Installation instructions
Technical information

PROLINE

PROSTILTadvance 2.0

ALUMINIUM SUPPORT STRUCTURE SYSTEMS FOR PATIOS AND BALCONIES

PROLINE

GENERAL PREREQUISITES

Patio covering

Wooden boards

Floorboards can be mounted on the PROSTILTadvance 2.0 aluminium substructure with and without groove. Floorboards with groove can be installed without visible screws with the PROSTILTadvance 2.0 T-support. Floorboards without groove are screwed directly onto the PROSTILTadvance 2.0 aluminium substructure. Use modified decking boards or dried wood with low swelling and shrinkage. Acclimatise the wood 48 hours before laying. The system is also suitable for WPC and BPC floorings. The formation of waterlogging (critical for WPC and BPC floorings) can be avoided with end-to-end vertical water drainage boreholes in the Support profile (distance approx. 1-1.5 m, max. Ø 8 mm).

IMPORTANT: The specifications of the covering manufacturers must be taken into account primarily. Contact your specialist dealer to obtain information about product standards and recommendations for use for patio as well as floor coverings from GD Holz.

Slabs

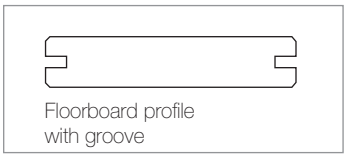
Only use frost-proof slabs that are suitable for outside areas. The minimum height for ceramic tiles is 20 mm, for natural stone 30 mm and for artificial stone 40 mm. Exceptions can only be approved by the flooring manufacturers. These must be authorised by the relevant manufacturer for laying on mortar-free systems. For dark slabs, we recommend the use of the PROSTILTadvance Support profiles Blackline. This results in a uniform floor covering without disruptions.

IMPORTANT: The specifications of the covering manufacturers must be taken into account primarily. Contact your specialist dealer to obtain information on product standards and recommendations for use.

Ground

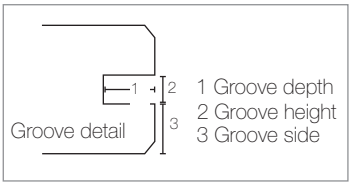
Before starting to build, you should clarify whether planning permission is required for your new patio and whether guidelines like for example a specific distance to the neighbouring property must be observed. You should also know the current location of power lines and water pipes. The size of the patio should consider the required space for seating areas, sun loungers or suitable sun protection. Make sure the substrate is able to take a weight. A compacted ballast bed is ideal. The soil must first be excavated for the ballast bed (depth approx. 30-40 cm). The ballast bed should have a gradient between 1-2% (away from the building, to ensure water drainage). The ideal solution is to apply a layer of gravel at least 3 cm high to level out a slope. However, this is not absolutely necessary to ensure best results, it is just to make the work easier. To prevent plants growing in the subsoil, we recommend using a root fleece. Our PROSTILTadvance adjustable feet Basic U and Basic+ U serve as a fixed and solid, as well as height-adjustable support for the Support profiles.

IMPORTANT: The later installation height must be considered during preparations. Sufficient rear ventilation must be ensured for wooden boards. A deeper ballast bed or adjustable patio feet can compensate variations in height.

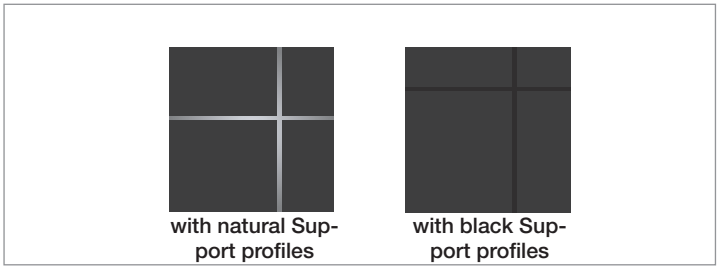


SUITABLE DECKING BOARDS
WITH GROOVE FOR PROSTILTadvance
MULTIT-support

Decking boards thickness:	20-26 mm
Groove height:	>3.5 mm
Groove side:	6-12 mm
Groove depth:	6.5-13 mm



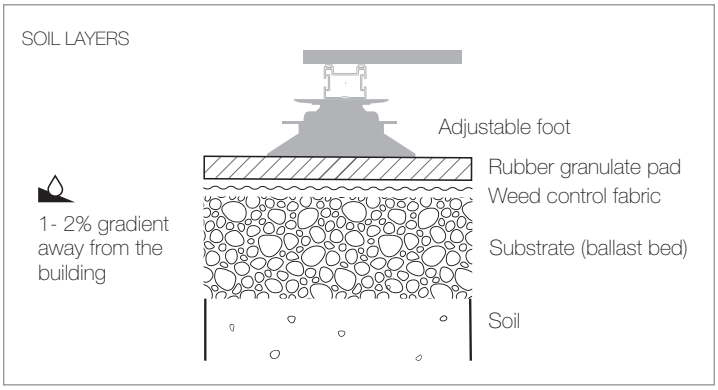
SUITABLE SLABS FOR PROSTILTadvance MULTICross-clip
Slabs from a height of 10 mm

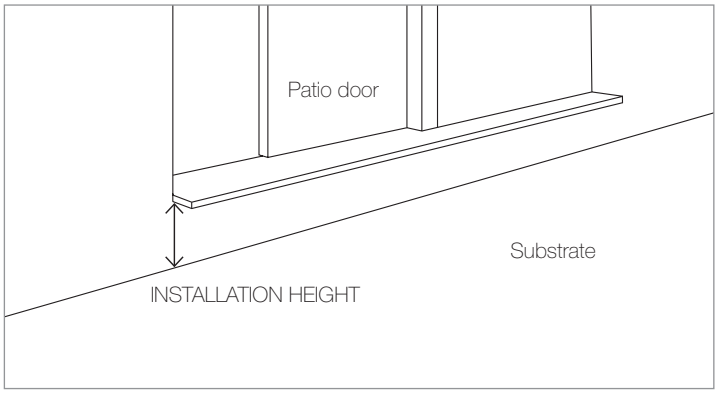


NOTICE

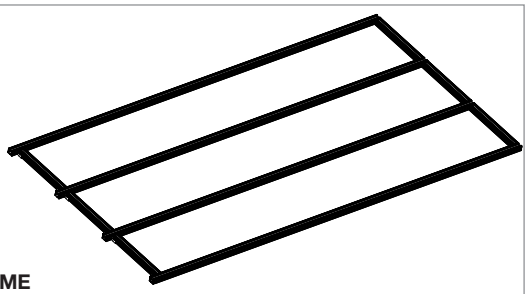
Edging / abutment

From a planning point of view, it must be ensured in advance that the top covering must be secured against slipping (e.g. by kerbs, brickwork, elevations, clip on top, TOS-T profile or edging profile).





GENERAL PREREQUISITES



CLOSED FRAME CONSTRUCTION

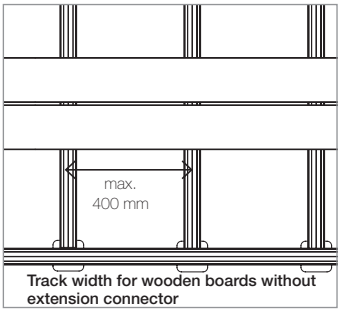
Closed frame construction
Recommended for WPC, wooden decking boards and slabs made of ceramic, natural stone and artificial stone

The PROSTILTadvance 2.0 aluminium substructure is mounted as closed frame. Cross connections are not required for the certified load capacities. However, cross connections can be mounted between the longitudinal profiles for a particularly high dimensional stability.

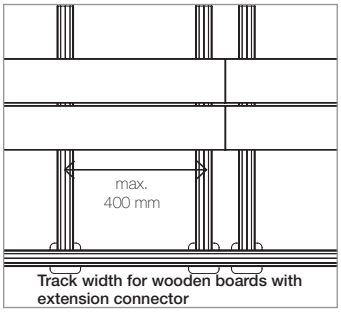
Track width

In the closed frame construction, the distances of the parallel longitudinal profiles are called track width. The maximum track widths for the respective floor covering must be observed here.

Important: The specifications of the respective covering manufacturer must be observed primarily.



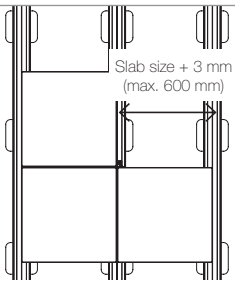
Track width for wooden boards without extension connector



Track width for wooden boards with extension connector

Wood / WPC board	max. 400 mm
Slabs	max. 600 mm (slabs + 3 mm)

Tip: Always measure distances from the centre of the Support profiles and observe distances between joints.



Track width for slabs

Span widths for support points

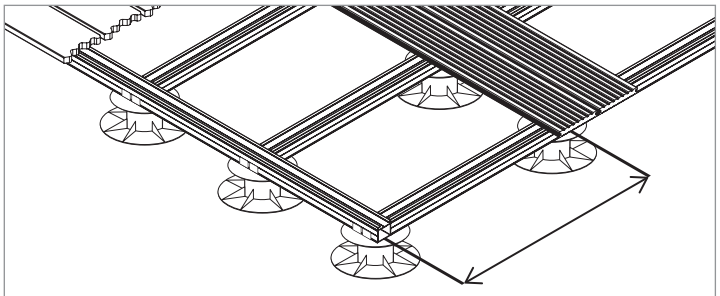
Depending on the track width and load capacity, the maximum permissible span widths for the support points must be observed.

Maximal permissible span widths for PROSTILTadvance 2.0 aluminium Support profiles

Track width	300 mm WPC	400 mm WPC	500 mm Tiling/ceramics	600 mm Tiling/ceramics
Load capacity (area-related)				
2 kN/qm	1450 mm	1350 mm	1250 mm	1200 mm
5 kN/qm	1100 mm	1050 mm	950 mm	900 mm

max. permissible span width

DIN 1991-1-1, the maximum fall height from 600 mm and the permissible deflection with a span of 1/200 form the basis for calculating the values specified in the table. For optimum installation of the patio, we recommend not to fully utilise the maximum possible span widths to keep the deflection as low as possible.



