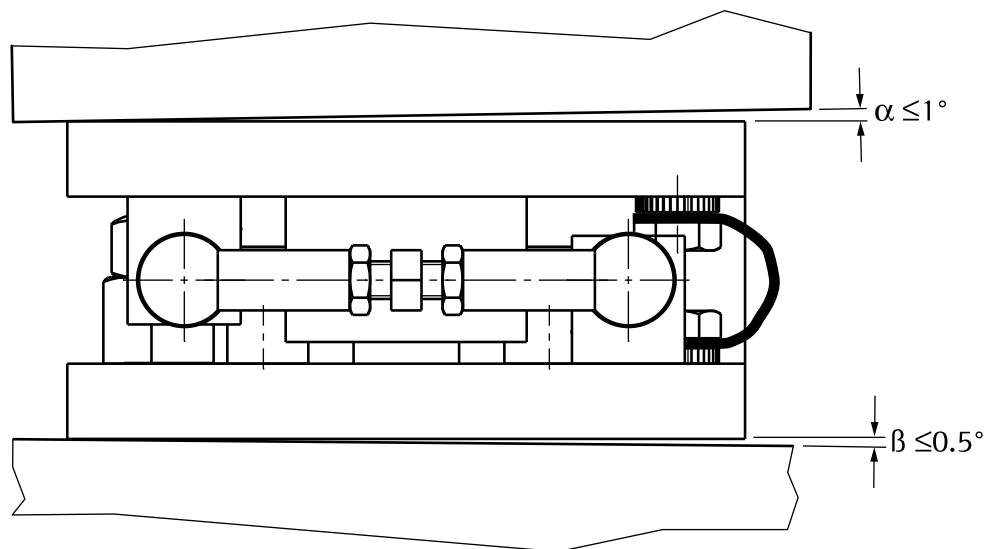
## 5 Installation

### 5.1 Prior to mounting

#### 5.1.1 Preparing the foundation/substructure

- The foundation for the mounting kit must be horizontal (use spirit level), flat, and rigid for the intended loads.
- The load distribution on the available load cells must be as even as possible to prevent overload of the individual load cells.
- The substructure foundations/supporting surfaces for the mounting kits should be at the same level, and the supporting surfaces of the weighing object (e.g. vessel feet) must be arranged in parallel.
- **For screw mounting of the upper and lower plates:**
  - Generate the drilling pattern of the lower plate of the mounting kit (see Chapter 4.2) according to the weighing system arrangement on the foundation/substructure.
- If soft filler layers (e.g. made from rubber or plastic material) are used between the mounting kit and vessel/or between the mounting kit and substructure for vibration dampening or for temperature insulation, a load compensating plate must be provided between this soft filler layer and the mounting kit to ensure even load application into the mounting kit.

The design of the insulation and compensation plates depends on the respective application.



The maximum permissible inclination must be strictly observed in order to keep the impact on the measuring accuracy to a minimum (see figure).

## 5.2 Tightening torques

The corresponding tightening torques are given in the following table.

Mounting kit	Mounting parts	Thread	Washer	Tightening torque
PR 6012/00S, PR 6012/20S	Upper plate	M6-A2-70	*	6 Nm
	Lower plate	M6-A2-70	*	6 Nm
	Internal lift-off protection	M6-A2-70		6 Nm

\*

Recommendation for the washers of M6 mounting screws: DIN 7349 (d = 17, h = 3) or DIN 9021 or ISO 7093-2 (d = 18, h = 1.6)

## 5.3 Assembly

### 5.3.1 Safety instructions

#### **⚠ WARNING**

**The vessel may turn over during mounting.**

Securing the vessel against tipping is imperative.

- ▶ Use an appropriate lifting jack.

#### **NOTICE**

**Welding or lightning strike current flowing through the cell can damage it.**

All electrical welding on the weighing system must be finished before mounting the load cells.

- ▶ When installing the load cell, immediately bypass the load cell with a flexible copper strap (included in the load cell equipment).

During any additional electrical welding work near the load cell:

- Disconnect the load cell cables.
- Bypass the load cell using the flexible copper strap.
- Make sure that the grounding clamp of the welding set is fitted as closely as possible to the welding joint.

### 5.3.2 Installing the mounting kit and inserting the load cell

#### **Note:**

Screw mounting of the upper and lower plates is described below.

The operations must be performed at all supporting points (e.g., vessel) of the weighing object.

