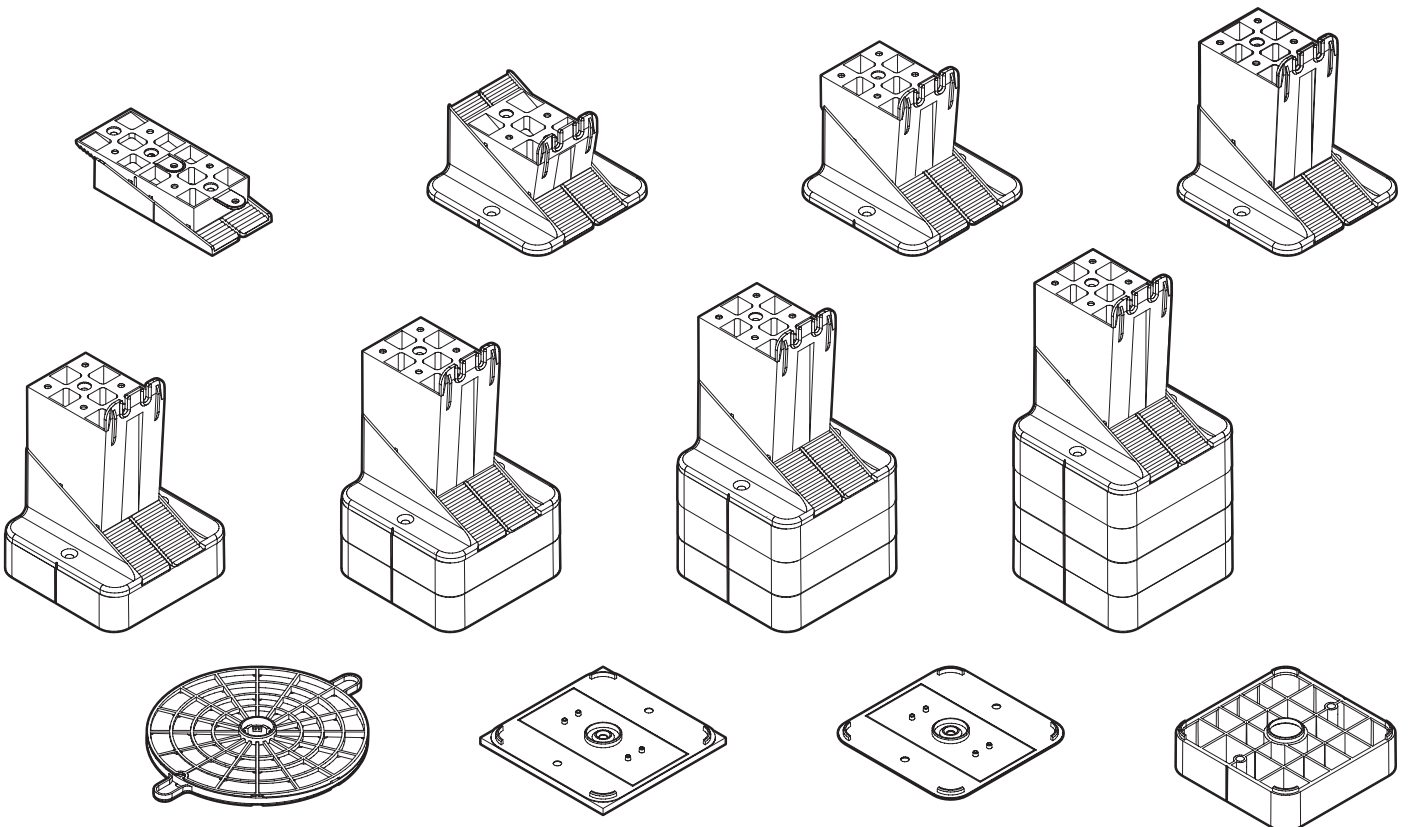


SOLVER.

**Adjustable pedestals
for floors and terraces**

USER AND MONTAGE INSTRUCTION

RAPTOR SERIES



LIST OF CONTENT

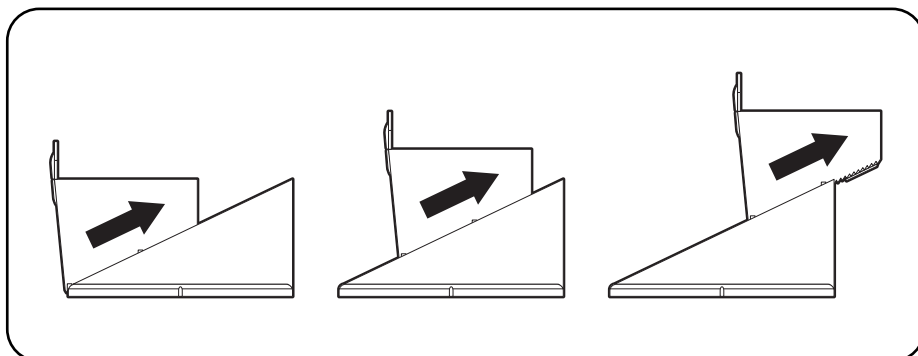
List of content	2
Raptor adjustable terrace pedestals system.....	3
Description of the Raptor system elements.....	4
Dimensions of the Raptor system elements.....	6
Adjustable decking wedge 15-35 mm.....	6
Adjustable decking wedge 35-65 mm.....	7
Adjustable decking wedge 65-95 mm.....	8
Adjustable decking wedge 95-125 mm	9
Protection pad 2 mm	10
Sound reduction pad 10 mm.....	10
Wedge raiser 30 mm.....	11
Slope corrector	11
Submission sets	12
The use of adjustable decking wedge depending on the substrate	17
Hard substrate without significant slopes.....	17
Sensitive ground without significant slope.....	18
A terrace base with a significant slope or with envelope slopes	19
The way of connecting wedges with bases	21
Fixing the wedge to the ground	22
Placing the joist on the Raptor wedge	24
Fixing the joists to the wedge	25
Recommended spacing of Raptor wedge	26
Selection of screws for connecting the bases with wedges.....	27
Tips for installing terraces on Raptor wedges.....	29
Warranty	30

RAPTOR ADJUSTABLE TERRACE PEDESTALS SYSTEM

Height Adjustment

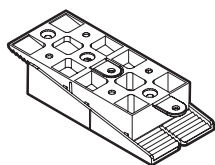
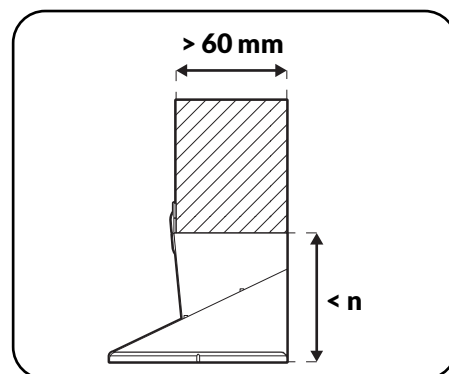
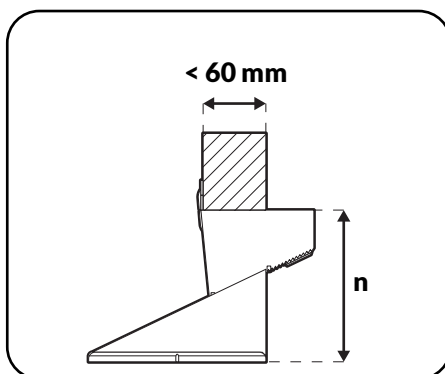
The Raptor system is a modern solution for leveling joists for terraces and raised floors. The system can be used inside and outside buildings. The system consists of two types of bases and two types of wedges. It is intended for use outside and inside buildings.

The height is adjusted by sliding the serrated wedge along the serrated base.



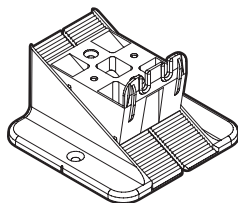
The width of the joists

Control range specified in the instruction relates to the use of the joists up to 60 mm. For wider joists, the adjustment range will be smaller and for narrower joists it may be greater.



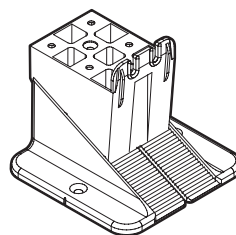
S

from 15 mm
to 35 mm



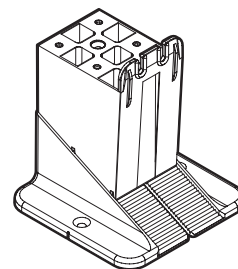
M

from 35 mm
to 65 mm



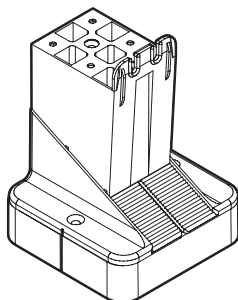
L

from 65 mm
to 95 mm



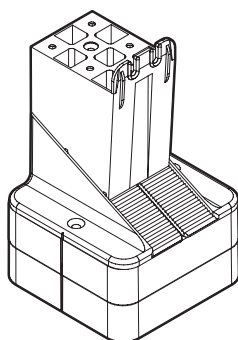
XL

from 95 mm
to 125 mm



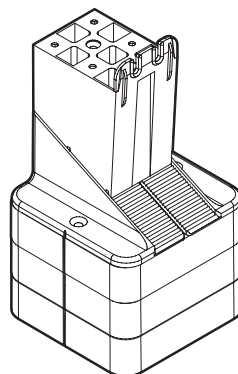
XL1

from 125 mm
to 155 mm



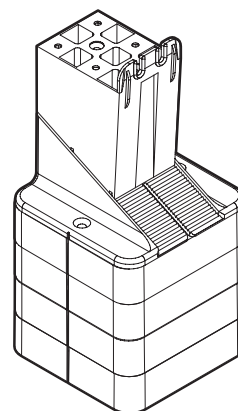
XL2

from 155 mm
to 185 mm



XL3

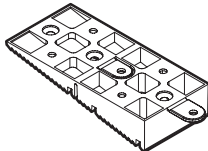
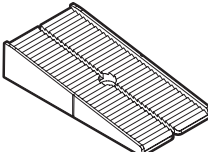
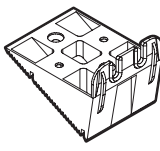
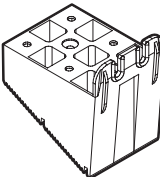
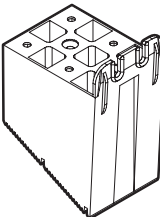
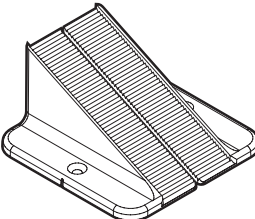
from 185 mm
to 215 mm



XL4

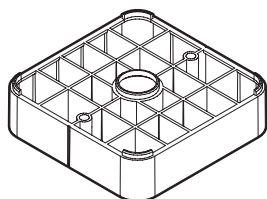
from 215 mm
to 245 mm

DESCRIPTION OF THE RAPTOR SYSTEM ELEMENTS

No.	VIEW	NAME / DESIGNATION	DESCRIPTION
1		TOP WEDGE S RAP-KS	The S wedge together with the S bottom wedge allows you to create an S adjustable wedge with an adjustment range of 15-35 mm.
2		BOTTOM WEDGE S RAP-PS	The S bottom wedge allows you to create an S adjustable wedge with the adjustment range 15-35 mm together with the S wedge.
3		TOP WEDGE M RAP-KM	
4		TOP WEDGE L RAP-KL	The M, L and XL wedges in combination with the L bottom wedge and 30 mm wedge raiser are used to create supports from M to XL4 with a total adjustment range from 35 to 245 mm. The range of adjustment depends on the choice of a specific wedge and the number of 30 mm wedge raiser.
5		TOP WEDGE XL RAP-KXL	
6		BOTTOM WEDGE L RAP-PL	The L bottom wedge in combination with the M, L and XL wedges is used to create supports from M to XL4 with a combined adjustment range from 35 to 245 mm. The range of adjustment depends on the type of the selected wedge and the number of 30 mm wedge raiser.

DESCRIPTION OF THE RAPTOR SYSTEM ELEMENTS

7



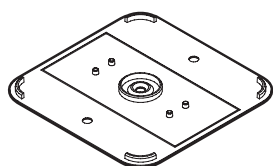
**WEDGE
RAISER 30MM**
RAP-P30

The 30 mm wedge raiser is used to increase the height of the adjustable wedge by 30 mm, it is possible to use up to 4 supports for one set of bottom wedge + top wedge.

The 30mm wedge raiser can be used in combination with the S and L bases.

The element can also be combined with a 2 mm protective and 10 mm sound reduction pad.

8



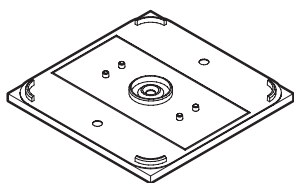
**PROTECTION
PAD 2 MM**
RAP-PO

The 2 mm protection pad is used to distribute the pressure of the walls of S and L bottom wedge and 30 mm wedge raiser. An indispensable element on surfaces sensitive to damage, such as: roofing felt, XPS, waterproofing made of rubber and other materials where there is a possibility of damaging the waterproofing.

The use of this element increases the height of the adjustable wedge by 2 mm.

The element can be combined with the L bottom wedge, S bottom wedge, 30 mm wedge raiser.

9



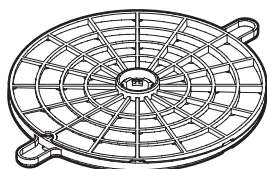
**SOUND REDUCTION
PAD 10 MM**
RAP-PA

The 10 mm sound reduction pad has increased properties to protect surfaces sensitive to damage and create acoustic isolation.

The use of this element changes the height of the adjustable wedge by 10 mm.

The element can be combined with the L and S bottom wedge, 30 mm wedge raiser.

10

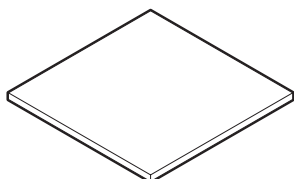


**SLOPE
CORRECTOR 7%**
RAP-KN

The slope corrector is an element that allows the use of the RAPTOR series adjustable wedge on surfaces with a significant slope. The range of the surface slope correction is from 0% to 7% (that is, up to 7 cm difference in level on one running meter).

The element can be combined with the L and S bottom wedge, 30 mm wedge raiser.

11



RUBBER PAD 3 MM
AKCW-SBR

A rubber pad with protective and soundproofing properties for use under Raptor adjustable wedge, on surfaces that require protection or soundproofing.