PERMISSIBLE SPAN WIDTH
(e.g. support pads on concrete slabs or adjustable feet)

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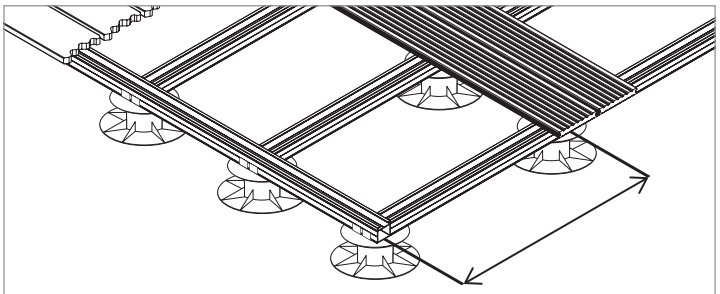
Maximal permissible span widths for PROSTILTadvance 2.0 aluminium Support profiles slim

Track width	300 mm WPC	400 mm WPC	500 mm Tiling/ceramics	600 mm Tiling/ceramics
Load capacity (area-related)				
2 kN/qm	900 mm	850 mm	800 mm	750 mm
5 kN/qm	700 mm	650 mm	600 mm	550 mm

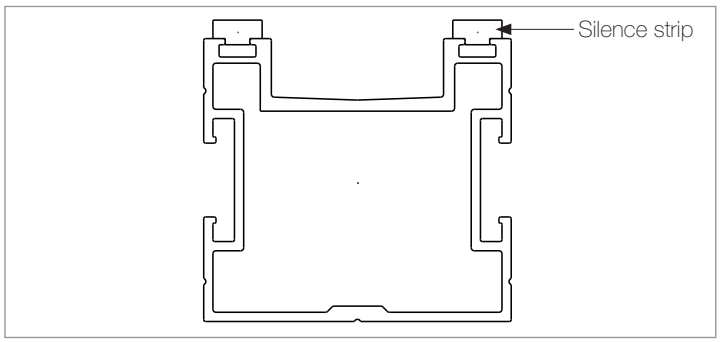
max. permissible span width

DIN 1991-1-1, the maximum fall height from 600 mm and the permissible deflection with a span of 1/200 form the basis for calculating the values specified in the table. For optimum installation of the patio, we recommend not to fully utilise the maximum possible span widths to keep the deflection as low as possible.



PERMISSIBLE SPAN WIDTH
(e.g. support pads on concrete slabs or adjustable feet)

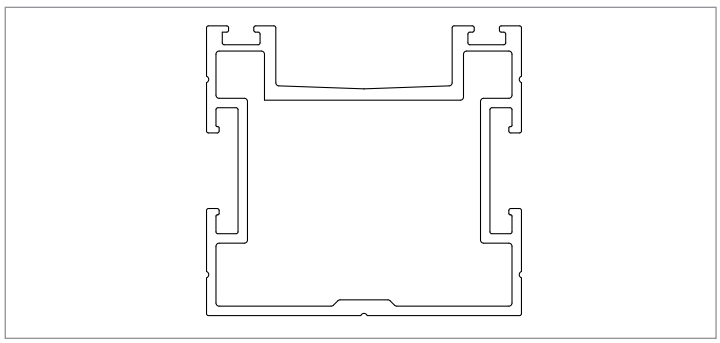
PROSTILT Advance 2.0 Support profile with silence strip



The silence strip is strongly recommended for minimising impact sound and prevention of cracking noises under slabs made of e.g. ceramic, natural stone or artificial stone.

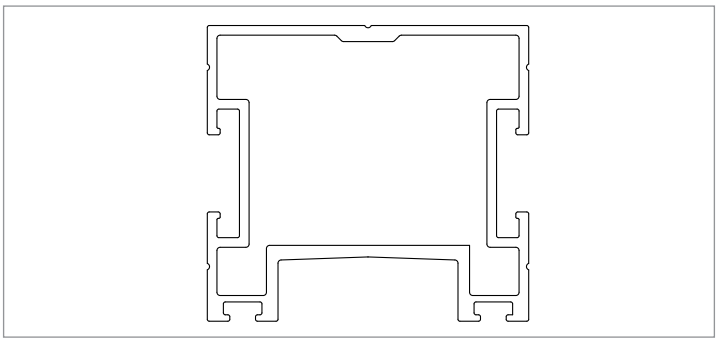
Pre-assembled Support profiles with silence strip can be obtained from the Proline Systems factory.

Floorboards without groove



When laying wood or WPC, it is not necessary to use silence strip for the profiles.

With this Support profile alignment, floorboards can be installed with groove and PROSTILTadvance MultiT-support.



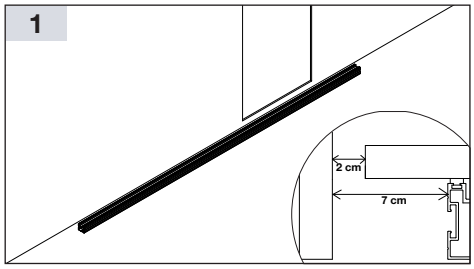
For the visible screw connection, e.g. for floorboards without groove, we recommend the profile alignment shown.

PROLINE

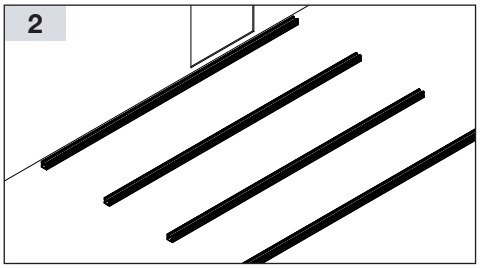
Installing a substructuresystem for WPC and wooden decking boards

Required tools:

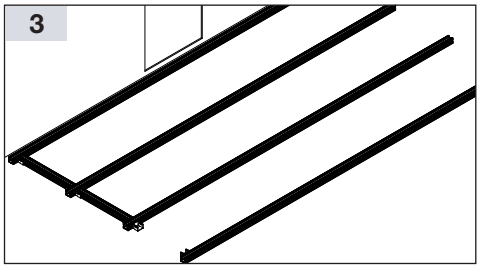
folding ruler, cutter knife, pencil, spirit levels in various lengths, rotating laser, silicone gun, bevelling shears, cordless screwdriver, angle grinder, mitre saw with metal blade



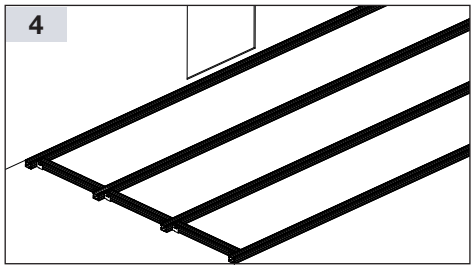
For patios joining onto the house, we recommend laying the first profile strut along the house wall. The correct distance to the house wall must be ensured (total of 7 cm: ground overhang approx. 5 cm distance to wall at least 2 cm)



We recommend preparation of all longitudinal profiles to start with. For this purpose, shorten the Support profiles to the desired length, or attach additional Support profiles with the PROSTILTadvance 2.0 L-connector (see below “Profile connections”)



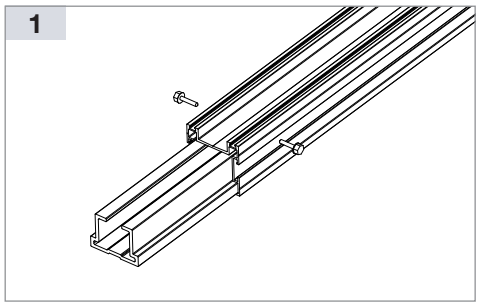
Then prepare the lateral cross braces. Shorten the Support profiles for this purpose and install the PROSTILTadvance 2.0 cross connector at the correct distance (see p. 2 Track width).
(Installation PROSTILTadvance 2.0 cross connector see Profile connections below)



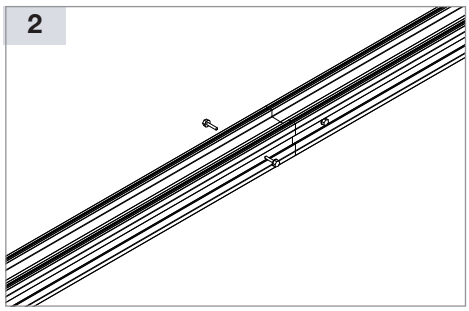
If required, additional cross connections can be inserted into the frame construction. The frame construction can now be placed on support pads or pedestal supports and aligned.

Profile connections

Installing cross and corner connections with the PROSTILTadvance 2.0 cross connector



To connect the Support profiles in the length, the PROSTILTadvance 2.0 L-connector is required. For this, the L-connector is inserted into the profile opening on the head side of the Support profile up to about half, as shown in image 1.

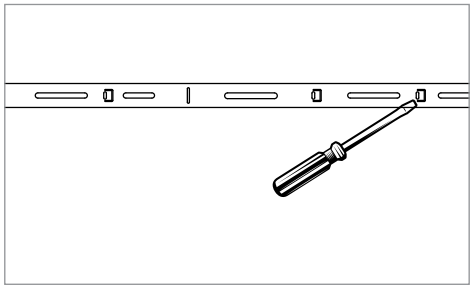


The L-connector is fixed in the C-grooves of the Support profile with 2 drilling screws (6 KT flange 4.2 x 16 mm item no. 94338).