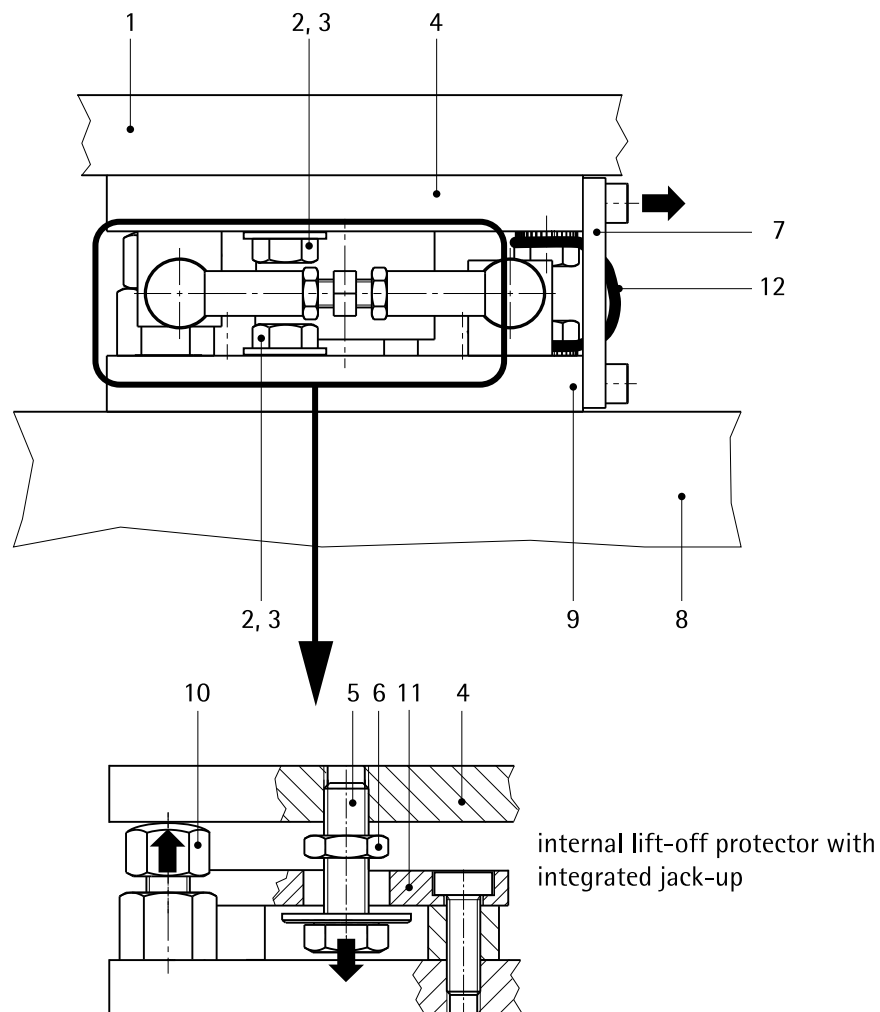
The load cell must always be mounted with the load disc downwards.

**Requirements:**

- All threaded holes for the lower plate are available in the foundation/substructure (see Chapter 4.2).
- All threaded holes for the upper plate are available in the vessel lug/vessel foot (see Chapter 4.2).

**Procedure:**

Example: PR 6012/20S



1. Fit the mounting kit to the vessel foot (1). It is essential to observe the property classes and tightening torques of the screws (2) and the property classes of the washers (3) (refer to Chapter 5.2).
2. Carefully position the vessel with mounting kit on the foundation/substructure (8) using the mounting drill holes.
3. Fasten the lower plate (9) to the foundation/substructure (8) and make sure that the plates are in parallel and seated vertically above each other. It is essential to observe the property classes and tightening torques of the screws (2) and the property classes of the washers (3) (refer to Chapter 5.2).
4. Remove the screws, spring washers, and washers for the equipotential bonding cable from the upper plate (4) and the lower plate (9) and save them for later assembly.

5. Clean the load cell seating in the upper and lower plates only when all welding work near the weighing object and the mounting work on the weighing object have been completed.

---

**Note:**

If required, the threaded bar, washers, and nuts can be mounted as additional lift-off protection (see Chapter 3.4).

---

6. Turn up the threaded bolt (10) at the hex until the auxiliary mounting plate (7) is unloaded.
7. Remove the auxiliary mounting plate (7).
8. Loosen the nut (6).
9. Alternate turning the threaded bolt (10) up at the hex and turning the screw (5) down to prevent wedging the upper plate (4).
10. Repeat until the distance between the lower and upper plates is sufficient to insert the load cell together with the load disc.

