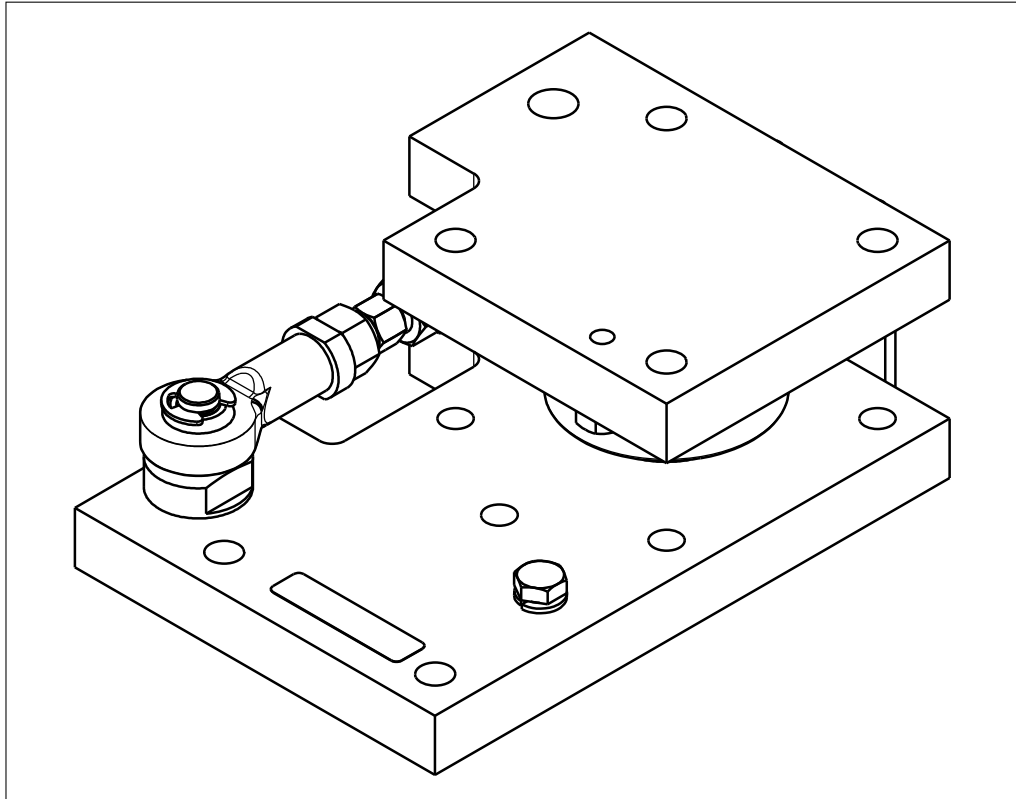


Installation Manual

Mini FLEX and Mini FLEXLOCK mounting kits PR 6012/01, ../31, ../41



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

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 6012/01, ../31, ../41 are intended for weighing tasks, and must only be used as such.

The mounting kits PR 6012/01, ../31, ../41 are designed for installing the load cells PR 6212 (500 kg–10 t).