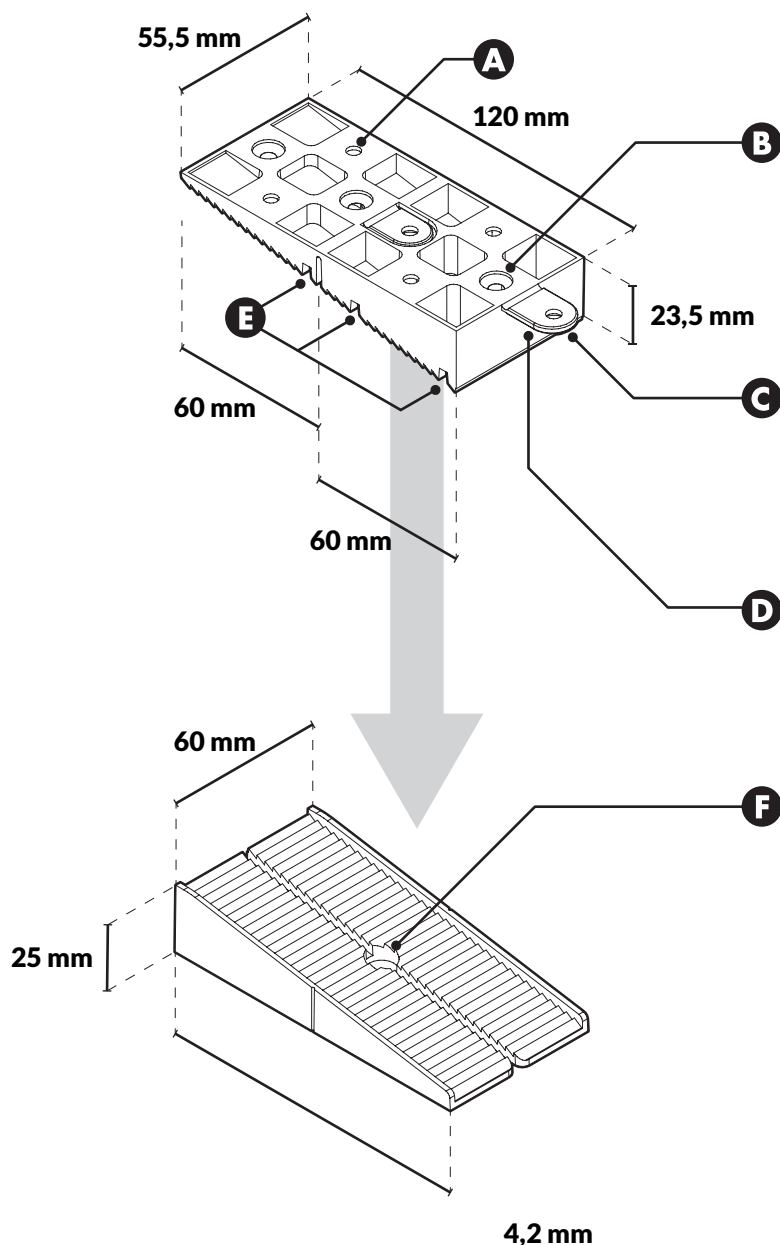
The element can be used under a slope corrector and a 2 mm protection pad.

DIMENSIONS OF THE RAPTOR SYSTEM ELEMENTS

ADJUSTABLE DECKING WEDGE

S

from 15 mm
to 35 mm



Top wedge S

code: RAP-KS

External dimensions:

Width: 55,5 mm

Length: 120 mm

Height: 23,5 mm

Material: PP

Temperature range: -20 °C to 65 °C

Height adjustment: steps every 1 mm

Strength of the set:

- to 1000 kg

(details of the load strength

in the RAPTOR technical specification)

Bottom wedge S

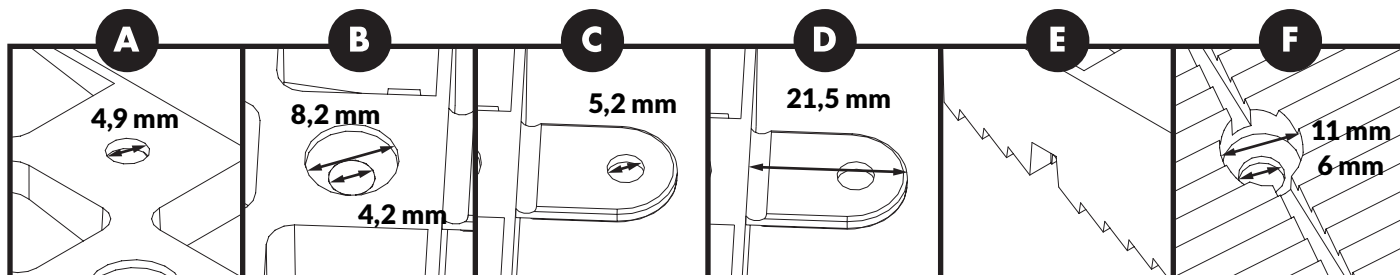
code: RAP-PS

External dimensions:

Width: 60 mm

Length: 120 mm

Height: 25 mm



Hole for mounting
the joist to the
S-wedge from the
bottom

The hole for screwing
the wedge S to the
bottom wedge S

Hole for screwing the
joist to the wedge S

Wing for mounting
the joist to the S
wedge

Water drainage holes

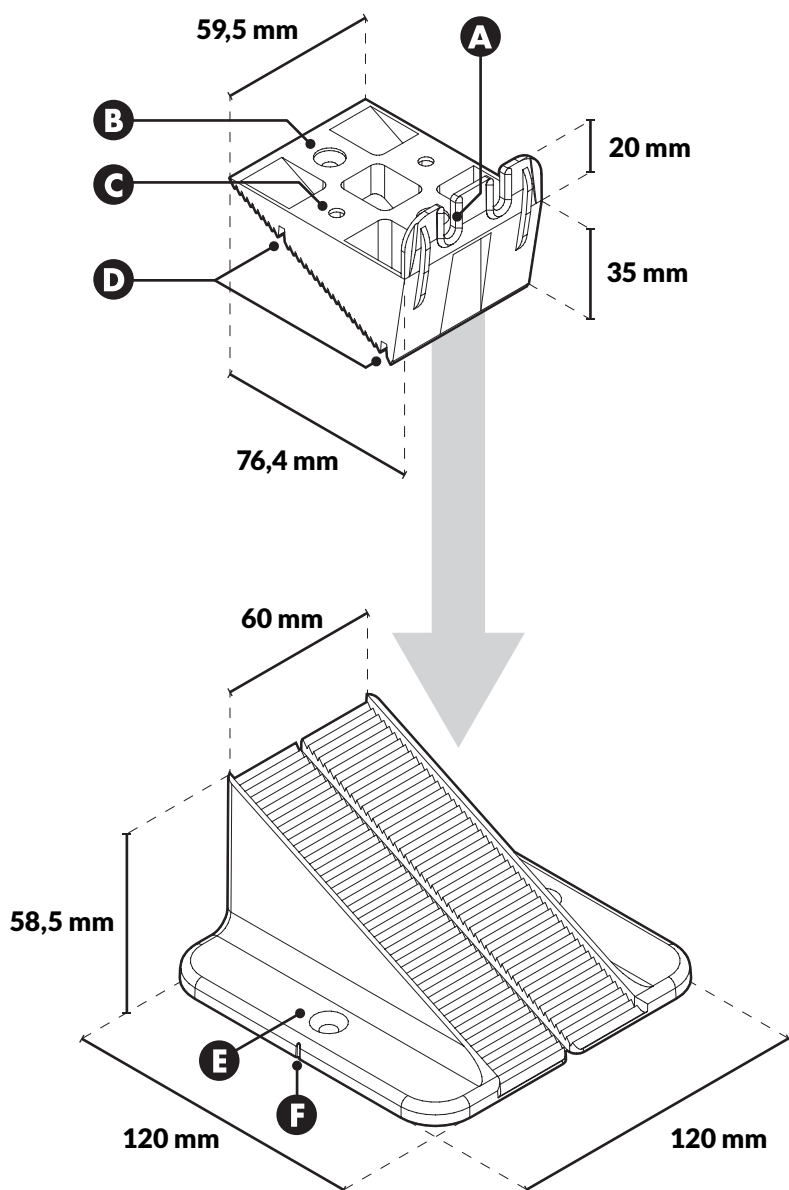
Hole for fixing the S
bottom wedge to the
ground

DIMENSIONS OF THE RAPTOR SYSTEM ELEMENTS

ADJUSTABLE DECKING WEDGE

M

from 35 mm
to 65 mm



Top wedge M code: RAP-KM

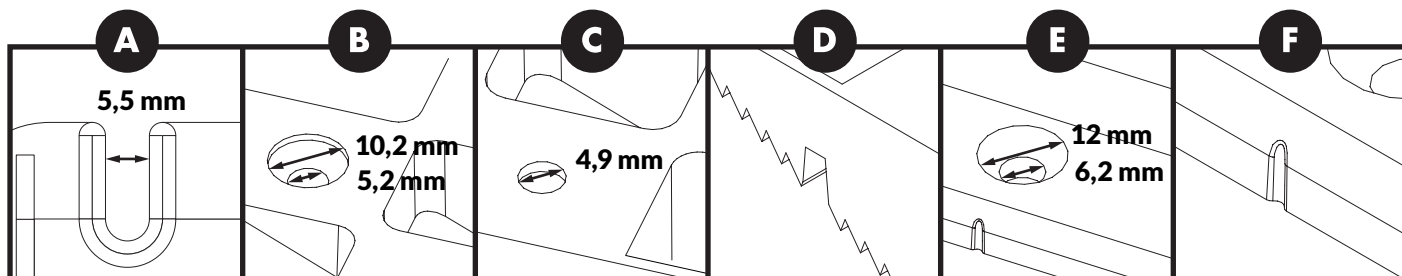
External dimensions:
Width: 59,5 mm
Length: 76,4 mm
Height: 35 mm

Material: PP
Temperature range: -20 °C to 65 °C
Height adjustment: steps every 1 mm

Strength of the set:
- to 1000 kg
(details of the load strength
in the RAPTOR technical specification)

Bottom wedge L code: RAP-PL

External dimensions:
Width: 120 mm
Length: 120 mm
Height: 58,5 mm



Hole for mounting
the joist to the M
wedge

The hole for screwing
the wedge M to the
bottom wedge

Hole for mounting
the joist to the M
wedge from the
bottom

Water drainage holes

Hole for fixing the L
bottom wedge to the
ground

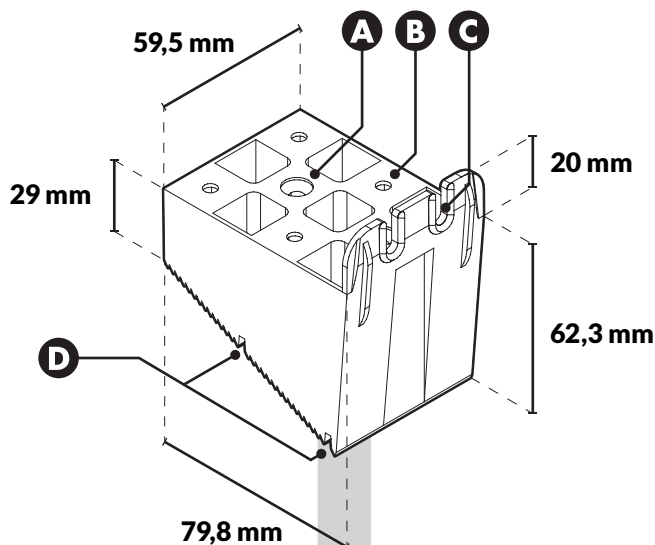
The recess defining the
appropriate direction of
the base L in relation to
the wedge raiser 30 mm

DIMENSIONS OF THE RAPTOR SYSTEM ELEMENTS

ADJUSTABLE DECKING WEDGE

L

from 65 mm
to 95 mm



Top wedge L

code: RAP-KL

External dimensions:

Width: 59,5 mm

Length: 79,8 mm

Height: 62,3 mm

Material: PP

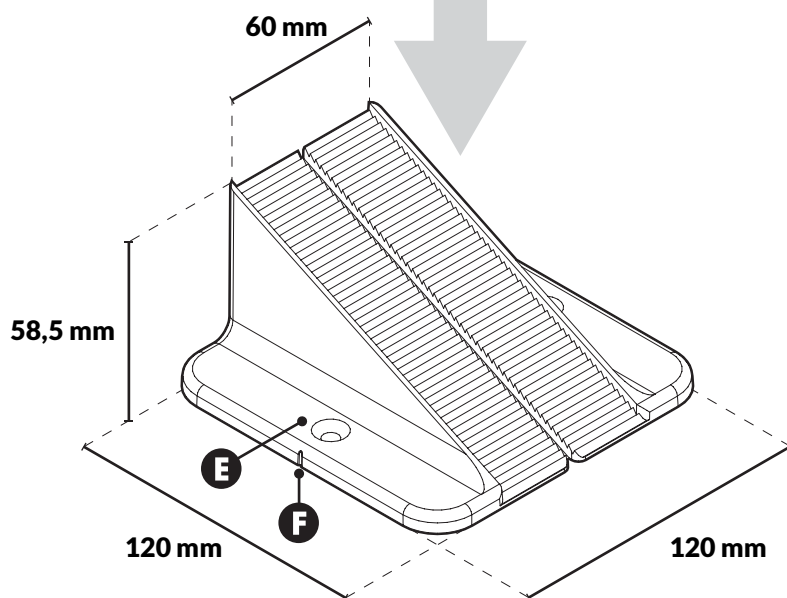
Temperature range: -20 °C to 65 °C

Height adjustment: steps every 1 mm

Strength of the set:

- to 1000 kg

(details of the load strength
in the RAPTOR technical specification)



Bottom wedge L

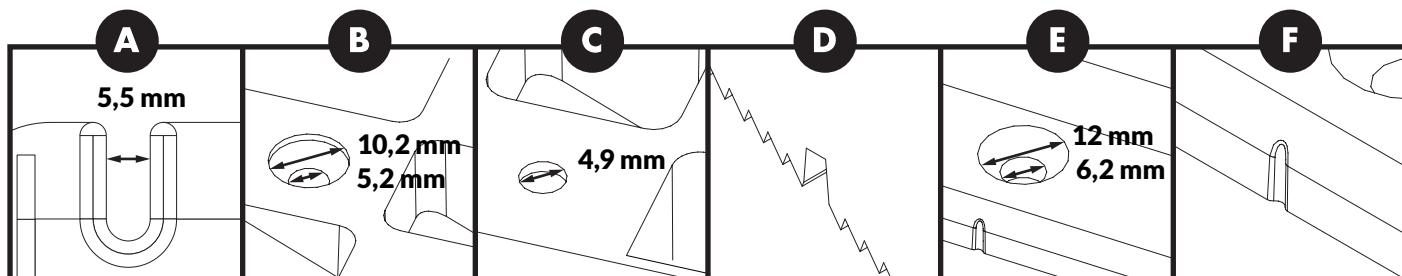
code: RAP-PL

External dimensions:

