

SOLVER.

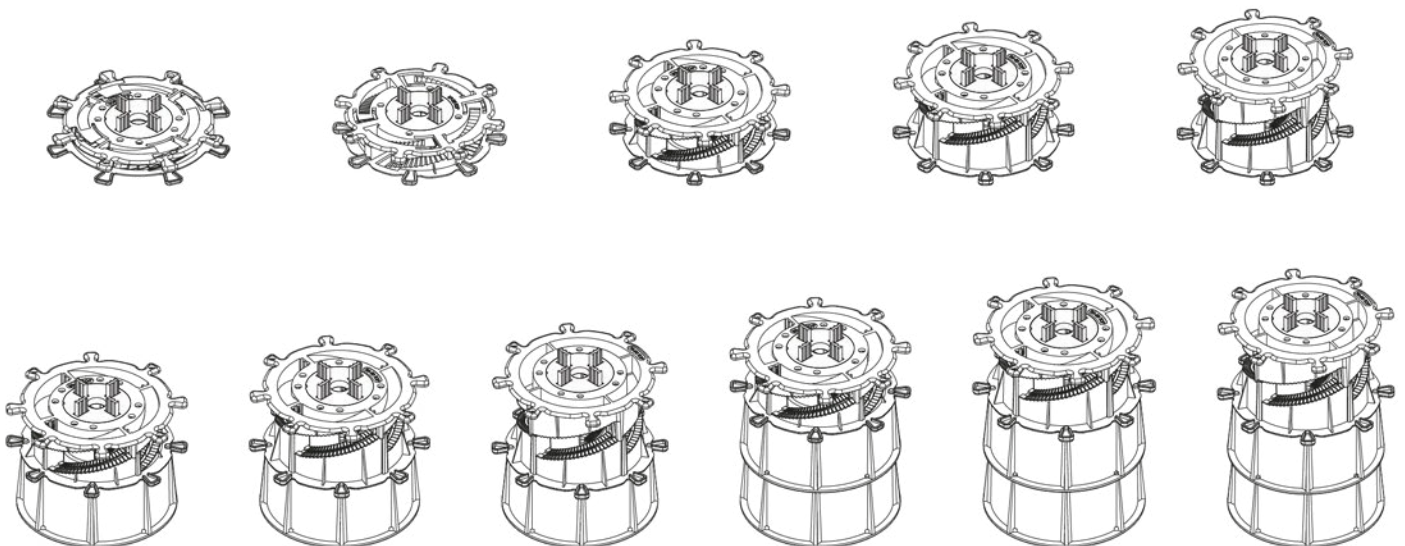
VENTILATED ROOF DECKS

ADJUSTABLE SUPPORTS

for stone, ceramic, and concrete slabs, etc., and
decks made of wood or composite materials

INSTALLATION AND USER MANUAL

SPIRAL SERIES

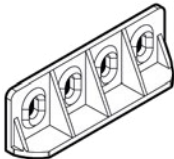
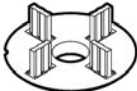
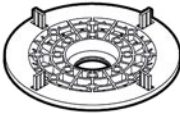


10 mm – 210
mm

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DESCRIPTION OF COMPONENTS

No.	ELEMENT	NAME / DESIGNATION	GENERAL DESCRIPTION
1		JOINT SPACERS 3 MM L3	Grout spacers are used to create installation gaps (expansion joints) with widths of 3 and 5 mm. They are compatible with the entire SPIRAL bracket system. They are used for non-standard panel layouts other than a rectangular grid.
2		GROUT SPACERS 5 MM L5	
3		ADAPTER FOR JOISTS AKCW-AD	The joist adapter is attached to the upper bracket element via hooks and is used to secure the deck joist to the bracket with screws.
4		3 MM GROUT DISC AKCW-D3	Rotating expansion discs are used to create (expansion joint) with a width of 3 and 5 mm. They are compatible with the entire SPIRAL support system. They are used in typical rectangular deck board layouts for patios.
5		5 MM JOINT DISC AKCW-D5	
6		PAD RUBBER AKCW-SH145	Specialized 1.5 mm thick rubber pads for SPIRAL brackets, designed to level and soundproof the floor. They can also be used to compensate for variations in slab thickness.
7		SELF-LEVELING HEAD (UPPER PART) AKCW-LE145-TOP	The self-leveling head consists of an upper and lower part. Installed as an additional component on top of the bracket's upper section, it is used to self-level the deck under the influence of the weight of the slabs on slopes with a gradient ranging from 0% to 6%. For use on terraces with a sloped subgrade.
8		SELF-LEVELING HEAD LOWER PART AKCW-LE145-BOTTOM	

DESCRIPTION OF COMPONENTS

9



UPPER ELEMENT
SPI-010-017-TOP

10



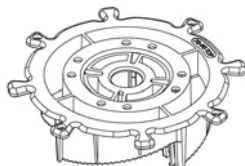
TOP ELEMENT
SPI-017-030-TOP

11



TOP ELEMENT
SPI-030-050-TOP

12



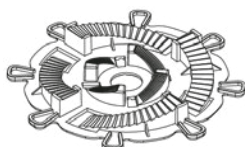
TOP ELEMENT
SPI-070-090-TOP

13



BOTTOM ELEMENT
SPI-010-017-BOTTOM

14



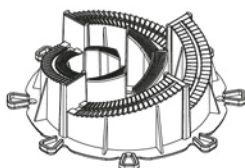
BOTTOM ELEMENT
SPI-017-030-BOTTOM

15



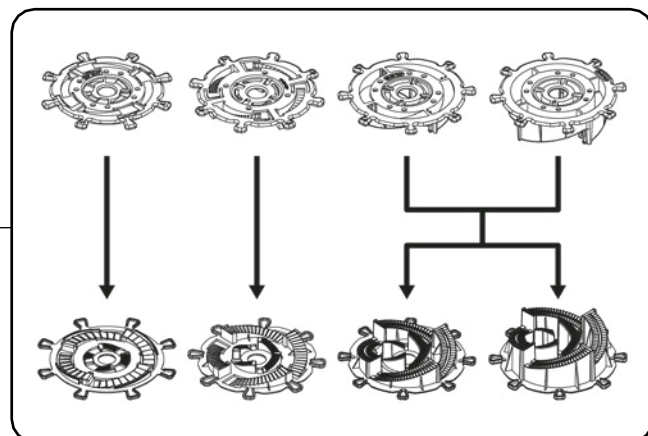
BOTTOM ELEMENT
SPI-030-050-
BOTTOM

16



BOTTOM ELEMENT
SPI-070-090-
BOTTOM

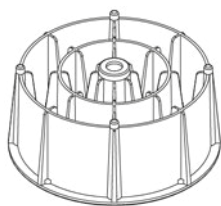
The top element of SPIRAL brackets is available in 4 thread height ranges. The top element is screwed onto the bottom element of the bracket.



The bottom element of SPIRAL brackets is available in 4 thread height ranges. The bottom element is screwed onto the top element of the bracket.

DESCRIPTION OF COMPONENTS

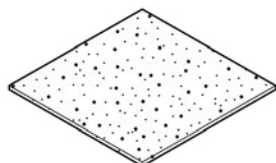
17



**60 MM
SPACER BASE**
SPI-DS60

The spacer base is used to increase the height range of SPIRAL brackets by 60 mm ($2\frac{3}{64}$ "). The spacer base is placed in the bracket base.

18



**RUBBER
GRANULATE
WASHER**
AKCW-SBR200X200

A 3 mm or 8 mm thick rubber pad with protective and sound-dampening properties, designed for use under the bracket base on surfaces requiring additional protection or sound dampening.

1
9



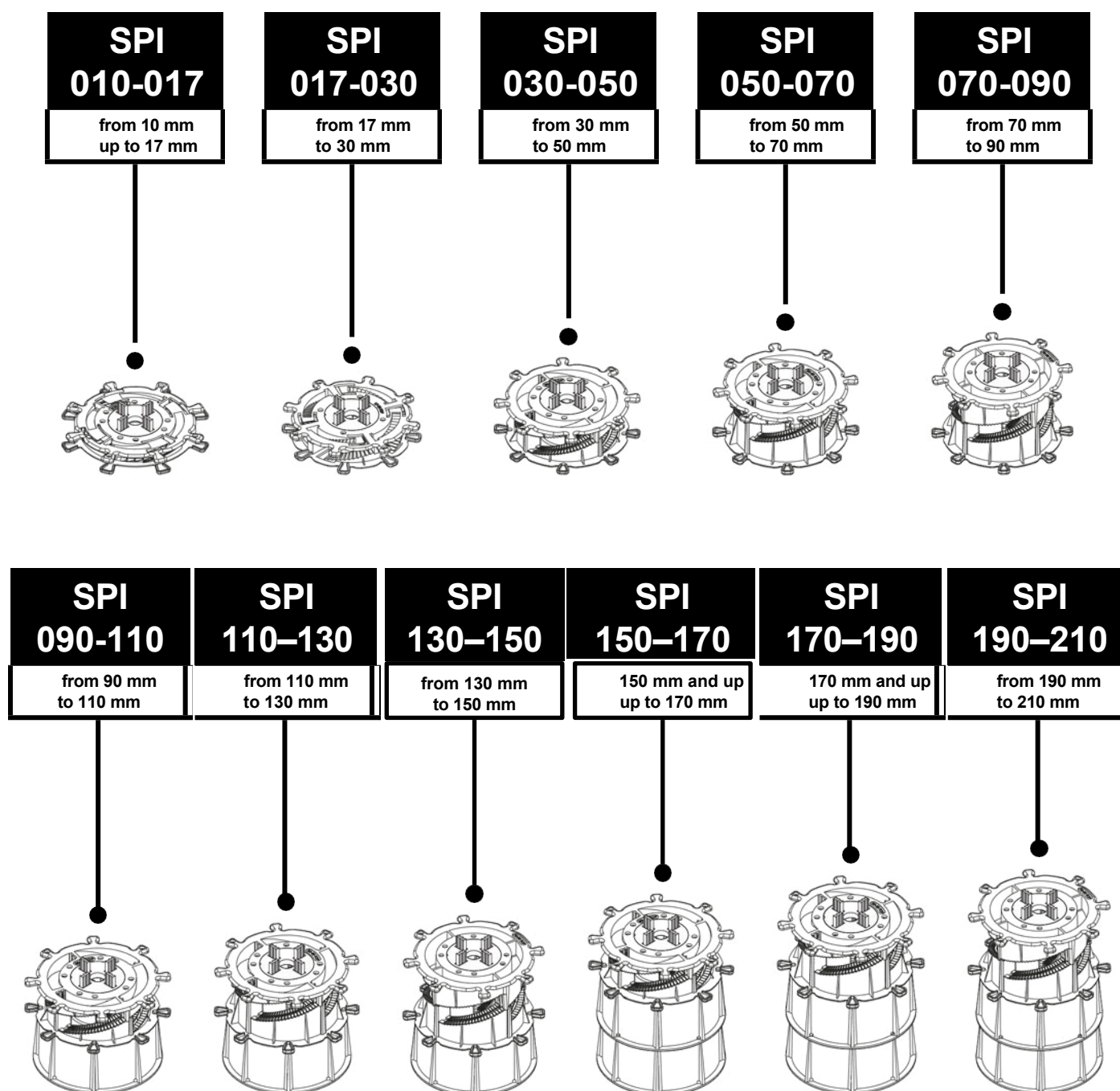
EXPANSION CLIP
AKCW-WA

The expansion clip is attached to the top section of the support. It is used to create a gap between the wall and the deck board. It prevents the boards adjacent to the wall from shifting.

ADJUSTABLE BRACKET SYSTEM SPIRAL TERRACE

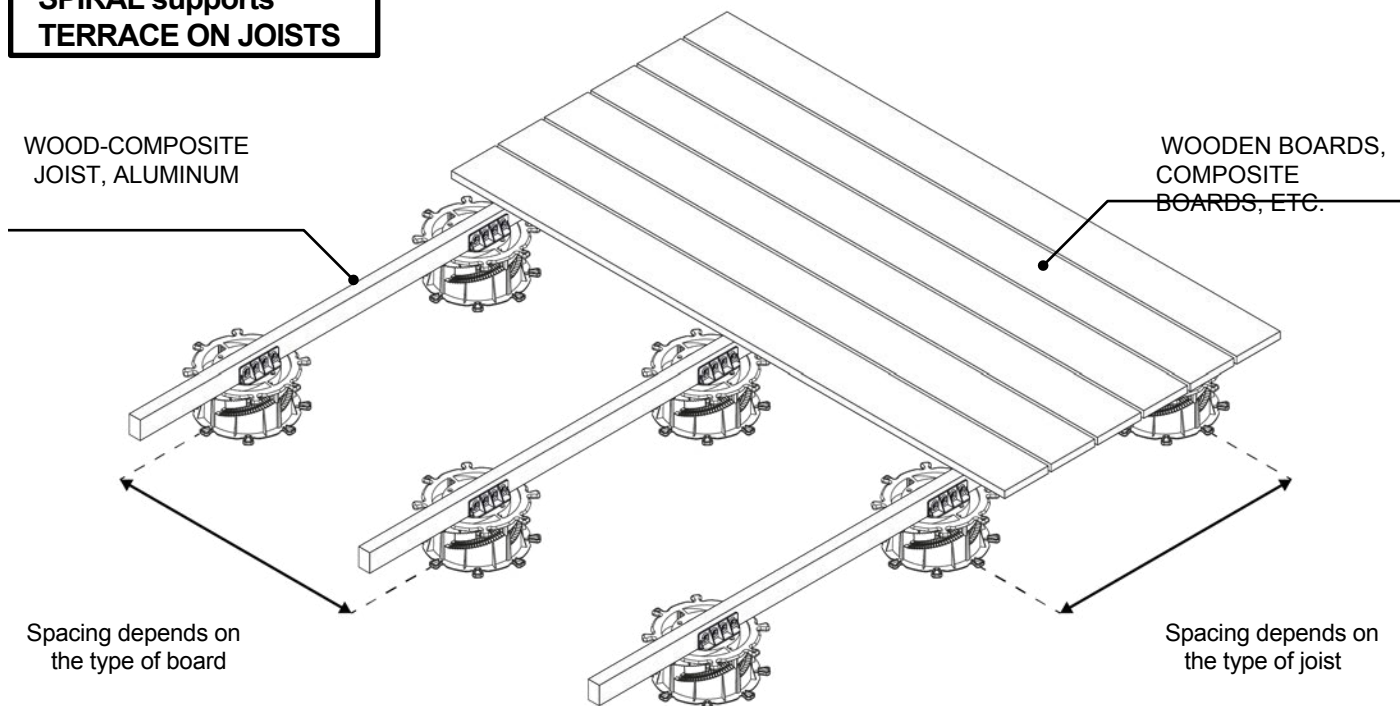
SPIRAL SERIES

The SPIRAL series supports are a modern solution designed for constructing floors and terraces using slabs or joists. The system can be used both indoors and outdoors.



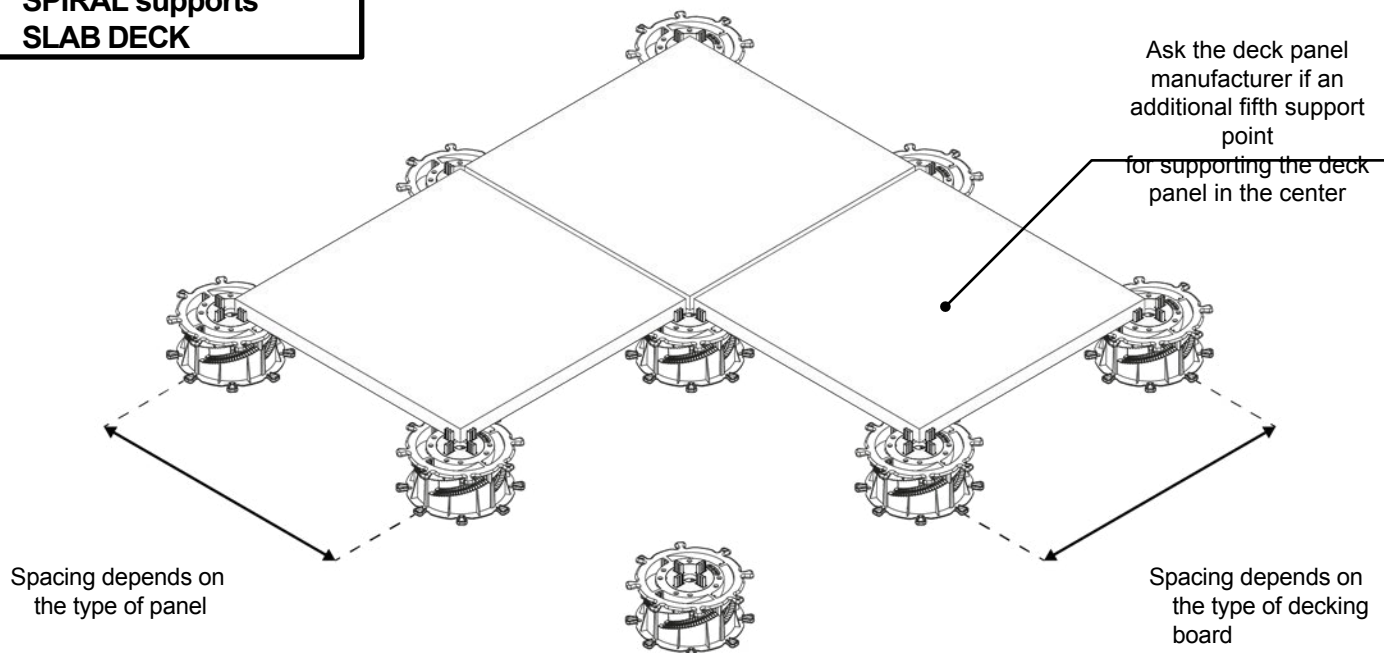
EXAMPLE BRACKET SETUP

SPIRAL supports TERRACE ON JOISTS



Ask the manufacturer for the recommended support spacing.

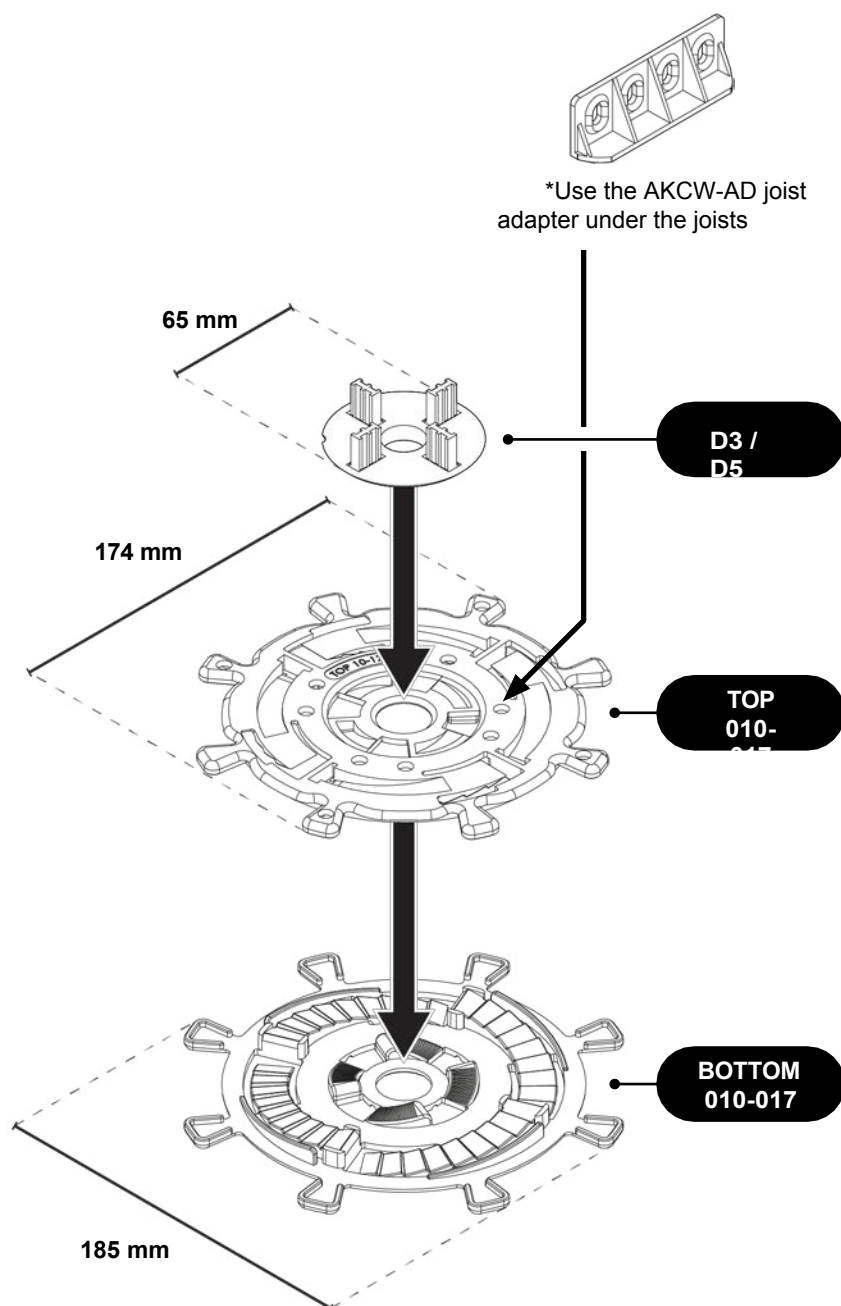
SPIRAL supports SLAB DECK



Check with the decking manufacturer regarding the recommended support for the decking boards on terrace brackets.

DIMENSIONS OF SPIRAL SYSTEM COMPONENTS

SPIRAL BRACKET FROM 10 TO 17 MM



3 or 5 mm joint spacer

Code: D3 / D5

External dimensions: Width: 65 mm
Length: 65 mm
Height: 22 mm
Spacer height: 14.4 mm

Top element

Code: SPI-010-017-TOP

Diameter without adjustment handles: 145 mm
Total diameter with adjustment handles: 174 mm

Bottom element

Code: SPI-010-017-BOTTOM

Diameter without adjustment handles: 145 mm
Total diameter with handles: 185 mm

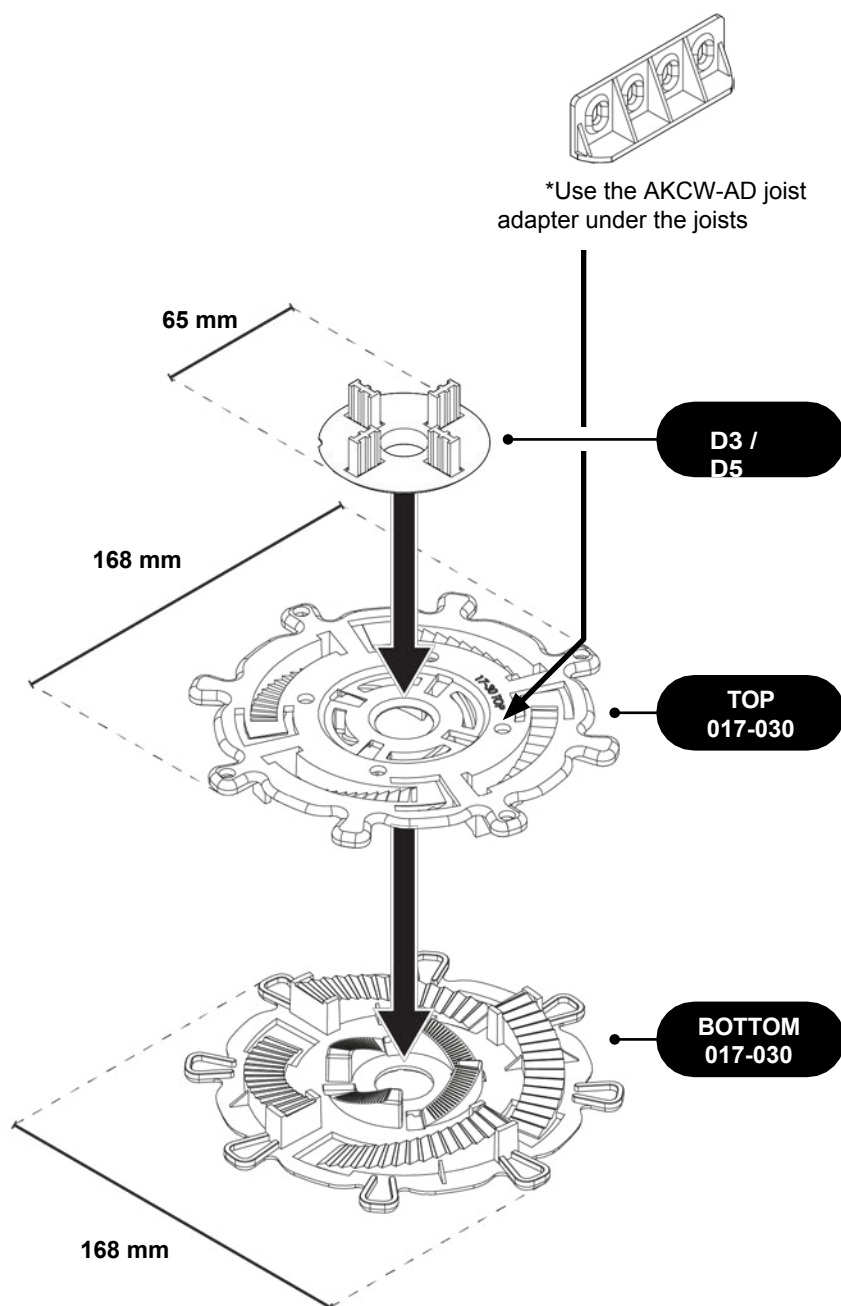
SPIRAL 010-017 Bracket

Code: SPI-010-017

Material: PP
Temperature range: -20 °C to 65 °C
Load capacity of the set: up to 2000 kg (details regarding load capacity in the SPIRAL technical specifications)
Height adjustment range: 10–17 mm
Stepwise height adjustment in ~1 mm increments

DIMENSIONS OF SPIRAL SYSTEM COMPONENTS

SPIRAL BRACKET FROM 17 TO 30 MM



3 or 5 mm expansion disc

Code: D3 / D5

External dimensions: Width: 65 mm
Length: 65 mm
Height: 22 mm
Spacer height: 14.4 mm

Top element

Code: SPI-017-030-TOP

Diameter without adjustment handles: 145 mm
Total diameter with adjustment handles: 168 mm

Bottom element

Code: SPI-017-030-BOTTOM

Diameter without adjustment handles: 145 mm
Total diameter with handles: 168 mm

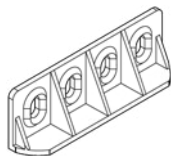
SPIRAL Bracket 017-030

Code: SPI-017-030

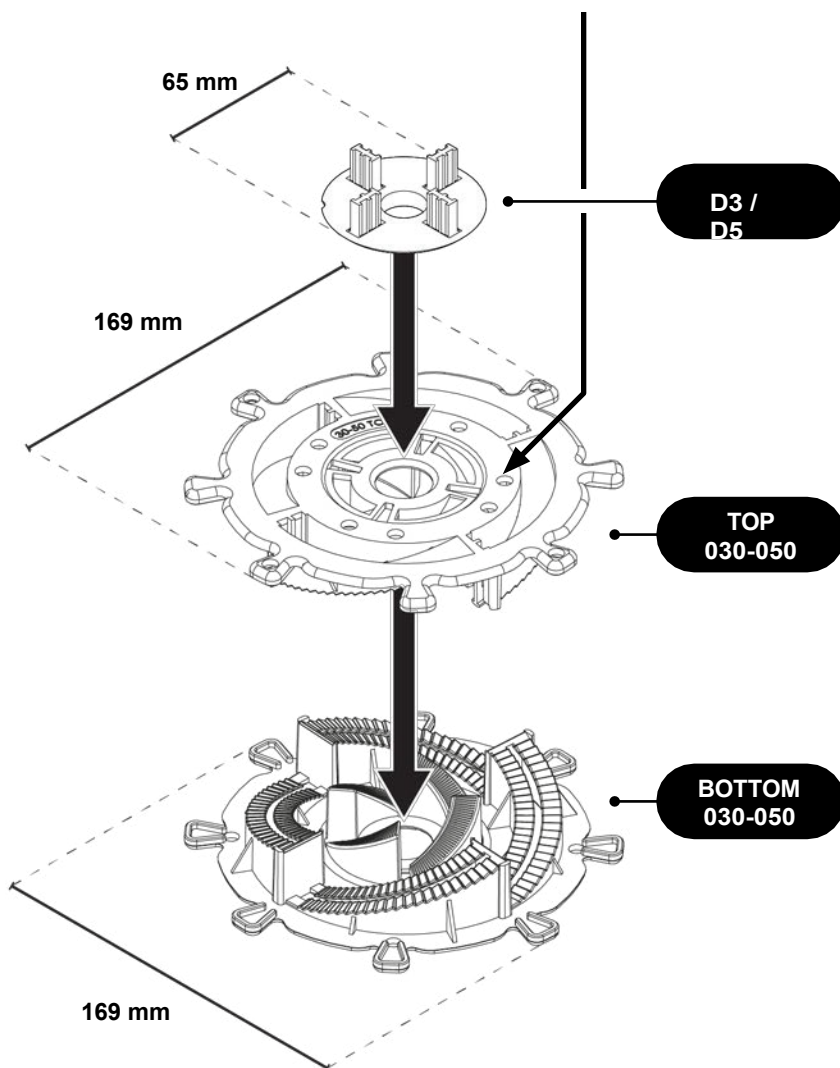
Material: PP
Temperature range: -20 °C to 65 °C
Load capacity of the set: up to 2,000 kg
(details regarding load capacity in the SPIRAL technical specifications)
Height adjustment range: 17–30 mm
Stepwise height adjustment in ~1 mm increments

