

# ProSpare

## Installation Guidelines Matrox



# Matrox

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### Fixing systems

Matrox® is installed by mechanically fastening it to the substrate using bolted or welded fasteners. Both types are acceptable and are usually chosen based on the requirements of the application and the structure being lined.

### Fixing system: Stud welding

In order to fix linings in position the sheet is always pre-drilled at the fixing points using a special drill. The distance between the individual fixing points depends on the geometry and the material of the container being lined, the operating conditions and the type of fixing process selected.

When the sheets are bolted into position with bolts and disk nuts, we recommend a distance of 150 - 200 mm. The distance between the holes and the edge of the sheet should not exceed 20 - 30 mm.

When the pre-drilled lining sheet is positioned in the container it is used as a template for welding.

For stud welding, a threaded bolt is welded through a hole in the sheet to the metal surface below. A hexagon nut or anti-loosening disk nut is then screwed onto the bolt.

For lining purposes, nuts and threaded bolts of the size M10 have proved to be most suitable. We supply these in various lengths. For simpler installation on uneven surfaces, we have special threaded bolts with pre-determined breaking points.

### Advantages:

- Easy removal of the sheets

### Ideal applications

- For thicker sheets

### Equipment required

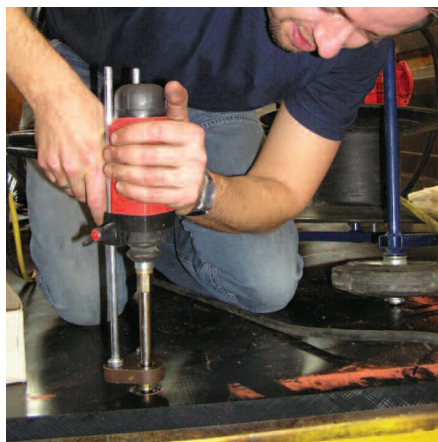
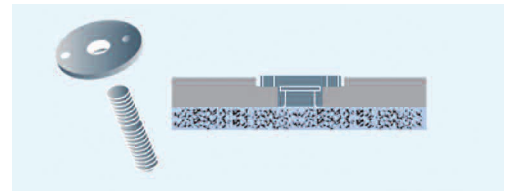
- Suitable graduated drill
- Stud-welding unit
- Threaded bolts (if necessary with pre-determined breaking point)
- Disk nuts
- Fixing tool for tightening the disk nuts.

A bolt-fixing tool can also be used to mount the lining sheets.

Proper installation by a qualified distributor or installer is critical to the life expectancy of the liner.



Stud-welding process: lining a hopper



Fixing system  
Stud weld



Strong fixing: the stud is welded to the base through the pre-drilled sheet

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### Fixing system: Weld Washer

With the so-called "weld-washer" fixing system, a plate-shaped, pre stamped metal disk is welded directly to the base through the hole in the sheet. Only one operation is necessary. This fixing system can be used for sheet thicknesses of up to 15 mm. An even lining surface is then created by covering the weld washers with matching Matrox® plastic caps.

#### Advantages:

- Quick and easy installation
- Cover caps prevent accumulation of bulk material at the fixing points

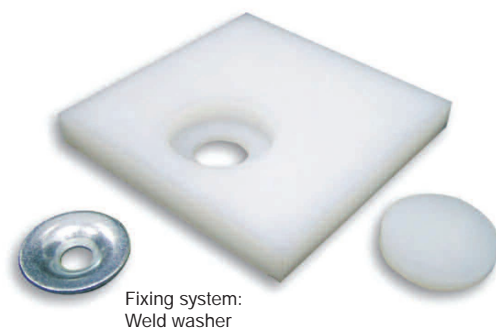
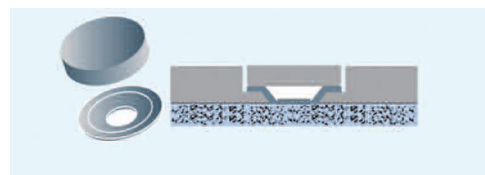
#### Ideal Applications

- Simplest system for mounting thin lining sheets

#### Equipment required

- Weld washers
- Suitable graduated drill
- Welding unit (cover gas or electric welding unit)
- Matrox® cover caps

In addition to the systems described above, alternative methods are also available on request. We would be pleased to advise you.