Width: 120 mm

Length: 120 mm

Height: 58,5 mm



Hole for mounting
the joist to the L
wedge

The hole for screwing
the wedge L to the
bottom wedge

Hole for mounting
the joist to the L
wedge from the
bottom

Water drainage holes

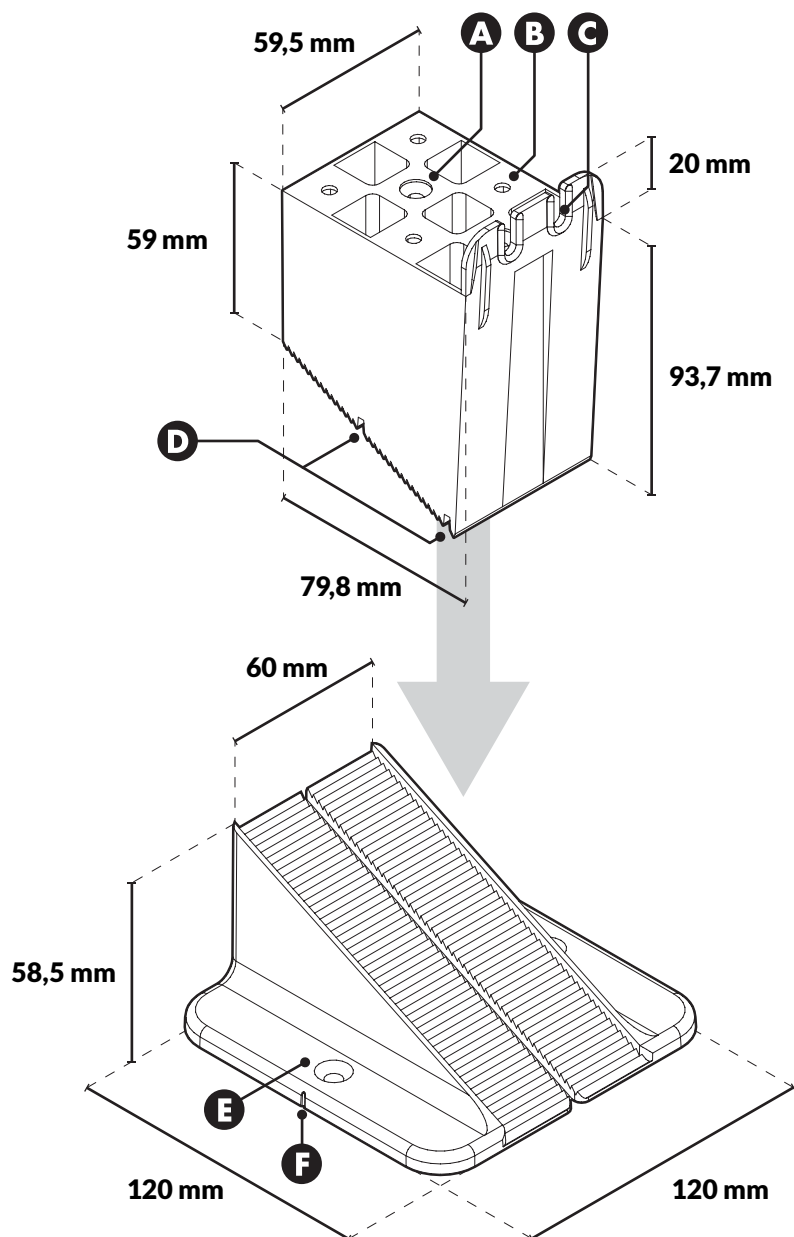
Hole for fixing the L
bottom wedge to the
ground

The recess defining the
appropriate direction of
the base L in relation to
the wedge raiser 30 mm

DIMENSIONS OF THE RAPTOR SYSTEM ELEMENTS

ADJUSTABLE DECKING WEDGE

XL

 from 95 mm
to 125 mm


Top wedge XL code: RAP-KXL

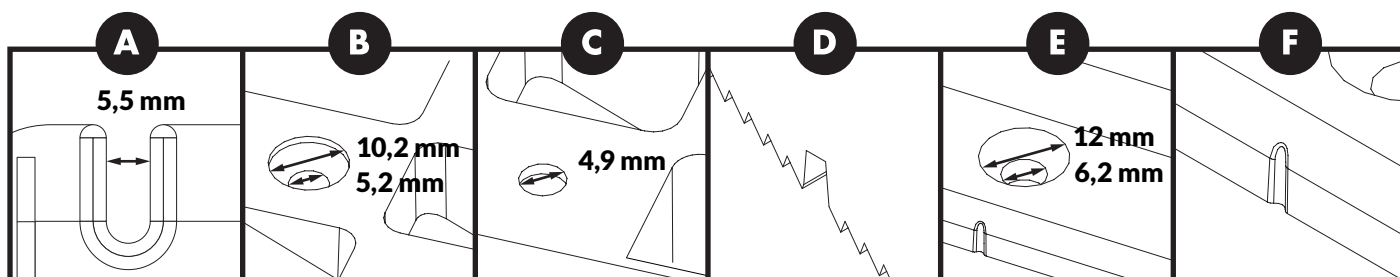
External dimensions:
Width: 59,5 mm
Length: 79,8 mm
Height: 93,7 mm

Material: PP
Temperature range: -20 °C to 65 °C
Height adjustment: steps every 1 mm

Strength of the set:
- to 1000 kg
(details of the load strength
in the RAPTOR technical specification)

Bottom wedge L code: RAP-PL

External dimensions:
Width: 120 mm
Length: 120 mm
Height: 58,5 mm



Hole for mounting
the joist to the XL
wedge

The hole for screwing
the wedge XL to the
bottom wedge

Hole for mounting
the joist to the XL
wedge from the
bottom

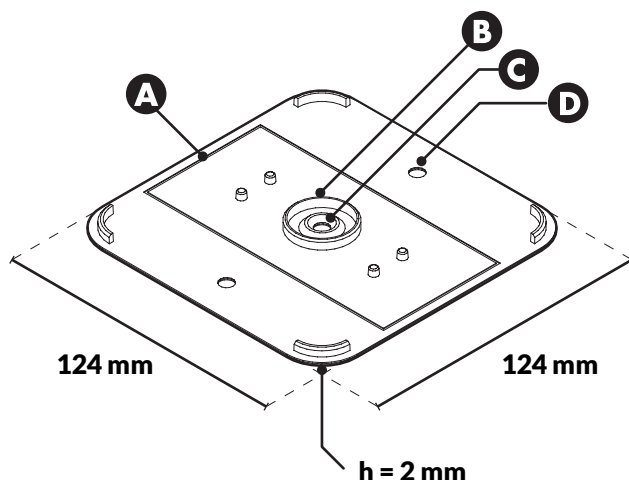
Water drainage holes

Hole for fixing the L
bottom wedge to the
ground

The recess defining the
appropriate direction of
the base L in relation to
the wedge raiser 30 mm

DIMENSIONS OF THE RAPTOR SYSTEM ELEMENTS

PROTECTION PAD 2 MM

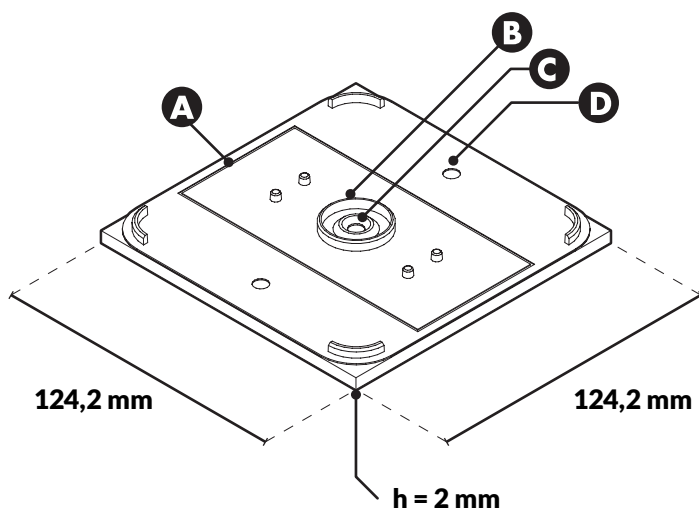


Protection pad 2 mm code: RAP-PO

External dimensions:
Width: 124 mm
Length: 124 mm
Height: 2 mm

Material: PP
Temperature range: -20 °C to 65 °C

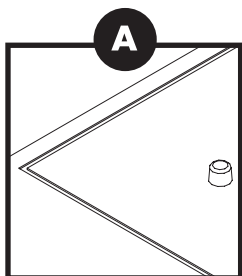
SOUND REDUCTION PAD 10 MM



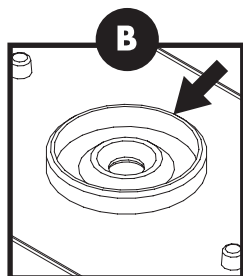
Sound reduction pad 10 mm code: RAP-PA

External dimensions:
Width: 124,2 mm
Length: 124,2 mm
Height: 10 mm

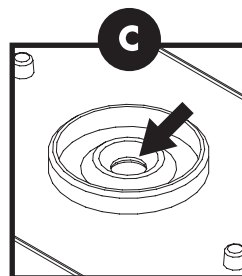
Material: PP + SBR
Temperature range: -20 °C to 65 °C



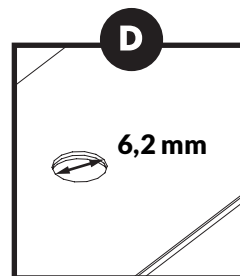
An outline designating the S bottom wedge installation location for a 2 mm protective or 10 mm sound reduction pad



Hole for attaching a protective or sound reduction pad to the base



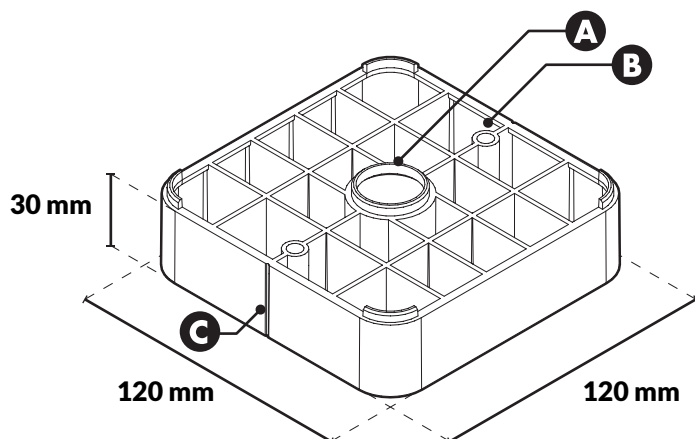
Sleeve for push-in fastening of S, L bottom wedge and 30 mm wedge raiser to a 2 mm protection pad or 10 mm sound reduction pad



Through-hole enabling collision-free assembly of the L bottom wedge to the ground when used with a protection or sound reduction pad

DIMENSIONS OF THE RAPTOR SYSTEM ELEMENTS

WEDGE RAISER 30 MM



Wedge raiser 30 mm

code: RAP-P30

External dimensions:

Width: 120 mm

Length: 120 mm

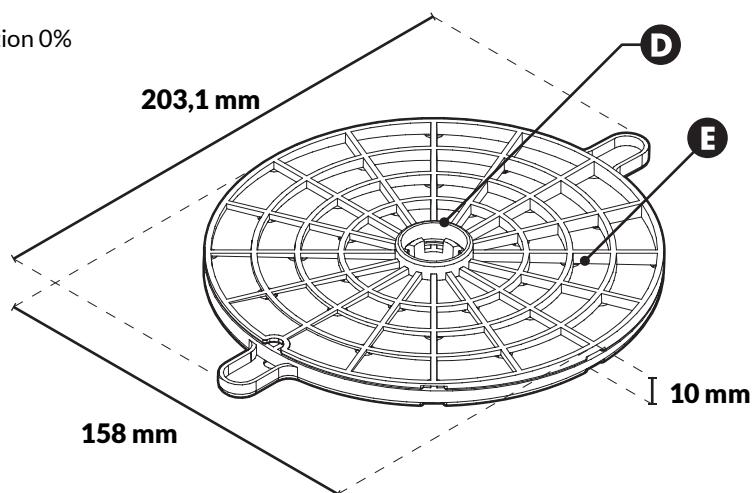
Height: 30 mm

Material: PP

Temperature range: -20 °C to 65 °C

SLOPE CORRECTOR

Neutral position 0%



Slope corrector

code: RAP-KN

External dimensions:

Width: 158 mm

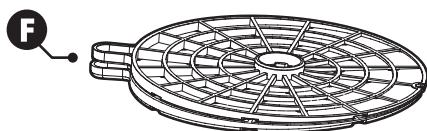
Length: 203,1 mm

Height: 10 mm

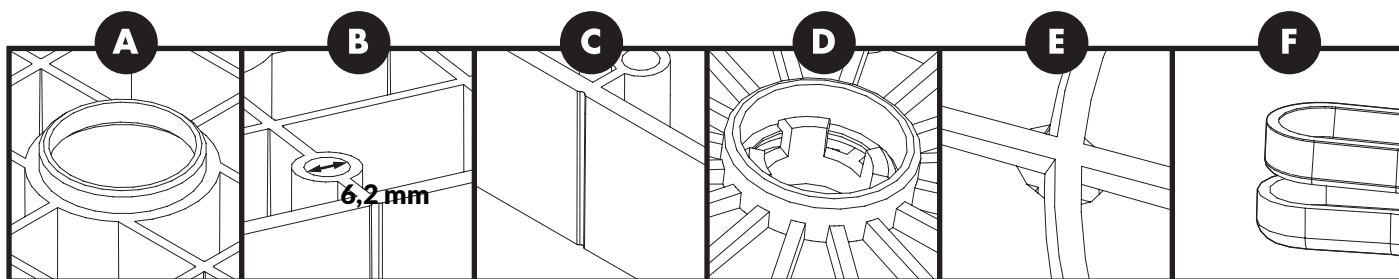
Material: PP

Temperature range: -20 °C to 65 °C

Height adjustment:
smooth from 0% to 7%



Maximum slope position - 7%



Sleeve for press fit
L bottom wedge for
30 mm wedge raiser

Through hole enabling
collision-free assembly
of the L bottom
wedgeto the ground
when used with a
30 mm wedge raiser

The recess defining
the appropriate
direction of mounting
the 30 mm wedge
raiser in relation to
each other and to the
L bottom wedge

Sleeve for push-fit
mounting of S or L
bottom wedge, and
30 mm wedge raiser

Water drainage holes

The handles are for
adjusting the angle
of inclination

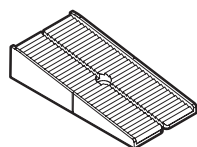
SUBMISSION SETS

Adjustable height decking wedge

S

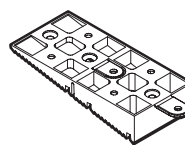
from 15 mm to 35 mm

For low adjustment, in the range from 15 to 35 mm, the S bottom wedge and the S top wedge are used.



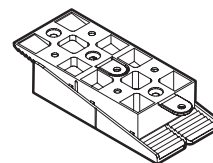
Bottom wedge S

+



Top wedge S

=

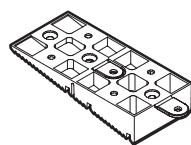


15 - 35 mm

The S top wedge is made in a way that allows it to be broken into 2 parts, and the resulting elements can be used as two separate full-value wedges, both with a joist holder.

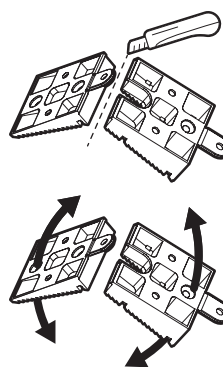
Note: breaking the wedge is necessary to obtain the adjustment range from 15 mm.

Sets made of half wedges and a low S bottom wedge can be combined with additional accessories, a 2 mm protection pad and a slope corrector.