DIMENSIONS OF SPIRAL SYSTEM COMPONENTS

SPIRAL BRACKET FROM 30 TO 50 MM



*Use the AKCW-AD joist adapter under the joists



3 or 5 mm expansion disc

Code: D3 / D5

External dimensions: Width: 65 mm
Length: 65 mm
Height: 22 mm
Spacer height: 14.4 mm

Top element

Code: SPI-030-050-TOP

Diameter without adjustment handles: 145 mm
Total diameter with adjustment handles: 169 mm

Bottom element

Code: SPI-030-050-BOTTOM

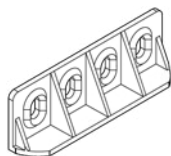
Diameter without adjustment handles: 145 mm
Total diameter with handles: 169 mm

SPIRAL 030-050 Bracket

Code: SPI-030-050

Material: PP
Temperature range: -20 °C to 65 °C
Load capacity of the set: up to 2000 kg (details regarding load capacity in the SPIRAL technical specifications)
Height adjustment range: 30–50 mm
Incremental height adjustment in ~1 mm steps

SPIRAL BRACKET FROM 50 TO 70 MM



3 or 5 mm grout disc

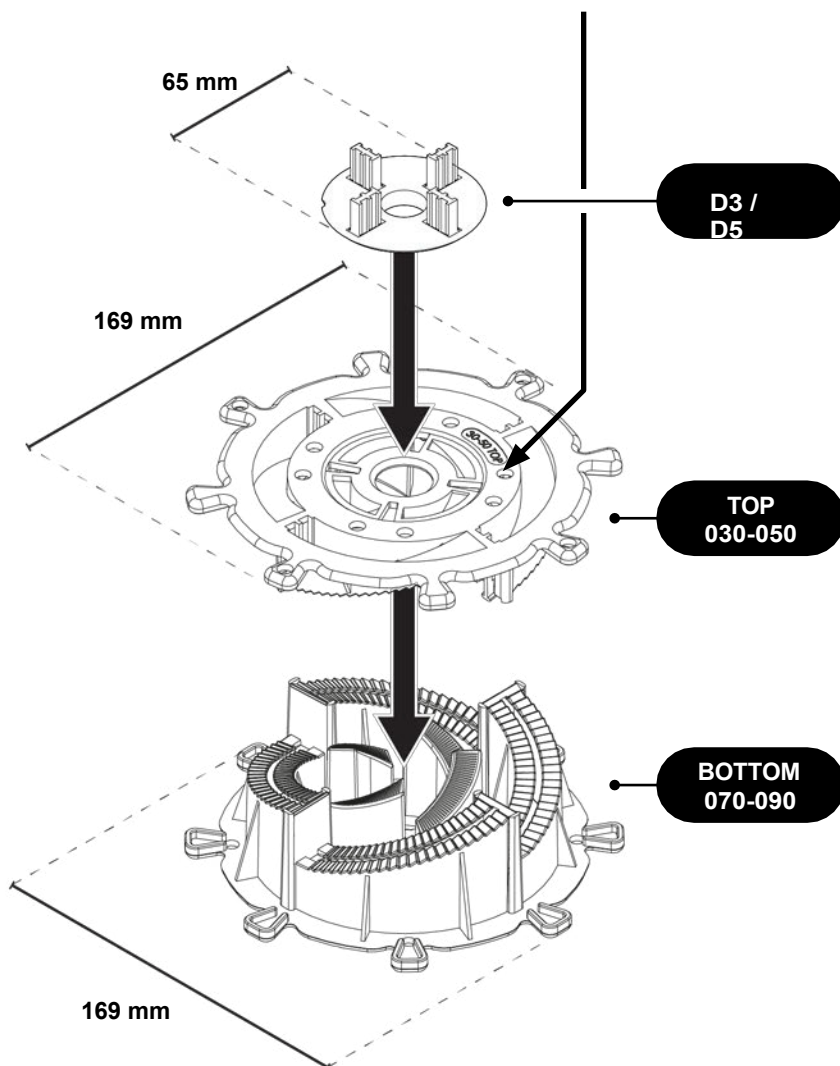
External dimensions: Width: 65 mm
Length: 65 mm
Height: 22 mm
Spacer height: 14.4 mm

Code: SPI-030-050-TOP

Diameter without adjustment handles:
145 mm
Total diameter with adjustment handles:
169 mm

Code: SPI-070-090-BOTTOM

Diameter without adjustment handles:
145 mm
Total diameter with handles: 169 mm

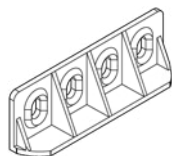


Code: SPI-050-070

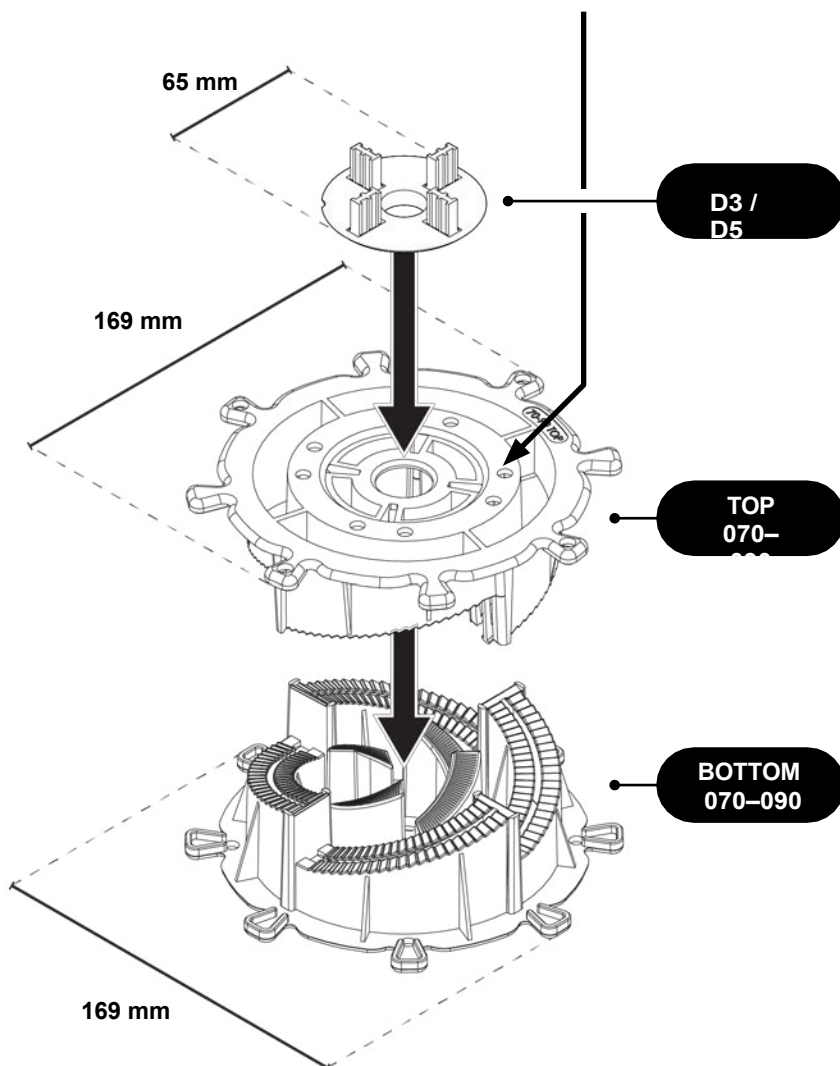
Material: PP
Temperature range: -20 °C to 65 °C
Load capacity of the set: up to 2000 kg
(details regarding load capacity
in the SPIRAL technical specifications)
Height adjustment range: 50–70 mm
Incremental height adjustment in ~1 mm
steps

DIMENSIONS OF SPIRAL SYSTEM COMPONENTS

SPIRAL BRACKET FROM 70 TO 90 MM



*Use the AKCW-AD joist adapter under the joists



3 or 5 mm grout disc

Code: D3 / D5

External dimensions: Width: 65 mm
Length: 65 mm
Height: 22 mm
Spacer height: 14.4 mm

Top element

Code: SPI-070-090-TOP

Diameter without adjustment handles: 145 mm
Total diameter with adjustment handles: 169 mm

Bottom element

Code: SPI-070-090-BOTTOM

Diameter without adjustment handles: 145 mm
Total diameter with handles: 169 mm

SPIRAL 070-90 Bracket

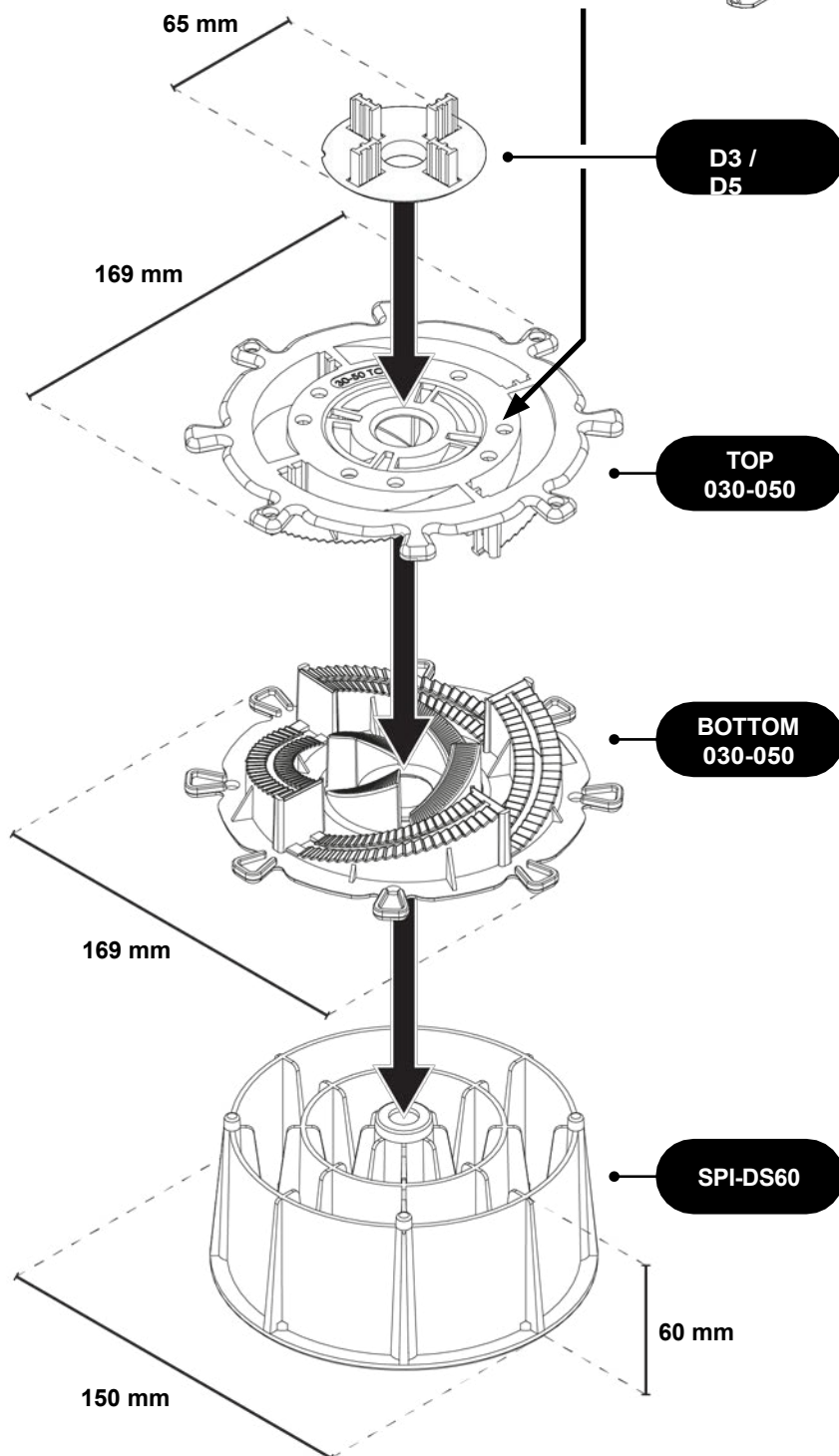
Code: SPI-70-90

Material: PP
Temperature range: -20 °C to 65 °C
Load capacity of the set: up to 2000 kg (details regarding load capacity in the SPIRAL technical specifications)
Height adjustment range: 70-90 mm
Incremental height adjustment in ~1 mm steps

DIMENSIONS OF SPIRAL SYSTEM COMPONENTS

SPIRAL BRACKET FROM 90 TO 110 MM

*Use the AKCW-AD joist adapter under the joists



Grout disc, 3 or 5 mm

Code: D3 / D5

External dimensions: Width: 65 mm
Length: 65 mm
Height: 22 mm
Spacer height: 14.4 mm

Top element

Code: SPI-030-050-TOP

Diameter without adjustment handles: 145 mm
Total diameter with adjustment handles: 169 mm

Bottom element

Code: SPI-030-050-BOTTOM

Diameter without adjustment handles: 145 mm
Total diameter with handles: 169 mm

Spacer base

Code: SPI-DS60

External dimensions: Height: 60 mm
Diameter: 150 mm

SPIRAL 090-110 Bracket

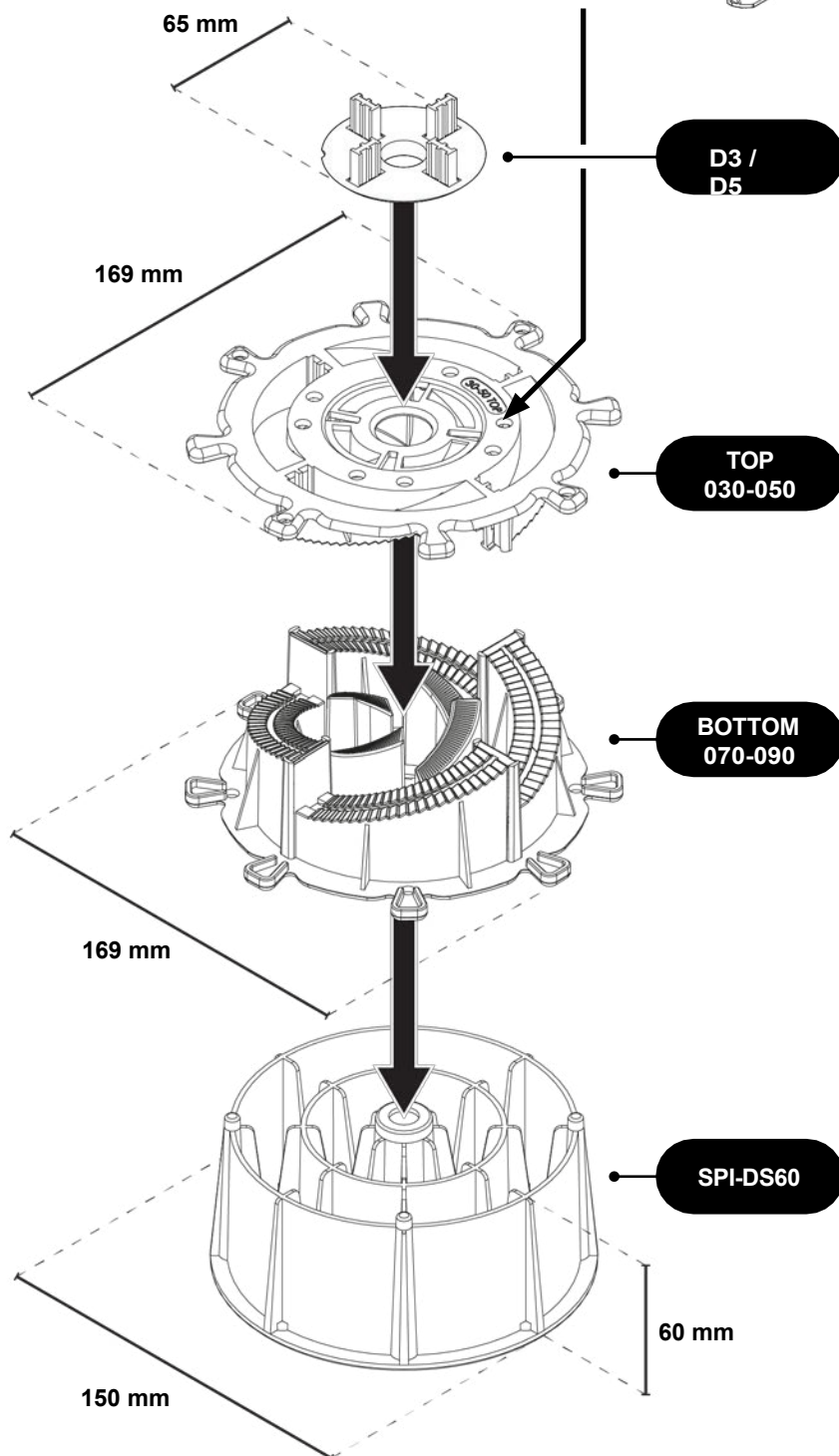
Code: SPI-90-110

Material: PP
Temperature range: -20 °C to 65 °C
Load capacity range: 500 kg to 2000 kg
(details regarding load capacity in the SPIRAL technical specifications)
Height adjustment range: 90–110 mm
Stepwise height adjustment in ~1 mm increments

DIMENSIONS OF SPIRAL SYSTEM COMPONENTS

SPIRAL BRACKET FROM 110 TO 130 MM

*Use the AKCW-AD joist adapter under the joists



Grout disc, 3 or 5 mm

Code: D3 / D5

External dimensions: Width: 65 mm
Length: 65 mm
Height: 22 mm
Spacer height: 14.4 mm

Top element

Code: SPI-030-050-TOP

Diameter without adjustment handles: 145 mm
Total diameter with adjustment handles: 169 mm

Bottom element

Code: SPI-070-090-BOTTOM

Diameter without adjustment handles: 145 mm
Total diameter with handles: 169 mm

Spacer base

Code: SPI-DS60

External dimensions: Height: 60 mm
Diameter: 150 mm

SPIRAL 110-130 Bracket

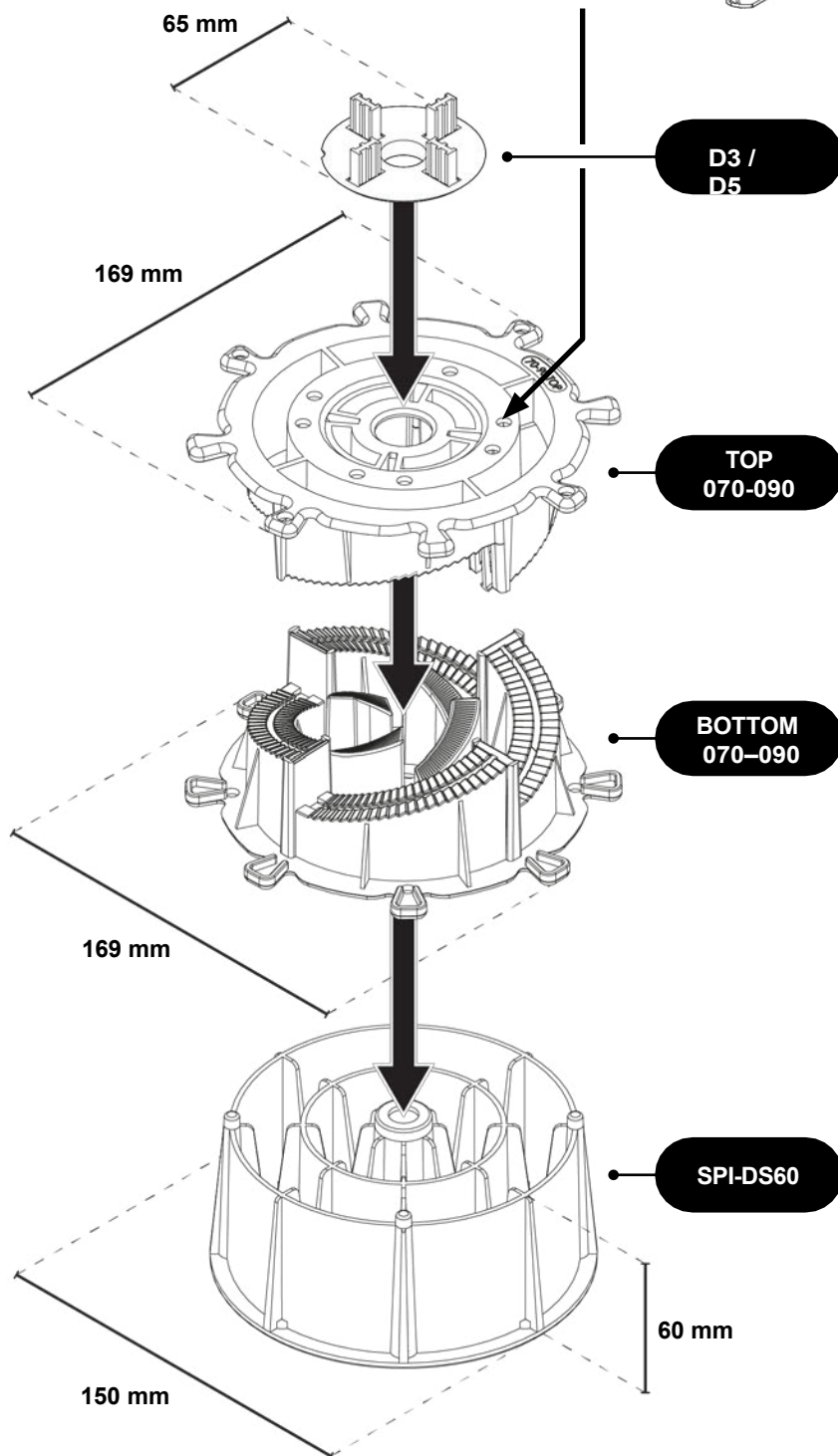
Code: SPI-110-130

Material: PP
Temperature range: -20 °C to 65 °C
Load capacity range: 50 kg to 2000 kg
(details regarding load capacity in the SPIRAL technical specifications)
Height adjustment range: 110–130 mm
Stepwise height adjustment in ~1 mm increments

DIMENSIONS OF SPIRAL SYSTEM COMPONENTS

SPIRAL BRACKET FROM 130 TO 150 MM

*Use the AKCW-AD joist adapter under the joists



Grout disc, 3 or 5 mm

Code: D3 / D5

External dimensions: Width: 65 mm
Length: 65 mm
Height: 22 mm
Spacer height: 14.4 mm

Top element

Code: SPI-070-090-TOP

Diameter without adjustment handles: 145 mm
Total diameter with adjustment handles: 169 mm

Bottom element

Code: SPI-070-090-BOTTOM

Diameter without adjustment handles: 145 mm
Total diameter with handles: 169 mm

Spacer base

Code: SPI-DS60

External dimensions: Height: 60 mm
Diameter: 150 mm

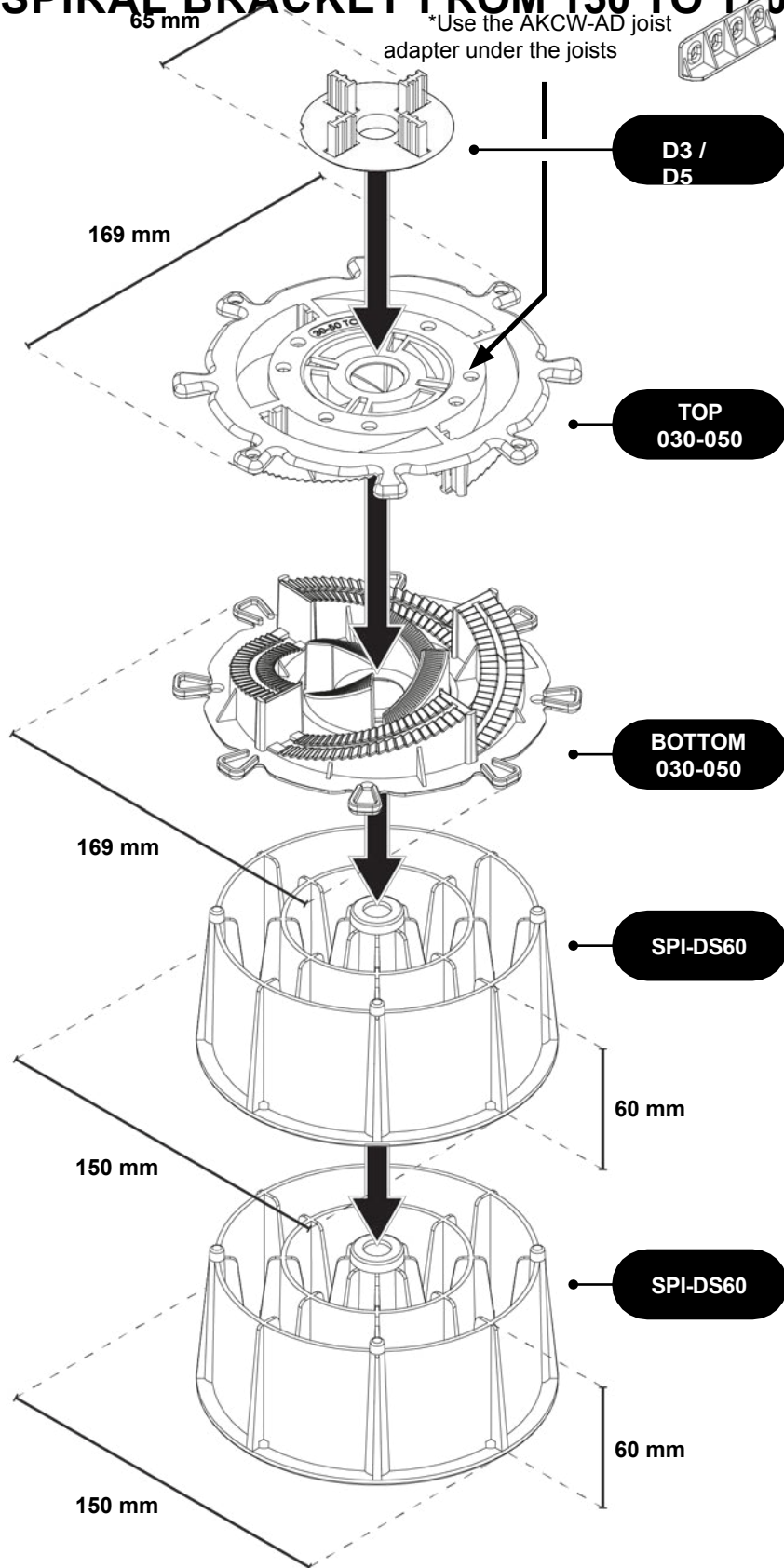
SPIRAL 130-150 Bracket

Code: SPI-130-150

Material: PP
Temperature range: -20 °C to 65 °C
Load capacity: up to 2000 kg
(details regarding load capacity in the SPIRAL technical specifications)
Height adjustment range: 130–150 mm
Incremental height adjustment in ~1 mm steps

DIMENSIONS OF SPIRAL SYSTEM COMPONENTS

SPIRAL BRACKET FROM 150 TO 170 MM



Grout disc, 3 or 5 mm

Code: D3 / D5

External dimensions: Width: 65 mm
Length: 65 mm
Height: 22 mm
Spacer height: 14.4 mm

Top element

Code: SPI-030-050-TOP

Diameter without adjustment handles: 145 mm
Total diameter with adjustment handles: 169 mm

Bottom element

Code: SPI-030-050-BOTTOM

Diameter without adjustment handles: 145 mm
Total diameter with handles: 169 mm

Spacer base

Code: SPI-DS60

External dimensions: Height: 60 mm
Diameter: 150 mm

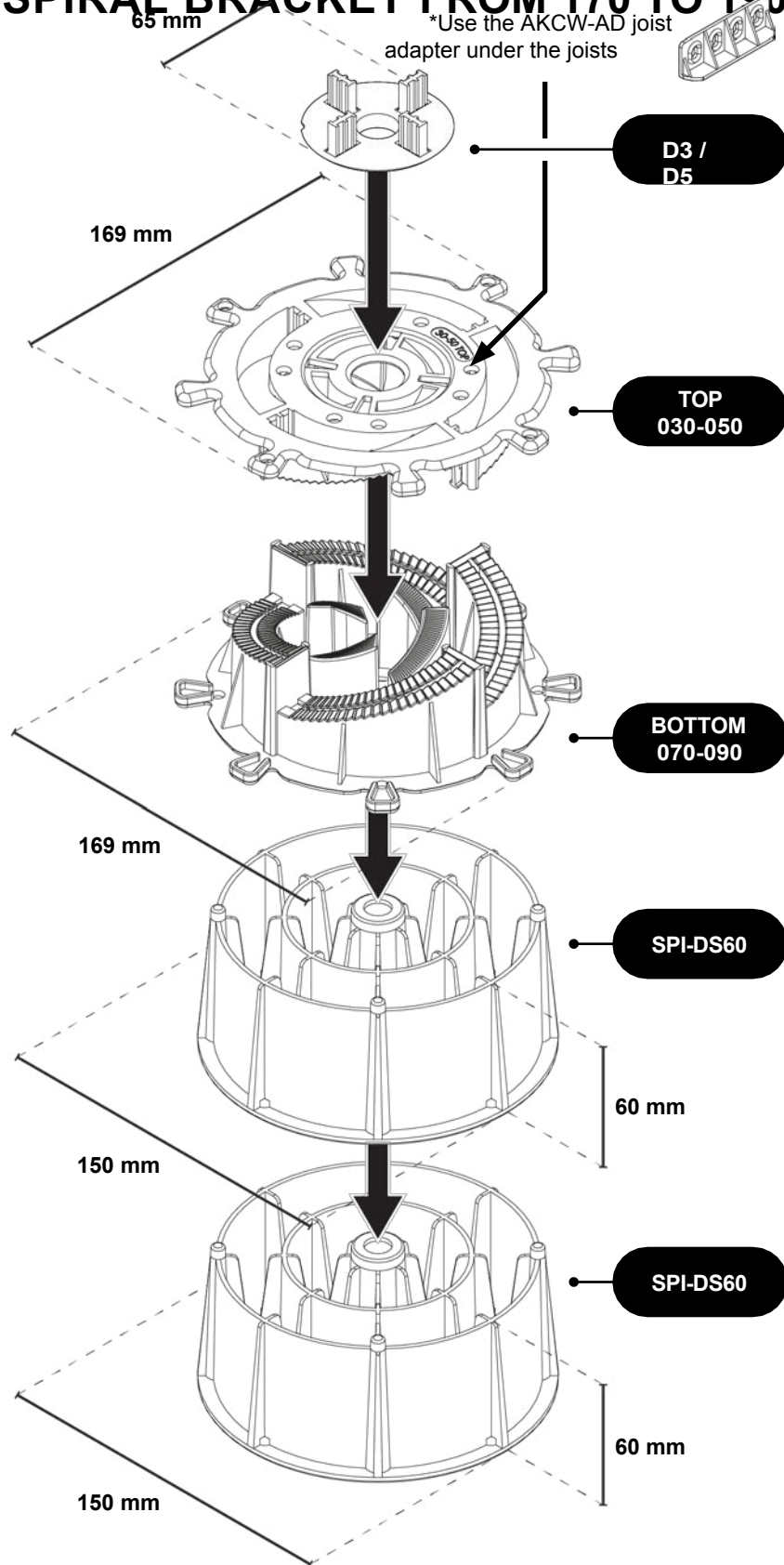
SPIRAL 150-170 Bracket

Code: SPI-150-170

Material: PP
Temperature range: -20 °C to 65 °C
Load capacity of the set: up to 2,000 kg (details regarding load capacity in the SPIRAL technical specifications)
Height adjustment range: 150–170 mm
Incremental height adjustment in ~1 mm steps