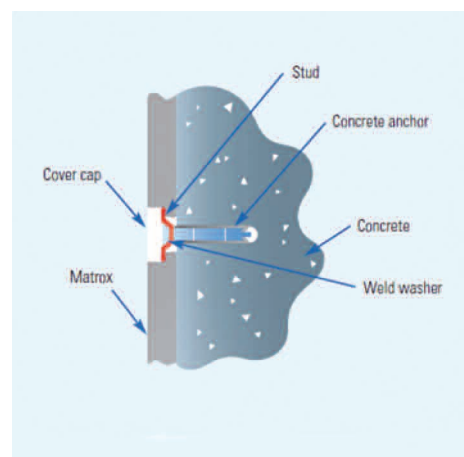
Fixing system:  
Weld washer

### Fixing to concrete

A system consisting of washers, countersunk head screws, concrete dowels and Matrox® cover caps is particularly suitable for attaching Matrox® sheets to concrete walls or masonry.

This system creates tolerance spaces which help to prevent the formation of bulges at high temperatures. To prevent material from penetrating under the sheet, the sheet is sealed by means of a cap. The benefits of this process are simple attachment of the sheet and excellent durability.

Fixing to  
concrete



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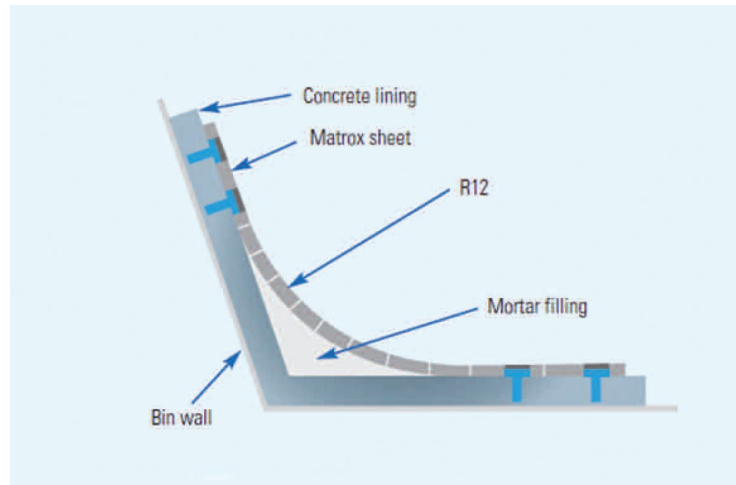
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### Fixing a hopper lining

With hopper linings, corners and sharp angles often cause undesirable accumulations of bulk material. For this reason, the lining sheet should, if possible be curved in corner areas. Depending on the thickness, it may be necessary to use a hot-air blower or a rolling unit to achieve the desired curve.

The cavity thus created behind the sheet is then filled with a polymer (epoxy-resin) mortar. Countersunk screws and expansion dowels are used to fix the lining sheet into position.