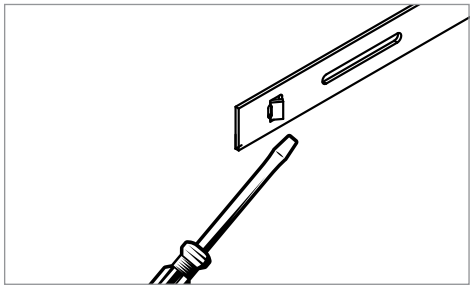
PROLINE

PROFILE CONNECTOR BENDABLE

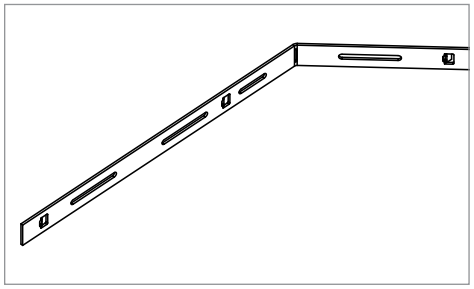
For use with Support profile mitre joints



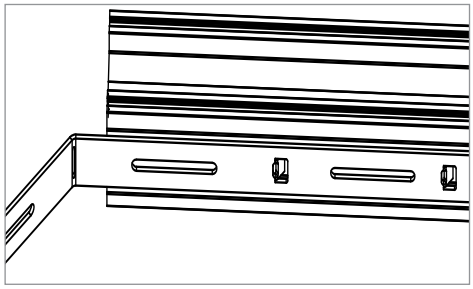
The pre-perforated guide lugs are slightly bent open by means of a slotted screwdriver.



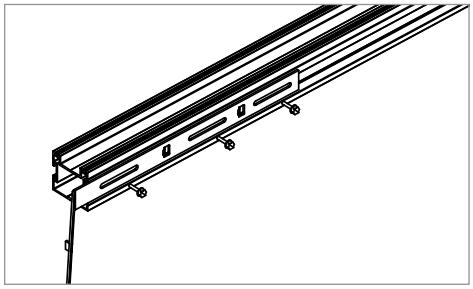
Use the screwdriver tip to engage in the small slotted holes of the connector and pry open the guide lugs.



Manually bend the connector in the middle approx. to the mitre angle that is required.



Insert the connector into the lateral C-grooves of the Support profiles. Make sure that the guide lugs bent open in advance engage with the C-groove of the Support profile.



Fix the connector to the elongated holes by means of the drilling screw (6 KT flange 4.2 x16 mm item no. 94338).

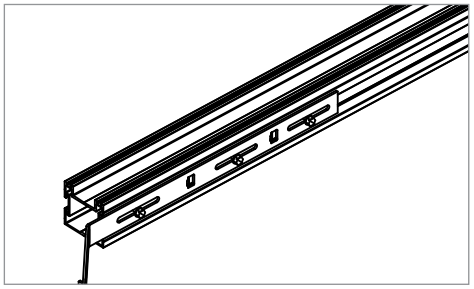
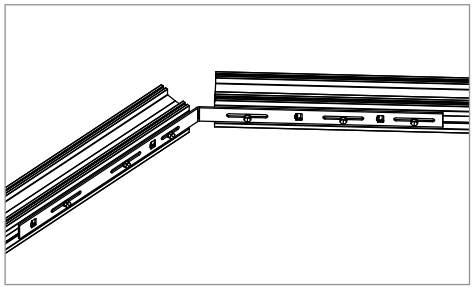


Image 6 If required, the position of the connector can be varied by loosening the drilling screws in the elongated hole.



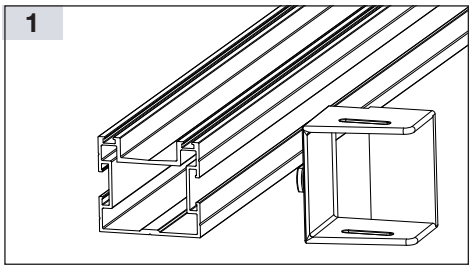
The connector can now be screwed onto the adjacent Support profile as shown in image 4.

PROLINE

Profile connections

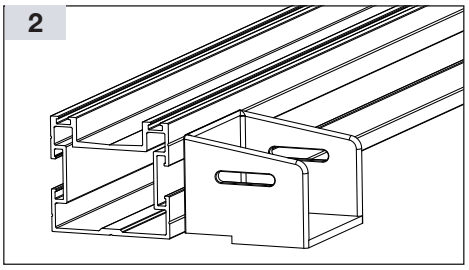
Installing cross and corner connections with the PROSTILTadvance 2.0 cross connector

1



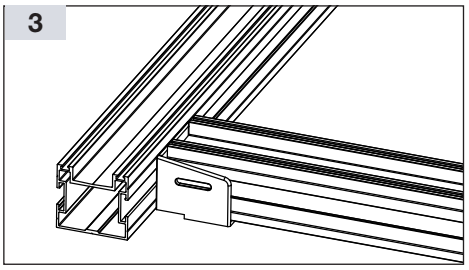
Insert the PROSTILTadvance 2.0 cross connector into the C-groove of the Support profile as shown in the drawing (image 1) and rotate clockwise by 90 degrees.

2



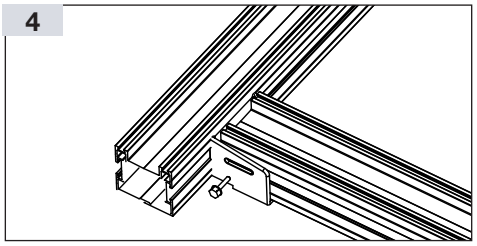
The cross connector can be inserted in any place in the C-groove. The cross connector can also be moved in the C-groove when inserted.

3



Insert the cross connector profile cut to the right length in advance.

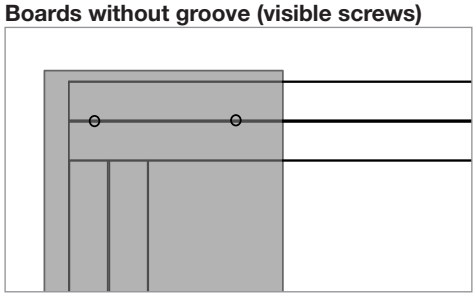
4

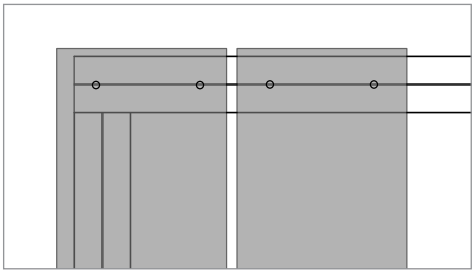


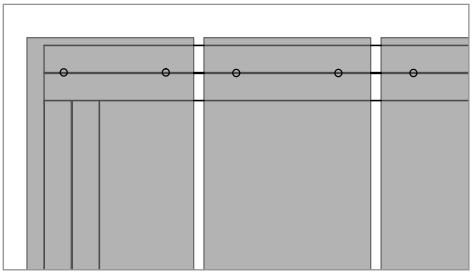
The cross connector profile is now fixed to the elongated holes of the cross connector by cross means of the drilling screw (6 KT flange 4.2 x16 mm item no. 94338).

INSTALLING THE PATIO COVERING

Boards without groove (visible screws)

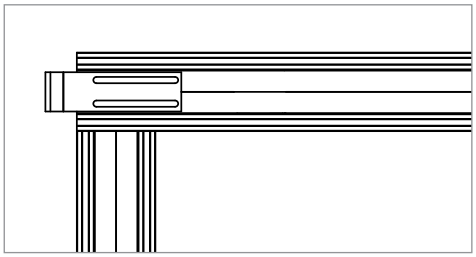




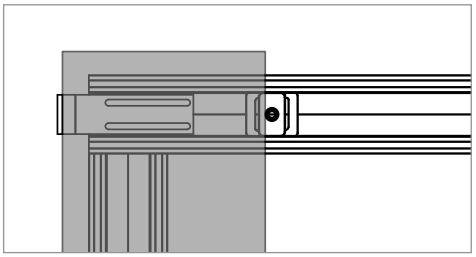


Lay the first board in the centre and attach to each longitudinal profile with two screws (1x ending profile, 1x longitudinal profile).
Lay further boards and attach with two screws per longitudinal profile. Ensure a joint distance of approx. 7 mm here.

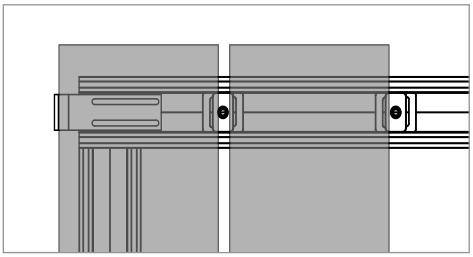
Boards with groove and PROSTILTadvance T-support (invisible screws)



If required, insert the start and end holder in the profile, adjust it in the correct position and screw it tight with the drilling screw (6 KT flange 4.2 x 16 mm item no. 94338).



Insert the first board with groove into the start holder as shown in the drawing and then insert T-support into the Support profile, move it into the groove of the already laid board and screw tight (max. tightening torque 1.5 Nm).

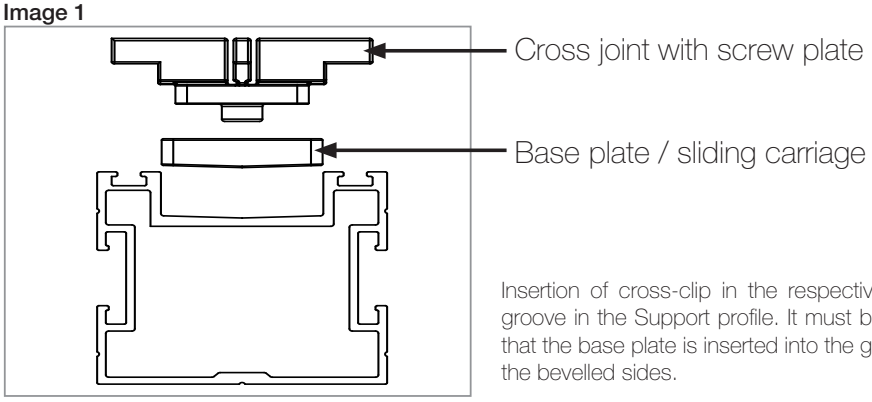


Now position the next board and screw it tight with more clips T. A joint distance of approx. 7 mm is automatically achieved with T-support.

PROLINE

PROSTILTADVANCE 2.0 CROSS-CLIP

Image 1



Insertion of cross-clip in the respective location groove in the Support profile. It must be ensured that the base plate is inserted into the groove with the bevelled sides.