DIMENSIONS OF SPIRAL SYSTEM COMPONENTS

SPIRAL BRACKET FROM 170 TO 190 MM



Grout disc, 3 or 5 mm

Code: D3 / D5

External dimensions: Width: 65 mm
Length: 65 mm
Height: 22 mm
Spacer height: 14.4 mm

Top element

Code: SPI-030-050-TOP

Diameter without adjustment handles: 145 mm
Total diameter with adjustment handles: 169 mm

Bottom element

Code: SPI-070-090-BOTTOM

Diameter without adjustment handles: 145 mm
Total diameter with handles: 169 mm

Spacer base

Code: SPI-DS60

External dimensions: Height: 60 mm
Diameter: 150 mm

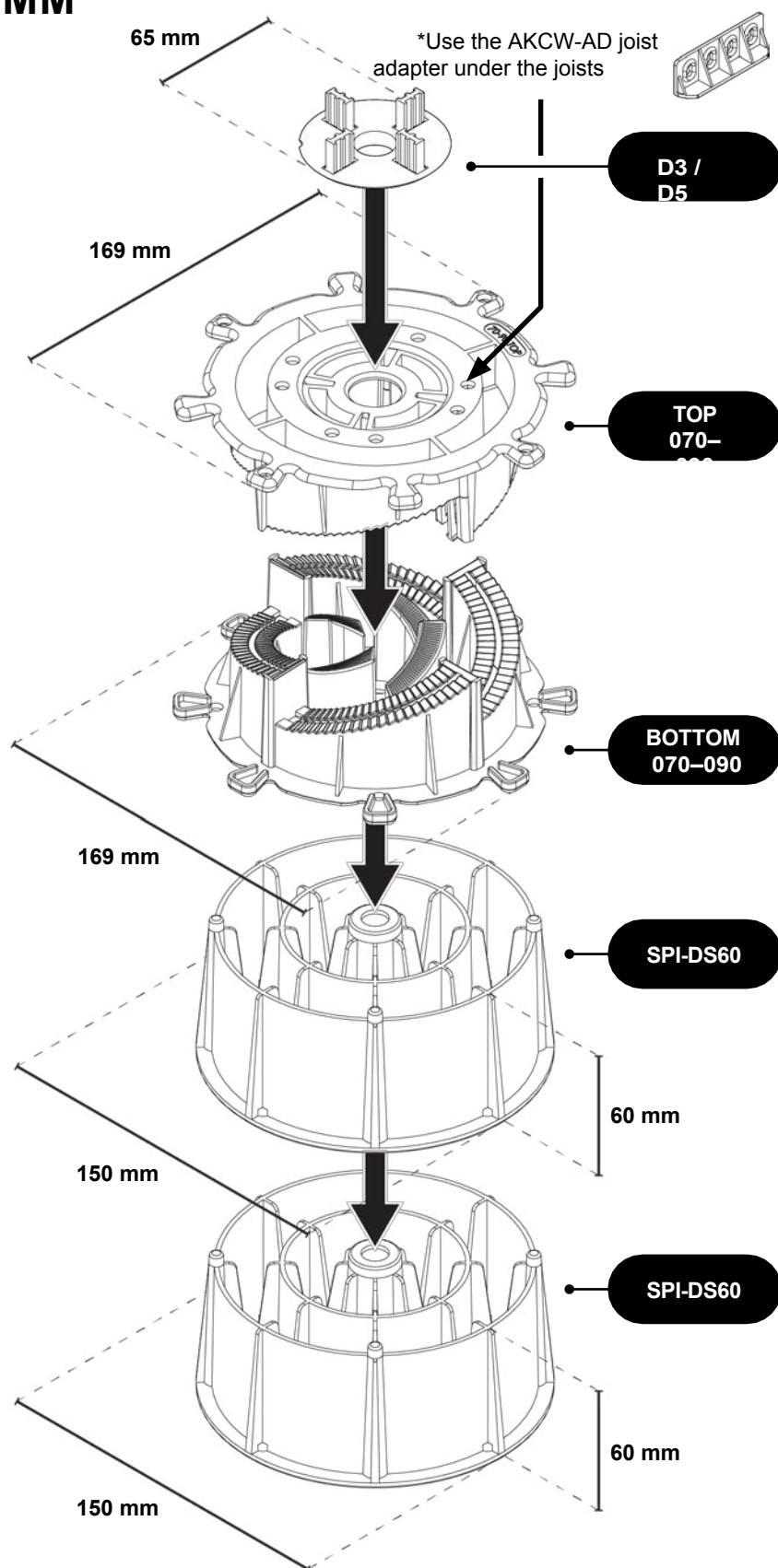
SPIRAL 170-190 Bracket

Code: SPI-170-190

Material: PP
Temperature range: -20 °C to 65 °C
Load capacity of the set: up to 2,000 kg (details regarding load capacity in the SPIRAL technical specifications)
Height adjustment range: 170–190 mm; height adjustment in increments of ~1 mm

DIMENSIONS OF SPIRAL SYSTEM COMPONENTS

SPIRAL BRACKET FROM 190 TO 210 MM



3- or 5-mm spacer disc

Code: D3 / D5

External dimensions: Width: 65 mm
Length: 65 mm
Height: 22 mm
Spacer height: 14.4 mm

Top element

Code: SPI-070-090-TOP

Diameter without adjustment handles: 145 mm
Total diameter with handles: 169 mm

Bottom element

Code: SPI-070-090-BOTTOM

Diameter without adjustment handles: 145 mm
Total diameter with handles: 169 mm

Spacer base

Code: SPI-DS60

External dimensions: Height: 60 mm
Diameter: 150 mm

SPIRAL 190-210 Bracket

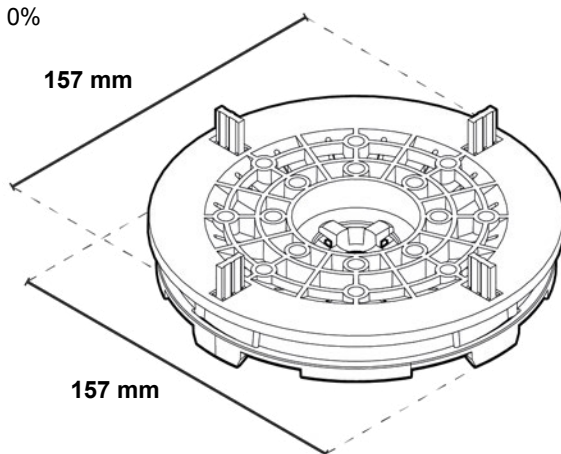
Code: SPI-190-210

Material: PP
Temperature range: -20 °C to 65 °C
Load capacity of the set: up to 2,000 kg (details regarding load capacity in the SPIRAL technical specifications)
Height adjustment range: 190–210 mm
Stepwise height adjustment in increments of ~1 mm

DIMENSIONS OF SPIRAL SYSTEM COMPONENTS

SELF-LEVELING HEAD

Neutral position 0%



Self-leveling head

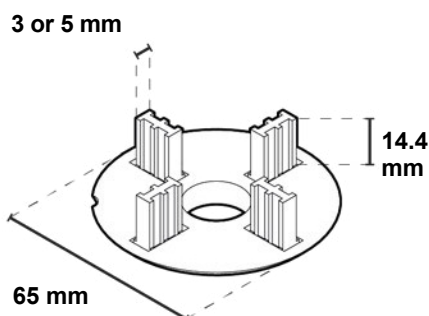
Code: AKCW-LE145

External dimensions: Width:
157 mm
Length: 157 mm
Height: 16 mm

Height adjustment: continuous from 0% to 6%

Recommended for use when the substrate beneath the bracket has a slope greater than 1%. The decision to use this product should be left to the contractor or architect.

GROUTING DISC

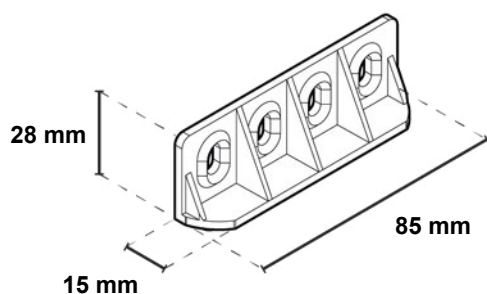


Grout disc

Code: AKCW-D3 / AKCW-D5

External dimensions: Width: 65 mm
Length: 65 mm
Height: 14.4 mm

JOIST ADAPTER



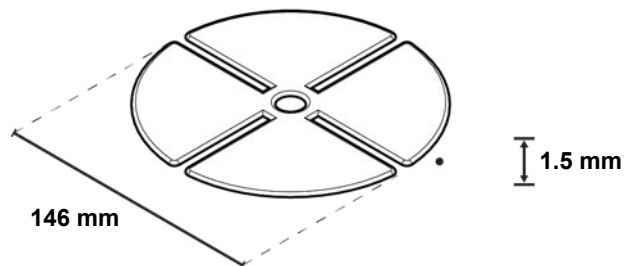
Joist adapter

Code: AKCW-AD

External dimensions: Width: 15 mm
Length: 85 mm
Height: 28 mm

DIMENSIONS OF SPIRAL SYSTEM COMPONENTS

RUBBER PAD

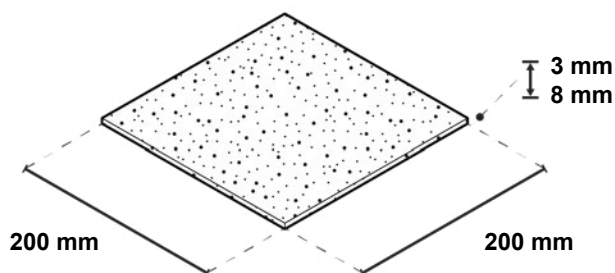


Rubber Washer

Code: AKCW-SH145

External dimensions: Width:
146 mm
Length: 146 mm
Height: 1.5 mm

RUBBER GRANULATE PAD RUBBER

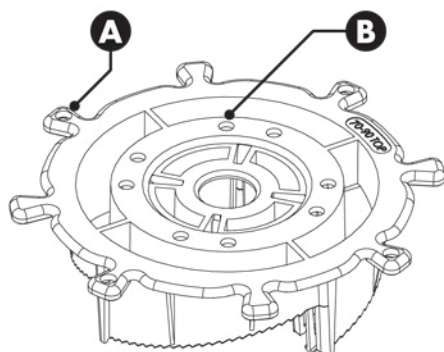


Rubber Granule Pad

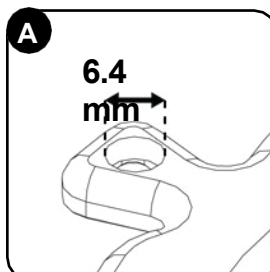
Code: AKCW-SBR200X200X3
AKCW-SBR200X200X8

External dimensions: Width:
200 mm
Length: 200 mm
Height: 3 mm

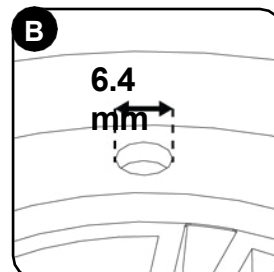
SPIRAL SYSTEM DETAILS



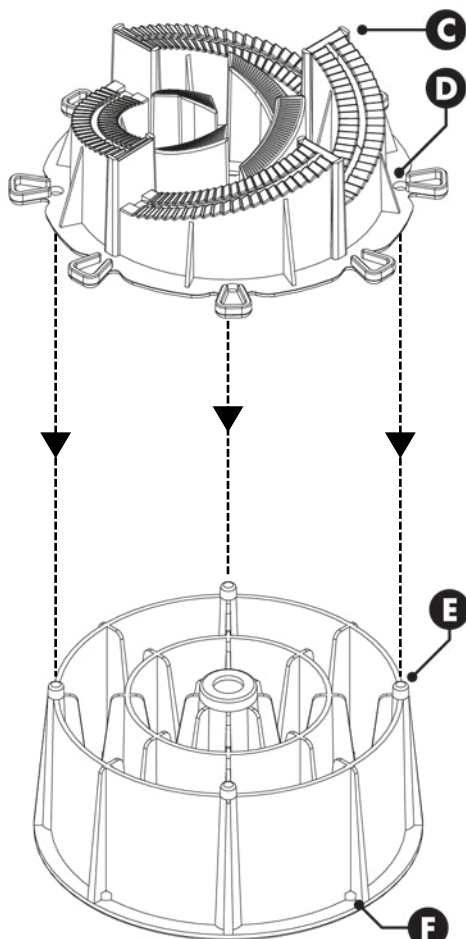
▼ TOP element



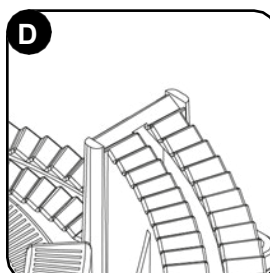
Hole for mounting a metal threaded sleeve.



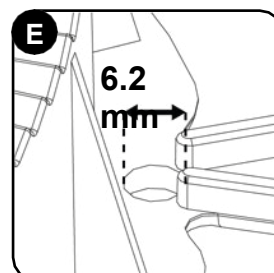
Holes for mounting spacers or an adapter.



▼ Bottom element BOTTOM

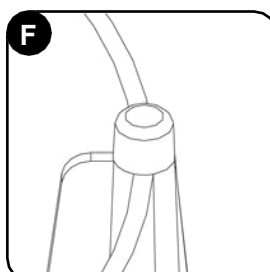


Limit stop to prevent the bracket from being unscrewed too far (applies to heights 30–50 mm and above).

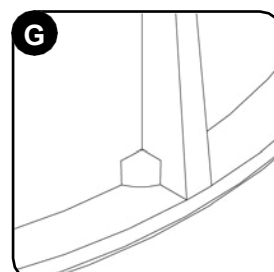


Holes for connecting the lower components to the spacer base.

▼ SPI-DS60 spacer base



Pin connecting the extension base to other components.



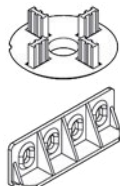
Water drainage hole.

ASSEMBLING KITS

SPI-010-017

10 mm to 17 mm

Combining the BOTTOM 010-017 lower element with the TOP 010-017 upper element creates the SPIRAL adjustable bracket with a height range of 10 to 17 mm.



Joint disc
or joist
adapter

+

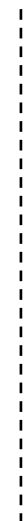


SPI-010-017
TOP Upper
Element

+



SPI-010-017
BOTTOM



=

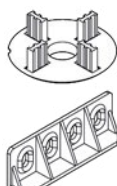


SPI-010-017

SPI-017-030

17 mm to 30 mm

Combining the BOTTOM 017-030 lower component with the TOP 017-030 upper component creates the SPIRAL adjustable bracket with a height range of 17 to 30 mm.



Joint disc
or joist
adapter

+

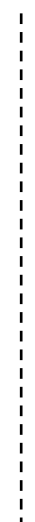


Top
component
SPI-017-030
TOP

+



Bottom
component
SPI-017-030
BOTTOM



=

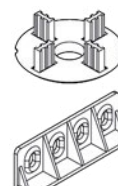


SPI-017-030

SPI-030-050

from 30 mm to 50 mm

Combining the BOTTOM 030-050 lower component with the TOP 030-050 upper component creates a SPIRAL adjustable support with a height range of 30 to 50 mm.



Joint disc or
joist adapter

+

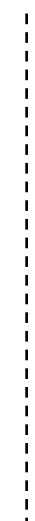


Top
component
SPI-030-050
TOP

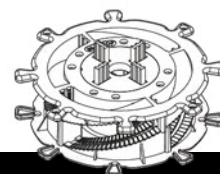
+



Bottom
component
SPI-030-050
BOTTOM



=



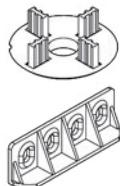
SPI-030-050

ASSEMBLING KITS

SPI-050-070

from 50 mm to 70 mm

Combining the BOTTOM 070-090 lower element with the TOP 030-050 upper element creates the SPIRAL adjustable bracket with a height range of 50 to 70 mm.



Grout disc
or joist
adapter

+

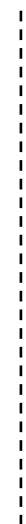


SPI-030-050
TOP Upper
Element

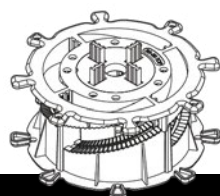
+



SPI-070-090
BOTTOM



=

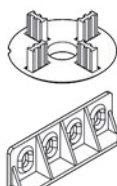


SPI-050-070

SPI-070-090

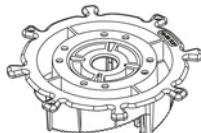
from 70 mm to 90 mm

Combining the BOTTOM 070-090 lower element with the TOP 070-090 upper element creates the SPIRAL adjustable support with a height range of 70 to 90 mm.



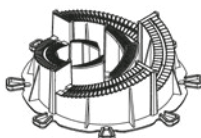
Joint disc
or joist
adapter

+



SPI-070-090
TOP

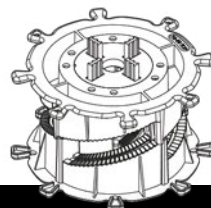
+



SPI-070-090
BOTTOM



=

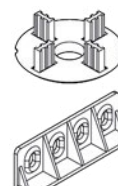


SPI-070-090

SPI-090-110

from 90 mm to 110 mm

Combining the BOTTOM 030-050 lower element, the TOP 030-050 upper element, and the DS60 extension base creates an adjustable SPIRAL support with a height range of 90 to 110 mm.



Joint disc or
joist adapter

+



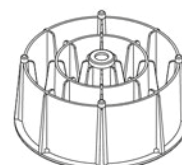
SPI-030-050
TOP

+



SPI-030-050
BOTTOM

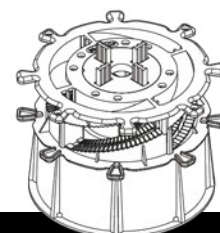
+



Extension
base SPI-
DS60



=



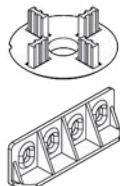
SPI-090-110

ASSEMBLING KITS

SPI-110-130

from 110 mm to 130 mm

Combining the BOTTOM 070-090 lower element, the TOP 030-050 upper element, and the DS60 extension base creates the SPIRAL adjustable bracket with a height range of 110 to 130 mm.



Grout disc
or joist
adapter

+



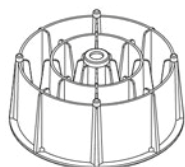
SPI-030-050
TOP Upper
Element

+



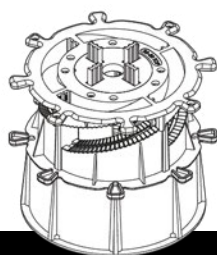
SPI-070-090
BOTTOM

+



Extension
Base SPI-
DS60

=

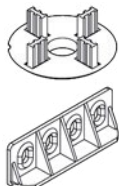


SPI-110-130

SPI-130-150

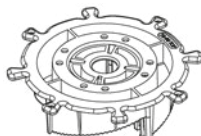
130 mm to 150 mm

Combining the BOTTOM 070-090 lower element, the TOP 070-090 upper element, and the DS60 extension base creates the SPIRAL adjustable support with a height range of 130 to 150 mm.



Joint disc
or joist
adapter

+



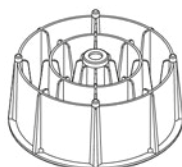
SPI-070-090
TOP

+



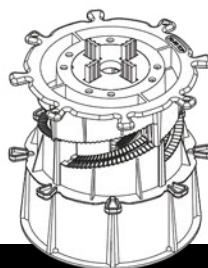
SPI-070-090
BOTTOM

+



SPI-DS60
Extension
Base

=

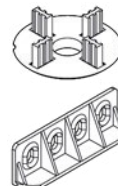


SPI-130-150

SPI-150-170

from 150 mm to 170 mm

Combining the BOTTOM 030-050 lower element, the TOP 030-050 upper element, and two DS60 extension bases creates a SPIRAL adjustable support with a height range of 150 to 170 mm.



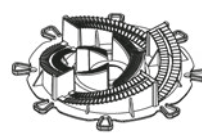
Joint disc or
joist adapter

+



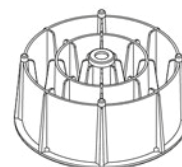
SPI-030-050
TOP

+



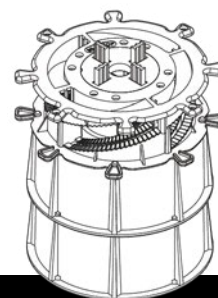
SPI-030-050
BOTTOM

+



2 × SPI-DS60
Extension
Base

=



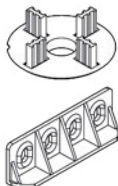
SPI-150-170

ASSEMBLING KITS

SPI-170-190

from 170 mm to 190 mm

Combining the BOTTOM 070-090 lower element, the TOP 030-050 upper element, and two DS60 extension bases creates the SPIRAL adjustable bracket with a height range of 170 to 190 mm.



**Grout disc
or joist
adapter**

+



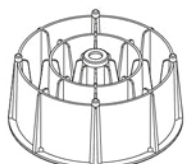
**SPI-030-050
TOP upper
element**

+



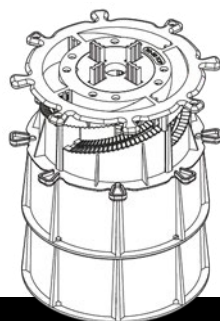
**SPI-070-090
BOTTOM**

+



**2 × SPI-DS60
Extension
Base**

=

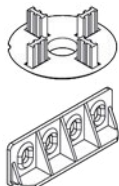


SPI-170-190

SPI-190-210

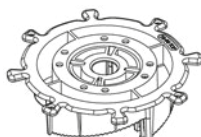
from 190 mm to 210 mm

Combining the BOTTOM 070-090 lower element, the TOP 070-090 upper element, and two DS60 extension bases creates a SPIRAL adjustable support with a height range of 190 to 210 mm.



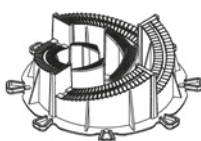
**Joint disc
or joist
adapter**

+



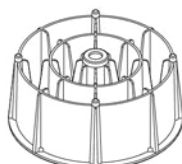
**SPI-070-090
TOP Upper
Element**

+



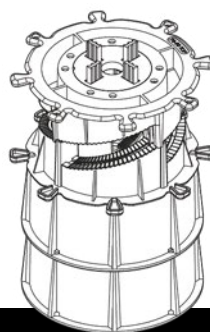
**SPI-070-090
BOTTOM**

+



**2 × SPI-DS60
Extension
Base**

=

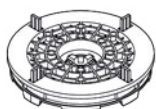


SPI-190-210

ASSEMBLING KITS

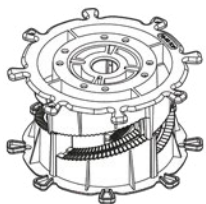
SPIRAL Bracket with Self-Leveling Head

Combining any SPIRAL support with a leveling head allows the deck to self-level under the weight of the decking boards on slopes with a gradient ranging from 0% to 6%.



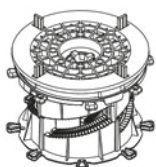
**AKCW-LE145
Self-Leveling
Head**

+



SPIRAL Bracket
(without grout disc,
without adapter)

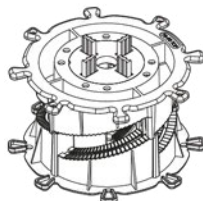
=



**Automatic
adjustment
up to 6%**

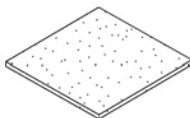
Acoustic insulation I

When installing a deck or floor on surfaces located above other rooms, sound insulation may be required. This applies in particular to residential and office spaces. An acoustic pad is designed for sensitive and hard surfaces without a significant slope.



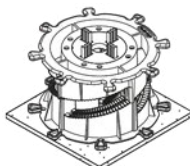
**SPIRAL
Bracket**

+



**AKCW-
SBR
rubber
granule
pad**

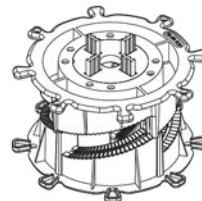
=



**Sound
insulation of
the lower part
and bracket
protection**

Acoustic insulation II

Soundproofing the upper part of the bracket prevents sounds caused by sand particles and similar debris from getting between the bracket and the slab. The soundproofing involves applying a rubber pad to the bracket.



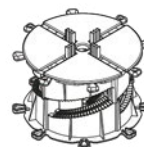
**SPIRAL
Bracket**

+



**AKCW-
SH145
rubber pad**

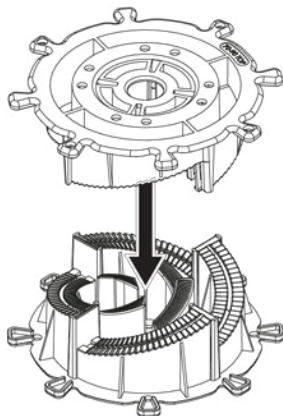
=



**Soundproof
ing the
upper
part
of the
bracket**

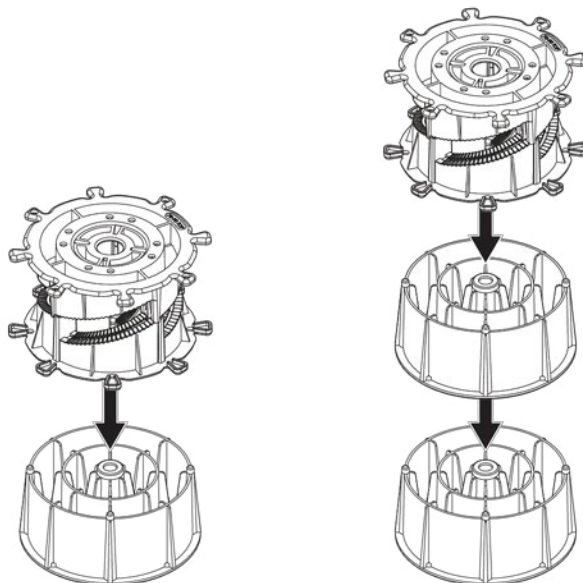
CONNECTING BRACKET COMPONENTS

1



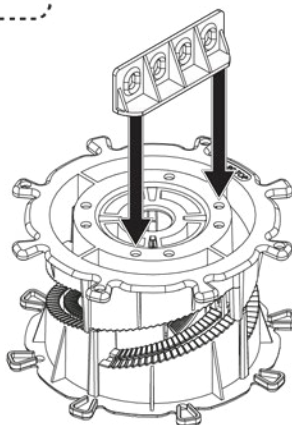
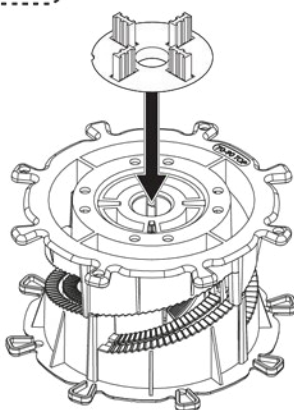
1. Place the top bracket component onto the bottom bracket component.

2



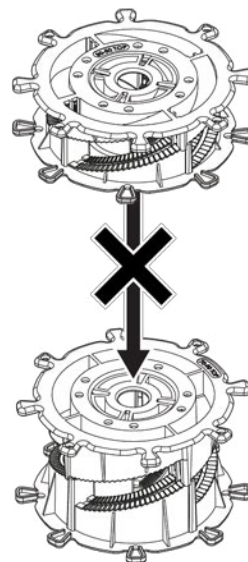
2. For SPI-090-110 brackets and larger, place the bracket on one or two SPI-DS60 extension bases, as appropriate.