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

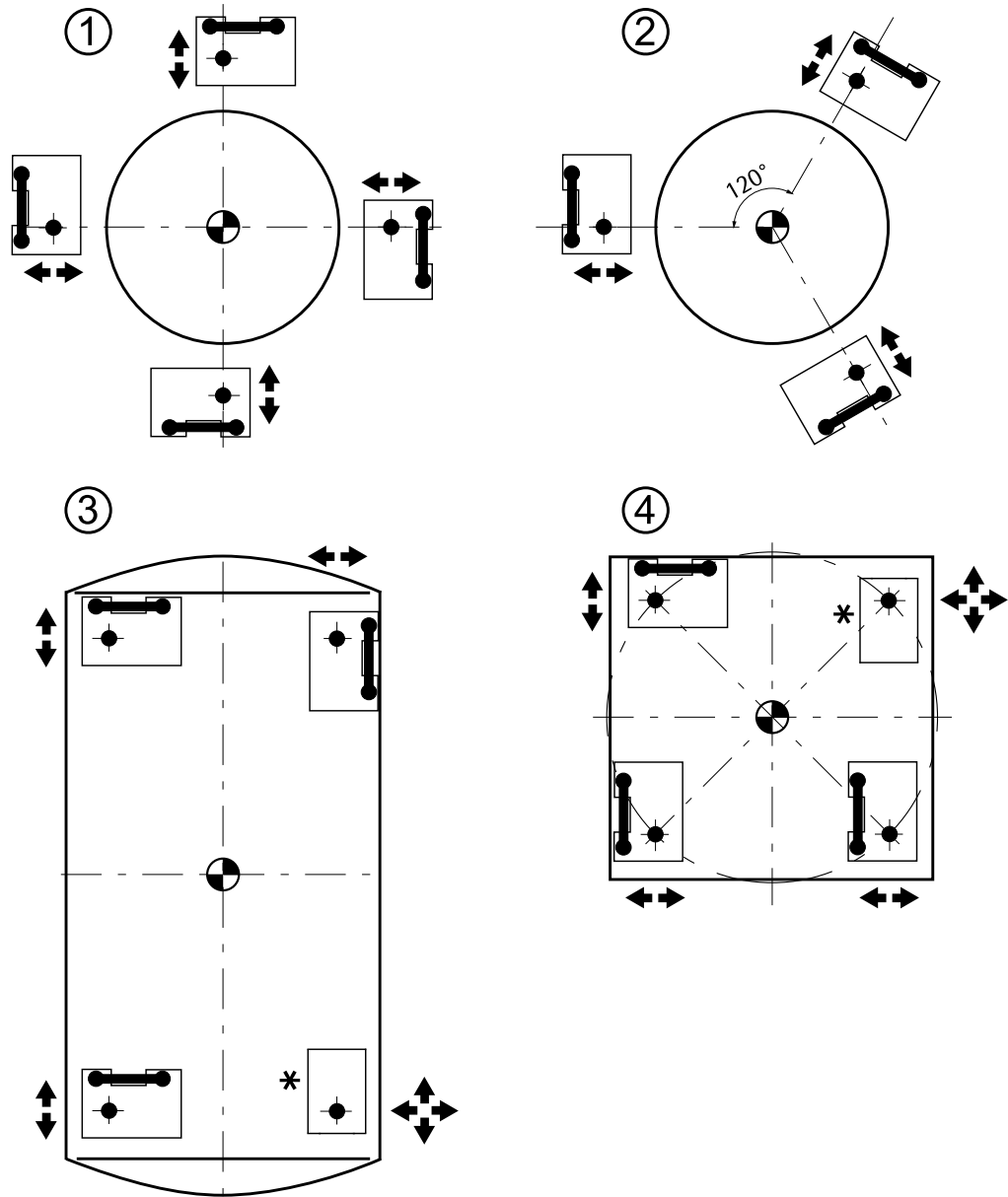
Perform visual inspection.

- 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.

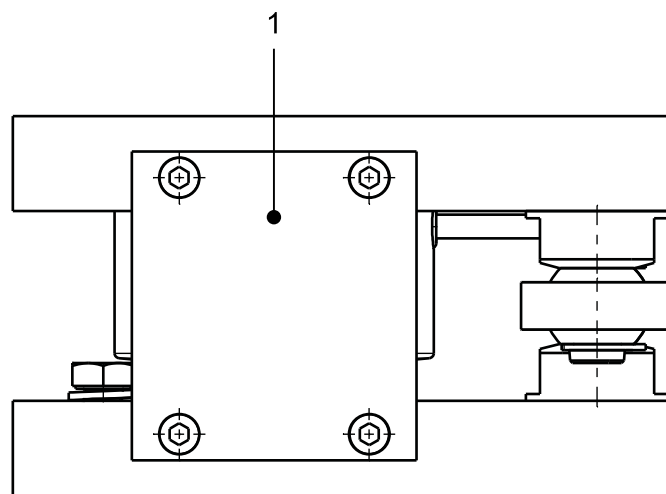
Round containers are the exception (image ① and ②). In this case, any number of constrainers can be installed, provided that they are tangentially aligned.

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.