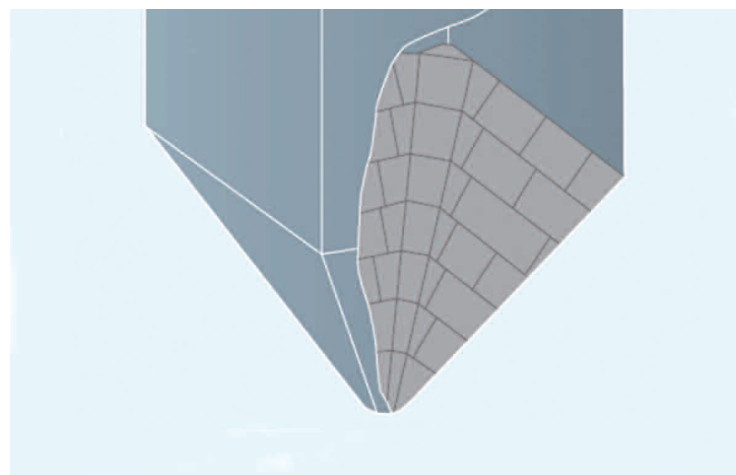


Fastening of hopper lining

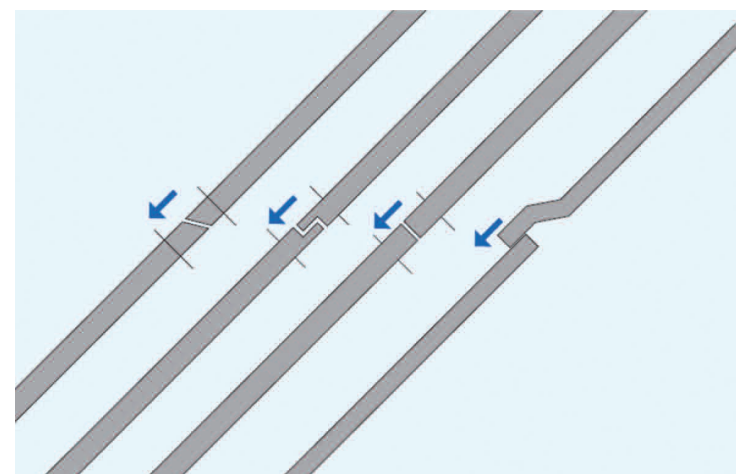
### Laying technique

When lining hoppers and bins, the liner sheets are laid horizontally starting at the bottom and working upwards. We recommend off-setting the vertical joints of the sheets. Depending on the type of bulk solid in question, it may be necessary to improve the material flow by overlapping the lining sheets. This also prevents fine grained material from working its way under the lining.

This diagram shows the methods which can be used for the overlap. The direction of flow is indicated by the arrow. Alternatively, the joints may be sealed with a special extrusion welding device.



The sheets are laid horizontally from bottom to top in the offset position



Overlap methods

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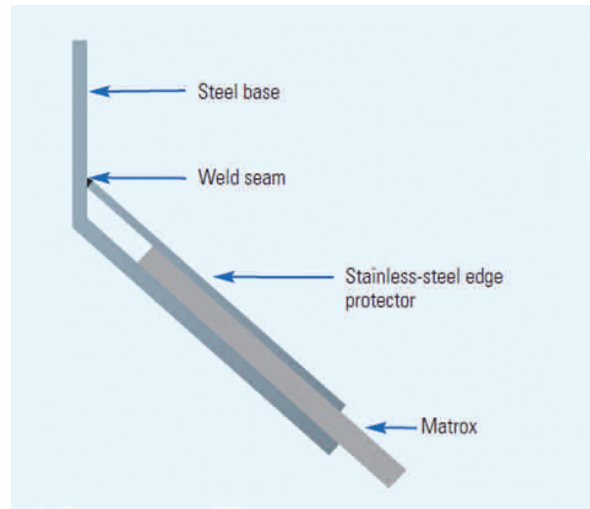
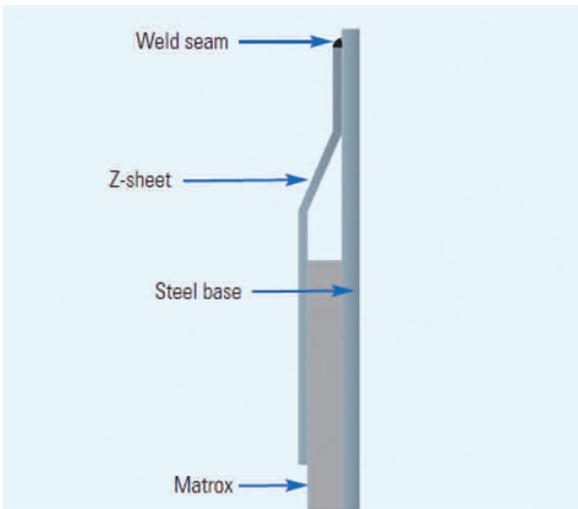
### Edge Protection

When installing all types of lining, the top row of sheets must be protected by a sealing strip to prevent material from working its way under the sheets. The strips may be of aluminium (truck bed) or steel plates as required.

When fixing the strips, ensure that the material can expand and contract freely due to thermal effects.



Edge strips prevent penetration of material beneath the liner sheet



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