Image 2

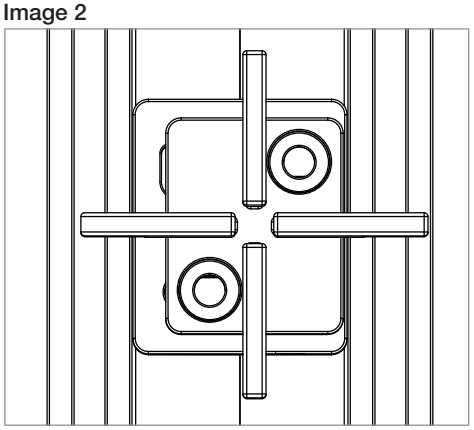
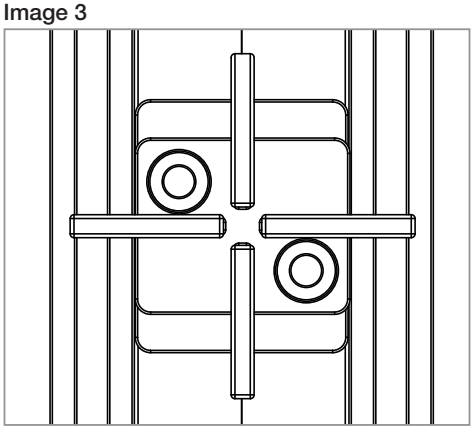


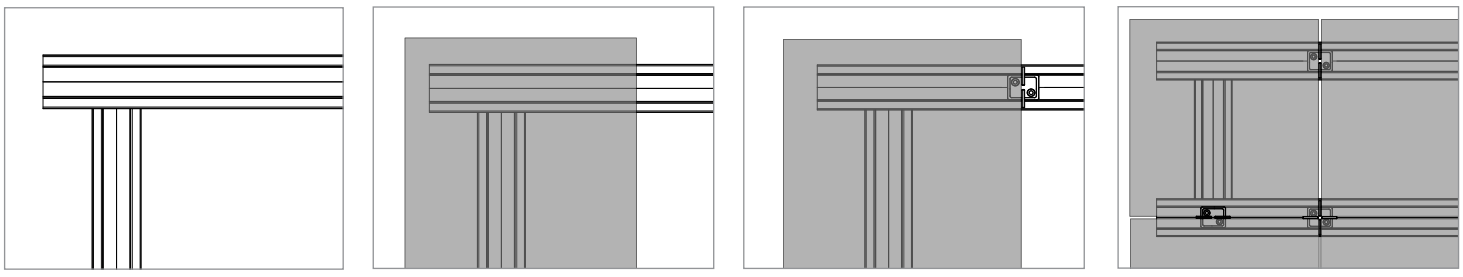
Image 3



The cross joint can be inserted into the base plate in two positions.

Fig. 2 shows the position of the cross joint, with the option to move the cross joint laterally in the base plate. With this option, dimensional tolerances in the flooring can be compensated.
Fig. 3 shows the position of the cross joint in a locked state.

Slab and PROSTILTadvance 2.0 with cross-clip



First row of slabs: If the first row of slabs is not secured against slipping with edging like the PROSTILTadvance stop cross-clip, we recommend to attach the slabs to the substructure with suitable mounting adhesive.

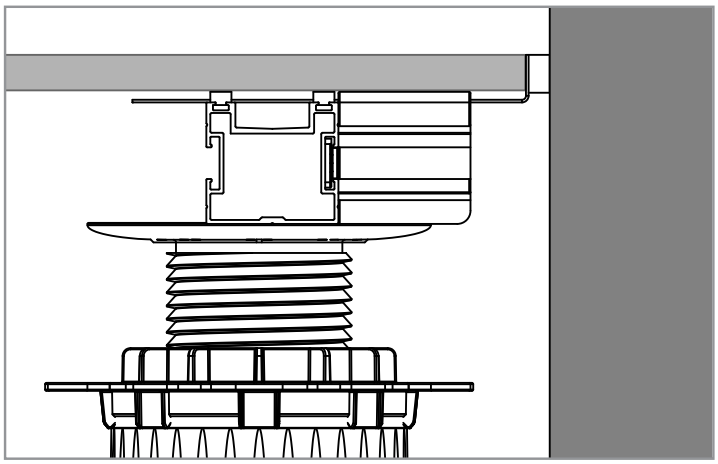
Lay the flooring: For this purpose, click the PROSTILTadvance clipX into the Support profile, push the clip onto the already laid slab and screw tight (max. tightening torque 1.5 Nm). For the edge slabs, first remove two wings of the X adapter cross at the pre-determined breaking points.

Last row of slabs: Proceed as for the first row of slabs. The PROSTILTadvance spacer with neoprene pad is suitable as edging against slipping. If no edging is used, we recommend to attach the slabs to the substructure with suitable mounting adhesive.

PROLINE

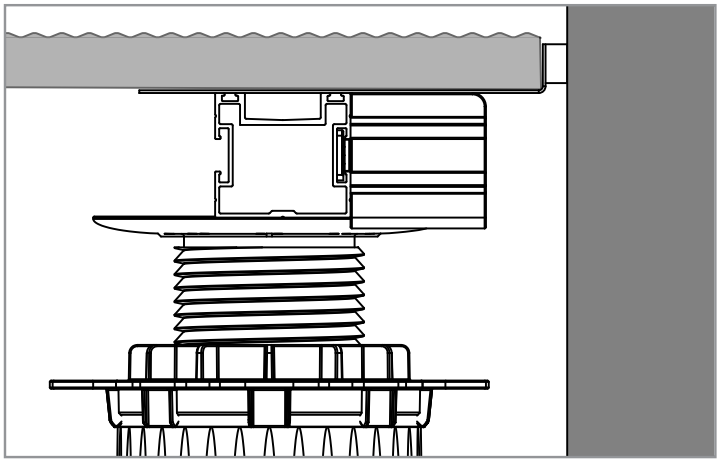
Edge profile bracket with spacer including neoprene pad

Version 1: Spacer with neoprene pad when laying ceramic, natural stone and artificial stone and using the Support profile with silence strip



Spacers with neoprene pad must be installed to hold the last row of slabs against the walls of buildings or towering components. The spacer is positioned on the edge profile bracket as shown in the drawing and then screwed tight. The edge profile bracket must be rotated so that the lateral elevations of the edge profile bracket are flush with the silence strip of the Support profile.

Version 2: Spacer with neoprene pad when laying WPC or wooden decking boards and using the Support profile without silence strip.

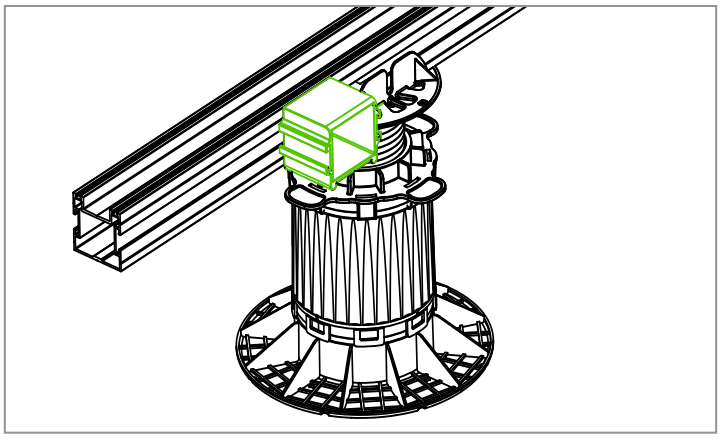


Spacers with neoprene pad must be installed to hold the last row of boards against the walls of buildings or towering components. The spacer is positioned on the edge profile bracket as shown in the drawing and then screwed tight. The edge profile bracket must be rotated so that the smooth side of the edge profile bracket are flush with the top edge of the Support profile.

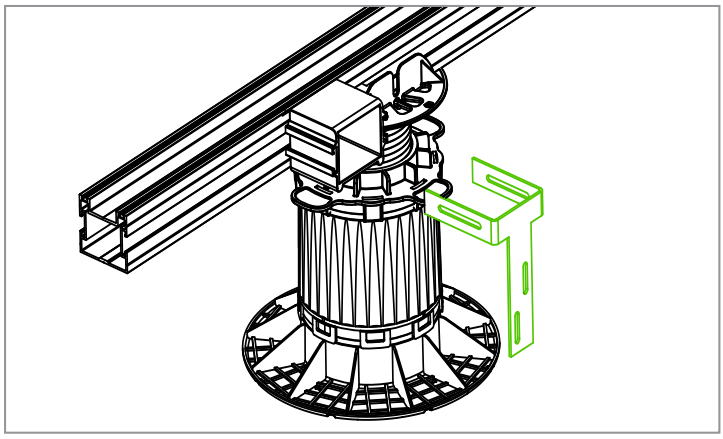
PROLINE

FACING

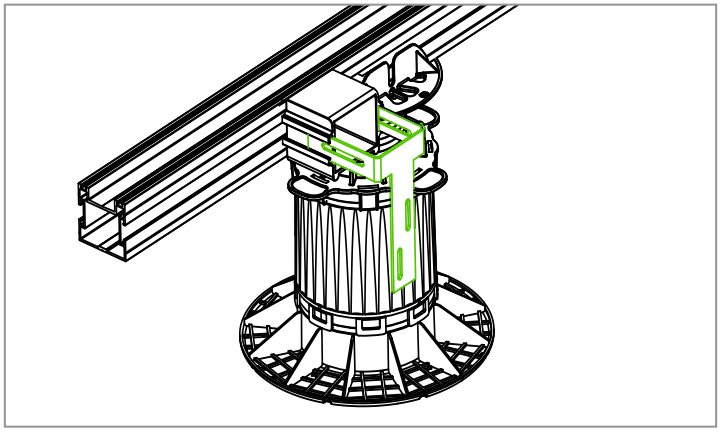
with PROSTILTadvance 2.0 edge profile bracket and connection bracket vertical L



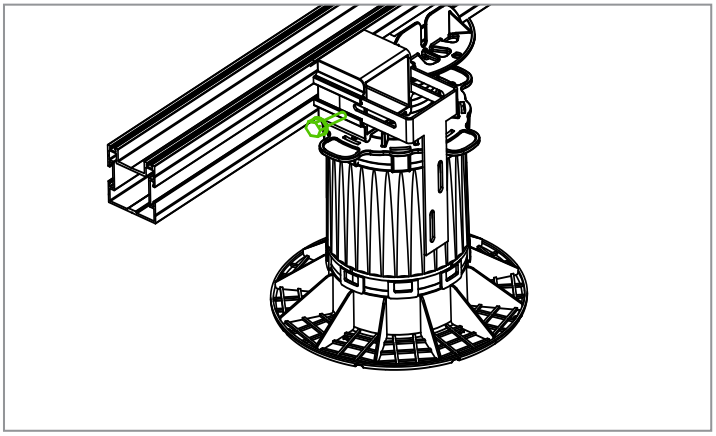
Insert the PROSTILTadvance 2.0 edge profile bracket into the lateral C-groove of the Support profile (same procedure as for the cross connector) and move into the desired position. It must be ensured that when using profiles without silence strip, the smooth side of the edge profile bracket is flush at the top with the Support profile.