3



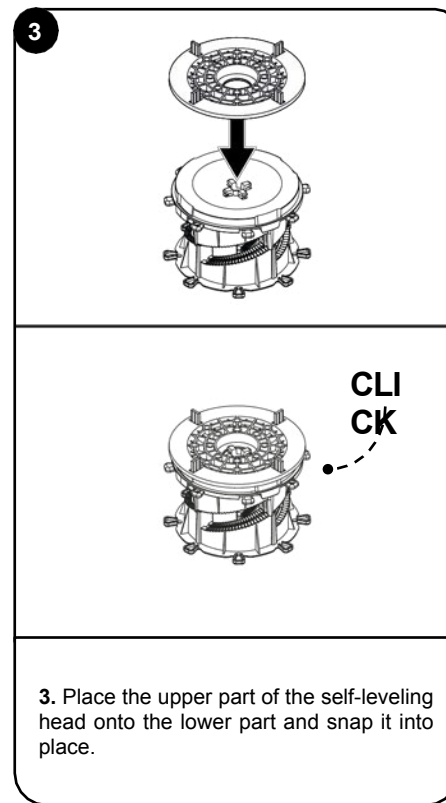
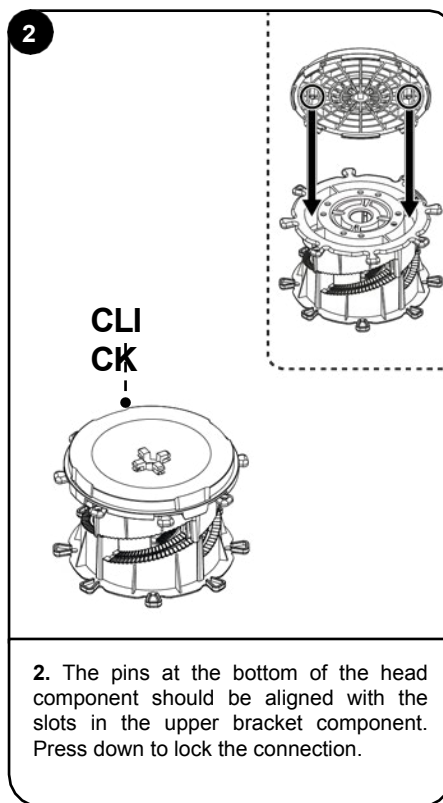
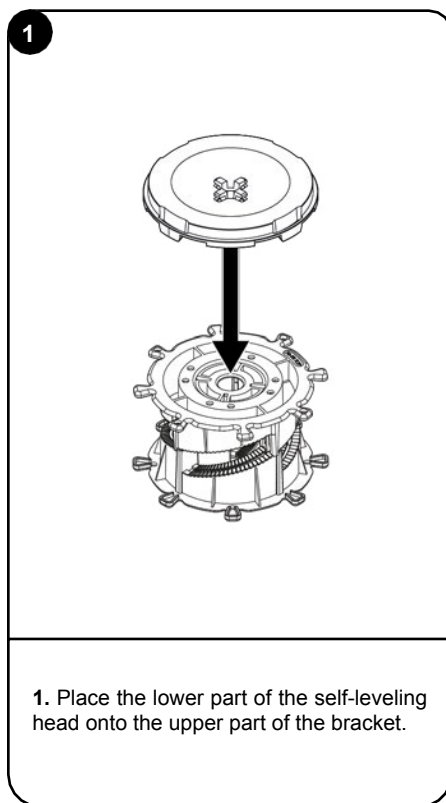
3. Depending on the type of deck, insert either a plate disc for a slab deck (see page 29) or an adapter for a joist deck (see page 34) into the upper component.

!



! Do not place stack brackets directly on top of one another.

CONNECTING BRACKET COMPONENTS SELF-LEVELING HEAD

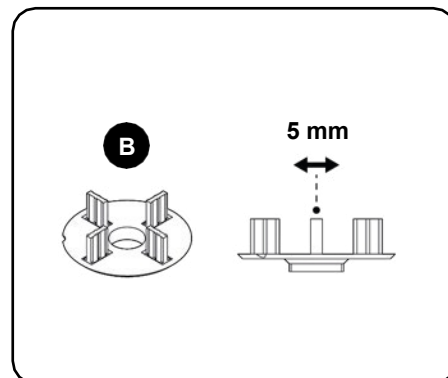
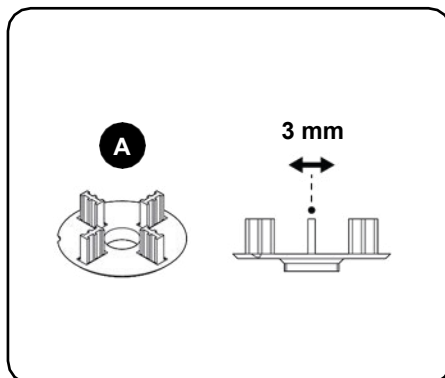


MOUNTING ON BRACKETS

PANEL INSTALLATION

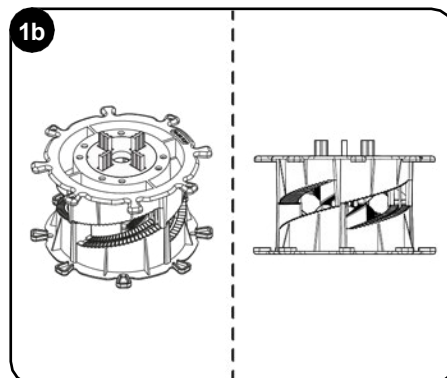
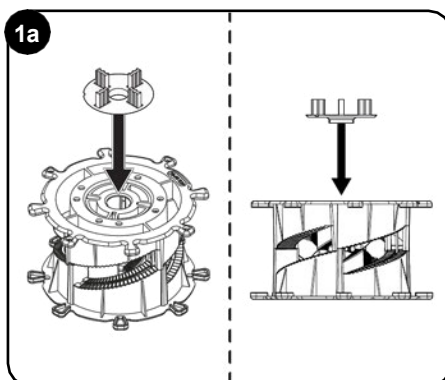
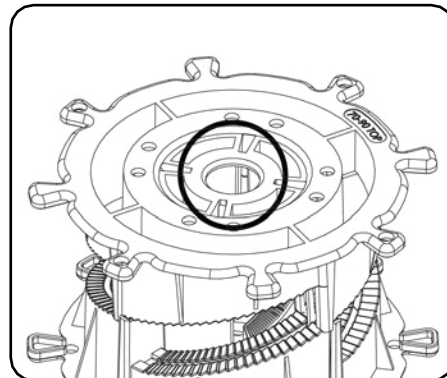
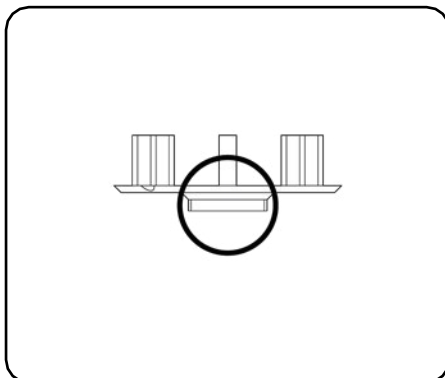
Grout discs

Use spacer discs when installing panels on SPIRAL brackets. Spacer discs are used to create an installation gap (expansion joint) with a width of 3 mm (Fig. A) and 5 mm (Fig. B). They are compatible with the entire SPIRAL bracket system.



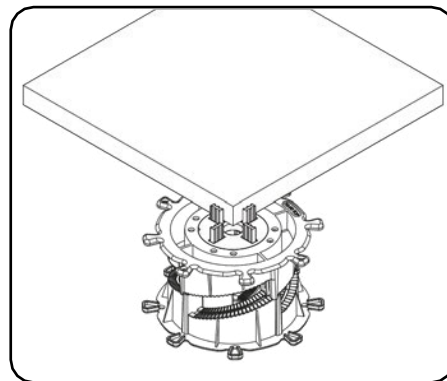
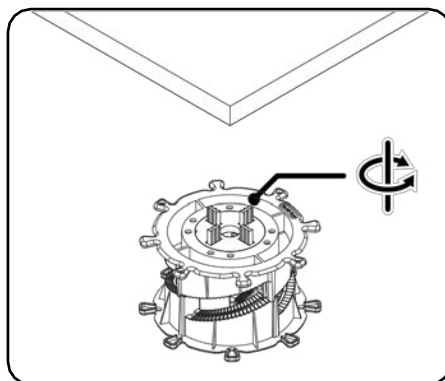
Installing the spacer

Press the expansion disc into the hole in the upper bracket component.



Disc alignment

You can ensure the correct orientation relative to the panels by rotating the disc. The panels are mounted using corner brackets on the support.



MOUNTING ON BRACKETS

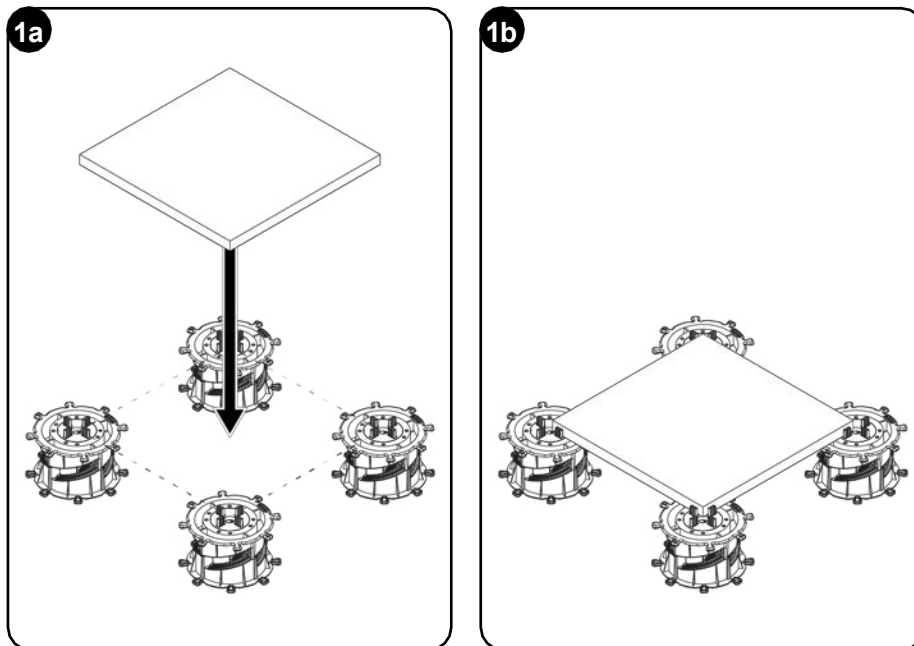
PANEL INSTALLATION

Panel Installation

To install a panel, place it on the brackets. By default, the brackets are located at the corners of the panel.

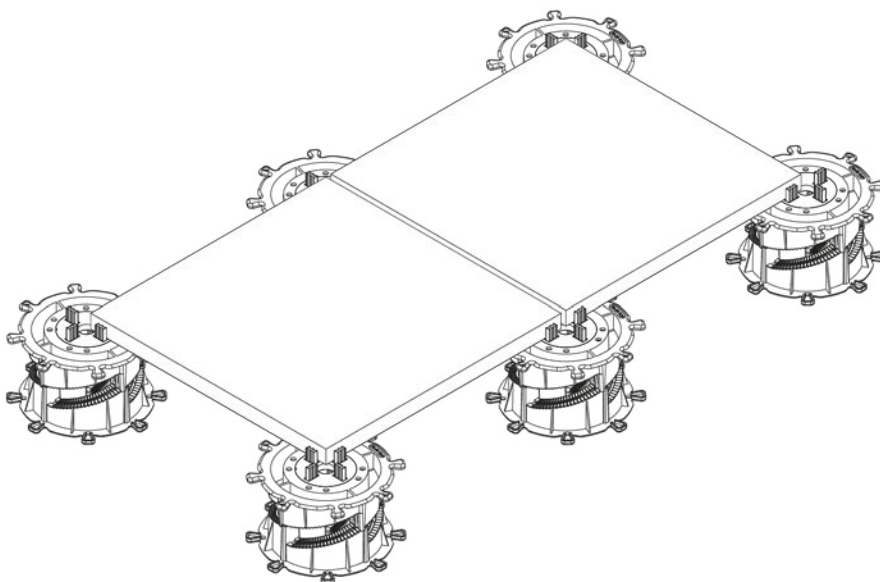
NOTE

Before installation, check whether the manufacturer permits point support for the panels and, if so, in how many places.



Bracket Placement

Before beginning construction of the deck, it is important to create a plan for the placement of the supports. See page 50 for more information.



MOUNTING ON BRACKETS

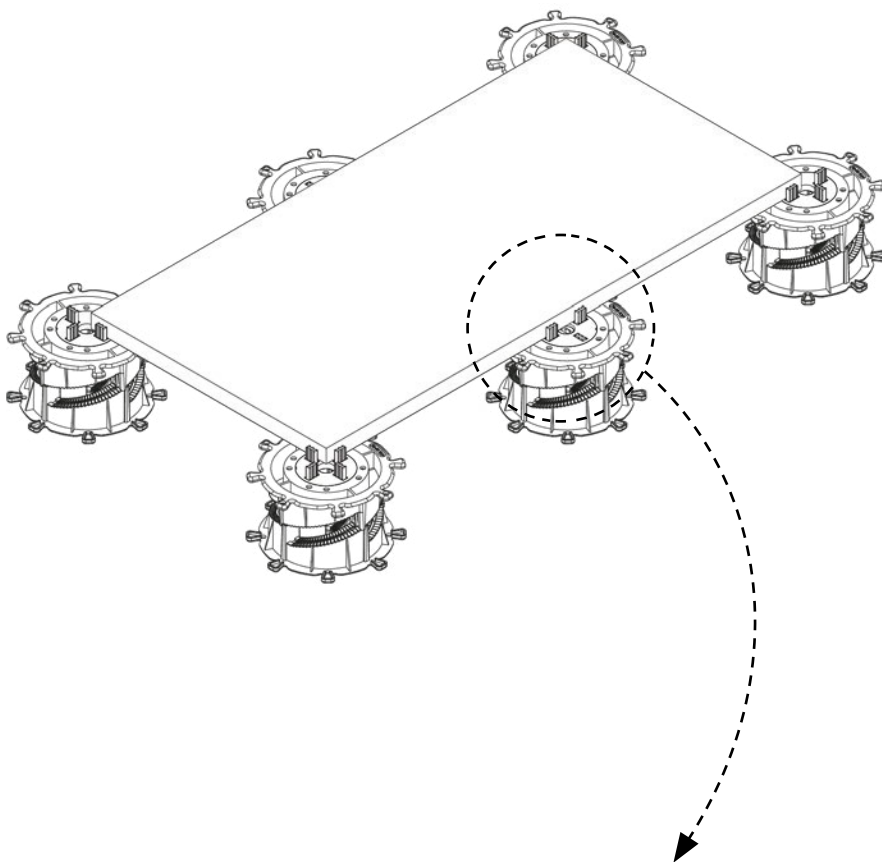
PANEL INSTALLATION

Long Slabs

Long slabs may require additional support along their longer edges. To position a support bracket on the edge of a slab, break off two opposite spacers from the spacer disc.

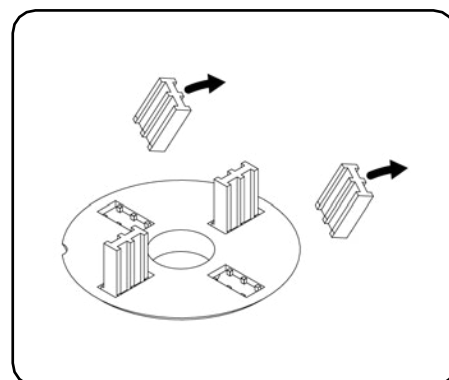
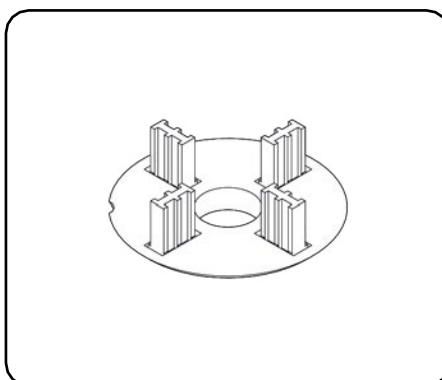
NOTE

Before installation, check the slabs to confirm whether the manufacturer permits point support and, if so, in how many places.



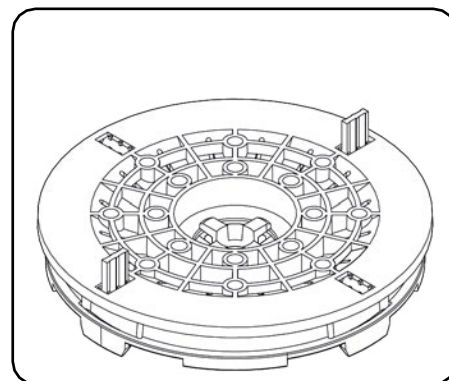
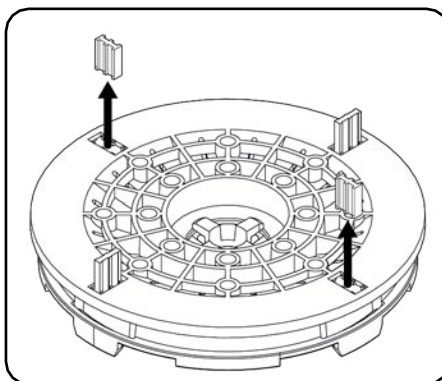
Removing Spacers from the Spacer Disc

To prepare the spacer disc for a support bracket positioned at the edge of the panel, snap off two opposite spacer tabs.



Removing spacers from the self-leveling head

To prepare the self-leveling head for a bracket located at the edge of the slab, break off two opposite spacer tabs.

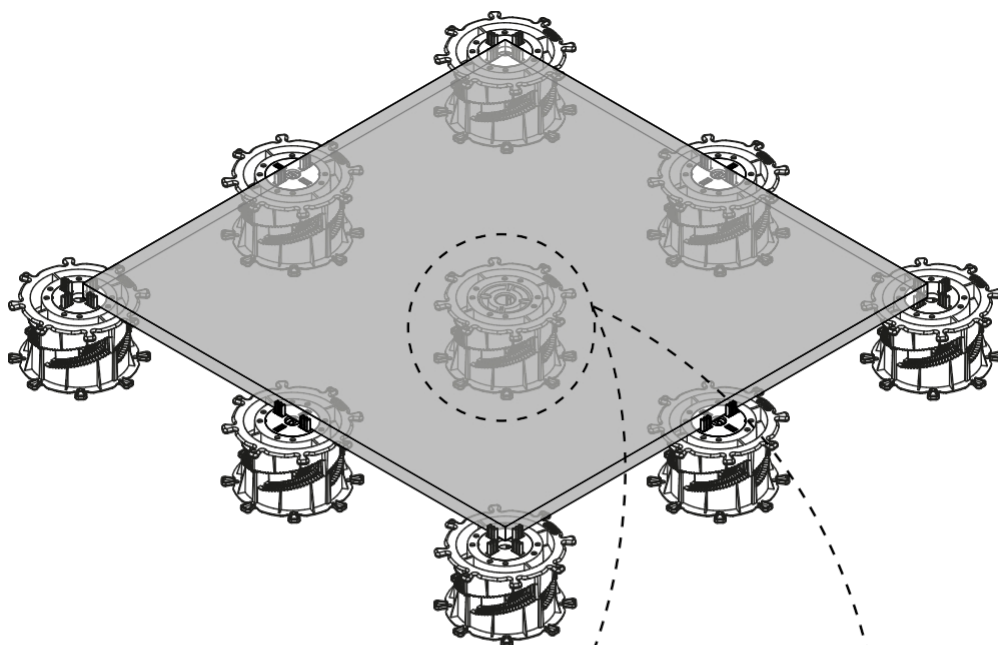


MOUNTING ON BRACKETS

PANEL INSTALLATION

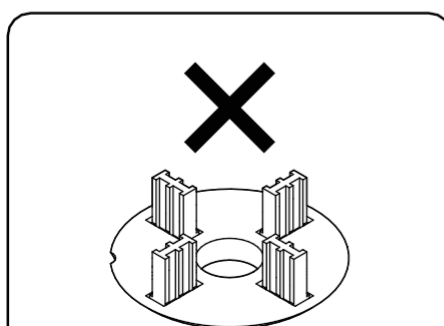
Large slabs

Large panels may require additional support in the form of a bracket without a spacer disc in the center of the panel and with the spacer tabs at the edges snapped off. The need for a center bracket depends on the panel's strength. Ask your panel supplier for recommendations regarding the installation of panels with point support on brackets.



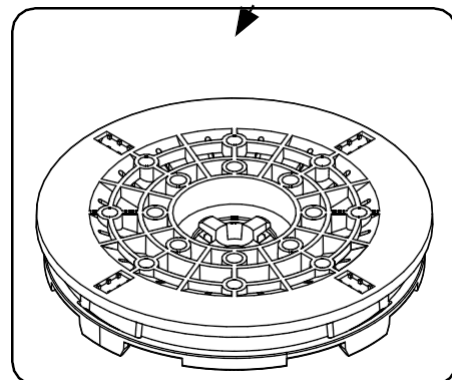
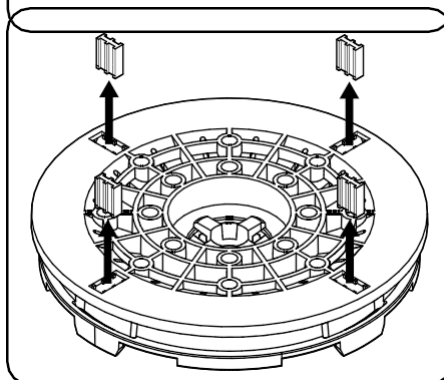
Bracket under the panel

Brackets located under the panel do not have spacer discs. See page 31 for instructions on breaking off the spacer tabs for brackets located at the edges of the panels.



Removing Spacers from the Self-Leveling Head

To prepare a spacer disc for a bracket located under the slab, snap off four spacer tabs.

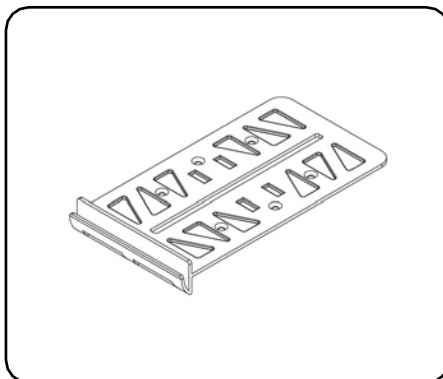


MOUNTING ON BRACKETS

EXPANSION JOINT

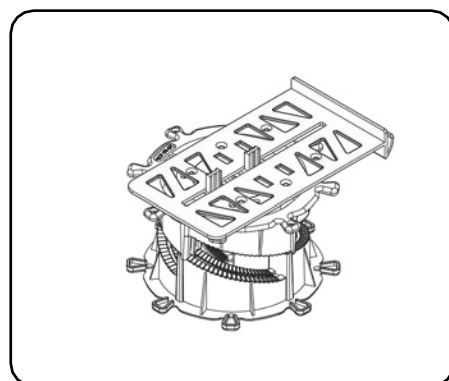
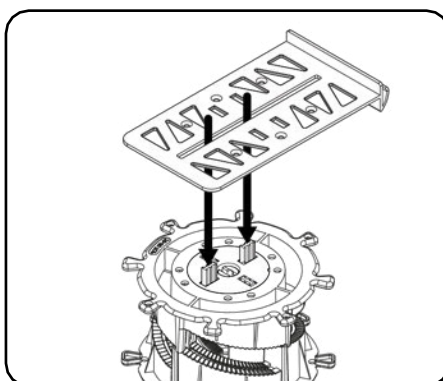
Expansion Clip

When installing panels against a wall, use an expansion clip. It creates an expansion joint between the wall and the panel.



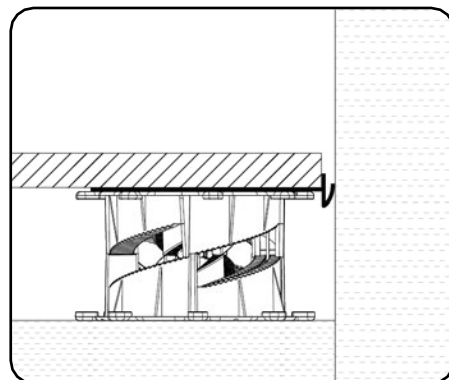
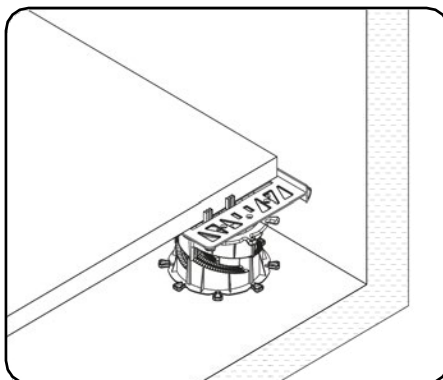
Installing the expansion clip

When installing panels against a wall, use an expansion clip. It creates an expansion gap between the wall and the panel.



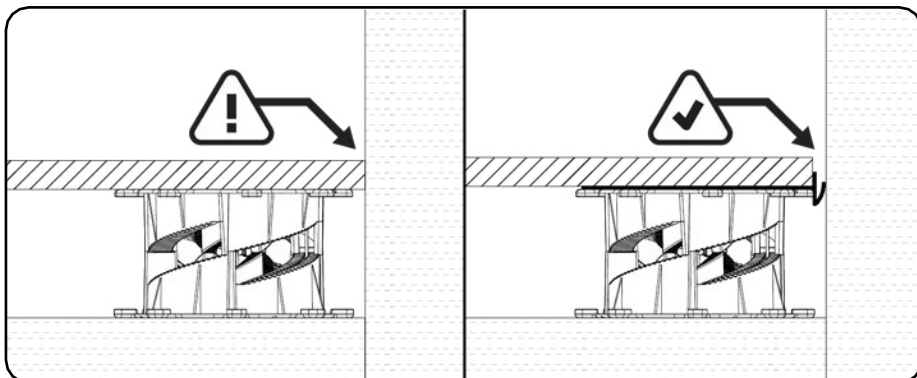
Expansion gap

Press the clip against the wall to set the gap width between 4 and 12 mm.



Expansion Joint

We recommend using expansion clips. A panel without an expansion clip touches the wall and causes persistent moisture buildup.

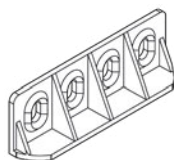


INSTALLATION ON BRACKETS

INSTALLATION OF JOISTS

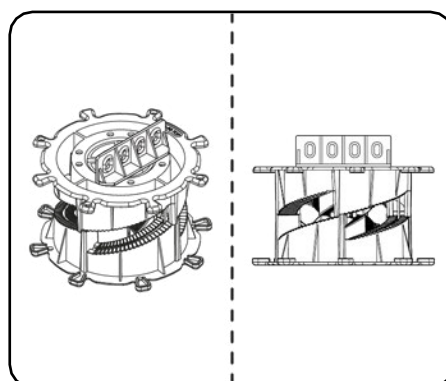
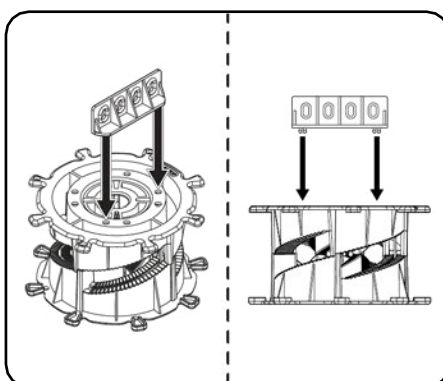
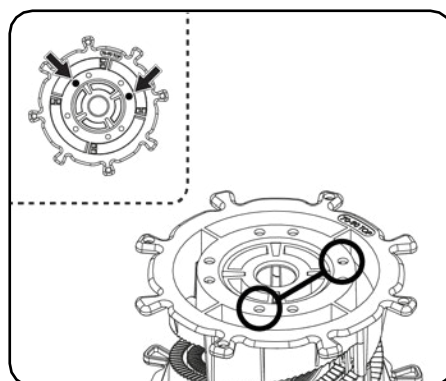
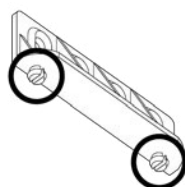
Installation of joists

To install joists on SPIRAL brackets, use a joist adapter instead of a joint spacer.



Installing the adapter

Place the joist adapter into the holes in the upper bracket component with the flat side facing inward toward the bracket.