**⚠ CAUTION**

**Do not damage the membrane on the bottom of the load cell.**

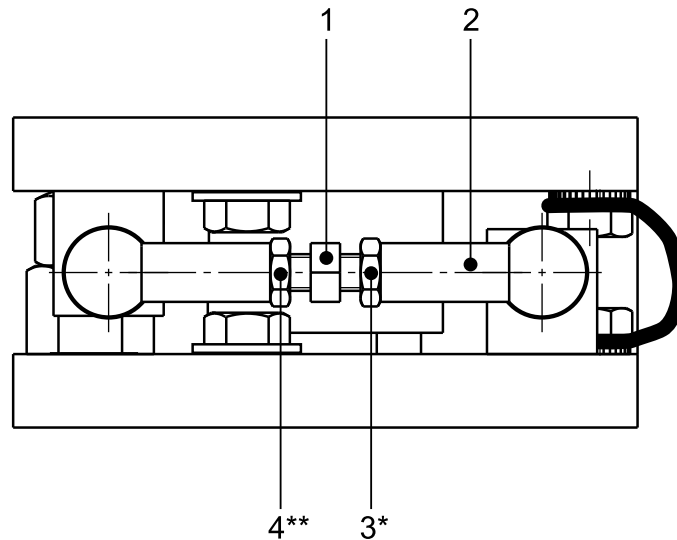
- Carefully insert the load cell.
- 

11. Insert the load cell with the load disc.
12. Load the load cell slowly and adjust the internal lift-off protection as described in Chapter 3.3.3. It is essential to ensure that the load cell is vertical and not jammed after loading.
13. Check that the retaining plate (11) of the lift-off protection is not jammed and that there is sufficient play.
14. If necessary, re-adjust the upper plate (4) and the lower plate (9).
15. If necessary, set the threaded bar and nuts as an additional lift-off protection (see Chapter 3.4).
16. Connect an equipotential bonding conductor (12) (supplied with the load cell) between the upper plate (4) and the lower plate (9).

## 5.4 Check mounting

When all mounting kits have been installed, check them for proper mounting. In particular, force shunts should be avoided.

**Example: PR 6012/20S**



It is essential to check:

- whether the auxiliary mounting plate has been removed.
- whether the load cell has been inserted in the mounting kit vertically and without being canted.
- that the retaining plate of the lift-off protection is not jammed and if there is sufficient play.
- whether the upper and lower plates are mounted in a horizontal position.
- whether free moving space and the required play for thermal expansion are provided.
- whether the threaded bolt of the jack-up is screwed in and is in the lower position.
- **For PR 6012/20S only:**

whether the constrictors (2) have sufficient clearance; if necessary, loosen nuts (3\* and 4\*\*), adjust using the screwed joint (1) and retighten the nuts.

\* Right-handed thread, \*\* Left-handed thread

The free moving space which is required for displacement of the measured object due to thermal expansion, vibration, etc. can be utilized without reducing the measuring accuracy only if the load cell and constraining unit have been installed exactly.

To avoid force shunts, all incoming and outgoing lines (hoses, pipes, cables) must be connected to the measured object with the greatest flexibility possible.

The entire load must be supported by the load cells!

## 6 Cleaning

The mounting kit is easy to clean. It can be spray-washed with water (see IP68 specification).

### **NOTICE**

**Some cleaning agents may not be compatible with the mounting kit material.**

- ▶ When using cleaning agents, ensure that their compatibility with the mounting kit material has been tested and approved (see Chapter [4.3](#)).
-

## 7 Disposal

Our products and their packaging should not be disposed of in municipal waste (e.g. garbage can for recyclable packaging, garbage can for paper packaging, etc.). They can either be recycled by the customer themselves, providing this complies with requirements set out by electrical or electronic waste or packaging waste laws, or sent back to Minebea Intec at a charge.

This option of returning the product is intended to provide proper recycling or reuse in a manner that is collected separately from municipal waste.

Before disposing of or scrapping the old products, any single-use or rechargeable batteries should be removed and taken to a suitable collection point. The type of battery used is specified in the technical data.

Please see our General Terms and Conditions for further information.

Service addresses for repair acceptance and collection points can be found on the product information enclosed with the product as well as on our website ([www.minebea-intec.com](http://www.minebea-intec.com)).

Should you have any further questions, please contact your local service representative or our service center.

Minebea Intec GmbH

Repair center

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22145 Hamburg, Germany

Phone: +49.40.67960.333

[service.HH@minebea-intec.com](mailto:service.HH@minebea-intec.com)

We reserve the right not to accept products that are contaminated with hazardous substances (ABC contamination).



## 8 Replacement parts

<b>No.</b>	<b>Description</b>	<b>Max. capacity</b>	<b>Order no.</b>
1	Flexible copper strap, 100 mm long		5312 321 28055
2	Load disc	30...300 kg	5312 693 98068

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