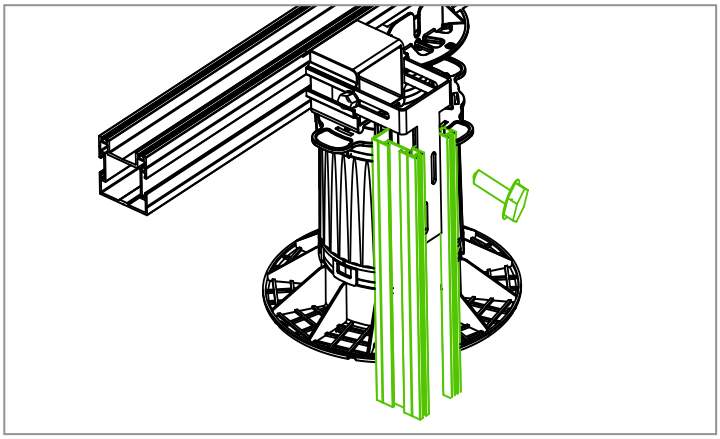
The connection bracket vertical L can now be inserted in the C-grooves of the edge profile bracket.



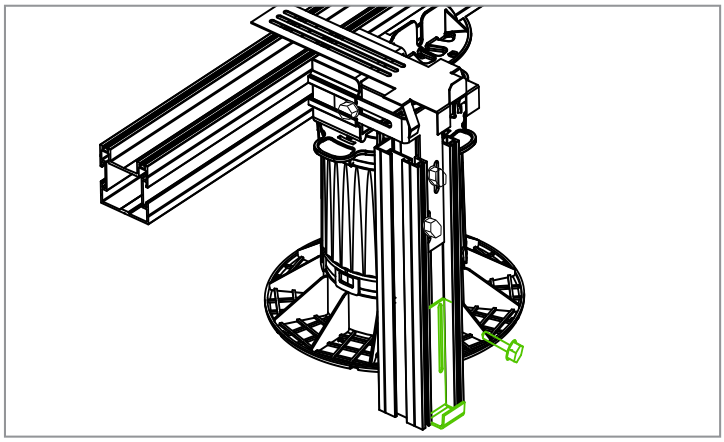
The connection bracket vertical L can be moved to the desired position by moving it in the C-groove of the edge profile bracket.



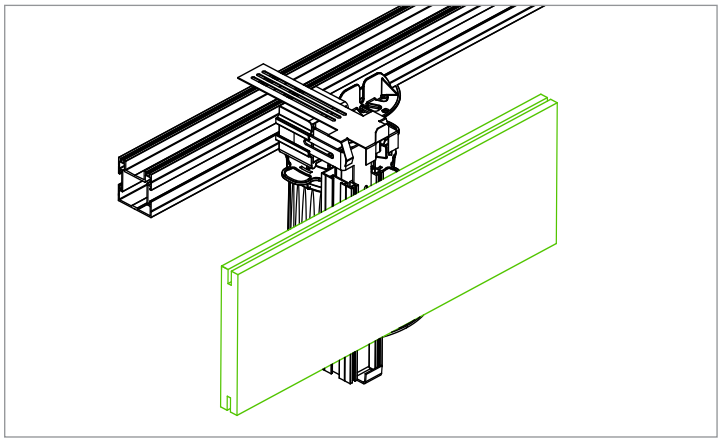
Fix the connection bracket vertical L using the drilling screw (6 KT flange 4.2 x16 mm item no. 94338) through the elongated holes of the holder.



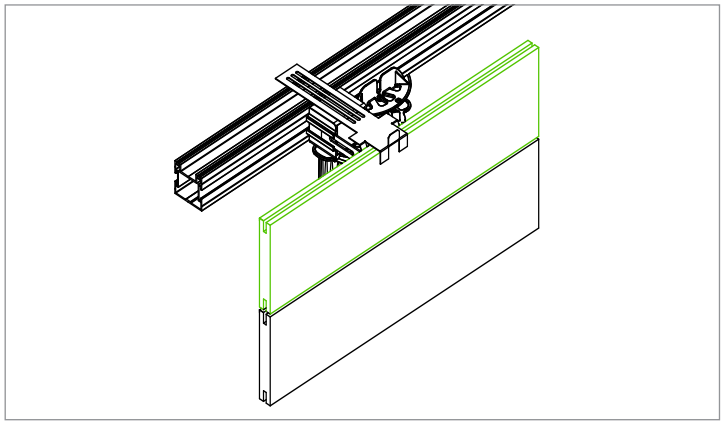
A Support profile piece, which is cut to size, can now be screwed to the holding strip of the connection bracket pointing down, using the drilling screws as shown in the drawing.



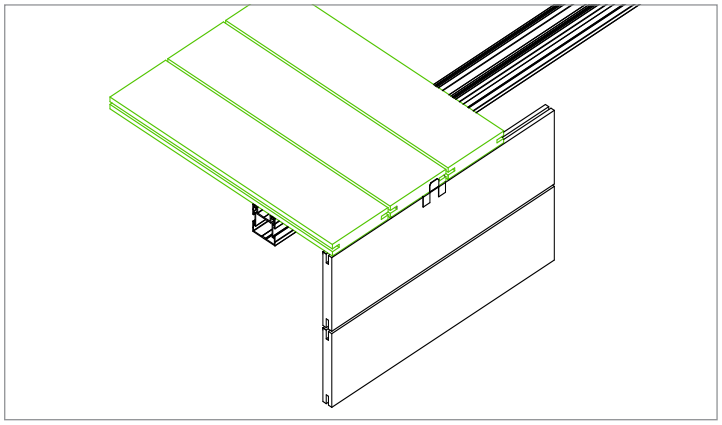
When facing boards with groove for example, we recommend using the PROSTILTadvance start and end holder (item no. 78354). It is screwed to the bottom end of the vertical Support profile using drilling screws. The PROSTILTadvance 2.0 clip can already be loosely screwed at the top, as shown in the drawing, and on the edge profile bracket. During the next stage of the installation, the correct position of the clip can be adjusted at the top through the elongated holes of the clip.
Follow the same procedure to install additional edge profile brackets at a distance of approx. 50-60 cm and attach them to the Support profile.



Once all edge profile brackets are positioned on the Support profile with connection brackets, the first facing board can be inserted in the start and end holder.



If more facing boards are required for the planned facing, they can be screwed in the joint area with the PROSTILTadvance 2.0 T-support to the rising Support profile. The top facing board is held up with the retaining clips. Once the facing is properly positioned and aligned, tighten the loosely tightened screws in the elongated holes of the clip at the top.

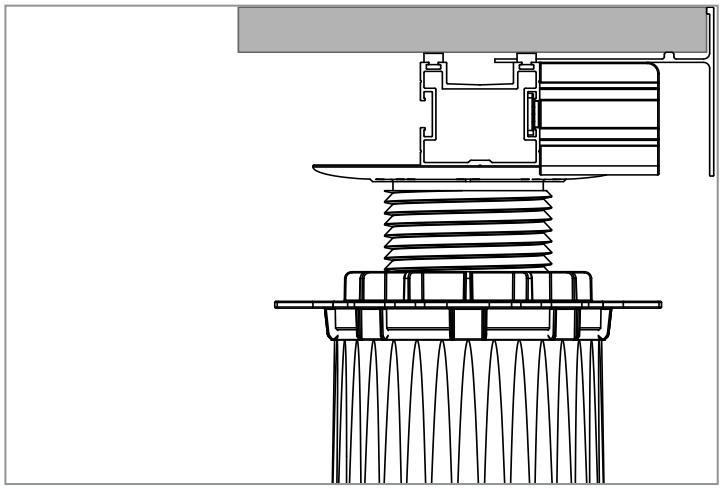


The floorboards can now be installed as described.