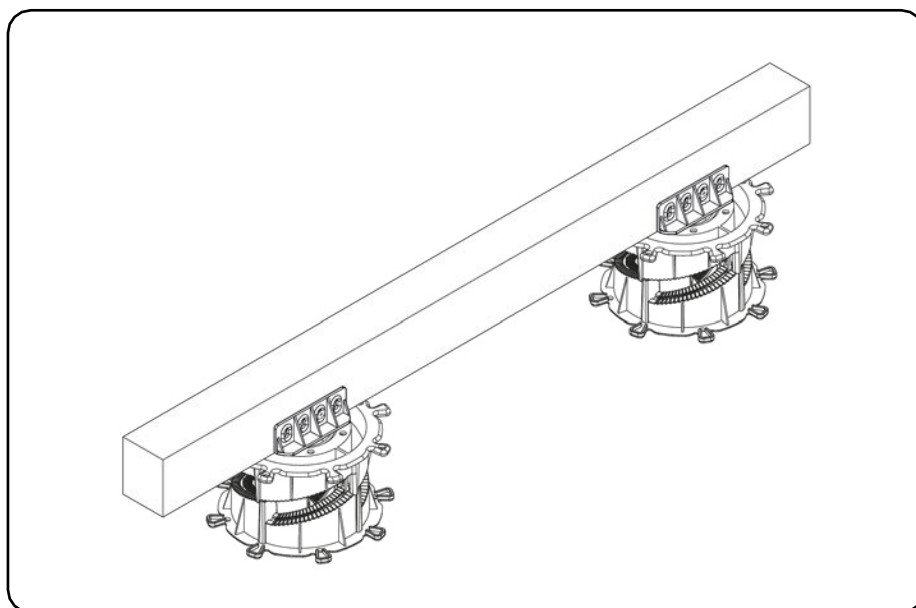
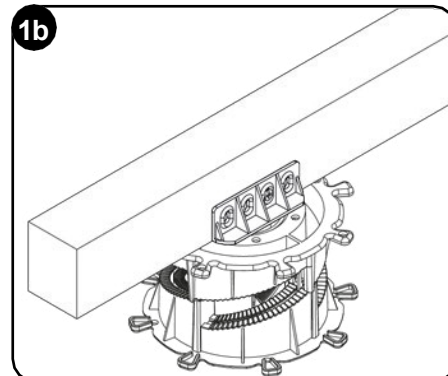
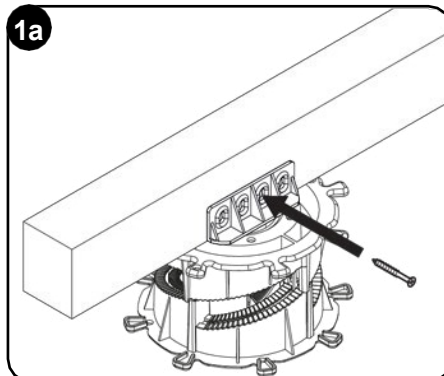


INSTALLATION ON BRACKETS

INSTALLATION OF JOISTS

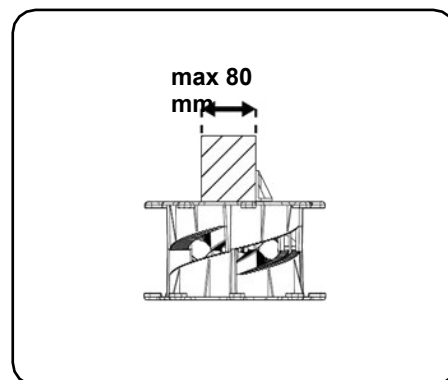
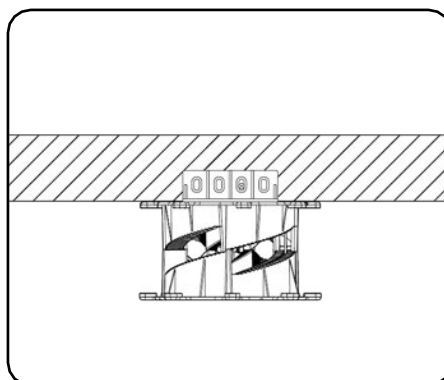
Securing the joist

Place the joist on the brackets and slide it up against the adapter. Secure the joist to the adapter by inserting a screw through one of the adapter's holes.



Joist width

The recommended maximum joist width for SPIRAL brackets is 80 mm.

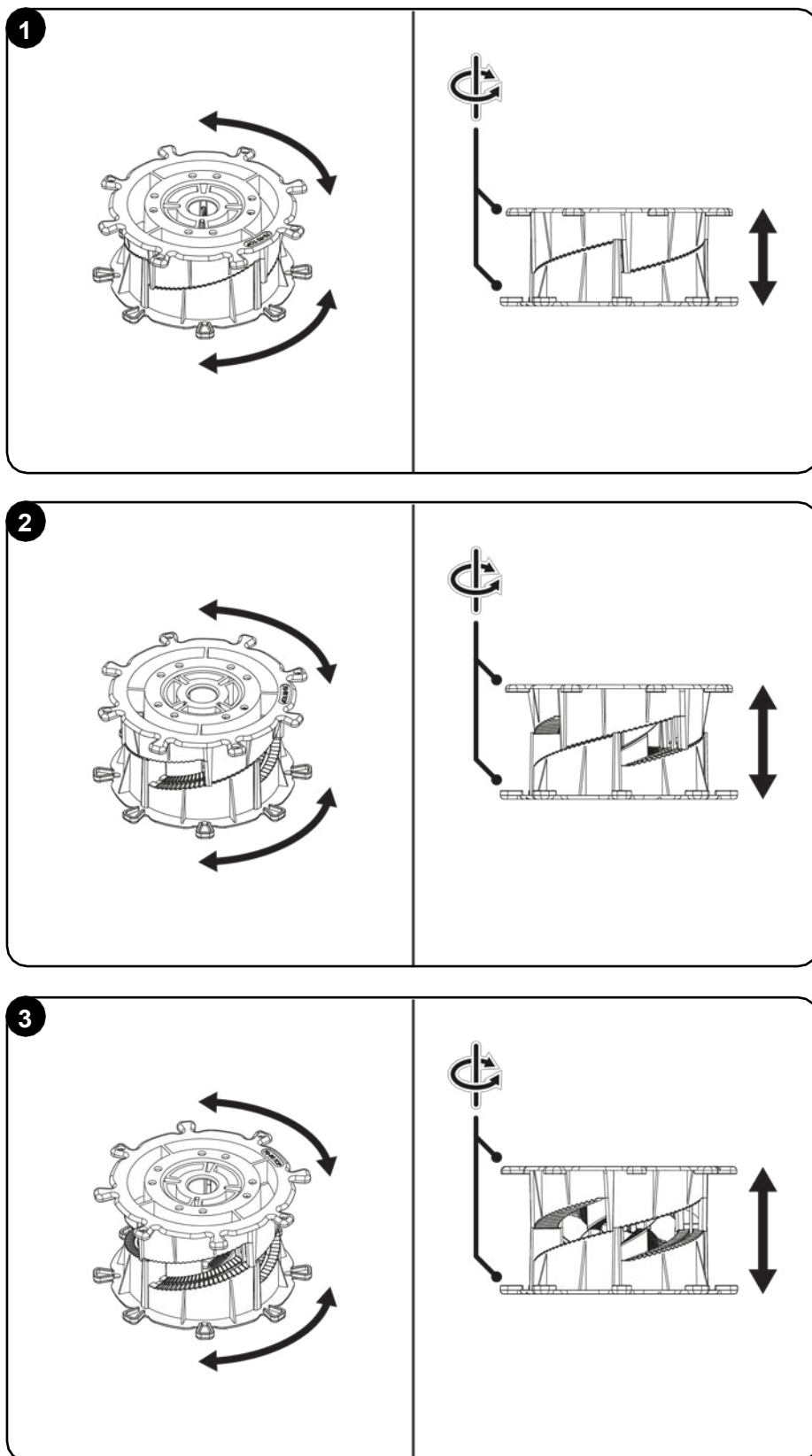


HEIGHT ADJUSTMENT

ADJUSTMENT

Bracket Adjustment

The bracket is adjusted by rotating the upper or lower element one step at a time. Once the adapter is attached to the joist, the height can be adjusted using the lower part of the bracket.



USE OF SUPPORTS BASED ON THE SUBSTRATE

SOLID SURFACE WITHOUT SIGNIFICANT SLOPE

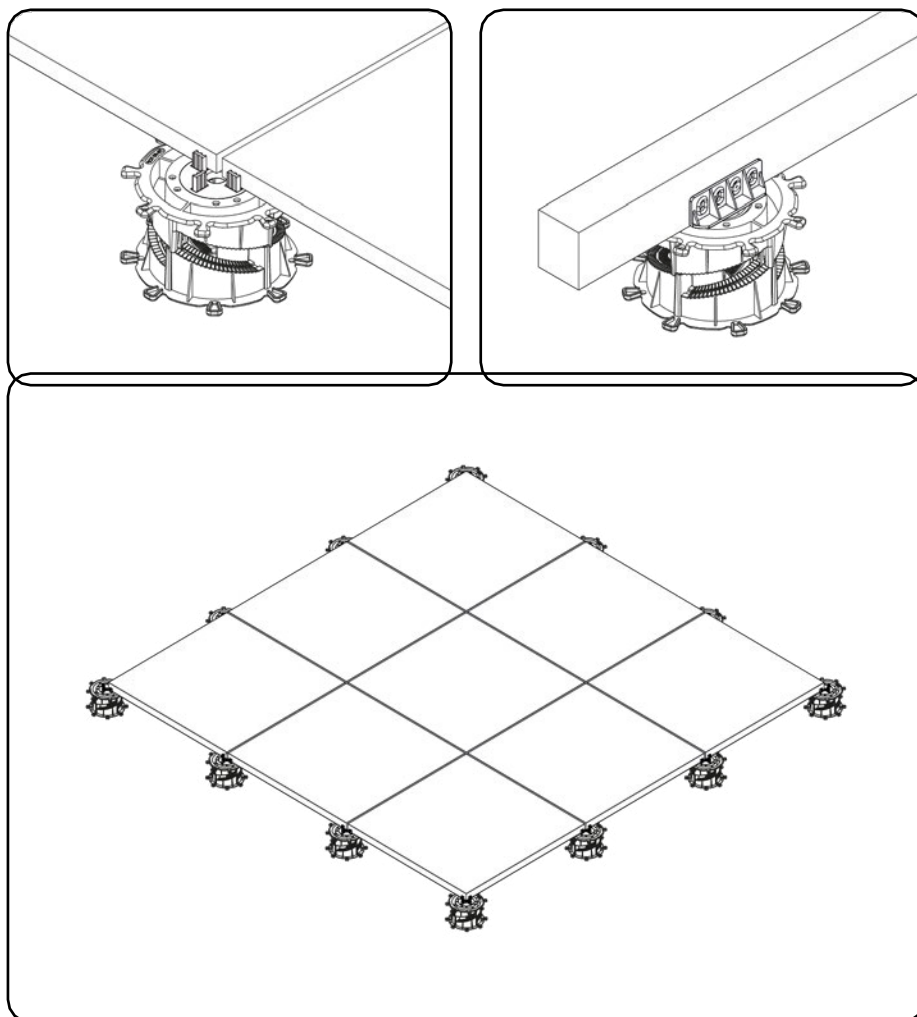
Hard surface—a hard surface is defined as a level and stable surface such as a concrete slab, concrete slabs, stone slabs, wood, and other surfaces characterized by high compressive strength.

Surface without significant slope¹

- "No significant slope" refers to a surface that is completely level or has a slight slope not exceeding approximately 1%.

In the case of installation where the surface being installed follows the direction of the substrate's slope, the difference between the substrate's slope and the planned slope of the surface must be taken into account.

A solid subgrade without a significant slope does not require the use of additional accessories for the brackets. The SPIRAL bracket is sufficient for proper installation.



▼ Additional options:

Optionally, a rubber granule pad can be used to provide additional sound insulation; this solution is worth considering when installing a deck or raised floor on a level below which there are living spaces. Using a rubber granule pad will also improve the deck's functionality. This solution helps reduce unwanted noise while using the terrace, particularly the grinding sound caused by loose particles of concrete and sand shifting beneath the supports.

¹ When assessing the slope, it is important to consider that a support placed on a sloped surface does not transmit compressive force axially, which results in a reduction in the structure's strength.

A deviation of the support from the vertical may result in a situation where the slab or joist does not rest on the entire surface of the support, leaving a significant gap and failing to provide stable support for the slab or joist.

In each case, the slope must be assessed in accordance with best construction practices, also taking into account other project-specific conditions such as the planned gradients of the pavement being constructed, the uniformity of the gradient distribution across the subgrade surface, the stiffness of the materials used for the substructure and the construction techniques employed, as well as other conditions specific to the project.

USE OF SUPPORTS BASED ON THE SUBSTRATE

SENSITIVE SUBGRADE WITHOUT SIGNIFICANT SLOPE

Sensitive Subgrade—a “sensitive subgrade” is defined as:

- a) surfaces covered with any type of additional coating (most commonly waterproofing), such as roofing felt, a membrane, or liquid rubber, as well as any other coating that could be damaged by the pressure of the support base walls,
- b) surfaces constructed using inverted roof technology, where the brackets are placed directly or indirectly on insulation materials, such as XPS and similar materials.

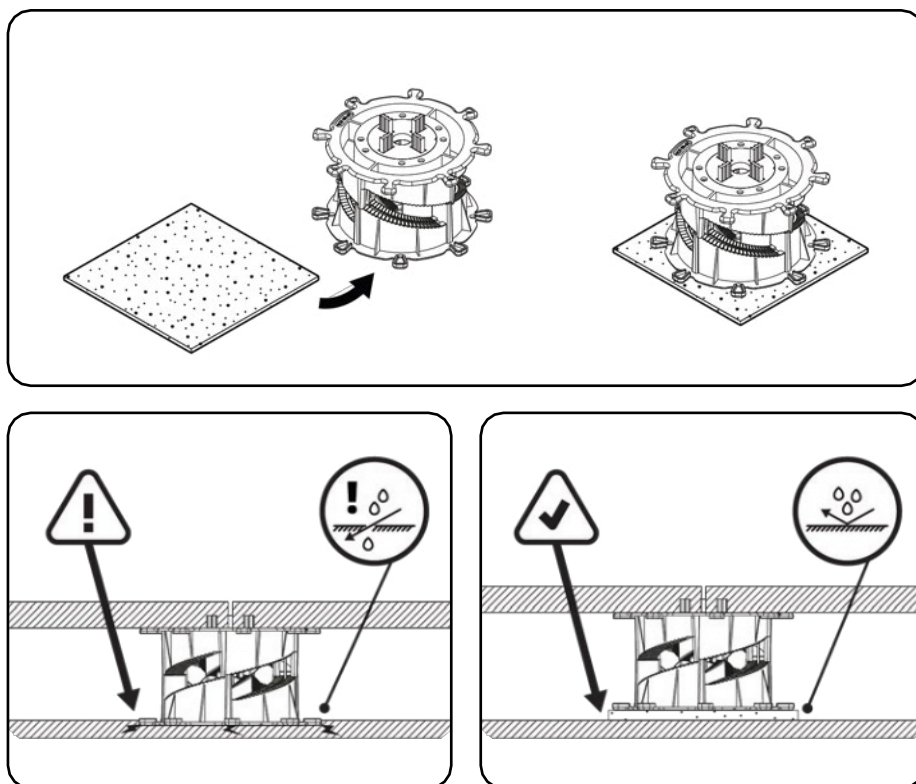
On sensitive substrates without a significant slope, it is necessary to use a rubber granule pad.

Substrate without significant slope²

- “No significant slope” should be understood to mean a completely level surface or one with a slight slope not exceeding approximately 1%.

On a sensitive substrate without a significant slope, it is recommended to use a rubber granule pad to protect the surface from damage that the base walls may cause over time. Failure to use a protective pad may also cause the support to sink into the sensitive surface.

The decision regarding the use of rubber protective pads should be left to the terrace contractor, architect, or construction supervisor.



² When assessing the slope, it is important to consider that a support placed on a sloped surface does not transmit compressive force axially, which results in a reduction in the structure's strength.

The cantilever's deviation from the vertical may result in a situation where the slab or joist does not rest on the entire surface of the cantilever, leaving a significant gap and failing to provide stable support for the slab or joist.

In each case, the slope must be assessed in accordance with best construction practices, also taking into account other project-specific conditions such as the planned gradients of the pavement being constructed, the uniformity of the gradient distribution across the subgrade surface, the stiffness of the materials used for the substructure and the construction techniques employed, as well as other conditions specific to the project.

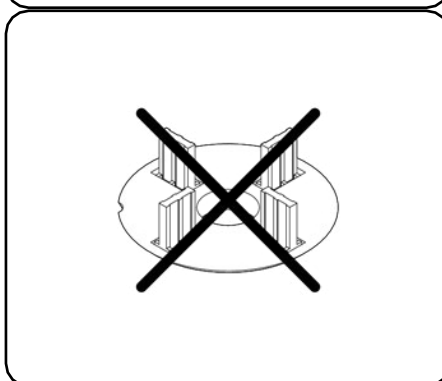
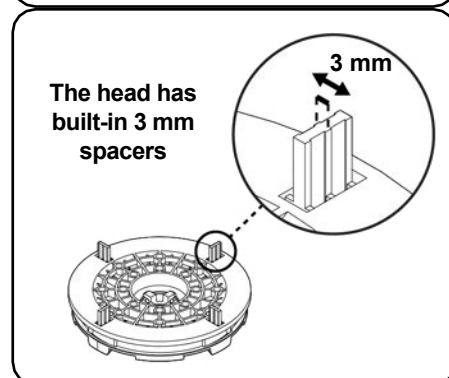
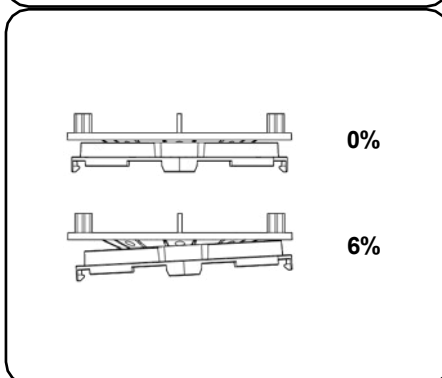
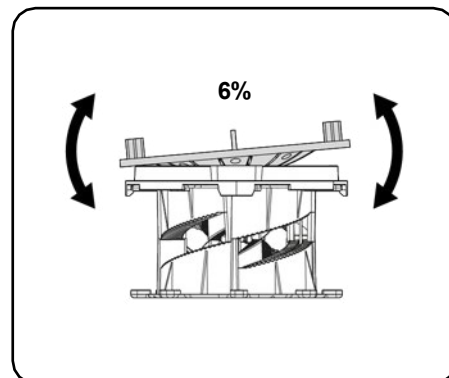
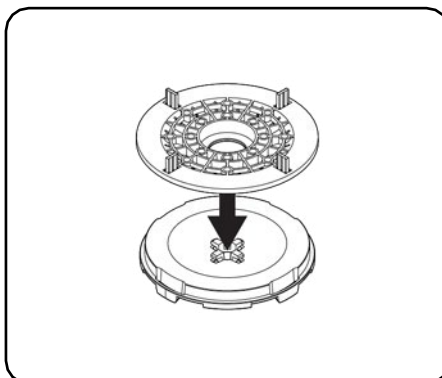
USE OF SUPPORTS BASED ON THE SUBSTRATE

SUBGRADE WITH A SIGNIFICANT GRADIENT OR ENVELOPE-SHAPED GRADIENTS

Subgrade with a significant slope or envelope-shaped slopes—a subgrade with a significant slope is defined as a surface with a gradient exceeding 1% or with irregular slopes.

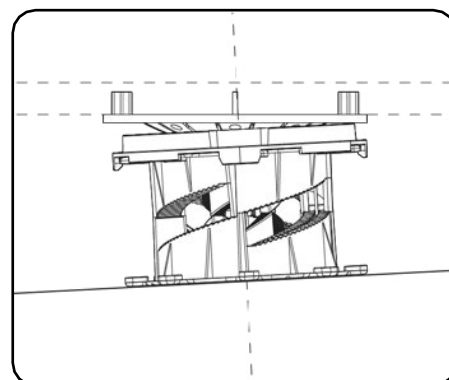
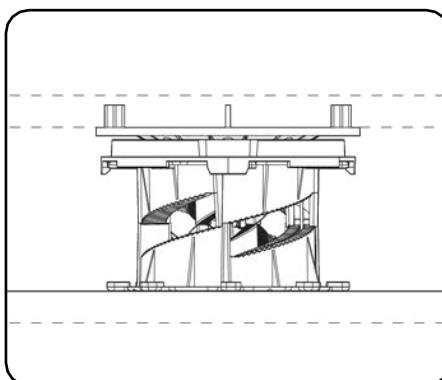
On a subfloor with a significant slope, consider using a self-leveling head, which compensates for surface slopes of up to 6% (i.e., a level difference of up to 6 cm per running meter).

Slope adjustment using a self-leveling head occurs automatically under the weight of the panels or joists. The head has built-in spacers 3 mm wide. When using this head, a joint spacer disc is not required.



Leveling with a self-leveling head

Using a self-leveling head allows for leveling slopes of up to 6%. The bracket is compressed non-axially.



SOUND PROOFING RUBBER PAD

▼ Soundproofing the deck

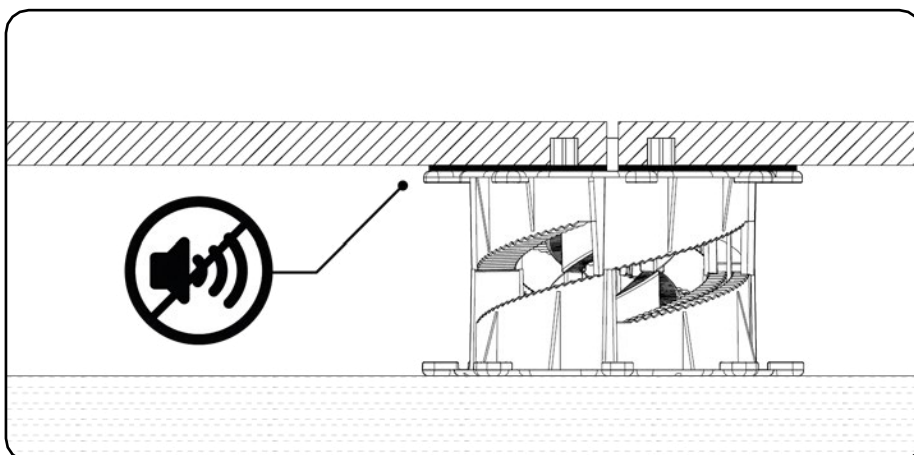
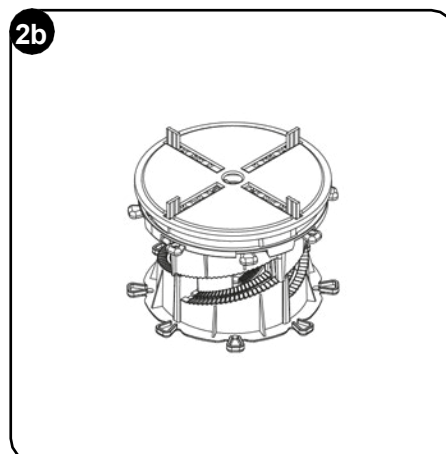
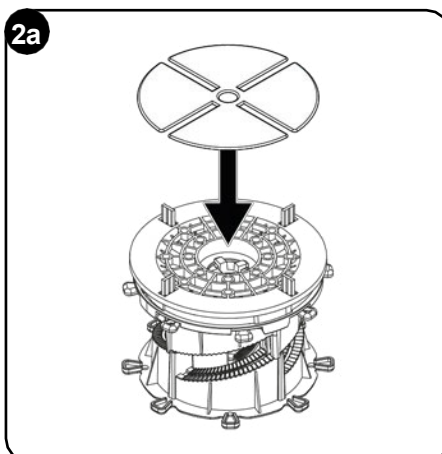
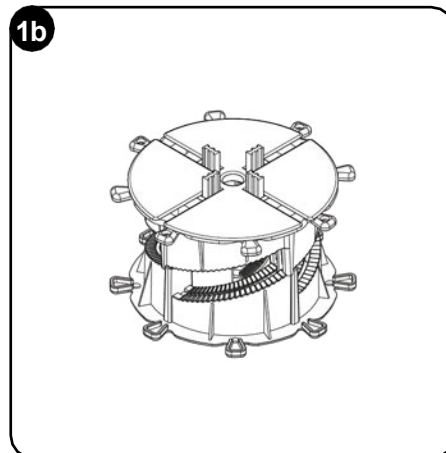
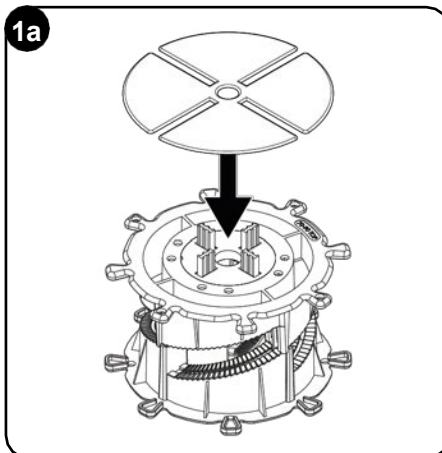
For additional soundproofing of the terrace, use rubber pads and rubber granule underlays.

Soundproofing the top of the support

Place the AKCW-SH145 rubber pad between the upper bracket component (or the self-leveling head, if used) and the slab.

The AKCW-SH145 rubber pad is 1.5 mm thick. Be sure to account for the thickness of the pad when planning the height of the deck.

Using this solution will help reduce unwanted noise while using the deck, particularly the squeaking caused by loose particles of concrete and sand moving between the support and the slab or joist.



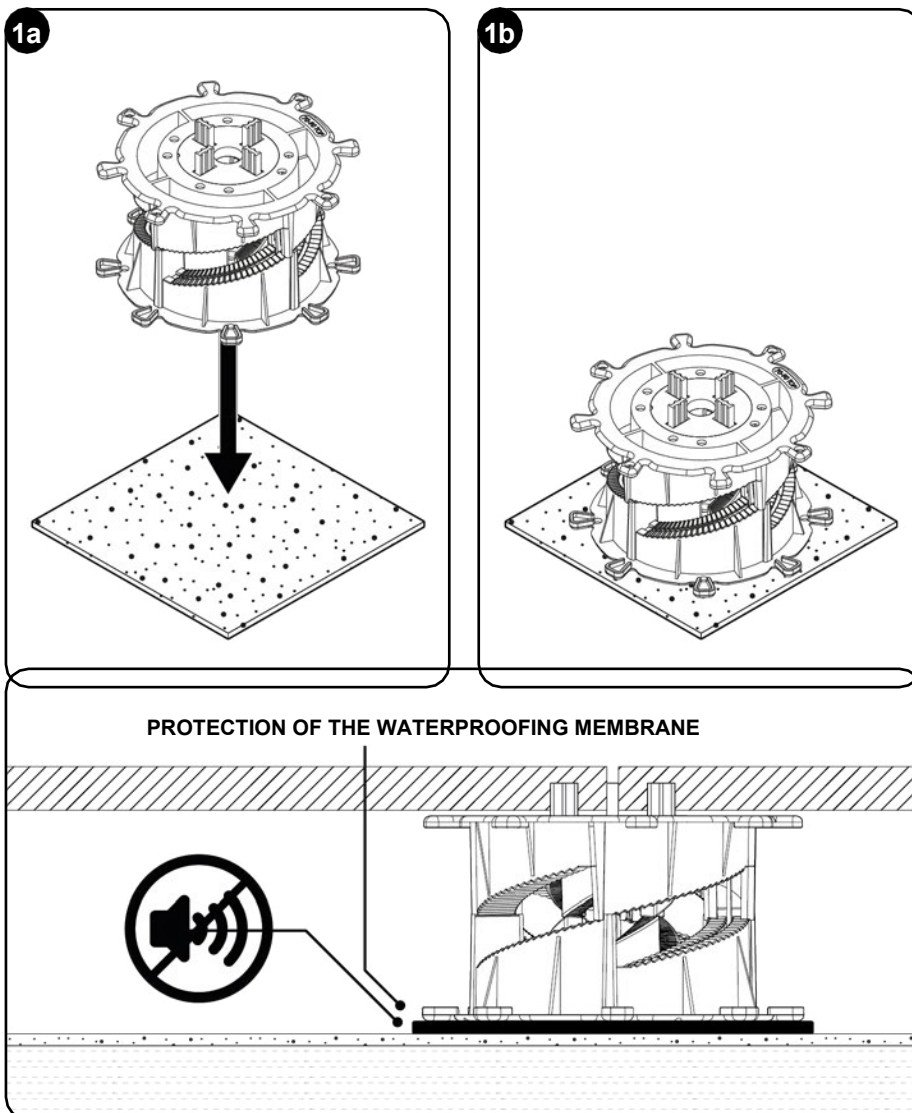
SOUND PROOFING RUBBER GRANULATE PAD

Soundproofing of the lower part of the bracket

Optionally, a rubber granule pad can be used to provide additional sound insulation; this solution is worth considering when installing a terrace or raised floor on a level below which there are living spaces. Using a rubber granule pad will also improve the terrace's functionality.

This solution will help reduce unwanted noise while using the terrace, particularly the squeaking caused by loose particles of concrete and sand shifting beneath the supports.

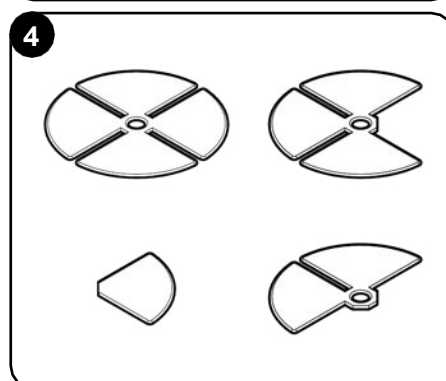
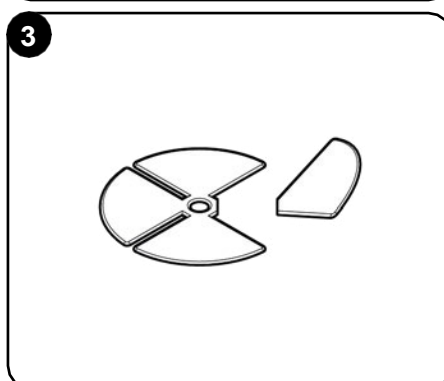
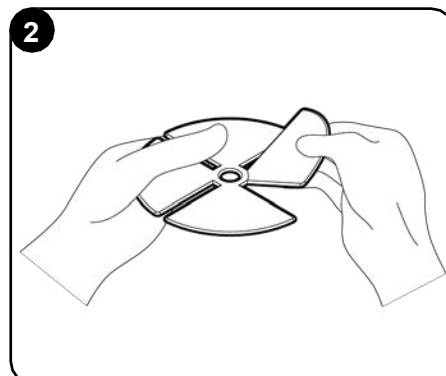
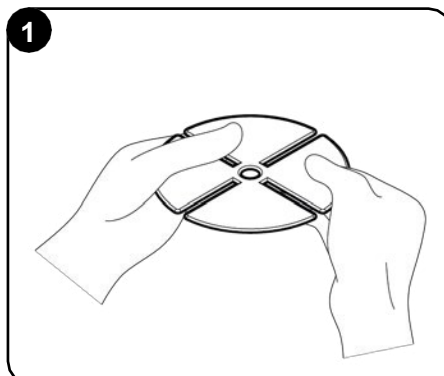
Place the rubber granule pad between the support base and the subgrade.