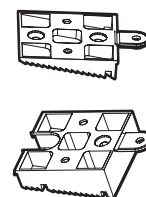
Top wedge S

→

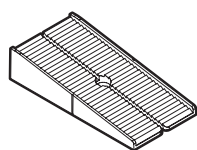


breaking

=

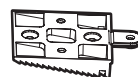


Low and high wedge half



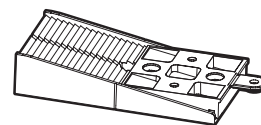
Bottom wedge S

+

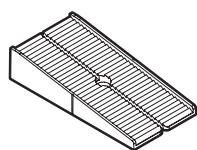


Low wege half

=

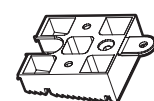


from 15 mm to 25 mm



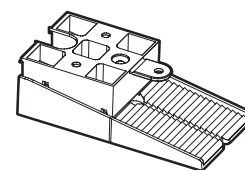
Bottom wedge S

+



High wege half

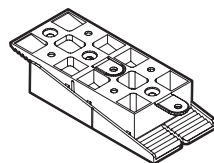
=



from 25 mm to 35 mm

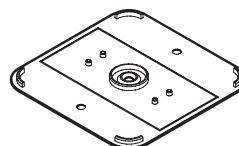
Adjustable height decking wedge S 15 - 35 mm with protection pad

The 15-35mm Raptor adjustable decking wedge can be combined with a 2mm protection pad. Connecting the adjustable wedge to the protection pad 2 mm changes the adjustment range like this set for 17 to 37 mm.



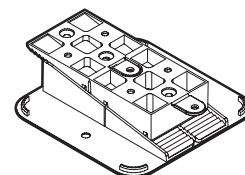
Adjustable decking wedge S

+



Protection pad

=

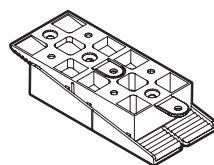


17 - 37 mm

SUBMISSION SETS

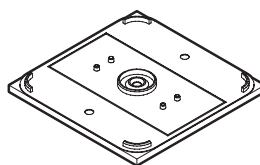
Adjustable height decking wedge S 15-35 mm with sound protection pad

The connection of the S bottom wedge with the sound protection pad creates a adjustable decking wedge for use on particularly sensitive surfaces and surfaces requiring acoustic isolation. Adjustable height decking wedge connection with a 10 mm sound protection pad, it changes the adjustment range of the set to 25 to 45 mm.



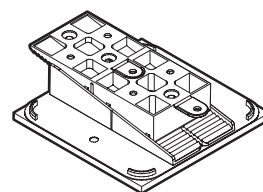
Adjustable decking wedge S

+



Sound protection pad

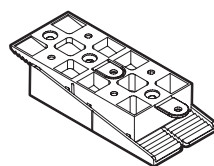
=



25 - 45 mm

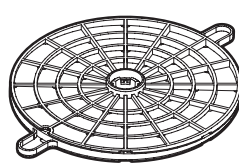
Adjustable height decking wedge S 15-35 mm with slope corrector

The S adjustable decking wedge can be combined with the slope corrector. Combining the adjustable wedge with the slope corrector changes the adjustment range of the set to 25 to 45 mm.



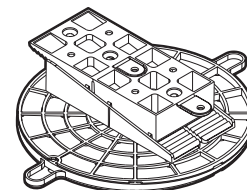
Adjustable decking wedge S

+



Slope corrector

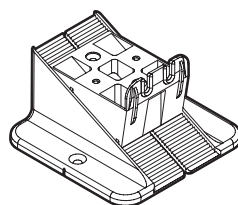
=



25 - 45 mm

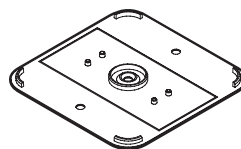
Adjustable height decking wedge M / L / XL with protection pad

The connection of the bottom wedge with a 2 mm protection pad create a adjustable decking wedge for use on sensitive surfaces. The protective pad increases the adjustment range of all adjustable height decking wedge by 2 mm.



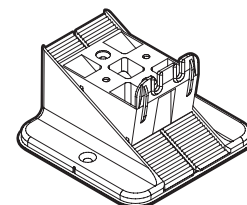
Adjustable height decking wedge M / L / XL

+



Protection pad

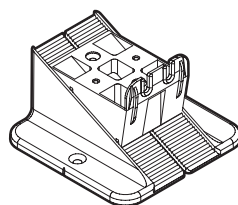
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37 - 67 mm

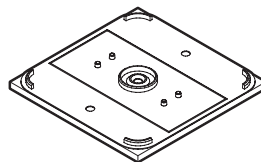
Adjustable height decking wedge M / L / XL with sound reduction pad

The connection of the bottom wedge with the sound reduction pad creates a adjustable decking wedge for use on particularly sensitive surfaces and surfaces requiring acoustic isolation. The acoustic pad increases the adjustment range of all adjustable decking wedge by 10 mm.



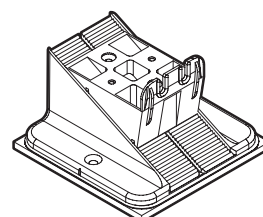
Adjustable height decking wedge M / L / XL

+



Sound protection pad

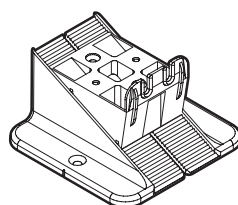
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45 - 75 mm

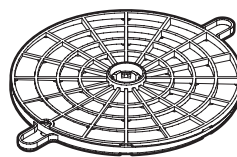
Adjustable height decking wedge M / L / XL with slope correction

The combination of the bottom wedge with the slope corrector creates a adjustable decking wedge for use on surfaces with a significant slope. The slope corrector increases the adjustment range of the cantilever by 10 mm. In the case of surfaces that are sensitive or require acoustic insulation, a rubber pad can be used. The slope corrector with a rubber pad increases the adjustment range by 13 mm.



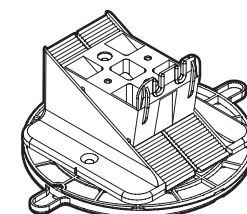
Adjustable height decking wedge M / L / XL

+



Slope corrector

=



45 - 75 mm

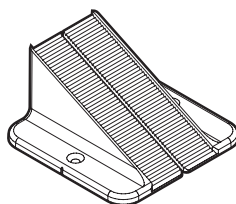
SUBMISSION SETS

Adjustable height decking wedge

M

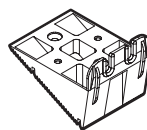
from 35 mm to 65 mm

The connection of the L bottom wedge with the M top wedge creates an adjustable height decking wedge Raptor 35-65 mm.



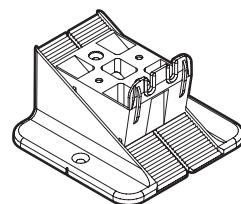
Bottom wedge L

+



Top wedge M

=



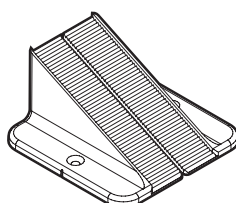
35 - 65 mm

Adjustable height decking wedge

L

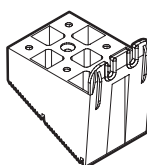
from 65 mm to 95 mm

The connection of the L bottom wedge with the L top wedge creates an adjustable height decking wedge Raptor 65-95 mm.



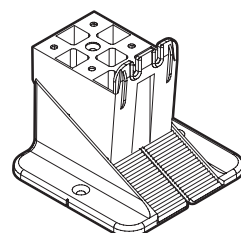
Bottom wedge L

+



Top wedge L

=



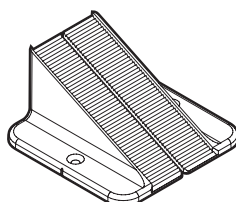
65 - 95 mm

Adjustable height decking wedge

XL

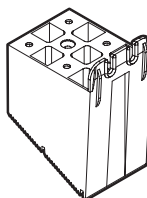
from 95 mm to 125 mm

The connection of the L bottom wedge with the XL top wedge creates an adjustable height decking wedge Raptor 95-125 mm.



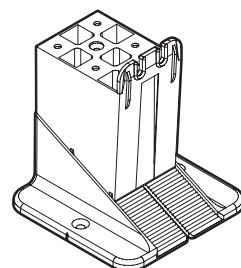
Bottom wedge L

+



Top wedge XL

=



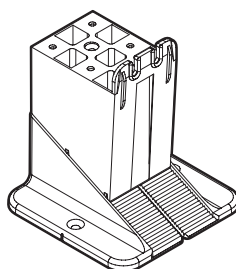
95 - 125 mm

Adjustable height decking wedge

XL1

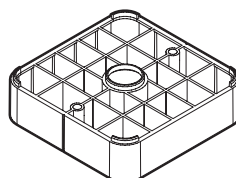
from 125 mm to 155 mm

The connection of the L bottom wedge with the XL top wedge and one 30 mm wedge raiser creates an adjustable height decking wedge Raptor 125-155 mm.



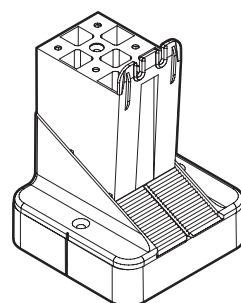
Adjustable decking wedge XL

+



Wedge raiser 30 mm

=



125 - 155 mm

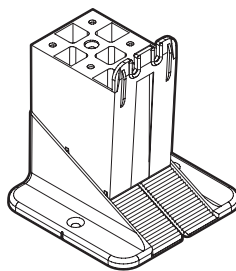
SUBMISSION SETS

Adjustable height decking wedge

XL2

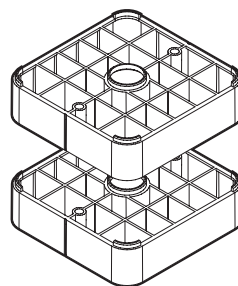
from 155 mm
to 185 mm

The connection of the L bottom wedge with the XL top wedge and two 30 mm wedge raiser creates an adjustable height decking wedge Raptor 155-185 mm.



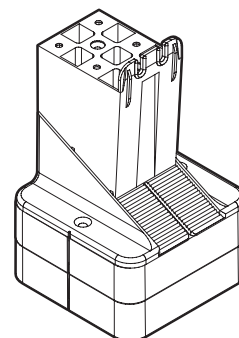
Adjustable decking
wedge XL

+



2 × Wedge raiser 30 mm

=



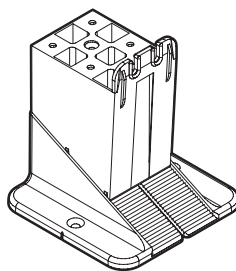
155 - 185 mm

Adjustable height decking wedge

XL3

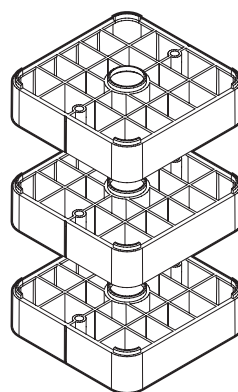
from 185 mm
to 215 mm

The connection of the L bottom wedge with the XL top wedge and three 30 mm wedge raiser creates an adjustable height decking wedge Raptor 185-215 mm.



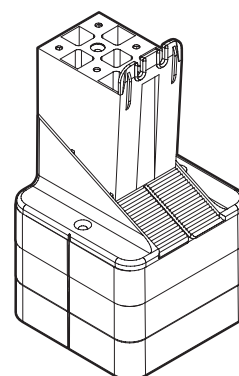
Adjustable decking
wedge XL

+



3 × Wedge raiser 30 mm

=



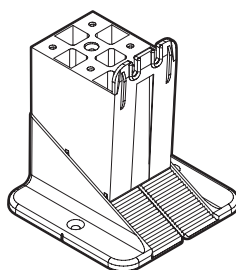
185 - 215 mm

Adjustable height decking wedge

XL4

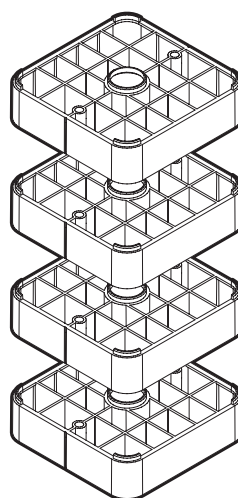
from 215 mm
to 245 mm

The connection of the L bottom wedge with the XL top wedge and four 30 mm wedge raiser creates an adjustable height decking wedge Raptor 215-245 mm.



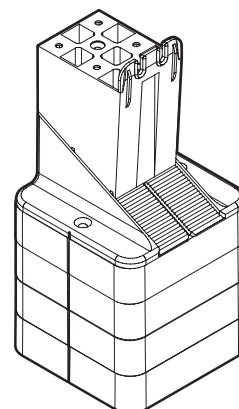
Adjustable decking
wedge XL

+



4 × Wedge raiser 30 mm

=

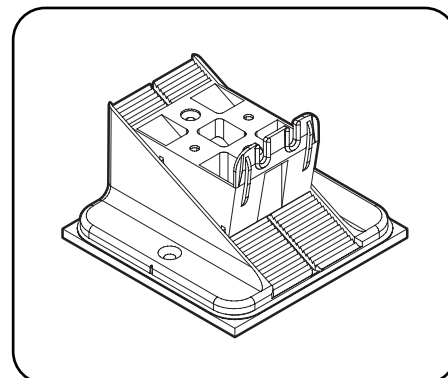
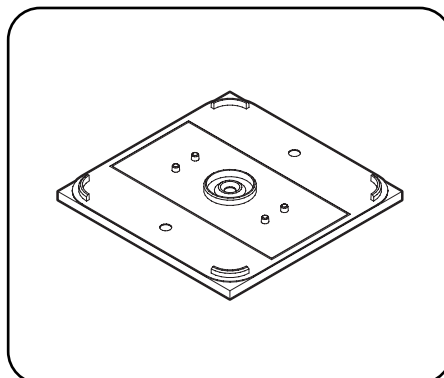


215 - 245 mm

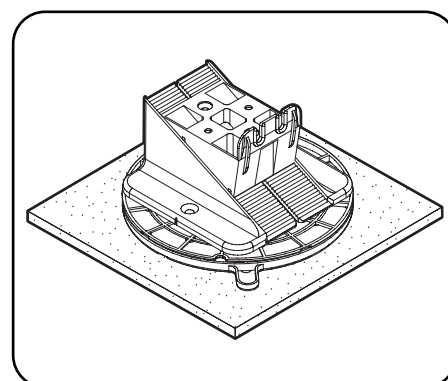
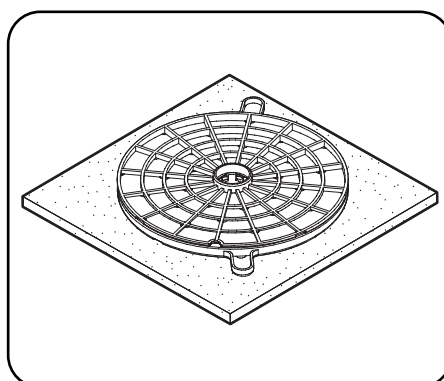
SUBMISSION SETS

Acoustic isolation

In the case of installing a terrace or floor on surfaces located above other rooms, it may require acoustic isolation. This applies in particular to residential and office spaces. An sound reduction pad is intended for sensitive and hard surfaces without significant inclination.