PROLINE

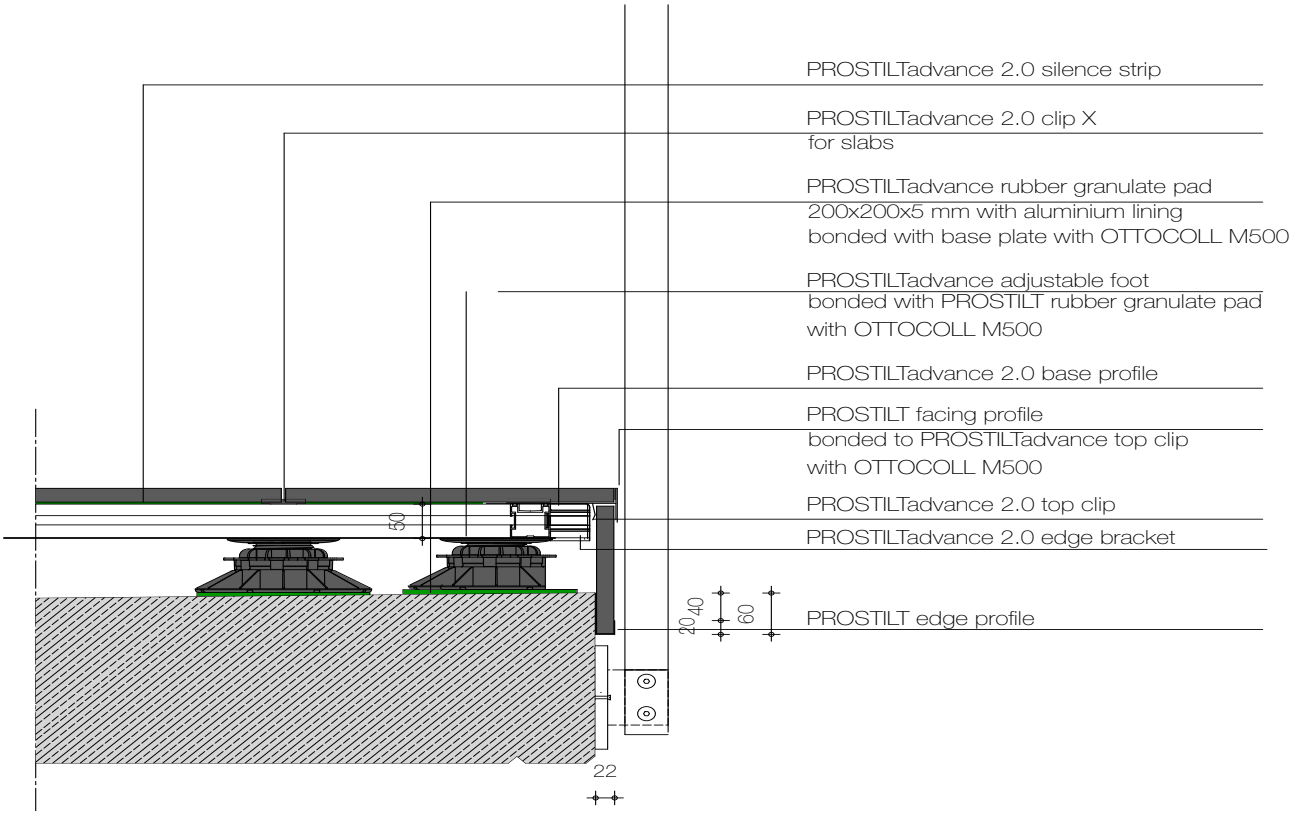
FACING

with edge profile bracket and TOS T-profile



Our PROSTILTadvance 2.0 TOS-T-profiles can also be used as facing for ceramic and natural stone slabs up to 20 mm.
They can be placed on the edge profile bracket as shown in the drawing and screwed tight using drilling screws.

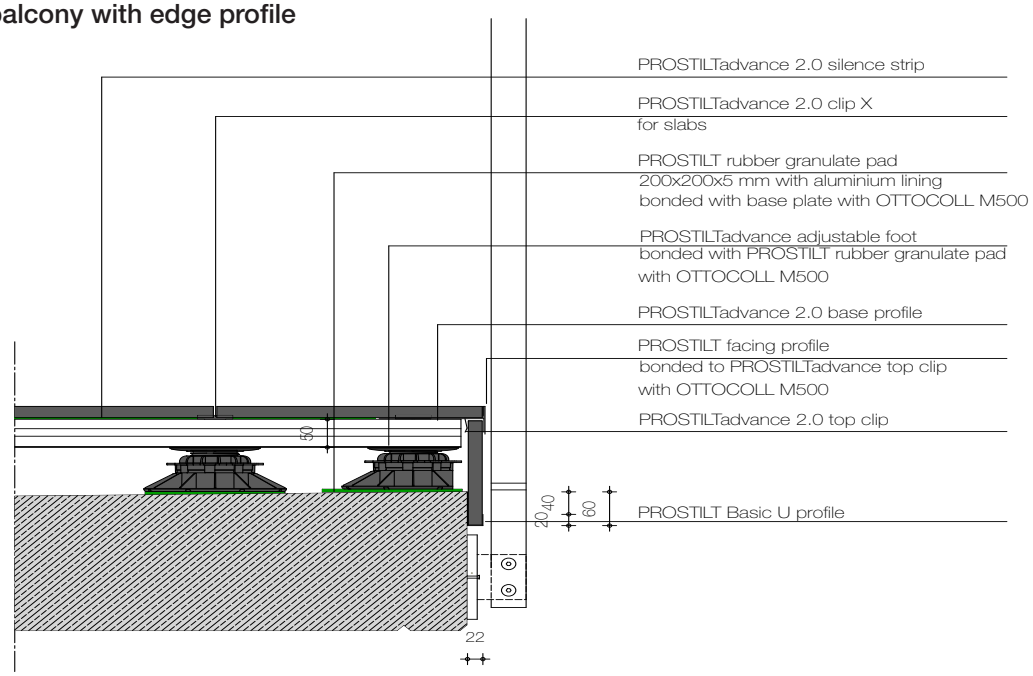
TECHNICAL DETAILS
PROSTILTadvance 2.0 facing



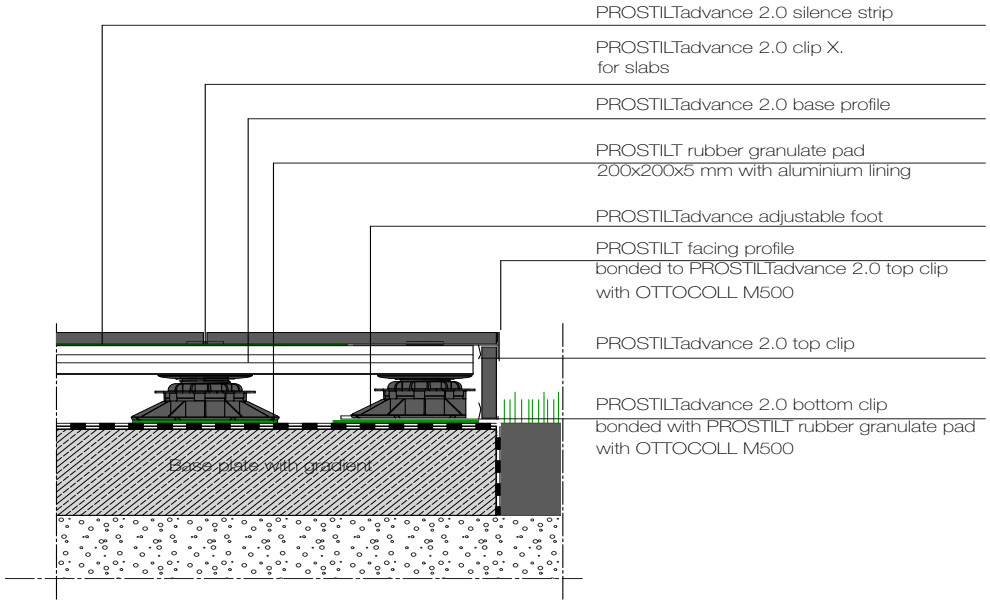
PROLINE

TECHNICAL DETAILS
PROSTILTadvance 2.0 facing

Outer edge of balcony with edge profile



Outer edge of patio with facing profile



The edging of free laying a reas with a vertical facing slab is carried out using the PROSTILTadvance Clip U and the PROSTILT edge profile. For this purpose, the facing slab is to be cut from the surface covering material at the corresponding height, and positioned in the PROSTILT edge profile. The top edge of the facing slab is inserted into the bracket of the PROSTILTadvance Clip U, which is then screwed to the groove of the PROSTILTadvance Support profile using stainless steel screws.

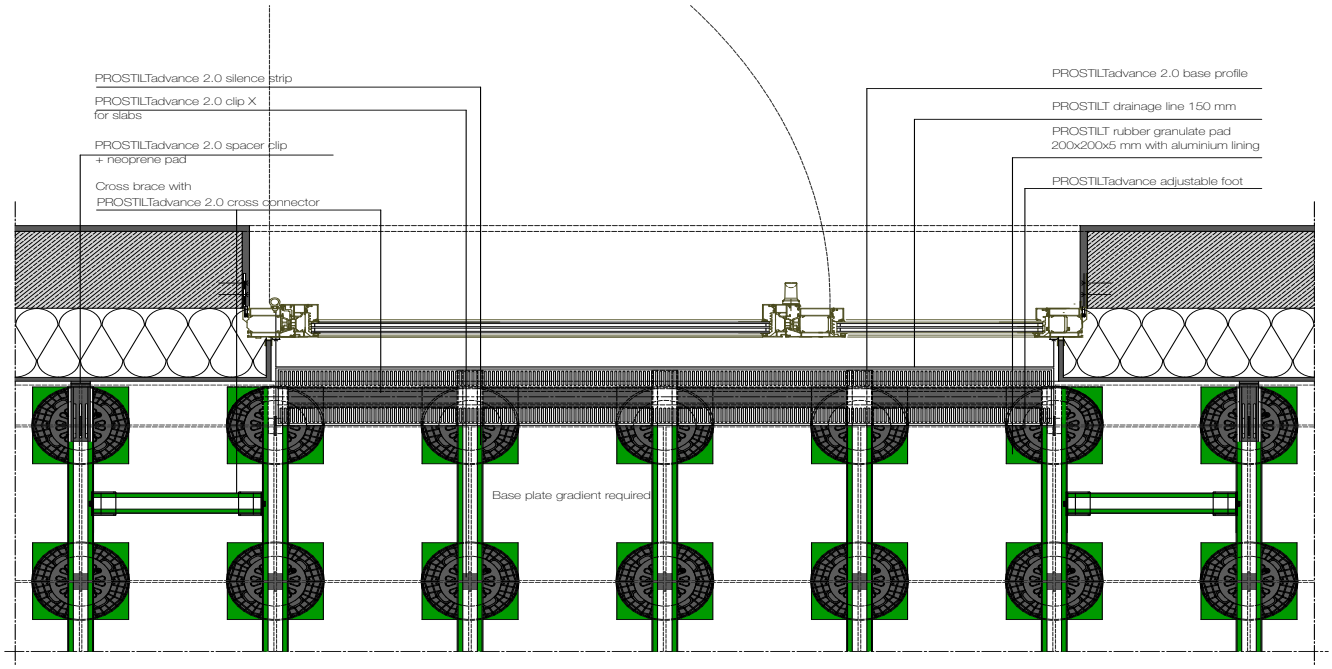
For facing at ground level, instead of the PROSTILT edge profile, the PROSTILT lower clip is used, which receives the facing slab and the PROSTILTadvance adjustable foot. To seal the joint between the facing slab and the surface covering, the PROSTILT facing profilel V2A brushed stainless steel is clipped into the top clips. The PROSTILTadvance system components are to be glued with a suitable adhesive (e. g. Ottocoll M500 hybrid adhesive and sealant) to the floor surface as well. The PROSTILT outside corner is used for forming the corners.