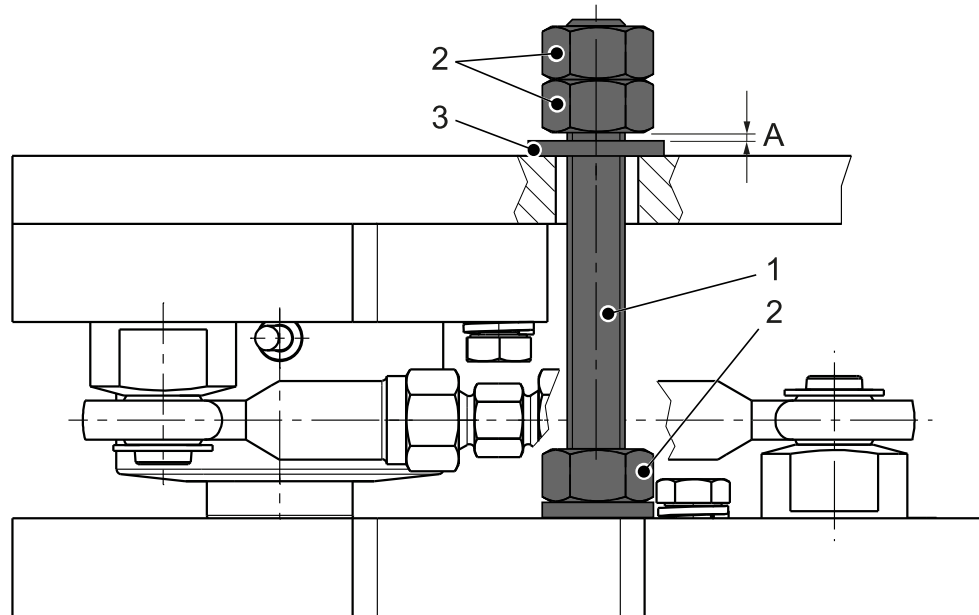
3.2 Mounting aid

Example: PR 6012/31



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

3.3 Additional lift-off protection



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

PR 6012/53S (M12) is provided for use in PR 6012/31.

PR 6012/54S (M16) is provided for use in PR 6012/41.

For ordering information, see Chapter [8.2](#).

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).

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

This distance is essential to avoid force shunts.

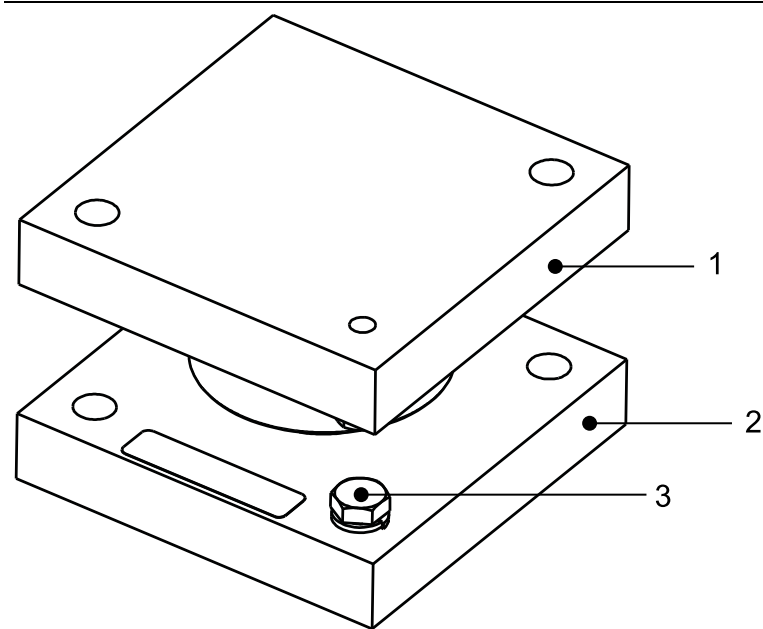
The required tightening torques are given in the following table.

Mounting kit	Threaded bar/ nuts	Property class	Tightening tor- que	Perm. overall lift-off force
PR 6012/31 with PR 6012/53S	M12	A2-70	56 Nm	20 kN
PR 6012/41 with PR 6012/54S	M16	A2-70	135 Nm	45 kN