On surfaces with significant slopes, where a slope corrector¹ has been used for acoustic insulation, it is possible to use rubber pads under the slope corrector.



▼ Attention:

Acoustic insulation is not always specified in documentation and projects, but it is worth considering its use before starting installation works. The consequences of its absence can be felt acutely in the future.

Acoustic insulation additionally increases the comfort of using the surface by adding its pleasant elasticity and preventing unwanted sounds caused by particles of concrete or stone under the adjustable height decking wedge.

¹ When assessing the slope, it must be taken into account that the decking pedestal placed on the terrace base with the slope does not transmit the pressure axially, which translates into a decrease in the strength of the structure. The deviation of the decking pedestal from the vertical may cause a situation in which the joist does not adhere to the entire surface of the wedge, leaving a significant gap and not providing a stable support for the joist. Each time, the assessment of the slope must be carried out in accordance with the art of construction, taking into account also other conditions individual for a given implementation, such as the planned slopes of the pavement being built, the evenness of the slope distribution on the terrace base, the stiffness of the materials used for the substructure and the technique of its implementation, as well as other conditions related to a given implementation.

THE USE OF ADJUSTABLE DECKING WEDGE DEPENDING ON THE SUBSTRATE

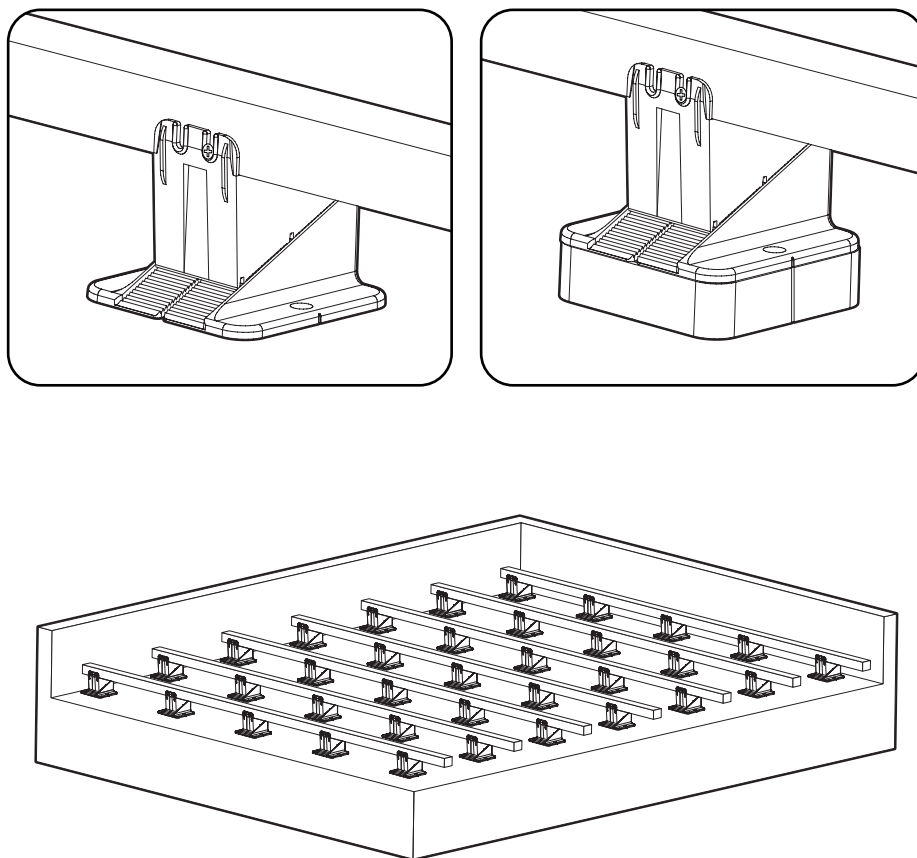
HARD SUBSTRATE WITHOUT SIGNIFICANT SLOPES

Hard substrate - a hard substrate should be understood as a concrete screed, concrete tiles, stone tiles, wood and others characterized by high resistance to pressure.

Subgrade without steep slope² - the lack of a significant slope should be understood as a completely horizontal surface or with a slight slope not exceeding approximately 2%.

In the case of assembly which provides for the slope of the montaged surface in accordance with the direction of the slope of the terrace base, the difference between the slope of the substrate and the planned slope of the surface should be taken into account.

A hard surface without a significant slope does not require the use of adjustable height decking wedge additives. For proper assembly, one of the bases in combination with the wedge is enough, or an additional 30 mm wedge raiser to obtain a higher adjustable decking wedge.



▼ Additional options:

Optionally, a 10 mm sound reduction pad can be used, for additional sound isolation, such a solution should be considered when installing a terrace or a raised floor on the floor under which there are living rooms.

The use of a 10 mm sound reduction pad will also improve the utility values of the terrace. The use of this solution will reduce unwanted noises when using the terrace, especially grinding caused by moving concrete particles and small stones under the adjustable height decking wedge. Sound reduction pads under the adjustable decking wedge also add flexibility to the surface and increase the comfort of walking on the terrace.

▼ Attention:

It is unacceptable to use the adjustable height decking wedge directly on the rubber pads. The walls of the adjustable decking wedge will place increased pressure on the small surfaces of the rubber. In the long time, this will accelerate the degradation of the rubber at the interface with the side walls of the adjustable height decking wedge. This process will proceed unevenly (mainly in particularly frequented places and will lead to the destabilization of the support of the terrace structure, which may shorten its life.

² When assessing the slope, it must be taken into account that the adjustable decking wedge placed on the surface with the slope deviates from the vertical. The deviation of the adjustable decking wedge from the vertical may cause a situation in which the joist adheres only to one edge of the wedge, leaving a significant gap in the remaining length, not providing a stable support for the joist.

Each time, the assessment of the slope must be carried out in accordance with the construction practice, taking into account also other conditions individual for a given implementation, such as the planned slope of the pavement being built, the evenness of the slope distribution on the ground surface, the stiffness of the materials used for the substructure and the technique of its implementation, as well as other conditions related to the implementation.

THE USE OF ADJUSTABLE DECKING WEDGE DEPENDING ON THE SUBSTRATE

SENSITIVE GROUND WITHOUT SIGNIFICANT SLOPE

Sensitive substrate - sensitive substrate should be understood as:

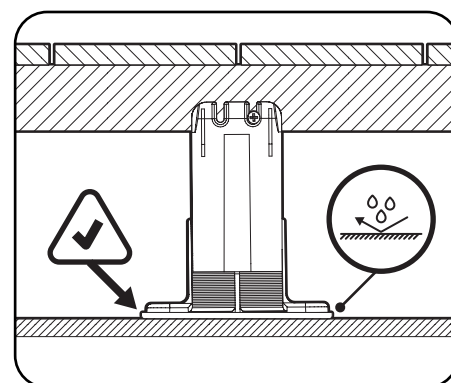
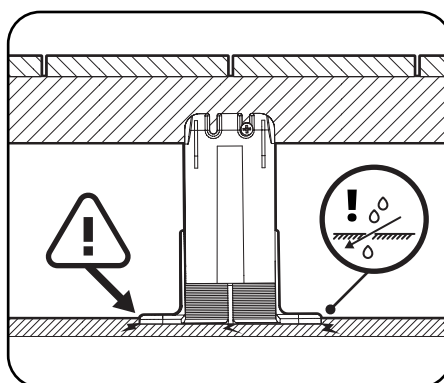
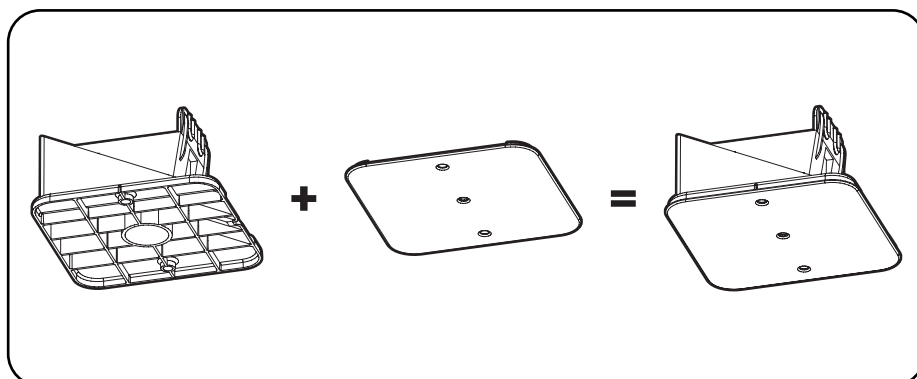
a) surface covered with all kinds of additional coatings (most often hydroisolation), for example with roofing felt, membrane or liquid rubber, and any other coating that could be damaged under the pressure of the walls of the bottom wedge,

b) surfaces made in the inverted roof technology, where the adjustable height decking wedge are placed directly or indirectly on materials such as XPS and the like.

A 2 mm protection pad is required on sensitive surfaces without significant slopes.

Substrate without significant slope³ - the lack of a significant slope should be understood as a completely horizontal surface or with a slight slope not exceeding approximately 2%.

On a sensitive surface without significant slope, it is necessary to use a 2 mm protection pad in order to protect the surface from damage that may be caused by the bottom wedge walls over time. The lack of a protection pad may also cause the decking pedestal to dig into a sensitive surface.



Additional options:

Optionally, a 10 mm sound reduction pad can be used for additional acoustic isolation. Worth considering when installing a terrace or a raised floor on the floor below which there are living quarters.

The use of an acoustic pad will also improve the usability of the terrace. The use of this solution will reduce unwanted noises when using the terrace, especially grinding caused by moving concrete particles and small stones under the adjustable height decking wedge. The rubber pads under the adjustable height decking wedge also add some elasticity to the surface and increase the comfort of walking on the terrace.

Attention:

It is unacceptable to use the adjustable height decking wedge directly on the rubber pads. The walls of the adjustable height decking wedge will place increased pressure on the small surfaces of the rubber. In the long time, this accelerates the degradation of the rubber at the interface with the side walls of the adjustable height decking wedge. This process will proceed unevenly (mainly in particularly frequented places and will lead to destabilization of the support of the terrace structure, which will significantly shorten its life.

³ When assessing the slope, it must be taken into account that the adjustable height decking wedge placed on the surface with the slope deviates from the vertical. The deviation from the cantilever may cause a situation in which the joist adheres only to one edge of the wedge, leaving a significant gap in the remaining length without giving the joist a stable support.

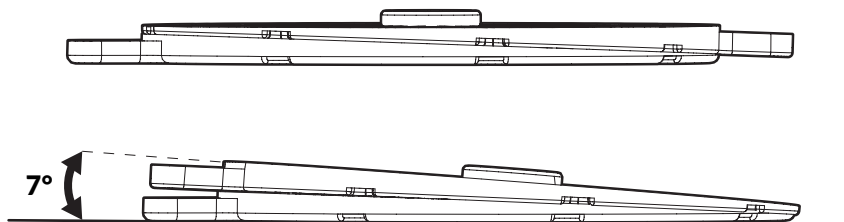
Each time, the assessment of the slope must be carried out in accordance with the construction practice, taking into account also other conditions individual for a given implementation, such as the planned slope of the pavement being built, the evenness of the slope distribution on the ground surface, the stiffness of the materials used for the substructure and the technique of its implementation, as well as other conditions related to the implementation.

THE USE OF ADJUSTABLE DECKING WEDGE DEPENDING ON THE SUBSTRATE

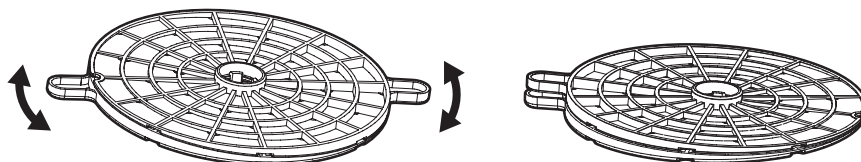
A TERRACE BASE WITH A SIGNIFICANT SLOPE OR WITH ENVELOPE SLOPES

A terrace base with a significant slope or with envelope slopes - a foundation with a significant slope should be understood as a slope of the surface exceeding 2%.

On steep slopes, consider using a slope corrector to compensate for the slope surface area up to 7% (i.e. in 7° in the case of a level difference of up to 7 cm per 1 running meter).

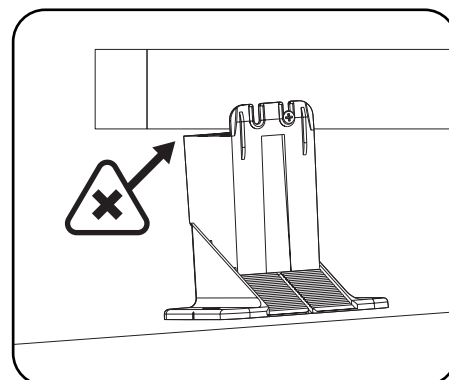
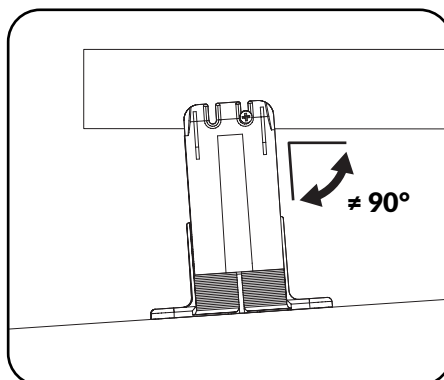


The regulation is adjusted by smoothly rotating two discs with a wedge cross-section in relation to each other.

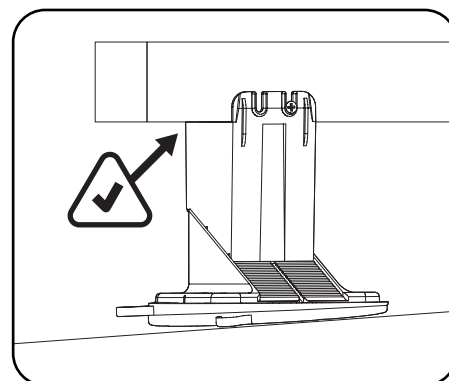
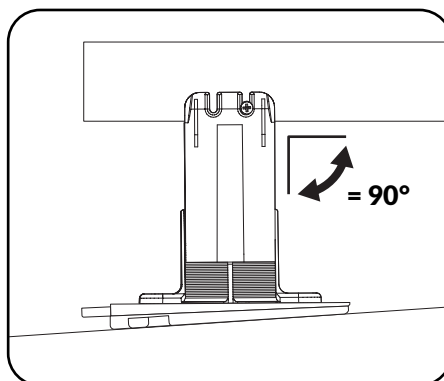


The use of a slope corrector should be considered taking into account the fact that the support, placed on a surface with a significant slope, deviates from the vertical. The deviation from the adjustable height decking wedge may cause a situation in which the joist adheres only to one edge of the wedge, leaving a significant gap in the remaining length without giving the joist a stable support.

When considering the use of a slope corrector, in accordance with the art of construction, one should also take into account other conditions individual for a given implementation, such as the planned slope of the pavement being built, the evenness of the slope distribution on the ground surface, the stiffness of the materials used for the substructure and the technique of its implementation, as well as other conditions related to the given realisations.



The adjustable height decking wedge on a properly set slope corrector gives a stable support to the joist.