PROLINE

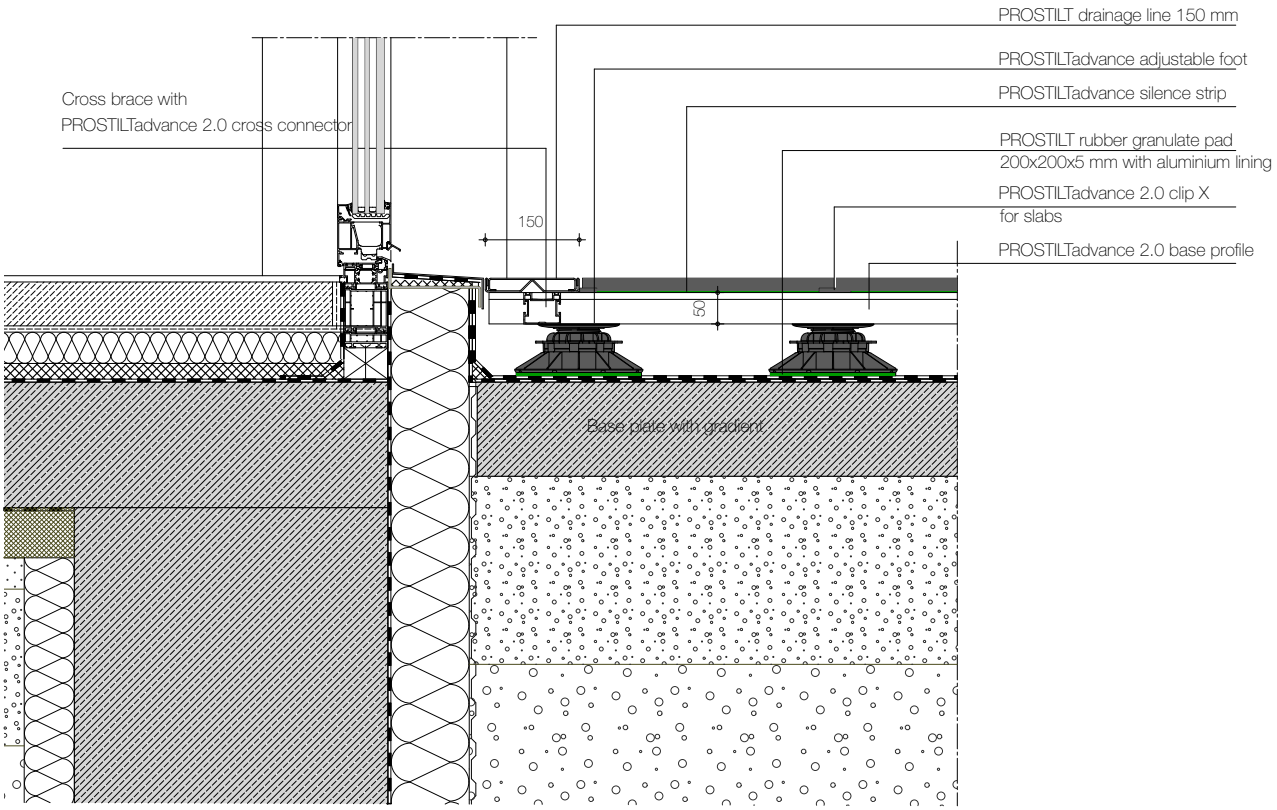
TECHNICAL DETAILS

PROSTILTadvance 2.0 installation of drainage lines

Connection of the drainage line to a patio door at insulation level



Connection of the drainage line to a patio door at wall level



PROLINE

PROSTILTADVANCE 2.0 ALUMINIUM SUPPORT STRUCTURE SYSTEM

Basic U adjustable foot
Item no. 79820 - 79823

Basic + U adjustable foot
Item no. 79824 - 79828

Adapter head / Adapter head U
Item no. 79790 / 79791

Inclined support disc
Item no. 79812

Support profile (with/without silence strip)
Item no. 78305 / 78300

Cross connector
Item no. 78350

Support profile (with/without silence strip)
Item no. 78306 / 78301

L-connector
Item no. 78310

Slim Support profile (with/without silence strip)
Item no. 78308 / 78303

Edge profile bracket
Item no. 78351

Slim Support profile (with/without silence strip)
Item no. 78307 / 78302

Slim edge profile bracket
Item no. 78353

L-connector slim
Item no. 78311

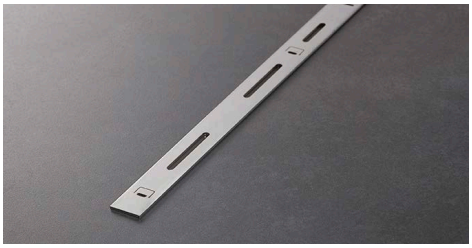
Slim cross connector
Item no. 78352

Silence strip
Item no. 79761

NOTICE

When using PROSTILTadvance 2.0 Slim, only the PROSTILTadvance 2.0 Support profile (50 mm) may be used for higher superstructures (over 97 mm, measured from the flooring). Additional pedestal bases may be required for stability reasons.

Rubber granulate pad
Item no. 79818 / 79819



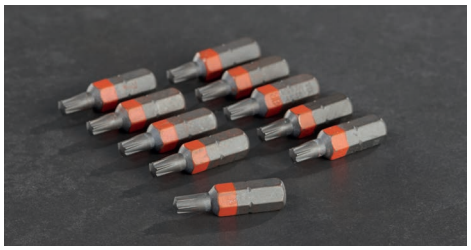
Profile connector bendable
Item no. 78377

NOTICE

When using PROSTILTadvance 2.0 Slim, only the PROSTILTadvance 2.0 Support profile (50 mm) may be used for higher superstructures (over 97 mm, measured from the flooring). Additional pedestal bases may be required for stability reasons.

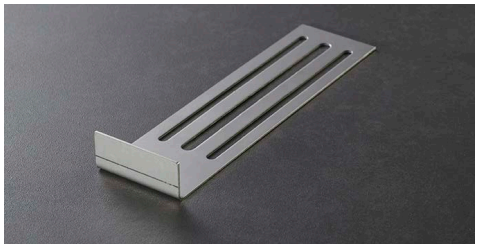
PROLINE

ATTACHMENT

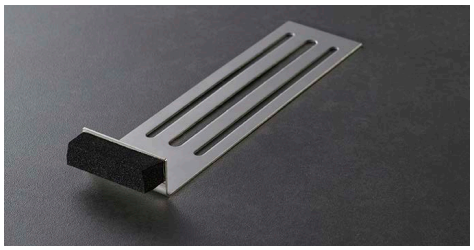


Bits
Item no. 94333

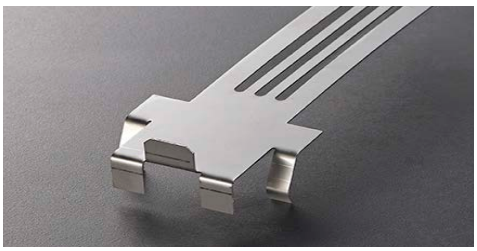
Flat-head drilling screws / 6KT flange
Item no. 94328 / 94338 / 94329



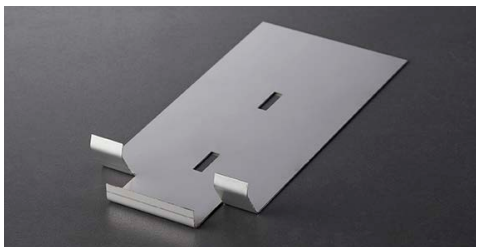
Spacer without neoprene pad
Item no. 79868



Spacer with neoprene pad
Item no. 79869



Upper clip
Item no. 78370



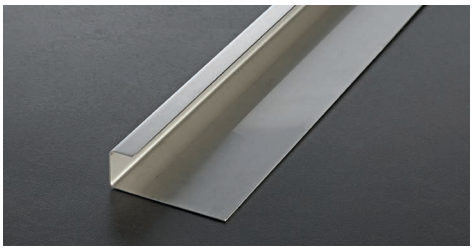
Lower clip
Item no. 78371

T-support
Item no. 78359 / 78357

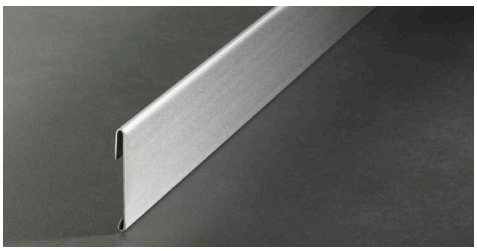
Cross-clip
Item no. 78354 / 78355

OTTOCOLL M500 / M501
Hybrid adhesive and sealing compound
Item no. 93514 / 93516 / 93517

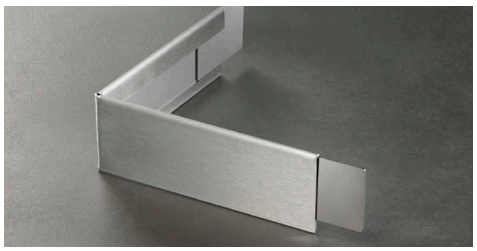
FACING



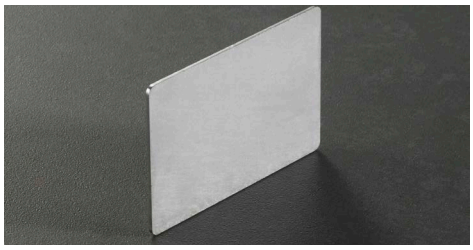
Edge profile
Item no. 79886 / 79884 / 79885 / 79883