4 Specifications

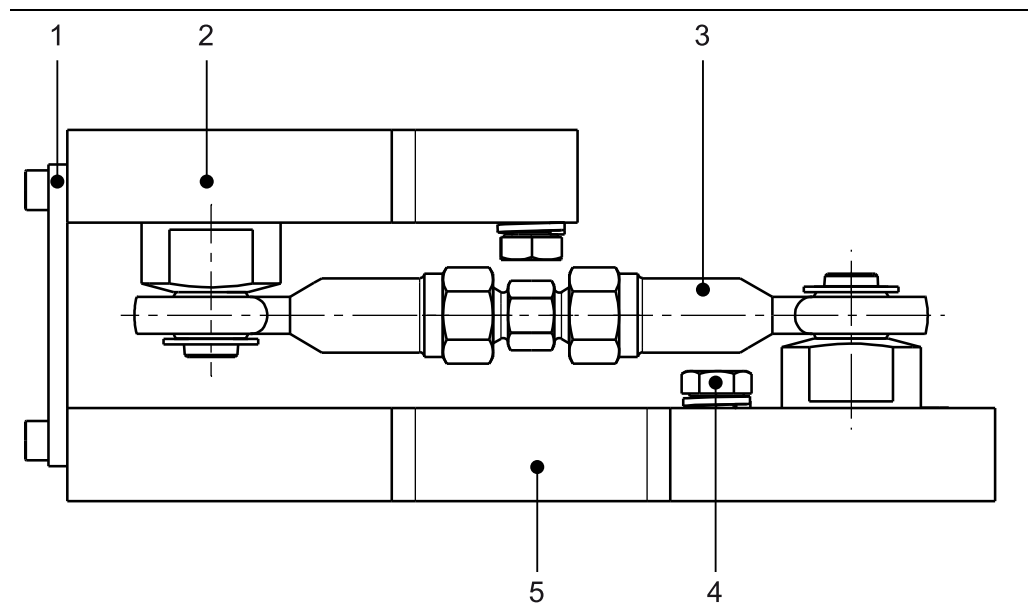
4.1 Equipment supplied

4.1.1 Mini FLEX mounting kits PR 6012/01N and PR 6012/01S



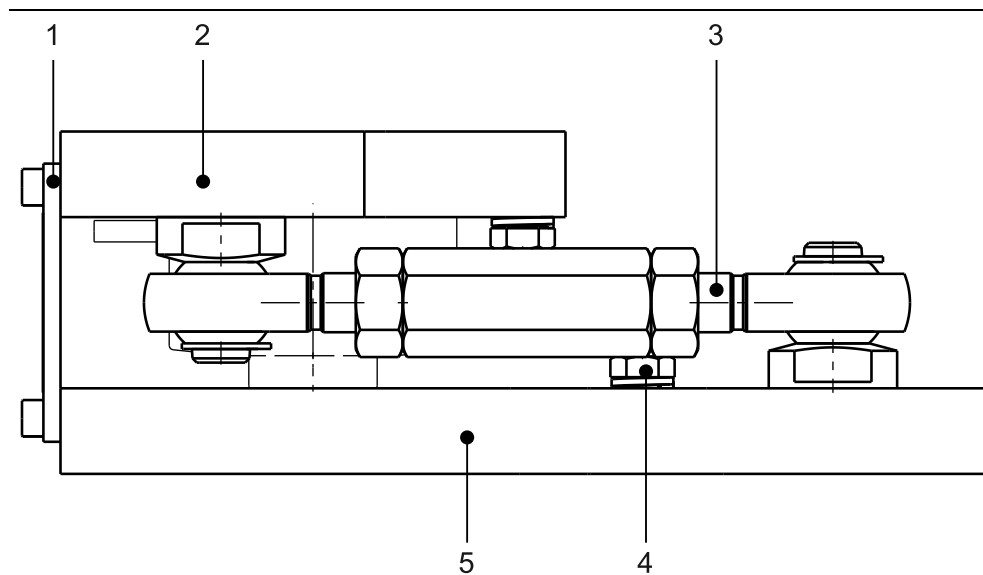
No.	Description
1	Upper plate
2	Lower plate
3	Screw (2x), spring washer (2x), and washer (2x) for the equipotential bonding cable (supplied with the load cell)
4	Quick guide (not shown)

4.1.2 Mini FLEXLOCK mounting kits PR 6012/31N and PR 6012/31S



No.	Description
1	Auxiliary mounting plate
2	Upper plate
3	Constrainer with joint head (2x), screwed joint, nut (2x), joint pin (2x), and locking washer (2x)
4	Screw (2x), spring washer (2x), and washer (2x) for the equipotential bonding cable (supplied with the load cell)
5	Lower plate
6	Quick guide (not shown)