LEVELING THE SLABS

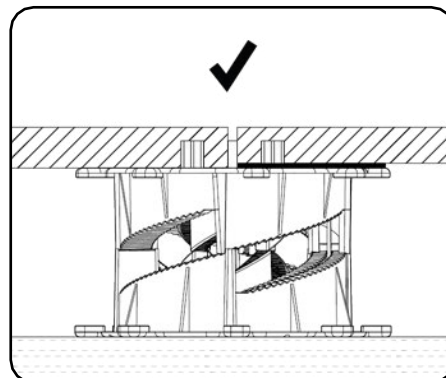
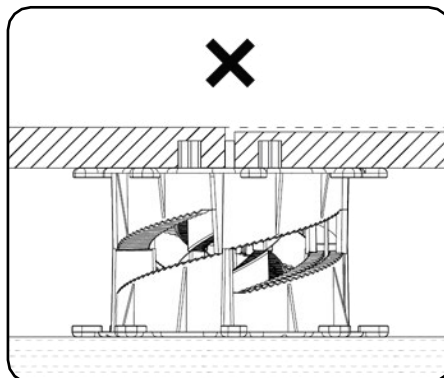
Parts of the rubber pads coming loose

Rubber pads can be divided into sections by tearing them apart. The sections can be used to level out differences in the heights of patio slabs and to soundproof the floor.



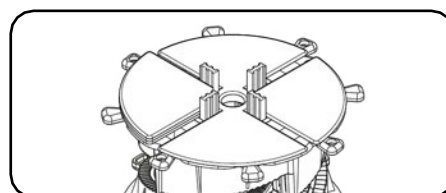
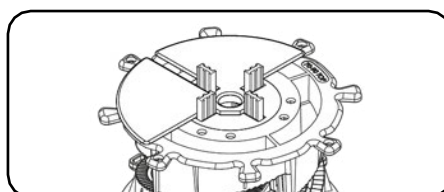
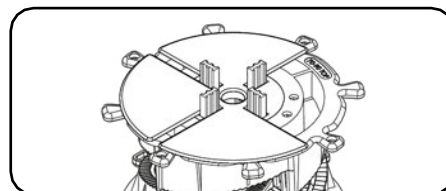
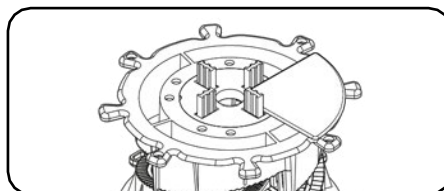
Compensating for differences in slab height

The cut-out sections of the rubber spacers are used to compensate for differences in the thickness of the deck tiles. If the terrace surface is uneven due to differences in the thickness of the terrace slabs, determine the thickness of the thickest slab and place the appropriate number of rubber shims under the remaining slabs. When properly installed with shims, the slabs should form a level terrace surface.



Examples

An example of how to arrange rubber shims to level the slab thicknesses. The shims can be stacked on top of one another.



FASTENING SUPPORTS TO THE SUBSTRATE

SCREW FASTENING

▼ Mounting the bracket with screws

If there is a risk of the brackets shifting, secure them to prevent movement. Fastening the bracket with screws is the most reliable way to secure it.

Caution—drilling into the substrate may damage the insulation. Make sure you are allowed to drill into the substrate. Make sure the bracket you are securing is in the correct position!

You will need:



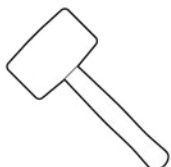
a
screwdriver



screws,
Ø 4.5
mm



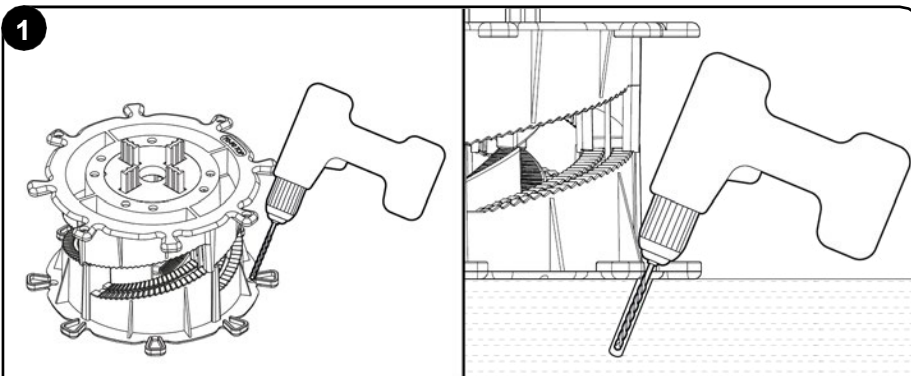
Ø 6 mm
wall
anchors



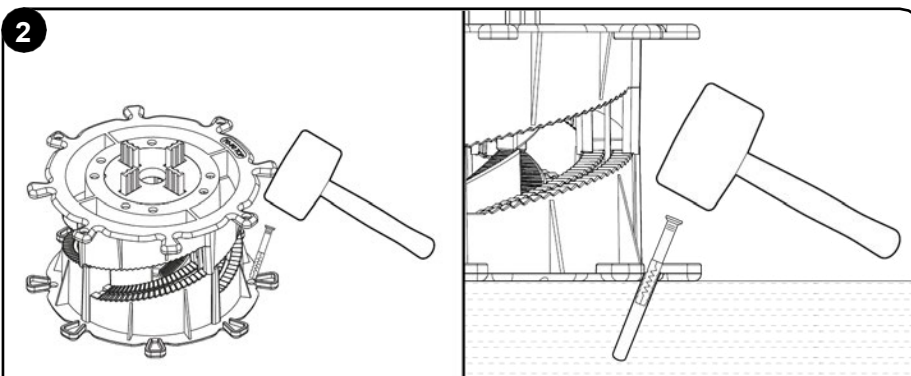
hamm
er



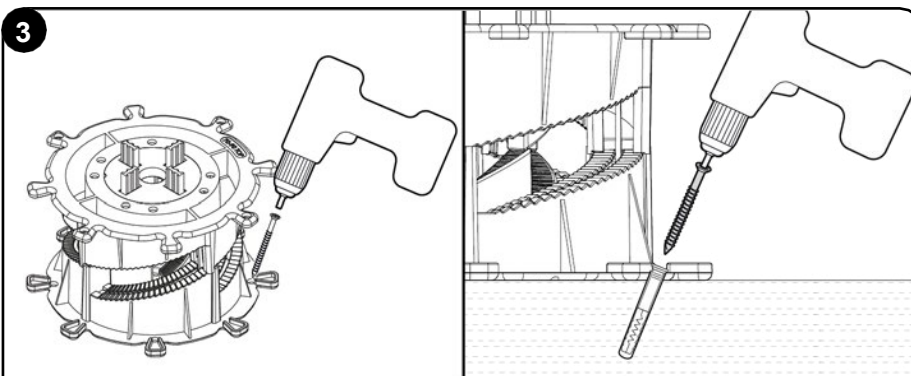
a 6
mm
drill bit



1. Drill a hole for the wall plug in the bracket and the wall.



2. Insert the expansion
bolt.



3. Screw in the screw to secure the bracket.
Be careful not to damage the bracket when tightening the screw.

FASTENING BRACKETS TO THE SUBSTRATE

FIXING WITH ADHESIVE

Attaching the bracket with adhesive

If it is not possible to secure the bracket with screws—for example, due to the type of substrate—secure it using a special-purpose adhesive (e.g., for concrete).

You will need:

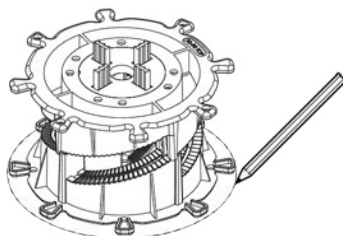


a pencil



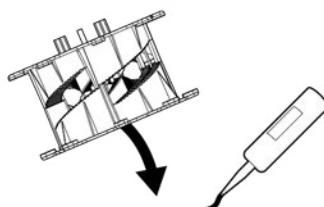
weather-resistant adhesive

1a



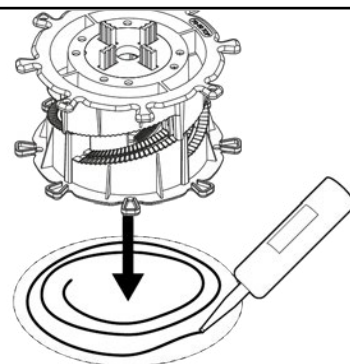
1. Mark the location of the bracket's base.

2a



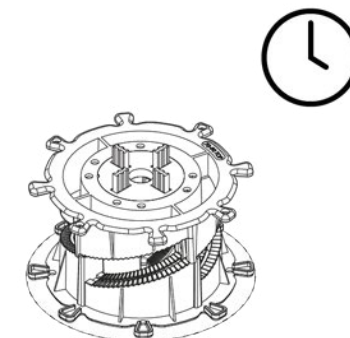
3. Place the bracket at the bonding site.

1b



2. Apply adhesive to the marked outline.

2b



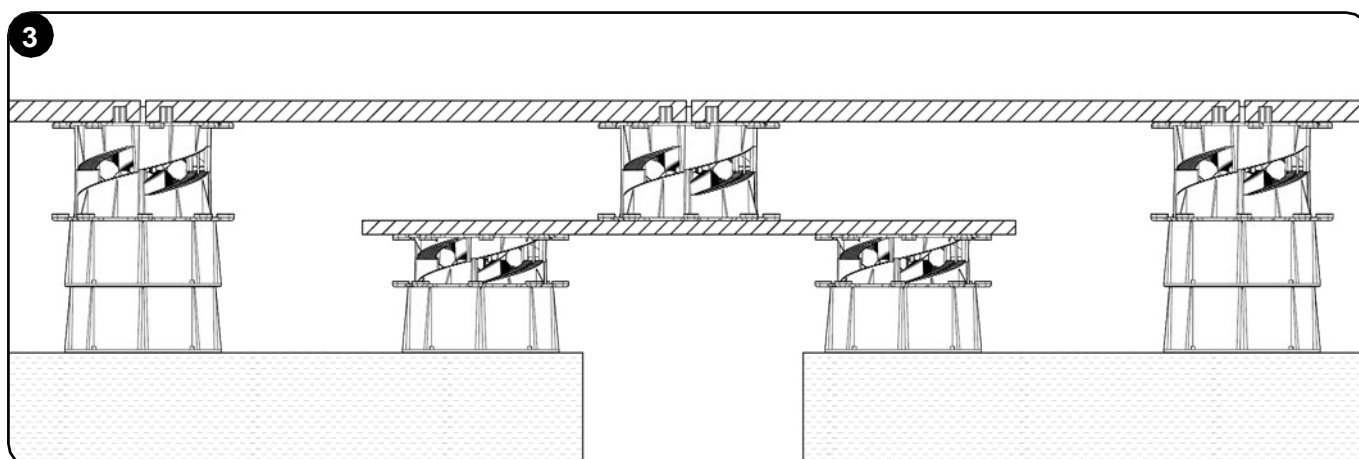
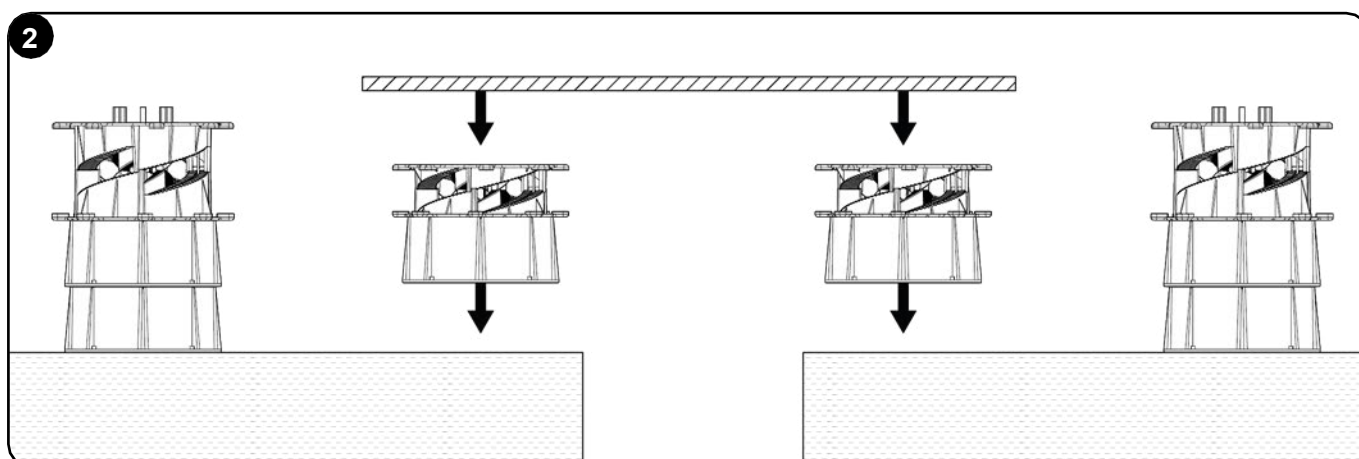
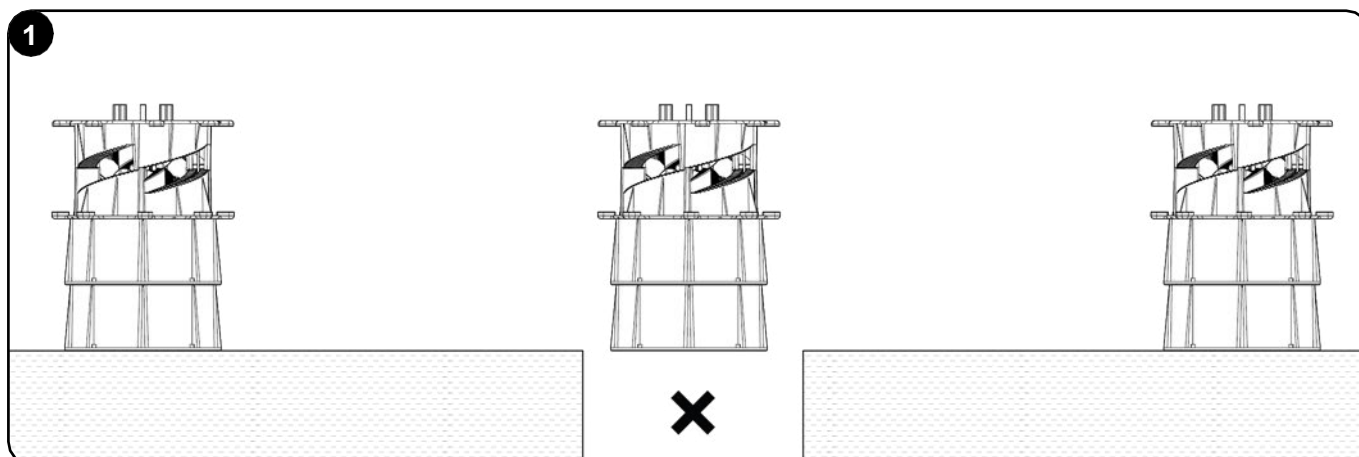
4. Check the adhesive's setting time before laying the panels.

BRACKET PLACEMENT

BRIDGING GAPS

▼ Step

If there is a step at the location where the bracket is to be installed, create a “bridge” using additional brackets and decking boards.

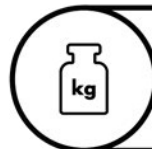


STRENGTH OF SUPPORTS



Permissible Load

For detailed information on the load capacity of the brackets, please refer to the detailed technical specifications—contact your supplier.

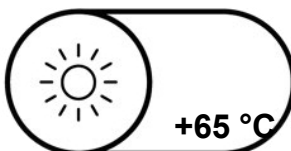


2,000 kg (FS:2)
* Technical Specifications

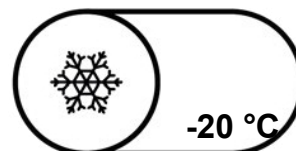


Temperature Temperature Resistance

Detailed information regarding temperature resistance can be found in the detailed technical specifications—please contact your supplier.



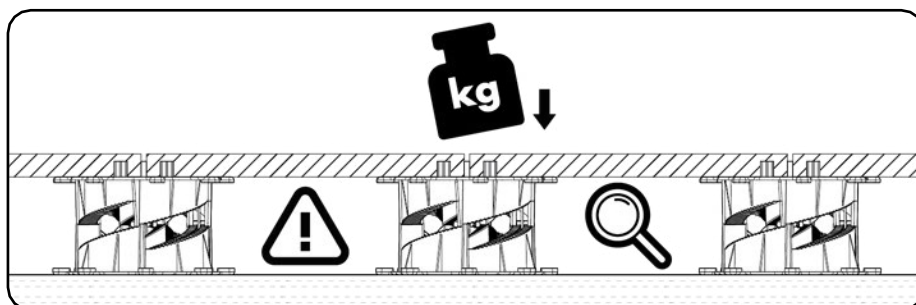
+65 °C



-20 °C

Temporary Overload

If a temporary overload of the brackets occurs, inspect the technical condition of the brackets.



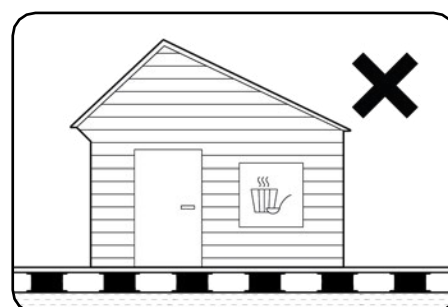
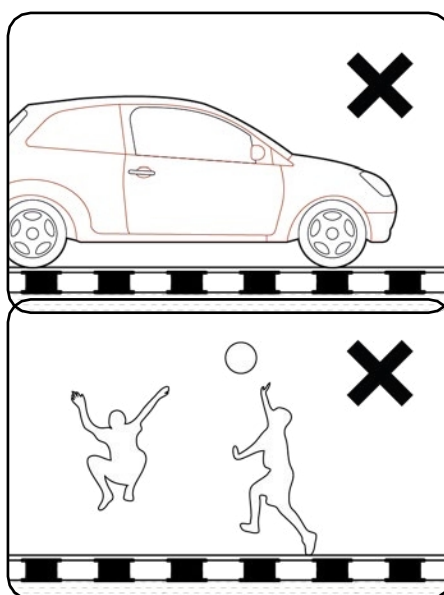
Usage restrictions

Motor vehicles that could cause unpredictable dynamic loads must not be driven onto the terrace.

Do not place heavy objects whose weight exceeds the permissible load.

If it is necessary to place a heavy object, such as a jacuzzi tub, strength calculations must be performed.

Activities that may cause dynamic loads exceeding the allowable loads are prohibited.

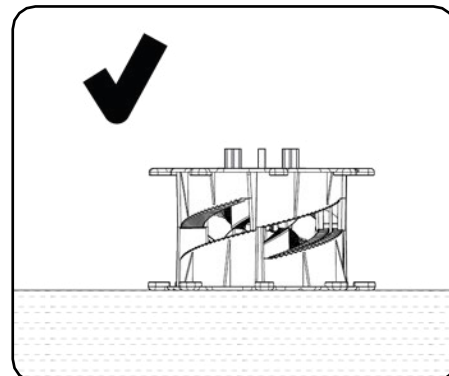
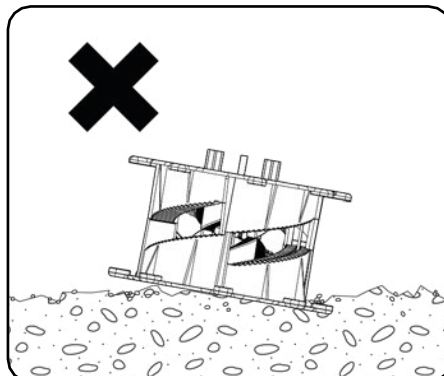


IMPORTANT INFORMATION

FLOORING - GENERAL INFORMATION

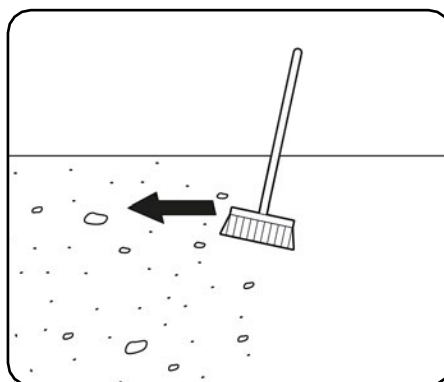
Level Substrate

The surface on which the supports are placed should be stable and level.



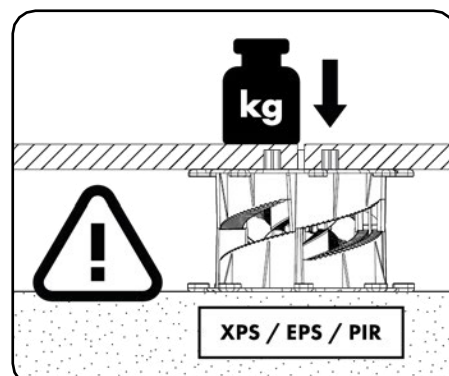
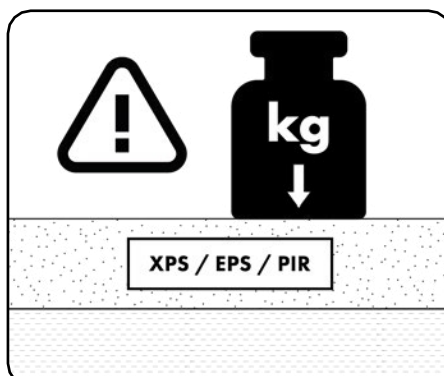
Clean Surface

Before beginning to position the supports, clear the ground of stones, sand, and other debris.



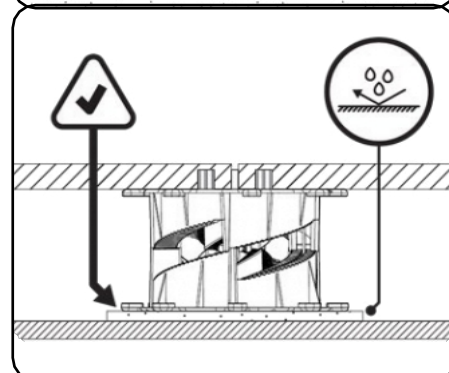
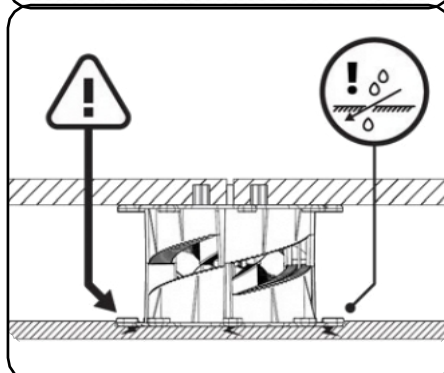
Type of Substrate

Brackets are often used on roofs on hard Styrodur insulation panels. Be sure to check the strength of the surface and the allowable load capacity of the area where the brackets will be placed. Based on the hardness of the surface, calculate whether the planned load will cause indentation.



Insulation Protection

If there is a risk of damage to the waterproofing, it is recommended to use rubber granule pads.

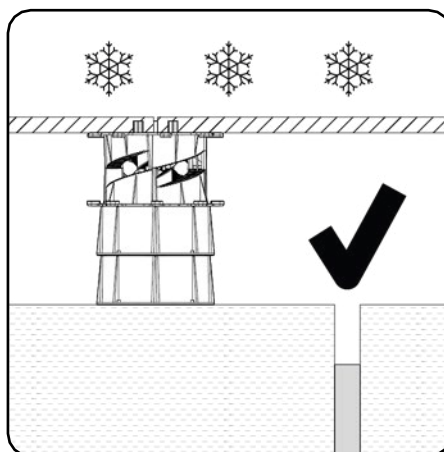
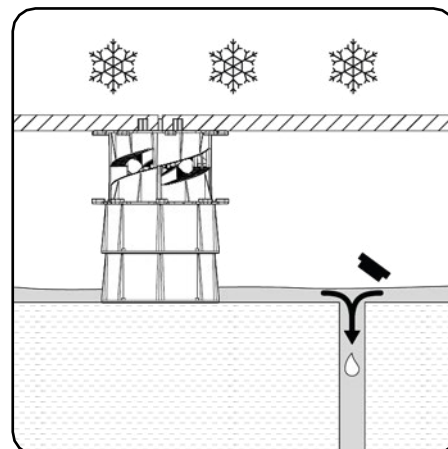
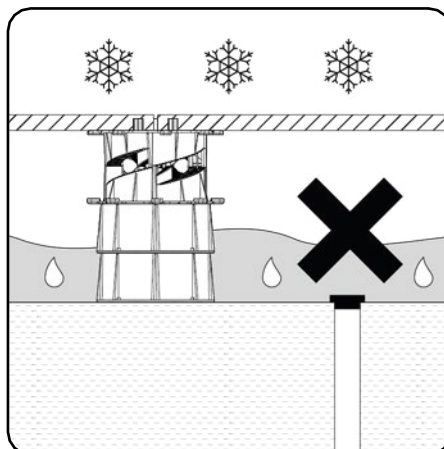


IMPORTANT INFORMATION

BRACKETS IN WATER

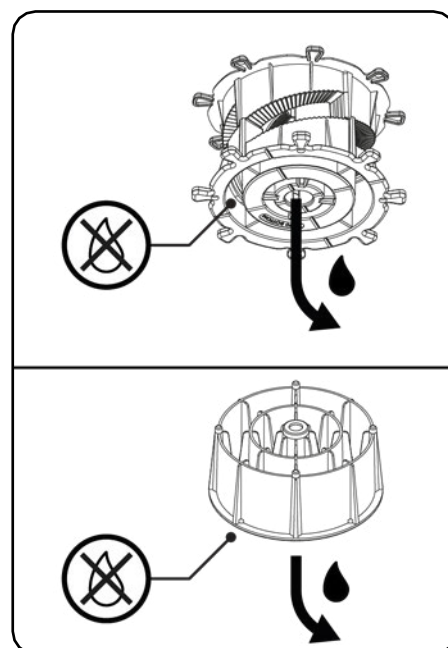
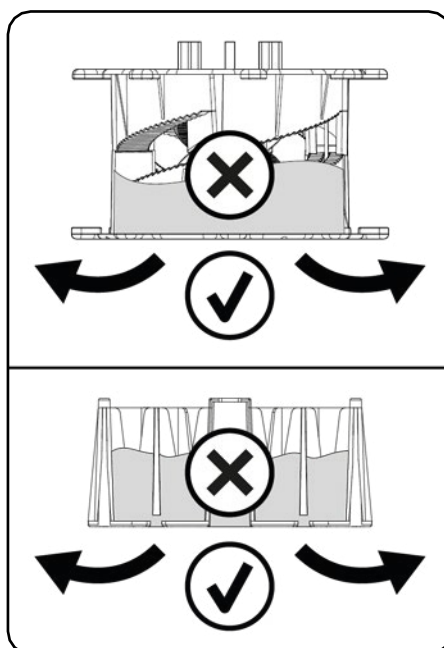
Brackets in Water

If the brackets are submerged in water (e.g., in a fountain), the water must be drained before the first frost.



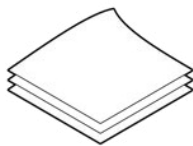
Water in the Bracket

The brackets are equipped with a drainage system. There is no need to drill additional holes to drain water from the tank during the winter.

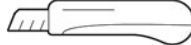


CUTTING THE SLABS

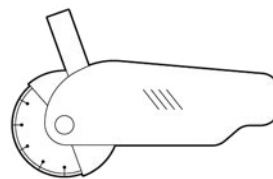
You will need:



cardboard



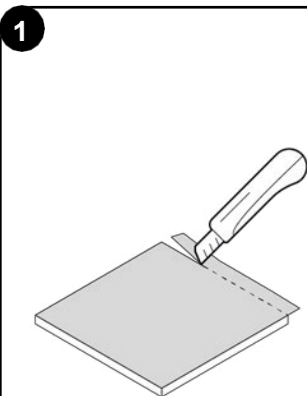
knife



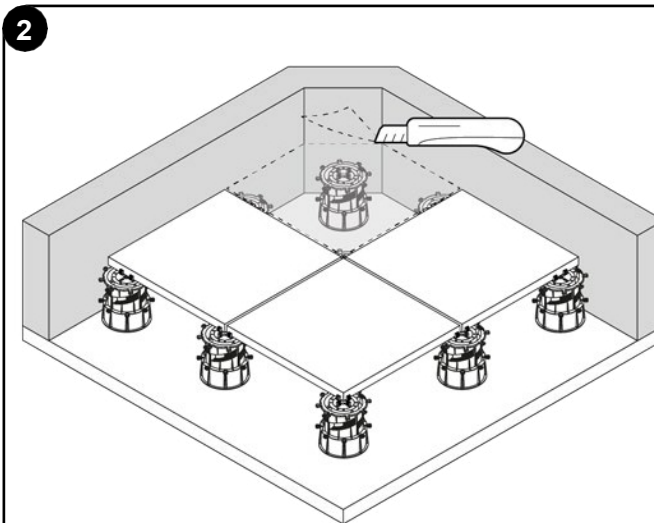
cutter



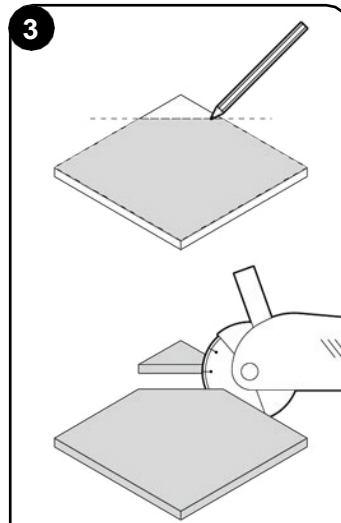
pencil



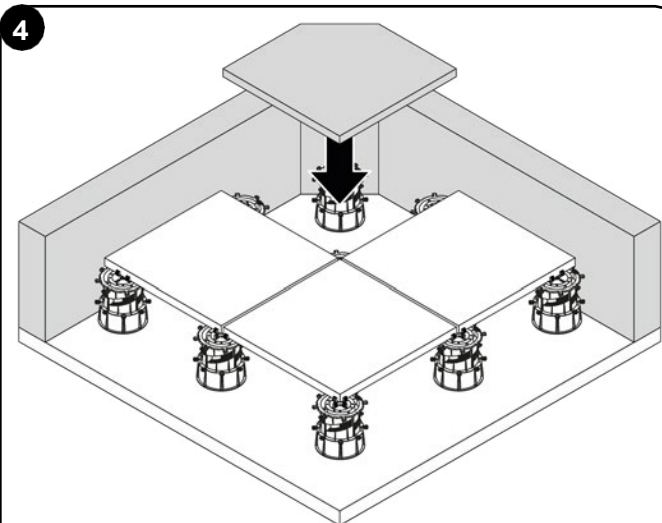
1. Cut out the shape of the entire board from the cardboard.