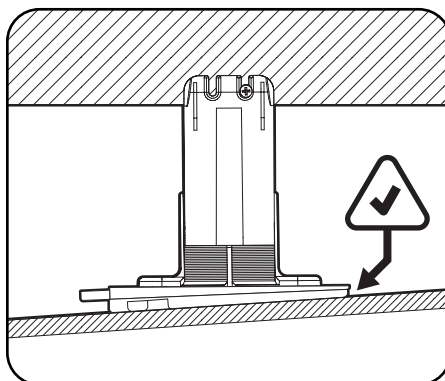


THE USE OF ADJUSTABLE DECKING WEDGE DEPENDING ON THE SUBSTRATE

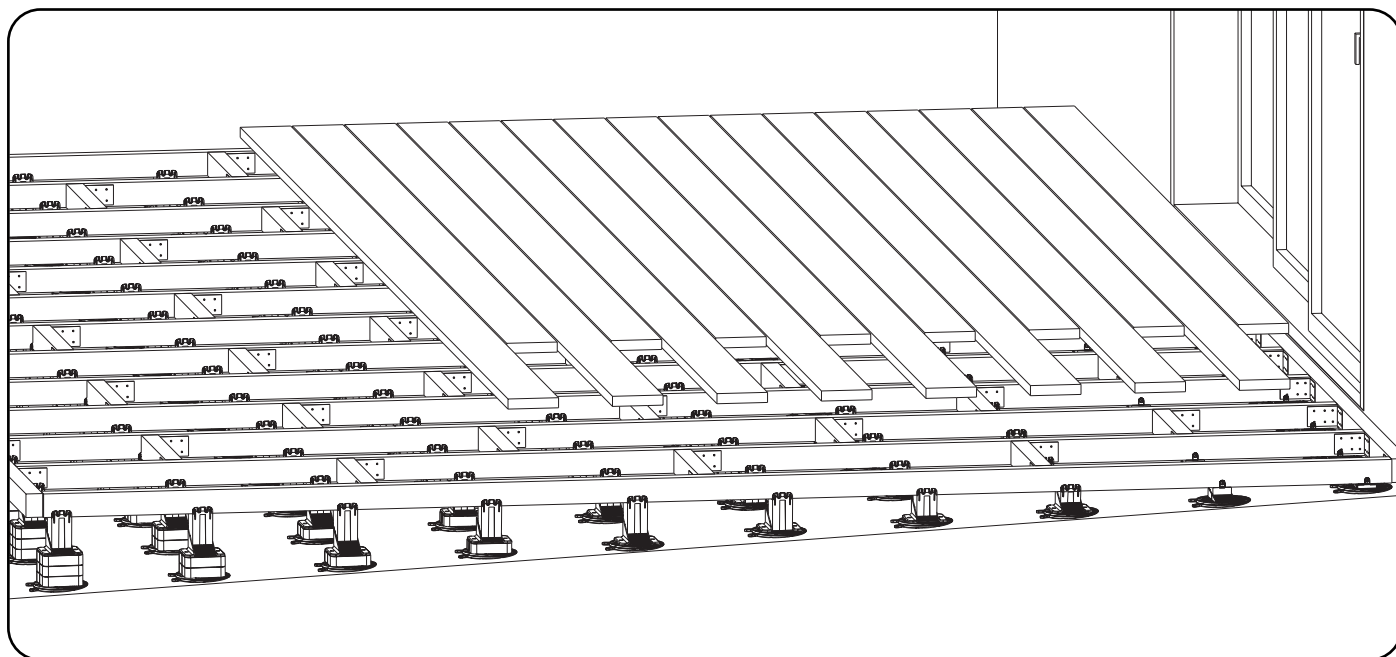
A TERRACE BASE WITH A SIGNIFICANT SLOPE OR WITH ENVELOPE SLOPES

The use of a slope corrector eliminates the need for additional protective elements for sensitive surfaces.

For additional acoustic isolation can be used $170 \times 170 \times 3$ mm rubber pad.



An example of a ground with a significant slope with the use of a slope corrector for adjustable height decking wedge

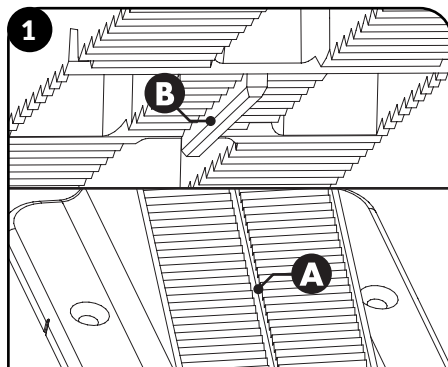


▼ Additional options:

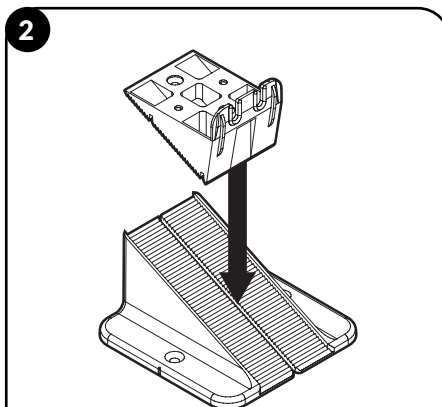
Optionally, a rubber pad can be used under the slope corrector for additional sound isolation. Worth considering when installing a terrace or a raised floor on the floor below which there are living quarters.

The use of a rubber pad will improve the usable values of the terrace and will allow you to reduce unwanted noises when using the terrace, especially grinding caused by moving concrete particles and small stones under the slope corrector. Rubber pads add elasticity to the surface and increase the comfort of walking on the terrace.

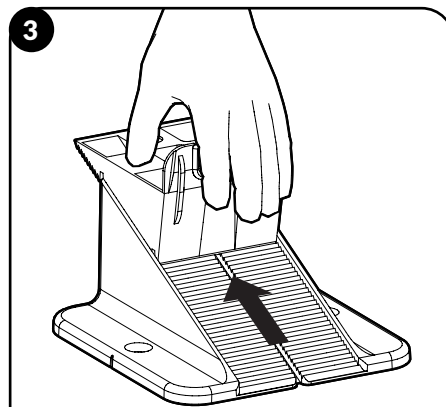
THE WAY OF CONNECTING WEDGES WITH BASES



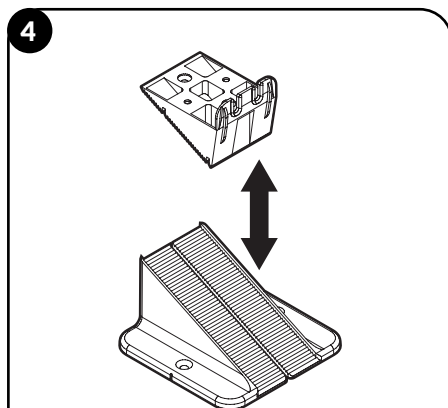
1. The system is equipped with a stabilizing mechanism. Bottom wedge has special longitudinal port (A), top wedges are equipped with special tabs (B) use for this kind.



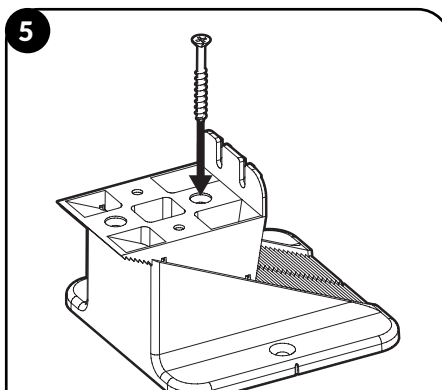
2. Place the wedge in such a way that the joist mounting is directed towards the falling part of the bottom wedge.



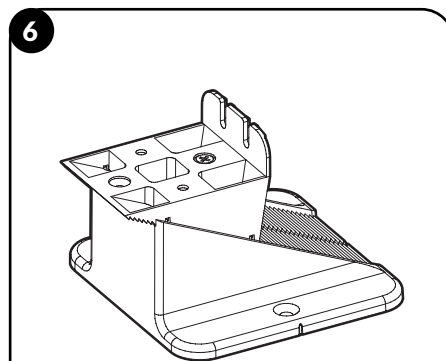
3. After positioning the top wedge on the bottom wedge, slide it up to obtain the desired height of the adjustable height decking wedge.



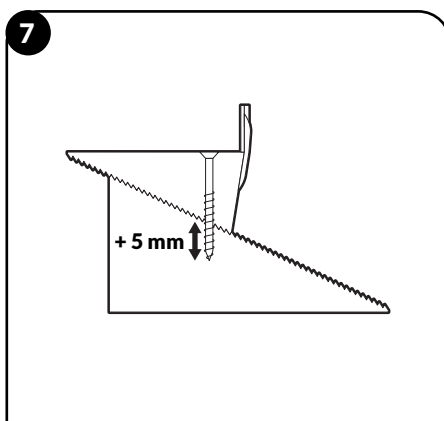
5. If you need to change the set height to a lower position, it is necessary to slightly lift the adjustable decking pedestal above the bottom wedge and move it back to a lower position.



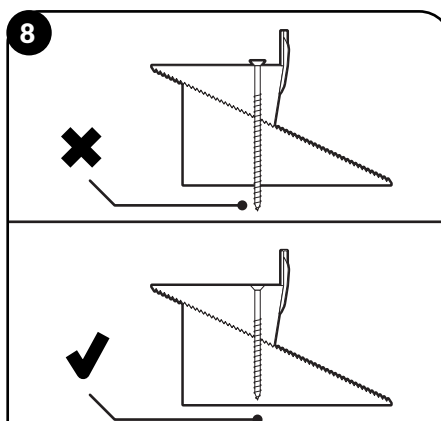
6. After setting the desired height of the adjustable height decking wedge, it is recommended to fix the set level with a screw using special holes in the top wedge. Place the screw in the hole closest to the center of the bottom wedge.



7. One screw is enough to properly lock one top wedge.

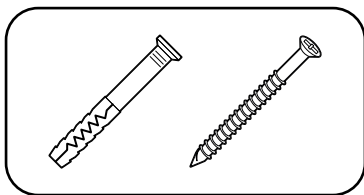


8. The length of the screw should be 5 mm greater than the height of the wedge used. The screw should pierce the connection between the top wedge and the bottom wedge.



9. When screwing the wedge with the bottom wedge, make sure that the screw is not too long. This could cause the screw to protrude beyond the bottom line of the bottom wedge.

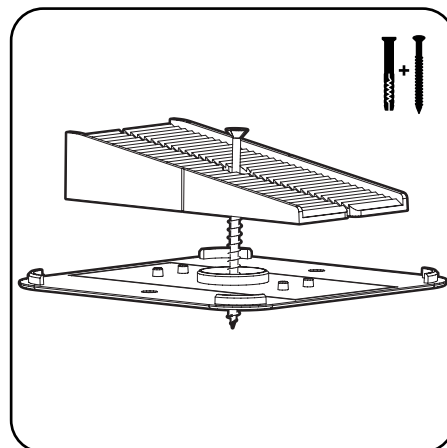
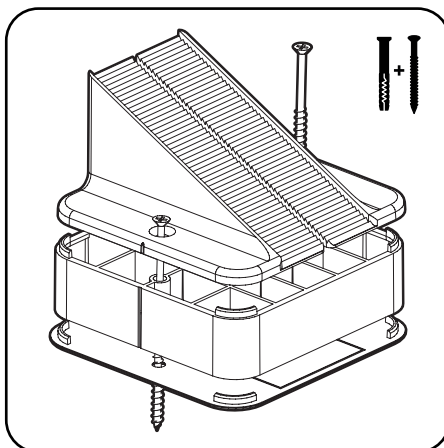
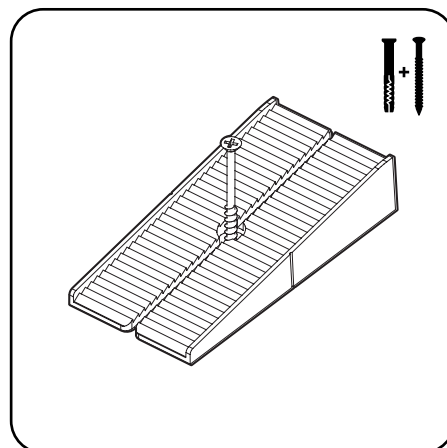
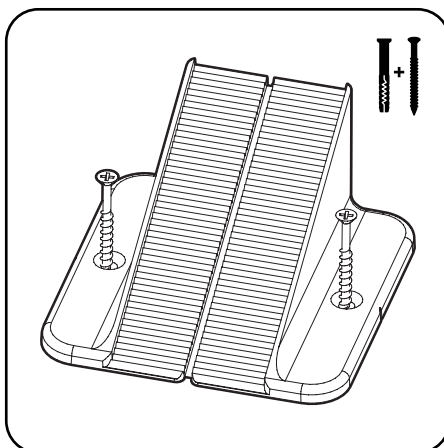
FIXING THE WEDGE TO THE GROUND



Fixing the adjustable height decking wedge to the ground is not necessary, but it is possible and advisable where there is a risk of the terrace structure sliding.

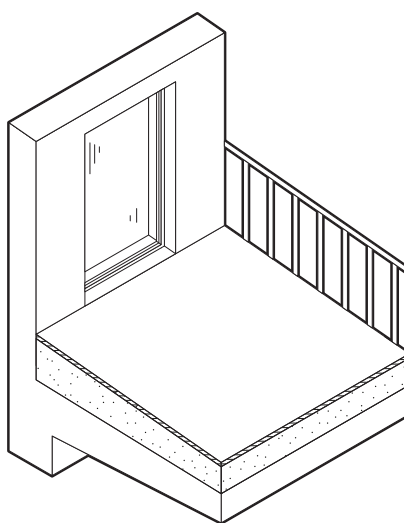
To fix the adjustable height decking wedge to the ground, use the holes in the bases, washers and stands as well as screws appropriate to the type of the surface.

Before deciding to attach the adjustable height decking wedge to the base, make sure that the surface has no waterproofing layers that would be damaged when screwing in the screws or drilling holes for expansion plugs.



Attention!

Before deciding to mount the brackets decking pedestals to the terrace base, make sure you do not break it hydroisolation or not damage the installation.



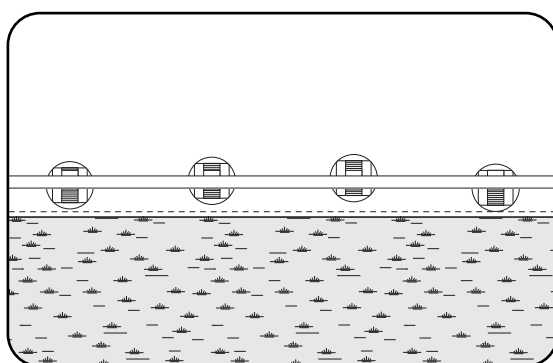
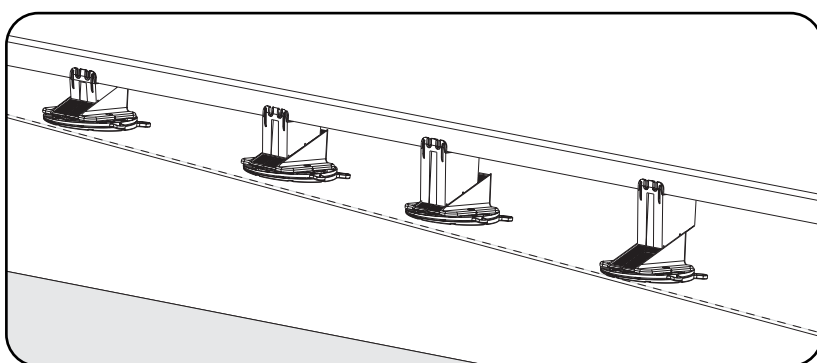
FIXING THE WEDGE TO THE GROUND

▼ Important:

Before attaching the bottom wedge to the ground, first set the desired height of the adjustable height decking wedge and mark the position of the bottom wedge. Leveling a joist on a surface that is not perfectly horizontal may require the bottom wedge to be positioned outside a straight line, so it is necessary to check the alignment of the joist adjustable height decking wedges at the edges and walls. Screwing the bottom wedge too close to the edge or wall may cause problems with obtaining the desired height of the adjustable height decking wedges.