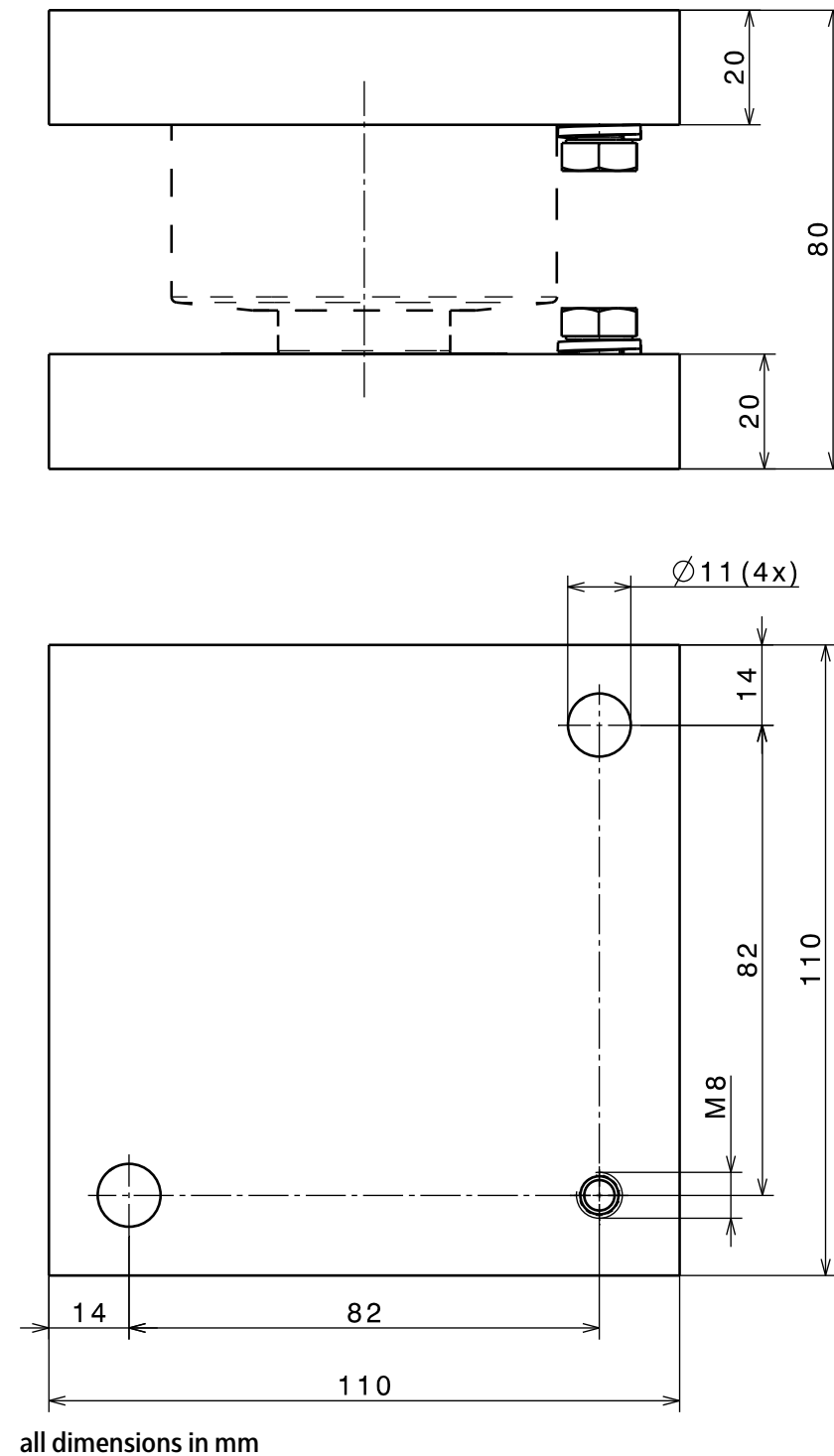
4.1.3 Mini FLEXLOCK mounting kits PR 6012/41N and PR 6012/41S



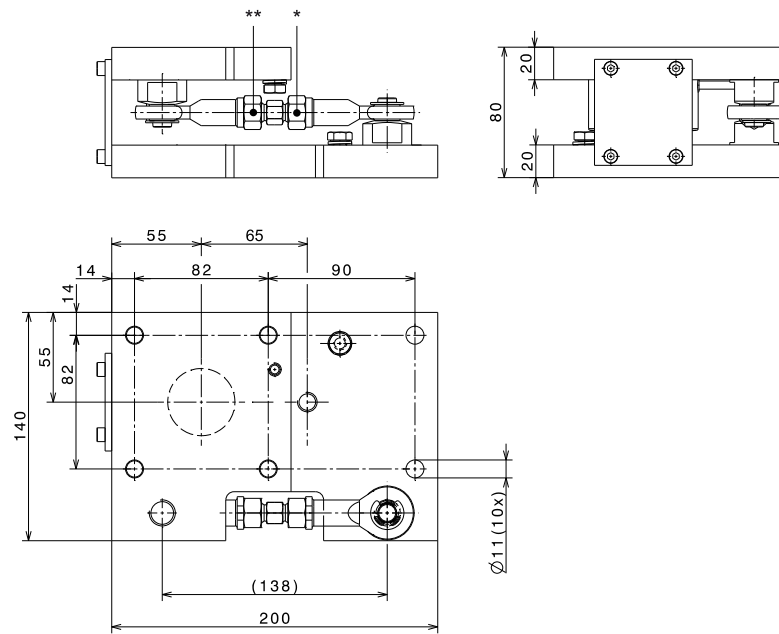
No.	Description
1	Auxiliary mounting plate
2	Upper plate
3	Constrainer with joint head (2x), screwed joint, nut (2x), joint pin (2x), and locking washer (2x)
4	Screw (2x), spring washer (2x), and washer (2x) for the equipotential bonding cable (supplied with the load cell)
5	Lower plate
6	Quick guide (not shown)