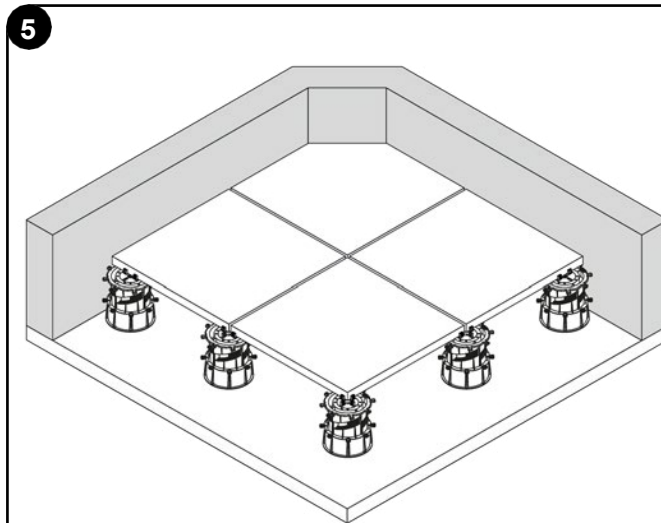
2. Hold the cardboard up against the spot where the panel will be placed and trace the outline.



3. Trace the cardboard template onto the panel and cut it to the desired shape.



4. Place the panel on the supports.



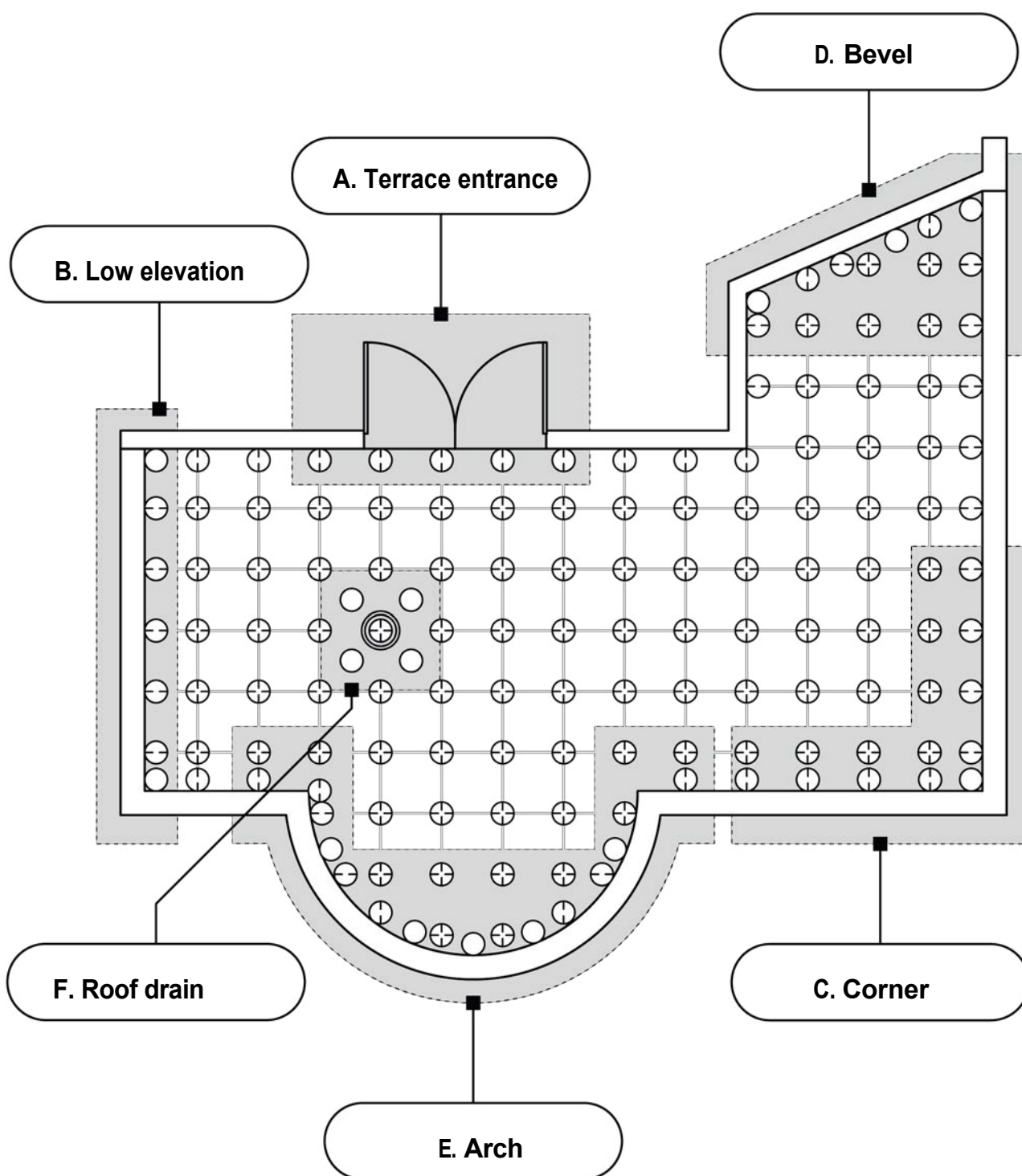
5. Check the stability of the structure you've built.

PROPER PLACEMENT OF BRACKETS

PLAN

▼ Planning the Structure

The first step is to measure the deck carefully to avoid having to cut the decking boards at awkward angles along the edges. Draw up a layout plan for the supports, taking the dimensions of the decking boards into account. A string line is helpful for drawing straight lines.

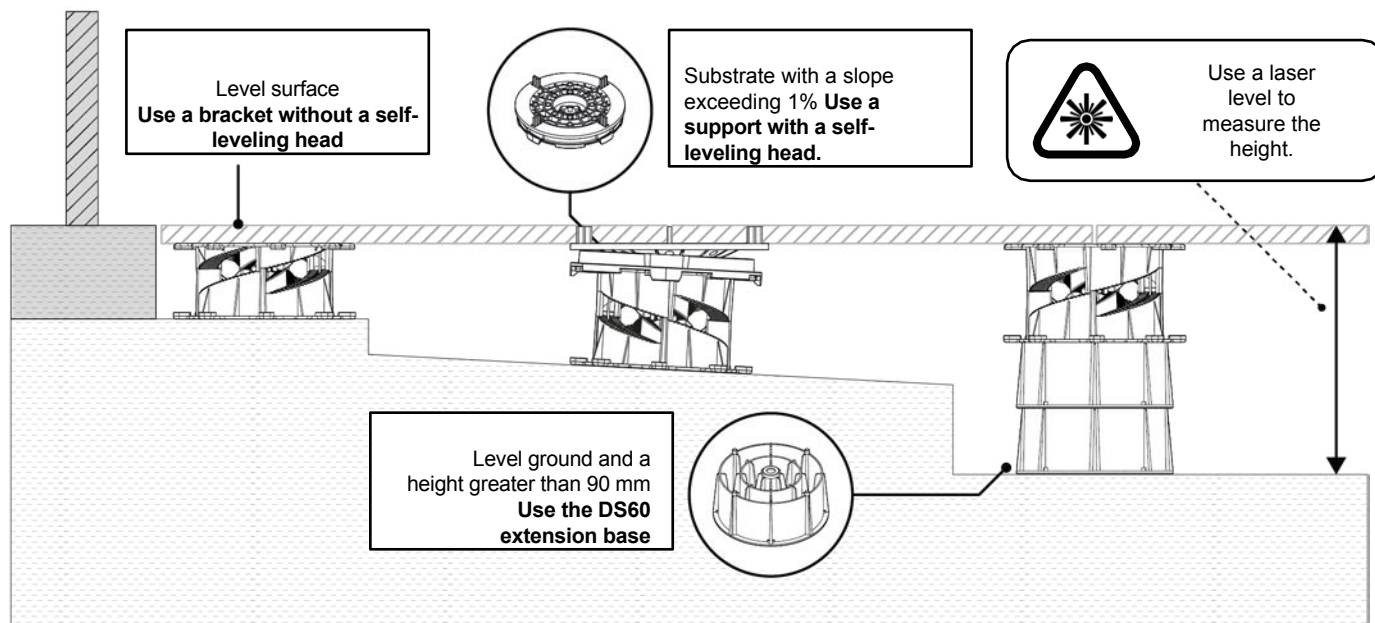


PROPER PLACEMENT OF BRACKETS

HEIGHTS

▼ Determining the working height of the deck

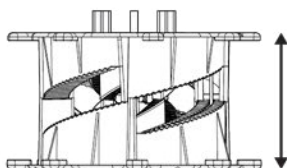
Properly determining the terrace's geometry is very important and determines how it will be constructed later. Accurately determine the heights of the SPIRAL supports needed for installing the terrace, taking into account the thickness of the terrace tiles. A laser level is useful for accurately measuring the height.



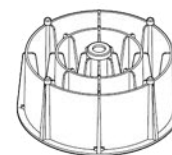
▼ Height ranges

When planning your deck installation, keep in mind that the height range of the brackets is 10–210 mm.

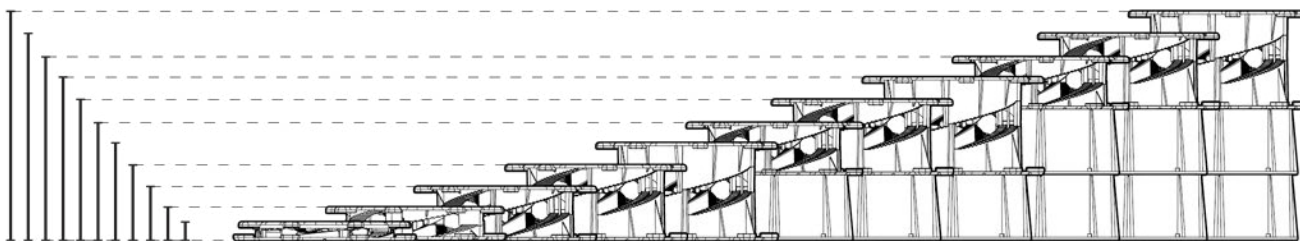
Stepped bracket adjustment



Extension base



Various height ranges



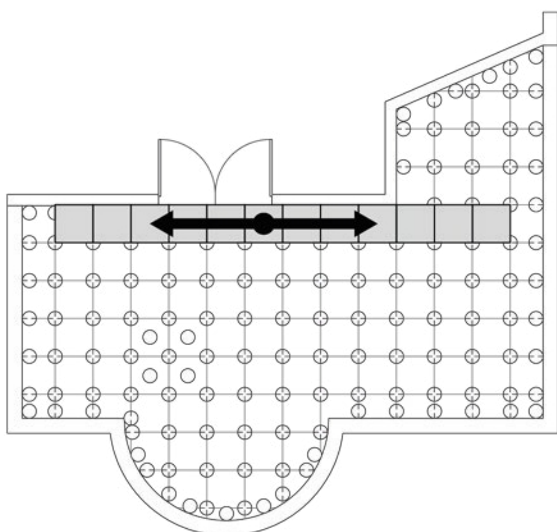
PROPER PLACEMENT OF BRACKETS

STARTING THE LAYING PROCESS

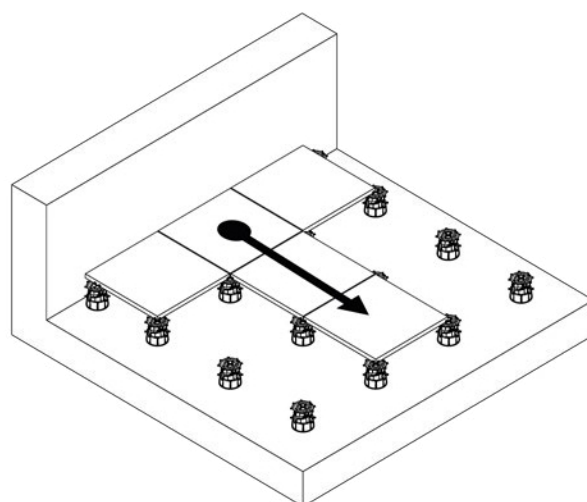
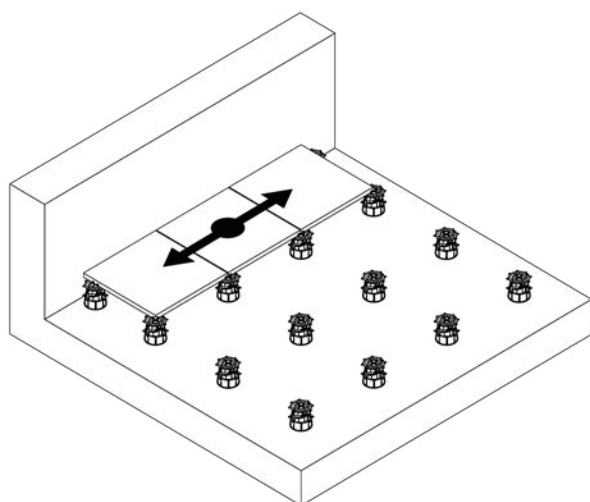
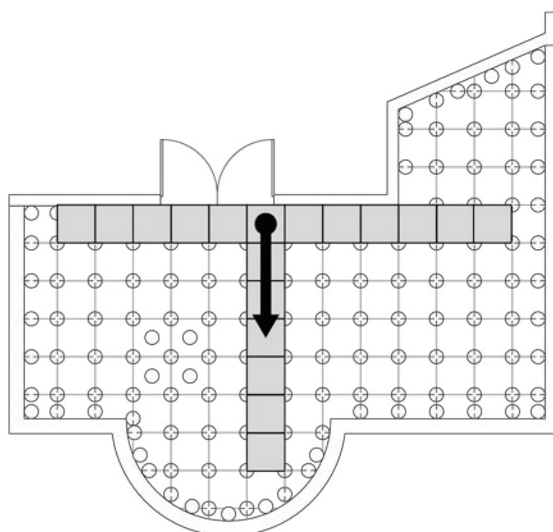
▼ Determining the starting point

Lay out the first row of slabs according to the design. Start by laying only full-size slabs. Next, lay out a perpendicular row of slabs; this row should be roughly in the center of the deck. Continue laying slabs to fill the entire deck area up to the edge boundaries. Measure the deck carefully to avoid having to make small, awkward cuts along the deck's edges.

1



2

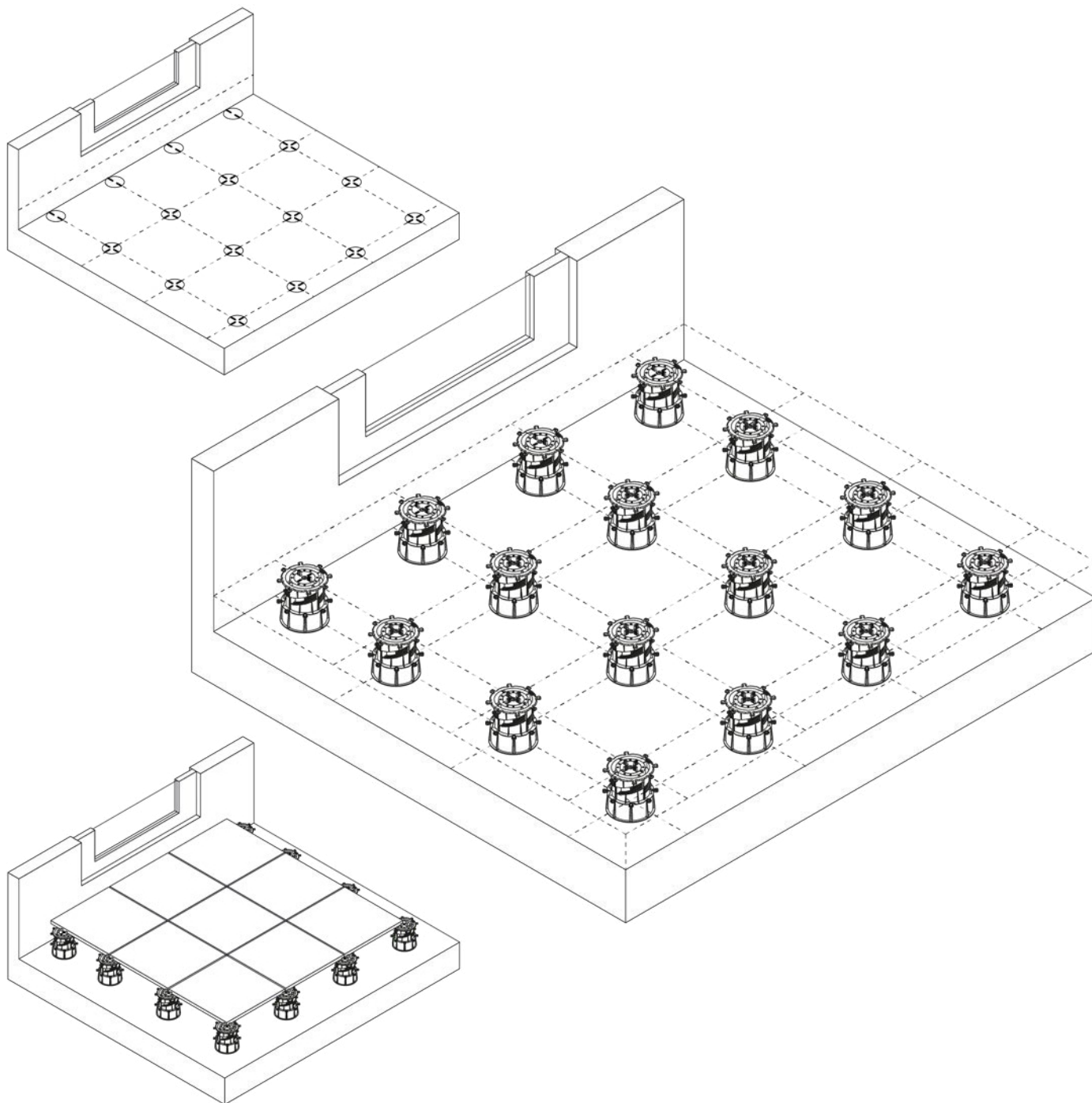


PROPER PLACEMENT OF BRACKETS

A. TERRACE ENTRANCE

▼ Determining the Terrace Height

The terrace entrance is usually the point of reference for determining the height of a ventilated terrace. A height properly adjusted relative to the threshold will allow for comfortable transition from the interior to the outdoors. It is recommended that the height difference between the terrace surface and the balcony door threshold not exceed that of a (comfortable) stair step.

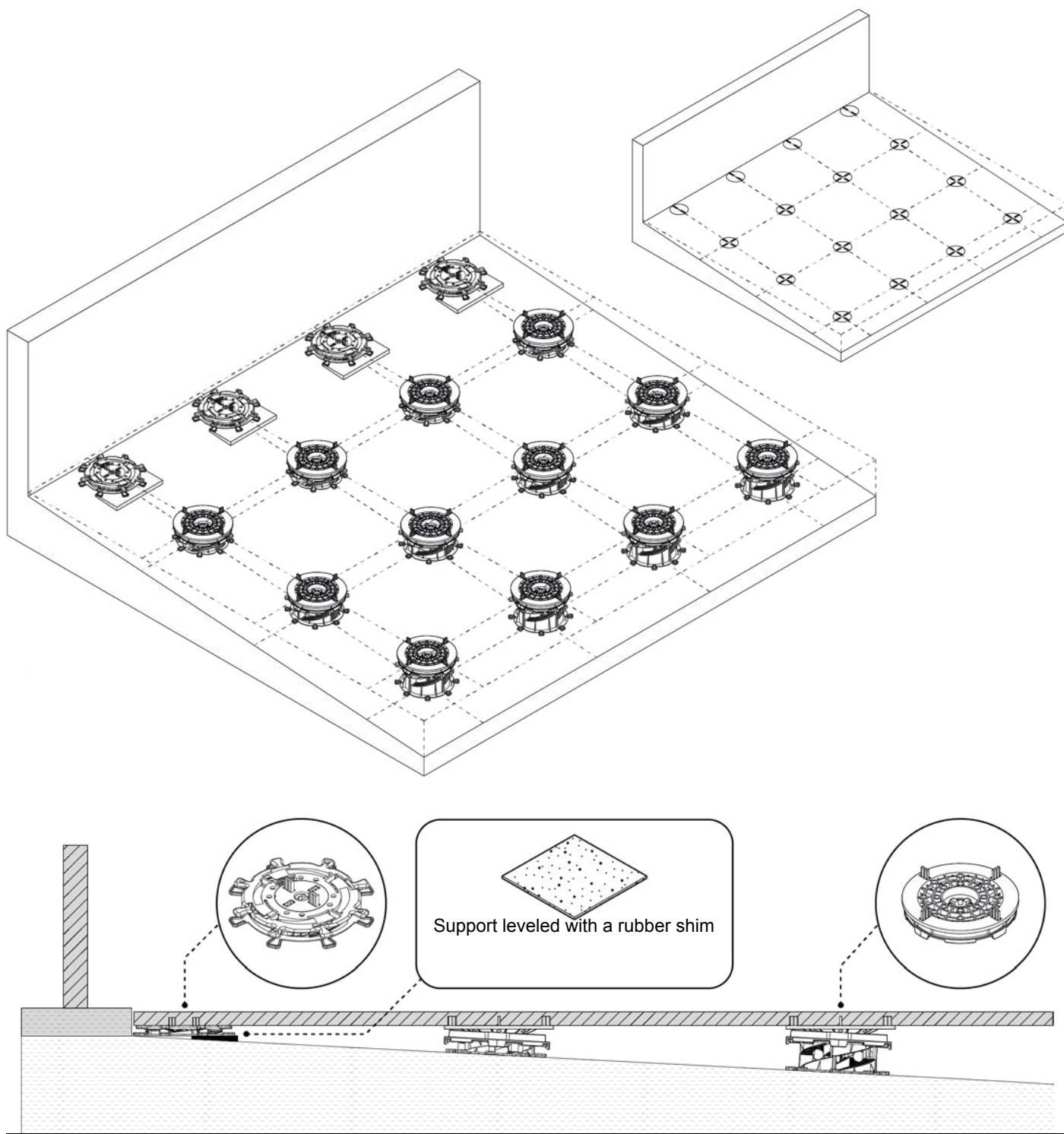


PROPER PLACEMENT OF BRACKETS

B. LOW HEIGHTS ON THE TERRACE

▼ Low Height – Selecting Supports

If the ventilated terrace has a slope starting from “zero,” use SPIRAL series terrace supports with an adjustment range of 10 to 50 mm, fixed-height bases (for terrace slabs), or general-purpose rubber construction shims (for terrace joists). If necessary, SOLVER supports can be leveled by placing general-purpose rubber shims on one side underneath them.

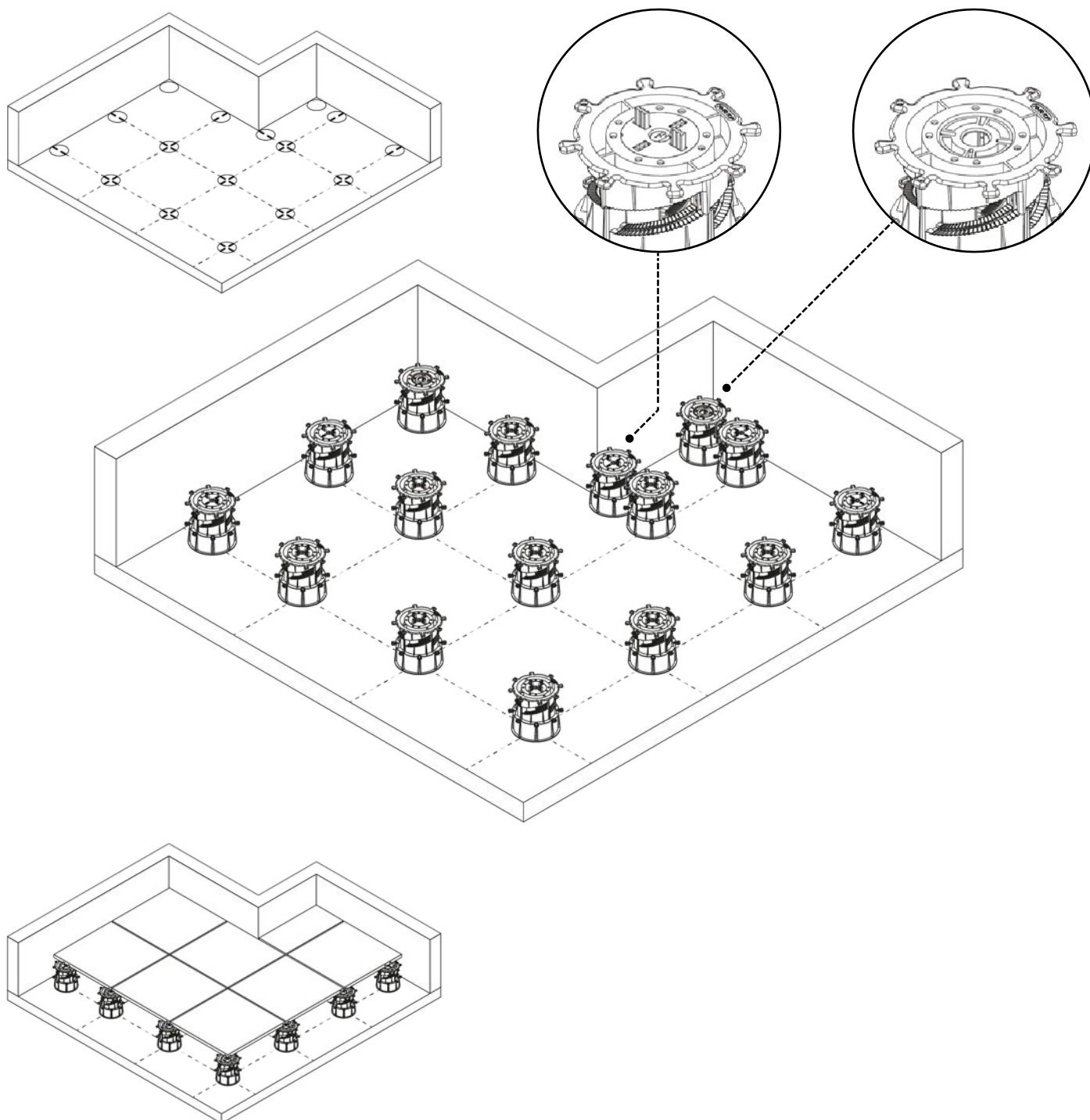


PROPER PLACEMENT OF BRACKETS

C. CORNERS

▼ Bracket in a corner

A terrace corner requires the use of a SPIRAL corner support—that is, one placed under the slab without any joint spacer. A rectangular slab must be supported at at least 4 points.