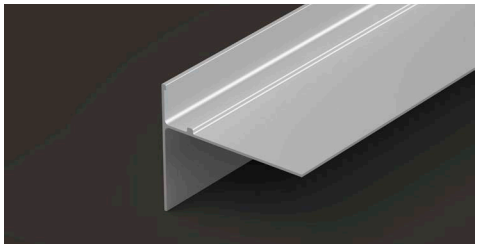
Facing profile
Item no. 79850



Outside corner
Item no. 79851 / 79855



Connector
Item no. 79852

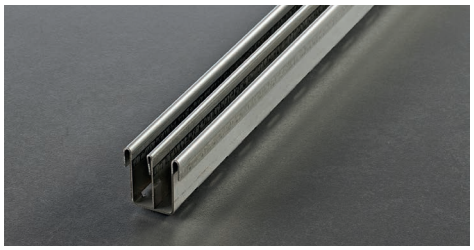


TOS T-profile
Item no. 78332 / 78330

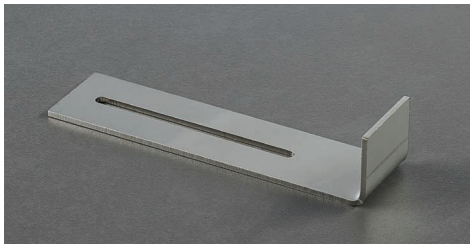
TOS outside and inside corner
Item no. 76240 / 76215 / 76216 / 76200

TOS connector
Item no. 78240 / 78215 / 78216 / 78200

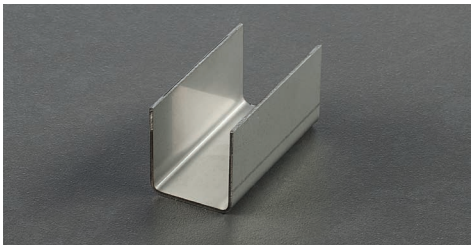
DRAINAGE SETS



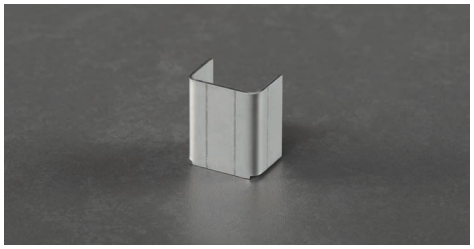
Slotted drainage line
26 x 29 mm
Item no. 79835



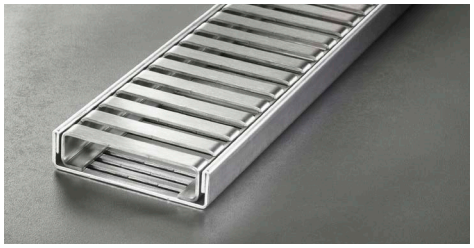
Slotted drainage line holder
Item no. 79836



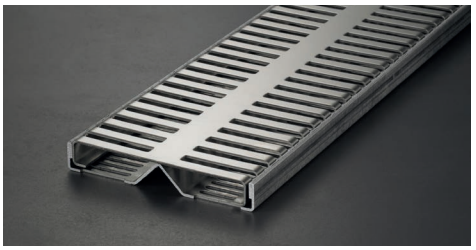
Slotted drainage line connector
Item no. 79837



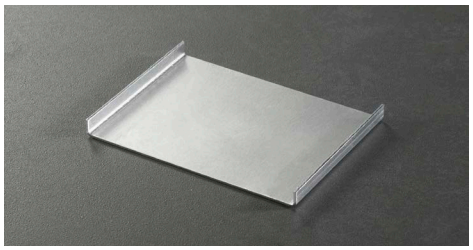
Slotted drainage line end cap
Item no. 79838



Classic drainage set
1000 mm x 85 mm x 21 mm
Item no. 79860



Classic drainage set
1000 mm x 150 mm x 21 mm
Item no. 79865

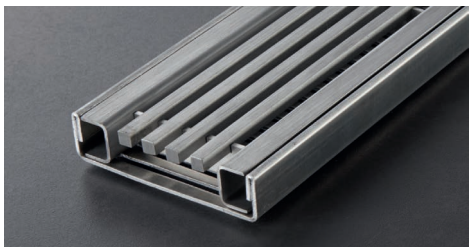


Connector for Classic 85 mm drainage set
Item no. 79862

Connector for Classic 150 mm drainage set
Item no. 79867

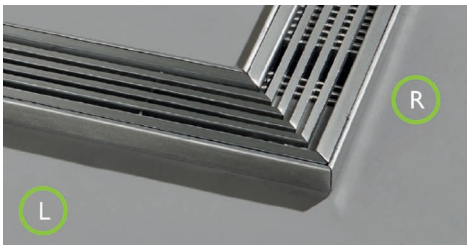
PROLINE

DRAINAGE SETS

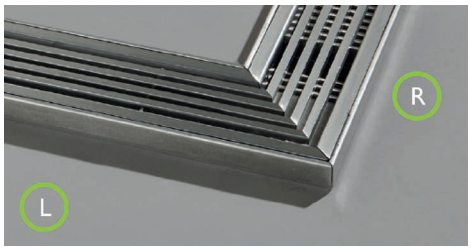


PROSTILT Design drainage set
1000 mm x 85 mm x 21 mm
Item no. 79858

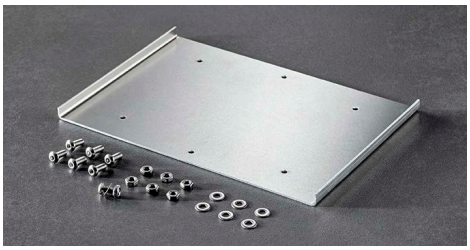
PROSTILT Design drainage set
1000 mm x 150 mm x 21 mm
Item no. 79859



PROSTILT Design drainage set 85 mm with mitre cut
Item no. 79840 for left
Item no. 79841 for right



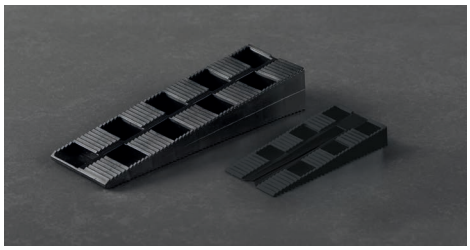
PROSTILT Design drainage set 150 mm with mitre cut
Item no. 79842 for left
Item no. 79843 for right



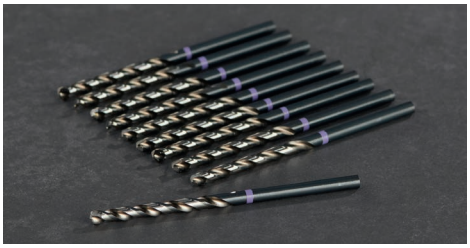
PROSTILT connector for Design drainage set
Item no. 79848 for 85 mm
Item no. 79849 for 150 mm

PROSTILT head parts for Classic and Design drainage set
Item no. 79856 for 85 mm
Item no. 79857 for 150 mm

TOOLS



PROSTILT assembly wedges
Gradient 2 - 10 mm / 4 - 23 mm
Item no. 79814 / 79815



PROSTILT metal drill
HSCO MFD Speed
Item no. 94330 / 94331 / 94332

PROSTILT countersink 90°
8.3 mm / 12.4 mm
Item no. 94334 / 94335

PROSTILT socket wrench E 6.3
size 7 mm / 8 mm
Item no. 94337 / 94336

More products for our outdoor systems such as balcony profiles or drainage mats can be found in our price list.

PROLINE

Standards and regulations

It is recommended that the following standards and regulations are taken into account:

- DIN 18195 “Waterproofing”
- DIN 18560 “Screeds in building construction”
- Regulations of the German roofing trade, “Regulations for roofs with sealing”
- ZDB data sheet “Outdoor floorings”
- DIN 18040-2 Barrier-free construction, flats
- DIN 1986-100 “Drainage systems for buildings and properties”
- Structural information on natural stone, 1.4 “Outdoor floorings” from the German Natural Stone Association
- ATV DIN 18336 Sealing work
- ATV DIN 18332 Natural stone laying

Important notes

- PROSTILTadvance 2.0 is suitable for creating walkable paved areas in private residential areas and publicly used areas; the area must not be driven on.
- Floorings such as ceramic, concrete or natural stone slabs must be checked in advance for their suitability for Prostiltadvance 2.0, or must be approved by the manufacturer for use.
- Provided no facing solution is required, slabs of > 21 mm thickness can also be laid
- When laying the flooring, the field width, load capacity and permissible span width must be observed.
- For free laying, the free flooring edges must be secured with suitable edging (e.g in conjunction with PROSTILTadvance 2.0 clips top and bottom, PROSTILTadvance 2.0 facing profile) against slippage of the flooring.

All details, references, notes, applicable specialist regulations, guidelines, standards and specialist knowledge are directed towards the German, and insofar as they are congruent, to the existing European regulations and training standards, irrespective of additional country-specific extensions or modifications.

All our information is based on our experience and carefully performed tests. The variety of additional materials that might be used and differing construction and working conditions cannot be individually checked or influenced by us. The fulfilment of an outstanding service contract and the manufacturing of a demonstrable functional capability of the trades is therefore dependent on adhesion to the current VOB (German Construction Contract Procedures) regulations and recognised technological rules.

Our details do not preclude responsible planners and processors from their duty to independently assess the conditions of a building and suitable application of the products. In case of doubt, please seek technical application advice or carry out your own tests. The manufacturer's guidelines for laying and processing the surfacing material or the guidelines for other products used must be observed.
The publication of this product data sheet invalidates all previous product data sheets.

General information
The generally applicable specialist carpentry regulations 02 for balconies and patios must be complied with during installation and assembly.

The range of materials and products for patio coverings is ever increasing. For this reason, the respective manufacturer specifications must be observed primarily with regard to material- and manufacturer-specific properties. (Source: GD Holz Terrassen und Balkonbeläge)

Care and maintenance
You have decided on an aluminium substructure, which is weather-resistant and maintenance-free. Please refer to manufacturer's instructions for maintaining the patio covering.

Disclaimer
In case of unprofessional and unsuitable assembly, misuse of the product and faulty installation, the manufacturer does not accept any liability. Ensure personal safety during assembly. Safety regulations and specialist information from specified sources must be observed. Subject to technical changes.