4.2 Dimensions

PR 6012/01

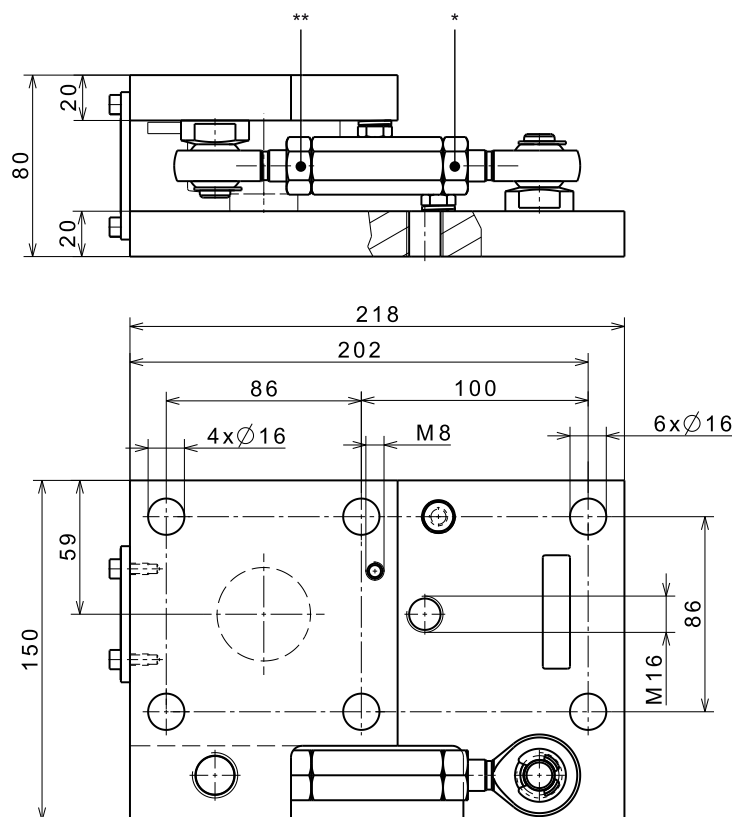


PR 6012/31



* Right-handed thread, ** Left-handed thread
all dimensions in mm

PR 6012/41



* Right-handed thread, ** Left-handed thread
all dimensions in mm

4.3 Technical data

Mini FLEX mounting kits PR 6012/01N and PR 6012/01S

	PR 6012/01N	PR 6012/01S
Maximum capacity of load cell	500 kg...10 t	500 kg...10 t
Permissible horizontal displacement	max. ± 4 mm	max. ± 4 mm
Permissible temperature range	-40 °C...+100 °C	-40 °C...+100 °C
Material	Steel S235 with galv. zinc coating, passivated and sealed, RoHS-compliant	Stainless steel 1.4301 according to DIN EN 10088-3 (AISI 304)
Weight net/gross	3.59 kg/4.02 kg	3.59 kg/4.02 kg

Mini FLEXLOCK mounting kits PR 6012/31N and PR6012/31S

	PR 6012/31N	PR 6012/31S
Maximum capacity of load cell	500 kg...10 t	500 kg...10 t
Permissible horizontal force	max. 5 kN	max. 5 kN
Horizontal destructive force	>10 kN	>10 kN
Permissible horizontal displacement	max. ± 4 mm	max. ± 4 mm
Permissible temperature range	-40 °C...+100 °C	-40 °C...+100 °C
Material	Steel S235 with galv. zinc coating, passivated and sealed, RoHS-compliant	Stainless steel 1.4301 according to DIN EN 10088-3 (AISI 304)
Weight net/gross	6.64 kg/7.00 kg	6.64 kg/7.00 kg

Mini FLEXLOCK mounting kits PR 6012/41N and PR6012/41S

	PR 6012/41N	PR 6012/41S
Maximum capacity of load cell	500 kg...10 t	500 kg...10 t
Permissible horizontal force	max. 20 kN	max. 20 kN
Horizontal destructive force	>50 kN	>50 kN
Permissible horizontal displacement	max. ± 4 mm	max. ± 4 mm
Permissible temperature range	-40 °C...+100 °C	-40 °C...+100 °C
Material	Steel S235 with galv. zinc coating, passivated and sealed, RoHS-compliant	Stainless steel 1.4301 according to DIN EN 10088-3 (AISI 304)
Weight net/gross	7.43 kg/8.13 kg	7.43 kg/8.13 kg