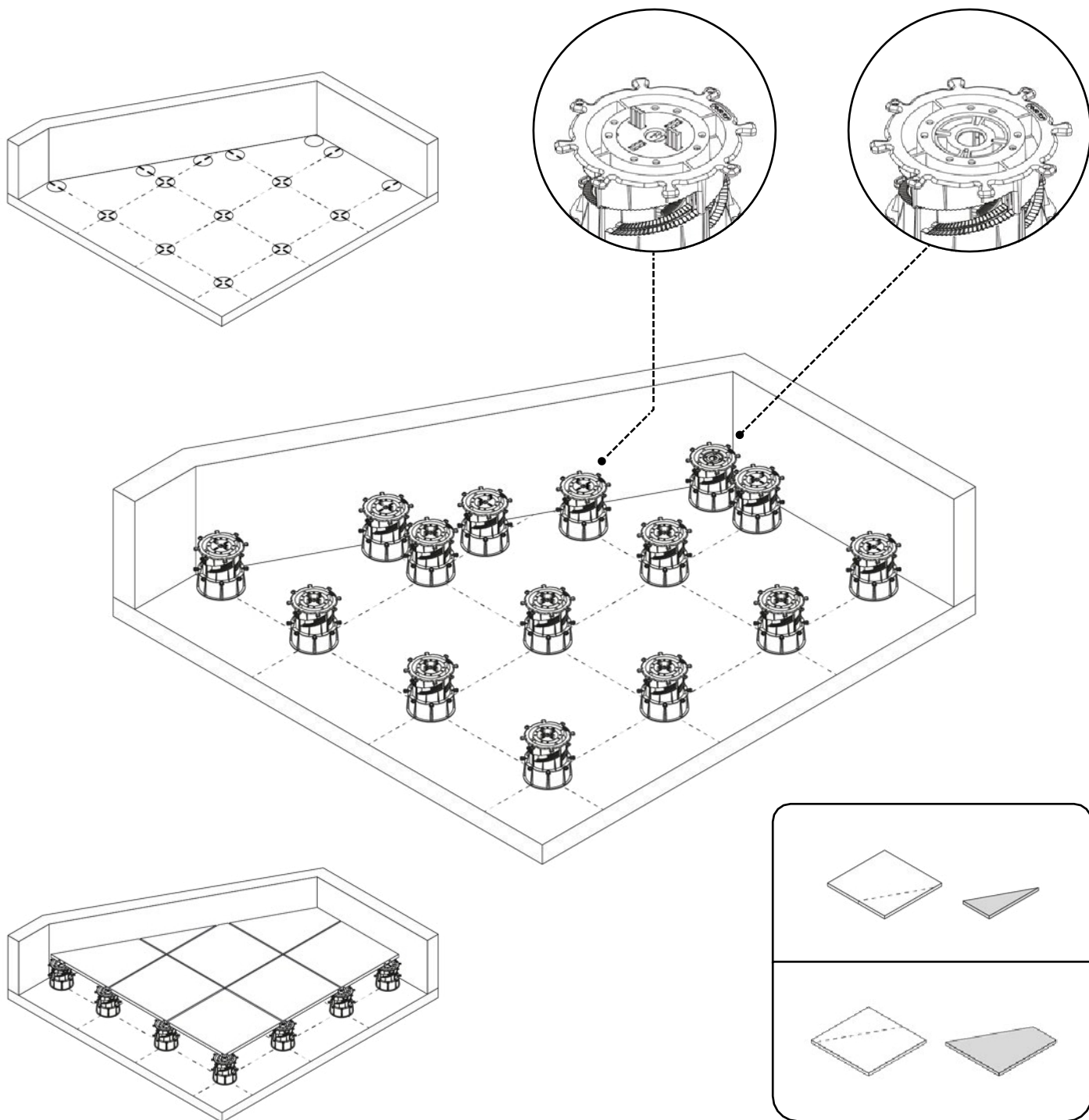


PROPER PLACEMENT OF BRACKETS

D. BEAM

▼ Densification and cutting of supports

Diagonal lines require cutting terrace slabs into trapezoids or triangles. This requires a non-standard arrangement of SPIRAL supports and proper fitting of the slabs. The sizes of the slabs after cutting should be planned at the very beginning of the terrace installation. A triangular slab must be supported at least at 3 points.

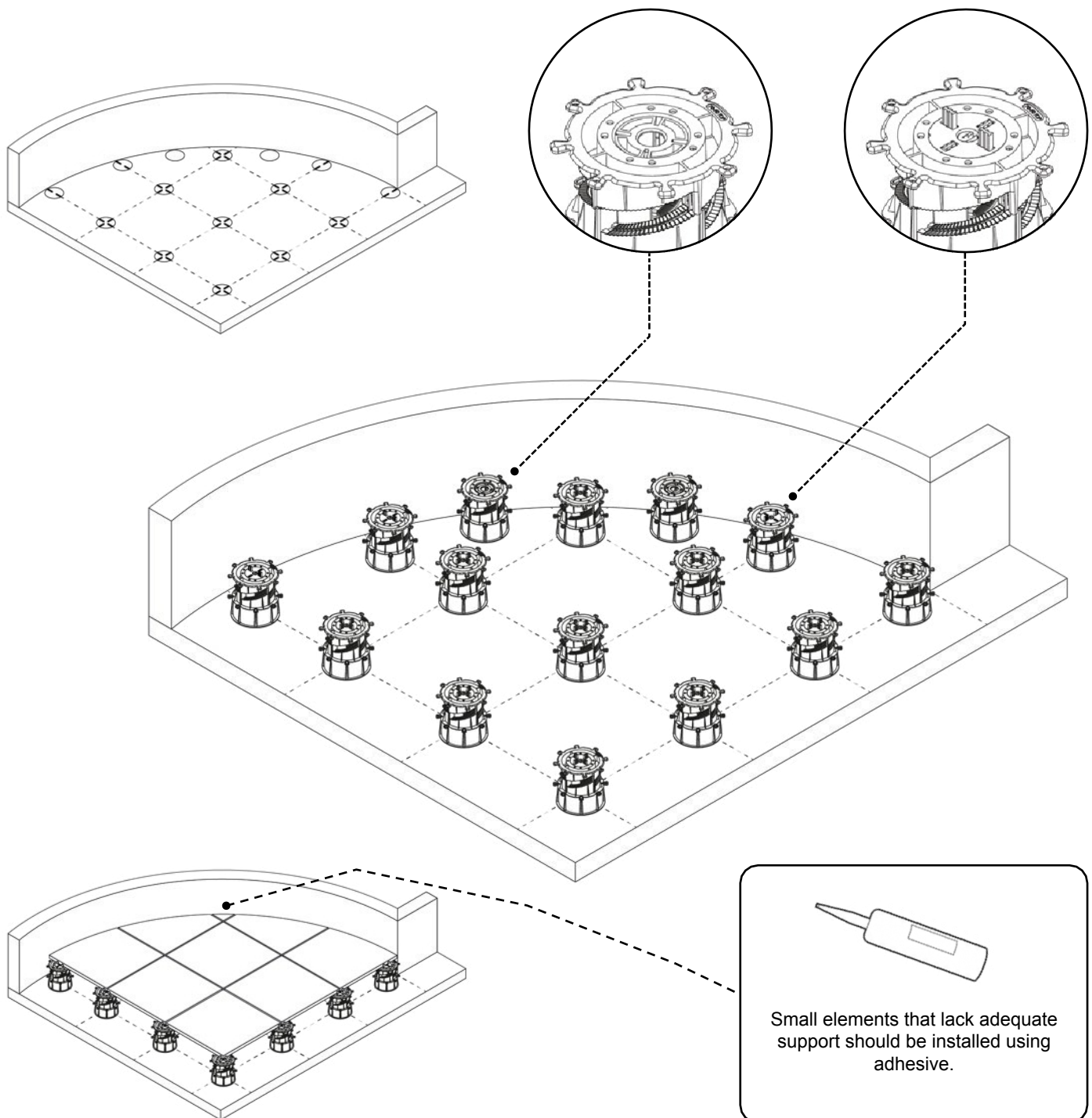


PROPER PLACEMENT OF BRACKETS

E. ARC

▼ Cutting Brackets and Slabs

Every deck has its own unique geometry. Decks often feature curved parapet walls. In such cases, the placement of SPIRAL supports and the cutting of slabs will require greater precision and a higher density of SPIRAL supports. Cutting slabs to fit an arch should be planned at the very beginning of the deck installation process. Use as many supports as necessary so that the cut slabs rest stably on the supports.

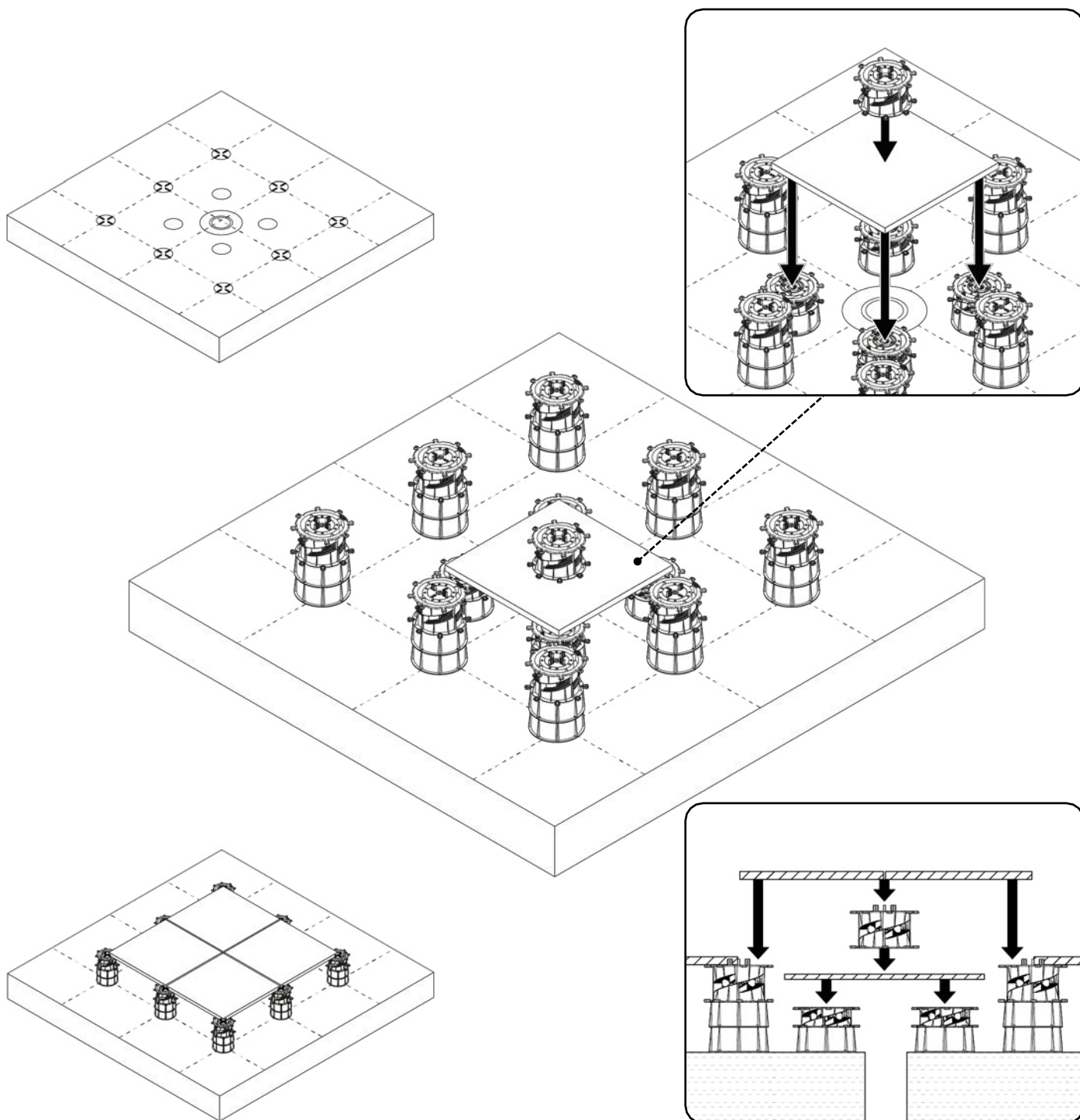


PROPER PLACEMENT OF BRACKETS

F. ROOF DRAIN

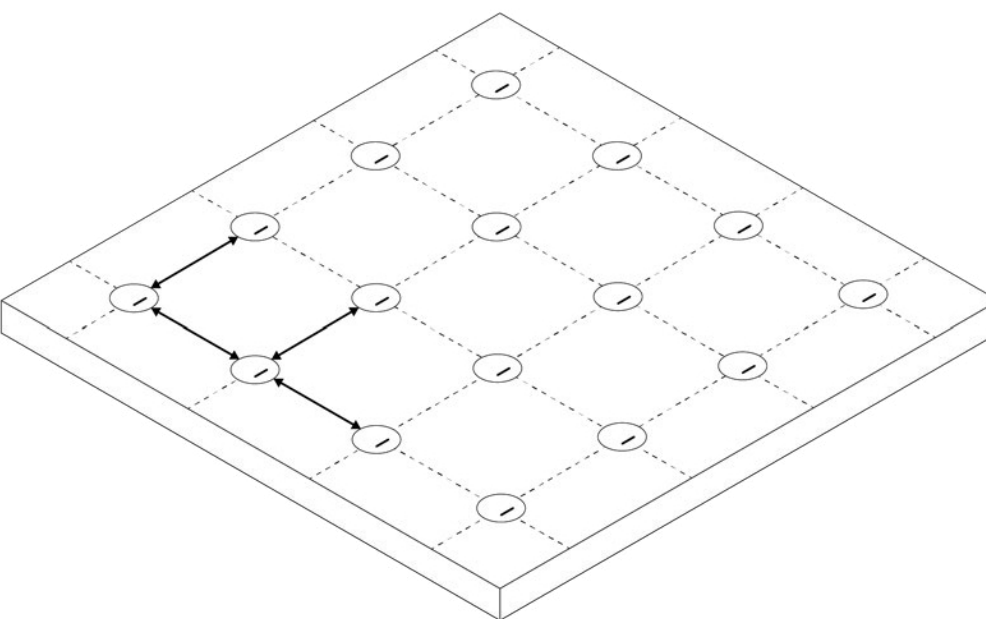
▼ Positioning the Bridge

The roof drain is typically located at the lowest point of the terrace. Due to the drain basket, SPIRAL brackets cannot be installed directly on top of the drain. Instead, install the SPIRAL supports next to the roof drain, with a panel placed on top of them, on which the target SPIRAL support for the terrace panels is positioned.



INSTALLATION OF JOISTS

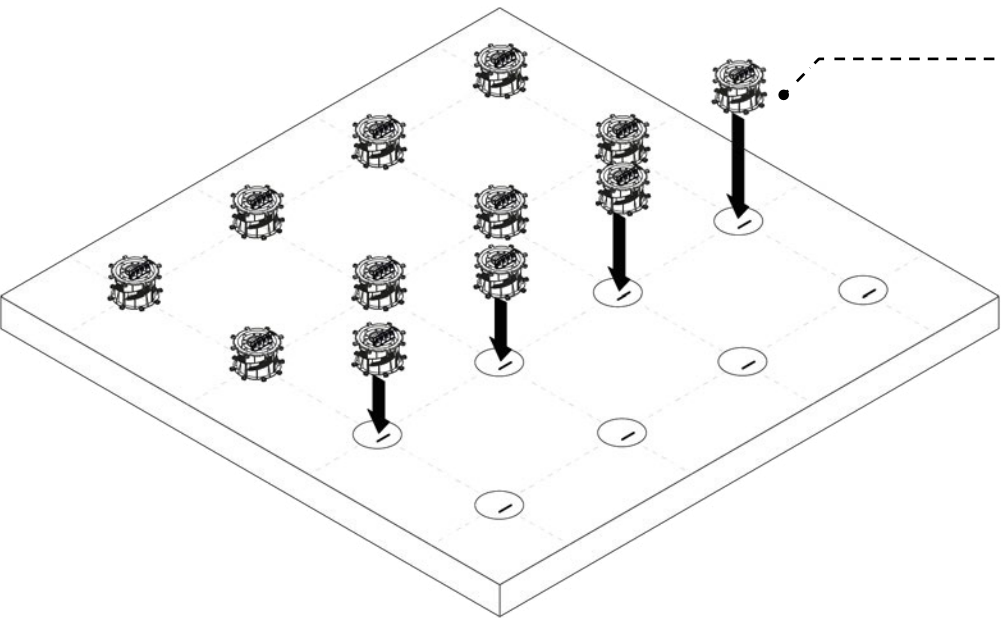
1



Use a denser spacing for thin joists or less stable subfloors (e.g., Styrodur), and a sparser spacing for thick joists and solid subfloors.

1. Develop a plan for the placement of the brackets, paying particular attention to areas such as corners, thresholds, and doors. The spacing of the brackets depends on the joist cross-section and the weight of the deck. A string line is helpful when drawing straight lines.

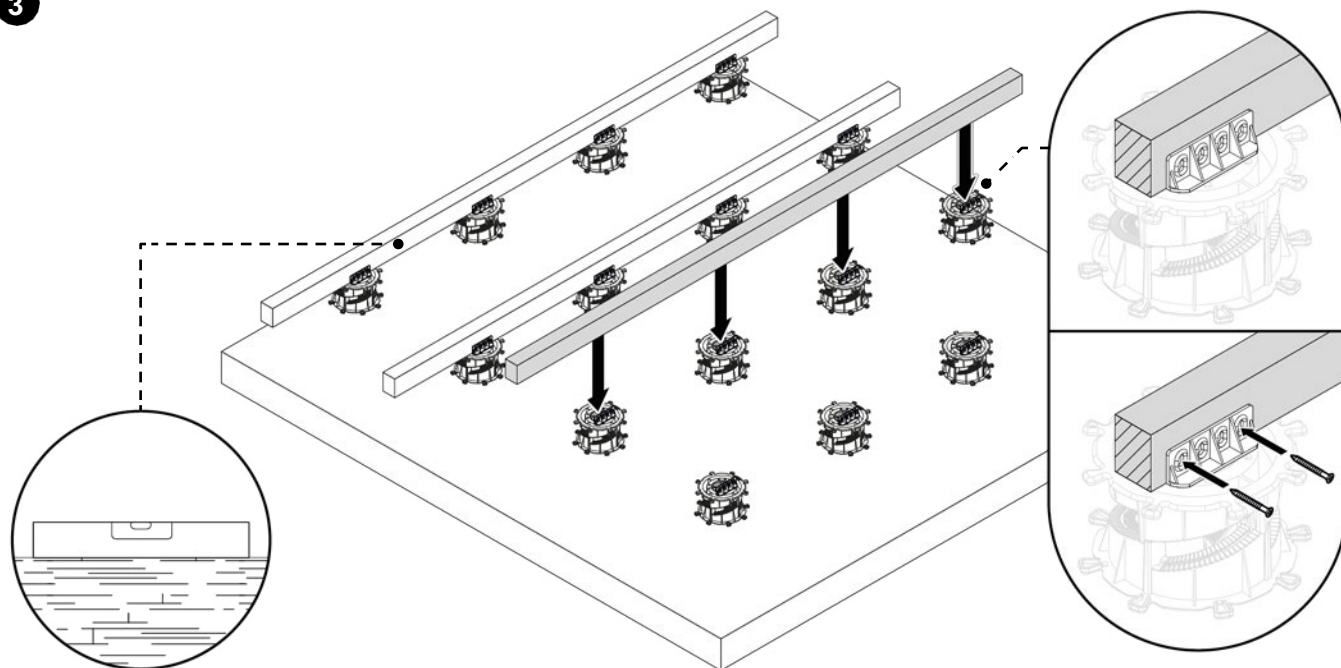
2



2. Prepare the brackets by inserting the joist adapters into the screws. Space the brackets at the appropriate locations. If the subfloor is not level, use brackets with adjustable bases.

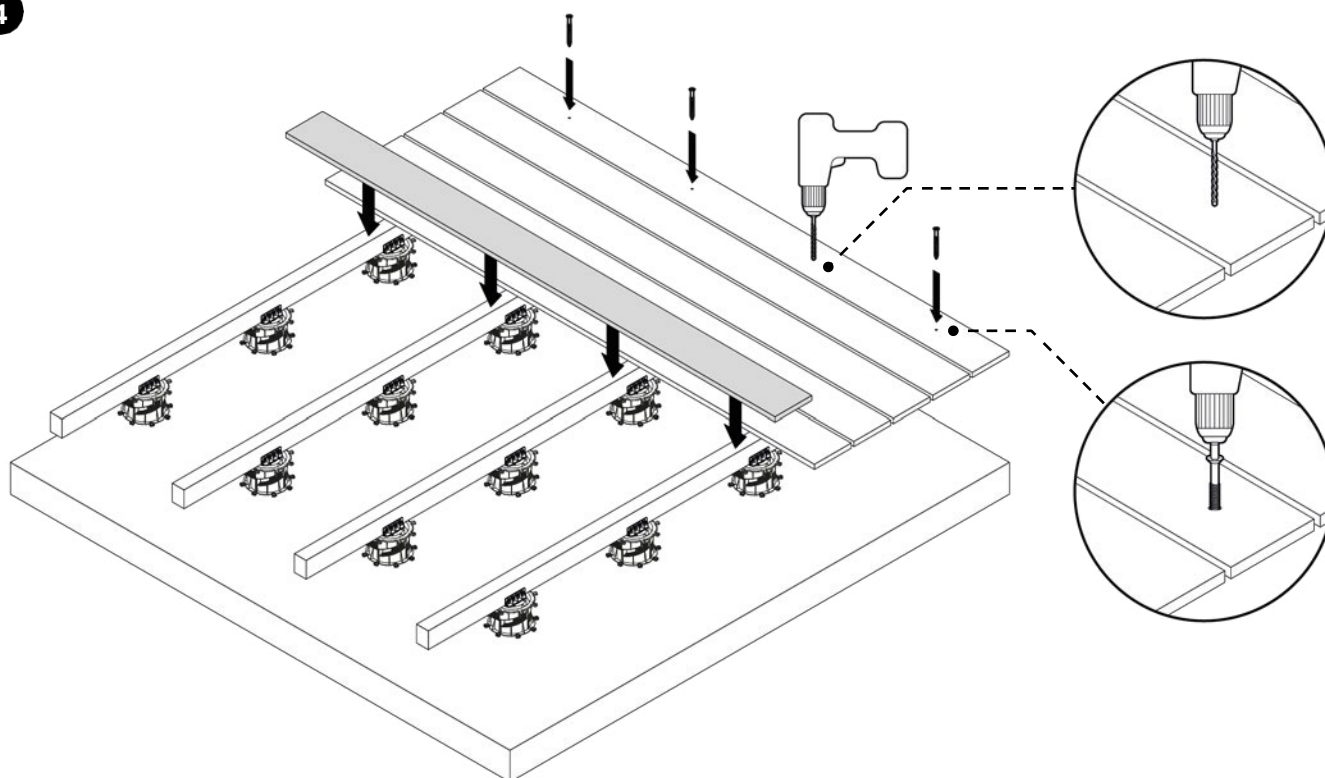
INSTALLATION OF JOISTS

3



3. Place the joists on the brackets and level them. Use the nuts to adjust the brackets to the correct height. Secure the joists to the adapters with screws.

4



4. Place the boards on the joists. Secure them using screws or deck fasteners.

WARRANTY

Under the Warranty, SOLVER Sp. z o.o. guarantees to the Buyer that the product is of good quality and complies with the technical specifications, and for which a Warranty Card has been issued. The warranty for SOLVER ADJUSTABLE DECK SUPPORTS (hereinafter referred to as "SOLVER" or "Product") is granted pursuant to Article 577 of the Civil Code, under the terms and conditions described below. The warranty is valid only with proof of purchase. The warranty terms and conditions in effect as of the date the Product was delivered to the Buyer apply.

1. DEFINITIONS

- a. Guarantor – SOLVER Sp. z o.o., entered in the Register of Entrepreneurs at the District Court for Gdańsk-Północ in Gdańsk, 7th Commercial Division of the National Court Register, under KRS number 0000241286, REGON 191118644, NIP 584-11-83-361, (hereinafter referred to as "SOLVER" or "Guarantor").
- b. Warranty Card—a document issued by the Guarantor together with the Goods, confirming that SOLVER-SYSTEMS has provided a warranty for those Goods. The Warranty Card constitutes an integral part of the SOLVER-SYSTEMS Product Warranty.
- c. Warranty—these terms and conditions of SOLVER-SYSTEMS' warranty liability for the Goods, constituting an integral part of the Warranty Card.
- d. SOLVER Warranty Beneficiary – the Buyer who purchased SOLVER Goods for which a VAT invoice was issued and a Warranty was provided (hereinafter: "Buyer").
- e. Product Covered by the Warranty—the SOLVER product specified in detail in Section 2 of the Warranty, subject to the terms of this Warranty.
- f. Proof of Purchase: a VAT invoice confirming the Buyer's purchase of the SOLVER Product.
- g. Date of purchase: the date on which SOLVER-SYSTEMS issued the proof of purchase.

2. PRODUCT COVERED BY THE WARRANTY

The product covered by this Warranty is the SOLVER ADJUSTABLE DECK SUPPORTS, for which the Buyer has received a Warranty Card and for which the Buyer has made full, 100% payment.

3. SCOPE OF THE WARRANTY

- a. The Guarantor provides the Warranty for the Goods as specified in Section 2 of the Warranty, as listed on the VAT invoice serving as proof of sale to the Buyer.
- b. The warranty for the Goods will be provided by SOLVER-SYSTEMS provided that full payment has been made for the VAT invoice issued for the Goods.
- c. The warranty is valid only with proof of purchase in the form of a VAT invoice.
- d. The warranty period begins upon delivery of the Goods to the Buyer.
- e. The Guarantor guarantees that SOLVER products purchased by the Buyer, installed (if their installation was not performed by the Guarantor), and used in accordance with good building practices, the user and installation instructions, the technical specifications, and the declaration of performance, will retain their functional properties, as described in the product's Technical Specifications and in the Declaration of Performance, during the warranty period.
- f. The quality warranty covers only defects in the Goods arising from causes existing in them at the time of delivery, which have not been expressly excluded in the text of the Warranty or in any other document issued by SOLVER Sp. z o.o.
- g. Finished products must be stored and transported in accordance with the Guarantor's Instructions, in a manner that ensures their technical and physical properties remain unchanged.
- h. The warranty does not cover:
 - any mechanical damage to the Goods caused by the Buyer, - defects in the Goods arising from causes beyond DECK-DRY's control,
 - defects arising from improper transport or storage by the Buyer or third parties (if transport or storage was not performed by the Guarantor),
 - defects resulting from the installation or use of the Goods contrary to their intended purpose and the conditions set forth in the Detailed Technical Specification, User Manual, and in accordance with good building practices and/or applicable standards,
 - defects resulting from improper preparation of the substrate and the installation process of the Goods (if not performed by the Guarantor),
 - defects resulting from structural defects in the building in which the Goods were installed,
 - defects resulting from the structural design of the building, causing deformations, loads, or damage to the Product that exceed its parameters specified in the Technical Specification,
 - defects arising after delivery of the Goods as a result of actions by the Buyer or third parties (if installation, transport, or storage were not performed by the Guarantor),
 - defects resulting from mechanical, chemical, or thermal damage to the Goods,
 - defects resulting from natural disasters or other force majeure events,
 - changes resulting from natural wear and tear due to normal use of the Goods, causing deformation, cracks, discoloration, and static electricity.
- i. Apart from the rights arising from the Warranty, SOLVER-SYSTEMS assumes no other liability for defects in the Goods.

4. WARRANTY PERIOD

- a. Unless otherwise specified in the sales document, the Warranty Period is set forth in the Warranty Card issued to the Buyer by SOLVER-SYSTEMS along with the Product.
- b. The Warranty Period begins on the date of purchase as indicated on the proof of purchase and ends on the last day of the Warranty Period specified in the Warranty Card.

5. EXERCISING WARRANTY RIGHTS

WARRANTY

- a. The Buyer's rights under the Warranty may be exercised only upon presentation to SOLVER-SYSTEMS of the Warranty Card, signed and stamped by SOLVER-SYSTEMS, along with the VAT purchase invoice. The absence of any of the documents described above prevents the Buyer from filing a valid warranty claim.
- b. THE WARRANTY does not relieve SOLVER-SYSTEMS of liability for the proper quality of the products, nor does it relieve contractors of liability for their proper application

6. COMPLAINT PROCEDURE

- a. A valid complaint may only be filed by the Buyer or their representative (Distributor), who must submit, along with the complaint, a detailed description of: the defect, the type of Product, the date of purchase, the date of installation, and the date the defect was discovered, as well as photographs of the defect, its extent, the Warranty Card signed by SOLVER-SYSTEMS, and proof of purchase of the Product.
- b. The complaint form must be sent to tosales@solver-systems.com, the Guarantor's registered office, in writing or via email to the address provided below, along with the attached documents referred to in Section 6.a. of the Warranty.
- c. It is essential to verify the condition of the goods upon receipt.
- d. The complaint must be sent to the mailing address of **SOLVER Sp. z o.o., ul. Wenus 73a, 80-299 Gdańsk, POLAND**, immediately upon discovering a defect in the Goods; here, "immediately" means, for defects that would be visible to the "naked eye" at the time of the Buyer's receipt of the Goods, a period of - 3 business days, and for defects that became apparent in the Goods after the date of their receipt—7 business days.
- e. The Buyer filing a complaint is required to send the Goods subject to the complaint to the Guarantor or to allow SOLVER-SYSTEMS to inspect the Goods (depending on the Guarantor's decision in this matter) at the location where they are installed or stored, or to conduct a technical examination of the Goods and collect the necessary number of samples for testing, which will allow SOLVER-SYSTEMS to verify the validity of the Buyer's complaint.
- f. If the Buyer submits a complaint in the proper manner and SOLVER-SYSTEMS confirms the existence of a defect covered by the Warranty, SOLVER-SYSTEMS undertakes to deliver Goods free from defects.
- g. The Buyer will be notified of the delivery date for the defect-free Goods in writing, by email, or by phone.
- h. If it is not possible to deliver the Goods covered by the Warranty, the Warrantor reserves the right to deliver a replacement with specifications that are as close as possible (and no worse) to those of the original Goods.
- i. SOLVER-SYSTEMS will inform the Buyer of its decision regarding the validity of the complaint within 21 days from the date the Buyer properly submits the complaint. Any delivery of the Goods will be made by SOLVER-SYSTEMS without undue delay, on the date of which the Buyer will be informed.
- j. SOLVER-SYSTEMS reserves the right to extend the delivery deadline for the Goods by the period during which SOLVER-SYSTEMS, for reasons beyond its control, is unable to fulfill the Buyer's complaint claims.
- k. In the event of an unjustified complaint, the Buyer is obligated to reimburse SOLVER-SYSTEMS for the costs of inspecting the Goods subject to the complaint, in particular: travel expenses incurred by SOLVER-SYSTEMS Representatives to the location where the inspection of the Goods subject to the complaint took place (including transportation, lodging, and meal expenses for these Representatives of the Guarantor), the costs of inspecting and testing samples of the Goods subject to the complaint, the costs of conducting a technical expert assessment, the costs of correspondence, and any costs associated with the transportation of the Goods.

7. STORAGE AND TRANSPORT OF MATERIAL

- a. Purchased Goods must be stored under appropriate conditions to prevent their destruction and/or damage.
- b. Goods are delivered in individual or bulk packaging designed to protect them from mechanical damage / deformation, etc.

8. FINAL PROVISIONS

- a. This warranty is provided in accordance with Polish law; to the extent not covered by this warranty, the provisions of the Polish Civil Code shall apply in particular.



www.solver-systems.com
service@solver-systems.com

SOLVER.