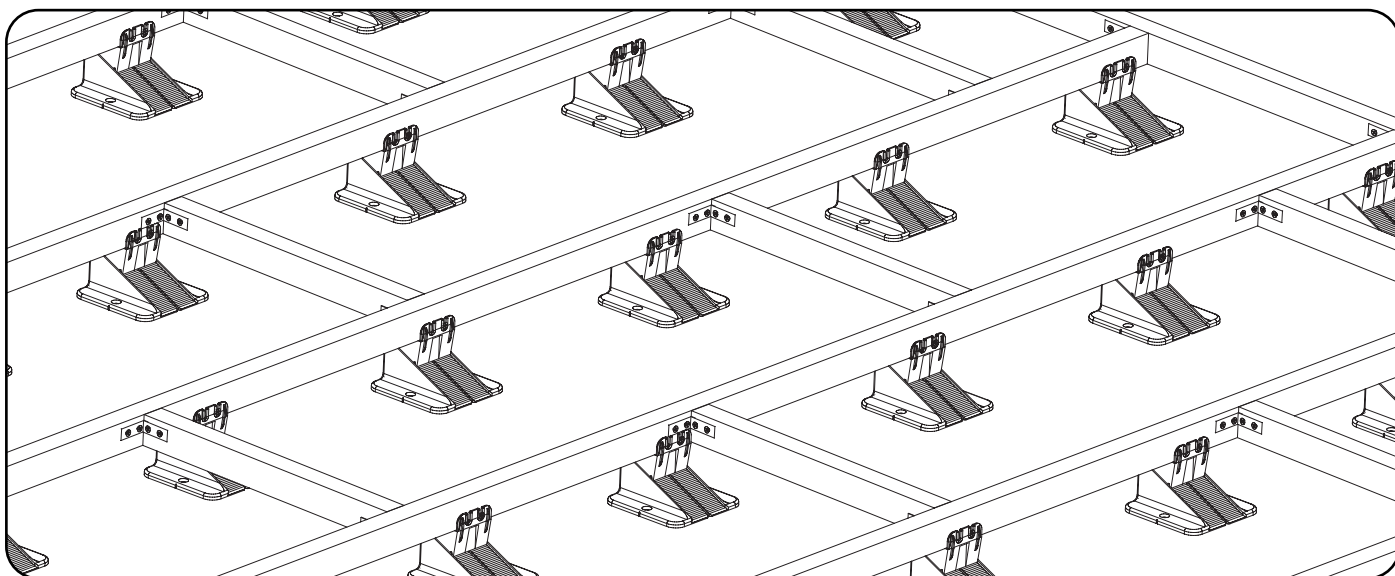
! Do a fitting before starting to fix.
! Check the maximum extension of the bottom wedge in relation to the joist.



▼ Attention:

Fixing the adjustable height decking wedge to the ground, the top wedge to the adjustable height decking wedge, and the joist to the top wedge secures the structure against shifting and reduces the risk of tilting the terrace. However, it should be remembered that such fastening has a limited resistance to tearing and cannot be treated as a reliable protection against the work of the materials of which the terrace or floor is made.

In order to protect the structure from rising terrace edges in response to weather conditions, high-stiffness joists should be used in a truss. The truss made of rigid joists (e.g. aluminum) is the best option for raised terraces (when the joists cannot be mounted to the ground).

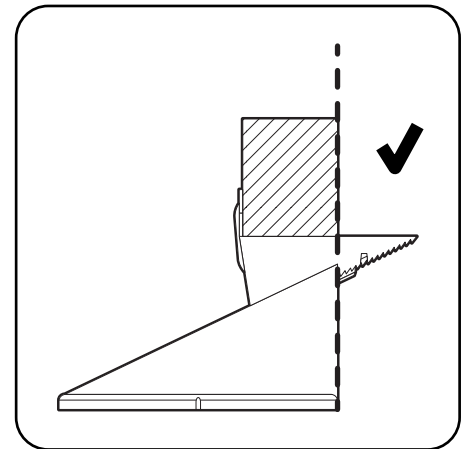
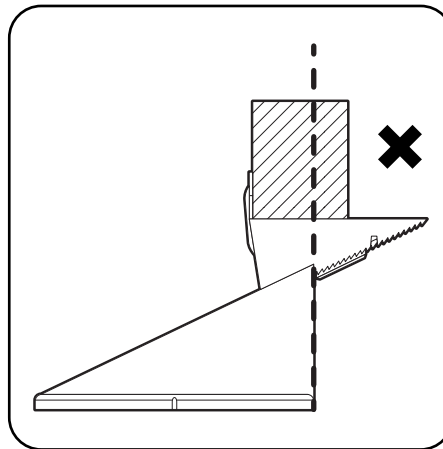


PLACING THE JOIST ON THE RAPTOR WEDGE

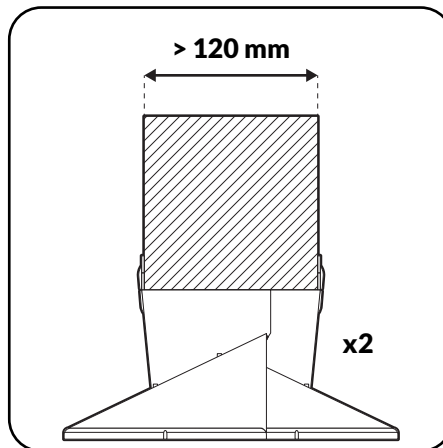
Correct positioning of the joist on the adjustable height decking wedge should be stable.

It is unacceptable to extend the joist cross-section beyond the common part of the wedge and the base.

Correct assembly (sketch on the right) consists in placing the joist on the wedge in such a way that the joist rests with its entire width on the common part of the top wedge and the bottom wedge (within the bottom wedge).



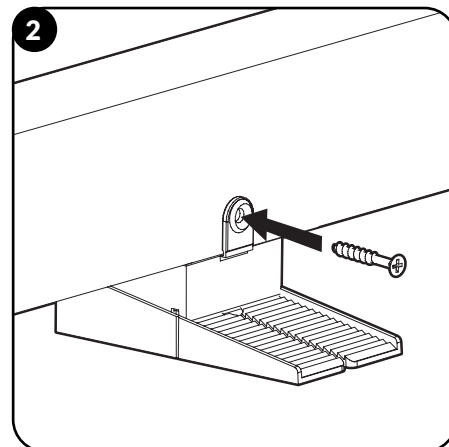
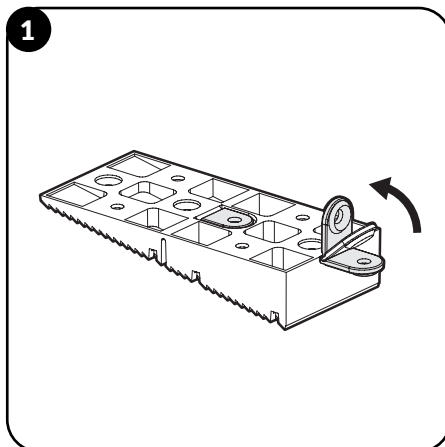
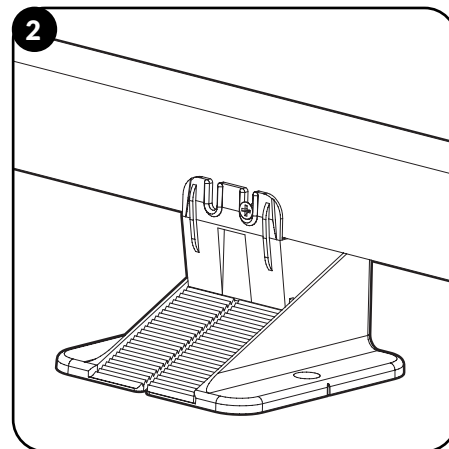
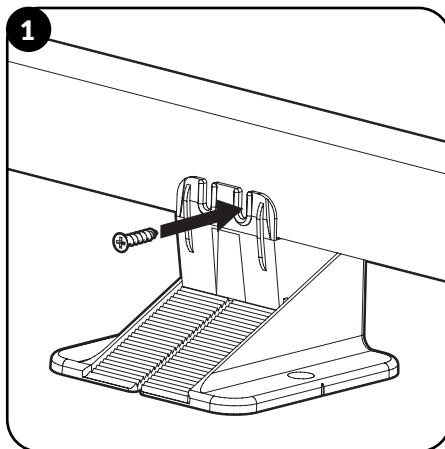
For a joist with a width greater than the width of the wedge, it is recommended to use two decking pedestals placed opposite on both sides of the joist next to the other, right next to each other



FIXING THE JOISTS TO THE WEDGE

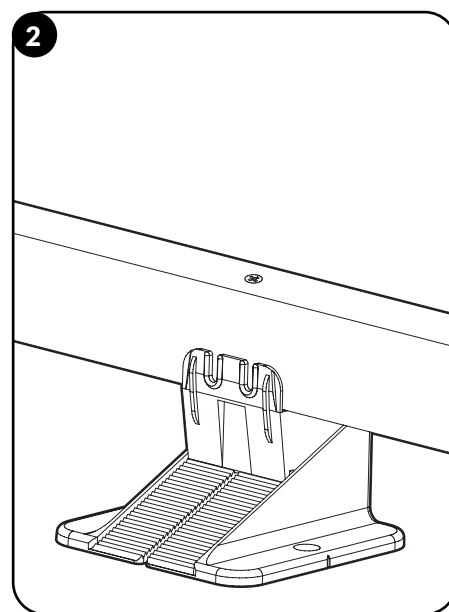
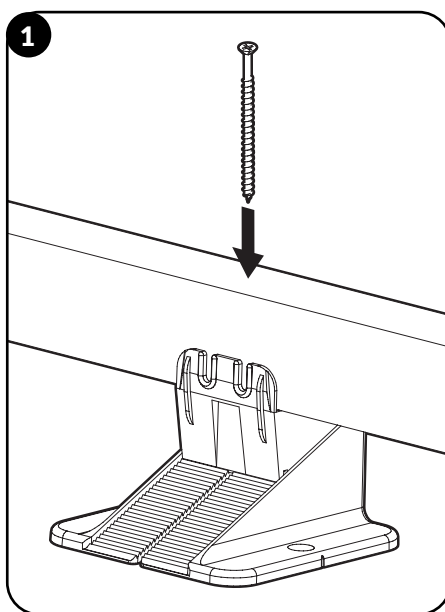
Joists to the adjustable height decking wedge should be attached using side handle. For this purpose, use screws appropriate to the material from which the joists are made.

In the case of the S top wedge, the joists handle must be tilted to the vertical position.



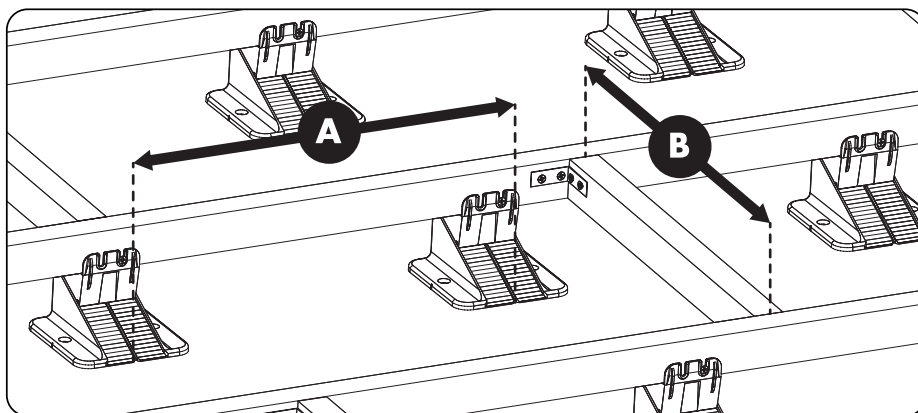
It is permissible to attach the joist to the adjustable decking wedge by turning the joist with a screw from the top. In such a case, however, make sure that the materials used allow the screw to be placed in a way that will not hinder the further stages of assembly (protruding screw head above the joist surface, screw in the place where connectors or screws for boards are installed). The length of the screw should be selected in such a way as to ensure that the screw goes through the entire joist and punctures the connection between the top wedge and the bottom wedge L.

To calculate the screw length just add the joist thickness to the values given in the chapter „Screw selection for connecting the bottom wedges with top wedges”.



RECOMMENDED SPACING OF RAPTOR WEDGE

The distance between the adjustable height decking wedge should be adjusted to the materials used for the installation, strictly according to the recommendations of the manufacturer of the joists (A) and boards (B).



The spacing of the decking pedestals should also be adapted to the type of ground on which the decking pedestals are laying. Particular care should be taken when placing decking pedestals on terrace base made in the inverted roof structure, where the supports are set on XPS or hardened polystyrene. On such a base, the resistance of the base to the pressure of the ecking pedestal should be taken into account.

It is not recommended to place Raptor decking pedestals on materials with compressive strength below 300 kPa / m². The intended use and related construction standards should also be taken into account.

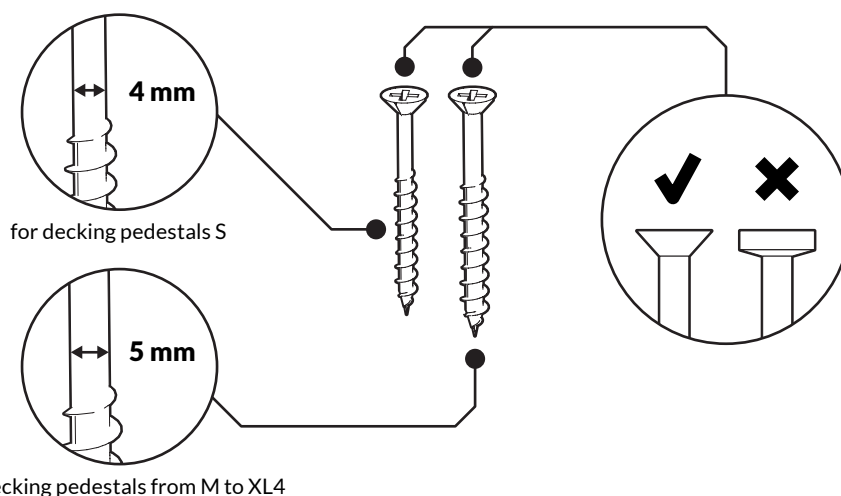
▼ Attention:

Supporting the joists at distances exceeding the recommendations of the manufacturers of terrace or floor systems may cause a number of negative consequences. The most important of them are:

- Loss of the producer warranty,
- Reduction of pavement resistance to pressure,
- Excessive pavement flexing under pressure, which generates additional stresses that weaken the entire structure over time.