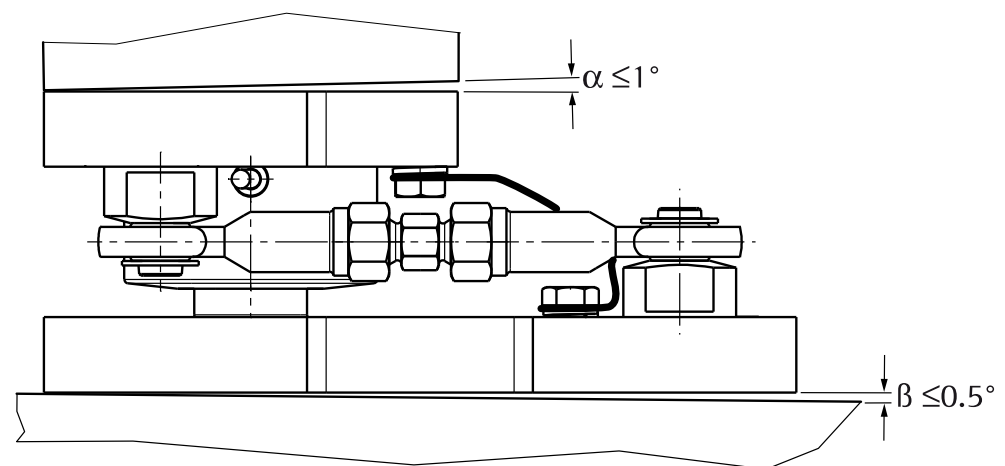
5 Installation

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.
 - Generate the drilling pattern of the upper plate of the mounting kit (see Chapter 4.2) according to the weighing system arrangement for each vessel lug or vessel foot.
- 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	Screws	Washer	Tightening torque
PR 6012/01N, PR 6012/31N	Upper plate	M8-8.8	*	22 Nm
PR 6012/41N		M12-8.8	**	85 Nm
PR 6012/01N, PR 6012/31N	Lower plate	M8-8.8	*	22 Nm
PR 6012/41N		M12-8.8	**	85 Nm
PR 6012/01S, PR 6012/31S	Upper plate	M8-A2-70	*	16.5 Nm
PR 6012/41S		M12-A2-70	**	56.0 Nm
PR 6012/01S, PR 6012/31S	Lower plate	M8-A2-70	*	16.5 Nm
PR 6012/41S		M12-A2-70	**	56.0 Nm
*		Recommendation for the washers of M8 mounting screws:	DIN 7349 (d = 21, h = 4) or DIN 9021 or ISO 7093-2 (d = 24, h = 2)	
**		Recommendation for the washers of M12 mounting screws:	DIN 7349 (d = 30, h = 6) or DIN 9021 or ISO 7093-2 (d = 37, h = 3)	

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.

WARNING

Warning of hazardous area and/or personal injury

The locking washers of the constrainers may only be used once.

- Insert new washers in case they have been damaged or removed. Spare parts, see Chapter [8.1](#).

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.

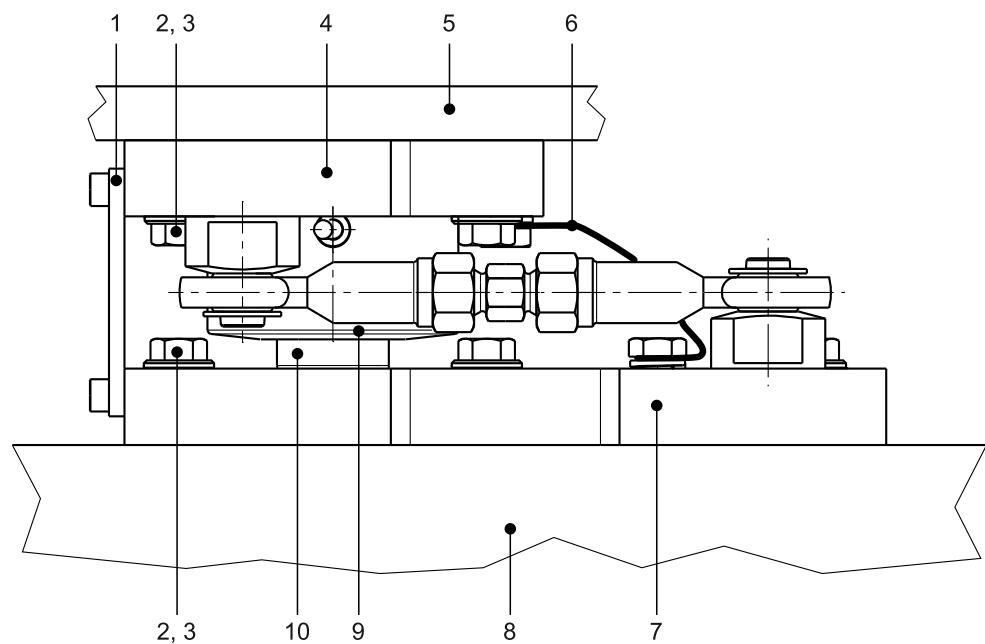
The load cell must always be mounted with the load disc downwards.