SELECTION OF SCREWS FOR CONNECTING THE BASES WITH WEDGES

To connect the bottom wedges with wedges, use screws with countersunk screws head and a diameter of 4 mm for the wedge S and 5 mm for the wedges from M to XL4.



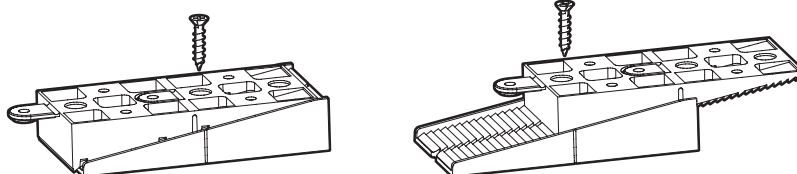
**ATTENTION
TO DAMAGE TO THE
HYDROISOLATION**

The length of the screw should be selected depending on the size of the top wedge and the set top wedge height.

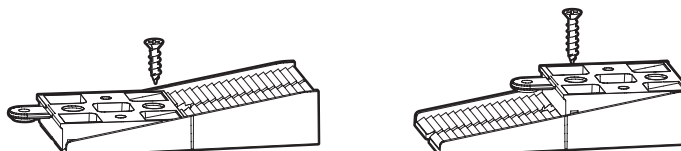
For proper assembly, you only need to select one of them, the one that is closer to the center of the bottom wedge after the desired height of the adjustable height decking wedge has been set.

When choosing the screw length, you should also pay attention to whether the screw is too long. Using a screw that is too long may damage sensitive surfaces.

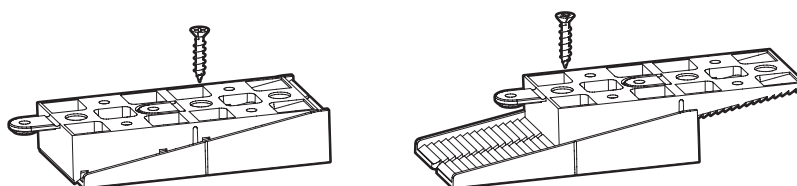
Adjustable height decking wedge S



Adjustable height decking wedge S1



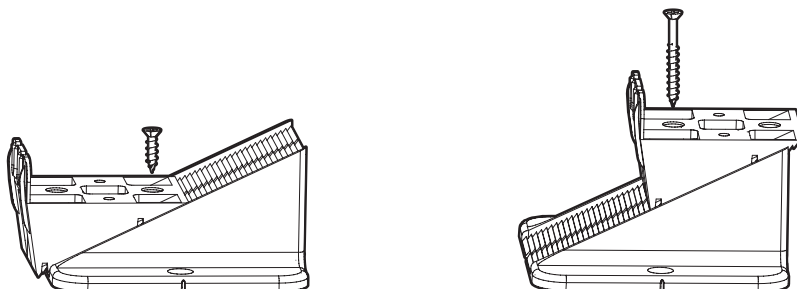
Adjustable height decking wedge S2



Adjustable height decking wedge	Wedge height range	Ranges for screws	The type of screws
S	25-35 mm	25-30 mm	20x4 mm
		30-35 mm	25x4 mm
S1*	15-25 mm	15-20 mm	12x4 mm
		21-25 mm	18x4 mm
S2*	35-35 mm	25-35mm	20x4 mm

SELECTION OF SCREWS FOR CONNECTING THE BASES WITH WEDGES

Adjustable decking wedge from M to XL4.



Adjustable height decking wedge	Wedge height range	Ranges for screws	The type of screws
M	35-65 mm	35-50 mm	20x5 mm
		50-65 mm	45x5 mm
L	65-95 mm	65-80 mm	60x5 mm
		75-95 mm	70x5 mm
XL	95-125 mm	95-115 mm	90x5 mm
		115-125 mm	110x5 mm
XL1 to XL4	125-245 mm	125-245 mm	110x5 mm

TIPS FOR INSTALLING TERRACES ON RAPTOR WEDGES

When starting the installation of the terrace or the floor with the use of Raptor adjustable height decking wedge:

- See the manual of montage.
- Collect information about the substrate:
 - a. Check the type of surface, whether the ground is hard or is covered with layers that require protection by using a protective pad under the adjustable height decking wedge.
 - b. If you decide to fix the adjustable height decking wedge to the ground, make sure that screwing in screws or drilling for expansion bolts will not damage the waterproofing.
 - c. Examine the slope of the pavement to decide whether it is appropriate to use slope correctors.
 - d. Make sure that the circumstances of the assembly do not indicate the need for acoustic isolation.
- Collect information on the recommendations of producer of materials intended for the construction of the floor or terrace, in particular those concerning the spacing of the joists and the recommended distances between the adjustable height decking wedge along the joist.
- Clean the substrate on which the assembly will be carried out in order to prevent placing the supports on contaminants that may disturb the correct positioning of the adjustable height decking wedges and generate undesirable sounds when using the terrace or floor.
- Observe the health and safety regulations during installation.

WARRANTY

Within the scope of this Warranty, SOLVER Sp. z o.o. assures the Buyer that the Product to which this Warranty Card is issued is of good quality. The Warranty on ADJUSTABLE DECKING PEDESTALS RAPTOR FOR JOISTS (hereinafter referred to as „RAPTOR” or „Product”) shall be given on the basis of art. 577 of the Civil Code and under the conditions described below. This Warranty is valid only with proof of purchase. The terms and conditions of this Warranty which are valid on the date of release of the Product to the Buyer shall apply.

1. DEFINITIONS

- a. Guarantor - SOLVER Sp. z o.o. , entered into the Register of Entrepreneurs of the District Court for Gdańsk-Północ in Gdańsk, VII Commercial Division of the National Court Register under number KRS 0000241286, REGON: 191118644, NIP: 584-11-83-361, (hereinafter referred to as „SOLVER-SYSTEMS” or the „Guarantor”).
- b. Warranty Card - a document issued by the Guarantor along with the Product, which confirms that the Warranty on the Product was issued by SOLVER-SYSTEMS. The Warranty Card is an integral part of the Warranty on SOLVER-SYSTEMS products.
- c. Warranty - the terms and conditions of SOLVER-SYSTEMS's warranty responsibility for the Product, constituting an integral part of the Warranty Card.
- d. The entitled party under the Warranty on RAPTOR – a Buyer who purchased a RAPTOR Product covered by the Warranty (hereinafter referred to as the „Buyer”).
- e. Product under Warranty - RAPTOR product specified in detail in point 2 of this Warranty, subject to the terms and conditions of this Warranty.
- f. Proof of sales: a VAT invoice confirming the purchase of a RAPTOR Product by the Buyer.
- g. Date of purchase: date of issue of the proof of sales by SOLVER-SYSTEMS.

2. PRODUCT UNDER WARRANTY

Product under Warranty - ADJUSTABLE DECKING PEDESTALS RAPTOR for which the Buyer was given the Warranty Card.

3. SCOPE OF THE WARRANTY

- a. The Guarantor shall grant the Warranty on the Product specified in point 2 of this Warranty, which can be found on the invoice, being proof of sale of the Product to the Buyer.
- b. The Warranty on the Product shall be granted by SOLVER-SYSTEMS, provided that the Buyer pays the invoice issued for the Product in a timely manner.
- c. The Warranty is valid only with proof of purchase.
- d. Guarantor guarantees that the products RAPTOR purchased by the Buyer, installed (if their installation has not been made by Guarantor) and used in accordance with the construction (ie. The Regulation on technical conditions to be met by buildings and their location, Construction Law and the relevant reference Standards), during the period granted to the Guarantee maintain their properties utility, as described in the Technical Specifications of the product and the Declaration of Performance.
- e. the quality guarantee covers only defects which occurred in the Product as a result of reasons existing at the time of its release, which are not expressly excluded according to the contents of this Warranty or in any other document issued by SOLVER-SYSTEMS.
- f. The Warranty is granted for all buyers of the Products who have their registered seats or permanent places of residence in the European Community, provided that the Product has been sent to and used only in countries belonging to the European Community.
- g. The warranty does not cover defects arising Goods for reasons beyond the SOLVER-SYSTEMS. The guarantee, in particular, does not cover defects of the Goods:
 - Occurring during its improper transport or improper storage by the Buyer or third parties (if transportation, storage was not done by the Guarantor)
 - Resulting assembly (if it was not made by the Guarantor) or use / use of the Goods not in accordance with art construction and / or reference Standards,
 - Resulting from improper preparation of the assembly process of the Goods (if it was not made by the Guarantor)
 - Arising from structural defects buildings, in which the assembly has been Goods,
 - Arising from building design solutions, resulting in deformation of the Goods exceeding its parameters as defined in the Technical Specification,
 - Arising after the release of the Goods, as a result of the Buyer or third parties (if assembly, transportation has not been done by Guarantor)
 - resulted from mechanical, chemical, and/or thermal damage to the Product,
 - resulted from natural disasters or any other force majeure.
- h. This Warranty does not cover parts which are subject to natural wear and tear due to normal use of the Product.
- i. This Warranty excludes in full the statutory warranty under the Civil Code for the purchased Product.
- j. Notwithstanding the rights resulting from the Warranty, SOLVER-SYSTEMS does not assume any other liability in respect of defects of the Product or improper performance of the sales agreement, in particular liability for damages in any respect, (subject to the wording of Art. 473 of Civil Code and art. 4499 of Civil Code). The receipt of the Warranty Card signed by SOLVER-SYSTEMS is tantamount to a waiver by the Buyer in relation to SOLVER-SYSTEMS of any other claim for damages on account of defects of the Product.

4. WARRANTY PERIOD

- a. Unless stated otherwise in a sales document, the Warranty Period is determined by the contents of the Warranty Card issued by SOLVER-SYSTEMS with the Product for the Buyer.
- b. The Warranty Period commences on the date of purchase, which is determined by the proof of purchase, and ends on the last day of the Warranty period.

WARRANTY

5. RIGHTS UNDER THE WARRANTY

- a. The Buyer's rights under the Warranty can be exercised only upon presentation by them to SOLVER-SYSTEMS of the Warranty Card signed and sealed by SOLVER-SYSTEMS along with proof of purchase. The absence of any of the these documents makes it impossible for the Buyer to lodge an effective complaint claim.
- b. If SOLVER-SYSTEMS releases the Product to the Buyer without the Warranty Card or with an unsigned Warranty Card, the Buyer is required to ask SOLVER-SYSTEMS for the issue of the Warranty Card or signature within 45 days. Failure to submit such a request to SOLVER-SYSTEMS by the Buyer within 45 days from the date of release of the Product shall result in failure to grant the Warranty on the Product by SOLVER-SYSTEMS.
- c. The Buyer may submit to SOLVER-SYSTEMS the notification referred to in paragraph 5.b. of this Warranty only if full payment for the Product has been made within the period of time specified on the VAT invoice issued by SOLVER-SYSTEMS for the Product.
- d. If the situation referred to in paragraph 5.b. occurs, the Buyer is obliged to send SOLVER-SYSTEMS a written request to sign or issue the Warranty Card, or to notify SOLVER-SYSTEMS by e-mail (email address: service@solver-systems.com) or by fax (fax: +48 58 511 04 32) of this fact.
- e. If the Buyer submits a request to issue a proper Warranty Card within 45 days from the date of release of the Product, subject to point 5.c, SOLVER-SYSTEMS undertakes to deliver the Warranty Card within 7 days from the date of submission of such a request by the Buyer. If the Warranty Card is sent by the Polish postal service (referred to in Art. 178 paragraph 1 of the Act of 23.11.2012, Postal Law, Journal. Laws of 2012, item 1529) the date of the postmark shall be used to assess compliance with the 7-day time limit.

6. COMPLAINTS

- a. An effective complaint may be lodged only by a Buyer who presents a complaint with a detailed description of: the fault/defect, the type of Product, the day of its purchase and installation, the day of detection of the fault/defects, photographs of the fault/defect, and a Warranty Card signed by SOLVER-SYSTEMS, together with proof of purchase of the Product.
- b. The complaint shall be sent to the address of the registered seat of the Guarantor in writing or by e-mail to the above-mentioned addresses, along with attached documents referred to in paragraph 6.a. of this Warranty.
- c. The complaint must be sent to the address of SOLVER-SYSTEMS immediately upon detection of a defect in the Product. When it comes to defects which were visible to the naked eye at the time of receipt of the Product by the Buyer, the term "immediately" means a period no greater than 3 working days, whereas as for defects that became apparent in the Product after the date of its receipt this period shall be no greater than 7 working days. Failure to notify SOLVER-SYSTEMS of a fault/defect in the Product within the time limit specified in the preceding sentence shall contribute to the termination of the rights resulting from the Warranty as regards the defect.
- d. The complaint must be lodged within the period of time specified in section 6.c and sent to SOLVER-SYSTEMS in a complete written form with a set of required and properly issued documentation as referred to in paragraph 6.a. of this Warranty.
- e. A Buyer who lodges a complaint is required to make it possible for SOLVER-SYSTEMS to carry out an inspection of the Product at the place of its installation or storage, to prepare a technical expert's opinion on the Product, and to collect the necessary number of samples of the Product for tests. These will allow SOLVER-SYSTEMS to verify the validity of the Buyer's complaint.
- f. If the Buyer lodges a complaint in a correct manner and SOLVER-SYSTEMS confirms the existence of a fault/defect covered by the Warranty, SOLVER-SYSTEMS undertakes to deliver a Product free from defects.
- g. SOLVER-SYSTEMS shall inform the Buyer about its decision as to the validity of the complaint within 21 days from the date of submission of the Buyer's valid complaint. Delivery of the Product shall be made by SOLVER-SYSTEMS without undue delay, within a time limit which the Buyer will be informed about, subject to point 6.c.
- h. SOLVER-SYSTEMS reserves the right to extend the date of delivery of the Product by the period of time in which SOLVER-SYSTEMS, for reasons beyond its control, cannot fulfil the complaint demands of the Buyer.
- i. In the case of an unjustified complaint, the Buyer is obliged to reimburse SOLVER-SYSTEMS for the costs of assessment of the Product subject to the complaint, in particular expenses incurred by Representatives of SOLVER-SYSTEMS in travelling to the place where the inspection of the Product took place (including the costs of travel, accommodation, and food of the Representatives of SOLVER-SYSTEMS), the cost of assessment and performance of tests of samples of the Product, the costs of preparation of a technical expert's opinion, and the costs of conducting correspondence and of transportation of the Product.

7. FINAL PROVISIONS

- a. This Warranty has been granted under Polish law and in the case of matters not covered by this Warranty, the provisions of the Polish Civil Code shall apply.
- b. Any disputes concerning this Warranty shall be resolved amicably through arbitration. If the Buyer and SOLVER-SYSTEMS cannot reach an agreement through negotiation, the dispute shall be resolved by the court competent for the registered seat of SOLVER-SYSTEMS.



www.solver-systems.com
sales@solver-systems.com

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