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 6012/31



1. Fit the mounting kit to the vessel foot (5). 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 (7) 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. 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 additional lift off protection PR 6012/53 or PR 6012/54 can be mounted (see Chapter 3.3).

This does **not** apply for PR 6012/01.

5. Position the lifting gear on the weighing object.
6. Remove the auxiliary mounting plate (1).

⚠ CAUTION

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

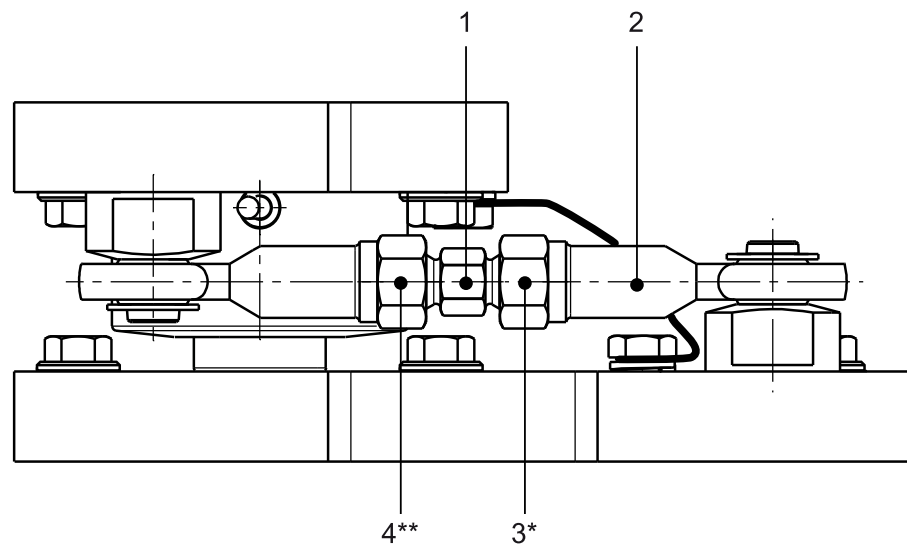
► Carefully insert the load cell.

7. Use the appropriate lifting gear to lift the weighing object so that the load cell (9) can be inserted with the load disc (10).
8. Load the load cell slowly. It is essential to ensure that the load cell is vertical and not jammed after loading.
9. If necessary, re-adjust the upper plate (4) and the lower plate (7).
10. If necessary, adjust the additional lift-off protection (see Chapter 3.3).
11. Connect an equipotential bonding conductor (6) (supplied with the load cell) between the upper plate (4) and the lower plate (7).

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 6012/31



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.
- 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.
- **For Mini FLEXLOCK mounting kits only:**

whether the constrainers (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.

For this purpose, spray the water jet from top to bottom and around the mounting kit.

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).

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

Minebea Intec GmbH

Repair center

Meiendorfer Strasse 205 A

22145 Hamburg, Germany

Phone: +49.40.67960.333

service.HH@minebea-intec.com

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

8 Spare parts and options

8.1 Replacement parts

No.	Description	Max. capacity	Order no.
1	Flexible copper strap, 250 mm long		5312 321 28056
2	Load disc (for PR 6212/..LT)	500 kg...5 t	5312 693 98069
3	Load disc (for PR 6212/.., /..E)	500 kg...10 t	5312 693 98155
4	2× locking washer 10 mm, DIN 6799 10-A2		5312 530 78002

8.2 Options

8.2.1 Lift-off protection

The listed products are recommended for the installation of additional lift-off protection:

No.	Description	Order no.
1	Optional extension of lift-off protection (M12) for PR 6012/31 Equipment supplied: - 1× threaded bar M12×120-A2-70 - 3× nut DIN 934-M12-A2-70 - 1× washer ISO 7090-12-200 HV-A2 - 1× washer ISO 7093-12-A2	9405 360 12532
2	Optional extension of lift-off protection (M16) for PR 6012/41 Equipment supplied: - 1× threaded bar M16×120-A2-70 - 3× nut DIN 934-M16-A2-70 - 1× washer ISO 7090-16-200 HV-A2 - 1× washer ISO 7093-16-A2	9405 360 12542

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